United States
Department of
Agriculture

Forest Service

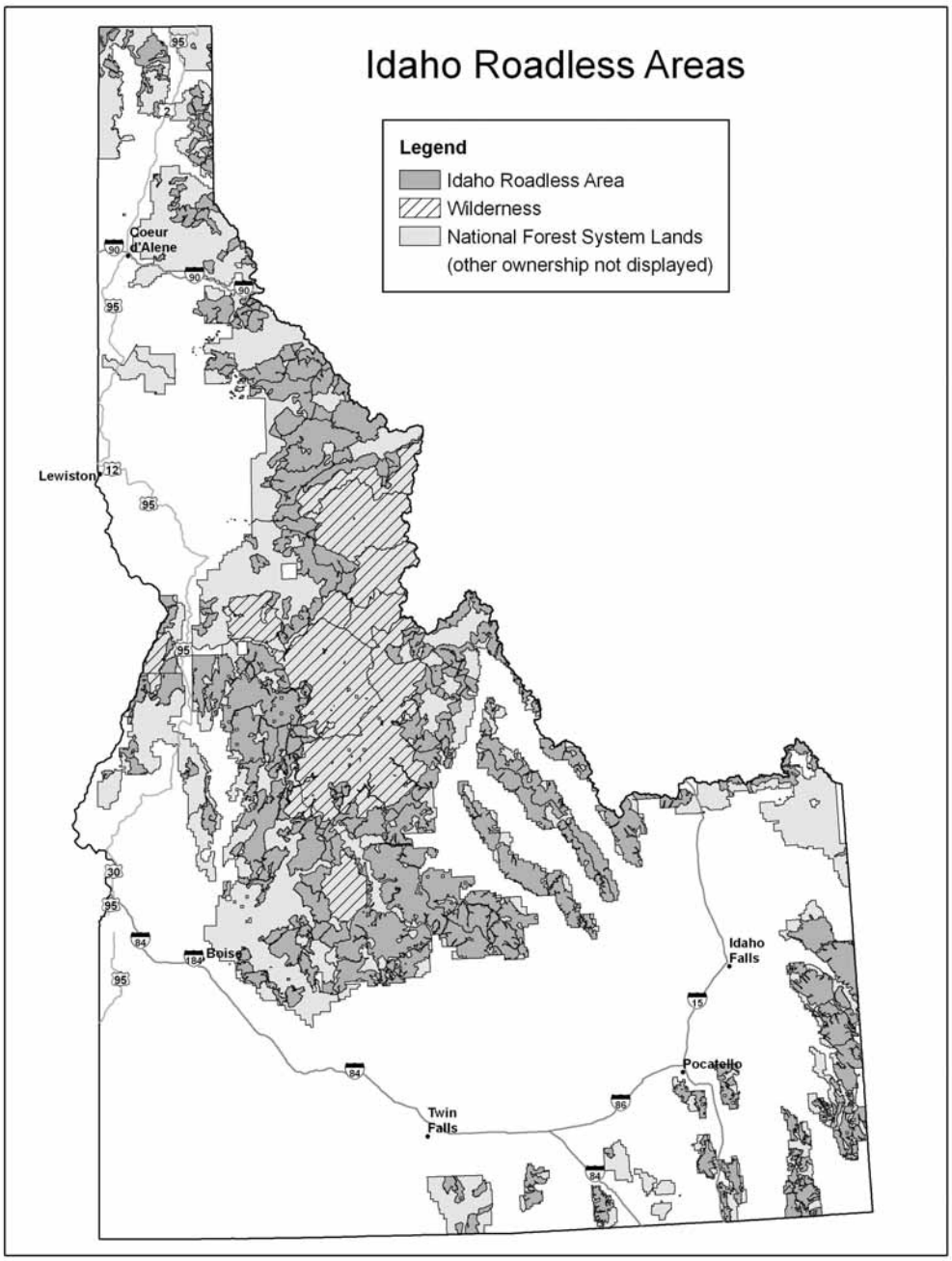
Idaho
National Forests

August 2008

Roadless Area Conservation

National Forest System Lands in Idaho

Final Environmental Impact Statement



ROADLESS AREA CONSERVATION
NATIONAL FOREST SYSTEM LANDS IN IDAHO
FINAL ENVIRONMENTAL IMPACT STATEMENT

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Abstract: The U.S. Department of Agriculture, Forest Service, is proposing to promulgate a rule in response to the Idaho State Petition presented by then Governor James Risch on November 29 and 30, 2006, to the Roadless Area Conservation National Advisory Committee. This final environmental impact statement (EIS) discloses the environmental and economic effects of the Proposed Rule. The purpose of the Proposed Idaho Roadless Rule is to provide State-specific direction for the conservation and management of inventoried roadless areas within the State of Idaho. The Proposed Idaho Roadless Rule integrates local management concerns with the national objectives for protecting roadless area values and characteristics. The Proposed Idaho Roadless Rule would designate a system of lands titled Idaho Roadless Areas and would establish five management themes for individual roadless areas: Wild Land Recreation; Primitive; Special Areas of Historic and Tribal Significance; Backcountry / Restoration; and General Forest, Rangeland, and Grassland. The proposed themes span a continuum that includes at one end a restrictive approach emphasizing passive management and natural restoration approaches, and on the other end, active management designed to sustain forests, rangelands, and grasslands. This continuum accounts for stewardship of the uniqueness of each individual roadless area's landscape and the quality of roadless characteristics in that area.

The final EIS evaluates three alternatives in addition to the Proposed Action: management direction for Idaho Roadless Areas provided by the 2001 Roadless Rule, Existing Plans, and a modification of the Proposed Action, the Modified Idaho Roadless Rule. The Modified Rule is the preferred alternative.

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S.1 PROPOSED ACTION (IDAHO ROADLESS RULE)

The Forest Service is proposing to promulgate a State-specific rule in response to the Idaho State Petition presented by Governor James Risch on November 29 and 30, 2006, to the Roadless Area Conservation National Advisory Committee (RACNAC). The Proposed Idaho Roadless Rule would designate a system of lands called Idaho Roadless Areas and establish five management area themes for individual roadless areas: Wild Land Recreation; Primitive; Special Areas of Historic and Tribal Significance; Backcountry / Restoration; and General Forest, Rangeland, and Grassland. The proposed themes span a continuum (fig. S-1) that includes at one end a restrictive approach emphasizing passive management and natural restoration approaches, and on the other end, active management designed to sustain forest, rangeland, and grassland management. This continuum accounts for stewardship of the uniqueness of each individual roadless area's landscape and the quality of roadless characteristics in that area.

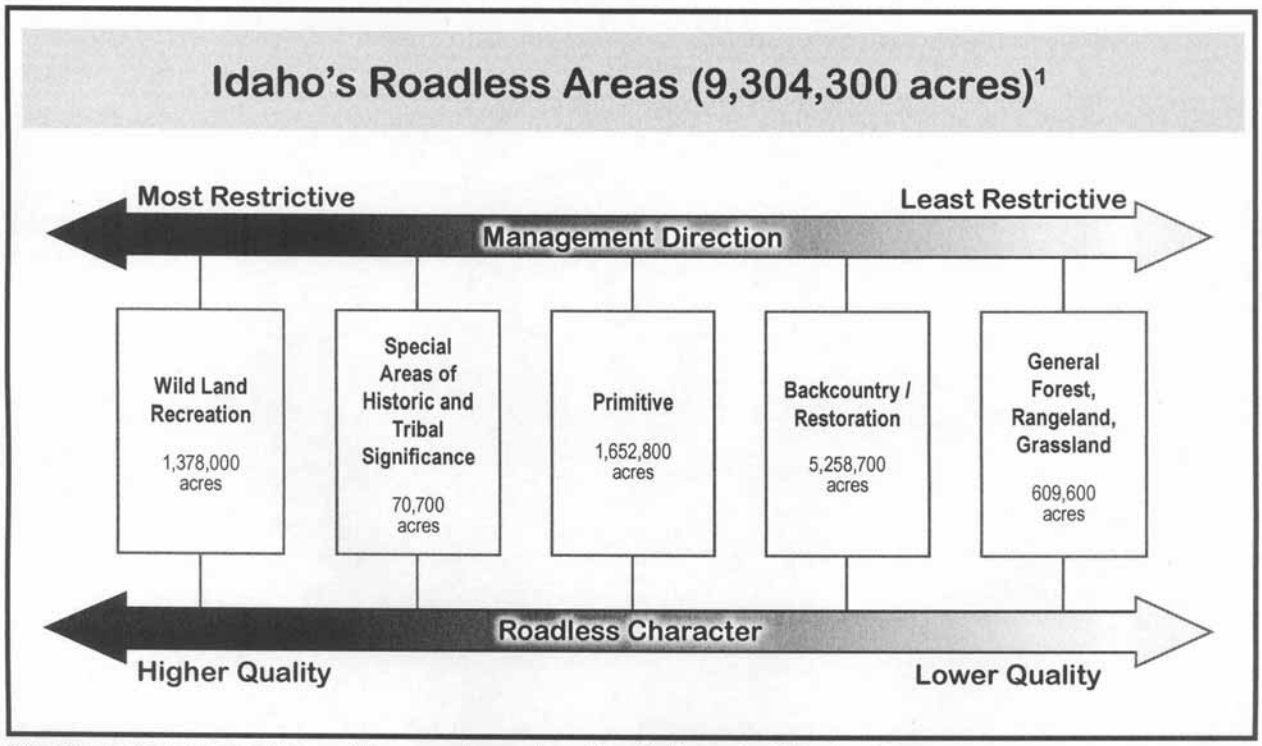

Figure S-1. Idaho Roadless Rule Continuum

Allocation to a specific theme is not intended to mandate or direct the Forest Service to propose or implement any action; rather, the themes provide an array of permitted and prohibited activities regarding:

- Timber cutting, sale, or removal;
- Road construction and reconstruction;
- Mineral activities.

The Proposed Action also provides for the ability to accommodate necessary corrections and modifications in the future.

S.2 Purpose of and Need for Action

The purpose of the Proposed Idaho Roadless Rule is to respond to the State's Petition to provide State-specific direction for the conservation and management of inventoried roadless areas within the State of Idaho. The Proposed Idaho Roadless Rule integrates local management concerns with the national objectives for protecting roadless area values and characteristics.

The management direction is based on individual roadless characteristics for lands (1) containing outstanding or unique features, where there is minimal or no evidence of human use; (2) containing culturally significant areas; (3) containing general roadless characteristics, where human uses may or may not be more apparent; and (4) displaying high levels of human use, while:

- Protecting communities, homes, and property from the risk of severe wildfire or other risks existing on adjacent Federal lands;
- Protecting forests from the negative effects of severe wildfire and insect and disease outbreaks; or
- Protecting access to property, by ensuring that States, Tribes, and citizens owning property within roadless areas have access to that property as required by existing laws.

The Secretary, aware of the long, unresolved debates over the management of inventoried roadless areas in the absence of wilderness legislation for the State of Idaho, considered the State's Petition, the advice and recommendations of the RACNAC, and associated public comments; the Secretary determined that there is a need to consider regulatory direction for roadless area management specific to the State of Idaho.

S.3 Public Involvement

A notice of intent to prepare an EIS on Roadless Area Conservation; National Forest System Lands in Idaho was published in the *Federal Register*, April 10, 2007 (68, FR 17816). About 38,000 comments were received, of which 32,000 were form letters[1], while the remaining letters consisted of original responses or form letters with additional original text.

The 90-day comment period on the draft EIS started December 21, 2007, with the publication of the notice of availability in the *Federal Register*, 72 FR 72708. The published comment period was to end on March 13, 2008. The Proposed Rule was published in the *Federal Register* on January 7,

[1] Form letters are five or more letters that contain identical text but are submitted by different people.

2008, with the publication of the notice of proposed rulemaking and a request for a 90-day comment period (USDA Forest Service 2008a (73, FR 1135). The comment period for the draft EIS was extended to April 7, 2008, to coincide with the end of the comment period for the Proposed Rule.

Throughout Idaho, public meetings were held in 16 communities during January and February 2008. The communities included Boise, Bonners Ferry, Cascade, Challis, Coeur d' Alene, Council, Grangeville, Hailey, Idaho Falls, Kellogg, Lewiston, Mackay, Orofino, Pocatello, Salmon, and Twin Falls. Another public meeting was held in Washington, DC, on January 17, 2008.

In addition to these meetings, the RACNAC held four meetings across the country between January and April to discuss the development of their recommendations for changes to the Proposed Rule. These meetings were open to the public and their meeting notes were posted on the internet.

About 139,120 comments were received by the close of the comment period, of which approximately 8,780 were non-form letters (see appendix R, Response to Comments for more information). These comments were considered in the development of the Modified Idaho Roadless Rule and this final EIS. The interdisciplinary team reviewed and responded to comments in appendix R of the final EIS, Response to Comments, and updated the EIS based on those comments.

S.4 Issues

The Forest Service identified as significant issues those resources that could directly or indirectly be affected as a result of implementation of the Proposed Action. The Forest Service identified the following significant issue during scoping. This issue represents possible effects of implementing the Proposed Idaho Roadless Rule:

- Changes to roadless characteristics.

In addition to this issue, the EIS analyzes the following:

- Ability to address forest health and fire ecology;
- Ability to utilize minerals and energy resources;
- Social factors; and
- Economic factors.

S.5 Alternatives

This environmental impact statement (EIS) examines four alternatives establishing regulatory direction:

1. Direction based on the 2001 Roadless Rule (2001 Roadless Rule);
2. Direction based on existing forest plans (Existing Plans);
3. Direction based on the Petition, as presented to the RACNAC (Proposed Idaho Roadless Rule);
4. Direction based on modifications to the Proposed Idaho Roadless Rule (Modified Idaho Roadless Rule).

The Idaho Roadless Rule would designate a system of lands called Idaho Roadless Areas. These lands would be managed within a spectrum of five management themes: Wild Land Recreation; Primitive; Special Areas of Historic and Tribal Significance; Backcountry / Restoration; and General Forest, Rangeland and Grassland. To aid in analyzing effects and to better compare alternatives, the management prescriptions in the 2001 Roadless Rule and Existing Plans were placed in a management theme that would be the closest equivalent. Table S-1 describes each theme's management emphasis and the number of acres represented by that theme, by alternative.[2] To account for all acreage identified as a roadless area, the table lists other forest plan special areas, which would be managed under applicable forest plan direction.

Table S-1. Number of acres represented by Idaho Roadless Rule themes and equivalent themes for the 2001 Roadless Rule, Existing Plans, Proposed Idaho Roadless Rule, and Modified Idaho Roadless Rule

Theme	2001 Roadless Rule	Existing Plans	Proposed Idaho Roadless Rule	Modified Idaho Roadless Rule
Wild Land Recreation	0	1,320,500	1,378,000	1,479,700
Primitive	0	1,904,100	1,652,800	1,772,700
Special Areas of Historic and Tribal Significance	0	0	70,700	48,600
Similar to Backcountry/Restoration*	9,304,300	0	0	0
Backcountry/Restoration Backcountry/Community Protection Zone	0	4,482,000	5,258,700	5,312,900 442,000
General Forest, Rangeland, and Grassland	0	1,263,200	609,600	405,900
Other lands**				
Forest plan special areas (appendix Q, table Q-1)	0	334,500	334,500	334,500
Totals	**9,304,300**	**9,304,300**	**9,304,300**	**9,304,300**

**The 2001 Roadless Rule is similar to the Backcountry theme for timber cutting and discretionary mineral activities, except for the allowance for road construction/reconstruction to access phosphate deposits, and the allowance for road construction/reconstruction to facilitate timber cutting in specific situations.*

*** The Idaho Roadless Rule would not apply to these other special areas.*

Each alternative addresses only management actions associated with timber cutting, road construction / reconstruction, or future discretionary mineral-related actions for saleable or leasable minerals, because these particular activities have been identified as having the greatest likelihood of altering roadless area values and characteristics. Road construction / reconstruction or timber cutting under any alternative would be designed based on applicable forest plan standards and guidelines (for example, protection of riparian areas or habitat needs for species).

The following subsections generally describe each alternative. In-depth discussion on management direction can be found in chapter 2 of the EIS.

[2] Note the acres have been updated from the draft EIS based on corrections; see appendix E of the final EIS for more detail. Throughout this document, all acreage values are approximate and have been rounded.

ALTERNATIVE 1. THE 2001 ROADLESS RULE (NO ACTION)[3]

This alternative presents a roadless area management regime based on the approach set out in the 2001 Roadless Rule (see 36 CFR 294, subpart B [2004]; 66 *Fed. Reg.* 3244 [Jan. 12, 2001]). The purpose of the 2001 Roadless Rule was to ensure that inventoried roadless areas sustain their values for this generation and for future generations. By sustaining these values, a continuous flow of benefits associated with healthy watersheds and ecosystems was expected.

Timber cutting activities and road construction / reconstruction were identified as having the greatest likelihood of altering and fragmenting landscapes, and the greatest likelihood of resulting in an immediate, long-term loss of roadless area values and characteristics; therefore, these activities were prohibited, with certain exceptions in each roadless area.

The rule allows for road construction or reconstruction in the case of reserved or outstanding rights, or as provided for by statute or treaty. This would include roads associated with locatable mineral activities pursuant to the General Mining Law of 1872.

The 2001 Roadless Rule was the product of a national process and established management direction at the national level with limited focus on State or local issues.

ALTERNATIVE 2. EXISTING PLANS

Management direction in this alternative represents a roadless area management regime based on each forest's land and resource management plan (forest plan). Each forest's plan is unique to its planning area; collectively the forest plans provide a broad range of management from wilderness to intensive management. Overall, as national forests have revised their forest plans, the trend has been to move more roadless areas into management prescriptions that conserve roadless characteristics. When developing or revising their forest plans, each forest or group of forests collaborates with the public and interested parties to develop management direction for their roadless areas. Generally, forest plans allow or limit an array of activities in roadless areas.

ALTERNATIVE 3. IDAHO ROADLESS RULE[4] (PROPOSED ACTION)

The Proposed Action represents a strategy for the conservation and management of Idaho Roadless Areas that takes into account State and local situations and unique resource management challenges, while it recognizes and integrates the national interest in maintaining roadless characteristics.

Building from each forest's existing or proposed forest plan[5], the Proposed Idaho Roadless Rule assigned individual roadless areas within five broad management themes: Wild Land Recreation; Special Areas of Historic or Tribal Significance; Primitive; Backcountry / Restoration; and General Forest, Rangeland, and Grassland. These themes span a continuum (fig. S-1) that

[3] As of the printing of this EIS, the 2001 Roadless Rule is in operation by court order and represents the legal status quo and operating management direction for these lands. In the absence of the 2001 Roadless Rule, management would be governed by each forest's land management plan.

[4] The Idaho Roadless Rule includes clarifications made by Governor Risch at the November 29 and 30, 2006, RACNAC meeting.

[5] Existing plans referred to here include the Boise, Caribou, Challis, Payette, Salmon, Sawtooth, Caribou, and Wallow-Whitman. Proposed plans referred to here are the Clearwater, Idaho Panhandle, Kootenai, and Nez Perce.

includes at one end, a restrictive approach emphasizing passive management and natural restoration approaches, and on the other end, active management designed to accomplish sustainable protection of roadless characteristics. The continuum accounts for stewardship of the uniqueness of each individual roadless area's landscape and the quality of roadless characteristics in that area.

Under the Proposed Idaho Roadless Rule applicable current and future forest plan direction would apply to other special areas (referred to as "forest plan special areas" such as research natural areas; wild and scenic rivers (designated, eligible, and suitable); special interest areas; visual corridors; and the like (table S-1). These lands are included in the discussion for sake of completeness; however, the Proposed Action does not recommend specific management direction for these 334,500 acres.

Allocation to a specific theme is not intended to mandate or direct the Forest Service to propose or implement any action; rather, the themes provide an array of permitted and prohibited activities related to timber cutting, sale, and removal; road construction / reconstruction; and discretionary mineral activities.

As in the 2001 Roadless Rule, timber cutting and road construction / reconstruction are identified as the management activities having the greatest potential for altering landscapes and causing immediate changes to roadless values and characteristics; therefore, a continuum of prohibitions and permissions was proposed for each roadless area.

The Proposed Action also establishes prohibitions and permissions for discretionary mineral activities because of potential effects on roadless characteristics. Further, the Proposed Action, like the 2001 Roadless Rule, allows for road construction / reconstruction in the case of reserved or outstanding rights, or as provided for by statute or treaty. This would include roads associated with locatable mineral activities pursuant to the General Mining Law of 1872. Finally, the Proposed Action provides additional direction regarding common variety minerals, which are the sole discretion of the Secretary of Agriculture (Secretary) to manage.

Again, like the 2001 Roadless Rule, the Proposed Action does not seek to restrict retroactively any existing mineral authorizations[6]. However, the Proposed Action would establish limitations on the future exercise of discretion available to Forest Service line officers. It does not seek to impose restrictions on decision-making that Congress has assigned to the Department of the Interior. The Proposed Action also does not affect or seek a withdrawal of the mineral estate; such matters are subject to a separate statutory process established in the Federal Land Policy and Management Act (FLPMA). Instead, the Proposed Action would be applied only where Forest Service line officers have discretionary authority to influence whether and how the activity may occur.

The Proposed Action does not address grazing, travel management, or wildland fire use. Management direction related to those activities would be regulated by other existing regulatory and analytical processes (for example, travel planning).

[6] Mineral authorizations include those for salable, leasable, and locatable minerals.

ALTERNATIVE 4. MODIFIED IDAHO ROADLESS RULE (PREFERRED ALTERNATIVE)

A fourth alternative was developed, the Modified Idaho Roadless Rule, that changes portions of the Proposed Action based on public comment, including but not limited to tribal government-to-government consultation, recommendations from the RACNAC, consultation with adjacent States, and input from the public at large.

Modifications from the Proposed Action primarily related to four concerns:

1. The amount and type of roadless areas placed in the various themes;
2. The permissions for road construction and reconstruction to facilitate timber cutting, sale, and removal in the Backcountry theme;
3. The permission for road construction and reconstruction to access phosphate deposits in the Backcountry theme;
4. The public comment requirements to make changes in the future.

Other less substantive changes are also reflected in the Modified Rule based on public comment.

S.6 COMPARISON OF ALTERNATIVES

Table S-2. Comparison of Alternatives—Benefits and Costs

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Local resource concerns				
Forest health				
Insects and disease	Most of the 1.44 million acres currently at risk of 25 percent mortality or significant growth loss (i.e., high-risk forests) would remain untreated. Projected treatments on 9,000 acres likely to be effective over 15 years.	Opportunities for treatment of high-risk forests: 187,500 acres of high-risk forests in GFRG; 755,800 acres in Backcountry. Projected treatments on 40,500 acres likely to be effective over 15 years.	Opportunities for treatment of high-risk forests: 25,600 acres in GFRG; 939,400 acres in Backcountry. Opportunities to treat GFRG. Opportunity for treatment in Backcountry if done for forest health or to reduce hazardous fuels Projected treatments on 18,000 acres likely to be effective over 15 years.	Opportunities for treatment of high-risk forests: 39,600 acres in GFRG [(1)]; 877,000 acres in Backcountry, of which 56,600 acres are in the community protection zone (CPZ). Opportunities to treat GFRG. Opportunity for treatment in Backcountry if done in the CPZ or to reduce significant risk of wildland fire effects to at-risk communities or municipal water supply systems. Projected treatments on 15,000 acres likely to be effective over 15 years.
Noxious weeds – potential for noxious weed spread	Spreading is unlikely given limited potential for soil disturbance. 42,250 acres of weeds currently found in Idaho Roadless Areas.	Some potential for spreading based on acreage assigned to GFRG (1.26 million acres); the limited degree of projected road construction, timber cutting, and mineral activity would minimize the potential for spreading. 5,170 acres of weeds currently found in GFRG.	Some potential for spreading based on acreage assigned to GFRG (609,600 acres); the limited degree of projected construction, harvest, and mineral activity would minimize the potential for spreading. 2,750 acres of noxious weeds currently found in GFRG.	Some potential for spreading based on acreage assigned to GFRG (405,900 acres); the limited degree of projected construction, harvest, and mineral activity would minimize the potential for spreading. 3,070 acres [(1)] of noxious weeds currently found in GFRG.
Climate change	Carbon dioxide releases may vary as a function of projected activity levels (the 2001 rule being the lowest, Existing plans the highest potential for releases). Effects of climate change on forest vegetation may vary as a function of active management (the 2001 rule having the lowest and existing plans the highest capacity for active management). However, the magnitude and rapidity of climate change and cumulative impacts is uncertain, particularly at the finer scales such as Idaho Roadless Areas. Variable impacts across alternatives are therefore not quantified.			

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Fuels management				
Ability to treat	Road construction not permitted in conjunction with treatments on 100 percent of the wildland-urban interface (WUI)/ community protection zone (CPZ). Treatments more expensive; insignificant acreage treated relative to acres at risk. Limited capacity to treat high priority condition class 2 and 3 areas. Projected harvests could treat 2 percent of high priority areas (fire regimes I, II, and III; condition classes 2 and 3) within WUI/CPZ or less than half a percent of high priority areas overall. Does not directly permit timber cutting to reduce risk of unwanted wildland fire.	Prescribed burning is permitted in 100 percent of the WUI/CPZ or to protect community water supply areas Mechanical treatments are permitted on 89 percent of the WUI/CPZ. Mechanical treatments with road construction are permitted on 65 percent often WUI/CPZ. Mechanical treatments are permitted in 93 percent of the community water supply areas. Mechanical treatments with road construction are permitted in 47 percent of the community water supply areas. Projected harvests could treat 10 percent of high-priority areas (fire regimes I, II, and III; condition classes 2 and 3) within WUI/CPZ or 1 percent of high-priority areas overall. May permit timber cutting to reduce risk of unwanted wildland fires. May permit fuel reduction to reduce wildland fire risks to municipal water supply systems.	Prescribed burning is permitted in 100 percent of the WUI/CPZ or to protect community water supply areas Mechanical treatments are permitted on 89 percent of the WUI/CPZ. Mechanical treatments with road construction are permitted on 67 percent often WUI/CPZ. Mechanical treatments are permitted in 92 percent of the community water supply areas. Mechanical treatments with road construction are permitted in 58 percent of the community water supply areas. Projected harvests could treat 4 percent of high priority areas (fire regimes I, II and III, condition classes 2 and 3) within WUI/CPZ or less than half a percent of high priority areas overall. Directly permits timber cutting to reduce risk of unwanted wildland fires in the Primitive, Backcountry, and GFRG themes. Permits fuel-reduction activities to reduce wildland fire risks to municipal water supply systems in the Primitive, Backcountry, and GFRG themes.	Prescribed burning is permitted in 100 percent of the WUI/CPZ or to protect community water supply areas Mechanical treatments are permitted on 87 percent of the WUI/CPZ. Mechanical treatments with road construction are permitted on 66 percent often WUI/CPZ. Mechanical treatments are permitted in 92 percent of the community water supply areas. Mechanical treatments with road construction are permitted in 16 percent of the community water supply areas. Mechanical treatments with road construction are permitted in 42 percent of the community water supply areas only when the significant risk conditions are met. Projected harvests could treat 4 percent of high priority areas (fire regimes I, II, and III; condition classes 2 and 3) within WUI/CPZ. Directly permits timber cutting to reduce risk of unwanted wildland fires in the Backcountry and GFRG themes. Permits fuel-reduction activities to reduce wildland fire risks to municipal water supply systems in the Primitive, Backcountry, and GFRG themes.
Potential for increase in human-caused fire starts	No increase.	Potential for increase.	No measurable increase.	No measurable increase.

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Timber cutting – projected				
Timber harvest (acres over 15 years)	9,000	40,500	18,000	15,000
Harvest (MMBF/year) [2]	3.0 (2 percent of annual average)	13.36 (11 percent of annual average)	5.84 (5 percent of annual average)	5.04 (4 percent of annual average)
Roads – projected (miles over 15 years)				
Construction - permanent	12	72	12	12
Construction - temporary	3	33	26	21
Reconstruction	0	75	23	17
Total	15.0	180	61	50
Decommissioning	1.0	3.2	2.7	2.4
Leasable minerals				
Geothermal development	No existing leases on NFS land. Trend data not available to project reasonably foreseeable activity. Current lease applications include 7,033 acres within roadless areas.			
	Negligible opportunities for development.	No opportunities on 38 percent of acreage. Development opportunities on 53 percent of Backcountry theme (2,354,100 suitable acres) and on 58 percent of GFRG theme (737,800 suitable acres). [3] 7,033 under current lease applications accessible.	No opportunities on 93 percent of acreage; Development opportunities on 63 percent of GFRG theme (382,400 suitable acres). [3] 7,033 under current lease applications would not be accessible.	Negligible opportunities for development.
Phosphate - reasonably foreseeable development and output (short term within 15 years)	1,100 acres of road construction and mining disturbance proposed in Sage Creek and Meade Peak Roadless areas; development expected over the next 15 years. Projected output is equal (2,000,000 tons per year) across all alternatives because (i) none of the alternatives prohibit road construction and reconstruction associated with existing leases and (ii) existing leases are expected to meet demand in reasonably foreseeable future.			
Phosphate – additional acres under lease in roadless areas	6,100 acres of remaining unmined phosphate currently under lease in seven roadless areas; development expected to be spread out over 50 or more years.			

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Phosphate – long-term leasing of unleased phosphate deposits (50 or more years)	Opportunities to recover phosphate from Idaho Roadless Areas are negligible.	Estimated 613 million tons of phosphate deposits from 13,620 unleased acres available for development. ½-mile buffer could affect additional 1,910 acres.	Estimated 593 million tons of phosphate deposits from 13,190 unleased acres available for development. ½-mile buffer could affect additional 1,850 acres. Road construction prohibited Wild Land Recreation, SAHTS Primitive, Backcountry theme acres.	Estimated 260 million tons of phosphate deposits from 5,770 unleased acres available for development. ½-mile buffer could affect additional 810 acres. Road construction prohibited in Wild Land Recreation, SAHTS Primitive, Backcountry themes, and 910 acres of GFRG themes.
Social				
Values and beliefs	Most environmental functions retained, roadless characteristics remain intact.	Most environmental functions retained, some roadless characteristics changed.	Most environmental functions retained, few roadless characteristics changed.	Most environmental functions retained, few roadless characteristics changed.
Collaborative environment	Local communities feel left out.	Local communities engaged.	Local community interests integrated with national values.	Local community interests integrated with national values. Modifications made based on public comment.
Lifestyles	Significant risks to natural resource conditions near communities remain.	Significant risks to natural resource conditions near communities reduced.	Significant risks to natural resource conditions near communities reduced.	Significant risks to natural resource conditions near communities reduced.
	Undeveloped recreation and cultural opportunities continue.	Many undeveloped recreation and cultural opportunities continue.	Most undeveloped recreation and cultural opportunities continue.	Most undeveloped recreation and cultural opportunities continue.
Roadless characteristics				
Physical resources - soils				
Acres of highly sensitive soils where road construction/ reconstruction is permitted (Backcountry and GFRG)	0	2,049,300	2,121,300	253,500 (GFRG and Backcountry / CPZ)
Acres of highly sensitive soils where road construction is conditionally permissible	0	0	0	1,786,400

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Effects from road construction on high hazard soils	Forest Plan management direction that provides guidance on road construction on sensitive soils would apply across all alternatives; therefore even though road construction could be permitted forest plans may provide design criteria to minimize effects, such as avoidance or mitigation practices. No or negligible effect from road building associated with timber cutting. Effects on soils are equal for road construction associated with phosphate mining over next 15 years. Effects on high-hazard soils from long-term future (50 or more years) phosphate leases are likely under the Existing Plans and the Proposed Rule, but limited risk under the Modified and 2001 Rules.			
Physical resources - water				
Effect of road construction, reconstruction, and timber harvest on listed streams and drinking water	Negligible effect.	Minimal effect.	Negligible effect.	Negligible effect.
Effect of mining on listed streams and drinking water	Overlap with unleased phosphate in roadless areas: Three 303(d) streams (one in roadless areas due to selenium); 640 acres of community water supplies (groundwater). Possible effect on 303(d) streams from selenium – mitigation required at time of analysis.	Overlap with unleased phosphate in roadless areas: Three 303(d) streams (one in roadless areas due to selenium); 640 acres of community water supplies (groundwater). Possible effect on 303(d) streams from selenium – mitigation required at time of analysis.	Overlap with unleased phosphate in roadless areas: Three 303(d) streams (one in roadless areas due to selenium); 640 acres of community water supplies (groundwater). Possible effect on 303(d) streams from selenium – mitigation required at time of analysis.	Overlap with unleased phosphate in roadless areas: Three 303(d) streams (one in roadless areas due to selenium); 640 acres of community water supplies (ground water). Possible effect on 303(d) streams from selenium – mitigation required at time of analysis.
Selenium Mitigation	Mine development or expansion would use a variety of environmental commitments and best management practices to reduce the potential for selenium mobilization and migration from the mine site. Operators would be required to monitor impacts on water, soils, vegetation, wildlife, and fisheries. Analysis for the preferred alternative for Smoky Canyon predicts that groundwater quality protection standards or surface water quality standards would not be exceeded.			
Threatened, endangered, proposed, candidate and Forest Service sensitive species and biodiversity				

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Effects on terrestrial and aquatic animal species or habitats	Activities undertaken pursuant to any of the alternatives may affect individuals, but no measurable change in populations is expected. Management direction in forest plans, such as INFISH, PACFISH, Southwest Idaho Ecogroup aquatic direction, grizzly bear habitat management, or lynx direction, for threatened and endangered species would apply. Projects and development would be subject to NEPA and other regulatory requirements related to monitoring and mitigation for sensitive species.			
	Beneficial.	Beneficial in Wild Land Recreation, Primitive, or SAHTS; some potential risk of adverse effects in management prescriptions similar to Backcountry and GFRG.	Beneficial in Wild Land Recreation, Primitive, or SAHTS; limited potential risk of adverse effects for activities occurring in Backcountry; some potential risk in GFRG, but less than Existing Plans.	Beneficial in Wild Land Recreation, Primitive, SAHTS, or Backcountry outside CPZ; limited potential risk of adverse effects for activities occurring in Backcountry CPZ; some potential risk in GFRG, but less than Existing Plans or the Proposed Rule.
Effects on biodiversity of botanical species	Beneficial.	Beneficial in Wild Land Recreation, Primitive, or SAHTS; some potential risk of adverse effects for activities conducted in the GFRG and BCR themes.	Beneficial in Wild Land Recreation, Primitive, or SAHTS; some potential risk of adverse effects for activities conducted in the GFRG and BCR themes, but less than Existing Plans.	Beneficial in Wild Land Recreation, Primitive, or SAHTS, Backcountry outside CPZ; some potential risk of adverse effects for activities conducted in GFRG and Backcountry CPZ but less than Existing Plans or the Proposed Rule.
	Number of occurrences of known threatened and candidate plant populations, by theme			
Wild Land/ Primitive/ SAHTS	0	0	0	0
Backcountry	16	9	9	11 (6 in Backcountry CPZ)
GFRG	0	2	2	0
Forest plan special areas	0	5	5	5
	Number of occurrences of known sensitive plant populations, by theme			
Wild Land Recreation	0	81	90	102
Primitive/SAHTS	0	97	82	100
Backcountry	686	284	336	312 (46 in Backcountry CPZ)
GFRG	0	55	9	3
Forest plan special areas	0	169	169	169

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Scenic integrity				
	Potential for change in scenic integrity – based on activity projections			
Acres that stay in High to Very High scenic integrity	9,228,000	9,242,980	9,234,740	9,276,230
Acres likely to change to High or Moderate scenic integrity because of timber cutting or road construction/ reconstruction	9,000	40,500	18,000	15,000
Acres likely to change from High to Low because of development of existing phosphate leases	7,200 acres associated with development of existing phosphate mining leases under all alternatives.			
Acres likely to change to Moderate or Low scenic integrity because of phosphate mining over the long term (50 or more years)	0	13,620	13,190	5,770
Recreation				
Dispersed recreation (including hunting and fishing)	Feeling of solitude or remoteness may change in areas where projected road construction and timber cutting occur (see above for projected activity levels, by alternative).			
	No measurable change to dispersed recreation opportunities.	No measurable change to dispersed recreation opportunities, except if unleased phosphate deposits (13,620 acres) are developed.	No measurable change to dispersed recreation opportunities, except if unleased phosphate deposits (13,190 acres) are developed.	No measurable change to dispersed recreation opportunities, except if unleased phosphate deposits (5,770 acres) are developed.
Recreation opportunities [(4)]	In general, the magnitude of shifts in recreational opportunity spectrum classes is slight across the alternatives because: (i) differences in road construction are minimal, and (ii) many constructed roads are likely to be temporary and not accessible for recreation purposes. As a consequence, changes in dispersed compared to developed recreation opportunities are small across alternatives. Relative differences include the following:			
	Relatively high potential for maintaining existing dispersed recreation opportunities; little potential for increasing developed recreation.	Greatest opportunity for developed and road-based recreation to occur and expand, but magnitude of shift is tempered by limited amount of construction projected to occur.	High level of protection for dispersed recreation; foreseeable threats from construction and development are remote.	High level of protection for dispersed recreation; foreseeable threats from construction and development are remote.

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Developed recreation – ability to construct or reconstruct roads to access new or expanded developed recreation areas	There are no foreseeable developments under any of the alternatives.			
	No road construction/ reconstruction permitted to access new developed recreation sites (9.3 million acres).	Road construction/ reconstruction generally permitted to access new developed recreation sites in management prescriptions similar to Backcountry and GFRG (5.7 million acres).	Road construction/ reconstruction permitted to access new developed recreation sites management in GFRG (.6 million acres).	Road construction/ reconstruction permitted to access new developed recreation sites management in GFRG (.4 million acres).
Special uses – ski areas	Existing permits are unaffected. No foreseeable ski area expansions or developments into Idaho Roadless Areas over next 15 years.			
	Expansion or development with roads not permitted.	Expansion or development as permitted by the forest plan.	Existing ski areas with development and any additional development authorized in their master development plans are in FPSA theme and would be guided by applicable forest plan direction.	Existing ski areas with development and any additional development authorized in their master development plans are in FPSA theme would be guided by applicable forest plan direction.
Special uses – outfitters and guides	Existing permits are unaffected. None of the alternatives directly affect the processing or administration of special use permits. Potential for adverse effects are limited because projected levels of activity would be relatively small and localized within any outfitter's area of operation. Recreational experience may change in some areas where activities occur, but outfitter and guide services are not expected to be affected because of the dispersed nature of the activities.			
Hunting and fishing	No effect on opportunities.	Opportunities could be affected in locations of phosphate leasing and geothermal development. No effect from timber cutting and limited road construction.	Opportunities could be affected in locations of phosphate leasing and geothermal development. No effect from timber cutting and limited road construction.	Opportunities could be affected in locations of phosphate leasing. No effect from geothermal development. No effect from timber cutting and limited road construction. Additional protections provided to 257,700 acres moved from GFRG to Backcountry because of big game habitat.
Wilderness				
Existing wilderness areas (1,723,300 acres of Idaho Roadless Areas are adjacent to existing wilderness)	Limited to no indirect effects on wilderness from activities in roadless areas.	158,300 acres of GFRG and 841,900 acres of Backcountry adjacent to wilderness. Limited potential for impacts on wilderness experience.	9,400 acres of GFRG and 951,000 acres of Backcountry adjacent to wilderness. Limited potential for impacts on wilderness experience.	9,400 acres of GFRG and 951,000 acres of Backcountry adjacent to wilderness. Limited potential for impacts on wilderness experience.

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Recommended wilderness	No change or effect on recommended wilderness in existing plans.	Existing plans recommend 1,320,500 as wilderness.	No change to recommendations in existing plans. 1,378,000 acres in Wild Land Recreation, implying 57,500 acres of additional protection over existing plans. Changes include: Borah Peak increase by 700 acres Boulder White Clouds, net increase of 37,200 acres (some portions added, some changed to primitive) Hoodoo increase by 40,600 acres Grandmother Mountain increase by 6,800 acres Salmo/Priest increase by 800 acres Selkirk increase by 5,900 acres Scotchmans net increase by 1,100 acres Mallard Larkins, net decrease 33,000 acres (10,900 acres Backcountry (Clearwater and Idaho Panhandle; and 22,100 acres SAHTS Idaho Panhandle) Winegar Hole decrease by 2,600 acres	No change to recommendations in existing plans. 1,479,700 acres in Wild Land Recreation, implying 159,200 acres of additional protection over existing plans. Changes include: Borah Peak increase by 700 acres Boulder White Clouds, net increase of 37,200 acres (some portions added, some changed to primitive) Hoodoo increase by 40,600 acres Grandmother Mountain increase by 6,800 acres Salmo/Priest increase by 800 acres Selkirk increase by 16,600 acres Scotchmans net increase by 1,100 acres Rapid River net increase 68,400 acres Mallard Larkins, net decrease 10,400 acres (6,400 acres Primitive (Clearwater) and 4,000 acres Backcountry (Idaho Panhandle) Winegar Hole decrease by 2,600 acres
Roadless area characteristics associated with wilderness	Majority of roadless areas retain their existing character. Based on projections, 99.9 percent unaffected over the next 15 years.	Areas developed could have reduced roadless area character. Activities in GFRG may not change roadless character if prior activities are still evident.		
		Based on projections, 99.55 percent of roadless areas unaffected over the next 15 years.	Based on projections, 99.9 percent of roadless areas unaffected over the next 15 years.	Based on projections, 99.9 percent of roadless areas unaffected over the next 15 years.
Other Resource and Service Areas where Relative Impacts are Insignificant or Neglible				
Livestock grazing	Differences in activity, revenue, and operating costs are expected to be minimal across alternatives; existing processes will regulate management direction related to grazing (allotments and permitted use).			
Leasable minerals: oil, gas, and coal	Differences in activity and revenue associated with oil, gas, and coal development are expected to be minimal based on existing trends and inventories.			
Locatable minerals: gold, silver, lead, etc.	None of the alternatives would affect rights of reasonable access to prospect and explore lands open to mineral entry and develop valid claims under the General Mining Law of 1872. Rights to reasonable access continue.			

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Saleable minerals (sand, stone, gravel, pumice, etc.)	Differences in production of saleable minerals are projected to be minimal across alternatives because of the relative inefficiencies of providing saleable minerals from Idaho Roadless Areas.			
Road Construction allowed for CERCLA violations	Road construction to address CERCLA violations is allowed in all alternatives.			
Energy corridors	None of the proposed corridors designated for oil, gas, and/or electricity under section 368 of the Energy Policy Act are within Idaho Roadless Areas. Opportunities for non-section-368 corridors within Idaho Roadless Areas are a function of the themes assigned to the areas proposed for corridor development; differences in opportunities across alternatives cannot be discerned.			
Wind and biomass energy	Low potential for wind energy in Idaho Roadless Areas because of technological, logistical, and environmental issues associated with constructing wind turbines in the more mountainous roadless areas. Biomass energy could be a by-product from any alternative. It is unlikely that any medium- to large-scale wood biomass in roadless areas would be conducted independently.			
Non-timber products	Current access for the harvest of non-timber products is not expected to change under the Proposed and Modified Rules. Assignment of roadless acres to themes that restrict road construction may limit access opportunities for some individuals, but construction may also reduce availability of some species.			
Cultural resources	Prior to management actions taking place on the ground under any alternative or theme, cultural resource inventories and appropriate mitigation are required by law. Differences in risk to cultural resources are based on the amount of projected road construction; the higher the projection the higher the potential risk. Existing plans have the highest risk (low to moderate). The Proposed Rule has a low risk based on projections; but this risk is further reduced in the Modified Rule because of the prohibitions associated with road construction for discretionary minerals (other than specific phosphate areas in GFRG); and the reduction n areas where roads could be constructed to facilitate hazardous fuel reduction projects. There is low potential for disturbance/vandalism under all alternatives with the exception of low to moderate potential under existing plans.			
Affected Indian Tribes	Roads, timber cutting, sale, or removal and mining may alter the character of places that have historic or cultural value, thereby diminishing those values. The exercise of treaty rights and traditional uses of Idaho Roadless Areas would not measurably change under any of the alternatives because hunting, fishing, and botanical gathering would not be affected overall. There may be some localized effects associated with phosphate development.			
Wildland fire use and prescribed fire	The alternatives do not affect wildland fire use. The alternatives could affect the use of prescribed fire in certain situations where timber cutting needs to occur to reduce fuels or in some cases create a fuel bed prior to burning. These limitations would primarily be in the Wild Land Recreation theme in the Proposed and Modified Rules. However, prescribed fire may be used in all themes.			
Air quality	Negligible effects on air quality from fuel reduction projects are expected; subject to strict guidelines for minimizing impacts.			
Agency costs				
Roads	Reasonably foreseeable changes in Agency costs associated with roads (administration, construction, maintenance) are not likely to be significant under the Proposed or Modified Rules relative to the 2001 Roadless Rule given the types of roads constructed (e.g., temporary, single-purpose, and/or built by the user), relative levels of construction/reconstruction projected, and flat budget expectations.			

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Timber and vegetation/fuel treatments	Accessing sites and implementing treatments in remote areas, dominated by roadless characteristics can be costly. Revenue from timber sales are often used to offset the costs of treatments. There is slight potential for gains in net revenues for some forest units (e.g., Idaho Panhandle) under the Modified and Proposed Rules, as well as Existing Plans, relative to the 2001 Rule, but projected changes in harvest are relatively small and may not result in significant changes to aggregate volumes from all National Forest System lands.			
	Highest cost per acre and less efficient treatments due to road construction prohibitions.	Second highest cost per acre for treatments in the WUI and community public water system (CPWS) areas.	Lowest cost per acre for treatments in the WUI and CPWS areas (and equal to the final rule in the WUI).	Lowest cost per acre for treatments in the WUI (and equal to the proposed rule). Lowest cost per acre for treatments in CPWS areas if using "significant risk determination" for CPWS; otherwise, cost per acre is second highest for CPWS areas.

(1) More acres are shown under the Modified Rule than the Proposed Rule because of the different set of lands placed in GFRG. Change is primarily from lands in GFRG theme on the Salmon National Forest in the Modified Rule.

(2) Percentage of average harvest on all National Forest System land within Idaho that occurred between 2002 and 2006. Harvest primarily attributable to stewardship and treatments for forest health and fuels management.

(3) The alternatives do not provide direction on where and when OHV use would be permissible.

(4) Suitability based on areas with acceptable slopes for leasing (<40 percent slope).

Table S-3. Comparison of Alternatives—Distributional Effects and Economic Impacts

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Timber Cutting				
Jobs per year (1)	17	75	35	30
Labor Income per year (1)	$453,300	$1,909,100	$851,600	$744,500
Location of jobs: BEA economic areas (EA)	Northern EA (Idaho Panhandle National Forests)	Northern (Idaho Panhandle), Southeastern (Caribou-Targhee National Forest), and Central (Clearwater and Nez Perce National Forests) EAs	Northern (Idaho Panhandle), and Southeastern (Caribou-Targhee National Forest) EAs	Northern (Idaho Panhandle), and Southeastern (Caribou-Targhee National Forest) EA
Leasable minerals: phosphate				
Jobs and labor income (1)	No changes in jobs (582/year) or labor income ($23.5 million) contributed by phosphate on existing leases within Idaho Roadless Areas, because none of the alternatives affect existing leases.			
	No new leases in roadless areas likely to be feasible.	Jobs and income from new leases on unleased phosphate reserves within Idaho Roadless Areas in the Southeastern EA are expected to occur in the future over an extended period of time (50 or more years).		
Road construction				
Jobs per year (1)	2	12	4	4
Labor Income per year (1)	$52,900	$462,500	162,400	135,600

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Location of Jobs: BEA Economic Areas (EA)	Northern and Southeastern EAs	Northern, Southeastern, and Central EAs	Northern and Southeastern EAs	Northern and Southeastern EAs
Revenue sharing and resource-dependent counties				
Resource-dependent counties where potential opportunities decrease	Opportunities increase for all timber-dependent counties under the Modified or Proposed Rule relative to the 2001 Rule. Opportunities for mining-dependent counties (e.g., Caribou, Oneida, Power, and Bannock) remain the same based on reasonably foreseeable phosphate output (over the next 15 years), which remains constant across alternatives.			
	Potential opportunities decrease for the following timber-dependent counties under the Modified or Proposed Rule relative to Existing Plans (2): *Northern EA*: Boundary, Bonner, Kootenai, Benewah, Latah, Ferry (WA), Pend Oreille (WA), Shoshone, and Stevens (WA). *Central EA*: Clearwater, Idaho, Lewis, Nez Perce, and Asotin (WA). Southeastern EA: Bear Lake.			
Revenue sharing	Payments to counties are expected to remain the same under all alternatives as long as the Secure Rural Schools and Community Self-Determination Act remains in effect. Mineral-based payments to States are a function of leasable receipts, but no differences in phosphate production are projected across alternatives over the next 15 years.			
Adverse impacts to small entities	Greatest potential given prohibitions in roadless areas; most protective of sectors that benefit from resource conditions associated with roadless areas.	Least potential given fewest prohibitions and theme assignments; least protective of sectors that benefit from resource conditions associated with roadless areas.	Limited potential for losses of small entity opportunities. Opportunity losses are not expected to result in significant adverse economic impacts and/or affect substantial numbers of small entities, including recreational special use permit holders that may benefit from resource conditions associated with roadless characteristics.	

(1) Jobs and income contributed annually (in 2007 dollars). Based on projected levels of timber harvest, road construction, and phosphate mining output per year, conversion of physical output to final demand ($) and application of regional economic multipliers.

(2) Counties where 10 percent of total labor income is attributable to timber-related sectors and that are located in economic areas (EAs) where there is a significant net decrease in acreage assigned to the GFRG theme.

CHAPTER 1. PURPOSE OF AND NEED FOR ACTION

1.1 DOCUMENT STRUCTURE

The U.S. Department of Agriculture (USDA), Forest Service, with the State of Idaho as a cooperating agency, has prepared this environmental impact statement (EIS) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This EIS discloses the environmental consequences that could result from the Proposed Action (Proposed Idaho Roadless Rule) and alternatives. The document is organized into four chapters:

- **Chapter 1. Purpose of and Need for Action**. The chapter includes information on the history of the proposal, the purpose of and need for the proposed rule, and the Agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.
- **Chapter 2. Alternatives, Including the Proposed Action**. This chapter provides a more detailed description of the Agency's Proposed Action as well as alternative methods for achieving the stated purpose.
- **Chapter 3. Affected Environment and Environmental Consequences**. This chapter describes the environmental consequences of implementing the proposal and other alternatives. This analysis is organized by overview, methodology, assumptions, and resource area.
- **Chapter 4. Consultation and Coordination.** This chapter provides a list of preparers and agencies consulted during the development of the EIS.
- **Index**. The index provides page numbers by document topics.
- **Appendices**. The appendices provide additional detailed information in support of the analyses presented in the EIS. Appendices A-R (except appendix C) may be found in Volume 2. Appendix C, Clearwater, Idaho Panhandle, Kootenai, Nez Perce, and Wallowa-Whitman National Forests may be found in Volume 3. Appendix C, Boise, Payette and Sawtooth National Forests may be found in Volume 4. Appendix C, Salmon-Challis and Caribou-Targhee may be found in Volume 5.
- **Map packe**t. The map packet is a separate packet that includes alternative maps, and maps for appendix A and appendix C.

The final EIS has been modified in response to comments as per the Code of Federal Regulations (CFR), §40 CFR 1503.4. The modifications include an addition of a new alternative; additional discussion of consideration of comments; additional analysis; and factual corrections.

Related documentation, including additional detailed analyses of project-area resources, may be found in the Record located at Northern Rockies Regional Office, 200 East Broadway, Missoula, Montana.

1.2 BACKGROUND

The State of Idaho submitted to the Secretary of Agriculture (Secretary) a petition for rule-making: the State of Idaho Petition (Petition) (Risch 2006). The Petition, pursuant to section 553(e) of the Administrative Procedures Act and Department of Agriculture (Department) regulations at 7 CFR §1.28, requested specific regulatory protections and certain management flexibility for the 9.3 million acres of National Forest System (NFS) inventoried roadless areas (roadless areas) in Idaho.

The Petition was based on information about each roadless area in existing and proposed land and resource management plans (forest plans) that consider the different and unique values each roadless area contains, and county and public comments (section 1.6 Public Involvement). The State proposed a management continuum, including, at one end, a restrictive approach emphasizing passive management and natural restoration approaches; and, on the other end, active management designed to accomplish sustainable forest, rangeland, and grassland management.

The Forest Service and the State believe that the Proposed Action represents a unique opportunity to collaboratively resolve and provide certainty to the roadless issue in the State of Idaho. First, the Proposed Action enables the Forest Service to account for comments of those most affected or concerned about the contents of State-specific rulemaking. Second, it allows the Agency to consider the unique characteristics of each individual inventoried roadless area in the State. Third, it balances the integrity and natural beauty of these roadless areas with responsible stewardship.

The Roadless Area Conservation National Advisory Committee (RACNAC) reviewed the Petition on November 29 and 30, 2006. Governor James Risch, on behalf of the State of Idaho, discussed his views on the scope and intent of the Petition. The committee also heard comments from other State and Forest Service officials, and members of the public (RACNAC 2006). On December 19, 2006, the RACNAC issued a unanimous consensus-based recommendation that the Secretary direct the Forest Service, with the State of Idaho as a cooperating agency, to proceed with rulemaking (RACNAC 2006a).

On December 22, 2006, the Secretary accepted the Petition and directed the Forest Service to proceed with developing a rule specific to NFS inventoried roadless areas in Idaho (USDA 2006).

1.3 PURPOSE OF AND NEED FOR ACTION

The purpose of the Proposed Idaho Roadless Rule is to provide State-specific direction for the conservation and management of roadless areas within the State of Idaho. The Proposed Idaho Roadless Rule integrates local management and tribal concerns with the national objectives for protecting roadless area values and characteristics[7].

The Department and the Forest Service are committed to conserving and managing roadless areas and consider these areas an important component of the NFS. The Department believes that the most viable path for lasting conservation of these areas must properly integrate local, State, and national perspectives on roadless area management. The management direction in the Proposed Action achieves this integration because it takes into account State and local resource management challenges and the national interest in maintaining roadless characteristics, and it provides for management flexibility.

The management direction is based on individual roadless characteristics for lands (1) containing outstanding or unique features, where there is minimal or no evidence of human use; (2) containing culturally significant areas; (3) containing general roadless characteristics, where human uses may or may not be more apparent; and (4) displaying high levels of human use, while:

- Protecting communities, homes, and property from the risk of severe wildfire or other risks existing on adjacent Federal lands;
- Protecting forests from the negative effects of severe wildfire and insect and disease outbreaks; or
- Protecting access to property, by ensuring that States, Tribes, and citizens owning property within roadless areas have access to that property as required by existing laws.

The Secretary, aware of the long, unresolved debates over the management of roadless areas in the absence of wilderness legislation for the State of Idaho, considered the State's Petition, the advice and recommendations of the RACNAC, and associated public comments. The Secretary determined that there is a need to consider roadless area management direction specific to the State of Idaho.

[7] See section 1.7 for descriptions of roadless characteristics.

1.4 Proposed Action (Proposed Idaho Roadless Rule)

The Forest Service is proposing to promulgate a State-specific rule in response to the Idaho State Petition presented by Governor Risch on November 29 and 30, 2006, to the RACNAC.

The Proposed Idaho Roadless Rule would designate a system of lands called Idaho Roadless Areas (fig. 1-1) and establish five management area themes for individual roadless areas: Wild Land Recreation; Primitive; Special Areas of Historic and Tribal Significance; Backcountry / Restoration; and General Forest, Rangeland, and Grassland (map packet – Idaho Roadless Rule management themes). The proposed themes span a continuum (fig. 1-2) that includes at one end a restrictive approach emphasizing passive management and natural restoration approaches, and on the other end, active management designed to sustainable forest, rangeland, and grassland management. This continuum accounts for stewardship of the uniqueness of each individual roadless area's landscape and the quality of roadless characteristics in that area.

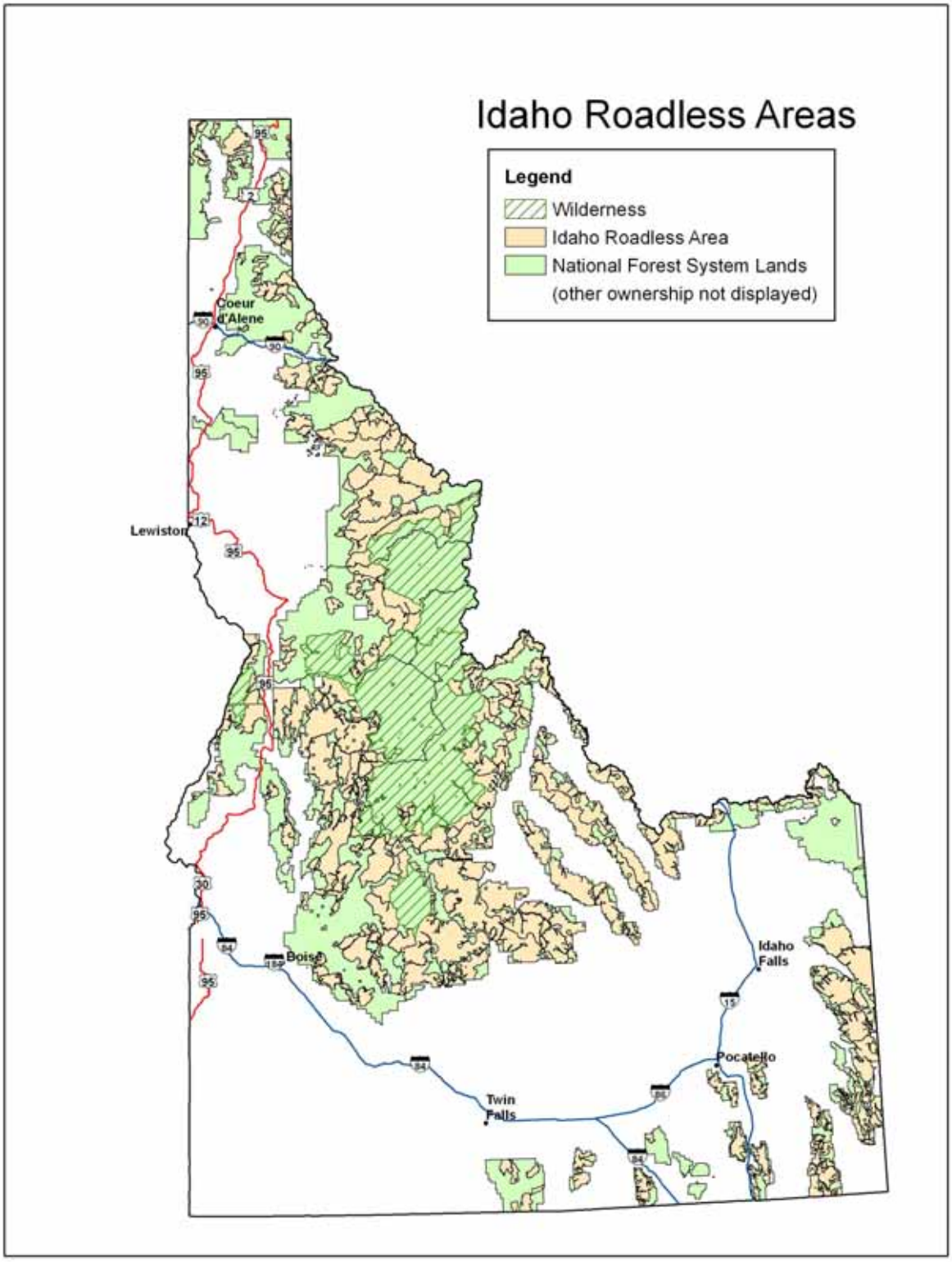

Figure 1-1. Idaho Roadless Areas – areas designated pursuant to the Idaho Roadless Rule, based on the most current inventory of roadless areas in Idaho

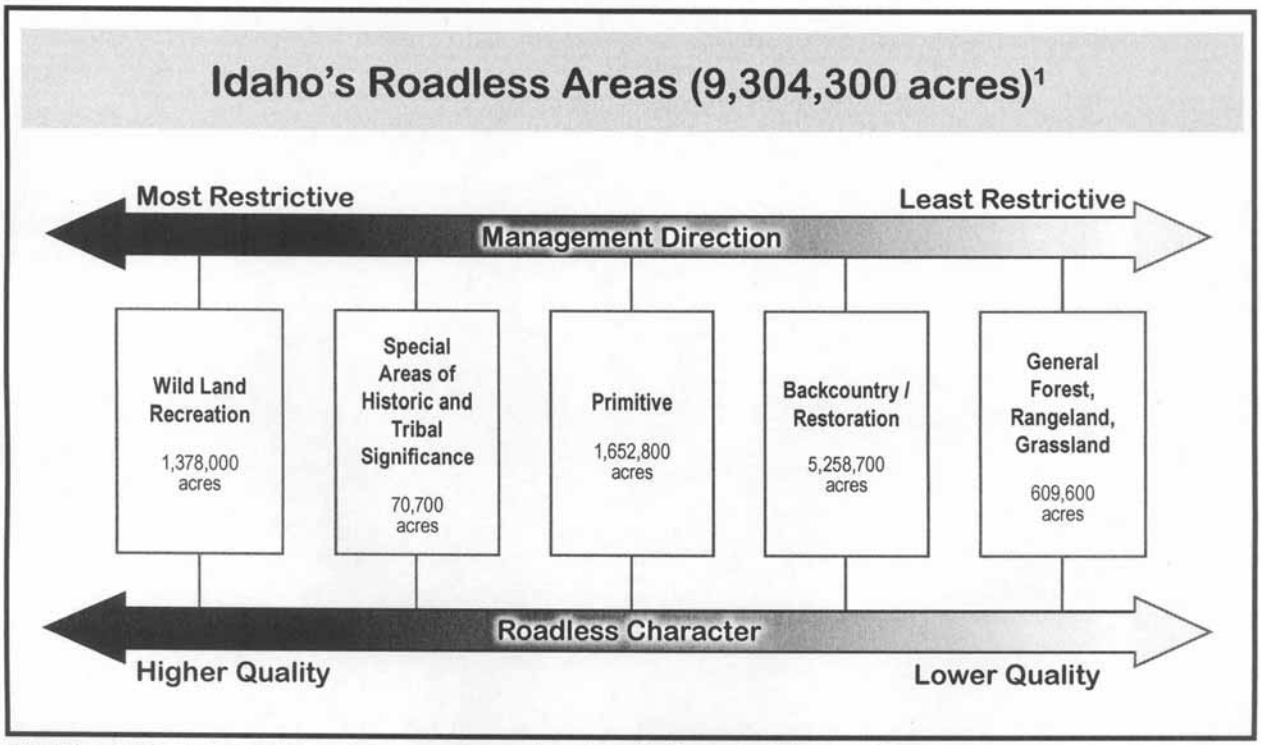

Figure 1-2. Idaho Roadless Rule continuum

Allocation to a specific theme is not intended to mandate or direct the Forest Service to propose or implement any action; rather, the themes provide an array of permitted and prohibited activities regarding:

- Road construction and reconstruction;
- Timber cutting, sale, or removal;
- Mineral activities.

The Proposed Action also provides for the ability to accommodate necessary corrections and modifications in the future.

The subsections below describe each management area theme and its intended purpose; they also describe when timber cutting, sale, or removal; road construction / reconstruction; and discretionary mineral activities would be permitted or prohibited[8].

[8] The acres associated with the themes have been updated because of factual corrections – see appendix E.

WILD LAND RECREATION

Approximately 1,378,000 acres have been identified for inclusion as Wild Land Recreation areas.

Road construction/reconstruction. Prohibited unless provided for by statute or treaty, or pursuant to reserved or outstanding rights, or other legal duty of the United States.

Timber cutting, sale, or removal. Prohibited except for personal or administrative use (36 CFR §223); or when incidental to the implementation of a management activity not otherwise prohibited (e.g., trail clearing).

Mineral activities. No recommendation, authorization, or consent to surface occupancy, or road construction or reconstruction associated with new mineral leases. The sale of common variety minerals would be prohibited. Locatable mineral activities pursuant to the General Mining Law of 1872, including road construction and reconstruction, would not be affected.

PRIMITIVE

Approximately 1,652,800 acres are identified for inclusion as Primitive.

Road construction and reconstruction. Prohibited, unless provided for by statute or treaty, or pursuant to reserved or outstanding rights, or other legal duty of the United States.

Timber cutting, sale, or removal. Prohibited unless existing roads or aerial systems are used and the responsible official determines that:

1. The cutting, sale, or removal of timber would maintain or improve one or more of the roadless characteristics and is needed for one of the following purposes:
   a. To improve threatened, endangered, proposed, or sensitive species habitat; or
   b. To maintain or restore the characteristics of ecosystem composition and structure or to reduce the significant risk of wildland fire effects; or
2. The cutting, sale, or removal of timber is:
   a. Personal or administrative use (36 CFR §223); or
   b. Incidental to the implementation of a management activity not otherwise prohibited (e.g., trail clearing).

Mineral activities. No recommendation, authorization, or consent to surface occupancy or road construction or reconstruction associated with new mineral or energy leases. The sale of common variety minerals would be prohibited. Locatable mineral activities pursuant to the General Mining Law of 1872, including road construction and reconstruction, would not be affected.

SPECIAL AREAS OF HISTORIC AND TRIBAL SIGNIFICANCE

Approximately 70,700 acres have been identified for inclusion as Special Areas of Historic and Tribal Significance (SAHTS), and this theme is located in three geographic areas. This theme would provide for the same management direction as Primitive.

BACKCOUNTRY/ RESTORATION

Approximately 5,258,700 acres have been identified for inclusion as Backcountry / Restoration (Backcountry).

Road construction/reconstruction. Permissible if one or more of the following criteria are met:

1. A road is needed to protect public health and safety in cases of significant risk or imminent threat of flood, fire, or other catastrophic event that, without intervention, would cause the loss of life or property, or to facilitate forest health activities permitted under timber cutting, sale, or removal (1) above; or
2. A road is needed to conduct a response action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to conduct a natural resource restoration action under CERCLA, section 311 of the Clean Water Act, or the Oil Pollution Act; or
3. A road is needed pursuant to statute, treaty, reserved or outstanding rights, or other legal duty of the United States; or
4. Road realignment is needed to prevent resource damage that arises from the design, location, use, or deterioration of a road and cannot be mitigated by road maintenance. Road realignment may occur only if the road is deemed essential for public or private access, natural resource management, or public health and safety; or
5. Road construction is needed to implement a road safety improvement project on a road that has been determined to be hazardous based on accident experience or accident potential on that road; or
6. The Secretary of Agriculture determined that a Federal aid highway project, authorized pursuant to title 23 of the U.S. Code (23 USC), is in the public interest or is consistent with the purpose for which the land was reserved or acquired and no other reasonable and prudent alternative exists; or
7. A road is needed in conjunction with activities permissible under the limited mineral exceptions for Backcountry.

Road construction must be a temporary road, unless the responsible official determines that a permanent road meets one or more of the above criteria and that the addition of a permanent road would not substantially alter roadless characteristics. Maintenance of forest or temporary roads is permissible.

Timber cutting, sale, or removal. Permitted if one of the following circumstances exists:

1. The cutting, sale, or removal of timber would maintain or improve one or more of the roadless characteristics and is needed for one of the following purposes:
   a. To improve threatened, endangered, proposed, or sensitive species habitat; or
   b. To maintain or restore the characteristics of ecosystem composition and structure or to reduce the significant risk of wildland fire effects; or
2. The cutting, sale or removal of timber is:
   a. Personal or administrative use (36 CFR §223); or
   b. Incidental to the implementation of a management activity not otherwise prohibited (e.g., trail clearing); or

c. It is within a substantially altered portion of an Idaho Roadless Area designated as Backcountry / Restoration that has been altered because of the construction of a forest road and subsequent timber harvest.

Mineral activities. No recommendation, authorization, or consent to road construction or reconstruction associated with new mineral leases, except such road construction or reconstruction may be authorized in association with phosphate leasing. Leasing instruments that allow surface use or occupancy are permissible if they do not require road construction or reconstruction. Locatable mineral activities pursuant to the General Mining Law of 1872 would not be affected, including road construction and reconstruction.

The Forest Service would not authorize sale of common variety mineral materials, but may authorize the use or sale of common variety minerals, and associated road construction or reconstruction to access these minerals if the use of these minerals is incidental to activity allowed under this rule.

General Forest, Rangeland, or Grassland

The General Forest, Rangeland, or Grassland (GFRG) theme includes lands that are forested, rangeland, or grassland. Approximately 609,600 acres have been identified for inclusion as GFRG, and about 428,800 acres of the GFRG theme are in forest plan prescriptions designed for managing rangelands or grasslands[9].

Road construction/reconstruction. Permitted for a forest road or temporary road after necessary environmental analysis is completed. Maintenance of forest and temporary roads is permissible.

Timber cutting, sale, or removal. Permitted, consistent with the applicable forest plan, after necessary environmental analysis, including public involvement, is completed.

Mineral activities: Permitted, after necessary environmental analysis is completed.

Road construction or reconstruction associated with allowed mining activities must be conducted in a manner that minimizes effects on surface resources, prevents unnecessary or unreasonable surface disturbances, and complies with all applicable lease requirements, land and resource management plans, regulations, and laws. Roads constructed or reconstructed must be decommissioned when no longer needed upon expiration of the lease, contract, or permit, whichever is sooner.

Other Forest Plan Special Areas

The Idaho Roadless Rule identified approximately 334,500 acres of roadless areas that are already part of other land classification systems—such as research natural areas, wild and scenic rivers, special interest areas, and the like (appendix Q, table Q-1)—that are governed by specific Agency directives and forest plan direction. These forest plan special areas are included for the sake of completeness; however, the Proposed Idaho Roadless Rule does not recommend management direction for these lands, which would continue to be governed by forest plans.

[9] Prescriptions include 6.2 Caribou, 6.1 Sawtooth; 6.1(b) Targhee, (appendix B)

1.5 DECISION FRAMEWORK

The Secretary, U.S. Department of Agriculture, or a designee will consider whether to promulgate the proposed rule, including management direction for road construction / reconstruction, timber cutting, sale, or removal, and discretionary mineral activities based on the Petition (Proposed Action); or whether or not to:

- Promulgate a rule based on a modification to the Proposed Action, or
- Not promulgate a rule (no action).

1.6 Public Involvement

The management of undeveloped areas of the NFS has been a topic of ongoing discussion since the 1920s. In the past 10 years, several formal public processes have been initiated. These include the involvement of the public in developing the 2001 Roadless Rule, the 2005 State Petition Rule, individual forest plan revisions, and most recently, the Idaho State Roadless Petition. Overall the public response represents two main points of view on natural resource management and decision-making regarding the management of inventoried roadless areas:

1. An emphasis on environmental protection and preservation, and support for making decisions about roadless area management at the national level;
2. An emphasis on responsible active management, and support for making decisions about roadless area management at the local level.

2001 Roadless Area Conservation Rule (2001 Roadless Rule)

The Forest Service received more than 360,000 individual responses, representing more than 500,000 comments, in response to its 1999 notice of intent to promulgate a rule. Close to 1.2 million responses were received by the Forest Service on the proposed 2001 Roadless Rule and draft EIS during their comment period (USDA Forest Service 2000p). More than one million responses were form letters initiated by national interest groups. Agency responses to comments on the draft EIS are contained in Volume 3, Agency Responses to Public Comments, Forest Service Roadless Area Conservation Final EIS (USDA, Forest Service, 2000). Responses in Volume 3 relevant to the final rule are summarized in the preamble to the final rule published in the *Federal Register*, 66 FR 3244, on January 12, 2001 (USDA Forest Service 2001).

2005 State Petitions Rule for Inventoried Roadless Area Management (State Petitions Rule)

On May 4, 2001, the Secretary reaffirmed the Administration's commitment to providing protection for inventoried roadless areas in NFS lands. However, acknowledging concerns raised by local communities, Tribes, and States affected by the 2001 Roadless Rule, the Secretary also indicated that the Department would fairly address those concerns by re-examining the rule with a responsible and balanced approach.

On July 10, 2001, the Forest Service published an advanced notice of proposed rule in the *Federal Register*, 66 FR 35918 (USDA Forest Service 2001a) seeking public comment about how best to proceed with long-term protection and management of roadless areas. During the public comment period, which closed on September 11, 2001, the Forest Service received more than 726,000 responses.

A proposed rule was published in the *Federal Register*, 69 FR 42636, on July 16, 2004 (USDA Forest Service 2004). Approximately 1.8 million comments were received from a wide variety of respondents. Responses relevant to the final rule are summarized in the preamble to the final rule published in the *Federal Register*, 70 FR 25654, on May 13, 2005 (USDA Forest Service 2005).

Forest Planning

Public involvement has been extensive, from the development of the first generation of land management planning (forest planning) in the 1980s through subsequent revisions of those

plans. Moreover, one of the key issues in each public involvement process has been the management of inventoried roadless areas. Local, regional, and national comments have been received during these extensive public processes. Forests revising their plans use a collaborative process for working with the public on the management of roadless areas. Five Idaho national forests have completed revisions of their plans (Boise, Payette, Sawtooth [2003]; Caribou [2003]; Targhee [1997]); five are in progress with approximated completion dates in 2009 or 2010 (Clearwater, Idaho Panhandle, Kootenai, Nez Perce, Wallowa-Whitman); and two have not initiated revision (Salmon and Challis).

IDAHO STATE PETITION

On June 23, 2005, the Governor of Idaho announced that the State would develop a petition pursuant to the State Petitions Rule. In that announcement, the Governor solicited the help of local units of government to invite local communities to develop (through a public process) specific recommendations for inventoried roadless areas in portions of the national forests within their counties.

Following that announcement, local communities under the leadership of their respective county commissioners outlined a process for providing written recommendations to the Governor for review. Affected county commissioners held a series of public meetings to solicit public comment and develop their recommendations. Statewide, approximately 50 public meetings were held. To provide guidance and assistance in the process, a representative from either the Governor's Office or the Governor's Office of Species Conservation attended nearly every meeting. In addition to those meetings, the Governor's staff explained the Governor's vision for this local process during at least 10 additional meetings across the State. Because of the high volume of comments received, the county commissioners hired two independent contractors to compile submitted comments and prepare the commissioners' final recommendations to the Governor.

The State received comments or recommendations from 66 organizations, 30 counties, and 1,596 individuals. Some responses focused on individual roadless areas. Based on the comments submitted by the commissioners, individuals, and organizations, the Governor's staff developed management recommendations for each individual roadless area for the Governor's consideration. After development of the initial recommendations, the State engaged the Native American Tribes in Idaho, as fellow sovereigns, in discussions about these recommendations. The State of Idaho also contacted neighboring States to ensure inter-roadless area consistency. Based on the information gathered, the Governor assigned the management emphasis and the uses that would be permissible or prohibited for each management area.

The Governor's Petition demonstrates substantial engagement with local units of government, tribal governments, and the public at large, and well represents those who know, live, work, and recreate on these lands.

ROADLESS AREA CONSERVATION NATIONAL ADVISORY COMMITTEE (RACNAC)

The RACNAC was chartered by the Secretary to provide a national perspective on individual State petitions regarding roadless area management. On November 29 and 30, 2006, Governor James Risch presented the Idaho State Petition to the RACNAC. They also heard comments from other State and Forest Service officials, and nine members of the public, including one

State-level organization and three national organizations (RACNAC 2006). These public comments were transmitted to the Forest Service and considered in the development of this EIS.

In addition, during the comment period for the draft EIS, the RACNAC held several meetings to discuss the Proposed Idaho Roadless Rule and suggest modifications. These meetings were open to the public (RANCAC 2008 a-d). The RACNAC submitted a letter to the Secretary on May 30, 2008 with several recommendations to modify the Proposed Action (RACNAC 2008e).

SCOPING

A notice of intent to prepare an EIS on "Roadless Area Conservation; National Forest System Lands in Idaho" was published in the *Federal Register*, 68 FR 17816 April 10, 2007 (USDA Forest Service 2007). About 38,000 comments were received, of which 32,000 were form letters[10], while the remaining letters consisted of original responses or form letters with additional original text. These comments were evaluated and summarized in a report called Summary of Public Comments, which is provided in the Scoping section of the Record. The summary analyzes the public's responses specific to the Proposed Action, identifying significant concerns and issues.

SUMMARY OF PUBLIC INVOLVEMENT ON THE DRAFT EIS

The 90-day comment period on the draft EIS started December 21, 2007, with the publication of the notice of availability in the *Federal Register*, 72 FR 72708 (USDA Forest Service 2007r). The published comment period was to end on March 13, 2008. The proposed rule was published in the *Federal Register*, 73 FR 1135, on January 7, 2008, with the publication of the notice of proposed rulemaking and a request for a 90-day comment period (USDA Forest Service 2008p). The comment period for the draft EIS was extended to April 7, 2008, to coincide with the end of the comment period for the proposed rule. The draft EIS, map packets, summaries, Web links, and / or compact discs were mailed to approximately 5,400 Federal, State, and local agencies; tribal representatives; and the public in late December 2007 and early January 2008.

Throughout Idaho, public meetings were held in 16 communities during January and February 2008. The communities included Boise, Bonners Ferry, Cascade, Challis, Coeur d' Alene, Council, Grangeville, Hailey, Idaho Falls, Kellogg, Lewiston, Mackay, Orofino, Pocatello, Salmon, and Twin Falls. Another public meeting was held in Washington, DC, on January 17, 2008. Approximately 840 individuals attended these public meetings and approximately 325 of them provided public comments that were electronically recorded and transcribed. Written comments were also taken at this time. About 139,120 comments were received by the close of the comment period, of which approximately 8,780 were non-form letters (see Response to Comments for more information). These comments were considered in the development of the Modified Idaho Roadless Rule and this final EIS. The interdisciplinary team reviewed and responded to comments in appendix R Response to Comments, and updated the EIS based on those comments.

[10] Form letters are five or more letters that contain identical text but are submitted by different people.

1.7 Issues

The Council on Environmental Quality (CEQ) regulations at 40 CFR §1501.7 direct agencies to "Determine the scope (§1508.25) and the significant issues to be analyzed in depth in the environmental impact statement" and to "identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (§1506.3)." Scope consists of the range of actions, alternatives, and impacts to be considered in an EIS (40 CFR §1508.24). The scope of this EIS is defined by the Proposed Action, alternatives developed to address significant issues while meeting the purpose of and need for action, and the potential impacts identified in the significant issues. The Forest Service identified as significant issues those resources that could directly or indirectly be affected as a result of implementation of the Proposed Action.[11] The Forest Service identified the following significant issues. The issues represent possible effects of implementing the Proposed Idaho Roadless Rule.

Changes to Roadless Characteristics

Idaho Roadless Areas provide large, relatively undisturbed landscapes. Key values or features characterize these areas and are briefly described below. Over time, whether it was in the development of the 2001 Roadless Rule, the 2005 State Petition Rule, or individual forest plans, the public has identified as an issue any significant changes to these roadless characteristics within individual Idaho Roadless Areas. The Proposed Idaho Roadless Rule would provide management direction regarding timber cutting, road construction/reconstruction, and discretionary mineral activities in Idaho Roadless Areas. Implementation of this management direction could result in opportunities to change roadless characteristics.

1. **High quality or undisturbed soil, water, and air.** These three key resources are the foundation on which other resources depend. Healthy watersheds catch, store, and safely release water over time and in this way they:
   a. Protect downstream communities from flooding;
   b. Provide clean water for domestic, agricultural, and industrial uses;
   c. Help maintain abundant and healthy fish and wildlife populations; and
   d. Provide the basis for many forms of outdoor recreation.

   The prohibitions and permissions in the Proposed Action could change the ability of a roadless area to provide high quality soil, water, and air.
2. **Sources of public drinking water.** NFS lands include watersheds that are important sources of public drinking water. Several Idaho Roadless Areas contain all or portions of municipal watersheds, which contribute drinking water to the citizens of Idaho. Careful management of these municipal watersheds is crucial in maintaining the flow and affordability of clean water to a growing population. The prohibitions and permissions in the Proposed Action could change the ability of a roadless area to provide quality sources of drinking water.
3. **Diversity of plant and animal communities.** Because of the absence of roads and the disturbance activities that accompany them, Idaho Roadless Areas are more likely than

[11] Issues identified as not being significant were those: (1) outside the scope of the Proposed Action; (2) already decided by law or other regulation; (3) unrelated to the decision to be made; or (4) conjectural and not supported by scientific or factual evidence.

roaded areas to support enhanced ecosystem health, including the diversity of native and desired nonnative plant and animal communities. The prohibitions and permissions in the Proposed Action could change the degree to which a roadless area provides for the diversity of plant and animal communities. Of particular concern are habitats for threatened, endangered, proposed, candidate, and sensitive species and for those species dependent on large, undisturbed areas of land. Idaho Roadless Areas are biological strongholds and refugia for many species. The prohibitions and permissions in the Proposed Action could change the condition of biological strongholds and refugia in Idaho Roadless Areas.

4. **Reference landscapes.** The body of knowledge is limited with respect to the effects of management activities over long periods of time and on large landscapes. Reference landscapes, which are landscapes with minimal human disturbance, are a barometer for measuring the effects of development on other parts of the landscape. Roadless areas, because of their size, lend themselves to serve as reference landscapes. The prohibitions and permissions in the Proposed Action could change the condition and amount of reference landscapes.
5. **Primitive, Semi-primitive Non-motorized, and Semi-primitive Motorized classes of recreation.** Idaho Roadless Areas often provide outstanding dispersed recreation opportunities, such as camping, canoeing, cross-country skiing, fishing, hiking, hunting, picnicking, and wildlife viewing. Although roadless areas may have many wilderness-like attributes, roadless areas often allow the use of mountain bikes and other mechanized means of travel, unlike wilderness areas. The prohibitions and permissions in the Proposed Action would not change the type of dispersed recreation opportunities in Idaho Roadless Areas, because the Proposed Action does not address access and travel management. These decisions would be made in separate planning processes.
6. **Natural-appearing landscapes with high scenic quality.** High-quality scenery, especially scenery with natural-appearing landscapes, is a primary reason people choose certain settings in which to recreate. High-quality scenery can contribute directly to real estate values in nearby communities and residential areas. The prohibitions and permissions in the Proposed Action could change the scenic quality in a roadless area.
7. **Traditional cultural properties and sacred sites.** Traditional cultural properties are places, sites, structures, art, or objects that have played an important role in the cultural history of a group. Sacred sites are places that hold a special religious significance to a group. The prohibitions and permissions in the Proposed Action could affect traditional cultural properties and sacred sites in Idaho Roadless Areas.
8. **Other locally identified unique characteristics.** Idaho Roadless Areas may offer other locally identified unique characteristics and values. Examples include uncommon geological formations, which are valued for their scientific and scenic qualities, or unique wetland complexes. The Proposed Action would not apply management direction to 334,500 acres of special areas. These include research natural areas, wild and scenic rivers, special interest areas, and others (see appendix Q, table Q-1); therefore, the Proposed Action would not affect locally identified unique characteristics.

In addition to these issues, the EIS analyzes the following:

- Ability to address forest health and fire ecology;
- Ability to utilize minerals and energy resources;
- Social factors; and
- Economic factors.

CHAPTER 2. ALTERNATIVES, INCLUDING THE PROPOSED ACTION

2.1 INTRODUCTION

This chapter describes and compares the alternatives considered for Roadless Area Conservation; National Forest System (NFS) lands in Idaho. It includes a description and a map of each alternative considered (map packet). This chapter also presents the alternatives in comparative form, sharply defining the differences between each alternative and providing the decision maker and the public with a clear basis for choice. Some of the information used to compare the alternatives is based on the environmental, social, and economic effects of implementing each alternative. The National Environmental Policy Act (NEPA) regulation at 40 CFR 1501.2(c) states that Federal agencies shall:

> *...study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflict concerning alternative uses of available resources....*

The scoping process and comments on the draft Environmental Impact Statement (EIS) were used to: (1) identify significant issues deserving of detailed study (see chapter 1 for a discussion); and (2) identify unresolved conflicts associated with the Proposed Idaho Roadless Rule (Proposed Action), which may help identify alternatives. All comments were reviewed to determine whether they identified significant issues or unresolved conflicts.

The 2001 Roadless Area Conservation Rule (2001 Roadless Rule) and individual forest plans (Existing Plans) were brought forward as alternatives because they address many of the public's significant issues and provide a range of reasonable options for managing Idaho Roadless Areas.

Throughout this document, all acreage values are approximate and have been rounded.

2.2 Alternatives Considered in Detail

This environmental impact statement (EIS) examines four alternatives establishing regulatory direction for the management of Idaho Roadless Areas:

1. Direction based on the 2001 Roadless Rule (2001 Roadless Rule);
2. Direction based on existing forest plans (Existing Plans);
3. Direction based on the Petition, as presented to the Roadless Area Conservation National Advisory Committee (RACNAC) (Proposed Idaho Roadless Rule [Proposed Rule]).
4. Direction based on modifications to the Proposed Idaho Roadless Rule (Modified Idaho Roadless Rule [Modified Rule]).

The Proposed Rule recommends Idaho Roadless Areas be managed within a spectrum of five management themes:

- Wild Land Recreation;
- Primitive;
- Special Areas of Historic and Tribal Significance;
- Backcountry / Restoration; and
- General Forest, Rangeland, and Grassland.

To aid in analyzing effects and to better compare alternatives, the management prescriptions in the 2001 Roadless Rule and Existing Plans were placed in a management theme that would be the closest equivalent (appendix B). Appendix B has been modified in the final EIS to aid in the public's understanding. Appendix B now describes each forest plan prescription and the corresponding theme acres by alternative.

Table 2-1 describes each theme's management emphasis and the number of acres represented by that theme, by alternative. To account for all acreage identified as a roadless area, the table lists other forest plan special areas (FPSA), which would be guided by applicable existing and future forest plan direction (appendix Q, table Q-1).

Note the acres have been updated from the draft EIS based on corrections; see Appendix E for more detail. Throughout this document, all acreage values are approximate and have been rounded.

Table 2-1. Number of acres represented by Idaho Roadless Rule themes and equivalent themes for the 2001 Roadless Rule, Existing Plans, Proposed Idaho Roadless Rule, and Modified Idaho Roadless Rule

Theme	2001 Roadless Rule	Existing Plans	Proposed Idaho Roadless Rule	Modified Idaho Roadless Rule
Wild Land Recreation	0	1,320,500	1,378,000	1,479,700
Primitive	0	1,904,100	1,652,800	1,772,700
Special Areas of Historic and Tribal Significance	0	0	70,700	48,600
Similar to Backcountry/Restoration*	9,304,300	0	0	0
Backcountry/Restoration Backcountry/Community Protection Zone	0	4,482,000	5,258,700	5,312,900 442,000
General Forest, Rangeland, and Grassland	0	1,263,200	609,600	405,900
Other lands**				
Forest Plan Special Areas (appendix Q, table Q-1)	0	334,500	334,500	334,500
Totals	**9,304,300**	**9,304,300**	**9,304,300**	**9,304,300**

**The 2001 Roadless Rule is similar to the Backcountry theme for timber cutting and discretionary mineral activities, except for the allowance for road construction/reconstruction to access phosphate deposits, and the allowance for road construction/reconstruction to facilitate timber cutting in specific situations.*

*** The Idaho Roadless Rule would not apply to these other special areas.*

The following subsections describe each alternative and how it relates to the five management themes identified in the Proposed Rule. Each alternative addresses only prohibitions and permissions associated with timber cutting, sale, and removal; road construction / reconstruction; or future discretionary mineral-related actions for saleable or leasable minerals. The reason for this focus is that the Petition, similar to other efforts, has identified these particular activities as having the greatest likelihood of altering roadless area values and characteristics. Road construction / reconstruction or timber cutting, sale, and removal, under any alternative would be designed based on applicable forest plan components (for example, protection of riparian areas or habitat needs for species).

ALTERNATIVE 1. THE 2001 ROADLESS RULE (NO ACTION)[12]

This alternative presents a roadless area management regime based on the approach set out in the 2001 Roadless Rule (36 CFR, 294, Subpart B [2004]; 66 FR 3244 [Jan. 12, 2001]). The purpose of the 2001 Roadless Rule was to ensure that inventoried roadless areas sustain their values for this generation and for future generations. By sustaining these values, a continuous flow of benefits associated with healthy watersheds and ecosystems was expected.

Timber-cutting activities and road construction / reconstruction were identified as having the greatest likelihood of altering and fragmenting landscapes, and the greatest likelihood of resulting in an immediate, long-term loss of roadless area values and characteristics. The 2001

[12] As of the printing of this final EIS, the 2001 Roadless Rule is in operation by court order and represents the legal status quo and operating management direction for these lands. If subsequent action should enjoin the 2001 Roadless Rule, management would be governed by each forest's land management plan and any applicable Agency interim direction.

Roadless Rule was the product of a national process and established management direction at the national level with limited focus on State or local issues.

Theme assignment. Management direction in the 2001 Roadless Rule is similar to the Backcountry / Restoration theme in the Proposed Idaho Roadless Rule and would apply equally to all 9.3 million acres of Idaho Roadless Areas. The 2001 Roadless Rule differs from the Proposed Rule because it prohibits road construction / reconstruction associated with new mineral leases and prohibits road construction / reconstruction associated with timber cutting, sale or removal except to protect health and safety in cases of imminent threat of flood, fire, or other catastrophic event.

The Proposed Rule prohibits all road construction / reconstruction in the Wild Land Recreation, Primitive and Special Areas of Historic and Tribal Significance except when provided by statute or treaty, or pursuant to reserved or outstanding rights or other legal duty of the United States. The Proposed Rule also does not permit surface use and occupancy in these themes. In addition, the Proposed Rule prohibits timber cutting, sale, and removal in the Wild Land Recreation theme.

Road construction/reconstruction. The 2001 Roadless Rule prohibits road construction and reconstruction in inventoried roadless areas except as provided in the following situations:

1. A road is needed to protect health and safety in cases of imminent threat of flood, fire, or other catastrophic event that without intervention would cause the loss of life or property; or
2. A road is needed to conduct a response action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or to conduct a natural resource restoration action under CERLA, section 311 of the Clean Water Act, or the Oil Pollution Act; or
3. A road is needed pursuant to reserved or outstanding rights or as provided for by statute, treaty; or
4. Road realignment is needed to prevent irreparable resource damage that arises from the design, location, use or deterioration of a road and cannot be mitigated by road maintenance. Road realignment may occur under this paragraph only if the road is deemed essential for public or private access, natural resource management, or public health or safety; or
5. Road construction is needed to implement a road safety improvement project on a classified road determined to be hazardous based on accident experience or accident potential on that road; or
6. The Secretary of Agriculture determines that a Federal aid highway project, authorized pursuant to Title 23 of the U.S. Code (23 USC), is in the public interest or is consistent with the purpose for which the land was reserved or acquired and no other reasonable and prudent alternatives exists; or
7. In conjunction with the continuation, extension, or renewal of an existing mineral lease on lands that are under lease by the Secretary of the Interior as of January 12, 2001, or for a new lease issued immediately upon expiration of an existing lease. Such road construction or reconstruction must be conducted in a manner that minimizes effects on surface resources, prevents unnecessary or unreasonable surface disturbance, and complies with all applicable lease requirements, land and resource management plan

direction, regulations, and laws. Roads constructed or reconstructed pursuant to this paragraph must be obliterated when no longer needed for the purposes of the lease or upon termination or expiration of the lease, whichever is sooner.

Maintenance of classified roads is permissible in inventoried roadless areas.

Timber cutting, sale, or removal. The 2001 Roadless Rule prohibits timber cutting, sale, or removal in inventoried roadless areas except as provided in the following situations:

1. The cutting, sale, or removal of generally small diameter timber is needed for one of the following purposes and will maintain or improve one or more of the roadless area characteristics[13]:
   a. To improve threatened, endangered, proposed, or sensitive species habitat; or
   b. To maintain or restore the characteristics of ecosystem composition and structure, such as to reduce the risk of uncharacteristic wildfire effects, which would be expected to occur under natural disturbance regimes of the current climatic period;
2. When timber cutting is incidental to the implementation of a management activity not otherwise prohibited;
3. For personal or administrative use;
4. Where roadless characteristics have been substantially altered in a portion of the roadless area because of the construction of a classified road and subsequent timber harvest.

Mineral activities. The 2001 Roadless Rule provides for the construction or reconstruction of roads when needed in conjunction with the continuation, extension, or renewal of a mineral lease in existence as of January 12, 2001. Further, the rule allows for road construction or reconstruction in the case of reserved or outstanding rights, or as provided for by statute or treaty. This would include roads associated with locatable mineral activities pursuant to the General Mining Law of 1872. The 2001 Roadless Rule prohibits road construction and reconstruction associated with new mineral leases (after January 12, 2001) or to access mineral materials.

The 2001 Roadless Rule would allow surface occupancy for mineral leasing activities if roads were not required; it also would allow for the sale of mineral materials in all Idaho Roadless Areas.

Ability to change roadless area boundaries.

Although the 2001 Roadless Rule mentions subsequent update or revision to inventoried roadless area maps, no specific change provision was provided in the rule.

[13] See section 1.7 for a list of roadless area characteristics

ALTERNATIVE 2. EXISTING PLANS

Management direction in this alternative represents a roadless area management regime based on each national forest's land and resource management plan (forest plan). Each forest's plan is unique to its planning area; collectively the forest plans provide a broad range of management from wilderness to intensive management. Overall, as national forests have revised their forest plans, the trend has been to move more roadless areas into management prescriptions that conserve roadless characteristics. When developing or revising their forest plans, each forest or group of forests collaborates with the public and interested parties to develop management direction for their roadless areas.

In Idaho, five forests have revised their plans since 1997.[14] Revisions of five other forest plans within Idaho are ongoing[15] and are unlikely to be finalized prior to this rule. Two other plans have not started the revision process[16]

Generally, forest plans allow or limit an array of activities in roadless areas. To help compare alternatives, the management prescriptions in the existing plans were placed in the management themes that would be the closest equivalent to those set forth in the Petition.

Theme assignment. The following subsections describe how management prescriptions in Existing Plans corresponds to the Proposed Idaho Roadless Rule themes. Not all management prescriptions in Existing Plans correspond exactly with the themes; for example, some prescriptions may limit road construction for some activities in General Forest, Rangeland, and Grassland, or in Backcountry / Restoration, whereas the Proposed Rule does not. For a comparison of the Idaho Roadless Rule with the management prescriptions for each national forest, see appendix B.

Forest plan special areas (appendix Q, table Q-1) include management direction associated with research natural areas; wild and scenic rivers (designated, eligible, and suitable); special interest areas; developed sites, and other unique areas. These forest plan special areas (334,500 acres) would would be guided by applicable existing and future forest plan direction.

Wild Land Recreation

Areas recommended for wilderness designation in Existing Plans are equivalent to the Wild Land Recreation theme; therefore, limited activities are allowed. Road construction / reconstruction is prohibited except when provided by statute or treaty, or pursuant to valid existing rights or other legal duty of the United States. Timber cutting is prohibited except where it would be incidental to other activities (such as trail construction). Approximately 1,320,500 acres recommended as wilderness would be managed in a manner comparable to the Wild Land Recreation theme set out in the Idaho Roadless Rule.

Primitive

Lands equivalent to the Primitive theme most closely resemble areas managed for their undeveloped character. Timber cutting may be done on a very limited basis and in response to

[14] Boise, Caribou, Payette, Sawtooth, Targhee.

[15] Clearwater, Idaho Panhandle, Kootenai, Nez Perce, Wallowa-Whitman.

[16] Salmon, Challis

a threat[17] (for example, insects and disease, windstorms, hazardous fuels). Typically, no road construction / reconstruction is allowed except in some cases to access valid existing rights or minerals (locatable, leasable, and saleable). Approximately 1,904,100 acres would be managed in a manner comparable to the Primitive theme.

Backcountry/Restoration (Backcountry)

Backcountry / Restoration (Backcountry) areas would typically be managed for other resource benefits, such as wildlife or recreation, not typically including timber production. However, some prescriptions have dual objectives—timber production and consideration of wildlife resources. Timber cutting is allowed, usually to a lesser extent than would be allowed in General Forest, Rangeland and Grassland, when conducted for other resource benefits. Road construction / reconstruction is also allowed, but under certain conditions, which may include substantial restrictions, such as road closures or use of temporary roads. Approximately 4,482,000 acres to be managed in a manner similar to the Backcountry theme.

General Forest, Rangeland, or Grassland (GFRG)

Existing Plans direct that certain areas—represented by the General Forest, Rangeland, or Grassland (GFRG) theme—be managed to provide a variety of goods and services. These areas may be managed for timber production, where intensive forest management would be expected, including associated road construction / reconstruction. Approximately 1,263,200 acres would be managed in a manner comparable to the GFRG theme.

Mineral activities. Mineral resources are addressed in each of the equivalent themes in a variety of ways under Existing Plans, from limited to full development (see appendix B).

Ability to change roadless area boundaries.

In the absence of the 2001 Roadless Rule or other regulatory direction, forest plans could create, delete, or amend inventoried roadless areas through plan amendment or revision.

ALTERNATIVE 3. PROPOSED IDAHO ROADLESS RULE[18] (PROPOSED ACTION)

The Proposed Action represents a strategy for the conservation and management of Idaho Roadless Areas that takes into account State and local situations and unique resource management challenges, while it recognizes and integrates the national interest in maintaining roadless characteristics.

Building from each forest's existing or proposed forest plan[19], the Proposed Idaho Roadless Rule assigned individual roadless areas within five broad management themes: Wild Land Recreation, Special Areas of Historic or Tribal Significance, Primitive, Backcountry / Restoration, and General Forest, Rangeland and Grassland. These themes span a continuum (fig. 1-1, in chapter 1) that includes at one end, an approach emphasizing passive management and natural restoration approaches, and on the other end, active management designed to accomplish

[17] Reference the Healthy Forests Restoration Act of 2003 (P.L. 108-148).

[18] The Proposed Idaho Roadless Rule includes clarifications made by then Governor Risch at the November 29 and 30, 2007, RACNAC meeting. Updates are reflected in appendix H.

[19] Existing plans referred to here include the Boise, Caribou, Challis, Payette, Salmon, Sawtooth, Targhee, Wallowa-Whitman. Proposed plans referred to here are the Clearwater, Idaho Panhandle, Kootenai, and Nez Perce.

sustainable protection of roadless characteristics. The continuum accounts for stewardship of the uniqueness of each individual roadless area's landscape and the quality of roadless characteristics in that area.

Under the Proposed Rule other areas (referred to as "forest plan special areas" such as research natural areas; wild and scenic rivers (designated and eligible); special interest areas; visual corridors; recreation areas; and the like (table 2-1 and appendix Q) would be guided by applicable existing and future forest plan direction special areas. These lands are included in the discussion for sake of completeness; however, the Proposed Action does not recommend management direction for the 334,500 acres found in these lands.

Allocation to a specific theme is not intended to mandate or direct the Forest Service to propose or implement any action; rather the themes provide an array of permitted and prohibited activities related to timber cutting, sale, and removal; road construction / reconstruction; and discretionary mineral activities.

As in the 2001 Roadless Rule, timber cutting and road construction / reconstruction are identified as the management activities having the greatest potential for altering landscapes and causing immediate changes to roadless values and characteristics.

The Proposed Action also establishes prohibitions and permissions for discretionary mineral activities because of potential effects on roadless characteristics. Further, the Proposed Action allows for road construction / reconstruction in the case of reserved or outstanding rights, or as provided for by statute or treaty. This would include roads associated with locatable mineral activities pursuant to the General Mining Law of 1872 or roads subject to access rights under ANILCA. Finally, the Proposed Action provides additional direction regarding common variety minerals, which are the sole discretion of the Secretary of Agriculture (Secretary) to manage.

Again, like the 2001 Roadless Rule, the Proposed Action does not seek to restrict retroactively any existing mineral authorizations[20]. However, the Proposed Action would establish limitations on the future exercise of discretion available to Forest Service line officers. It does not seek to impose restrictions on decision-making that Congress has assigned to the Department of the Interior. The Proposed Action also does not affect or seek a withdrawal of the mineral estate; such matters are subject to a separate statutory process established in the Federal Land Policy Management Act (FLPMA). Instead, the Proposed Action seeks direction to be applied where Forest Service line officers have discretionary authority to influence whether and how the activity may occur.

Like the 2001 Roadless Rule, the Proposed Action does not address travel management or wildland fire use. Management direction related to those activities would be regulated by other existing regulatory and analytical processes (for example, travel planning).

The Proposed Action would not affect existing grazing permits; however future livestock operations, including new road construction would be required to conform to the rule.

The following subsections describe each theme's desired condition, management intent, acres, and specific permissions and prohibitions.

[20] Mineral authorizations include those for saleable, leasable, and locatable minerals.

Wild Land Recreation (WLR)

Approximately 1,378,000 acres have been identified for inclusion as Wild Land Recreation areas.

Road construction/reconstruction. Prohibited except when provided by statute or treaty, or pursuant to reserved or outstanding rights or other legal duty of the United States.

Timber cutting, sale, or removal. Prohibited except for personal or administrative use or where incidental to other management actions (such as trail clearing).

Mineral activities. No recommendation, authorization, or consent to surface occupancy, or road construction or reconstruction associated with new mineral or energy leases. The sale of common variety minerals would be prohibited. Locatable mineral activities pursuant to the General Mining Law of 1872, including road construction and reconstruction, would not be affected.

Primitive

Approximately 1,652,800 acres are identified for inclusion as Primitive.

Road construction/reconstruction. Prohibited except when provided by statute or treaty, or pursuant to reserved or outstanding rights or other legal duty of the United States.

Timber cutting, sale, or removal. Prohibited unless existing roads or aerial systems are used and the responsible official determines that:

1. The cutting, sale, or removal of timber would maintain or improve one or more of the roadless characteristics and is needed for one of the following purposes:
   a. To improve threatened, endangered, proposed, or sensitive species habitat; or
   b. To maintain or restore the characteristics of ecosystem composition and structure or to reduce the significant risk of wildland fire effects; or
2. The cutting, sale, or removal of timber is:
   a. For personal or administrative use (36 CFR §223); or
   b. Incidental to the implementation of a management activity not otherwise prohibited (e.g., trail clearing).

The wording for exception (1)b is modified from the 2001 Roadless Rule. The 2001 Roadless Rule uses the terms “reduce the risk of uncharacteristic wildfire effects, within the range of variability that would be expected to occur under natural disturbance regimes of the current climatic period;” the Proposed Rule uses the terms “or to reduce the significant risk of wildland fire effects.” The language “within the range of variability that would be expected to occur under natural disturbance regimes of the current climatic period” was removed because it does not account for species like lodgepole pine which routinely has stand replacement fires, and are currently in Condition Class I[21] but may pose significant risk to at-risk communities. The change in language is focused on allowing activities, when necessary and dictated by site-specific circumstance, to perform hazardous fuel treatment in Primitive areas at significant risk of wildland fire. It is anticipated that timber cutting would be very infrequent in the Primitive theme.

[21] See section 3.3 Fuel Management for a description of Condition Class I

Treatments would be designed based on site-specific needs to reduce any significant risks or to trend toward historic range of variability. Determination of significant risk would be guided by the interagency Healthy Forests Initiative and the *Healthy Forests Restoration Act: Interim Field Guide* (USDA Forest Service and USDI BLM 2004).

Mineral activities. No recommendation, authorization, or consent to surface occupancy or road construction or reconstruction associated with new mineral or energy leases. The sale of common variety minerals would be prohibited. Locatable mineral activities pursuant to the General Mining Law of 1872, including road construction and reconstruction, would not be affected. This is the same as under the Wild Land Recreation theme.

Special Areas of Historic or Tribal Significance (SAHTS)

Approximately 70,700 acres have been identified for inclusion as SAHTS, and this theme consists of three areas:

1. Pilot Knob located within the Pilot Knob (#849) Roadless Area on the Nez Perce National Forest;
2. Nimiipuu and Lewis and Clark National Historic Trails located within the Bighorn-Weitas (#306), Eldorado Creek (#312), Hoodoo (#301), North Lochsa Slope (#307), and Weir-Post Office Creek (#308) Roadless Areas on the Clearwater National Forest; and
3. The Pioneer Area located within the Mallard Larkins (#300) Roadless Area on the Idaho Panhandle National Forest.

Lands within the SAHTS theme would be managed the same as the Primitive theme.

Backcountry/Restoration (Backcountry)

Approximately 5,258,700 acres have been identified for inclusion as Backcountry.

Road construction/reconstruction. Much like the 2001 Roadless Rule, road construction and reconstruction would be permissible if one or more of the following are met:

1. A road is needed to protect public health and safety in cases of significant risk or imminent threat of flood, fire, or other catastrophic event that, without intervention, would cause the loss of life or property, or to facilitate forest health activities permitted under timber cutting, sale, or removal (1) above; or
2. A road is needed to conduct a response action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to conduct a natural resource restoration action under CERCLA, section 311 of the Clean Water Act, or the Oil Pollution Act; or
3. A road is needed pursuant to statute, treaty, reserved or outstanding rights, or other legal duty of the United States; or
4. Road realignment is needed to prevent resource damage that arises from the design, location, use, or deterioration of a road and cannot be mitigated by road maintenance. Road realignment may occur only if the road is deemed essential for public or private access, natural resource management, or public health and safety; or
5. Road construction is needed to implement a road safety improvement project on a road that has been determined to be hazardous based on accident experience or accident potential on that road; or

6. The Secretary of Agriculture determined that a Federal aid highway project, authorized pursuant to Title 23 of the U.S. Code (23 USC), is in the public interest or is consistent with the purpose for which the land was reserved or acquired and no other reasonable and prudent alternative exists; or
7. A road is needed in conjunction with activities permissible under the limited mineral exceptions for Backcountry.

Under (1) above, the phrase "significant risk" is an addition to "imminent threat" which is the phrasing in the 2001 Roadless Rule. In addition the phrase "or to facilitate forest health activities permitted under timber cutting, sale, or removal" was added. The change in the text is focused on allowing forest health activities when necessary and dictated by site-specific circumstance to perform expedited hazardous fuel treatment in Backcountry areas at significant risk of wildfire and insect and disease epidemics. The Forest Service and State do not intend this change in language to be construed as giving permission to build roads in areas designated as Backcountry for the purpose of engaging in *routine* forest management activities as denoted by the use of the words "significant risk". The addition is intended to provide additional flexibility where site-specific conditions pose a significant risk of wildland fire.

Although the principal objective for this adjustment is to protect at-risk communities or municipal water supply systems from adverse effects of wildland fire, this provision also contemplates access for: (1) areas where wind throw, blowdown, ice storm damage, or the existence or imminent threat of an insect or disease epidemic is significantly threatening ecosystem components or resource values that may contribute to significant risk of wildland fire; and (2) areas where wildland fire poses a threat to, and where the natural fire regimes are important for, threatened and endangered species or their habitat, consistent with the Healthy Forests Restoration Act (HFRA P.L 108-148).

New roads that would be constructed would be temporary, unless the responsible official[22] determines that a permanent road meets the exceptions above and the addition of a forest road would not substantially alter roadless characteristics.

Timber cutting, sale, or removal. As in the 2001 Roadless Rule (with one modification), timber cutting, sale, or removal is permissible under the following circumstances:

1. The cutting, sale, or removal of timber would maintain or improve one or more of the roadless characteristics and is needed for one of the following purposes:
   a. To improve threatened, endangered, proposed, or sensitive species habitat; or
   b. To maintain or restore the characteristics of ecosystem composition and structure or to reduce the significant risk of wildland fire effects; or
2. The cutting, sale or removal of timber is:
   a. For personal or administrative use (36 CFR §223); or
   b. Incidental to the implementation of a management activity not otherwise prohibited (e.g., trail clearing); or
   c. It is within a substantially altered portion of an Idaho Roadless Area designated as Backcountry / Restoration, which has been altered because of the construction of a forest road and subsequent timber harvest.

[22] Responsible official in this context refers to the Forest Service line officer responsible for making the site-specific decision.

The wording for exception (1)(b) is modified from the 2001 Roadless Rule. The 2001 Roadless Rule uses the terms "reduce the risk of uncharacteristic wildfire effects, within the range of variability that would be expected to occur under natural disturbance regimes of the current climatic period"; the Proposed Rule uses the terms "or to reduce the significant risk of wildland fire effects." As with the Primitive theme, the change in language is focused on allowing activities, when necessary and dictated by site-specific circumstance to perform hazardous fuel treatment in Backcountry areas at significant risk of wildland fire. It is anticipated that timber cutting would be infrequent in the Backcountry theme, focusing on what is left behind versus what is removed.

Treatments would be designed based on site-specific needs to reduce any significant risks or to trend toward historic range of variability. Determination of significant risk would be guided by the interagency Healthy Forests Initiative and the *Healthy Forests Restoration Act: Interim Field Guide* (USDA Forest Service, USDI BLM 2004).

Mineral activities. No recommendation, authorization, or consent to road construction or reconstruction associated with new mineral leases, except such road construction or reconstruction may be authorized in association with phosphate leasing. Leasing instruments that allow surface use or occupancy are permissible if they do not require road construction or reconstruction. Locatable mineral activities pursuant to the General Mining Law of 1872 would not be affected, including road construction and reconstruction.

The Forest Service may authorize the use or sale of common variety minerals, and associated road construction or reconstruction to access these minerals, if the use of these minerals is incidental to activity allowed under this rule.

General Forest, Rangeland, and Grassland (GFRG)

The GFRG theme includes lands that are forested, rangeland, or grassland. Approximately 609,600 acres have been identified for inclusion as GFRG. About 428,800 acres of the GFRG theme are in forest plan prescriptions designed for rangeland or grassland management.[23]

Road construction/reconstruction. A forest or temporary road may be constructed or reconstructed.

Timber cutting, sale, or removal. Timber may be cut, sold, or removed upon the discretion of the responsible official consistent with the applicable forest plan.

Mineral activities. The Forest Service may recommend, authorize, or consent to activities associated with mineral leases.

Road construction or reconstruction associated with mining activities (in the GFRG and Backcountry themes) would be conducted in a manner that minimizes effects on surface resources, prevents unnecessary or unreasonable surface disturbances, and complies with all applicable lease requirements, forest plan direction, regulations, and laws. Roads constructed or reconstructed would be decommissioned when they are no longer needed or when the lease, contract, or permit expires, whichever is sooner.

[23] The prescriptions include Caribou prescription 6.2 (185,700 acres); Sawtooth prescription 6.1 (96,200 acres); and Targhee prescription 6.1(b) (185,700 acres).

Ability to change Idaho Roadless Areas and management classifications.

The Proposed Action would provide for a process for administrative corrections, as well as other modifications of Idaho Roadless Areas in response to changed conditions or other need.

Administrative corrections include, but are not limited to, adjustments that remedy clerical, typographical, mapping errors, or improvements in mapping technology. Administrative corrections would not require a particular process and would be effective upon public notice.

The Chief of the Forest Service may add, remove, or modify the designations and management classifications based on changed circumstances or public need. Modifications would be made only after public notice, and those deemed significant would require public involvement comparable to rulemaking—that is, notice and comment. Factors to be considered in assessing significance include location and size, degree of change, and the purpose of the modification. Non-significant modifications would require a minimum 30-day public notice prior to becoming effective.

Examples when rulemaking would not be expected include the following: (1) establishment by the Forest Service of a research natural area in a roadless area designated as Primitive; (2) redesignation of a small portion of Backcountry adjacent to a large block of GFRG into the GFRG theme; (3) redesignation of a small portion of the Backcountry theme adjacent to a large block of Primitive into the Primitive theme.

Examples when rulemaking would be expected include the following: (1) approving the use of lands designated as Primitive to construct and operate an all-season resort complex; (2) geothermal exploration has discovered a significant energy field in an area designated as Primitive, and the Forest Service proposes that a portion of the roadless area be designated as GFRG to allow development and transmission line corridors; (3) during forest plan revision, the Forest Service recommends two primitive areas for wilderness designation and consequently proposes their themes be changed to Wild Land Recreation.

ALTERNATIVE 4. MODIFIED IDAHO ROADLESS RULE (PREFERRED ALTERNATIVE)

A fourth alternative was developed, the Modified Idaho Roadless Rule, that changes portions of the Proposed Action based on public comment, including, but not limited to, Tribal government-to-government consultation, recommendations from the RACNAC, consultation with adjacent States, and input from the public at large.

Modifications from the Proposed Action primarily related to four concerns:

1. The amount and type of roadless areas placed in the various themes;
2. The permissions for road construction and reconstruction to facilitate timber cutting, sale and removal in the Backcountry theme;
3. The permission for road construction and reconstruction to access phosphate deposits in the Backcountry theme;
4. The public comment requirements to make changes in the future.

Other less substantive changes are also reflected in the Modified Rule based on public comment.

Changes to theme classifications

There are two ways to address people's concerns over theme classifications. One is to change a particular roadless areas theme assignment to a more acceptable one; the second is to change the prohibitions or permissions of the theme to address the concerns. Both methods have been used as described below.

Many people were concerned about the amount of land in the GFRG theme, especially on the Caribou-Targhee National Forest. Others provided specific requests for changes to themes. Appendix P of this EIS describes each of the specific requests and the disposition of those requests. Appendix E identifies the specific changes made in the Modified Rule.

In general, themes were changed in the Modified Rule based on their specific roadless area characteristics and how and where they were located (for example, a GFRG theme adjacent to Wild Land Recreation theme may have been changed to Backcountry). The following summarizes the changes to themes.

Approximately 279,800 acres were changed from GFRG to Backcountry including:

- Small areas adjacent to the outer boundary of the roadless area;
- Important big game habitat with few, if any developments;
- Known phosphate lease areas where development would be precluded because of aquatic concerns (Deer Creek) on the Caribou portion of the Caribou-Targhee National Forest.

Approximately 75,900 acres were changed from Backcountry to GFRG including:

- Lands that were already roaded (mostly on the Salmon portion of the Salmon-Challis National Forest, small areas on the Targhee portion of the Caribou-Targhee National Forest); and
- Lands adjacent to Jesse Creek watershed that are outside the community protection zone but where the community wildfire protection plan anticipates treatment is needed to protect the municipal watershed (Salmon portion of the Salmon-Challis National Forest).

Approximately 149,200 acres were changed from Backcountry to Primitive:

- Areas with high quality roadless characteristics.

Approximately 79,100 acres were changed from Primitive to Wild Land Recreation:

- All of the Rapid River Roadless Area (68,400 acres) on the Payette and Nez Perce National Forests because of the very high quality of the roadless area and Tribal interests.
- A portion of the Selkirk Roadless Area (10,700 acres) on the Idaho Panhandle National Forest to better reflect recommendations made during forest plan revision.

Approximately 22,100 acres were changed from SAHTS to Wild Land Recreation:

- Pioneer Area in the Mallard Larkins on the Idaho Panhandle National Forest; tree cutting is not desired in this area.

Changes to Theme Management Direction

Wild Land Recreation

Approximately 1,479,700 acres would be designated Wild Land Recreation.

No changes were made to the Wild Land Recreation theme in the Modified Rule alternative.

Primitive

About 1,722,700 acres would be designated as Primitive under the Modified Rule.

Road construction/reconstruction. No changes were made to road construction and reconstruction in the Primitive theme in the Modified Rule alternative.

Timber cutting, sale, or removal. Like the 2001 Roadless Rule and the Proposed Rule, timber cutting under the Modified Rule would be prohibited unless existing roads or aerial systems are used and the cutting, sale, or removal of timber would improve threatened, endangered, proposed, or sensitive species habitat.

Some additional conditions for timber cutting were added under the Modified Rule, including: (1) timber cutting, sale, or removal must be approved by the regional forester; (2) maximize the retention of large trees as appropriate for the forest type, to the extent the trees promote fire-resilient stands; and (3) projects must be consistent with applicable plan components. See section 2.4 Responses to Questions for further discussion.

In addition to the new requirements, the purposes for timber cutting were modified to be more consistent with the 2001 Roadless Rule, including the removal of the phrase “significant risk”; see table 2-2.

Table 2-2. Timber cutting, sale and removal exceptions in the Primitive theme

2001 Roadless Rule	Proposed Rule	Modified Rule
Timber may be cut, sold, or removed in inventoried roadless areas if the responsible official determines that one of the following circumstances exists. The cutting, sale, or removal of timber in these areas is expected to be infrequent. (1) The cutting, sale, or removal of generally small diameter timber is needed for one of the following purposes and will maintain or improve one or more of the roadless area characteristics: (i) To improve threatened, endangered, proposed, or sensitive species habitat; or (ii) To maintain or restore the characteristics of ecosystems composition and structure, such as to reduce the risk of uncharacteristic wildfire effects, which would be expected to occur under natural disturbance regimes of the current climatic period; (2) The cutting, sale, or removal of timber is incidental to the implementation of a management activity not otherwise prohibited; (3) The cutting, sale, or removal of timber is needed and appropriate for personal or administrative use; or (4) Roadless characteristics have been substantially altered in a portion of the inventoried roadless area due to the construction of a classified road and subsequent timber harvest.	The cutting, sale, or removal of timber is prohibited unless existing roads or aerial systems are used and the responsible official determines that: (1) The cutting, sale, or removal of timber will maintain or improve one or more of the roadless characteristics and is needed for one of the following purposes: (i) To improve threatened, endangered, proposed, or sensitive species habitat; or (ii) To maintain or restore the characteristics of ecosystem composition and structure or to reduce the significant risk of wildland fire effects. (2) The cutting, sale, or removal of timber is incidental to the implementation of a management activity not otherwise prohibited; (3) The cutting, sale, or removal of timber is needed and appropriate for personal or administrative use.	(1)The cutting, sale, or removal of timber is prohibited except to: (i) Improve threatened, endangered, proposed, or sensitive species habitat; or (ii) Maintain or restore the characteristics of ecosystem composition, structure and processes; or (iii) Reduce the risk of uncharacteristic wildland fire effects to an at-risk community or municipal water supply system. (2) Any action authorized shall be: ▪ approved by the regional forester; ▪ limited to situations where one or more roadless characteristics are maintained or improved over the long-term; ▪ use existing roads or aerial systems; ▪ maximize the retention of large trees as appropriate for the forest type, to the extent the trees promote fire-resilient stands; and ▪ be consistent with applicable land management plan components. (3) The cutting, sale, or removal of timber is prohibited unless it is: (i) needed and appropriate for personal or administrative use; (ii) incidental to the implementation of a management activity not otherwise prohibited.

The 2001 Roadless Rule used the terms “to reduce the risk of uncharacteristic wildfire effects, within the range of variability that would be expected to occur under natural disturbance regimes of the current climatic period;” the Proposed Rule used the terms “or to reduce the significant risk of wildland fire effects.” The change in language was intended to allow activities, when necessary and dictated by site-specific circumstance, to perform hazardous fuel treatment in Primitive areas at significant risk of wildland fire.

However, public comment indicated the Proposed Rule language would allow more timber cutting than the 2001 Roadless Rule. That was not the intent of the Proposed Rule; therefore the language was modified in the Modified Rule to be more similar to the 2001 Roadless Rule, by establishing a condition that fuel-reduction projects must have a connection with reducing the risk of uncharacteristic wildland fire effects to at-risk communities or municipal water supply systems, not just reducing fuels anywhere in the Primitive theme. This change is a refinement of the 2001 Roadless Rule.

It is anticipated that timber harvest (the removal of commercial products) would be used primarily to reduce the uncharacteristic wildland fire effects around at-risk communities or municipal water supply systems. Approximately 153,000 acres of the Primitive theme are within 1½ miles of a community. About 12,600 acres of municipal water supply systems are within the Primitive theme, but further than 1½ miles of a community. However, only timber harvest conducted from existing roads or using aerial systems would be used.

Outside this area, other vegetation treatments such as slashing and/or prescribed burning or wildland fire use would be the primary tools to maintain or improve federally threatened, endangered, proposed, or Forest Service sensitive species habitat or to maintain or restore ecosystem composition and structure. For example, slashing and prescribed burning may be used to restore whitebark pine forests by removing competing vegetation and cutting dead trees to create a fuel bed and reintroduce fire into the ecosystem. Timber harvest is unlikely to occur outside of at-risk communities because of the lack of road access.

Mineral activities. No change from Proposed Rule.

Special Areas of Historic or Tribal Significance (SAHTS)

About 48,600 acres are in the SAHTS theme under the Modified Idaho Roadless Rule. Pioneer Area on the Idaho Panhandle was changed from SAHTS to Wild Land Recreation. The management direction for SAHTS would be the same as Primitive.

Backcountry/Restoration (Backcountry)

About 5,312,900 acres are in the Backcountry theme under the Modified Rule, of which about 442,000 acres are in the community protection zone.

Road construction/reconstruction. The Modified Rule includes the same exceptions as the 2001 Roadless Rule, with the additions noted below for timber cutting, sale, and removal.

Road construction/reconstruction to facilitate timber cutting. Many of the public comments focused on the appearance of broad permissive management direction for road construction and reconstruction to support timber cutting in the Backcountry theme. The 2001 Roadless Rule contains the phrase “imminent threat” as a condition for allowing road construction/reconstruction. The Proposed Rule added the phrases “significant risk” and “or to facilitate forest health activities permitted under timber cutting, sale, or removal.” The changes in text focused on allowing forest health activities, when necessary and dictated by site-specific circumstance, to perform expedited hazardous fuel treatment in areas at significant risk of wildland fire and insect and disease epidemics. The Forest Service and State did not intend this change in language to be construed as giving permission to build roads in areas designated as Backcountry for the purpose of engaging in routine forest management activities as denoted by the use of the words “significant risk”.

However, the public desired more clarity; therefore, the Modified Rule further focuses the intent, in four ways:

1. By permitting only temporary roads to be constructed to facilitate timber cutting, sale, or removal (no permanent roads allowed);
2. By designating an area (community protection zone (CPZ)) where temporary roads could be constructed to reduce hazardous fuels adjacent to communities;

3. By providing additional conditions for when temporary roads could be constructed to reduce significant risk outside the CPZ to protect at-risk communities or municipal water supply systems; and
4. By removing the permission to construct temporary roads to facilitate other "forest health" activities.

Temporary roads to facilitate timber cutting, sale, or removal: The Proposed Rule said roads constructed should be temporary unless the responsible official determines a forest road is necessary and would not substantially alter roadless characteristics. This wording has been changed in the Modified Rule to only permit temporary roads to facilitate timber cutting.

Additional conditions are also included such as requiring minimal surface disturbance; requiring that the road be used only for the specified purpose and must be decommissioned; and requiring that decommissioning must be a contract or permit requirement that cannot be waived; and requiring that the temporary road be allowed only where consistent with applicable plan components.

Road construction/reconstruction to facilitate fuels reduction in the community protection zone. The Modified Rule identifies a geographic area, based on criteria from the Healthy Forests Restoration Act (HFRA), where temporary roads to facilitate timber cutting, sale, and removal could be constructed. This geographic area is referred to a "community protection zone" (CPZ). This area is based on HFRA §101 (16)(B) that describes a wildland-urban interface as:

1. An area extending ½-mile from the boundary of an at-risk community;
2. An area within 1½ miles of the boundary of at-risk community, including any land that:
   a. Has a sustained steep slope that creates the potential for wildfire behavior endangering an at-risk community; or
   b. Has a geographic feature that aids in creating an effective fire break, such as a road or ridge top; or
   c. Is in Condition Class 3[24].

About 442,000 acres are within 1½ miles of a community in the Backcountry theme; see section 3.2 Fuels Management[25].

Within the CPZ, temporary roads could be constructed to facilitate timber harvest that reduces hazardous fuel conditions if in the responsible official's judgment it is determined that the community protection objectives cannot be reasonably accomplished without a temporary road and the temporary road is consistent with applicable land management plan components. It is anticipated that temporary roads would only be constructed in association with timber harvest. Other timber-cutting tools, such as slashing understory vegetation or prescribed burning, may also be used to achieve objectives within the CPZ, but under most circumstances no roads would be constructed to facilitate these activities.

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[24] Condition Class 3 refers to those lands where fire regimes on land have been significantly altered from historical ranges; there exists a high risk of losing key ecosystem components from fire; fire frequencies have departed from historical fire frequencies by multiple fire return intervals, resulting in dramatic changes to (a) the size, frequency, intensity, or severity of fires or (b) landscape patterns; and vegetation attributes have been significantly altered from the historical range of alternatives. (HFRA §101(5))

[25] CPZ in this EIS is used as a proxy for the geographic area where road construction to facilitate timber cutting could occur. CPZ would be determined at the project level based on the definition of CPZ.

Road construction/reconstruction to facilitate timber cutting, sale, or removal to reduce significant risk. Outside the CPZ, temporary roads may be constructed to facilitate timber harvest when it is found that timber harvest is needed to reduce the significant risk of wildland fire effects to an at-risk community or municipal water supply system. The Modified Rule strengthens the geographic connection between a finding of significant risk to at-risk communities or municipal water supply systems.

The regional forester may approve temporary road construction or reconstruction on an infrequent basis for they forest type to reduce hazardous fuel conditions outside a CPZ where:

1. There is a significant risk that a wildland fire disturbance could adversely affect an at-risk community or municipal water supply system. A significant risk occurs where the history of fire occurrence and fire hazard and risk indicate a serious likelihood that a wildland fire disturbance event would present a high risk of threat to an at-risk community or municipal water supply system.
2. The activity cannot be reasonably accomplished without a temporary road;
3. The activity maintains or improves one or more roadless characteristics over the long-term; and
4. The action is consistent with applicable land management plan components.

It is anticipated that the construction of temporary roads in this situation would be infrequent because of the additional conditions and regional forester involvement.

It is anticipated that temporary roads would be constructed only in association with timber harvest activities because of the cost associated with constructing temporary roads. Other timber cutting tools, such as slashing understory vegetation or prescribed burning, may also be used to achieve objectives outside the CPZ, but under most circumstances no roads would be constructed to facilitate these activities.

Road construction/reconstruction to facilitate timber cutting associated with other "forest health". Timber cutting, sale, and removal may also be done to improve federally threatened, endangered, proposed, or Forest Service sensitive species habitats; or to maintain or restore ecosystem composition and structure. However, the language from the Proposed Rule was modified in the Modified Rule to remove the permission to **construct** temporary roads for these "forest health" purposes. The Modified Rule would permit any timber cutting, sale, or removal activities in the Backcountry theme to **use** any forest roads or temporary roads, including those authorized to reduce hazardous fuels within the CPZ or to reduce significant risk until decommissioned.

Timber cutting, sale, or removal. Timber cutting, sale, or removal would be permissible only under the following circumstances:

1. To reduce hazardous fuel conditions within the CPZ if in the responsible official's judgment the project generally retains large trees as appropriate for the forest type and is consistent with applicable forest plan components;
2. To reduce hazardous fuel conditions outside the community protection zone where there is significant risk that a wildland fire disturbance event could adversely affect an at-risk community or municipal water supply system. A significant risk occurs where

the history of fire occurrence[26] and fire hazard and risk[27] indicate a serious likelihood that a wildland fire disturbance event would present a high risk of threat to an at-risk community or municipal water supply system;

3. To improve threatened, endangered, proposed, or sensitive species habitat[28];
4. To maintain or restore the characteristics of ecosystem composition and structure; or
5. To reduce the risk of uncharacteristic wildland fire effects.

For actions 2 through 5, timber cutting, sale, or removal must:

a. Maintain or improve one or more roadless area characteristics over the long-term;
b. Maximize the retention of large trees, as appropriate for the forest type, to the extent the trees promote fire-resilient stands;
c. Be consistent with the applicable forest plan components, and
d. Be approved by the regional forester.

These conditions (a-d) are not applicable to reducing hazardous fuels in the CPZ.

In addition, the cutting, sale, or removal of timber is permissible:

1. For personal or administrative use (36 CFR §223); or
2. Incidental to the implementation of a management activity not otherwise prohibited (e.g., trail clearing); or
3. Within a substantially altered portion of an Idaho Roadless Area designated as Backcountry/Restoration, which has been altered because of the construction of a forest road and timber harvest. Both road construction and subsequent timber cutting must have occurred prior to the effective date of the final rule.

Mineral activities. Many commentors were concerned with the permission for road construction and reconstruction to facilitate new phosphate mining in the Backcountry theme. To address this concern, those phosphate deposits that were highly probable of development and were outside areas with very high resource concerns were placed into the GFRG theme in the Modified Rule, and the permission to construct roads was removed from the Backcountry theme. Permission for surface use or occupancy remains if it does not require road construction or reconstruction. However, the language was clarified that surface use or occupancy is permitted only if it is allowed in the applicable forest plan. The management direction for salable mineral materials in the Backcountry theme was not changed.

[26] *Fire occurrence* means the probability of wildfire ignition based on historic fire occurrence records and other information.

[27] *Fire hazard and risk* mean the fuel conditions on the landscape.

[28] Roads could not be constructed to facilitate timber cutting, sale, or removal under exceptions 3, 4 or 5.

General Forest, Rangeland, and Grassland (GFRG)

About 405,900 acres would be designated as GFRG under the Modified Idaho Roadless Rule.

Road construction/reconstruction. Clarified that road construction / reconstruction is permissible when consistent with the applicable land management plan components. For example, if the forest plan provides additional sideboards for project design, such as not building roads in riparian areas, then that direction still must be followed.

Timber cutting, sale, and removal. Clarified that timber cutting, sale, and removal is permissible when consistent with the applicable land management plan components. For example, if the forest plan provides additional sideboards for project design, such as requiring a certain amount of old growth to be retained, then that direction still must be followed.

Mineral activities. The Modified Rule specifies the areas where road construction and reconstruction would be permissible to access phosphate deposits and lands surrounding these deposits in the GFRG theme (see fig. 3-20, section 3.5 Minerals and Energy). Road construction or reconstruction to access phosphate leases may only be considered after reviewing other access options and resource needs, and must be consistent with applicable land management plan components.

In the Modified Rule the permissions for road construction / reconstruction to access other unleased mineral or energy resources was also changed. The Modified Rule would prohibit road construction and reconstruction to access other leaseable minerals. Permission for surface use or occupancy would be allowed if it does not require road construction or reconstruction. However, the language was clarified that surface use or occupancy is permitted only if it is allowed in the forest plan.

In addition the direction for saleable minerals was changed from the Proposed Rule. In the Modified Rule the Forest Service may authorize the use or sale of common variety minerals, and associated road construction or reconstruction to access these minerals, if the use of these minerals is incidental to an activity allowed under this rule. This is the same as the requirement under the Backcountry theme.

As in the Proposed Rule, road construction or reconstruction must be conducted in a manner that minimizes effects on surface resources and must be used only for the specified purpose. Roads constructed must be decommissioned upon completion of the project, expiration of the lease, permit, or other authorization, whichever is sooner.

Ability to change Idaho Roadless Areas and management classifications

The Proposed Rule provided for a process for administrative corrections. The language of the Proposed Rule was changed in the Modified Rule to provide an opportunity for public comment, not just public notice on the administrative changes.

In addition, the Proposed Rule permitted the Chief of the Forest Service to add, remove, or modify the designations and management classifications based on changed circumstances or public need and said some changes would go through similar rulemaking depending on the degree of change. In the Modified Rule all changes, other than administrative corrections would go through a rulemaking effort.

2.3 Consideration of Comments

Federal agencies are required by NEPA to rigorously explore and objectively evaluate reasonable alternatives and to briefly discuss the reasons for eliminating alternatives that were not developed in detail (40 CFR 1502.14)[29]. People who commented during scoping and on the draft EIS suggested a number of different alternatives that reflect their values and preferred management options. The suggestions generally fall into five primary categories:

1. Distribution of management themes,
2. Additional conservation measures for GFRG,
3. Additional limitations,
4. Motorized access, and
5. Expansion of the scope.

The following subsections describe these suggestions and how they were considered.

Distribution of Management Themes

Some people requested the acreage of GFRG be reduced. The Proposed Idaho Roadless Rule created a theme called General Forest, Rangeland, and Grassland (GFRG). Timber cutting, sale, and removal; road construction / reconstruction; and discretionary mineral activities would be permitted without conditions in these areas. The Proposed Rule placed 609,600 acres of Idaho Roadless Areas into this category. In general, lands with forest plan prescriptions (existing and proposed) that permitted these actions, with few limitations, were placed into the GFRG theme (appendix F). About 1,263,200 acres in the Existing Plans (alternative 2) are equivalent to the GFRG theme. Under the 2001 Roadless Rule prohibitions are applied equally to timber cutting, sale, and removal and road construction and reconstruction; therefore, there would be no lands in a management theme similar to GFRG.

Based on public comment on the draft EIS, which provided specific requests and suggestions, several changes were made to the GFRG theme through the creation of a fourth alternative (appendix E and P). The Modified Idaho Roadless Rule (alternative 4) reduces the amount of land in the GFRG theme from 609,600 acres to 405,900 acres. Lands included in this theme generally have some level of development including features such as fences, water development, or roads; or would permit development such as phosphate mines. A couple of areas were placed in this theme to provide additional flexibility to reduce hazardous fuels adjacent to municipal water supply systems (Jesse Creek on the Salmon portion of the Salmon-Challis National Forest, and Myrtle Creek on the Idaho Panhandle National Forest). Other areas reflect the interests of local communities.

[29] General criteria for eliminating requests for additional management direction from detailed study included:

1. Management direction would not meet the purpose and need;
2. Management direction is not within the authority of the Forest Service;
3. Management direction is conjectural in nature or not supported by scientific evidence;
4. Management direction is already reflected in an alternative or does not contain a magnitude of change that provides a sharply different approach; or
5. Management direction does not pertain to Idaho Roadless Areas.

This spread of acreage represents a range of reasonable alternatives that provides a clear and sharply defined choice among the alternatives.

Some people requested the GFRG theme be dropped because it would result in areas becoming denuded, roaded, and severely damaged, and would reduce roadless area protections. This request is reflected in alternative 1, the 2001 Roadless Rule, which applies the same management direction across all Idaho Roadless Areas. In addition, it is unlikely that lands in the GFRG theme would become denuded or severely damaged because of other environmental laws and regulations. Road construction could occur in these areas which would reduce the roadless characteristics. Roads constructed or reconstructed must be designed in a manner that minimizes effects to surface resources and must be consistent with land management plan components. Likewise, any timber cutting must be consistent with forest plan components. However, some of the lands in the GFRG theme are already roaded; therefore the change in character would be less.

Some people requested the Backcountry theme be dropped because it would allow extractive activities that are destructive to the undeveloped nature of the land. This request is reflected in alternative 1, the 2001 Roadless Rule, which prohibits road construction and reconstruction, with a few exceptions, across all Idaho Roadless Areas. Limited timber cutting is permitted but the activities must maintain or improve one or more of the roadless characteristics. This requirement was retained in Modified Rule, except for timber cutting, sale, or removal done in CPZ. The requirement to maintain or improve roadless area characteristics was not included in this zone because the Agency, based on the recommendations of RACNAC (RACNAC 2008e), did not want to add additional conditions or analysis requirements in this area.

In addition, the intent in the Proposed Rule and Modified Rule is to permit some activities (road construction, reconstruction, and timber cutting) in the Backcountry where needed to protect at-risk communities or municipal water supply systems. The intent is for these activities to be light on the land, focusing on what is left, not what is removed. The Proposed Rule also permits road construction / reconstruction and surface occupancy to access phosphate deposits. This permission was removed from the Modified Rule, so the undeveloped character of these lands would be retained.

Some people requested the Primitive theme be dropped because it would allow extractive activities that are destructive to the undeveloped nature of the land. The Primitive theme permits only limited timber cutting adjacent to existing roads or by aerial systems. Any timber cutting activities must maintain or improve one or more of the roadless characteristics overtime. Moreover, in the Modified Rule fuel treatments would only permitted to reduce the risk of adverse wildland fire effects to at-risk communities or municipal water supply systems. No road construction, reconstruction, or surface use or occupancy is permitted; therefore, this theme does not permit extractive activities that are destructive to roadless characteristics.

Some people requested areas that serve as key habitats for threatened and endangered listed salmon and trout be identified and be placed into a Wild Land Recreation or Primitive theme. The request reflects a desire for protections currently in place in all alternatives. Under the Endangered Species Act (ESA), agencies seek to conserve threatened and endangered species through a variety of programs and mechanisms. Further, listed salmon and trout are protected in these areas through additional means, such as the Interim Strategy for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California (PACFISH) and the Inland Native Fish Strategy (INFISH), as well as other

direction in existing plans (USDA Forest Service and USDI BLM, 1995; and USDA Forest Service, 1995).

Of the 250 roadless areas, portions of 15 roadless areas are priority watersheds for listed Chinook salmon, steelhead, and bull trout (table 3-41, section 3.8 Aquatic species). Under the Proposed and Modified Rules, none of these roadless areas would have GFRG (appendix L, tables L-7 and L-8). Most lands were placed in the Backcountry theme, which would contribute to preserving biological strongholds by limiting road construction and reconstruction, and discretionary mineral activities.

Some people requested the Wild Land Recreation theme be changed to Backcountry. This suggestion is reflected in the 2001 Roadless Rule, since all lands under the rule are managed similar to the Backcountry theme. Lands recommended for wilderness through forest plans would continue to be managed to maintain their wilderness characteristics.

Some people requested that all lands be managed as Wild Land Recreation or in accordance with the proposed Northern Rockies Ecosystem Protection Act (NREPA). Other people wanted to fully protect roadless areas by working with Congress. These suggestions would prohibit all road construction, reconstruction, timber cutting, and discretionary mineral activities across all 9.3 million acres of Idaho Roadless Areas. These suggestions were not given detailed consideration because: (1) all of Idaho Roadless Areas have already been evaluated for wilderness designation during the forest planning process; and (2) managing all Idaho Roadless Areas in one prescription (proposed wilderness, or wilderness) would not recognize the specific individual characteristics the purpose and need for this rule seeks to recognize. It would not apply a "tailored" management that fits each specific roadless area.

Some people requested that multiple-use be permitted across all roadless areas. The Multiple-Use Sustained Yield Act (MUSYA) defines the meaning of multiple-use for the Agency. MUSYA recognizes that "some land will be used for less than all the resources" (MUSYA Section 4); therefore, an alternative that permits all uses across all lands is not required.

Additional Conservation Measures for GFRG

Some people requested that additional protections be incorporated into the GFRG theme for stream segments with limited water quality, municipal watersheds, and habitats for threatened, endangered, and sensitive plant and animal species. This request would require the establishment of specific management direction for each of these resource areas. This type of direction is better addressed in forest plans because none of these resources are unique to roadless areas; therefore, this request was not considered in detail. In the context of specific issues, these resources may be found outside as well as inside roadless areas. Management direction in existing and proposed plans generally provides direction for activities that occur in sensitive areas. In addition, laws and regulations such as the Clean Water Act and ESA provide further protections. All actions must adhere to these requirements. The purpose of this Proposed Action is not to determine the management direction for activities designed to meet other resource needs, but to determine what timber cutting, road construction / reconstruction, and discretionary mineral activities will be allowed in roadless areas.

The Modified Idaho Roadless Rule clarifies the connection between the permissions and prohibitions in the rule and the sideboards for project design established in forest plans. Land management plan components that are not inconsistent with the rule would continue to

provide guidance for projects and activities within Idaho Roadless Areas. In the GFRG theme, road construction and reconstruction are permissible; however, management direction in the forest plans that direct under what conditions roads could be constructed still apply. For example, some plans do not permit road construction in riparian areas, or stipulate that roads can be constructed only if the analysis shows no adverse effects on threatened or endangered species, or certain road densities must be met, etc. These conditions would still apply to project design.

Some people requested that actions in the GFRG theme be limited to those activities allowed in forest plans. Timber cutting, sale, and removal and road construction and reconstruction are allowed under existing forest plans in all areas identified as GFRG (appendix F). The plans provide some additional direction on why (for what purpose) timber cutting may occur; the Modified Rule does not change that for lands in the GFRG theme.

The interdisciplinary (ID) team reviewed the permissions in existing plans for discretionary mineral activities and found that some plans prohibited certain activities such as oil and gas surface use and occupancy. Based on this review, a fourth alternative reflects changes from the Proposed Rule for discretionary mineral activities in the GFRG theme. The Modified Rule prohibits road construction and reconstruction to access oil and gas leasing and geothermal development. In addition, the Modified Rule permits surface use and occupancy without road construction or reconstruction unless it is prohibited in the forest plan.

ADDITIONAL LIMITATIONS

Some people asked for an alternative that imposes even stricter limitations on Idaho Roadless Areas than the 2001 Roadless Rule. The request does not provide further details; therefore, the Modified Idaho Roadless Rule would meet this request, because it imposes stricter limitation than would the 2001 Roadless Rule on lands managed as Wild Land Recreation, encompassing about 1.48 million acres. These stricter limitations include prohibiting all road construction / reconstruction, timber cutting, and surface use and occupancy except where incidental (trail clearing) or where subject to statute, or treaty, or valid existing rights. These are areas where people can find outstanding opportunities for recreation, including exploration, solitude, risk, and challenge. In addition, the Modified Rule would impose stricter limitations for road construction and timber cutting for fuels reduction on lands managed as Primitive or SAHTS, encompassing about 1.77 million acres. These are areas where people can find primitive recreation opportunities or areas of special historical or cultural significance.

To designate all the Idaho Roadless Areas to either of these themes would not meet the purpose and need to take into account State and local situations and unique resource management challenges while recognizing and integrating the national interest in maintaining roadless characteristics while providing for management flexibility.

A similar request was also brought forward in the development of the 2001 Roadless Rule, where it was rejected because the scope of prohibited actions considered in detail was limited to timber harvest and road construction / reconstruction because these activities pose disproportionately greater risks of altering and fragmenting natural landscapes at regional and nation scales (USDA Forest Service, 2000 Vol. 1, 1-15 to 1-16).

Further, a similar request was made during the development of the Petition and was rejected, because it does not address uniqueness of each individual roadless area's landscapes and the quality of roadless characteristics in that area.

Some people asked to limit the exceptions that allow for logging and road construction. As noted in the above response, when compared to the 2001 Roadless Rule, additional limitations for logging and road construction are provided in the Wild Land Recreation, Primitive, and SAHTS; therefore, the Idaho Roadless Rule addresses this request.

In addition, alternative 4 reflects modifications from the Proposed Rule to further limit the exceptions that allow for road construction in the Backcountry theme. People were concerned that roads could be constructed on all 5.2 million acres in the Backcountry theme. This was not the intent of the Proposed Rule; therefore the Modified Idaho Roadless Rule is more explicit than the Proposed Rule on where and under what conditions roads could be constructed. The Modified Rule would permit road construction in the CPZ, generally areas within 1½ miles from a community. About 442,000 acres of CPZ are in the Backcountry theme. In addition, roads could be constructed to facilitate timber harvest to reduce the significant risk of wildland fire to at-risk communities or municipal water supply systems. The language in the Modified Rule was strengthened to provide a tight connection with the fuels treatments to at-risk communities or municipal water supply systems. The intent is not to allow fuel treatments to reduce significant risk in the more remote areas in the Backcountry.

Some people asked to consider other methods of treatment to achieve the purpose and need other than timber harvest, because they felt that treating acres for fire protection and forest health can be achieved without harvesting timber. Silvicultural practices are vegetation management activities that are applied to forests to meet identified management objectives (Smith et al. 1997). Practices may include timber harvest; other mechanical treatments (such as timber cutting for thinning, slashing, pruning); fuel reduction activities (both mechanical and prescribe burning); and reforestation activities (such as site preparation and planting). Silvicultural practices are planned as a sequence of treatments to address site-specific management objectives, including forest health.

Silvicultural practices can influence successional pathways that affect forest health by reducing the density of overcrowded forests, promoting insect- and disease-resistant tree species, modifying canopy structure, and selecting for vigorous individuals for large tree development. Silvicultural practices may also influence fire behavior through modifications of fuel characteristics within a stand (including live and dead ground and aerial fuels, canopy density and base height of crown canopy, and retention and promotion of large, fire-resistant trees). Many times several objectives can be addressed simultaneously, and a sequence of treatments can be developed to address multiple objectives (section 3.2 Vegetation and Forest Health).

All the alternatives permit timber cutting, sale, and removal and do not dictate what silvicultural practice must be used to meet the objectives. In some cases, timber cutting without the removal of commercial timber products could result in more environmental harm because of the amount of fuel left on the ground; therefore, all tools would be available to meet specific objectives including prescribed burning and wildland fire use (section 3.3 Fuel Management).

Some people asked to reconsider how wildland-urban interface (WUI) was defined and to limit road construction to the WUI. The Proposed Rule did not specifically use WUI as a condition for road construction. The Proposed Rule did permit road construction /

reconstruction in the Backcountry theme to reduce the significant risk of wildland fire effects. Significant risk was defined as "A natural resource condition threatening an at-risk community or municipal water supply system". WUI is defined by the Healthy Forests Restoration Act (HFRA) and includes an area within or adjacent to an at-risk community that is identified in a community wildfire protection plan (CWPP); or is based on default criteria if a CWPP does not exist. CWPPs are completed for all counties in Idaho.

The ID team considered this request and agreed that in the Modified Idaho Roadless Rule, road construction / reconstruction should be limited to: (1) a specific geographic area around communities; and (2) specific projects that could demonstrate a connection between significant risks and their effects on communities or municipal water supply systems.

In order to meet (1), several options were considered to define the geographic area. The ID team considered the following options:

1. Use the WUI map prepared by the State of Idaho and used in the analysis for the draft EIS; or
2. Use CWPPs; or
3. Use the default definition of WUI as described in HFRA Section 101(16)(B).

The WUI map for the State of Idaho was not used for the Modified Rule because it appeared to use a variety of kinds of information to define WUI, and not one specific set of criteria. The CWPPs were not used because each community or county used unique criteria to identify WUI, and the area could change over time. Based on suggestions from the RACNAC (RACNAC 2008e), the ID team decided to use the default definition of WUI in the HFRA, and that the geographic area would be termed the CPZ. Road construction and reconstruction would be permitted to facilitate hazardous fuel reduction within this zone.

The ID team also considered a geographic area for projects done to reduce significant risks to communities or municipal water supply systems. One suggestion was to use the CWPPs as this zone or some other set distance. However, this concept was not considered in detail because it is too difficult to define; each CWPP is developed based on a variety of kinds of information, some more scientific than others; and a set distance may not work in many cases. Based on suggestions from RACNAC (RACNAC 2008e), the ID team decided to use specific criteria and requirements for the situations when road construction and reconstruction could be used to facilitate timber cutting to reduce significant risk. Information from CWPPs could be used to determine that a significant risk exists. The intent is to require more conditions to limit the frequency of using this permission. This permission is not intended for routine forest management.

Other people wanted to limit all timber cutting to the WUI in the Backcountry theme. The Proposed Idaho Roadless Rule would allow for timber cutting, sale, or removal of timber to maintain roadless characteristics by improving threatened, endangered, proposed or sensitive species habitats or by maintaining or restoring ecosystem composition and structure; to reduce the significant risk of wildfire effects; for administrative and personal use; when the activity is incidental to other allowed management activities, such as trail construction; and when a roadless area had been substantially altered by previous timber harvest activities. Any of these circumstances could occur outside the WUI.

Timber cutting applies to all forms of vegetation management, including slashing in preparation for prescribed burning, thinning, etc (see fig. 3-6, section 3.2 Vegetation and Forest

Heath). In many situations some timber cutting is necessary to either remove the amount of biomass prior to burning, or to create some fuels so fire can be reintroduced.

In addition, limiting these activities to the WUI would not meet the purpose and need to maintain roadless characteristics—including providing habitat for threatened, endangered, proposed or sensitive species and protecting flows of public drinking water from critical watersheds—taking into account State and local situations and unique resource management challenges while providing for management flexibility.

The Modified Rule would provide the similar permissions for timber cutting in the Backcountry theme; however, it limits where roads could be constructed to facilitate timber cutting. Because of this limitation, different tools to meet the various objectives would be used. For example, within the CPZ all silvicultural tools would be available, including timber harvest (removal of commercial products-logging), as well as slashing, mulching, prescribed burning, thinning, etc. Timber harvest could occur because temporary roads could be constructed to facilitate the removal of timber. Outside the CPZ timber harvest may or may not be an available tool because temporary roads can be constructed only to facilitate those projects designed to reduce the significant risk of wildland fire effects to at-risk communities or municipal water supply systems and where a significant risk exists. Temporary roads could only be constructed if the activity cannot be reasonably accomplished without such a road. Timber harvest to maintain or restore threatened, endangered, proposed or sensitive habitat or ecosystem composition and structure could be used if the activity is near existing roads. Activities farther away from roads would primarily be slashing and prescribed burning.

The Coeur d'Alene Tribe requested that all Idaho Roadless Areas within the Tribe's aboriginal territory be managed primarily to maintain water quality, native fish and wildlife, and plant diversity. Landscape diversity and watershed function should be maintained through natural ecological processes. The 2001 Roadless Rule reflects this request to some degree because it was designed to meet the primary objectives identified by the Tribe. The 2001 Roadless Rule has been evaluated in the EIS. The Tribes request also requests a more passive management emphasis which was not considered in detail for all of Idaho Roadless Areas because it does not address the uniqueness of each individual roadless area's landscapes and the quality of roadless characteristics in that area. It should be noted that under the Proposed and Modified Rules, allocation to a specific theme is not intended to mandate or direct the Forest Service to propose or implement any action; rather, the themes provide an array of permitted and prohibited activities

The Proposed Rule was modified to address the Tribes concerns to some degree. The Proposed Rule was modified to limit where roads could be constructed in the Backcountry theme because of the concern that it appeared roads could be constructed in all 5.2 million acres. In the Modified Rule temporary roads could be constructed within the CPZ to facilitate hazardous fuel reduction project. The CPZ is estimated at about 442,000 acres. Roads could also be constructed outside the CPZ to facilitate those projects designed to reduce the significant risk of wildland fire effects to at-risk communities or municipal water supply systems and where a significant risk exists. Very little road construction would be anticipated outside the CPZ because of additional conditions including temporary roads could only be constructed if they are the only reasonable way to accomplish the activity. Many of the areas in Backcountry would see little to no timber cutting or road construction / reconstruction because of the limitations placed in the theme and the high cost of timber cutting when there is no access.

In addition, many of the Idaho Roadless Areas of interest to the Coeur d'Alene Tribe are located a substantial distance from communities. Roadless areas without CPZ or municipal waters supply systems that overlap the Backcountry theme would be managed essentially the same as the 2001 Roadless Rule. In the Modified Rule most active management would likely occur in the Backcountry CPZ and GFRG (847,900 acres), or about 9 percent of Idaho Roadless Areas; generally more passive management would occur on the remaining 91 percent.

The Tribe further requested that ecological and watershed functions should be protected by an expanding buffer of restored lands to areas outside of roadless lands. The restoration buffers would be intended to protect ecological processes and functions within the roadless areas from degradation from surrounding landscapes, which have been extensively altered by past timber harvest and road building. Within the restoration buffers active management may be used to control invasive weed species, reduce fuels, or control insects and disease. No permanent roads should be allowed. Existing roads should be maintained or reconstructed as needed to support restoration efforts. Resource extraction should be incidental to watershed restoration. The Proposed Idaho Roadless Rule, and the decision framework associated with the Proposed Rule, applies only to lands within Idaho Roadless Areas. This request would expand the scope of the Proposed Rule to lands outside of this Proposed Action; therefore, it is not considered in detail. Management direction outside Idaho Roadless Areas is reflected in forest plans. The Idaho Panhandle, Clearwater, and Nez Perce National Forests are in the process of revising their plans. This request has been forwarded to these forests for their consideration during the revision process.

Some people requested that locatable (hard rock) and leasable mining (oil, gas, phosphate, etc.) be prohibited in all roadless areas. Others requested that all roadless lands be withdrawn from these activities. Like the 2001 Roadless Rule, the Proposed Rule does not seek to impose any limits regarding activities undertaken regarding locatable minerals, because these are considered non-discretionary actions and are subject to requirements under the General Mining Law of 1872. A decision to withdraw all Idaho Roadless Areas from mineral entry is outside the jurisdiction of the Forest Service and is at the discretion of the Department of the Interior, subject to environmental analysis and a public involvement process. Further, such a restriction would not meet the purpose and need, which presents a strategy for the conservation and management of Idaho Roadless Areas that takes into account State and local situations and unique resource management challenges.

The Bureau of Land Management (BLM) has the exclusive authority to dispose of leasable mineral resources on NFS lands. However, BLM must have the consent of the Forest Service before it can lease oil, gas, or geothermal resources. As with locatable minerals, pursuing a complete withdrawal from leasing would not meet the purpose and need.

The 2001 Roadless Rule prohibits road construction and reconstruction to access unleased minerals. The Proposed Rule prohibits road construction, reconstruction, and surface use and occupancy in the Wild Land Recreation, SAHTS, and Primitive themes, as well as in the Backcountry theme except in association with unleased phosphate mining. The Modified Rule would have the same prohibitions for the Wild Land Recreation, SAHTS, and Primitive themes. However, the Backcountry theme was modified to prohibit road construction and reconstruction to access any new leaseable minerals. Surface use and occupancy for leasable minerals would be permitted unless prohibited in the forest plan. The Proposed Rule permitted road construction and reconstruction to access any new leases in GFRG. This was modified in

the Modified Rule to permit road construction and reconstruction only to access specific unleased phosphate deposits identified in figure 3-20, section 3.5 Minerals and Energy. About 5,770 acres of Known Phosphate Lease Areas would be accessible. In addition, surface use and occupancy for leasable minerals would be permitted unless it was prohibited in the forest plan.

Some people requested road construction be limited to temporary roads. The Proposed Idaho Roadless Rule encourages the use of temporary roads but would not limit the use of permanent roads because constructing / reconstructing some roads as permanent roads may result in less resource damage, thereby maintaining a key roadless characteristic of healthy watersheds. For example, it may be better to construct roads associated with reserved or outstanding rights as permanent roads because long-term access is necessary and permanent roads generally have additional protections—such as graveling, drainage systems, etc.—for limiting sediment. Once the use of a road is no longer necessary it can still be decommissioned.

The Proposed Action was modified in the Modified Idaho Roadless Rule, in response to a RACNAC recommendation (RACNAC 2008e), to permit temporary roads only to facilitate timber cutting within the CPZ in the Backcountry theme or to reduce the significant risk of wildland fire. Road construction / reconstruction is prohibited in the Wild Land Recreation, Primitive, and SAHTS themes.

Motorized Access

Some people requested an alternative that would convert roads closed to full-sized vehicles to all terrain vehicle (ATV) routes; designate all single-track trails on multiple-use lands as open to motorcycle use; mitigate the impacts from the loss of motorized access and recreation; provide motorized access to historic mines and cabins; provide for an adequate number of campsites and trailheads; develop a travel plan that would establish a 50/50 ratio for motorized/non-motorized trails; recognize and map primitive roads, trails, and single-track trails and allow use of these by appropriate vehicle; and allow greater motorized access in roadless areas. Other people wanted an alternative that would restrict roadless areas from bicycles, vehicles, and winter off-road use. When taken in total, these suggestions represent the mix of views and actions associated with a comprehensive travel management plan at the national forest level. The Proposed Action addresses only road construction and reconstruction; the Proposed and Modified Idaho Roadless Rules make it clear that travel-planning-related actions should be addressed through travel management planning and individual forest plans.

Expansion of the Scope

Some people wanted to expand the scope of the Idaho Roadless Rule to include a national perspective. Specifically, Idaho should have same protections as all other national forests. Alternative 1, the 2001 Roadless Rule addresses this concern because it would apply the same management direction as is applied nationally. However, even the Proposed and Modified Idaho Roadless Rules provide a national perspective on the management of roadless areas. The RACNAC was established to provide advice and recommendations to the Secretary on the management and conservation of roadless areas (RACNAC 2007). The RACNAC recommended that the Secretary consider the petition submitted by the State of Idaho in November 2006. The RACNAC also reviewed the Proposed Action and met four times to discuss how to improve the proposed Idaho Roadless Rule by providing more clarity and focus to activities in the Backcountry theme (RACNAC 2008a-d). The RACNAC provided recommendations and advice

regarding the proposed rule (RACNAC 2008e). These recommendations are based on their national perspective of roadless area management and have been incorporated into the Modified Idaho Roadless Rule.

Some people wanted additional management direction included for activities such as travel management, recreation, grazing, wildland fire use. The scope of activities considered in detail has been limited to road construction, road reconstruction, timber harvesting, and discretionary mineral activities because these activities pose disproportionately greater risk of alteration of natural landscapes than other activities.

2.4 Responses to Other Questions

What are Idaho Roadless Areas? What are they based on? Are they different from the 2001 Roadless Rule?

The areas identified as Idaho Roadless Areas may be found in the map packet, alternative maps; and in appendix C maps (maps of Idaho Roadless Areas by forest). These roadless areas are based on the most current inventory, found either in existing forest plans, proposed forest plans, or the 2001 Roadless Rule. In most cases, the boundaries from the three sources are the same. Where there are differences, several factors contributed (appendix A).

Most of the roadless area boundaries found in the 2001 Roadless Rule were based on forest plan inventories completed in the mid 1980s. Most of these inventories had not been updated for the 2001 Roadless Rule to reflect activities that had occurred in the 1990s. During forest plan revision, most forests updated their inventory according to Forest Service direction (Forest Service Handbook [FSH] 1909.12, Chapter 70). Some roadless areas decreased in size from Existing Plans or the 2001 Roadless Rule because development by timber sales and/or road construction had occurred during the past 15 years within those areas. Some changes were just corrections of mapping errors. Other areas increased in size, generally because of land exchanges or because development of some kind that was expected to occur at the time of forest plans did not happen. These inventories have been available for comment during the forest plan revision process.

Appendix A provides information regarding inventories for the 2001 Roadless Rule and Idaho Roadless Areas and summarizes the changes for each unit. Maps associated with appendix A may be found in the map packet.

What is the relationship between the Proposed and Modified Idaho Roadless Rules and forest plans?

The Forest and Rangeland Renewable Resources Planning Act of 1974 (88 Stat. 476 *et seq.*), as amended by the National Forest Management Act of 1976 (90 Stat. 2949 *et seq.*; 16 USC 1601-1614), requires the Secretary to develop land and resource management plans (16 USC 1604) for each administrative unit of the Forest Service.

Forest plans are in place for all national forests in Idaho and provide a strategic vision for managing forests for the next 10 to 15 years. They establish the desired conditions to be achieved through the management of NFS lands to best meet the needs of the American people. The plans blend national and regional priorities with local forest capabilities and needs. Thus, each plan provides a vision of how its unit uniquely fits within a broader landscape and community context. Plans may contain standards or guidelines, which provide further direction for project planning and design. A basic requirement for any plan is that any direction established by a plan must be consistent with all laws and regulations.

Under the 2001 Roadless Rule, the Proposed Action or the Modified Rule, direction for the management of Idaho Roadless Areas would be established in regulation. Regulations supersede forest plan direction and cannot be changed by forest plans unless permitted. Therefore, future projects in roadless areas would be required to be consistent with the final Idaho Roadless Rule. The language in the Proposed Rule was modified in the Modified Rule to clarify that land management plan components that are not inconsistent with this Rule would continue to provide guidance for projects and activities within Idaho Roadless Areas. For

example, in the GFRG theme, all forest plan prescriptions permit road construction; however, some prescriptions set sideboards or conditions for road construction (for example, roads may not be constructed in riparian areas unless certain conditions are met; roads may not be constructed in big game range unless certain road densities are met). These conditions would still apply.

There are portions of several roadless areas where the management direction in the Modified Rule would be more permissive than Existing Plans. Even though additional activities could occur in these roadless areas than what is permitted in the Existing Plans; those activities must be consistent with forest plan direction that provides general criteria for designing projects or activities, such as direction found in INFISH, PACFISH, Southwest Idaho Group Forest-wide requirements; grizzly bear or lynx requirements. These areas include the following:

- Boise / Payette National Forests, Poison Creek Roadless Area, 5,300 acres; this area is in a prescription that prohibits road construction except to access outstanding existing rights, but is in the Backcountry CPZ.
- Clearwater National Forest, Moose Mountain; 160 acres are in the Backcountry CPZ where temporary roads could be constructed. No road construction is permitted in the Existing Plan on these 160 acres.
- Idaho Panhandle National Forest; the following roadless areas have lands in the Backcountry CPZ where temporary roads could be constructed. No road construction is permitted in the Existing Plan, but would be permitted in the proposed revised plan.
    - Beetop Roadless Area, 6,900 acres of the CPZ
    - Scotchmans Peak Roadless Area, 1,300 acres of the CPZ
    - Selkirk Roadless Area, 300 acres of the CPZ
    - Spion Kop Roadless Area, 700 acres of the CPZ
    - Trestle Peak Roadless Area, 300 acres of the CPZ.
- Salmon National Forest; the following roadless areas are have lands in the Backcountry CPZ where temporary roads could be constructed. No road construction is permitted in the Existing Plan.
    - Goldbug Ridge Roadless Area, 1,200 acres of the CPZ
    - Jesse Creek Roadless Area, 1,900 acres of the CPZ.
- Targhee National Forest, West Slope of the Tetons; 200 acres are in Backcountry CPZ where temporary roads could be constructed. No road construction is permitted in the Existing Plan on these 200 acres.

Appendix C has been updated to evaluate the potential effects from the alternatives on each roadless area. Effects of the projected activities have been analyzed in Chapter 3 of the EIS. Finally, changes to theme assignments and theme descriptions have been made to minimize differences between the Modified Rule and Existing Plans.

Temporary road construction would be permitted on the above 18,260 acres. Temporary road construction and timber cutting, sale, and removal could change the roadless character in these

areas. Future activities could affect the undeveloped and natural qualities in portions of these roadless areas.

There are five instances where the Proposed Action and / or Modified Idaho Roadless Rule would deviate from existing and / or proposed plans with respect to recommended or potential wilderness. See discussion in next question.

How would the Proposed Action or the Modified Idaho Roadless Rule influence future wilderness designations, specifically how and whether designation of a roadless area as Wild Land Recreation would affect current forest plan wilderness recommendations?

Recommended wilderness lands placed in the Wild Land Recreation theme would be managed in a more protective manner under the Proposed and Modified Rules than under the 2001 Roadless Rule; for example, there would be more limited opportunities for timber cutting and / or road construction / reconstruction.

For those recommended wilderness lands placed in the Primitive theme, there would be more opportunities for timber cutting than under the Wild Land Recreation theme, but fewer than under the 2001 Roadless Rule. Further, the Proposed and Modified Rules would have no effect on forest plan wilderness recommendations. Those designations would continue. The effects on recommended wilderness are further described in section 3.13, Recommended Wilderness.

In general, the Wild Land Recreation theme lands are those that were previously recommended as potential wilderness in existing and proposed plans. There are five instances where the Proposed Rule and / or Modified Rule would deviate from existing and / or proposed plans:

Boulder-White Clouds on the Sawtooth and Challis National Forests. About 194,100 acres are recommended wilderness under the Existing Plans. The Proposed and Modified Idaho Roadless Rule would designate about 231,300 acres as Wild Land Recreation based on pending wilderness legislation. Some areas recommended for wilderness were changed to the Primitive theme because the pending legislation (Central Idaho Economic Development and Recreation Act [CEIDRA, H.R.222, 2007]) did not include them; other areas were added because the pending legislation included them, for a net gain of 37,200 acres of Wild Land Recreation. Those lands not included in the bill were placed into the Primitive theme. These lands would still be considered as recommended wilderness under the forest plans, but the Primitive theme management direction would apply.

Mallard Larkins on the Idaho Panhandle and Clearwater National Forests. About 141,600 acres are recommended wilderness under the Existing Plans. The Proposed Action would designate about 108,600 acres to Wild Land Recreation based on the proposed revised forest plans. About 22,100 acres (Pioneer Area) were placed into SAHTS in the Proposed Rule. In the Proposed Rule the remaining 10,900 acres were placed into Backcountry based on recommendations by collaborative groups involved in forest plan revision.

In the Modified Rule, the Proposed Action proposal was modified to change the lands in the Pioneer Area from SAHTS to Wild Land Recreation for a total of 131,200 acres in the Wild Land Recreation theme in the Mallard Larkins Roadless Area. No timber cutting was desired in the Pioneer Area. The portion on the Clearwater National Forest was changed to Primitive (6,400 acres) and the Idaho Panhandle National Forest remained as Backcountry (4,000 acres); however, no road construction is anticipated in this area because there are no communities or municipal water supply systems nearby.

Selkirks on the Idaho Panhandle National Forest. About 25,400 acres are recommended for wilderness under the Existing Plan. The Proposed Rule would designate about 31,300 acres as Wild Land Recreation; and the Modified Rule would designate 42,000 acres as Wild Land Recreation. These changes better reflect recommendations by collaborative groups involved in forest plan revision.

However, of the original 25,400 acres recommended as wilderness, only 10,400 acres are in the Wild Land Recreation theme in the Proposed Rule and 18,400 acres are in the Wild Land Recreation theme in the Modified Rule. Under the Proposed Rule of the 15,000 acres not included as Wild Land Recreation, 8,000 acres would be classified as Primitive and 7,000 acres would be classified as Backcountry. Under the Modified Rule, the Primitive classification would change to Wild Land Recreation, with the remaining 7,000 acres as Backcountry.

The areas recommended as wilderness under the existing plans would still be considered as recommended wilderness until the forest plans are revised, but the Primitive or Backcountry theme management direction would apply. Therefore timber cutting, sale, or removal could occur and possibly temporary road construction in the Backcountry theme. However this area also overlaps grizzly bear habitat and requirements for grizzly bear would still apply, which may limit the ability to construct roads.

Scotchman Peaks on the Idaho Panhandle and Kootenai National Forests. About 9,800 acres are recommended for wilderness under the Existing Plan. The Proposed and Modified Rules would designate about 10,800 acres as Wild Land Recreation. These changes are based on recommendations by collaborative groups involved in forest plan revision.

However, of the original 9,800 recommended as wilderness, about 8,500 acres are in the Wild Land Recreation theme in the Proposed and Modified Rules. The remaining 1,300 acres are in the Backcountry and GFRG themes in the Proposed Rule and the Backcountry theme in the Modified Rule. The 9,800 acres recommended as wilderness under the existing plans would still be considered as recommended wilderness until the forest plans are revised, but the Backcountry theme management direction would apply to the 1,300 acres.

Winegar Hole on the Targhee National Forest. About 2,600 acres are recommended wilderness under the Targhee Forest Plan. This area is adjacent to existing wilderness. The Proposed Action would place these acres into a Primitive theme because the Congress has already enacted wilderness legislation for the surrounding area and declined to incorporate these 2,600 acres into wilderness.

How does the Proposed Rule or the Modified Rule affect special areas, such as research natural areas or other legislated areas such as wild and scenic rivers? There are about 334,500 acres of existing special areas within Idaho Roadless Areas (table 2-1 and appendix Q, table Q-1). Neither the Proposed Rule nor the Modified Rule would apply to these areas; management direction under existing plans would apply.

How does the Proposed Rule or the Modified Rule influence future considerations within these areas, such as travel management? The Proposed and Modified Rules would only affect allowances for road construction and reconstruction; timber cutting, sale, and removal; and discretionary mineral activities. The Rules would not regulate travel management. However, as units engage in travel planning they would likely consider the management themes as one factor, along with public input, during the process.

How can changes be made to inventories? The 2001 Roadless Rule did not include a specific mechanism for changing roadless area boundaries or acres, and the Forest Service has not established such direction. Past experience has shown that such direction is needed. The following provides some examples of why boundaries or acres may need to be adjusted:

Currently acres are calculated using geographic information systems (GIS) technology. This technology is advancing in its precision. For example, GIS uses a process called Projections, in which a flat surface is projected around the earth's surface. The earth has a different curvature depending on where the area is located. In GIS these roadless areas have been broken up into different units (which apply a certain curvature to that polygon). If the GIS technician applies the polygon to the wrong unit, the acres will be wrong; therefore, there is a need to be able to correct this information.

Inventoried roadless area boundary lines may be misrepresented when newer information for roads or improvements are overlaid. For example, if roads have been identified using a global positioning system (GPS), this information is more accurate than a line drawn on a map. The boundary line should obviously follow the road and not go across it; therefore there would be a need to adjust the boundary.

Inventoried roadless area boundary lines may be misrepresented because they were developed at a different scale than the roads layer. This may cause the boundary line to weave on one side of a road to another, whereas in reality the boundary should be just on one side; therefore, there would be a need to reconcile the boundary.

In some cases, there are just errors. Roads or improvements such as facilities may have been included in the boundary when they should not have been.

The Proposed Action recommends a process for updating boundary corrections to include, but are not limited to, adjustments that remedy clerical, typographical, or mapping errors, or improvements in mapping technology as described above. The Proposed Rule was changed in the Modified Rule to provide an opportunity for comment on such changes.

How can changes be made to themes? Because the Proposed Action or Modified Rule would be in effect until it is repealed or modified, a mechanism is provided for changes to themes (land classifications) due to new circumstances. The Chief may add to, remove from, or modify the designations and management classifications, based on changed circumstances or public need. If a modification would result in a significant change, public involvement comparable to that required for the promulgation of the rule would be required. The Proposed Rule required at least 30 days public notice for any non-significant modification. Under the Modified Rule, at least 30 days public notice and opportunity for comment would be provided for any non-significant change.

What is the role of the State Implementation Task Force? The Governor of Idaho created the Governor's Roadless Rule Advisory Commission (Executive Order No. 2006-43) in 2006. The advisory commission would provide non-binding recommendations to the Governor to assist the Agency in ensuring the implementation of the final Rule. The commission has no decision-making authority and is not a substitute for the agency's normal procedures for undertaking an activity in accordance with this rule, including consultation requirements with Native American Tribes.

Why wasn't the scoping comment period extended? Why weren't public meetings held during the scoping period? The notice of intent initiates the scoping process in compliance with NEPA and its implementing regulations (40 CFR §1501.7) to determine the nature and scope of environmental, social, and economic issues related to the rulemaking that should be analyzed in depth in the EIS.

There have been numerous opportunities in the past for public comment on roadless area conservation and management. During the development of the Petition by the State, more than 50 public meetings were held in Idaho, producing local, regional, and national public input for the petition process. The Proposed Idaho Roadless Rule and the Modified Idaho Roadless Rule also build from the experience with the 2001 Roadless Area Conservation Rule and the 2005 State Petitions Rule. More than two million public comments were received during these rulemaking processes; the knowledge gained from the previous public comment periods has helped inform the identification and analysis of issues for this EIS.

The Agency believes that additional public meetings outside the State of Idaho or an extension of the comment period were not necessary. The Forest Service received more than 45,000 comments including many thoughtful and detailed submissions.

Moreover, the Agency believes providing an extended comment period once a Proposed Rule was available would allow more meaningful comment. Release of the draft EIS and Proposed Rule language began a 90-day public comment period. Additionally, 17 public meetings were held where people had the opportunity to comment. The RACNAC also had four meetings following the release of the draft EIS and Proposed Rule, and they provided people the opportunity to comment at those meetings (RACNAC 2008a-d). The public responses during the extended comment period have provided a great deal of help in formulating the Modified Rule.

2.5 COMPARISON OF ALTERNATIVES

Table 2-3. Comparison of Alternatives—Benefits and Costs

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Local resource concerns				
Forest health				
Insects and disease	Most of the 1.44 million acres currently at risk of 25 percent mortality or significant growth loss (i.e., high-risk forests) would remain untreated. Projected treatments on 9,000 acres likely to be effective over 15 years.	Opportunities for treatment of high-risk forests: 187,500 acres of high-risk forests in GFRG; 755,800 acres in Backcountry. Projected treatments on 40,500 acres likely to be effective over 15 years.	Opportunities for treatment of high-risk forests: 25,600 acres in GFRG; 939,400 acres in Backcountry. Opportunities to treat GFRG. Opportunity for treatment in Backcountry if done for forest health or to reduce hazardous fuels Projected treatments on 18,000 acres likely to be effective over 15 years.	Opportunities for treatment of high-risk forests: 39,600 acres in GFRG [(1)]; 877,000 acres in Backcountry, of which 56,600 acres are in the community protection zone (CPZ). Opportunities to treat GFRG. Opportunity for treatment in Backcountry if done in the CPZ or to reduce significant risk of wildland fire effects to at-risk communities or municipal water supply systems. Projected treatments on 15,000 acres likely to be effective over 15 years.
Noxious weeds – potential for noxious weed spread	Spreading is unlikely given limited potential for soil disturbance. 42,250 acres of weeds currently found in Idaho Roadless Areas.	Some potential for spreading based on acreage assigned to GFRG (1.26 million acres); the limited degree of projected road construction, timber cutting, and mineral activity would minimize the potential for spreading. 5,170 acres of weeds currently found in GFRG.	Some potential for spreading based on acreage assigned to GFRG (609,600 acres); the limited degree of projected construction, harvest, and mineral activity would minimize the potential for spreading. 2,750 acres of noxious weeds currently found in GFRG.	Some potential for spreading based on acreage assigned to GFRG (405,900 acres); the limited degree of projected construction, harvest, and mineral activity would minimize the potential for spreading. 3,070 acres [(1)] of noxious weeds currently found in GFRG.
Climate change	Carbon dioxide releases may vary as a function of projected activity levels (the 2001 rule being the lowest, Existing plans the highest potential for releases). Effects of climate change on forest vegetation may vary as a function of active management (the 2001 rule having the lowest and existing plans the highest capacity for active management). However, the magnitude and rapidity of climate change and cumulative impacts is uncertain, particularly at the finer scales such as Idaho Roadless Areas. Variable impacts across alternatives are therefore not quantified.			

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Fuels management				
Ability to treat	Road construction not permitted in conjunction with treatments on 100 percent of the wildland-urban interface (WUI)/ community protection zone (CPZ). Treatments more expensive; insignificant acreage treated relative to acres at risk. Limited capacity to treat high priority condition class 2 and 3 areas. Projected harvests could treat 2 percent of high priority areas (fire regimes I, II, and III; condition classes 2 and 3) within WUI/CPZ or less than half a percent of high priority areas overall. Does not directly permit timber cutting to reduce risk of unwanted wildland fire.	Prescribed burning is permitted in 100 percent of the WUI/CPZ or to protect community water supply areas Mechanical treatments are permitted on 89 percent of the WUI/CPZ. Mechanical treatments with road construction are permitted on 65 percent often WUI/CPZ. Mechanical treatments are permitted in 93 percent of the community water supply areas. Mechanical treatments with road construction are permitted in 47 percent of the community water supply areas. Projected harvests could treat 10 percent of high-priority areas (fire regimes I, II, and III; condition classes 2 and 3) within WUI/CPZ or 1 percent of high-priority areas overall. May permit timber cutting to reduce risk of unwanted wildland fires. May permit fuel reduction to reduce wildland fire risks to municipal water supply systems.	Prescribed burning is permitted in 100 percent of the WUI/CPZ or to protect community water supply areas Mechanical treatments are permitted on 89 percent of the WUI/CPZ. Mechanical treatments with road construction are permitted on 67 percent often WUI/CPZ. Mechanical treatments are permitted in 92 percent of the community water supply areas. Mechanical treatments with road construction are permitted in 58 percent of the community water supply areas. Projected harvests could treat 4 percent of high priority areas (fire regimes I, II and III, condition classes 2 and 3) within WUI/CPZ or less than half a percent of high priority areas overall. Directly permits timber cutting to reduce risk of unwanted wildland fires in the Primitive, Backcountry, and GFRG themes. Permits fuel-reduction activities to reduce wildland fire risks to municipal water supply systems in the Primitive, Backcountry, and GFRG themes.	Prescribed burning is permitted in 100 percent of the WUI/CPZ or to protect community water supply areas Mechanical treatments are permitted on 87 percent of the WUI/CPZ. Mechanical treatments with road construction are permitted on 66 percent often WUI/CPZ. Mechanical treatments are permitted in 92 percent of the community water supply areas. Mechanical treatments with road construction are permitted in 16 percent of the community water supply areas. Mechanical treatments with road construction are permitted in 42 percent of the community water supply areas only when the significant risk conditions are met. Projected harvests could treat 4 percent of high priority areas (fire regimes I, II, and III; condition classes 2 and 3) within WUI/CPZ. Directly permits timber cutting to reduce risk of unwanted wildland fires in the Backcountry and GFRG themes. Permits fuel-reduction activities to reduce wildland fire risks to municipal water supply systems in the Primitive, Backcountry, and GFRG themes.
Potential for increase in human-caused fire starts	No increase.	Potential for increase.	No measurable increase.	No measurable increase.

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Timber cutting - projected				
Timber harvest (acres over 15 years)	9,000	40,500	18,000	15,000
Harvest (MMBF/year) [2]	3.0 (2 percent of annual average)	13.36 (11 percent of annual average)	5.84 (5 percent of annual average)	5.04 (4 percent of annual average)
Roads – projected (miles over 15 years)				
Construction - permanent	12	72	12	12
Construction - temporary	3	33	26	21
Reconstruction	0	75	23	17
Total	15.0	180	61	50
Decommissioning	1.0	3.2	2.7	2.4
Leasable minerals				
Geothermal development	No existing leases on NFS land. Trend data not available to project reasonably foreseeable activity. Current lease applications include 7,033 acres within roadless areas.			
	Negligible opportunities for development.	No opportunities on 38 percent of acreage. Development opportunities on 53 percent of Backcountry theme (2,354,100 suitable acres) and on 58 percent of GFRG theme (737,800 suitable acres). [3] 7,033 under current lease applications accessible.	No opportunities on 93 percent of acreage; Development opportunities on 63 percent of GFRG theme (382,400 suitable acres). [3] 7,033 under current lease applications would not be accessible.	Negligible opportunities for development.
Phosphate - reasonably foreseeable development and output (short term within 15 years)	1,100 acres of road construction and mining disturbance proposed in Sage Creek and Meade Peak Roadless areas; development expected over the next 15 years. Projected output is equal (2,000,000 tons per year) across all alternatives because (i) none of the alternatives prohibit road construction and reconstruction associated with existing leases and (ii) existing leases are expected to meet demand in reasonably foreseeable future.			
Phosphate – additional acres under lease in roadless areas	6,100 acres of remaining unmined phosphate currently under lease in seven roadless areas; development expected to be spread out over 50 or more years.			

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Phosphate – long-term leasing of unleased phosphate deposits (50 or more years)	Opportunities to recover phosphate from Idaho Roadless Areas are negligible.	Estimated 613 million tons of phosphate deposits from 13,620 unleased acres available for development. ½-mile buffer could affect additional 1,910 acres.	Estimated 593 million tons of phosphate deposits from 13,190 unleased acres available for development. ½-mile buffer could affect additional 1,850 acres. Road construction prohibited Wild Land Recreation, SAHTS Primitive, Backcountry theme acres.	Estimated 260 million tons of phosphate deposits from 5,770 unleased acres available for development. ½-mile buffer could affect additional 810 acres. Road construction prohibited in Wild Land Recreation, SAHTS Primitive, Backcountry themes, and 910 acres of GFRG themes.
Social				
Values and beliefs	Most environmental functions retained, roadless characteristics remain intact.	Most environmental functions retained, some roadless characteristics changed.	Most environmental functions retained, few roadless characteristics changed.	Most environmental functions retained, few roadless characteristics changed.
Collaborative environment	Local communities feel left out.	Local communities engaged.	Local community interests integrated with national values.	Local community interests integrated with national values. Modifications made based on public comment.
Lifestyles	Significant risks to natural resource conditions near communities remain.	Significant risks to natural resource conditions near communities reduced.	Significant risks to natural resource conditions near communities reduced.	Significant risks to natural resource conditions near communities reduced.
	Undeveloped recreation and cultural opportunities continue.	Many undeveloped recreation and cultural opportunities continue.	Most undeveloped recreation and cultural opportunities continue.	Most undeveloped recreation and cultural opportunities continue.
Roadless characteristics				
Physical resources - soils				
Acres of highly sensitive soils where road construction/ reconstruction is permitted (Backcountry and GFRG)	0	2,049,300	2,121,300	253,500 (GFRG and Backcountry / CPZ)
Acres of highly sensitive soils where road construction is conditionally permissible	0	0	0	1,786,400

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Effects from road construction on high hazard soils	Forest Plan management direction that provides guidance on road construction on sensitive soils would apply across all alternatives; therefore even though road construction could be permitted forest plans may provide design criteria to minimize effects, such as avoidance or mitigation practices. No or negligible effect from road building associated with timber cutting. Effects on soils are equal for road construction associated with phosphate mining over next 15 years. Effects on high-hazard soils from long-term future (50 or more years) phosphate leases are likely under the Existing Plans and the Proposed Rule, but limited risk under the Modified and 2001 Rules.			
Physical resources - water				
Effect of road construction, reconstruction, and timber harvest on listed streams and drinking water	Negligible effect.	Minimal effect.	Negligible effect.	Negligible effect.
Effect of mining on listed streams and drinking water	Overlap with unleased phosphate in roadless areas: Three 303(d) streams (one in roadless areas due to selenium); 640 acres of community water supplies (groundwater). Possible effect on 303(d) streams from selenium – mitigation required at time of analysis.	Overlap with unleased phosphate in roadless areas: Three 303(d) streams (one in roadless areas due to selenium); 640 acres of community water supplies (groundwater). Possible effect on 303(d) streams from selenium – mitigation required at time of analysis.	Overlap with unleased phosphate in roadless areas: Three 303(d) streams (one in roadless areas due to selenium); 640 acres of community water supplies (groundwater). Possible effect on 303(d) streams from selenium – mitigation required at time of analysis.	Overlap with unleased phosphate in roadless areas: Three 303(d) streams (one in roadless areas due to selenium); 640 acres of community water supplies (ground water). Possible effect on 303(d) streams from selenium – mitigation required at time of analysis.
Selenium Mitigation	Mine development or expansion would use a variety of environmental commitments and best management practices to reduce the potential for selenium mobilization and migration from the mine site. Operators would be required to monitor impacts on water, soils, vegetation, wildlife, and fisheries. Analysis for the preferred alternative for Smoky Canyon predicts that groundwater quality protection standards or surface water quality standards would not be exceeded.			

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Threatened, endangered, proposed, candidate and Forest Service sensitive species and biodiversity				
Effects on terrestrial and aquatic animal species or habitats	Activities undertaken pursuant to any of the alternatives may affect individuals, but no measurable change in populations is expected. Management direction in forest plans, such as INFISH, PACFISH, Southwest Idaho Ecogroup aquatic direction, grizzly bear habitat management, or lynx direction, for threatened and endangered species would apply. Projects and development would be subject to NEPA and other regulatory requirements related to monitoring and mitigation for sensitive species.			
	Beneficial.	Beneficial in Wild Land Recreation, Primitive, or SAHTS; some potential risk of adverse effects in management prescriptions similar to Backcountry and GFRG.	Beneficial in Wild Land Recreation, Primitive, or SAHTS; limited potential risk of adverse effects for activities occurring in Backcountry; some potential risk in GFRG, but less than Existing Plans.	Beneficial in Wild Land Recreation, Primitive, SAHTS, or Backcountry outside CPZ; limited potential risk of adverse effects for activities occurring in Backcountry CPZ; some potential risk in GFRG, but less than Existing Plans or the Proposed Rule.
Effects on biodiversity of botanical species	Beneficial.	Beneficial in Wild Land Recreation, Primitive, or SAHTS; some potential risk of adverse effects for activities conducted in the GFRG and BCR themes.	Beneficial in Wild Land Recreation, Primitive, or SAHTS; some potential risk of adverse effects for activities conducted in the GFRG and BCR themes, but less than Existing Plans.	Beneficial in Wild Land Recreation, Primitive, or SAHTS, Backcountry outside CPZ; some potential risk of adverse effects for activities conducted in GFRG and Backcountry CPZ but less than Existing Plans or the Proposed Rule.
	Number of occurrences of known threatened and candidate plant populations, by theme			
Wild Land/ Primitive/ SAHTS	0	0	0	0
Backcountry	16	9	9	11 (6 in Backcountry CPZ)
GFRG	0	2	2	0
Forest plan special areas	0	5	5	5
	Number of occurrences of known sensitive plant populations, by theme			
Wild Land Recreation	0	81	90	102
Primitive/SAHTS	0	97	82	100
Backcountry	686	284	336	312 (46 in Backcountry CPZ)
GFRG	0	55	9	3
Forest plan special areas	0	169	169	169

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Scenic integrity				
	Potential for change in scenic integrity – based on activity projections			
Acres that stay in High to Very High scenic integrity	9,228,000	9,242,980	9,234,740	9,276,230
Acres likely to change to High or Moderate scenic integrity because of timber cutting or road construction/ reconstruction	9,000	40,500	18,000	15,000
Acres likely to change from High to Low because of development of existing phosphate leases	7,200 acres associated with development of existing phosphate mining leases under all alternatives.			
Acres likely to change to Moderate or Low scenic integrity because of phosphate mining over the long term (50 or more years)	0	13,620	13,190	5,770
Recreation				
Dispersed recreation (including hunting and fishing)	Feeling of solitude or remoteness may change in areas where projected road construction and timber cutting occur (see above for projected activity levels, by alternative).			
	No measurable change to dispersed recreation opportunities.	No measurable change to dispersed recreation opportunities, except if unleased phosphate deposits (13,620 acres) are developed.	No measurable change to dispersed recreation opportunities, except if unleased phosphate deposits (13,190 acres) are developed.	No measurable change to dispersed recreation opportunities, except if unleased phosphate deposits (5,770 acres) are developed.
Recreation opportunities [4]	In general, the magnitude of shifts in recreational opportunity spectrum classes is slight across the alternatives because: (i) differences in road construction are minimal, and (ii) many constructed roads are likely to be temporary and not accessible for recreation purposes. As a consequence, changes in dispersed compared to developed recreation opportunities are small across alternatives. Relative differences include the following:			
	Relatively high potential for maintaining existing dispersed recreation opportunities; little potential for increasing developed recreation.	Greatest opportunity for developed and road-based recreation to occur and expand, but magnitude of shift is tempered by limited amount of construction projected to occur.	High level of protection for dispersed recreation; foreseeable threats from construction and development are remote.	High level of protection for dispersed recreation; foreseeable threats from construction and development are remote.

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Developed recreation – ability to construct or reconstruct roads to access new or expanded developed recreation areas	There are no foreseeable developments under any of the alternatives.			
	No road construction/ reconstruction permitted to access new developed recreation sites (9.3 million acres).	Road construction/ reconstruction generally permitted to access new developed recreation sites in management prescriptions similar to Backcountry and GFRG (5.7 million acres).	Road construction/ reconstruction permitted to access new developed recreation sites management in GFRG (.6 million acres).	Road construction/ reconstruction permitted to access new developed recreation sites management in GFRG (.4 million acres).
Special uses – ski areas	Existing permits are unaffected. No foreseeable ski area expansions or developments into Idaho Roadless Areas over next 15 years.			
	Expansion or development with roads not permitted.	Expansion or development as permitted by the forest plan.	Existing ski areas with development and any additional development authorized in their master development plans are in FPSA theme and would be guided by applicable forest plan direction.	Existing ski areas with development and any additional development authorized in their master development plans are in FPSA theme and would be guided by applicable forest plan direction.
Special uses – outfitters and guides	Existing permits are unaffected. None of the alternatives directly affect the processing or administration of special use permits. Potential for adverse effects are limited because projected levels of activity would be relatively small and localized within any outfitter's area of operation. Recreational experience may change in some areas where activities occur, but outfitter and guide services are not expected to be affected because of the dispersed nature of the activities.			
Hunting and fishing	No effect on opportunities.	Opportunities could be affected in locations of phosphate leasing and geothermal development. No effect from timber cutting and limited road construction.	Opportunities could be affected in locations of phosphate leasing and geothermal development. No effect from timber cutting and limited road construction.	Opportunities could be affected in locations of phosphate leasing. No effect from geothermal development. No effect from timber cutting and limited road construction. Additional protections provided to 257,700 acres moved from GFRG to Backcountry because of big game habitat.
Wilderness				
Existing wilderness areas (1,723,300 acres of Idaho Roadless Areas are adjacent to existing wilderness)	Limited to no indirect effects on wilderness from activities in roadless areas.	158,300 acres of GFRG and 841,900 acres of Backcountry adjacent to wilderness. Limited potential for impacts on wilderness experience.	9,400 acres of GFRG and 951,000 acres of Backcountry adjacent to wilderness. Limited potential for impacts on wilderness experience.	9,400 acres of GFRG and 951,000 acres of Backcountry adjacent to wilderness. Limited potential for impacts on wilderness experience.

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Recommended wilderness	No change or effect on recommended wilderness in existing plans.	Existing plans recommend 1,320,500 as wilderness.	No change to recommendations in existing plans. 1,378,000 acres in Wild Land Recreation, implying 57,500 acres of additional protection over existing plans. Changes include: Borah Peak increase by 700 acres Boulder White Clouds, net increase of 37,200 acres (some portions added, some changed to primitive) Hoodoo increase by 40,600 acres Grandmother Mountain increase by 6,800 acres Salmo/Priest increase by 800 acres Selkirk increase by 5,900 acres Scotchmans net increase by 1,100 acres Mallard Larkins, net decrease 33,000 acres (10,900 acres Backcountry (Clearwater and Idaho Panhandle; and 22,100 acres SAHTS Idaho Panhandle) Winegar Hole decrease by 2,600 acres	No change to recommendations in existing plans. 1,479,700 acres in Wild Land Recreation, implying 159,200 acres of additional protection over existing plans. Changes include: Borah Peak increase by 700 acres Boulder White Clouds, net increase of 37,200 acres (some portions added, some changed to primitive) Hoodoo increase by 40,600 acres Grandmother Mountain increase by 6,800 acres Salmo/Priest increase by 800 acres Selkirk increase by 16,600 acres Scotchmans net increase by 1,100 acres Rapid River net increase 68,400 acres Mallard Larkins, net decrease 10,400 acres (6,400 acres Primitive (Clearwater) and 4,000 acres Backcountry (Idaho Panhandle) Winegar Hole decrease by 2,600 acres
Roadless area characteristics associated with wilderness	Majority of roadless areas retain their existing character. Based on projections, 99.9 percent unaffected over the next 15 years.	Areas developed could have reduced roadless area character. Activities in GFRG may not change roadless character if prior activities are still evident.		
		Based on projections, 99.55 percent of roadless areas unaffected over the next 15 years.	Based on projections, 99.9 percent of roadless areas unaffected over the next 15 years.	Based on projections, 99.9 percent of roadless areas unaffected over the next 15 years.
Other Resource and Service Areas where Relative Impacts are Insignificant or Neglible				
Livestock grazing	Differences in activity, revenue, and operating costs are expected to be minimal across alternatives; existing processes will regulate management direction related to grazing (allotments and permitted use).			
Leasable minerals: oil, gas, and coal	Differences in activity and revenue associated with oil, gas, and coal development are expected to be minimal based on existing trends and inventories.			
Locatable minerals: gold, silver, lead, etc.	None of the alternatives would affect rights of reasonable access to prospect and explore lands open to mineral entry and develop valid claims under the General Mining Law of 1872. Rights to reasonable access continue.			

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Saleable minerals (sand, stone, gravel, pumice, etc.)	Differences in production of saleable minerals are projected to be minimal across alternatives because of the relative inefficiencies of providing saleable minerals from Idaho Roadless Areas.			
Road Construction allowed for CERCLA violations	Road construction to address CERCLA violations is allowed in all alternatives.			
Energy corridors	None of the proposed corridors designated for oil, gas, and/or electricity under section 368 of the Energy Policy Act are within Idaho Roadless Areas. Opportunities for non-section-368 corridors within Idaho Roadless Areas are a function of the themes assigned to the areas proposed for corridor development; differences in opportunities across alternatives cannot be discerned.			
Wind and biomass energy	Low potential for wind energy in Idaho Roadless Areas because of technological, logistical, and environmental issues associated with constructing wind turbines in the more mountainous roadless areas. Biomass energy could be a by-product from any alternative. It is unlikely that any medium- to large-scale wood biomass in roadless areas would be conducted independently.			
Non-timber products	Current access for the harvest of non-timber products is not expected to change under the Proposed and Modified Rules. Assignment of roadless acres to themes that restrict road construction may limit access opportunities for some individuals, but construction may also reduce availability of some species.			
Cultural resources	Prior to management actions taking place on the ground under any alternative or theme, cultural resource inventories and appropriate mitigation are required by law. Differences in risk to cultural resources are based on the amount of projected road construction; the higher the projection the higher the potential risk. Existing plans have the highest risk (low to moderate). The Proposed Rule has a low risk based on projections; but this risk is further reduced in the Modified Rule because of the prohibitions associated with road construction for discretionary minerals (other than specific phosphate areas in GFRG); and the reduction n areas where roads could be constructed to facilitate hazardous fuel reduction projects. There is low potential for disturbance/vandalism under all alternatives with the exception of low to moderate potential under existing plans.			
Affected Indian Tribes	Roads, timber cutting, sale, or removal and mining may alter the character of places that have historic or cultural value, thereby diminishing those values. The exercise of treaty rights and traditional uses of Idaho Roadless Areas would not measurably change under any of the alternatives because hunting, fishing, and botanical gathering would not be affected overall. There may be some localized effects associated with phosphate development.			
Wildland fire use and prescribed fire	The alternatives do not affect wildland fire use. The alternatives could affect the use of prescribed fire in certain situations where timber cutting needs to occur to reduce fuels or in some cases create a fuel bed prior to burning. These limitations would primarily be in the Wild Land Recreation theme in the Proposed and Modified Rules. However, prescribed fire may be used in all themes.			
Air quality	Negligible effects on air quality from fuel reduction projects are expected; subject to strict guidelines for minimizing impacts.			
Agency costs				
Roads	Reasonably foreseeable changes in Agency costs associated with roads (administration, construction, maintenance) are not likely to be significant under the Proposed or Modified Rules relative to the 2001 Roadless Rule given the types of roads constructed (e.g., temporary, single-purpose, and/or built by the user), relative levels of construction/reconstruction projected, and flat budget expectations.			

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Timber and vegetation/fuel treatments	Accessing sites and implementing treatments in remote areas, dominated by roadless characteristics can be costly. Revenue from timber sales are often used to offset the costs of treatments. There is slight potential for gains in net revenues for some forest units (e.g., Idaho Panhandle) under the Modified and Proposed Rules, as well as Existing Plans, relative to the 2001 Rule, but projected changes in harvest are relatively small and may not result in significant changes to aggregate volumes from all National Forest System lands.			
	Highest cost per acre and less efficient treatments due to road construction prohibitions.	Second highest cost per acre for treatments in the WUI and community public water system (CPWS) areas.	Lowest cost per acre for treatments in the WUI and CPWS areas (and equal to the final rule in the WUI).	Lowest cost per acre for treatments in the WUI (and equal to the proposed rule). Lowest cost per acre for treatments in CPWS areas if using "significant risk determination" for CPWS; otherwise, cost per acre is second highest for CPWS areas.

(1) More acres are shown under the Modified Rule than the Proposed Rule because of the different set of lands placed in GFRG. Change is primarily from lands in GFRG theme on the Salmon National Forest in the Modified Rule.

(2) Percentage of average harvest on all National Forest System land within Idaho that occurred between 2002 and 2006. Harvest primarily attributable to stewardship and treatments for forest health and fuels management.

(3) The alternatives do not provide direction on where and when OHV use would be permissible.

(4) Suitability based on areas with acceptable slopes for leasing (<40 percent slope).

Table 2-4. Comparison of Alternatives—Distributional Effects and Economic Impacts

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Timber Cutting				
Jobs per year (1)	17	75	35	30
Labor Income per year (1)	$453,300	$1,909,100	$851,600	$744,500
Location of jobs: BEA economic areas (EA)	Northern EA (Idaho Panhandle National Forests)	Northern (Idaho Panhandle), Southeastern (Caribou-Targhee National Forest), and Central (Clearwater and Nez Perce National Forests) EAs	Northern (Idaho Panhandle), and Southeastern (Caribou-Targhee National Forest) EAs	Northern (Idaho Panhandle), and Southeastern (Caribou-Targhee National Forest) EA
Leasable minerals: phosphate				
Jobs and labor income (1)	No changes in jobs (582/year) or labor income ($23.5 million) contributed by phosphate on existing leases within Idaho Roadless Areas, because none of the alternatives affect existing leases.			
	No new leases in roadless areas likely to be feasible.	Jobs and income from new leases on unleased phosphate reserves within Idaho Roadless Areas in the Southeastern EA are expected to occur in the future over an extended period of time (50 or more years).		
Road construction				
Jobs per year (1)	2	12	4	4
Labor Income per year (1)	$52,900	$462,500	162,400	135,600

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Location of Jobs: BEA Economic Areas (EA)	Northern and Southeastern EAs	Northern, Southeastern, and Central EAs	Northern and Southeastern EAs	Northern and Southeastern EAs
Revenue sharing and resource-dependent counties				
Resource-dependent counties where potential opportunities decrease	Opportunities increase for all timber-dependent counties under the Modified or Proposed Rule relative to the 2001 Rule. Opportunities for mining-dependent counties (e.g., Caribou, Oneida, Power, and Bannock) remain the same based on reasonably foreseeable phosphate output (over the next 15 years), which remains constant across alternatives.			
	Potential opportunities decrease for the following timber-dependent counties under the Modified or Proposed Rule relative to Existing Plans (2): *Northern EA*: Boundary, Bonner, Kootenai, Benewah, Latah, Ferry (WA), Pend Oreille (WA), Shoshone, and Stevens (WA). *Central EA*: Clearwater, Idaho, Lewis, Nez Perce, and Asotin (WA). Southeastern EA: Bear Lake.			
Revenue sharing	Payments to counties are expected to remain the same under all alternatives as long as the Secure Rural Schools and Community Self-Determination Act remains in effect. Mineral-based payments to States are a function of leasable receipts, but no differences in phosphate production are projected across alternatives over the next 15 years.			
Adverse impacts to small entities	Greatest potential given prohibitions in roadless areas; most protective of sectors that benefit from resource conditions associated with roadless areas.	Least potential given fewest prohibitions and theme assignments; least protective of sectors that benefit from resource conditions associated with roadless areas.	Limited potential for losses of small entity opportunities. Opportunity losses are not expected to result in significant adverse economic impacts and/or affect substantial numbers of small entities, including recreational special use permit holders that may benefit from resource conditions associated with roadless characteristics.	

(1) Jobs and income contributed annually (in 2007 dollars). Based on projected levels of timber harvest, road construction, and phosphate mining output per year, conversion of physical output to final demand ($) and application of regional economic multipliers.

(2) Counties where 10 percent of total labor income is attributable to timber-related sectors and that are located in economic areas (EAs) where there is a significant net decrease in acreage assigned to the GFRG theme.

CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

This chapter summarizes the physical, biological, social, and economic environments relevant to National Forest System (NFS) roadless areas within the State of Idaho[30] (Idaho Roadless Areas), and the potential changes to those environments relevant to the Proposed Action and its alternatives. The analysis is structured around four alternatives: (1) the 2001 Roadless Rule; (2) Existing Plans; (3) the Proposed Idaho Roadless Rule; and (4) the Modified Idaho Roadless Rule, and the associated management themes, designations, prohibitions, and permissions. Idaho Roadless Areas are identified in appendix C of this Environmental Impact Statement (EIS) (volumes 3, 4, and 5).

Idaho Roadless Areas are generally undeveloped areas, typically exceeding 5,000 acres that meet the minimum criteria for consideration for inclusion in the National Wilderness Preservation System. These areas were identified during the Forest Service's Roadless Area Review and Evaluation (RARE II) processes, subsequent assessments, or forest planning.

Nationally, inventoried roadless areas make up about 58.5 million acres of the NFS. Idaho has the second largest number of roadless areas, 9.3 million acres, in the Nation, exceeded only by Alaska. About 15 percent of the Nation's roadless areas are in Idaho.

CHANGES BETWEEN THE DRAFT AND FINAL EISS

The information used to evaluate risks to communities was modified based on public comment; see analysis tools.

Other analysis information was updated; see analysis tools.

Projections for timber cutting were updated based on public comment. The Interdisciplinary (ID) team found a factual error in the projection for timber cutting for the 2001 Roadless Rule, which then influenced the projections for the alternatives.

All sections were updated to include an evaluation of effects of a new alternative, Modified Idaho Roadless Rule.

OVERVIEW OF IDAHO ROADLESS AREAS

Of the approximately 53 million acres of land in Idaho, about 60 percent are Federal public lands; 12.0 million acres are Bureau of Land Management (BLM)-managed lands, and 20.5 million acres are NFS lands (USDA Forest Service 2006) (fig. 3-1). NFS lands in Idaho include 5 million acres of special legislated designations—such as wilderness, national wild and scenic rivers, and national recreation areas—and 9.3 million acres of roadless areas (fig. 3-2).

[30] Idaho Roadless Areas are those land areas designated by the proposed Idaho Roadless Rule, where the management direction would apply (see appendices C and E). They are based on the most recent inventory available for each national forest in the State of Idaho. Forest plans were used, as well as other assessments and the inventory contained in the 2000 Roadless Rule Final Environmental Impact Statement (USDA Forest Service 2000). Using these inventories the Forest Service has identified approximately 9.3 million acres of inventoried roadless areas subject to the proposed rule.

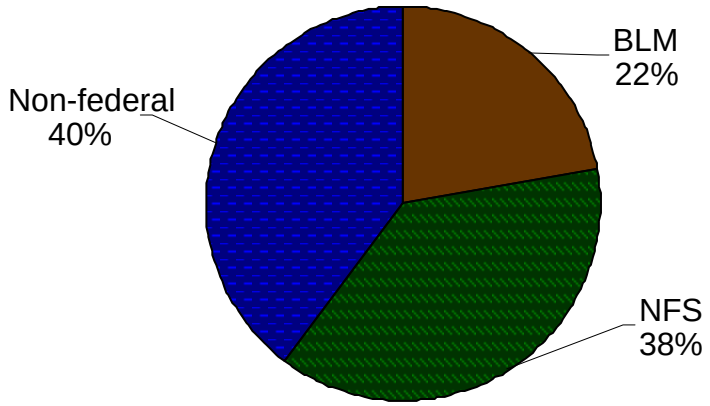


Figure 3-1. Lands in the State of Idaho by ownership

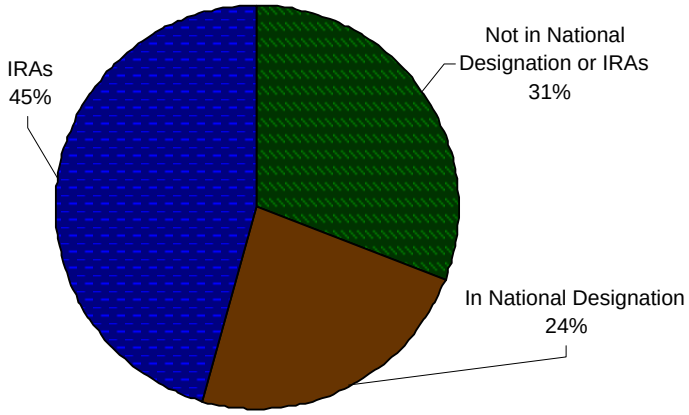


Figure 3-2. NFS lands in Idaho, 20.5 million acres

Idaho's 281 individual roadless areas are spread across 12 national forests. Several roadless areas are shared among one or more forests, resulting in a total of 250 combined roadless areas (table 3-1, appendix C). These roadless areas stretch from the Selkirk Mountains on the Canadian border to the Wasatch Range on its southern border with Utah. Appendix C provides a description of Idaho Roadless Areas, including a description of each roadless area's unique characteristics. Appendix D provides a rating of the characteristics found in each roadless area.

The landscapes of Idaho Roadless Areas are varied, ranging from tree-covered mountains to deep river canyons to rolling grasslands. Idaho Roadless Areas provide large, relatively undisturbed landscapes that are important to biological diversity and the long-term survival of many at-risk species. These areas support a diversity of aquatic habitats and communities, including habitat for aquatic threatened, endangered and Forest Service sensitive species (TES). Idaho Roadless Areas also include a range of terrestrial habitat types such as grass and shrub lands, young forested stands, and old-growth forests. Forests vary from the very dry pinyon-juniper woodlands to cold alpine forest types at high elevations. The forests are composed of approximately 40 percent Douglas-fir, 20 percent spruce–fir, and 8 percent lodgepole pine.

Each roadless area has unique features, recreational opportunities, and commodity opportunities (such as timber, minerals, and livestock grazing), including 15 percent of the Nation's phosphate production. Some roadless areas are small and do not provide the same remote feeling as larger roadless areas. Some areas are expansive, with exceptional opportunities for solitude. The Boulder-White Clouds Roadless Area, for example, is more than 400,000 acres.

Table 3-1. Summary of Idaho Roadless Areas by national forest

National Forest	NFS lands (acres)[1]	Idaho Roadless Area (acres)[2]	Percent roadless	No. of roadless areas
Boise	2,653,100	1,108,900	42	42
Caribou	972,400	741,700	76	34
Challis	2,463,500	1,437,600	58	28
Clearwater	1,680,000	984,400	59	16
Idaho Panhandle	2,500,000	797,100	32	45
Kootenai	46,500	35,100	75	4
Nez Perce	2,224,100	497,000	22	19
Payette	2,327,000	908,200	39	22
Salmon	1,772,500	827,700	47	30
Sawtooth	1,732,100	1,194,900	69	23
Targhee	1,312,400	736,300	56	16
Wallowa-Whitman	35,400	35,400	100	2
Other NFS lands, no roadless areas[3]	745,400	0	0	0
TOTAL	20,464,400	9,304,300	45	281

[1] *Based on Land Areas Report (LAR)–as of Sept 30, 2006 (USDA Forest Service 2006).*

[2] *Based on most recent inventory; see discussion in chapter 2 and appendix E.*

[3] *Includes national forests and grasslands without roadless areas in Idaho (Bitterroot, Wasatch-Cache National Forests, and Curlew National Grasslands).*

IDAHO'S POPULATION

Idaho will continue to see rapid growth at the present or greater rates. Between July 1, 2004, and July 1, 2005, the population grew by 2.4 percent or 33,960 people, making it the third fastest growing state in the nation. The current population is approximately 1, 429,000. Figure 3-3 shows Idaho's main population areas in relation to Idaho Roadless Areas, based on housing density in year 2000 (Stein et al. 2007). Figure 3.4 show's Idaho's main population areas in relation to the Idaho Roadless Areas, based on housing density in year 2030 (Stein et al. 2007).

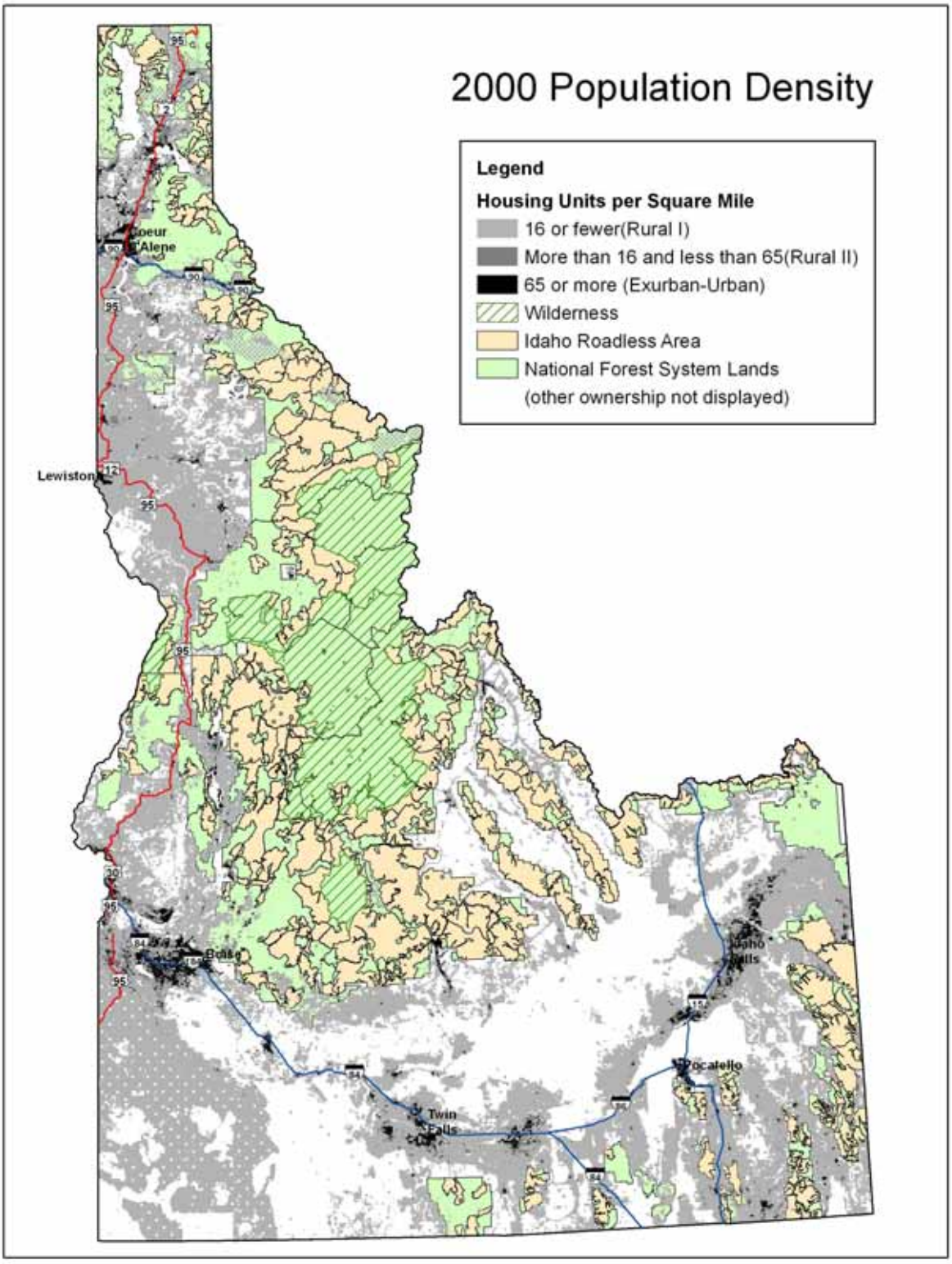


Figure 3-3. Housing density in Idaho, 2000

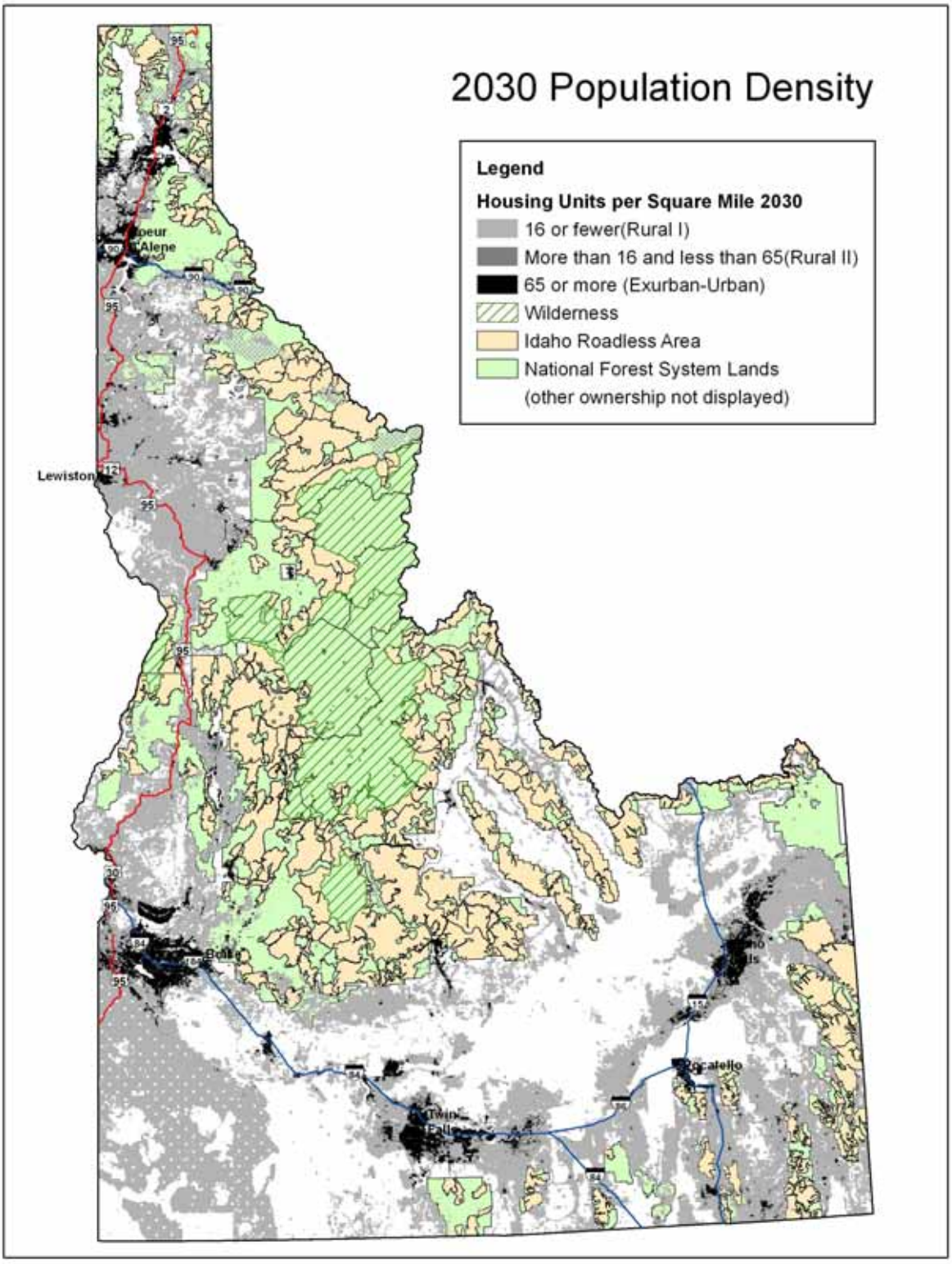


Figure 3-4. Housing density in Idaho, 2030

Analysis Framework

The following sections describe the general analysis methodology, assumptions, and projections regarding permitted and prohibited uses for timber cutting, sale, or removal; road construction / reconstruction; and discretionary mineral activities.

General Analysis Methodology

Nature of Effects

The proposal is programmatic in nature, consisting of direction for timber cutting, road construction / reconstruction, and discretionary mineral activities, which would be applied to future management activities. It does not prescribe site-specific activities on the ground and it does not irreversibly commit resources. As stated by Idaho then Governor James Risch, this proposed rule "does not cut one tree or plow one road." The proposed Idaho Roadless Rule itself would have no direct environmental effects, and any subsequent activity would need to be individually analyzed before any authorization is made.

The EIS identifies the land areas and acres where activities could occur within Idaho Roadless Areas; however, not every acre would be potentially affected. The EIS relies on trend analysis of past, present, and reasonably foreseeable activities to disclose the implications of the different management themes for potential future timber cutting, road construction and reconstruction, and discretionary mineral activities (as documented in the project file, timber cutting and road construction / reconstruction projections; and the minerals specialist report). The trend analysis considered such factors as budget, fire risk, and forest plan direction.

Analysis Tools

A geographic information system (GIS) was used for mapping purposes. All maps were reviewed and calibrated to reflect the most current information. GIS was also used to identify those Idaho Roadless Areas that overlap with neighboring States. The following summarizes the updates to GIS used in the final EIS.

Themes

Corrections were made in all alternatives; see appendix E for a summary of the changes. The analysis was rerun based on these corrections.

Roads

Existing road data was updated based on more current information for the Caribou, Targhee, Salmon, Challis, Idaho Panhandle, and Clearwater National Forests.

Wildland-urban interface

Based on public comment the ID team reviewed the information used to define and delineate wildland-urban interface (WUI). WUI was used as a proxy to determine where timber cutting to facilitate hazardous fuel treatments would most likely to occur. The draft EIS used information from the State of Idaho on their depiction of WUI. However, the WUI map provided by the State appears to overestimate the amount of WUI in Idaho, because it identifies lands that are not near communities as WUI (such as in the Selkirk Mountains of north Idaho) (see comments from the Wilderness Society, letter number 1693).

In response to these comments, the ID team searched available information to find the best definition and delineation of WUI. A definition of WUI is provided for in the Healthy Forests Restoration Act (HFRA), which defines WUI as those areas depicted in community wildfire protection plans (CWPPs) (HFRA §101(16)(A); if a CWPP does not exist, then HFRA provides a default definition (HFRA §101(16)(B). The ID team considered using WUI as defined in county or community wildfire protection plans; however, this information was not available in composite form for all of Idaho, and each county defined WUI based on its own parameters.

During the development of the Modified Idaho Roadless Rule, the Roadless Area Conservation National Advisory Committee (RACNAC) suggested using the default definition of WUI from HFRA. They also recommended calling this area the "community protection zone", because it is a subset of WUI under HFRA. The HFRA definition requires buffering an area around an at-risk community; therefore, the next task was to identify at-risk communities.

In reviewing criteria for identifying communities provided by the Wilderness Society in its publication, *Targeting the Community Fire Planning Zone* (Wilmer and Aplet 2005), the ID team found that information provided in *National Forests on the Edge* (Stein et al. 2007) used similar criteria and could be used as a proxy for communities; that study used housing density information to project current and future housing density. The ID team used the data provided by *National Forests on the Edge* to map communities in Idaho in the year 2000 and the year 2030, based on projections of housing growth. The year 2030 data was used as the base in the final EIS for identifying communities (fig. 3-4), so that growth could be incorporated into the analysis. Communities were defined as areas in Rural II (more than 16 and less than 65 housing units per square mile) and Exurban-Urban (more than 65 housing units per square mile). These communities were then buffered by 1½ miles, which is the outer boundary of the default definition of HFRA. Lands within the 1½ mile buffer are a proxy for community protection zones.

Minerals and Energy Resources

Updated acres leased and unleased based on further review of BLM records. Information regarding mining claims was updated.

Physical Resources

Based on public comment, the proximity to both surface and groundwater sources for community water supplies were identified. The draft EIS identified only surface water sources because they were considered the most sensitive to road-related contamination. Community water systems are defined as: a public water system that regularly serves year-round residents (that is, a system that serves people at their home; examples include systems that serve towns or subdivisions). This information was used as a proxy of "municipal watersheds". In addition, information regarding the most up-to-date list of 303(d) streams was incorporated.

Botanical Resources

Updated information on occurrences was incorporated.

Aquatic Resources

Updated information on occurrences was incorporated.

Terrestrial Species

Updated information on occurrences was incorporated.

Noxious Weeds

Updated inventory information for Idaho National Forests was used in lieu of State data to more accurately reflect infestation areas of known noxious weed occurrences.

Analysis Information

The analysis of effects began with a review of the 2001 Roadless Rule Final EIS and associated specialist reports (USDA Forest Service 2000a-o). The 2001 Roadless Rule specialist reports provide a starting point, and many were updated with additional relevant information. Literature published since the release of the 2001 Roadless Rule Final EIS was reviewed and incorporated where appropriate. Public comments collected during scoping and the on the draft EIS were considered. Each resource specialist report (available in the project file) provides further descriptions of the information used.

The analysis uses a consistent set of roadless area boundaries based on the latest information from national forests in Idaho (referred to as Idaho Roadless Areas). Not all forests are on an equal footing when it comes to roadless area boundaries. Some boundaries have remained unchanged for nearly 20 years, even though there have been activities within the roadless areas. Other forests have updated their boundaries during the forest plan revision process. This discrepancy is one of the reasons the State recognized the variation in roadless characteristics among roadless areas.

Differences in boundaries between those found in the 2001 Roadless Rule, Existing Plans, and this analysis are discussed in appendix A. Boundaries have been adjusted for a variety of reasons including land exchanges, correction of lines on a map, improved GIS technology, and to some degree development.

In addition, some refinements were made to the Idaho Roadless Rule based on an understanding of the intent of the State of Idaho Petition (see chapter 1 and appendix H). These adjustments are reflected in the analysis.

Analysis Boundaries

The analysis evaluates the implications of the prohibitions and permissions within Idaho Roadless Areas because these are the lands that would be affected. In the case of some resources, such as economics, the analysis boundary extends beyond the roadless areas. Cumulative effects were evaluated both at the State scale and the national scale.

The potential effects on each resource were evaluated based on information regarding foreseeable actions (timber cutting, road construction / reconstruction, and discretionary mineral activities) that would be prohibited or permitted under each alternative over a 15 year time period, unless noted. This time period was used to evaluate the amount of disturbance that could occur over a reasonable planning horizon. Actions beyond this time period are speculative because of the potential changes to vegetative conditions, markets, and other influences.

In addition, development of phosphate deposits beyond 15 years was also considered because phosphate is only found in certain locations (see next section projections / foreseeable actions).

Analysis Assumptions and Projections

The following subsections describe the analysis assumptions and projections regarding timber cutting, road construction / reconstruction, and discretionary mineral activities. This information was used to evaluate the Proposed Action and its alternatives throughout the EIS.

Each forest provided information regarding projects with timber cutting, removal, or sale; road construction / reconstruction; and the exploration / development of minerals that had occurred in roadless areas since the release of the 2001 Roadless Rule. Forests also provided information on any foreseeable future projects and the likelihood of their implementation based on budget. The interdisciplinary team developed projections for the Idaho Roadless Rule based on trends from the Existing Plans and from the 2001 Roadless Rule, and considering the Agency's flat budget trend and high interest in responding to fire risk (see the project record, Projections and Assumptions section).

Timber cutting, sale, or removal

Assumptions

- Vegetation management practices use many techniques to meet management objectives. Techniques may include:
  - Timber cutting[31], including silvicultural treatments to improve forest health, as well as timber harvest[32].
  - Slashing and cutting of vegetation, including the limbing of trees to break the laddering effect of fuels.
  - Prescribed burns, and wildland fire use.
- Combinations of techniques may be used, where permitted by alternative and theme direction, to address management objectives.
- Any timber cutting under any alternative would be designed based on applicable forest plan components (for example, management direction that provides for protection of riparian areas or habitat needs for species).
- Future timber harvest done within Idaho Roadless Areas would focus on protecting at-risk communities and municipal water supply systems from adverse effects of wildland fire.
- Budgets would continue to be flat. Primary focus for the foreseeable future is responding to fire risk.
- The volume of timber harvested between 2001 and 2006 and projected to be harvested between 2007 and 2011 provides a reasonable basis for projecting the amount of trees to be cut under each alternative.

[31] Timber cutting is the overarching term for the cutting of any tree, whether or not is has commercial value.

[32] Timber harvest refers to the volume of trees with commercial value that are cut and removed from the forest.

Projections and Foreseeable Actions

Table 3-2 projects the yearly average timber harvest that is reasonably foreseeable in Idaho Roadless Areas. This table is based on a combination of actual accomplishments and future projections. Timber harvest is used as an approximation for timber cutting (see the project record, Projections and Assumptions section).

In response to public comment, the ID team reviewed the projections and found there was an error in the projections for the 2001 Roadless Rule; therefore, this table has been updated to reflect the correct information. Because data from the 2001 Roadless Rule were used in the projections for the Proposed Idaho Roadless Rule, those data were also corrected.

Table 3-2. Projected timber harvest by alternative

Projected timber cutting	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Timber harvest yearly average (MMBF)	3.0	13.36	5.83	5.04
Timber harvest yearly average (acres)*	600	2,700	1,200	1,000
Timber harvest 15 year average (acres)	9,000	40,500	18,000	15,000

** based on the assumption that an average of 5 MBF/acre would be harvested.*

Road construction/reconstruction

Assumptions

- Trends for road development within Idaho Roadless Areas have varied from historically high levels to reduced levels over the past decade, and this reduced trend is expected to continue. Currently it is estimated that in areas allowing road development, less than 5 percent has been roaded. This represents less than 1 percent of the total roadless acreage. (See the project record, roads specialist report.)
- Road construction or reconstruction would likely not see an increase in the foreseeable future (next 15 years) because the appropriated budget is flat or declining and there is no indication the trend will change. In addition, there is a backlog of road maintenance; therefore, there is no emphasis on constructing new roads that need to be maintained. If roads are constructed they are likely to be temporary.
- Roads developed to support timber harvest would generally be closed after the entry. Temporary roads constructed for timber harvest would be decommissioned as part of the contract package.
- Any road construction / reconstruction under any alternative would be designed based on applicable forest plan components.

Projections and Foreseeable Actions

Table 3-3 projects the yearly average road construction / reconstruction that is reasonably foreseeable in Idaho Roadless Areas under the various alternatives. This table is based on a combination of actual accomplishments and future projections of activities, similar to what was described in the timber cutting section.

Road miles associated with "other" reflect roads constructed / reconstructed for access to rights-of way, access associated with ANILCA, locatable minerals, and existing phosphates leases, including exploration. They may also include an incidental amount for recreation or other needs. Road miles associated with "timber" reflect roads constructed / reconstructed to access timber sales and are most likely temporary.

Table 3-3. Projected road construction/reconstruction by alternative

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Projected miles of road construction/ reconstruction activities, annual average				
Permanent–other	0.8	0.8	0.8	0.8
Temporary–other	0.2	0.2	0.2	0.2
Reconstruction–other	0.0	0.0	0.0	0.0
Total	1.0	1.0	1.0	1.0
Permanent–timber	0	4	0.0	0.0
Temporary–timber	0	2	1.5	1.2
Reconstruction–timber	0	5	1.5	1.1
Total	0	11	3	2.3
Grand total	1.0	12	4	3.3
Projected miles of road construction/ reconstruction activities, 15 years, all activities				
Permanent	12	72	12	12
Temporary	3	33	26*	21
Reconstruction	0	75	23*	17*
Total	15	180	61	50

**rounded to nearest whole number*

Mineral Activities

Assumptions

Saleables

- Demand for mineral materials (saleable minerals such as sand and gravel) from NFS lands would remain constant for the foreseeable future.

Locatables

- Locatable mineral activity would remain constant in Idaho Roadless Areas for the foreseeable future. If the price of metals continues to rise, there could be a corresponding increase in exploration activity on mining claims; however, this increase in exploration has not occurred over the past 7 years.

Leasables

General

- Industry would explore and develop leasable minerals on non-roadless areas before they venture into Idaho Roadless Areas, because it is more economical to do so.
- The current density of roads within Idaho Roadless Areas may not alone be adequate to allow leasable minerals to be efficiently and economically developed. Therefore, the

prohibition of road construction or reconstruction would likely preclude leasable mineral activity on lands where the prohibition exists. This is based on experience in Utah where the industry requested the BLM to suspend their oil and gas leases upon learning the provisions of the 2001 Roadless Rule were being retroactively applied (see the section 3.5 Minerals and Energy).

- Directional drilling technology may be used in select circumstances but cannot be used as a principal means to develop geothermal or oil and gas resources. It is not expected that the industry would incur the extra expense of directional drilling without the promise of full economic enjoyment of the entire lease area. This is particularly true in Idaho Roadless Areas, where the complex geology and lack of existing commercial production greatly increase the financial risk of drilling.
- A no surface occupancy (NSO) prohibition would preclude development of oil, gas, geothermal, and phosphate resources because the NSO prohibition is expected to cover large areas with limited private inholdings or adjacent non-roadless area lands where occupancy would be allowed. This is based on experience in Idaho where no oil and gas wells have been drilled in NFS lands with an NSO designation (see directional drilling discussion).

Coal

- There is no potential for coal development because currently there are no existing leases or pending lease applications on NFS lands in Idaho and no demonstrated industry interest; consequently, no foreseeable activity is anticipated for exploration or development of coal reserves.

Oil and gas

- There would be little interest in leasing Idaho Roadless Areas for oil and gas in the Targhee portion of the Caribou-Targhee National Forest, because of a leasing decision made in 2000 that made all the forest unavailable for leasing or available only with a no surface occupancy lease stipulation (see general assumption above).

Geothermal

- Higher energy prices and new legislative incentives contained in the 2005 Energy Policy Act have increased the interest to explore and develop geothermal resources. Geothermal resources would be developed to some degree in Idaho Roadless Areas if road construction, reconstruction, and surface occupancy were permitted; however, as noted in the general assumptions, exploration and development would focus outside Idaho Roadless Areas.
- The six pending geothermal lease applications for 11,130 acres in the Boise National Forest, which includes about 7,000 acres of the Peace Rock Roadless Area, and the three geothermal lease applications for 5,600 acres in the Salmon National Forest, which includes about 33 acres of the West Panther Creek Roadless Area, are expected to be offered for lease in the foreseeable future. Whether or not the roadless acreage in these applications is actually leased depends on what kind of road restrictions, if any, apply.

Phosphate

- All known phosphate deposits would be developed if road construction, reconstruction, and surface occupancy were permitted. This is an overly conservative assumption, because all leased lands may not be completely developed and in the case of unleased lands, some lands may be determined unsuitable for leasing at the leasing analysis stage.
- The history of phosphate development in the area has shown that lease modifications or fringe acreage leases are a regular occurrence to avoid the waste of isolated blocks of phosphate ore. Using a ratio of existing leased acres outside of known phosphate lease areas (KPLA) to leased acres inside of KPLA in the Caribou-Targhee National Forest, these kinds of leases could add up to 14 percent to the acres of leased KPLA where mining may occur.

Projections and Foreseeable Actions

Locatable

- Locatable mineral activities are projected to require less than 1 mile per year of road construction or reconstruction for the foreseeable future. This projection is included in the 1 mile of "other" road in table 3-3, earlier in this section. If the price of metals continues to rise, there could be a corresponding increase in exploration on mining claims resulting in an increase in road construction and reconstruction within Idaho Roadless Areas.

Leasables

- Exploration and prospecting of existing leases is projected to require less than 1 mile per year of road construction or reconstruction for the foreseeable future. This projection is included in the 1 mile of "other" road in table 3-3.

Oil and gas

- It is anticipated there would be no oil and gas exploration conducted within Idaho Roadless Areas on the Targhee portion of the Caribou-Targhee National Forest. Therefore, no roads or surface disturbance associated with oil and gas would occur within the Targhee roadless areas.
- Four wells would be drilled on the Caribou portion of the Caribou-Targhee National Forest over the next 15 years (Robison 2007). Each well would require 6 miles of new access road to be constructed. It is unknown whether or not these wells would be located in an Idaho Roadless Area. It is predicted these wells would not be capable of economic commercial production because of the geology, historical level of drilling activity and success rate, the near lack of infrastructure to support oil or gas development, and the lack of any historical or currently producing oil / gas wells / fields in southeast Idaho and surrounding area (Robison 2007).

Geothermal

- Although there is substantial acreage of Idaho Roadless Areas with geothermal potential, there are no projections about how much geothermal exploration and development would occur on Idaho Roadless Areas. There are no existing geothermal

leases and no history of activity on NFS lands upon which to make an estimate. However, there could be some interest in leasing, exploration, and development of geothermal resources in the extended future.

- The only foreseeable geothermal activity is related to geothermal lease applications filed on the Boise and Salmon National Forests. Six geothermal lease applications have been submitted for 11,130 acres on the Boise National Forest, including 7,000 acres in the Peace Rock Roadless Area. Three geothermal lease applications have been submitted for 5,600 acres on the Salmon National Forest, including 33 of the West Panther Creek Roadless Area.

Phosphate

- There would be only one operating phosphate mine (Smoky Canyon Mine) affecting Idaho Roadless Areas for the foreseeable future (next 15 years) because it is the only mine that is in the process of expanding into roadless areas. Based on current production levels, other active mines in the forest will be operating on lands outside of Idaho Roadless Areas for the foreseeable future.
- Over a 16-year period (the length of the mine operation), the Smoky Canyon Mine would develop about 8 miles of haul road and disturb about 1,100 acres of the Sage Creek and Meade Peak Roadless Areas in the Caribou portion of the Caribou-Targhee National Forest. Because existing leases are involved, this development would occur under all of the alternatives.
- There would likely be some development of an additional 6,100 acres[33] of leased phosphate deposits found in the Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, Stump Creek, and Mount Jefferson Roadless Areas in the extended future (between 15 to 50 or more years from now). About 17 miles of new road construction / reconstruction would be needed to access these deposits. About 30 acres of leased phosphate deposits has already been mined in roadless areas.

Saleables

- Although no specific tonnage projection is made, the amount of mineral materials (sand, gravel, rock, fill dirt, etc.) that would be produced from Idaho Roadless Areas would be low and associated with other permitted activities.

[33] There is total of 7,230 acres of leased deposits in Idaho Roadless Areas, of which 30 acres have been mined and 1,100 acres are associated with the Smokey Canyon Mine.

3.2 VEGETATION AND FOREST HEALTH

CHANGES BETWEEN DRAFT AND FINAL

- Based on public comment, additional information is provided about silvicultural practices, including timber harvest and its effect on forest health concerns; and the relationship of silvicultural practices to insects, disease, and fuel management.
- Old-growth definitions were revised to provide clarity and to align with regional Forest Service definitions – see Glossary.
- Inventory information for noxious weeds was updated in response to comments on the draft Environmental Impact Statement (EIS). This information is contained in the Noxious Weeds Affected Environment section.
- The climate change effects analysis was supplemented to include the effects of carbon dioxide emissions by alternative, including potential mineral development. Additional literature citations representing current research studies on this issue are provided in support of this analysis.
- Additional effects analysis for timber harvest, forest health, noxious weeds, and climate change was completed for alternative 4, the Modified Idaho Roadless Rule. The Modified Rule uses additional assumptions.
- Factual errors for timber harvest and road building projections for the 2001 Roadless Rule were corrected. The Proposed Rule and Modified Rule were updated based on this information. All assumptions were reviewed and adjusted for clarity if needed.

INTRODUCTION

Idaho Roadless Areas provide a diverse array of vegetation ranging from the very dry pinyon-juniper woodlands to cold alpine forest types at high elevations. These lands are also in a variety of conditions—from young forests to old, from healthy to unhealthy. The following analysis evaluates the potential risks to forest health from the prohibitions and permissions in the alternatives. Forest health is the perceived condition of forests based on age, structure, composition, function, vigor, level of insects and disease, presence and absence of exotic organisms, and resilience to disturbance including wildland fire. This analysis focuses primarily on the risks of insect and disease and exotic organisms, and potential influences of climate change. The section 3.3 Fuel Management evaluates the resilience to disturbance such as wildland fire and the ability to treat hazardous fuels.

More than 21.4 million acres of Idaho are forest land. Approximately 76 percent of the forest land in Idaho is administered by national forests. Table 3-4 displays the approximate forest type acreage in the State and within national forests in Idaho.

Table 3-4. Forest cover types for the State of Idaho and national forests

Forest type	State	National forest[1]
	---------- Acres ----------	
Pinyon/juniper	739,000	143,000
Douglas-fir	6,543,000	5,296,000
Ponderosa pine	1,539,000	1,076,000
Spruce/fir [2]	3,826,000	3,426,000
Lodgepole pine	2,273,000	2,095,000
Grand fir/cedar/hemlock [3]	3,182,000	1,792,000
Western larch	167,000	100,000
Other softwoods	473,000	458,000
Aspen/birch/cottonwood	862,000	541,000
Other hardwoods	207,000	106,000
Nonstocked	1,621,000	1,348,000

[1] *Forest Inventory and Analysis database (Miles 2007).*
[2] *Includes mountain hemlock.*
[3] *Includes western white pine.*

The predominant forest types in Idaho are Douglas-fir (31 percent), spruce / fir (18 percent), grand fir / cedar / hemlock (15 percent), and lodgepole pine (11 percent)[34]. The tree species found in these forests are generally similar to those that would have existed prior to European settlement; however, existing individual forest types and species have changed substantially in some areas. Examples of forest types that have increased from historical conditions include Douglas-fir and the moist grand fir and hemlock forests of northern Idaho. Ponderosa pine, western larch, western white pine, and whitebark pine have been reduced. Douglas-fir has been reduced in coverage in the central Idaho mountains, and aspen declined steeply in eastern Idaho (Quigley and Arbelbide 1997, pages 629, 888, 890, and 892). Wildland fire suppression, introduced exotic diseases (such as white pine blister rust), and past harvesting practices all contributed to these shifts in cover type amounts. In addition, wildland fire suppression and reductions in timber harvest from Federal lands have led to a change in vegetation structure and species composition and an increasing accumulation of forest fuels over large landscapes of most of the interior West, including Idaho Roadless Areas (USDA Forest Service 2000 and 2000c).

[34] The Forest Inventory and Analysis (FIA) database (Miles 2007) was used to estimate the extent of forest cover types and to display forest attributes, including volumes, size class, growth, and mortality. This information was used at both the State and national forest scales. The most recent FIA inventory reflects FIA plot measurements on more than 700 plots from 2004 and 2005, or 20 percent of the total plot grid. This information is updated annually; values for these attributes will change as additional plots are surveyed (10 percent of plots are inventoried annually). While the current inventory is not complete, it does reflect general forest attributes that are usable for general context at the State and national forest land ownership scale.

Acres of forest cover types from the forest inventory for Idaho Roadless Areas are not currently known.[35] However, a cover type map, modeled from the inventory data, is available. The cover type map appears to overestimate certain cover types (such as Douglas-fir). Noting this discrepancy, the roadless area cover type abundance is approximately 40 percent Douglas-fir, 20 percent spruce/fir, and 8 percent lodgepole pine. All other forest types are less than 5 percent each. The non-forest types within the roadless areas are estimated to be 18 percent, including other vegetation types (grasslands, shrublands, meadows, and others) and barren areas (rock, ice, and others).

Approximately 16.2 million acres of forest land in Idaho are considered timberlands, or those non-reserved lands (not withdrawn from timber production by statute or regulation) that are capable of growing 20 cubic feet per acre per year or more of wood. The most recent inventory for the State (2004–2005)[36] estimates net volume of sawtimber trees at 189 billion board feet, an average annual net growth of more than 4 billion board feet, with average annual mortality of 1.7 billion board feet over the same time period. Approximately 80 percent of the net volume, 65 percent of the net growth, and 94 percent of the mortality occurs on National Forest System (NFS) lands (Miles 2007). Average annual removal of timber from NFS lands in Idaho from 2002 to 2006 was approximately 5 percent of the estimated average annual growth for 2004–2005 (USDA Forest Service 2007i and 2007j). These changes indicate an ongoing and substantial net increase in volume of wood fiber on NFS lands.

Most of Idaho's timberlands (68 percent) are 9-inch average diameter or more; the 5- to 8.9-inch class accounts for 10 percent; and stands of less than 5-inch diameter account for 17 percent. Non-stocked areas contribute the remaining 5 percent of the size class total. National forest size classes are similar to the State averages (Miles 2007). A complete inventory of old-growth forests (also termed late-successional forests) is currently not available across all national forest lands in Idaho. These forests form a portion of the acres within the 9-inch and more size class above.

TIMBER HARVEST

From 1947 through the late 1960s, harvest on all forest lands nearly doubled, from 950 million to 1.8 billion board feet. National Forest System lands were the primary contributor to the increase, quadrupling harvest from 250 million to more than 1 billion board feet in 1969. During this time, the harvest from national forests increased from less than 30 percent of the total harvest in the 1960s to 60 percent in the late 1960s. Timber harvest peaked in Idaho in 1976 at 1.9 billion board feet. At the same time, harvest from national forests declined slightly, with the difference coming mostly from private timberlands. National forest harvests contributed 50 percent of the total harvest at that time (Morgan et al. 2004).

The 1980s saw a sharp decline in total harvest, as the timber industry went into depression. By the late 1980s harvest had recovered to an average level of 1.635 billion board feet, but national

[35] An FIA cover type map was used to approximate the distribution of forest types in the Idaho Roadless Areas (Ruefenacht et al, 2007). This information was used, in lieu of the inventory, because the inventory is not sufficient at this time to accurately reflect the existing cover types within these areas. As the inventory measures additional plots, this information will become more reliable.

[36] 2nd measurement of 10-year annualized cycle. Ten percent of the State's plots are inventoried each year.

forest contributions had been reduced to 45 percent. Harvest from private lands increased to 45 percent, other public lands to 10 percent (Morgan et al. 2004).

The volume of timber on all forest lands in Idaho has declined since the early 1990s and has continued since 2002, when the latest Statewide data was available. During this period, NFS timber harvest levels declined to only 7 percent of the total harvest within the State, or approximately 73 million board feet. The proportion of the private lands contribution continued to increase to 72 percent of the total harvest by 2001. The remainder of the harvest was from other public lands (Idaho Department of Lands and Bureau of Land Management) for about 21 percent of the total harvest (Morgan et al. 2004). Figure 3-5 displays harvest trends in Idaho from 1949 to 2001 (from Morgan et al. 2004).

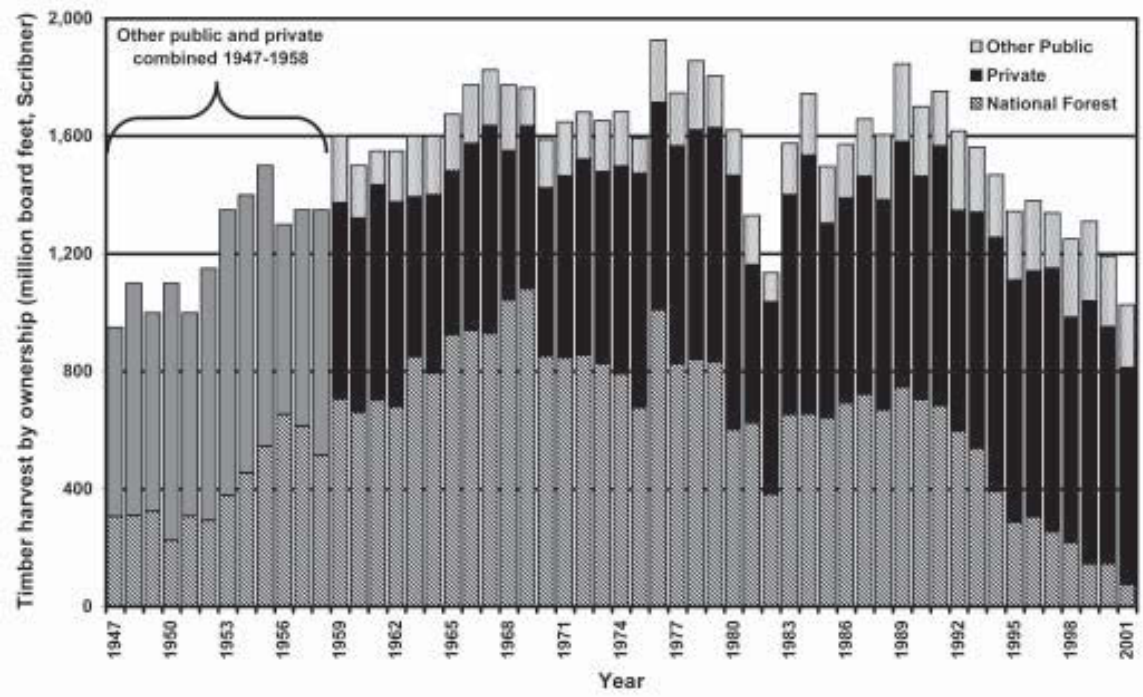


Figure 3-5. Timber harvest by ownership, by year

National forest harvests have been fairly consistent for the period of 2002 to 2006, averaging 122 million board feet per year (USDA Forest Service, 2007i and 2007j), occurring on average 9,930 acres per year (USDA Forest Service, Intermountain and Northern Region data bases, 2002–2006).

Approximately 16.2 million acres of forest land in Idaho are considered timberlands, or those non-reserved lands (not withdrawn from timber production) that are capable of growing 20 cubic feet per acre per year or more of wood. The Forest Service manages approximately 12 million acres of timberland within the State (74 percent of the State total). The most recent inventory for the State (2004–2005) estimates net volume of sawtimber trees at 189 billion board feet, an average annual net growth of more than 4 billion board feet, with average annual mortality of 1.7 billion board feet over the same time period. Approximately 88 percent of the mortality occurs on NFS lands (Miles 2007).

FOREST HEALTH—INSECTS AND DISEASE: AFFECTED ENVIRONMENT

Insect and disease populations fluctuate based upon a number of circumstances, including warm and dry weather, overcrowding of trees, and trees damaged by fires. Frequently, several factors combine to weaken trees and increase their risk to insect and disease damage.

All forest trees in Idaho are subject to certain insect and disease agents. Most are native, with exceptions such as white pine blister rust, an introduced exotic. Insect and disease conditions become a forest health concern when they operate outside their historical range of variability, usually in response to changes in the forest composition and structure. Insects and diseases require suitable hosts (for example, tree species, size, forest structure) to successfully attack and damage trees. Climate and weather conditions can trigger or make outbreaks worse and intensify mortality. Because insects and diseases require certain forest types and conditions to operate successfully, usually a landscape with appropriate tree species, of varying ages and structures, are considered more resilient to large-scale outbreaks and mortality.

Management options vary by agent but usually include silvicultural options (thinning to reduce density, establishment of non-host trees, or change in stand structure). Tools to accomplish these objectives can include timber cutting—which includes timber harvest (removal and sale of commercial products)—and reforestation (planting of non-host tree species). Other methods may include preventative controls (such as tree spraying) or direct suppression activities (reducing populations through trapping) or prescribed burning.

Risk Mapping

Approximately 3.5 million acres of forest land in Idaho are at risk for serious insect and disease mortality, with 3.2 million of those acres occurring on national forests[37]. The most recent estimates include more than 1.44 million acres within Idaho Roadless Areas where 25 percent or more tree mortality can be expected over the next 15 years. It should be noted that the predicted risk for the NFS lands outside of roadless and the Idaho Roadless Areas are approximately the same, from 16 percent to 19 percent, respectively for forest land.

The forest cover types described earlier in this document are susceptible to a suite of insects and diseases. The forest types most susceptible to damage by insect and / or disease agent include (USDA Forest Service 2004b, 2005a, 2006a):

Douglas-fir cover type. Forests composed of Douglas-fir are subject to a wide variety of agents that may cause extensive damage. In northern Idaho (north of the Salmon River), Douglas-fir is very susceptible to mortality from root disease. Douglas-fir bark beetle populations often increase with presence of disease, fire, or low-vigor trees. During outbreaks, the bark beetle can cause substantial mortality, particularly in larger diameter trees, even those appearing to be healthy. Recent outbreaks have been associated with wildland fires, particularly after the severe wildland fires of 2000. Recent estimates indicate that populations are declining because of moist conditions that returned in 2005. However, a risk of future outbreaks remains because of the large amount of Douglas-fir cover types and stand structures susceptible to the beetle. Western

[37] In 1996, the Forest Service initiated a mapping effort to evaluate forest health risk on all forested lands in the United States. A GIS database was created that displays NFS lands most at risk of mortality from insects and diseases. The 2006 composite insect and disease risk map is used in this analysis (USDA Forest Service 2007h). Methods and results and disscussion of the effort are contained in Krist et al., 2007.

spruce budworm can create heavy defoliation, and repeated infestations create mortality. Forests south of the Salmon River are currently experiencing increasing budworm infestations.

Lodgepole pine cover type. The mountain pine beetle continues to be the most damaging bark beetle in Idaho. Lodgepole pine forests are particularly susceptible when trees reach an average diameter of 8 inches, 80 years old, and relatively high densities. Mortality levels have exceeded 2.5 million trees as recently as 2002. Recent estimates indicate lower mortality figures, and in some areas the beetle populations may be decreasing as suitable host trees become limited.

Whitebark pine cover type. Although this cover type is restricted to cold environments in Idaho, limiting its extent, whitebark pine is an ecologically important species. Recently the combination of mountain pine beetle infestations and white pine blister rust has created substantial mortality in larger diameter, cone-bearing trees. Recent surveys in northern Idaho have inventoried blister rust infection rates of up to 90 percent in regeneration as well.

Grand fir cover type. Grand fir forests have been experiencing increased infestations by western spruce budworm. The fir engraver bark beetle has recently declined in population; as recently as 2002 and 2003, surveys estimated this insect had killed 120,000 to 130,000 trees in Idaho.

Subalpine fir cover types. Western spruce budworm, fir engraver, and western balsam bark beetle are considered threats to subalpine fir trees. Older trees are particularly susceptible to mortality. The balsam bark beetle has declined recently with increasing precipitation in the past few years; however, in 2002 and 2003 approximately 150,000 trees were killed within the State. Increasing populations are occurring in southern Idaho.

Aspen decline. A single causal agent for aspen mortality has not been identified. Rather, a combination of disease, insects, and droughty conditions appears to be responsible. Table 3-5 displays the estimated acres infested, by principal damaging agent, as recorded from aerial detection flights, 2002–2003 and 2005–2006.

Table 3-5. Principal insect and disease damaging agents in Idaho, as recorded from aerial detection flights, affected acres 2002–2006

Damage agent	Acres affected (thousands)			
	2002	2003	2005	2006[1]
Mountain pine beetle	339.3	344.4	519.5	307.3
Ips beetle	1.2	3.8	nd[2]	nd
Western pine beetle	8.6	16.7	nd	1
Spruce beetle	.5	.8	nd	nd
Douglas-fir beetle	52.8	49.2	47.1	14.3
Fir engraver	112	152.1	56.8	12.9
Western balsam bark beetle	74.8	99.4	86.5	40.8
Western spruce budworm	82.2	160.2	137.3	281
Aspen decline	nd	nd	9.8	nd

[1] *Incomplete data; not all areas were surveyed in Idaho. Underestimates of areas affected.*
[2] *No data collected.*

FOREST HEALTH—INSECTS AND DISEASE: ENVIRONMENTAL CONSEQUENCES

Silvicultural Practices—General Effects

Silvicultural practices are vegetation management activities that are applied to forests to meet identified management objectives (Smith et al. 1997). Practices may include timber harvest, other mechanical treatments (such as timber cutting for thinning, slashing, and pruning); fuel reduction activities (both mechanical and prescribed burning); and reforestation activities (such as site preparation and planting). Silvicultural practices are planned as a sequence of treatments to address site-specific management objectives, including forest health.

Silvicultural practices can influence successional pathways that affect forest health by reducing the density of overcrowded forests, promoting insect- and disease-resistant tree species, modifying canopy structure, and selecting for vigorous individuals for large tree development. Silvicultural practices may also influence fire behavior through modifications of fuel characteristics within a stand (including live and dead ground and aerial fuels, canopy density and base height of crown canopy, and retention and promotion of large, fire resistant trees). Many times several objectives can be addressed simultaneously, and a sequence of treatments can be developed to address multiple objectives.

A sequence of practices is planned through the development of a silvicultural prescription. Prescriptions determine the treatment need(s) and define the frequency, intensity, and specifications of treatments in a logical order to satisfy defined objectives. Silvicultural prescriptions—since they are objectively driven based upon inherent site capabilities, existing condition, and measurable management objectives—are completed for specifically defined areas of the forest that are being analyzed for treatment during project development.

This section addresses general silvicultural practices, including timber harvest and other vegetation management activities that are considered effective to address forest health issues, including insect and disease agents and unwanted wildfire behavior. This reflects the large body of literature that addresses this topic (Agee 2007, Baumgartner and Mitchell 1984, Fettig et al. 2007, Graham et al. 1999, Graham et al. 2004, Jain and Graham 2007, Johnson et al. 2007, Kalabokidis and Omni 1998, Peterson et al. 2005, Pollet and Omni 2002, Skinner et al. 2004, Scott and Reinhardt 2007, USDA Forest Service 2008b). Also, Forest Service Forest Health Protection evaluations and reports are conducted and evaluation reports are available for site-specific information to land managers (USDA Forest Service 2008c). No attempt is made to address every possible combination of site factors and biotic agents that can occur in Idaho roadless forests and that influence forest health. Those conditions, because of reasons provided above, must be addressed during project development.

All Alternatives

Timber cutting. Timber cutting is defined here as any cutting of any trees for management purposes. Timber harvest is the process by which trees with commercial value are cut and removed from the forest to meet management objectives. Timber sale refers to a contractual process of selling the timber to a purchaser and implementing a series of harvesting requirements for what type, and how and when the trees are removed as specified by the Forest Service.

Timber cutting is a broad term and includes timber harvest (removal of commercial products) (see fig. 3-7 and 3-8) as well as other actions that result in the cutting of a tree with no removal

of a commercial product, such as slashing, chipping, mulching, precommercial thinning, or personal use firewood (see fig. 3-6). Timber cutting could be used to support activities such as trail maintenance, prescribed burning, and timber stand improvement. However, because of the cost of these activities, such cutting is projected to be limited.

Timber sales are often used as a least-cost method (revenue is returned to the Federal treasury to offset the costs of preparing and carrying out the timber harvest) of managing vegetation to meet resource objectives or to achieve desired ecosystem conditions. These objectives or desired conditions include improving wildlife habitats, reducing fuels that may increase fire risk, recovering timber value from natural disasters such as windstorm or fire, reducing impact of insects and disease, and improving tree growth in addition to producing timber from the national forests.

Prescribed burning. Prescribed burning is another tool that may be used to reduce insects and disease and address general forest health concerns. However, prescribed burning often cannot be done without removal of some of the ladder fuels through thinning or limbing the lower branches, particularly in those forests that are overly dense (fig. 3-7). If some of the biomass is not removed it may be difficult to control the prescribed burns, or the burns may burn too hot. None of the alternatives would preclude the use of prescribed burning.

Figure 3-6. Aspen restoration, before and after, using timber cutting and prescribed burning. Pictures by Karl Fueling

Figure 3-7. Timber cutting, sale, and removal, before and after. Fuels reduction project. Pictures by Kim Johnson

Figure 3-8. Timber cutting, sale and removal. Hazardous fuel reduction project. Pictures taken by Sheryl Meekin

Roads and timber harvest. Roads may be required to support a timber sale, and frequently they must be constructed or reconstructed to meet timber harvest or other resource management objectives. Roads are needed to move equipment into the area and to haul logs or other forest products to the community where they would be processed. While timber can be harvested using helicopters or cable yarding systems from existing roads, the use of these methods depends on the value of the timber being removed, the terrain, and the distance to an existing road. Each timber sale contract specifies the yarding method and any permanent or temporary road construction and reconstruction required.

Timber purchasers may be required to complete needed road reconstruction to ensure public safety and to meet environmental protection objectives for road use. A roads analysis is conducted to determine whether a new road is needed (36 CFR §212). When the Forest Service

determines that roads are needed for other multiple-use activities, the roads are constructed to meet appropriate road specifications and retained for future use after the timber sale. By law (16 USC 1608 (b)), temporary roads are used only for the duration of the timber sale and then closed, decommissioned, or converted to a forest road. Even helicopter sales may require some authorized road construction, reconstruction, or temporary road construction to access landings for hauling logs (USDA Forest Service 2000 and 2000d).

Road spacing and distance from the nearest road have a direct effect on yarding costs of wood fiber. As the road spacing or distance from the nearest road increases, so does the average yarding distance for a given harvest unit. This affects turn speeds and production rates, which affect yarding costs. Frequently, the edge of a harvest unit farthest from the road reflects the maximum external yarding distance. External yarding distance dictates the size class of the yarding equipment needed to retrieve the material. This equipment size class, in turn, determines the road width needed. Generally, wider road spacing means longer yarding distances, which requires larger yarders and wider road widths (USDA Forest Service 1999b). The location of a road is particularly important in an area planned for cable logging. Roads located at the break (where the side slope changes from gentle to steep) provide better cable deflection, which results in larger payloads and less ground disturbance (USDA Forest Service 1999b).

The trend in silvicultural practices is shifting away from traditional even-aged management to even-aged management with leave trees, two-aged management, and uneven-aged managed stands. These practices are used to meet multiple ecological objectives. Multi-story and multi-age stands often require thinning and other silvicultural treatments with greater frequency, thus needing road access more often. Thinning to remove excessive forest fuels, before using prescribed fire, or to treat diseased or insect-infested stands is often economically feasible only if a road system is present (USDA Forest Service 1999b). From 2002 to 2006, clearcutting on Idaho's national forests accounted for only 7 percent of the total cutting method used on the 49.6 thousand acres harvested (USDA Forest Service 2007i and 2007j). This level is expected to continue into the future.

2001 Roadless Rule (No Action)

Under the 2001 Roadless Rule, timber cutting meeting one of the exceptions found at 36 CFR 294.13(b) and not requiring road construction and reconstruction would be used to address forest health improvement objectives (for example, suppressing insect infestations, reducing the spread of disease, or thinning to improve vigor and fuels reduction).

Helicopter harvest would be the principal yarding method under the 2001 Roadless Rule for timber sales, except for those areas that may be accessed by existing roads that do not require reconstruction. Forest health objectives could be completed using means other than timber sale contracts, but these would require appropriated funds. Because of the lack of road access, timber cutting (exclusive of timber sales) designed to meet forest health objectives is likely to be minimal because of the high cost of treatment and available appropriated funds for such work. Most lands within one-quarter to one-half mile of an existing road would continue to be managed using timber harvest or other methods of treatment where appropriate. However, cost per acre would increase substantially and proportionally with distance of the project from the nearest road.

Because of the limitations, about 9,000 acres over 15 years are projected to be treated in Idaho Roadless Areas under the exceptions. Almost all the 1.44 million acres identified to incur more than 25 percent mortality loss over the next 15 years would remain untreated (table 3-6). These areas would continue to decline in forest health and would become less resilient to large-scale outbreaks.

Table 3-6. Acres at high risk of insect and disease by alternative

	Wild Land Recreation	Primitive	Backcountry	GFRG	FPSA	SAHTS
2001 Roadless Rule	0	0	1,444,300	0	0	0
Existing Plans	177,400	274,000	755,800	187,500	49,600	0
Proposed Rule	193,700	224,700	939,400	25,600	49,600	11,200
Modified Rule	213,900	253,000	877,000*	39,600	49,600	11,200

**About 56,600 acres in the Modified Rule are in the Backcountry community protection zone*

GFRG=General Forest, Rangeland, and Grassland; FPSA= forest plan special areas; SAHTS=Special Areas of Historic or Tribal Significance

Existing Plans

Under Existing Plans, timber cutting is permitted in management prescriptions similar to Backcountry and General Forest, Rangeland, and Grassland (GFRG) themes. Roads could be constructed or reconstructed to provide access for timber harvest. Timber cutting could also be used in those areas that have road access. Based on trend information, about 90 miles of road are projected to be constructed and 75 miles reconstructed over the next 15 years to support timber harvesting[38]. Timber cutting is projected to occur on about 40,500 acres over 15 years. Most of the timber cutting on these acres would be to done to improve forest health conditions and treat hazardous fuels.

Of the 1.4 million acres at risk to insect and disease mortality, approximately 187,500 acres are within the GFRG theme and 755,800 acres are in the Backcountry theme (table 3-6). Existing Plans provide opportunities to treat high-priority insect and disease areas through timber cutting on these lands.

The ability to construct roads with timber harvest within GFRG, and in some areas Backcountry, also reduces the cost of other methods (such as mechanical treatment and vegetation cutting other than timber harvest) that also contributes to meeting forest health objectives. However, road construction still requires the use of appropriated funding that is currently limited for such projects.

It is unlikely that any substantial impact would occur on forest health conditions over the next 5 years. However, over the next 15 years, considering the amount of timber harvest projected under Existing Plans, Existing Plans are likely to be effective to some degree in addressing forest health concerns in Idaho Roadless Areas.

[38] About 180 miles total of road construction / reconstruction are projected to occur over the next 15 years. Of that amount, 165 miles of road construction / reconstruction would be in support of timber cutting and 15 miles in support of other access needs such as mineral leasing and exploration.

Proposed Idaho Roadless Rule (Proposed Action)

Under the Proposed Idaho Roadless Rule, the Primitive and Backcountry themes would permit timber cutting to improve threatened, endangered, proposed, or sensitive species habitat; to maintain or restore the characteristics of ecosystem composition and structure; or to reduce the significant risk of wildland fire effects. In the Backcountry theme, roads could be constructed or reconstructed to address these limited forest health components. The principal objective is to protect at-risk communities and municipal water supply systems, as well as to address: (1) areas where wind throw, blowdown, ice storm damage, or the existence or imminent threat of an insect and disease epidemic is significantly threatening ecosystem components or resource values that may contribute to significant risk of wildland fire; and (2) areas where wildland fire poses a threat to, and where natural fire regimes are important for, threatened and endangered species or their habitat.

In the GFRG theme, timber cutting and road construction and reconstruction would be permissible. The areas identified within the GFRG theme would have the most potential to be treated, since all forms of treatment, including both timber harvest and timber cutting are allowed, and supporting road construction / reconstruction can occur. Timber cutting in the Backcountry theme would be done on a limited basis and would be done to retain roadless characteristics and meet specific forest health objectives. Timber cutting in Primitive would rarely be done and would maintain roadless characteristics. Cutting in these areas would be for stewardship purposes (fuels reduction, forest health) and would be light on the land (focusing on what is left behind, not what is removed). Based on the management direction, about 23 miles of road construction and 23 miles of road reconstruction associated with timber harvest are projected over the next 15 years[39]. Timber cutting is projected to occur on about 18,000 acres over the next 15 years.

Of the 1.4 million acres at risk to insect and disease mortality, approximately 25,600 acres are within the GFRG and 939,400 acres in the Backcountry theme (table 3-6). The Idaho Roadless Rule provides opportunities to treat high priority insect and disease areas through timber harvest, since up to 18,000 acres are projected to be harvested over a 15-year period, most of which would occur in the GFRG theme and some in the Backcountry theme.

The ability to construct roads with timber harvest in GFRG and to a limited degree in the Backcountry theme also reduces the cost of other methods (such as mechanical and timber cutting other than timber harvest) that may contribute to forest health objectives. However, road construction would still require the use of appropriated funding that is currently scarce for such projects.

It is unlikely that any substantial impact would occur on forest health conditions over the next 5 years. However, over 15 years, considering the amount lands projected for timber harvest, the Idaho Roadless Rule is likely to be effective in addressing forest health concerns in those areas that are treated.

[39] About 61 miles total of road construction / reconstruction are projected to occur over the next 15 years. Of that amount, 46 miles of road construction / reconstruciton would be in support of timber cutting and 15 miles in support of other access needs such as access to rights-of-way, ANILCA access, locatable minerals, and existing phosphate leases (section. 3.1 Introduction)

Modified Idaho Roadless Rule (Preferred Alternative)

Under the Modified Idaho Roadless Rule, the Primitive theme would permit timber cutting to improve threatened, endangered, proposed, or sensitive species habitat; to maintain or restore the characteristics of ecosystem composition and structure; or to reduce the risk of uncharacteristic wildland fire effects to an at-risk community or municipal water supply system (see also section 3.3, Fuel Management). Only existing roads or aerial systems may be used. Timber cutting in the Primitive theme would rarely be done and would maintain roadless characteristics.

In the Backcountry theme in the Modified Rule, the Proposed Rule was changed to permit road construction or reconstruction only to facilitate timber harvest within a community protection zone (CPZ). Some roads could be constructed outside the CPZ for activities done to reduce the significant risk of wildland fire to communities and municipal water supply systems. However, these activities are likely to be limited because of the additional conditions that have to be met. Timber cutting methods, other than timber harvest, would likely be used in areas away from existing roads, or outside the CPZ because of the limitations on road construction. Based on the management direction, about 18 miles of road construction and 17 miles of road reconstruction associated with timber harvest are projected over the next 15 years[40]. Timber cutting is projected to occur on about 15,000 acres over the next 15 years.

Of the 1.4 million acres at risk to insect and disease mortality, approximately 39,600 acres are within the GFRG theme and 877,000 acres are in the Backcountry theme (table 3-6). About 56,600 acres are in the Backcountry CPZ. This provides some opportunities to treat high-priority insect and disease areas through timber harvest, since up to 15,000 acres are projected to be harvested under this alternative over a 15-year period, most of which would occur in the GFRG theme and in the CPZ in the Backcountry theme.

The ability to construct roads with timber harvest in the GFRG theme, and to a limited degree in the Backcountry theme, also reduces the cost of other methods (such as timber cutting exclusive of timber harvest and mechanical) that may contribute to forest health objectives. However, this would still require the use of appropriated funding that is currently scarce for such projects.

It is unlikely that any substantial impact would occur on forest health conditions over the short term. However, over the longer term, considering the amount of GFRG and Backcountry lands projected for timber harvest, this alternative is likely to be the more effective in addressing forest health concerns in the roadless areas than the 2001 Roadless Rule, but less than the Existing Forest Plans and Proposed Idaho Roadless rule.

Forest Health—Insects and Disease: Cumulative Effects

Combined incremental effects of past wildland fire suppression and reductions in timber harvest from Federal lands have led to change in vegetation structure and species composition and an increasing accumulation of forest fuels over large landscapes of most of the interior West, including Idaho Roadless Areas. Removals of timber from NFS lands in 1996 were approximately 20 percent of growth that year (USDA Forest Service 2000). While today's rate may differ, it indicates an ongoing and substantial increase in volume of wood fiber on NFS

[40] About 50 miles total of road construction / reconstruction are projected to occur over the next 15 years. Of that amount, 35 miles of road construction / reconstruction would be in support of timber cutting and 15 miles in support of other access needs such as mineral leasing and exploration.

lands. The primary impacts of past management under all alternatives have been increases in older forested stands susceptible to insect and disease effects.

Due to the past effects, the Forest Service prioritizes for vegetation management stands affected by or susceptible to insect and disease mortality. This priority is tempered by limitations of decreasing budgets and road access. Prohibition of road construction / reconstruction within Idaho Roadless Areas under the 2001 Roadless Rule, and in all themes other than the GFRG theme and to some degree the Backcountry theme for the Existing Plans, Proposed and Modified Idaho Roadless Rules, would further increase the large proportion of the roadless areas remaining largely inaccessible (because of lack of economic feasibility) to equipment necessary to accomplish vegetation management for forest health objectives.

Some of these lands are unsuitable for timber production; on other lands, road construction is not currently economically feasible. Most lands within one-quarter to one-half mile of an existing road would continue to be managed using timber harvest or other methods of treatment where appropriate. However, cost per acre would increase substantially and proportionally with distance of the project from the nearest road. Trees inside these economically inaccessible portions of the roadless areas that are killed by insects, disease, windthrow, or fire would deteriorate and add to fuel loading. Wildland fires that subsequently burn these areas may cause severe impacts on soil and water resources because higher concentrations of natural fuels would cause the fire to burn hotter. However, even if road construction / reconstruction in Idaho Roadless Areas were permitted, it may not be possible to treat many of these acres because of resource concerns and the high cost of road construction.

It is also reasonably foreseeable that global climate change would have potential effects on fire frequency and severity and on forest insect and disease occurrences. Increased fire activity has been linked to effects of warming climate, as has certain insect infestations in the western United States and Canada (USDA Forest Service 2007a). Depending on the magnitude of change, increased risk from insects and diseases could occur in Idaho forests. If this occurs, areas under the GFRG theme are more likely to be treated by timber cutting than at present, whereas Backcountry and Primitive themes are less likely to be treated.

Other Forest Service and other government proposals will continue to affect the Forest Service timber program, and insect and disease occurrence, at the State and Federal levels. Implementation of the Forest Service Forest Service Roads Policy and Travel Management Rule, combined with site-specific projects that decommission old roads, would limit road access to and into roadless areas, making insect and disease treatments more expensive. The emphasis in the National Fire Plan, Healthy Forests Initiative, and Healthy Forests Restoration Act encourage addressing insect and disease issues and provide direction for Forest Service projects; however, none of these policies determine site-specifically where actions should be taken. This environmental analysis used projections based on implementing these policies. It also considered the other cumulative actions described in Appendix N.

Forest Health—Noxious Weeds: Affected Environment

Although the exact acreage is unknown, it is estimated that more than 8 million acres of Idaho lands are severely infested by one of the weeds designated by the State of Idaho in 1999 (Idaho Department of Agriculture [IDA] 1999). Currently, there are 57 listed noxious weed species in the State of Idaho. Noxious weeds can influence ecosystem health in several ways and can contribute to declining native plant communities by (USDA Forest Service 2000):

- Causing a decline in aquatic-riparian and terrestrial habitat for wildlife;
- Reducing forage for grazing;
- Potentially increasing water runoff, sediment delivery, and soil erosion;
- Causing a potential decline in water quality;
- Reducing biological diversity;
- Increasing negative impacts in native plants associated with Native American tribal interests or rights; and
- Increasing costs associated in maintaining quality of recreation.

Noxious weeds become established where suitable environments exist. Frequently, suitable habitats are created by soil disturbance where native vegetation is temporarily removed and weeds invade the site. Even intact ecosystems without disturbance, such as bunchgrass ecosystems, can be invaded successfully by certain species of noxious weeds.

Areas such as road cuts and fills, mining, timber harvest sites, and gravel pits can serve as long-term vectors that aid the spread of noxious weeds.

Noxious weeds can spread through many mechanisms, including motor vehicles, other off-road motorized equipment, wildlife, livestock, and humans. Once established, noxious weeds can be very difficult and expensive to control, and almost impossible to eradicate. Chemical, cultural, mechanical, and biological control methods are available for control measures; however, effectiveness depends on the targeted weed species.

Of the estimated 8 million acres of noxious weed infestation in Idaho, about 332,700 acres on NFS lands have been geo-referenced and reported in the USDA Forest Service Natural Resource Information system (NRIS) database (USDA Forest Service, 2008). Major weed species include meadow hawkweed on the north Idaho National Forests, rush skeletonweed in central and southwestern Idaho, and several thistles in southeastern Idaho. Spotted Knapweed occurs on most forests.

More than 42,250 acres infested with noxious weeds have been inventoried in Idaho Roadless Areas. This is approximately 0.5 percent of Idaho Roadless Areas, compared to 2 percent of all NFS lands. However, not all roadless areas, national forests, or other ownerships have been surveyed for noxious weeds and reported to the NRIS database.

FOREST HEALTH—NOXIOUS WEEDS: ENVIRONMENTAL CONSEQUENCES

All Alternatives

Wildland fires are likely to continue in the Idaho Roadless Areas. Wildland fires can create suitable habitat for noxious weeds and other invasive plants, especially those in the grasslands, shrublands, and dry forest types (such as ponderosa pine and some of the Douglas-fir cover types).

Global climate change would have potential effects on noxious weeds and fire frequency / severity. Increased fire activity has been linked to effects of a warming climate (USDA Forest Service 2007b). Depending on the magnitude of change, increased risk of noxious weed establishment could occur in Idaho forests, since fire temporarily removes native

vegetation and can provided suitable conditions for noxious weed establishment, or expansion of existing populations. Additionally, future plant communities may become more or less susceptible to noxious weed encroachment. However, because of the uncertainty of the actual climate conditions that may vary across the State, it is not possible to predict the actual outcomes at this time.

2001 Roadless Rule (No Action)

Under the 2001 Roadless Rule, road construction / reconstruction is generally prohibited. About 15 miles are projected to be constructed over the next 15 years under the 2001 Roadless Rule, primarily to access existing mineral developments. Based on the general prohibitions and the limited amount of roads that are projected to be constructed in the future in Idaho Roadless Areas, there would be a limited noxious weed to spread under the 2001 Roadless Rule.

Existing Plans

The Existing Plans generally prohibit road construction / reconstruction in management prescriptions similar to Wild Land Recreation and Primitive themes. It is likely there would be minimal of noxious weeds in these areas (about 3.22 million acres).

Under Existing Plans, road construction / reconstruction is allowed in management prescriptions similar to the GFRG theme and in some areas in the Backcountry theme, increasing the likelihood of introducing and spreading road-transported noxious weeds and other invasive species. Survey records (USDA Forest Service 2008) indicate that of the 1,263,200 acres of GFRG, about 5,170 acres currently have noxious weeds. About 180 miles of road construction / reconstruction are projected. It is likely these activities would be dispersed across Idaho Roadless Areas. Noxious weeds and other invasive are likely to expand in these areas. Areas within GFRG themes would have the most potential for introduction and spread, followed by Backcountry and then Primitive themes.

Existing Plans permit road construction and reconstruction to access about 13,620 acres[41] of unleased phosphate deposits. In addition, the plans permit in some places—and prohibit in others—access to oil and gas and geothermal resources. Any increase in mineral or geothermal development could potentially increase the introductions of weeds, due both to road access needs and to the disturbance at individual sites themselves. It is anticipated that best management practices, including appropriate weed treatment strategies, would be used to mitigate this potential adverse impact.

Proposed Idaho Roadless Rule (Proposed Action)

The Proposed Idaho Roadless Rule would prohibit road construction / reconstruction in the Wild Land Recreation, Primitive, and Special Areas of Historic and Tribal Significance (SAHTS), except for access to valid existing rights. It is likely there would be no spread of noxious weeds in these areas (about 3.1 million acres). Survey records (USDA Forest Service 2008) indicate that of the 609,600 acres in GFRG about 2,750 acres currently have noxious weeds. Timber harvest and road construction would be allowed in GFRG and to a more limited degree in Backcountry; therefore, these areas have the most potential for weed spread. About 61 miles of road construction / reconstruction over 15 years to support all activities allowed are projected. Areas

[41] Based on past history, phosphate mining could occur on an additional 1,910 acres around unleased KPLAs (see section 3.5 Minerals and Energy).

where roads are constructed would provide disturbed and exposed soil for weeds to expand to. Under the Proposed Rule it is likely there would be minimal increase in weed spread.

The Proposed Rule prohibits road construction / reconstruction to access new mineral lease areas, other than phosphate deposits in all themes except GFRG. Over more than 50 years about 13,190 acres[42] of phosphate deposits could be developed. Any increase in oil and gas or geothermal development could potentially increase the introductions of weeds, due both to road access needs, and the disturbance at individual sites themselves. It is anticipated that best management practices, including appropriate weed treatment strategies, would be used to mitigate this potential adverse impact.

Modified Idaho Roadless Rule (Preferred Alternative)

Like the Proposed Rule, the Modified Idaho Roadless Rule would prohibit road construction / reconstruction in the Wild Land Recreation, Primitive, and SAHTS themes, except access to valid existing rights. It is likely there would be minimal spread of noxious weeds in these areas (about 3.25 million acres). In the Modified Rule, the Proposed Rule was changed to focus road construction / reconstruction in the 442,000 acres of CPZ in the Backcountry theme. About 50 miles of road construction / reconstruction over 15 years to support all activities allowed are projected. Survey records (USDA Forest Service 2008) indicate that of the 405,900 acres in GFRG about 3,070 acres currently have noxious weeds.

The Modified Rule prohibits road construction / reconstruction to access oil and gas and geothermal development in all themes. This prohibition would limit the potential increase in the introduction of noxious weeds. Road construction / reconstruction would be permitted to access about 5,770 acres[43] of phosphate deposits in the GFRG theme. It is anticipated that best management practices, including appropriate weed treatment strategies, would be used to mitigate this potential adverse impact.

[42] Based on past history, phosphate mining could occur on an additional 1,850 acres around unleased KPLAs (see section 3.5 Minerals and Energy).

[43] Based on past history, phosphate mining could occur on an additional 810 acres around unleased KPLAs (see section 3.5 Minerals and Energy).

Forest Health—Noxious Weeds: Cumulative Effects

Roads are often the primary vectors for noxious weed establishment and spread. Current State and Federal activities and authorities (such as the Idaho Invasive Plan [IDA 2005] and the National Strategy and Implementation Plan for Invasive Species Management [USDA Forest Service 2004a]) address some invasive species and their prevention and spread. Other programmatic policy and management direction can also indirectly influence the ability to construct roads. The Roads Policy and Travel Management Policy can provide information on what roads are needed and unneeded, and which roads would remain open or closed. As noted in the section 3.4 Road Construction/Reconstruction, roads are being decommissioned more than they are being constructed; therefore cumulatively there are fewer roads on the landscape. As roads are decommissioned, fewer roads are constructed and with additional emphasis on noxious weed management and prevention, there would be little cumulative effects from the alternatives.

Carbon Storage and Climate Change: Affected Environment

Evidence that climate is changing is compelling. Ongoing climate change research has been summarized in reports by the United Nations Intergovernmental Panel on Climate Change (www.ipcc.ch). These reports have confirmed that accelerated climate change is already occurring, that it will accelerate in the future, and that human greenhouse gas emissions, primarily carbon dioxide emissions, are the main source of accelerated climate change. Since vegetation management operations usually involve use of fossil fuels and release of carbon dioxide, and since forests are part of the carbon cycle, this issue is pertinent to the management of Idaho Roadless Areas.

Coniferous forests contain large amounts of carbon, stored as biomass both in the above-ground biomass and soil component (Smith and Heath 2004). Forests accumulate carbon through the process of photosynthesis, which converts sunlight and water to carbon. As the majority of forest ownership in Idaho is on NFS lands, national forests are an important source for carbon storage.

Forests in the United States are thought to have been in approximate carbon balance from 1600 to 1800. A large pulse of carbon release occurred during the 1800s, largely due to utilization of forests (cutting) and land conversions, primarily to agricultural uses. The last century saw a re-growth of forests that had been harvested and the re-establishment of forests on abandoned agricultural lands. These conditions resulted in net carbon storage, even while intensive harvesting practices were occurring simultaneously. In the West, the effects of fire suppression are thought to have been a contributor to this increase in stored carbon (Birdsey et al. 2006). This sequence of events was more prevalent in the eastern and southern United States than the West, including Idaho. Current forest carbon density in Idaho is estimated to range from 36 to 45 tons per acre. Carbon storage is thought to be increasing on Idaho forestlands from 0 to 0.4 tons per acre per year as recently as 2005 (Woodbury et al. 2007).

Stand-replacing fire regimes can change the amount of carbon released into the atmosphere. Stand-replacing fires switch forest ecosystems from a carbon sink to a net source of carbon added to the atmosphere as decomposition exceeds photosynthesis. One study in Yellowstone National Park indicated that equilibrium values of carbon storage were resistant to large changes in fire frequency (intervals between fires). Because of current long fire intervals and rapid regeneration of trees, most rapid changes in carbon storage occur in the first century

following fire, and carbon storage is similar for stands of different ages. However, modeled conversions of vegetation states from forests to non-forest vegetation indicate there could be a large impact on landscape carbon storage, and this process is likely to be important for many forests (Kashian et al. 2006).

Effects of global climate change on forest types and species distribution has become an important issue as the warming of the global climate has become indisputable (Thomas et al. 2001, Walther et al., 2002, Parmesan and Yohe 2003, Root et al. 2003). Forest Service research results from one analysis predicted that existing forested ecosystems and their constituent species are projected to change in spatial location, extent, and abundance in the western U.S., including Idaho (Rehfeldt et al. 2006).

Exact magnitude and rapidity of climate change is uncertain, especially at finer scales such as landscapes within a forest. General conclusions in the western United States include temperature and precipitation increases, but also high variability in annual precipitation, including severe drought (Fenn et al. 2006). Modeling indicates the importance of the periodicity of precipitation and of the interactions between temperature and precipitation controlling the distribution of plant communities and their species. Finer scale modeling of potential climate change effects on vegetation is needed (Rehfeldt et al. 2006).

CARBON STORAGE AND CLIMATE CHANGE: ENVIRONMENTAL CONSEQUENCES

Since the allocations of specific themes by alternative do not mandate or direct to propose or implement any action, there are no direct effects of any of the alternatives on climate change. However, there could be indirect and cumulative effects of the proposed action and alternatives as activities occur pursuant to the rule.

Environmental consequences are presented by two different analyses: (1) estimates of carbon dioxide release effects from management activities based on projected timber cutting and road building projections and the potential development of mineral leasing by each alternative, and (2) the differences between conservation and active management and its effect on forest vegetation in the context of a changing climate.

Carbon Dioxide Emissions – All Alternatives

Vegetation management activities involve the release of carbon dioxide through the use of fossil fuels during forestry operations when mechanical equipment or prescribe fire is used. Additionally, vegetation not utilized for wood products in a timber harvest operation would release carbon through decomposition, subsequent fuel reduction activities (i.e. burning), or by some other method of disposal after the initial activity is completed. The release of greenhouse gases into the atmosphere will contribute to the global pool of greenhouse gases which are resulting in climate change.

Simultaneously, these activities would also initially reduce the amount of total carbon stored within an activity area because they focus on some level of tree removal to meet management objectives (such as fuel reduction, forest health, etc.). This reduction in carbon storage is directly related to the immediate removal of photosynthetic area available for carbon assimilation. However, when vegetation management activities include commercial timber harvest operations, much of the carbon removed from the activity area would be stored as wood products off-site.

Longer term indirect effects are associated with forest re-growth after a management activity is completed. This involves the re-growth of tree crowns and other forest vegetation removed or reduced in extent during the activity. The amount of time that the vegetation re-establishes to pre-activity levels is a function of the initial condition of the forest prior to treatment, intensity of prescribed treatment, productivity of the particular site and, in the cases of regeneration harvests, how quickly and successfully tree seedlings are established on the site once the harvest has been completed. As forests develop, younger forests absorb more carbon then they release, until which time equilibrium is reached (carbon absorption equals release due to individual tree mortality) in older forests.

The development of minerals and energy resources produces green house gasses through the expenditure of fossil fuels during development and processing. See section 3.5, Minerals and Energy Resources, for a description of the types of activities associated with leasable and saleable mineral materials; and Appendix I for a scenario for geothermal development.

2001 Roadless Rule (No Action). This alternative would release the least emissions due to vegetation management and potential mineral development activities, based upon the projections of limited timber harvest for this alternative and the potential additional activity associated with mineral resource development. Additional release of atmospheric carbon dioxide would also occur through timber cutting (non-commercial) and prescribed burning activities; however, the amount of these activities is likely to be limited due to lack of access and associated costs.

Existing Plans. This alternative would release the most emissions due to vegetation activities and potential additional mineral resource development, based on the projections of timber harvest, road building and potential mineral development activities. Additional release of atmospheric carbon dioxide would also occur through timber cutting (non-commercial) and prescribe burning activities; however, the amount of these activities is likely to be limited, but more frequent than the 2001 Roadless Rule alternative.

Proposed Idaho Roadless Rule (Proposed Rule). This alternative would release more emissions than the 2001 Roadless Rule alternative, but less than the Existing Plans alternative, based on the projections of timber harvest, road building and potential mineral development activities. Additional release of atmospheric carbon dioxide would also occur through timber cutting (non-commercial) and prescribed burning activities; however, the amount of these activities is likely to be limited, intermediate between the 2001 Rule and Existing Plans.

Modified Idaho Roadless Rule (Preferred Alternative). This alternative would release more emissions than the 2001 Roadless Rule alternative, but less than the other alternatives, based on the projections of timber harvest, road building and potential mineral development activities. Additional release of atmospheric carbon dioxide would also occur through timber cutting (non-commercial) and prescribe burning activities; however, the amount of these activities is likely to be limited, similar to the Proposed Rule.

Climate Change Effects on Forest Vegetation

Active management includes adaptive responses as additional information on forest vegetation is accumulated and monitoring results of actual management effects are evaluated. Active (adaptive) management strategies would generally promote human intervention to mitigate climate change effects and proactively participate with evolutionary processes through management (Tchebakova et al. 2005). Because of the uncertainty and complexity of the effects

of climate change, predictive models pinpointing locations where plant communities and species can be sustained will need to be developed (Rehfeldt et al. 2006).

Passive management includes reserve networks that generally promote natural processes. As they relate to carbon storage and climate change, these strategies would include permitting plant communities and their species to be allowed to adapt to the changing circumstances, relying on evolutionary processes to control re-assemblage of species and genotypes within species, with the new climatic conditions presented (Noss 2001).

This evaluation of effects is in line with the general scenarios presented under the Interior Columbia River Basin analysis in 1997 (Quigley and Arbelbide 1997).

2001 Roadless Rule (No Action). The 2001 Roadless Rule is the most similar to the passive strategy, with modifications that include seven exceptions for road construction / reconstruction and four exceptions for timber harvest and cutting. One of the exceptions includes restoration of ecosystems, so the 2001 Roadless Rule does allow some human management. However, because of the lack of access anticipated from limited road development, restoration costs could potentially be high. Only about 9,000 acres are projected to be actively treated for restoration purposes over the next 15 years. Most of the plant communities and species in Idaho Roadless Areas would be allowed to re-adjust to the changing climatic conditions without human intervention.

Existing Plans. Existing Plans are more closely aligned with active management strategies where roads are allowed, because of the management permissions for road construction / reconstruction in the GFRG theme. Providing access through road construction / reconstruction should reduce the cost of potential restoration activities. About 40,500 acres are projected to be harvested over a 15 year period, generally to restore ecosystems or reduce fire risk. Although more of the plant communities and species in Idaho Roadless Areas could potentially benefit from active management, most of the acres would not likely be available for management considering the amount of acres that are in management prescriptions similar to Backcountry, Primitive, SAHTS, and Wild Land Recreation themes. Plant communities and species within those themes would most likely be allowed to re-adjust to the changing climatic conditions without human intervention.

Proposed Idaho Roadless Rule (Proposed Action). The Proposed Rule incorporates both passive and active management strategies. Passive management strategies are reflected in Wild Land Recreation, Primitive, and SAHTS. Active management is reflected in GFRG, and to a lesser degree in Backcountry. About 18,000 acres over 15 years are projected to undergo active management, generally to restore ecosystems or reduce fire risk and potentially subject to adaptive management strategies. Most of the plant communities and species within Backcountry, Primitive, SAHTS, and Wild Land Recreation themes would most likely be allowed to re-adjust to the changing climatic conditions without human intervention.

Modified Idaho Roadless Rule (Preferred Alternative). The Modified Rule incorporates both passive and active management strategies. Passive management strategies are reflected in Wild Land Recreation, Primitive, and SAHTS. Active management is reflected in GFRG, and to a lesser degree in Backcountry. About 15,000 acres over 15 years are projected to undergo active management, generally to restore ecosystems or reduce fire risk and potentially subject to adaptive management strategies. Most of the plant communities and species within

Backcountry, Primitive, SAHTS, and Wild Land Recreation themes would most likely be allowed to re-adjust to the changing climatic conditions without human intervention.

CARBON STORAGE AND CLIMATE CHANGE: CUMULATIVE EFFECTS

It is reasonably foreseeable that global climate change would have potential effects on fire frequency and severity and forest insect and disease relationships. Increased fire activity has been linked to the effects of a warming climate, as have certain insect infestations in the western U.S. and Canada (USDA Forest Service 2007a). This increased fire activity could lead to increased emissions of carbon dioxide and other greenhouse gases from wildfires, and possibly to decreased stored carbon in western forests and rangelands (USDA Forest Service 2007b).

In a general sense, as long as fire-affected ecosystems recover at the same rate as fires consume biomass and surface fuels, the net effect of fire on the carbon in the atmosphere or stored in ecosystems would be approximately neutral. If the frequency, extent, or severity of fire should increase because of changing climate or management practices, then terrestrial carbon storage would decrease and the carbon in the atmosphere would increase (USDA Forest Service 2007b).

Under a changing climate, the trajectories of vegetation recovery after fire may also change, leading to different potentials for ecosystem carbon storage. The exact mechanisms and magnitude of this change are still under research (USDA Forest Service 2007b).

Future research, combined with effective strategies that include increased carbon storage capabilities, could help offset the increase in greenhouse gases. These strategies could also address climate change effects on national resources (USDA Forest Service 2007c, d, e, f, g). These strategies are just beginning to be developed (USDA Forest Service 2008a [Chief's Letter]).

3.3 Fuel Management

The analysis evaluates the relative ability to treat hazardous fuels primarily within the wildland urban interface and municipal watersheds, because these are the major focus areas of the National Fire Plan, Healthy Forests Restoration Act, Healthy Forests Initiative, and congressional budget direction. The prohibitions and permissions for road construction or reconstruction and timber cutting, sale, or removal contained in the 2001 Roadless Rule, Existing Plans, the Proposed Idaho Roadless Rule, and the Modified Idaho Roadless Rule influence the ability to treat hazardous fuels.

Changes Between Draft and Final EIS

- Developed a new process for identifying wildland-urban interface (WUI) to describe potential treatment areas under the various alternatives relative to the National Fire Plan and Healthy Forest Restoration Act. The mapped area, called the community protection zone (CPZ), is used in all alternatives to replace the WUI used in the draft EIS. WUI and CPZ are used interchangeably.
- Updated information used to reflect municipal water supply areas (section 3.6, Physical Resources). The terms municipal water supply systems and community public water systems are used interchangeably.
- Added the Modified Idaho Roadless Rule alternative (alternative 4)
- Clarified portions of the analysis that addressed the use of tools (prescribed fire and mechanical) and access (road construction or reconstruction);
- Clarified terminology about fuels treatments relative to the assumptions about fuel treatment costs and developed relative costs for comparison based on different treatment and access combinations.
- Updated the Fire Regime Condition Class to the Landscape Fire and Resource Management Planning Tools Project (LANDFIRE) National data products, which were derived from a year 2000 remotely sensed image;
- Described acreage burned in Idaho Roadless Areas from 2000 through 2007 to address vegetative changes not reflected by the LANDFIRE data.

Introduction

Although wildland fire plays an integral role in many forest and rangeland ecosystems, decades of efforts directed at extinguishing most fires that burned on public lands have disrupted the natural fire regimes that once existed. Moreover, as more and more communities develop and grow in areas that are adjacent to fire-prone lands in what is known as the WUI, wildland fires pose increasing threats to people and to public and private property.

The National Fire Plan (NFP) was developed in August 2000, following a landmark wildland fire season, with the intent of actively responding to severe wildland fires and their impacts on communities while ensuring sufficient firefighting capacity and safety for the future. The NFP addresses five key points: firefighting, rehabilitation, hazardous fuels reduction, community assistance, and accountability (USDA Forest Service and USDI 2000).

The NFP established an intensive, long-term hazardous fuels reduction program in response to the risks posed by heavy fuels loads, which were the result of decades of fire suppression activities; sustained drought; and increasing insect, disease, and invasive plant infestations. Hazardous fuels reduction treatments are designed to reduce the risks of catastrophic wildland fire to people, communities, and natural resources, while restoring forest and rangeland ecosystems to closely match their historical structure, function, diversity, and dynamics. Such treatments accomplish these goals by removing or modifying wildland fuels to reduce the potential for severe wildland fire behavior, lessen the post-fire damage, and limit the spread or proliferation of invasive species and diseases. Treatments are accomplished using a variety of tools, including prescribed fire, mechanical thinning, timber harvest, herbicides, grazing, or combinations of these and other methods. Treatments are being increasingly focused on the expanding WUI areas.

The Healthy Forests Initiative (HFI), initiated by President Bush in August 2002, and the Healthy Forests Restoration Act (HFRA) (P.L. 108-148), approved by Congress in December 2003, have equipped land managers with additional tools to achieve long-term objectives in reducing hazardous fuels and restoring fire-adapted ecosystems.

The goals and objectives of hazardous fuel reduction have evolved over the past 7 years. In October 2000, the Forest Service issued the Cohesive Strategy in response to GAO report RCED-99-65 (USDA Forest Service 2000q). The 2000 Cohesive Strategy established a framework to restore and maintain ecosystem health in fire-adapted ecosystems in the West. The Cohesive Strategy focused on the need to address "uncharacteristic wildfire effects," which is an increase in wildfire size, severity, and resistance to control, and the associated impact on people, property, and fire fighter safety, compared to that which occurred in the native system.

In 2006 the Cohesive Strategy was expanded to also address "unwanted wildfire effects" (USDI and USDA Forest Service 2006). Unwanted wildland fire is any wildland fire in an undesirable location or season, or burning at an undesirable intensity, spread rate, or direction. In general, wildfire is unwanted in WUI. Hazardous fuels treatments to reduce the risk of unwanted wildfire are generally those that provide for conditions where firefighters can safely suppress fire or where the risk of stand-replacing wildland fire is reduced.

The criteria for prioritizing lands for hazardous fuels treatment generally correspond to: (1) closest proximity to communities at risk in the WUI; (2) strategic areas outside the WUI that prevent wildland fire spread into communities or critical infrastructure; (3) areas outside the WUI that are in condition classes 2 or 3; and (4) other considerations.

Fuel Treatments

Within the WUI, the most desirable type of wildland fires are those of low intensity and severity that can be safely managed with minimal effort. Changing the distribution and continuity of vegetation and fuels on the landscape, particularly in areas where fires have the potential to be stand-replacing, can also aid fire suppression efforts by providing fuel breaks or other kinds of conditions where small fires or portions of large fires can be safely suppressed (Graham et al. 1999, Finney 2000, USDA Forest Service 2000c, Peterson et al. 2003). The most effective treatments create surface fuel loadings that produce low flame lengths and vegetative conditions that reduce the chance of fire moving from the ground into the tree crowns or that provide fuel breaks the reduce the spread of fire across the landscape. Hazardous fuel treatments should take into account effects on canopy base height, canopy bulk density, and

canopy continuity as well as modification of the combustion environment of surface fuels (Peterson et al. 2003).

While almost 96 percent of the wildland fire ignitions are successfully suppressed (Finney and Cohen 2003), the 4 percent that escape initial attack and become large account for 85 percent of the suppression costs (The Brookings Institution, undated). These large fires exhibit similar characteristics in that they start in remote areas and cover long distances; they often threaten communities and public safety; and they exceed all efforts at direct control until relief from weather or a break in fuel occurs (Finney and Cohen 2003). Examples are the fires of 2002 including the Rodeo-Chediski in Arizona which burned more than 450,000 acres, the Hayman in Colorado that burned 138,000 acres, and the Biscuit in Oregon that burned more than 500,000 acres. All three were the largest fires in these States' histories; in total they burned 540 homes and caused more than 55,000 people to be evacuated. These fires, in addition to others around the West between 2000 and 2002, helped propel the HFRA. These fires also raised awareness of the need to address the spatial and physical relationships between causes of large wildland fires and effects on natural resources and the WUI to evaluate how benefit is derived from management actions (Finney and Cohen 2003).

For hazardous fuels management to create the desired effect on fire behavior, management strategies must address the local and landscape scales. Local scale addresses effects of fire within a forest stand, treatment unit, or adjacent to or including the area around a house or structure (Finney and Cohen 2003). Many studies have shown that conditions can be created at this scale that produce fire behavior that poses less risk to homes and public safety (Agee and Skinner 2005, Finney 2005, Martinson et al. 2003) and that allows firefighters to work safely (Scott 2003).

This concept proved to be effective during the 2007 wildfires in Idaho. Prior to 2007, the Forest Service had conducted treatments in the vicinity of structures in the Warm Lake area and adjacent to the city limits of Yellowpine, Idaho. These treatments had included a variety of activities such as under-burning, hand thinning, pile and burn, and mulching. In the Warm Lake area the actively burning fire converted from crown to ground fire when it encountered the defensible space areas (Loseke 2008). This stopped the forward progress of the fire and no structures were lost. At Yellowpine, firefighters were able to conduct a safe and successful back-burn through previously treated areas at the city limits. The vegetative conditions that existed before treatment would have been riskier to back-burn given the proximity of the community (Loseke 2008).

Early strategies for addressing risk of wildfire within the WUI were focused on local-scale conditions immediately adjacent to structures and development of fuel breaks between developed areas and the wildlands. Hann and Strohm (2003) also pointed out that managing hazardous fuels in or adjacent to the WUI could increase the opportunity to use wildland or prescribed fire within the roadless or wilderness where WUI and roadless / wilderness overlap. Currently, the risk of undesirable effects on the WUI from prescribed or wildland fire has discouraged the use of these tools. However, mitigations of hazardous fuels conditions within or adjacent to this interface would reduce the risk of fire spread into or from the wildland-urban interface.

The other important scale is the landscape scale, which is a collection of local features. While most fires that are successfully suppressed during initial attack occur at the local scale, those that escape initial attack and become large are generally landscape phenomena.

Understanding hazardous fuels management relative to the spatial arrangement of stands and homes is important in changing the effects of wildland fire. Finney and Cohen (2003) challenge the idea that only local-scale treatments including fuel breaks can be, by themselves, effective in protecting communities and the public. They state that fuels management must address the landscape in addition to the local scale. On page 363 of their paper, they summarize this approach as it applies to community protection, stating that the broad objective of "community protection" must be partitioned to reflect the specific types of fire behavior changes that are relevant to the values concerned. They emphasize that treatments for the urban portions of communities must be considered separately from the wildlands because the same effects or scales of consideration do not apply to both. They conclude:

> "To benefit the **urban** [emphasis added] portions of a community, fuel management research suggests that fuel management activities need only be concerned with the fuels in the immediate proximity of the structures—within their ignition zone. The material properties of the structures themselves are also important, and managing fuels within the home ignition zone is shown to be most effective at reducing the nearby sources of firebrands and combustible fuels and vegetation that are commonly associated with structure ignition…. Wildland fuel management in low-elevation forest types, extending perhaps many kilometers from urban locations, however, is critical to reducing the likelihood that wildland fires will spread to urbanized areas and pose ignition threats. Wildland fire treatments can reduce the probability portion of the expected net value calculation by changing fire behaviors at long distances as well as fire movement. These changes in fire behavior increase the effectiveness of fire suppression, especially during initial attack by slowing fire growth and spotting…. Because urban fire disasters often result from wildland fires igniting tens of kilometers away from urbanized areas under extreme weather conditions, wildland fuel management activities must be located broadly across those landscapes."

While fuel treatments in themselves will not stop wildland fires, they can change fire behavior such that the outcomes are less catastrophic or may increase the effectiveness of fire suppression by reducing resistance to control. Therefore community protection must be addressed at different scales including the ability to alter hazardous conditions at a broader context over space and time.

The types and sequence of hazardous fuels treatments depend on many factors including the amount of surface fuel present and the density of ladder fuels (Peterson et al. 2003). Some areas may require multiple fuel treatments staged over time to achieve the desired effect. Treated areas will also require some type of maintenance over time. Costs associated with conducting hazardous fuels treatments are highly variable depending on the initial conditions, access, terrain, existing and potential surface fuel loads, market conditions, and host of other factors. Initial treatment costs are generally higher than the costs of conducting maintenance, particularly if multiple treatments are required.

Other Fuel Treatment Elements Not Evaluated in Detail

The analysis does not evaluate potential consequences related to escaped wildland fire, emergency fire prevention costs, fire fighter safety, or annual acreage burned by wildfire, because the alternatives do not influence these elements in different ways (USDA Forest Service 2008f).

AFFECTED ENVIRONMENT

Natural disturbances such as fire, wind, and insects and diseases help shape forests. In Idaho, periodic fire is the dominant disturbance process that changes forests. Although fire is widespread, it is seldom uniform; every forest has its own characteristic pattern of fire intensity, frequency, and size. Fire regime and condition class are used to characterize fire.

Fire Regime Condition Class (FRCC)

"Fire regime" describes the historical pattern of fire: how often (frequency); how hot (intensity); and how big (scale). It describes natural fire in terms of fire-return interval and amount of replacement of the upper life-form[44] (Hardy et al. 2000). Fire regimes are classified into five categories:

I – Frequent, low to mixed severity: (0–35-year return interval, less than 75 percent of the upper life-form replaced). Generally low-elevation interior West ponderosa pine forests or mountain grasslands.

II – Frequent, high severity: (0–35-year return interval, greater than 75 percent of the upper life-form replaced). Generally low- to mid-elevation mountain meadows and aspen / conifer woodlands.

III – Less frequent, mixed severity: (35–100+-year return interval, less than 75 percent of the upper life-form replaced). Generally mixed conifer, dry Douglas-fir, or whitebark / lodgepole pine forests.

IV – Less frequent, high severity: (35–100+-year return interval, greater than 75 percent of the upper life-form replaced). Generally lodgepole pine forests and sagebrush shrublands.

V – Infrequent, high severity: (200+-year return interval, greater than 75 percent of the upper life-form replaced). Generally, cedar / hemlock and high-elevation spruce / fir forests.

"Condition class" *(*also referred to as fire regime condition class [FRCC]) describes the departure from historical conditions based on the number of missed fire cycles and the amount of change in forest structure and species composition. A qualitative risk ranking is assigned to each condition class: low, moderate, high. The chance of losing key ecosystem components in wildland fire increases from condition class 1 (lowest risk) to condition class 3 (highest risk)[45]. "Risk" is not defined as the probability of a fire occurring; rather, it refers to the potential harmful effects to key ecosystem components that may occur because of altered vegetation

[44] Upper life form refers to the upper portion of the vegetation. For example in forested ecosystems it refers to the overstory trees; and in shrubland ecosystems it refers to the taller shrub component.

[45] For the draft EIS, the fire regime condition class (FRCC) information was derived from the LANDFIRE Rapid Assessment (USDI Geological Survey 2006). For the Final EIS, FRCC was developed from the LANDFIRE National product (LANDFIRE 2007), which was classified from a 2000 remotely sensed image. Idaho is covered by the Northern and Central Rockies, Great Basin, and Northwest LANDFIRE map zones although the majority of the State is in the Northern and Central Rockies. The LANDFIRE National process was a mid-scale effort to produce maps and models of potential natural vegetation groups, reference fire regimes, and FRCC for the conterminous United States. LANDFIRE National data are intended for national- to regional-scale strategic planning, broad ecological assessments, and resource allocation.

composition and structure and to the uncharacteristic wildfire effects that can occur once a wildland fire ignites and burns.

Condition classes are defined as:

Condition class 1 – Little departure from the natural fire regime and natural range of variability; risk of losing key ecosystem components is low;

Condition class 2 – Moderately departed from the natural fire regime and natural range of variability; risk of losing key ecosystem components is moderate;

Condition Class 3 – Highly departed from the natural fire regime and natural range of variability; risk of losing key ecosystem components is high.

About 94 percent of Idaho Roadless Areas are classified into fire regimes and condition classes. The unclassified areas are rock, water, snow or ice, and bare soil; or are developed areas such as transportation corridors, mines, quarries, home sites, or other kinds of features that are not described by the fire regimes.

Idaho Roadless Areas generally fall into three fire regimes: III (less frequent, mixed severity); IV (less frequent, high severity); and V (infrequent, high severity) (table 3-7). Within these categories, about 40 to 75 percent are in condition class 2, which means they have moderate departures from the natural fire regime. Generally, these areas have missed at least one fire cycle; therefore, they are likely to be moderately overstocked. About 500,500 acres (5 percent of Idaho Roadless Areas) are in condition class 3 and have significantly departed from their historical fire frequency by missing multiple cycles. The risk of losing ecosystem components is high, with dramatic changes to fire size, intensity, landscape patterns, or vegetation. About 4.37 million acres of high priority areas (fire regimes I, II, and III, in condition classes 2 and 3) overlap Idaho Roadless Areas (table 3-7).

Table 3-7. Acres of fire regime and condition class and percent of total acres in Idaho Roadless Areas

Idaho Roadless Areas			Condition class acres (percent of fire regime acres)		
Fire regime	Acres	Percent of area	1	2	3
FR I	574,900	6	173,600 (30)	370,500 (65)	30,800 (5)
FR II	102,300	1	26,600 (26)	54,100 (53)	21,600 (21)
FR III	4,928,400	53	1,033,400 (21)	3,585,600 (73)	309,400 (6)
FR IV	2,066,200	22	1,082,100 (52)	907,300(44)	76,800 (4)
FR V	1,067,000	12	454,100 (43)	551,000(52)	61,900 (6)
Unclassified	565,500	6			
Total	9,304,300	100	2,769,800 (32)	5,468,500 (62)	500,500 (5)

Source: LANDFIRE 2007

Since development of the LANDFIRE data in 2000, there have been several wildland fires in Idaho and Idaho Roadless Areas. From 2001 through 2007, approximately 3,137,000 acres in Idaho burned, of which about 1 million acres were in Idaho Roadless Areas. Some areas have burned once, others multiple times during these years. Effects from these fires were variable ranging from low to high intensity. In addition, effects on FRCC and hazardous fuels also varied depending on the pre-fire condition and the intensity / severity of the fire. It is not possible to state that FRCC or hazardous fuel conditions have improved based only on the fact

that acres burned. In some cases the effect may have been positive; however, there are situations where it may have been negative. An example is Fire Regime I, which historically had extensive areas in large open to moderately dense stands of ponderosa pine. High-intensity fire over extensive areas generally creates a large amount of grass-shrub, a condition that was uncommon historically. A large enough area of this could move an area that was in condition class 1 or 2 before the fire to condition class 2 or 3. In other cases, particularly in the cooler, infrequent fire regimes such as IV and V, condition class may have improved because areas were becoming more homogeneous, with less of the different tree size classes that would have occurred historically. Therefore, changes to either fire regime condition class or hazardous fuels would be addressed at the local level during site-specific planning.

Wildland-Urban Interface (Community Protection Zone)

In the 2001 Roadless Rule Final EIS, WUI was described based on five population classes developed from the population information in the LandScan Global Population Database for 1998 (USDA Forest Service 2000c). Since the 2001 Roadless Rule, States have been defining WUI following direction from the NFP and HFRA, which encourages development of community wildfire protection plans. To facilitate this process, the Idaho State Fire Plan Working Group was formed.[46] In Idaho, community wildfire protection plans are developed and updated at the county level and are referred to as county wildfire protection plans (CWPP). Currently, all counties in Idaho have CWPPs (Idaho Department of Lands [IDL] 2007).

Information from the State Working Group was used as a proxy of WUI in the draft EIS. However, several responders expressed concerns about how WUI was mapped in the draft EIS. For the final EIS, the interdisciplinary team used the Stein et al. (2007) publication titled National Forests on the Edge and their year 2030 projections of housing density to identify communities. Stein et al. developed their 2030 projections using the 2000 census statistics on housing density and population, road density data, past growth patterns, proximity to urban areas, and other factors. They defined three categories of housing density:

- Rural I—Lands with 16 or fewer housing units per square mile;
- Rural II—Lands with 17 to 64 housing units per square mile;
- Exurban / Urban—Lands with 65 or more housing units per square mile.

The Rural II and Exurban / Urban categories were used for this analysis. Census blocks identified as Rural II or Exurban / Urban were buffered with an area defined as the "community protection zone" (CPZ). CPZ was used as a proxy for WUI in all alternatives in the final EIS. CPZ and WUI are used interchangeably in this analysis.

[46] The Idaho State Fire Plan Working Group (State Working Group) is composed of individuals representing State and Federal agencies, counties, Tribes, and non-governmental organizations. It provides the key link between national and local levels of government to implement the NFP. The State Working Group provides leadership in the development of CWPP (Idaho State Working Group 2007).

For consistency across the State, the CPZ was mapped based on the definition from the HFRA, Section 101(16)(B), for determining WUI for any areas in which a community wildfire protection plan is not in place (fig. 3-9). This definition is:

1. An area extending ½-mile from the boundary of an at-risk community;
2. An area within 1½ miles of the boundary of an at-risk community, including any land that:
    a. has sustained steep slope that creates the potential for wildfire behavior endangering the at-risk community;
    b. has a geographic feature that aids in creating an effective fire break, such as a road or ridge top; or
    c. is in condition class 3, as documented by the Secretary in the project-specific environmental analysis.

Due to the complexities of attempting to identify and map parts I, II, and III, the interdisciplinary team used the 1½ mile area described in part ii. For the analysis this represents the greatest extent of area that could be treated. Actual treatment areas would most often be less than this based on the conditions described in parts I through III within the ½ to 1½ mile zone.[47]

At-risk communities are defined in HFRA as an area:

1. That is composed of:
    a. an interface community as defined in the notice titled Wildland Urban Interface Communities within the Vicinity of Federal Lands That Are at High Risk from Wildfire, issued by the Secretary of Agriculture and the Secretary of the Interior;
    b. a group of homes and other structures with basic infrastructure and services (such as utilities and collectively maintained transportation routes) within or adjacent to federal land;
2. In which conditions are conducive to a large-scale wildland fire disturbance event;
3. For which a significant threat to human life or property exists as a result of a wildland fire disturbance event.

About 731,000 acres (8 percent) of Idaho Roadless Areas are in the WUI. In general, wildfire is unwanted in WUI; hazardous fuels treatments to reduce the risk are generally those that provide for conditions where firefighters can safely suppress fire or where the risk of stand-replacing wildland fire is reduced. About 57 percent (418,900 acres) of the WUI are in high priority areas (fire regimes I, II, and III, and condition classes 2 and 3) (table 3-8).

[47] The CPZ would be determined at the site-specific level because the housing density data provided by Stein et al. 2007 may only be used at the broad scale. The analysis used the 2030 projections of housing density to provide an approximation of what areas could be subject to treatment over the next 15-20 years.

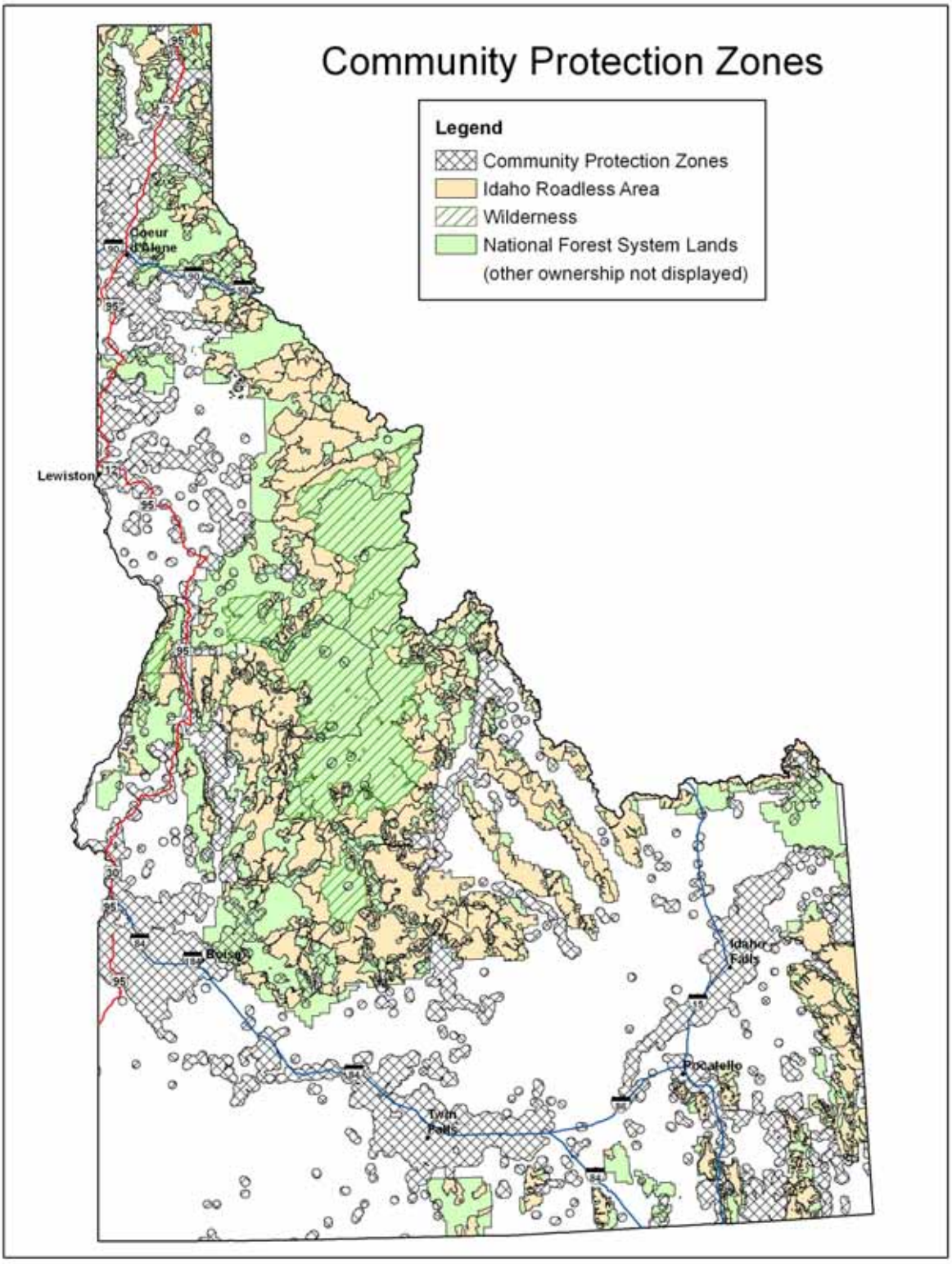


Figure 3-9. Overlap of community protection zones with Idaho Roadless Areas

Table 3-8. Acres of fire regime, condition class, and percent of total acres for WUI in Idaho Roadless Areas

WUI			Condition class acres (percent of fire regime acres)		
Fire regime	Acres	Percent of area	1	2	3
FR I	91,000	12	23,600 (26)	61,200 (67)	6,200 (7)
FR II	13,100	2	2,600 (20)	7,200 (55)	3,300 (25)
FR III	423,400	58	82,400 (19)	318,100 (75)	22,900 (5)
FR IV	129,700	18	69,600 (54)	53,700 (41)	6,400 (5)
FR V	41,300	6	20,700 (50)	18,600 (45)	2,000 (5)
Unclassified	32,500	4			
Total	731,000	100	198,900 (28)	458,800 (66)	40,800 (6)

Municipal water supply (community public water systems)

HFRA uses the term "municipal water supply system" (also referred to here as community public water systems) for the collection, impoundment, storage, transportation, or distribution of drinking water. Public water sources are termed source waters. In Idaho more than 95 percent of all source waters are from groundwater and 5 percent are from surface water. Communities dependent on surface water supplies are most vulnerable to changes as a result of land management actions. Public water systems are divided into three categories: communities; non-communities, non-transient, and non-communities non-transient (section 3.6 Physical Resources). As a proxy of municipal water supply systems this analysis used community public water systems, which are public water systems that regularly serve year-round residents (that is, a system that serves people at their homes; examples include systems that serve towns or subdivisions). Surface (as opposed to ground) water supply systems were used in this analysis because these are the most likely to be affected by wildland fire (Landsberg and Tiedemann 2000) (section 3.6, Physical Resources).

Community public water systems occur on more than 3 percent of the Idaho Roadless Area acres. Ten percent of the acres that provide public water supply systems from Idaho Roadless Areas overlap WUI. Generally, high-intensity or high-severity wildfire is unwanted in areas that contribute to community public water systems. The HFRA defines hazardous fuels for community public water systems as fire regime condition class 3 or fire regime I, II, or III condition class 2 or 3. About 49 percent (155,600 acres) of the community public water systems in Idaho Roadless Areas are in fire regimes I, II, and III, and condition classes 2 and 3 (table 3-9).

Table 3-9. Acres of fire regime and condition class and percent of total acres for community public water systems in Idaho Roadless Areas

Community public water systems			Condition class acres (percent of fire regime acres)		
Fire regime	Acres	Percent	1	2	3
FR I	35,400	11	9,900 (28)	23,200 (66)	2,300 (6)
FR II	6,500	2	900 (14)	5,600 (86)	0 (0)
FR III	159,600	50	35,100 (22)	113,100 (71)	11,400 (7)
FR IV	68,000	21	41,300 (61)	25,800 (38)	900 (1)
FR V	39,900	13	21,700 (55)	16,200 (40)	2,000 (5)
Unclassified	10,800	3			
Total	320,200	100	108,900 (35)	183,900 (60)	16,600 (5)

FR=fire regime

From 2001 through 2006 in Idaho, about half (51 percent) of the acres treated for hazardous fuels forest-wide were in WUI (fig. 3-10). Where treatments were conducted, mechanical methods were more often used in WUI than outside WUI (fig. 3-10); prescribed fire was used much more often outside WUI. Mechanical treatments are probably used more often in WUI because conditions can be altered more rapidly mechanically than they can be altered by prescribed fire alone. Furthermore, it may be difficult to control prescribed fire in untreated stands. Prescribed fire may be undesirable in the WUI because of concerns from adjacent private property owners about risk of escape and concerns about smoke.

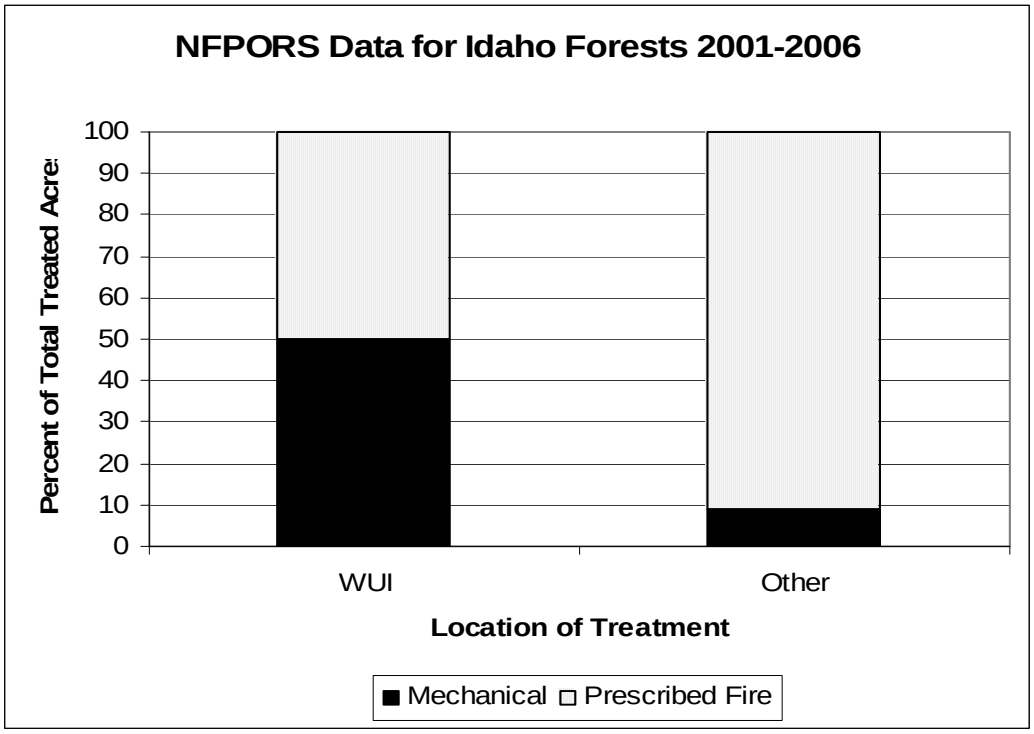


Figure 3-10. Percentage of treatment acres in WUI by type of treatment

ENVIRONMENTAL CONSEQUENCES

Assumptions Related To Tools

The primary purpose of hazardous fuel management is to reduce the occurrence of uncharacteristic or unwanted wildland fire (Van Wagtendonk 1996, USDA Forest Service 2000c).

Reduction of hazardous fuels can be accomplished with prescribed fire alone (Swetnam 2000). However, treatments using only prescribed fire may take longer to achieve the desired effect than hazardous fuels treatments using mechanical treatments, or mechanical and prescribed fire in combination (Mutch 1994). This can occur because of the current vegetative conditions and the ability to target the "problem" condition, availability of burning windows, and the need to apply repeated treatments because of past fire exclusion.

Density management or ladder fuel treatments using mechanical methods are more reliable in that they are more precise and usually are accomplished in a shorter timeframe. In some cases, some form of mechanical treatment may be necessary initially in areas where the long-term goal

is to use prescribed fire. However, whether mechanical treatments reduce the intensity and severity of wildland fire is disputed and uncertain. Hazardous fuel conditions can be abated provided the ladder fuels and unutilized coarse and fine fuels (natural and activity fuels[48]) are removed from the site (Peterson et al. 2003). Conversely, mechanical treatments can sometimes elevate fire hazard by increasing dead-ground fuel, removing larger fire-resistant trees (leaving an understory of ladder fuels), or opening up the site creating warmer, drier and windier conditions (Graham et al. 1999, Sackett et al. 1996, Feeney et al. 2000, Weatherspoon 2000, USDA Forest Service 2000c, Peterson et al. 2003). Therefore, the following is assumed for mechanical fuel treatments:

- Where conducted to reduce the risk of uncharacteristic wildland fire, the action would improve the fire regime condition class and treatments would be conducted to mitigate natural fuels (if necessary) and activity fuels so that the treatment is effective in meeting the purpose;
- Where conducted to reduce the risk of uncharacteristic or unwanted wildland fire, treatments would be conducted to mitigate natural fuels (if necessary) and activity fuels so that the treatment is effective in meeting the purpose.

Treatments in Condition Class 2. Condition class 2 areas are generally easier to treat because they are not as far departed from natural conditions. Therefore, they are often less dense, have lower natural fuel loadings, and have a more diverse landscape pattern. In these areas, fewer acres may require some type of initial mechanical treatment before prescribed fire. Mechanical treatment would focus on removing ladder fuels through thinning or limbing the lower branches. In areas where mechanical treatments may be beneficial initially, there may be a lower volume of surface fuels to mitigate. In addition, prescribed fire may be more feasible as an initial treatment in some of these areas, potentially allowing more area to be treated.

Treatments in Condition Class 3. In the situations where condition class 3 occurs because of lack of past disturbance, vegetative conditions are often such that some type of mechanical treatment is desirable initially even in areas where prescribed fire would eventually be the goal. The risk can be most effectively reduced through thinning that removes ladder fuels, and natural and activity fuel abatement that reduces surface fuel loading and continuity. Ground-based systems are the most economical method for achieving this goal because fuels can be yarded off the site. Where this is not feasible but is within the reach of helicopters, fuel abatement can be a challenge where high volumes of activity fuel are created. On-site surface fuels can be difficult to mitigate, particularly with burning, in areas with deep and continuous fuel loadings. Although prescribed fire can be an effective tool for reducing hazardous fuels, applications are risky in these types of areas as well as in condition class 3 areas that have not been treated mechanically.

Assumptions Related To Access (Roads) and Costs of Hazardous Fuel Reduction

Only authorized roads are used for hazardous fuel management.

The cost of using prescribed fire is more expensive where road access is limited (USDA Forest Service 2000c). These higher costs are associated with factors such as transportation of

[48] Activity fuels are those fuels created by vegetation management activities, such as timber cutting or timber harvest.

personnel to conduct operations and a greater reliance on aerial (e.g., helicopter) compared to hand-ignition.

The cost of mechanical treatments is more expensive where road access is limited, because of a variety of factors including harvest systems and treatment of activity fuels. Where access is limited, timber harvesting is often conducted with helicopter yarding, which is more expensive than ground-based yarding systems. In addition, hazardous fuels treatments are more effective where natural and activity fuels, particularly the smaller, coarse-size class (more than 3 inches and less than 8 inches), are mitigated. Where the treatment is targeting smaller diameter material, whole tree yarding is the most effective method for reducing activity fuels within treatment areas. However, this is more expensive where helicopter yarding is used. Post-treatment activity fuel abatement in helicopter areas is also more expensive than in areas with better access.

To provide a relative comparison of hazardous fuels treatment costs for the alternatives, a combination of treatment types and road access types were developed. The following were assumed to provide a relative comparison of hazardous fuels treatment costs per acre (from 1-least expensive to 9- most expensive):

1. Timber harvesting, ground based, with existing system roads;
2. Timber harvesting, ground based, with temporary roads;
3. Timber harvesting, ground based, with new road construction;
4. Prescribed fire, hand-lighting, with existing system roads;
5. Prescribed fire, aerial, with existing system roads;
6. Timber harvesting, helicopter yarding, with existing system roads;
7. Timber harvesting, helicopter yarding, with temporary roads;
8. Timber cutting, ground based, with existing system roads;
9. Mechanical treatments (chipping / mastication / mulching, etc), with existing roads.

The order of the above was based on the following assumptions:

- Timber harvesting generates revenues that at least partially off-set costs associated with new road construction or reconstruction.
- Timber cutting does not generate revenue and, therefore, new road construction would not occur. However, some heavy maintenance or reconstruction of existing roads may be required. Timber cutting requires a secondary treatment of removing trees through yarding which is an additional cost that exceeds aerial ignition costs for prescribed fire.
- Prescribed fire does not generate revenue and therefore new road construction would not occur. Heavy maintenance or reconstruction of existing roads would also not occur. Prescribed fire using hand-or aerial-lighting is potentially less costly than timber cutting due to the additional costs associated with timber cutting to treat residual fuels.
- Natural and activity fuel mitigations create the same ending surface fuel loadings.

These different types of hazardous fuels treatments were attached to the various combinations of tools and road access described in table 3-10. This information was used to develop relative cost comparisons for treating hazardous fuels in wildland-urban interface and community public water system areas for the alternatives. A single type of treatment was assigned to a proportion of WUI or community public water system areas that were developed based on the following assumptions:

- Treatments are first entry, not maintenance of previous treatments.
- All the acreage in wildland-urban interface or community public water system area is treated. That is, the analysis is not based on projections for the alternatives, but rather on total number of acres of wildland-urban interface or community public water system assigned to management themes. Proportions of areas assigned a treatment are for comparison purposes only; they do not constitute an intent to treat.
- There are existing roads available.
- Mechanical ground-based treatments would occur closest to existing roads. Aerial treatments would occur farther away.
- While several combinations of treatments could often be used within a management theme, the least expensive would be applied.
- More mechanical treatments than prescribed fire would occur in wildland-urban interface.
- More prescribed fire than mechanical would occur in community public water system areas.

Table 3-10. Information used to develop relative cost comparisons for treating hazardous fuels in the WUI and community water supply areas*

Management Themes	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
	Wildland-Urban Interface			
Wild Land Recreation	1/8 treated w/ 1** ¼ treated w/ 4 ¼ treated w/ 5 ¼ treated w/ 6 1/8 treated w/ 8	½ treated w/ 4 ½ treated w/ 5	½ treated w/4 ½ treated w/ 5	½ treated w/4 ½ treated w/ 5
Primitive and Special Areas of Historic or Tribal Significance		1/8 treated w/ 1 ¼ treated w/ 4 ¼ treated w/ 5 ¼ treated w/ 6 1/8 treated w/ 8	1/8 treated w/ 1 ¼ treated w/ 4 ¼ treated w/ 5 ¼ treated w/ 6 1/8 treated w/ 8	1/8 treated w/ 1 ¼ treated w/ 4 ¼ treated w/ 5 ¼ treated w/ 6 1/8 treated w/ 8
Backcountry Restoration Outside CPZ or Significant Risk Area		¼ treated w/ 1 1/8 treated w/ 3 1/8 treated w/ 4 1/8 treated w/ 5 1/8 treated w/ 6 1/8 treated w/ 8 1/8 treated w/ 9	¼ treated w/ 1 1/8 treated w/ 3 1/8 treated w/ 4 1/8 treated w/ 5 1/8 treated w/ 6 1/8 treated w/ 8 1/8 treated w/ 9	½ treated w/4 ½ treated w/ 5
Backcountry Restoration Inside CPZ or Significant Risk Area				¼ treated w/ 1 1/8 treated w/ 2 1/8 treated w/ 4 1/8 treated w/ 5 1/8 treated w/ 6 1/8 treated w/ 8 1/8 treated w/ 9
General Forest, Rangeland, Grassland		½ treated w/ 1 ¼ treated w/ 3 ¼ treated w/ 6	½ treated w/ 1 ¼ treated w/ 3 ¼ treated w/ 6	½ treated w/ 1 ¼ treated w/ 3 ¼ treated w/ 6

Management Themes	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
	Community Public Water System Areas			
Wild Land Recreation	1/8 treated w/ 1 ¼ treated w/ 4 3/8 treated w/ 5 ¼ treated w/ 6	½ treated w/ 4 ½ treated w/ 5	½ treated w/ 4 ½ treated w/ 5	½ treated w/ 4 ½ treated w/ 5
Primitive and Special Areas of Historic or Tribal Significance		1/8 treated w/ 1 ¼ treated w/ 4 3/8 treated w/ 5 ¼ treated w/ 6	1/8 treated w/ 1 ¼ treated w/ 4 3/8 treated w/ 5 ¼ treated w/ 6	1/8 treated w/ 1 ¼ treated w/ 4 3/8 treated w/ 5 ¼ treated w/ 6
Backcountry Restoration Outside CPZ or Significant Risk Area		1/8 treated w/ 1 1/8 treated w/ 2 ¼ treated w/ 4 ¼ treated w/ 5 ¼ treated w/ 6	1/8 treated w/ 1 1/8 treated w/ 2 ¼ treated w/ 4 ¼ treated w/ 5 ¼ treated w/ 6	1/8 treated w/ 1 ¼ treated w/ 4 3/8 treated w/ 5 ¼ treated w/ 6
Backcountry Restoration Inside CPZ or Significant Risk Area				1/8 treated w/ 1 1/8 treated w/ 2 ¼ treated w/ 4 ¼ treated w/ 5 ¼ treated w/ 6
General Forest, Rangeland, Grassland		¼ treated w/ 1 ¼ treated w/ 3 ½ treated w/ 6	¼ treated w/ 1 ¼ treated w/ 3 ½ treated w/ 6	¼ treated w/ 1 ¼ treated w/ 3 ½ treated w/ 6

**Numbers 1 through 9 refer to the different types of hazardous fuels treatments listed above.*

***Under the 2001 Roadless rule 1/8 of the treatments in WUI would use timber harvesting, ground based systems, from existing road systems (1); ¼ of the treatments in WUI would use prescribed fire, hand-lighting, from existing road systems (4); ¼ of the treatments in WUI would use prescribed fire, using aerial systems, from existing roads (5); ¼ of the treatments would use timber harvesting, using helicopter systems, from existing roads (6); and 1/8 of the treatments in WUI would use timber cutting, ground based systems from existing roads (8).*

This information was used to develop a relative cost per acre of treating hazardous fuels in WUI and community public water system areas based on the ranking of treatments and proportion of area that falls into various categories.

Assumptions Related To Hazardous Fuels Management for Unwanted Wildland Fire

Hazardous fuel treatments in the WUI may create conditions within a landscape that are not natural. This includes features such as shaded fuelbreaks, or areas where fuels are chipped or masticated. It may also include the removal of ladder fuels in vegetation types where such conditions contributed to a natural stand-replacing fire regime. This would occur because although this type of fire would be part of the natural fire regime, it would be unwanted in areas such as WUI.

2001 Roadless Rule (No Action)

About 53 percent of the WUI is fire regimes I, II, or III and condition class 2; and 4 percent is in fire regimes I, II, or III and condition class 3 (table 3-8). About 49 percent of the community public water system areas in Idaho Roadless Areas is in fire regimes I, II, or III and condition classes 2 or 3 (table 3-9).

Under the 2001 Roadless Rule, all acres with uncharacteristic wildland fire hazard in WUI and community public water systems are available to treat with prescribed fire and mechanical tools (table 3-11). Many of the acres are in condition class 2 and 3; therefore, much of the area is in need of treatment to reduce the risk of uncharacteristic wildland fire. However, because road construction / reconstruction to accomplish fuels treatments is prohibited, mechanical treatments would generally occur near the limited number of existing roads. This may compromise the ability to treat condition class 3 areas because these often need an initial

mechanical treatment before application of prescribed fire can be applied safely. This is particularly true in WUI, where risk of escapes of prescribed fire and smoke are a concern to adjacent property owners.

Table 3-11. Ability to reduce hazardous fuels (unwanted and uncharacteristic), tools available, in the WUI and community water supply system by equivalent theme for the 2001 Roadless Rule

Fire type	Tools	Road access	WUI		Community water system	
			Acres	Percent	Acres	Percent
Uncharacteristic	Prescribed fire, mechanical tools	Prohibited	731,000	100	320,200	100

Under the 2001 Roadless Rule, hazardous fuels are defined in terms of uncharacteristic wildfire. In the non-lethal and mixed fire regimes (fire regimes I, II, and portions of III), restoring and maintaining natural vegetative conditions can reduce risks of stand-replacing wildfire. However, in lethal fire regimes, the natural vegetative conditions can still produce stand-replacing wildfire, which is often consistent with the historical fire regime but undesirable in WUI because of property values and scenic quality concerns. Therefore, restoring natural fire regimes may not reduce wildfire risk in some WUI areas. However, hazardous fuels treatments that move conditions toward natural vegetative conditions are probably more consistent with roadless area values and features.

Fuel treatments are likely to be more expensive and less efficient to implement, which would result in few acres treated based on budget projections. About 9,000 acres would be anticipated to be harvested over a 15-year period in Idaho Roadless Areas under the 2001 Roadless Rule, primarily to reduce hazardous fuels. Based on this projection, less than half of 1 percent of the high-priority areas overall would be treated, or roughly less than 2 percent of the high-priority areas in the WUI (assuming the harvest addresses only fuel treatment needs in the WUI).

The vegetative conditions that result from hazardous fuels treatments that reduce the risk of uncharacteristic wildland fire should be consistent with roadless area characteristics even though disturbance, particularly in mechanically treated areas, may be evident in the short term. Over time this should become less noticeable, particularly in areas where activity fuels have been removed from the site or mitigated through burning. While vegetative communities that result from treatments may be more ecologically appropriate, their appearance may contrast with untreated (or undisturbed) areas. This may be particularly evident in non-lethal fire regimes where ladder fuels from conifer layers are reduced.

Existing Plans

Existing Plans generally permit prescribed fire, but not mechanical treatments in areas similar to the Wild Land Recreation theme. About 5 percent of the WUI is in this theme (table 3-12). About 89 percent of the acres may allow for prescribed fire and mechanical tools to treat hazardous fuels, although the actual allowed area may be less depending on the management prescription in the particular existing forest plan. Road construction / reconstruction for hazardous fuels management may be allowed on about 65 percent of the roadless areas in WUI, which would facilitate a greater opportunity to accomplish hazardous fuels treatments in condition class 3 areas. However, of the area available for mechanical treatment, 24 percent would not permit road construction / reconstruction.

Table 3-12. Ability to reduce hazardous fuels (unwanted and uncharacteristic), tools available, in the WUI and community water supply systems by equivalent theme for the Existing Plans

Theme	Fire type	Tools	Road access	WUI		Community water systems	
				Acres	Percent	Acres	Percent
Wild Land Recreation	Uncharacteristic	Prescribed fire	Prohibited	37,700	5	18,900	6
Primitive/ SAHTS	Unwanted Uncharacteristic	Prescribed fire, mechanical tools	Prohibited	179,000	24	146,900	46
Backcountry	Unwanted Uncharacteristic	Prescribed fire, mechanical tools	Permitted - variable	373,700	51	118,600	37
GFRG	Unwanted Uncharacteristic	Prescribed fire, mechanical tools	Permitted	102,300	14	32,800	10

Of the 731,000 acres in WUI, about 38,300 acres (6 percent) are in forest plan special areas (FPSA).
Of the 320,200 acres in community water supply systems (surface waters), about 3,800 acres (1 percent) are in FPSA.

The actual amount of area where roads can be constructed or reconstructed may be less than estimated depending on the management prescription in Existing Plans (see appendix B). Acres in management prescriptions similar to the GFRG theme, which are 14 percent of the Idaho Roadless Areas acres in WUI (table 3-12), are most likely to permit all tools to be used. Existing Plans may not allow for all the tools to treat hazardous fuels in the management prescriptions similar to Backcountry.

Under Existing Plans, about 40,500 acres are projected to be harvested over 15 years in Idaho Roadless Areas. It is likely that most of this harvest, even in GFRG, would be done to reduce hazardous fuels, with the focus on reducing fuels in WUI. Based on this projection, about 1 percent of the high-priority areas would be treated, or about 10 percent of the high-priority areas in the WUI (assuming the harvest addresses fuel treatment needs only in the WUI).

About 46 percent of the community public water system acres are in a theme similar to Primitive and about 37 percent in Backcountry (table 3-12). Use of prescribed fire is more likely to be the tool of choice in these areas because of the desire to limit new roads.

The vegetative conditions that result from hazardous fuels treatments under Existing Plans could have variable impacts on the values and features of roadless areas. Where hazardous fuels treatments are for habitat restoration or to reduce the risk of uncharacteristic wildland fire, impacts would likely retain roadless characteristics over time. The greatest change could occur in areas where hazardous fuels treatments are to reduce the risk of unwanted wildland fire. In

some cases, particularly in the non-lethal fire regimes, restoring or maintaining vegetative conditions similar to the natural condition would reduce the risk of uncharacteristic as well as unwanted wildland fire effects. However, in stand-replacing (lethal) fire regimes, hazardous fuels treatments that benefit WUI may be fuel breaks or stand conditions that are not part of the natural vegetative condition. These types of treatments have a higher likelihood of changing the roadless characteristics.

Proposed Idaho Roadless Rule (Proposed Action)

Under the Proposed Idaho Roadless Rule, much of the WUI area (89 percent) is in management themes that permit prescribed fire and mechanical tools (table 3-13). Six percent is in a management theme where prescribed fire, but not mechanical, is available for hazardous fuels management (Wild Land Recreation). Road construction / reconstruction is prohibited in the Primitive and SAHTS themes, but timber cutting to reduce hazardous fuels for both unwanted and uncharacteristic wildland fires is permitted. Little timber cutting is anticipated in these areas because of lack of access. Fuel reduction would likely occur in locations near roads or in places where prescribed burning without timber cutting can occur.

Road construction / reconstruction and timber cutting would be permitted in the Backcountry theme to: (1) protect at-risk communities and municipal water supply systems from adverse effects of wildland fire; (2) reduce hazardous fuels associated with wind throw, blowdown, or ice storm damage; or the existence or imminent threat of an insect or disease epidemic that is significantly threatening an ecosystem component; or resource values that may contribute to significant risk of wildland fire; or (3) reduce hazardous fuels where wildland fire poses a threat to, and where natural fire regimes are important for, threatened and endangered species or their habitats. These activities are consistent with the HFRA.

Road construction / reconstruction and timber cutting to reduce hazardous fuels are permitted in the GFRG theme after the appropriate site-specific analysis is completed.

Table 3-13. Ability to reduce hazardous fuels (unwanted and uncharacteristic), tools available, by theme in the WUI and community water supply systems for the Proposed Idaho Roadless Rule

Theme	Fire type	Tools	Road access	WUI		Community water systems	
				Acres	Percent	Acres	Percent
Wild Land Recreation	Uncharacteristic	Prescribed fire	Prohibited	41,400	6	21,500	7
Primitive	Unwanted Uncharacteristic	Prescribed fire, mechanical tools	Prohibited	162,400	22	107,800	34
Backcountry	Unwanted Uncharacteristic	Prescribed fire, mechanical tools	Permitted	438,400	60	172,600	54
GFRG	Unwanted Uncharacteristic	Prescribed fire, mechanical tools	Permitted	50,600	7	15,200	4

Of the 731,000 acres in WUI, about 38,300 acres (6 percent) are in forest plan special areas (FPSA).
Of the 320,200 acres in community water supply systems (surface waters) about 3,100 acres (1 percent) are in FPSA

Under the Proposed Rule, hazardous fuels management in WUI would be to address unwanted and / or uncharacteristic wildland fire. A combination of prescribed fire and mechanical tools and road access would provide the most opportunity to facilitate hazardous fuels management, particularly in condition class 3 areas.

About 18,000 acres of timber harvest are projected to occur over a 15-year period in Idaho Roadless Areas. The primary purpose would be for hazardous fuel reduction and would likely focus on treatments in the WUI or community public water systems. Prescribed burning would likely be the tool outside the WUI, similar to existing trends. Based on this projection, less than half of 1 percent of the total high-priority areas would be treated, or about 4 percent of the high-priority areas in the WUI (assuming the harvest addresses fuel treatment needs only in the WUI).

The vegetative conditions that result from hazardous fuels treatments under the Idaho Roadless Rule could have variable impacts on roadless characteristics. Hazardous fuels treatments under the Idaho Roadless Rule are to reduce the risk of unwanted wildland fire, which could include a broad range of treatments such as fuel breaks or creating stand conditions where firefighters can safely suppress fire or where the risk of stand-replacing wildland fire is reduced. However, under the Idaho Roadless Rule all treatments would be required to meet or restore one or more of the roadless characteristics.

Modified Idaho Roadless Rule (Preferred Alternative)

Under the Modified Idaho Roadless Rule, much of the WUI area (87 percent) is in management themes that permit prescribed fire and mechanical tools (table 3-14). Seven percent is in a management theme where prescribed fire, but not mechanical treatment, is available for hazardous fuels management (Wild Land Recreation). Road construction / reconstruction is prohibited in the Primitive and SAHTS themes. Under the Modified Rule, in the Primitive and SAHTS theme, timber cutting to reduce hazardous fuels is permitted only to reduce fuels associated with uncharacteristic wildland fires. Little timber cutting is anticipated in these areas because of lack of access. Fuel reduction would likely occur in locations near roads or in places where prescribed burning without timber cutting can occur.

For this alternative, the permissions for road construction / reconstruction to support timber cutting to reduce hazardous fuels were changed from the Proposed Rule. Many people felt the Proposed Rule provided broad permissive language for road construction to reduce the significant risk of wildland fire effects. The Modified Rule changed this language by (1) designating an area (CPZs) where temporary roads could be constructed to reduce hazardous fuels adjacent to communities; and (2) providing additional criteria for when temporary roads could be constructed to reduce significant risk outside the CPZ to protect at-risk communities and community public water systems.

Table 3-14. Ability to reduce hazardous fuels (unwanted and uncharacteristic), tools available, by theme in the WUI and community water supply systems for the Modified Idaho Roadless Rule

Theme	Fire type	Tools	Road access	WUI		Community water systems[2]	
				Acres[1]	Percent	Acres	Percent
Wild Land Recreation	Uncharacteristic	Prescribed fire	Prohibited	50,800	7	21,500	7
Primitive	Uncharacteristic	Prescribed fire, mechanical tools	Prohibited	153,300	21	107,700	34
Backcountry	Unwanted Uncharacteristic	Prescribed fire, mechanical tools	Permitted if significant risk[3]	0	0	135,300	42
Backcountry/ CPZ	Unwanted Uncharacteristic	Prescribed fire, mechanical tools	Permitted	442,000	60	37,500	12
GFRG	Unwanted Uncharacteristic	Prescribed fire, mechanical tools	Permitted	46,700	6	15,000	4

[1]*Of the 731,000 acres in WUI, about 38,300 acres (6 percent) are in FPSA.*

[2]*Of the 320,200 acres in community water supply systems (surface waters,) about 3,100 acres (1 percent) are in FPSA.*

[3]*Temporary roads may be constructed outside the WUI/CPZ only if a significant risk to at-risk communities or municipal water supplies is determined and it is the only feasible alternative.*

Within the Backcountry theme, under the Modified Rule, hazardous fuels management in WUI / CPZ would be to address unwanted and / or uncharacteristic wildland fire. Temporary roads could be constructed to facilitate hazardous fuel reduction activities within the CPZ. A combination of prescribed fire and mechanical tools and road access would provide the most opportunity to facilitate hazardous fuels management, particularly in condition class 3 areas.

Outside the CPZ, temporary roads could be constructed only if they were found to be the only way to feasibly meet the objectives of reducing the significant risk of wildland effects on an at-risk community or community public water system, and if the activity was developed in a manner that maintains or improves one or more roadless characteristics over the long-term. It is anticipated that the use of this permission, with conditions, would be infrequent because of the additional requirements and the need for regional forester approval.

Road construction / reconstruction and timber cutting to reduce hazardous fuels are permitted in the GFRG theme after the appropriate site-specific analysis is completed. About 15,000 acres of timber harvest are projected to occur over a 15-year period in Idaho Roadless Areas. The primary purpose would be for hazardous fuel reduction and would likely focus on treatments in the WUI or community public water systems. Prescribed burning would likely be the tool outside the WUI, similar to existing trends. Based on this projection, less than half of 1 percent of the total high-priority areas would be treated, or about 4 percent of the high-priority areas in the WUI (assuming the harvest addresses fuel treatment needs only in the WUI).

The vegetative conditions that result from hazardous fuels treatments under the Modified Rule could have variable impacts on roadless characteristics. Hazardous fuels treatments under the Modified Rule are to reduce the risk of unwanted wildland fire in the CPZ and areas found to have significant risk, which could include a broad range of treatments such as fuel breaks or creating stand conditions where firefighters can safely suppress fire or where the risk of stand-replacing wildland fire is reduced. Outside the CPZ, fuels treatments are to reduce the risk of uncharacteristic wildland fire. In these areas, treatments would be required to maintain or restore one or more of the roadless characteristics over the long-term.

Relative Treatment Costs for Wildland-Urban Interface and Community Public Water Systems

The analysis of relative treatment costs per acre for the alternatives indicates that hazardous fuels treatments for wildland-urban interface may be most expensive under the 2001 Roadless Rule, followed by the Existing Plans, and the Proposed and Modified Idaho Roadless Rules.

The 2001 Roadless Rule has higher potential treatment costs per acre due to an assumption that only a small amount of ground-based timber harvest would occur, while the majority of the treatments would be timber harvest with helicopter yarding or prescribed fire from existing roads or helicopter. Helicopter yarding and prescribed fire are more expensive than ground-based timber harvest because timber harvest generates some revenue and ground-based yarding systems are less expensive to conduct than those that involve helicopters.

The differences for the other alternatives are based on how many acres are in management themes that may allow for a greater mix of less expensive treatments. The Existing Plans alternative is more expensive than the Proposed and Modified Rules because of the greater amount of wildland-urban interface area in Wild Land Recreation and Primitive themes. The Proposed and Modified Rules have more wildland-urban interface in the Backcountry theme, which allows for a greater mix of less expensive treatments. The Modified Rule is slightly less expensive than the Proposed Rule because it has a little more wildland-urban interface area in the Backcountry theme.

Relative treatment costs per acre for hazardous fuels in community public water system areas are most expensive in the 2001 Roadless Rule, followed by the Modified Rule, Existing Forest Plans, and Proposed Rule.

The 2001 Roadless Rule ranks relatively high for the same reasons as described above for the wildland-urban interface. For the Existing Plans, Proposed Rule, and Modified Rule, the number of community public water system acres assigned to various management themes is similar. However, for the Modified Rule, most of those acres are outside the CPZ. If temporary roads could be constructed to facilitate hazardous fuel reduction, then costs would be lower; if not, costs would be higher. It is likely temporary road construction would be limited because of additional analysis requirements, including being able to construct temporary roads only when it is the only feasible alternative to reduce significant risk to at-risk communities or community public water systems.

Fire Prevention

The incidence of human-caused fire ignitions (“starts”) is assumed to be higher in areas that could be roaded compared to areas that remain unroaded. This is based on the national and Idaho 1986–1996 data (USDA, Forest Service 2000) that showed that the number of human-caused starts was greater in roaded compared to unroaded areas.

2001 Roadless Rule (No Action). The 2001 Roadless Rule would have little potential impact on the fire prevention program (table 3-15) because road construction or reconstruction is restricted to limited exceptions. About 15 miles of road construction are projected to occur over 15 years under the exceptions in the 2001 Roadless Rule; of which only 12 miles are projected to be permanent. Based on the limited exceptions and the limited amount of road construction projected, there is likely to be no increase in human-caused starts under the 2001 Roadless Rule.

Table 3-15. Percent of Idaho Roadless Areas that permit or prohibit road construction or reconstruction, by alternative*

Road construction/ reconstruction	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Prohibited	0	38	37	39
Permitted, under limited[1] exceptions	100	0	56	(52) + 5[3]
Permitted, under variable[2]	0	48	0	0
Permitted	0	14	7	4
Total	100	100	100	100

*Excludes lands in forest plan special areas.

[1]Permitted under "limited" refers to the exceptions allowed in the rules.

[2]Permitted under "variable" refers to the variety of allowances in existing plans.

[3]About 5 percent of the Backcountry theme is in CPZ where temporary roads could be constructed. Outside the CPZ (52 percent of the area) a very limited amount of temporary roads are likely to be constructed because of conditions related to the permission for temporary road construction to reduce significant risk to at-risk communities or municipal water supply systems.

Existing Plans. For Existing Plans, about 62 percent of the management prescriptions permit road construction / reconstruction to some degree (table 3-15). About 180 miles of road construction / reconstruction are projected in Idaho Roadless Areas over 15 years, of which 72 miles are projected to be permanent, 33 miles temporary, and 75 miles reconstruction. The number of human-caused starts may increase in those areas where new roads are constructed, especially if they are permanent roads. This indicates there is a potential for an increase in the workload for the fire prevention program under Existing Plans. However, road decommissioning is also occurring, which may offset the increase to some degree.

Proposed Idaho Roadless Rule (Proposed Action). The Proposed Idaho Roadless Rule would permit road construction / reconstruction on about 56 percent of the Idaho Roadless Areas for limited purposes and on 7 percent for any purpose (table 3-15). The Idaho Roadless Rule says that when roads are to be constructed they should be temporary in nature. About 61 miles of road construction / reconstruction are projected to occur over a 15-year period under the Idaho Roadless Rule, of which 12 miles are anticipated to be permanent, 26 miles temporary, and 23 miles reconstruction. Based on the limited increase in new roads open to the public and the limited amount of permanent road constructed, there is likely to be no measurable increase in human-caused starts under the Proposed Rule. In addition, road decommissioning is also occurring, which may offset any increases.

Modified Idaho Roadless Rule (Preferred Alternative). The Modified Idaho Roadless Rule would permit road construction / reconstruction on about 5 percent of the Idaho Roadless Areas for limited purposes and on 4 percent for any purpose. On about 5 percent of the area, temporary roads could be constructed to reduce hazardous fuels within the CPZ. On about 52 percent of the area, temporary roads could be constructed to reduce the significant risk of wildland fires to at-risk communities and community public water systems. It is anticipated the use of this permission with conditions (outside the Backcountry CPZ) would be infrequent because of the additional analysis requirements, including that temporary roads could only be constructed if there is no other feasible alternative and the need for regional forester approval.

About 50 miles of road construction / reconstruction are projected to occur over a 15-year period under the Modified Rule, of which 12 miles are anticipated to be permanent, 21 miles temporary, and 17 miles reconstruction. In addition, the Modified Rule requires that when

roads are to be constructed for timber cutting they are to be temporary in nature. Based on the limited increase in new roads open to the public and the limited amount of permanent road constructed, there is likely to be no measurable increase in human-caused starts under the Modified Rule. In addition, road decommissioning is also occurring which may offset any increases.

CUMULATIVE EFFECTS

Past fire exclusion and lack of treatment in roadless areas has contributed to the over-accumulation of hazardous fuels and the current amount of area in condition classes 2 and 3. Of the policies in Appendix N, programmatic policy direction such as the NFP the HFI, and the HFRA have greatly increased the emphasis and interagency commitment to reducing hazardous fuels and unwanted and uncharacteristic wildland fires.

Residential development in the WUI areas has raised concern among natural resource managers and is recognized as a primary factor influencing management activities. The increase in population growth and development adjacent to roadless areas is expected to continue. Idaho is among six states in the intermountain West with the greatest projected WUI expansion from 2000 to 2030 (Theobald and Romme 2007).

The current limitations under the 2001 Rule on roads in roadless areas constrains the ability to address wildland fire hazard in priority areas, which increases the chance of experiencing large, unwanted, or uncharacteristic fires in WUIs and municipal watersheds within or adjacent to roadless areas.

Fire prevention programs, community fire safe councils, and continued development of CWPPs would continue to make contributions to reducing wildland fire threats to communities and municipal water supply systems. The increase in CWPPs coupled with existing fuel management policies would result in identifying and treating more of the highest priority acres to reduce the threat to communities and municipal water supply systems. Fuel treatments would not only continue to be implemented on other federal and state lands, but also on city, county, and private lands, to meet objectives in collaboratively developed CWPPs.

The beneficial fire and fuel-related effects associated with Existing Plans, and the Proposed and Modified Rule alternatives are very small in comparison with changes in vegetation expected from all fuel treatments on surrounding lands, together with natural disturbance events such as wildland fires. However, the effects expected from these alternatives would provide a minor incremental cumulative effect in reducing wildland fire threats to communities and municipal water supply systems and improving the agency's ability to meet other wildland fire management objectives. With more tools available, the Existing Plans and Proposed and Modified Rules would permit opportunities for fuel reduction in local areas that are currently not available under the 2001 Roadless Rule.

Global and regional climate change may increase the magnitude and extent of insect and disease epidemics, wildfires, and other natural disturbance events. A large body of evidence suggests that in the western United States there is a foreseeable trend toward warming, together with reduced precipitation and more frequent extremes in winds, tornados, and other weather events. The high-danger fire season is expected to become longer, and wildfires are expected to become more frequent and severe as a result of these climatic trends (Flannigan et al. 2000, McKenzie et al. 2004, Miller and Urban 1999, Torn and Fried 1992). Changing weather

conditions coupled with the over-accumulation of fuels and increase in stands with condition class 2 or 3 create a situation that lends itself to extreme fire behavior having devastating effects to communities and the natural resources that people depend on. The differences in effects among Existing Plans, Proposed and Modified Rule alternatives are not significant enough in magnitude, geographic extent, or duration to have any measurable cumulative effect relative to changes associated with global and regional climate change.

Past road construction or reconstruction actions in Idaho Roadless Areas may have affected the fire prevention program. Additional road construction or reconstruction under the Existing Plans and the Proposed Rule could increase the amount of area that may be affected by human-caused wildland fires; however, more roads are being decommissioned than are constructed. There would likely be no net change under the 2001 Roadless Rule or Modified Rule.

3.4 Road Construction/ Reconstruction

Changes Between Draft and Final EIS

- Data related the projections for road construction and reconstruction have been updated; see section 3.1, Introduction.
- Data related to miles of existing roads in Idaho Roadless Areas has been updated.
- The discussion regarding temporary roads and road decommissioning has been expanded and Appendix O added.
- Includes analysis of the Modified Idaho Roadless Rule.

Introduction

The following discussion provides a foundation for the analysis provided in other resource sections. The Proposed Idaho Roadless Rule (Proposed Rule) and the Modified Idaho Roadless Rule (Modified Rule) prohibit or permit road construction or reconstruction depending upon the management theme; therefore, this analysis describes the amount of road construction and reconstruction projected to occur in Idaho Roadless Areas.

The Forest Service constructs, reconstructs, and maintains roads on National Forest System (NFS) lands to provide needed access for implementing forest plan goals and objectives. As these objectives and goals change, road management objectives also change. It is through road management objectives (FSM 7712.31) that design standards, maintenance levels, and traffic management requirements, such as seasonal closures, are established. As forest plan goals and objectives change, so does the need for new roads and the objectives for managing existing roads. Forest Service manual (FSM) direction is as follows:

> *FSM 7712.31 - Road Management Objectives*
>
> *Establish the specific intended purpose (FSM 7701, para. 7), based on management direction, of the new project or projects. Document this purpose by developing a road management objective that contains design criteria (FSM 7720) and operation and maintenance criteria (FSM 7730.3). The document shall be signed by a line officer when approved, and retained as a permanent record. Document arterial and collector roads individually; however, similar local roads may be grouped on one document.*

National Forest System roads are generally those roads that are needed to meet the goals and objectives established in forest plans and that require permanent, long-term road access. Other roads authorized by the Forest Service include public roads that provide primary road access into and through NFS lands and privately owned roads that access private lands within and adjacent to NFS lands. With the exception of private roads, these forest roads are those roads to which State traffic regulations generally apply and are designed and maintained for "highway legal" motor vehicles, although use by other classes of recreational vehicles might be permitted.

Temporary roads are authorized under contracts and permits, such as timber sale contracts, special use permits, oil and gas exploration permits, or facility construction contracts; or they may be constructed by the Forest Service for administrative access. These roads are needed for a short time to meet a one-time access need, usually for 1 year and not more than 10 years. The Forest and Rangeland Renewable Resources Planning Act of 1974 (as amended) generally

requires temporary roads be closed and revegetated within 10 years after use. In general, the Forest Service decommissions temporary roads within 1 year after the need for access has terminated.

The cost of new road construction varies with road standards and local conditions, from a few thousand dollars per mile up to $150,000 or more per mile. The average range is typically $50,000 to $100,000 per mile. Heavy reconstruction of existing roads to meet current design standards costs approximately $45,000 per mile (Hughey 2007). Temporary road costs are normally less than those estimated for NFS roads; however, for the purpose of the economic analysis, the cost of road decommissioning was added. This combined cost for temporary roads was estimated at about $20,000 per mile. A weighted road development cost of $55,000 per mile was used in the economic analysis for all road types in all alternatives.

Road decommissioning involves using various levels of treatments to restore unneeded roads to a more natural state, in order to mitigate environmental damage and restore hydrologic function. Treatment options might include blocking the entrance, water barring, removing culverts, reestablishing drainage ways, removing unstable fills, pulling back road shoulders, restoring natural contours and slopes, or other methods designed to meet specific conditions and objectives associated with the unneeded road. It includes conversion of a road to a designated trail. The cost of decommissioning varies with the treatment and local conditions, from a few hundred dollars per mile up to $80,000 or more per mile. The average range is typically $5,000 to $10,000 per mile (Hughey 2007). An average cost of $7,500 per mile of road decommissioned was used for the economic analysis. Appendix O provides additional information regarding temporary road construction and decommissioning.

Road reconstruction includes: (1) road improvement, which is an activity that results in an increase of an existing road's traffic service level, expands its capacity, or changes its original design function; or (2) road realignment, which is an activity that results in relocation of an existing road or portions of an existing road and treatment of the old roadway.

Road maintenance includes the ongoing upkeep of a road necessary to retain or restore the road to the approved road management objectives. Road decommissioning includes activities that result in the stabilization and restoration of unneeded roads to a more natural state.

Unauthorized roads are those roads that exist on NFS lands without the Agency's express permission. They include remnants of historical uses, such as old logging and mining roads, user-created roads resulting from repeated travel by recreational vehicles off designated roads and trails, and old temporary roads that were not decommissioned.

Road Policies

2001 Roads Policy. The 2001 Roads Policy incorporated at 36 CFR 212 provides the Forest Service direction with regard to its transportation system. The roads policy gives managers a scientific analysis process to inform their decision-making. It directs the Agency to maintain a safe, environmentally sound road network that is responsive to public needs and affordable to manage but that calls for unneeded roads to be decommissioned.

Travel Management Rule. In November 2005, the Forest Service published a new travel management rule governing motor vehicle use on national forests and grasslands (USDA Forest Service 2005b). Under the final rule, each national forest or ranger district will designate those roads, trails, and areas open to motor vehicle use by class of vehicle and, if appropriate, by time

of year. As designation is completed on a national forest or ranger district, motor vehicle use off the designated system will be prohibited. Designated routes and areas will be identified on a motor vehicle use map. Motor vehicle use outside designated routes and areas will be provided for fire, military, emergency, and law enforcement purposes, and for use under Forest Service permit. Valid existing rights are honored. The rule also maintains the status quo for snowmobile use, as determined in individual forest plans.

Other policies. All management activities associated with NFS roads are required to comply with relevant State and Federal statutes such as the Clean Water Act, National Environmental Policy Act, and the Endangered Species Act. In addition, it is the Agency's policy to use the best available scientific information and best management practices for planning, designing, constructing, and maintaining roads regardless of where the road is located. Implementation of these policies can minimize, but not eliminate, some of these adverse environmental effects.

National Trends

Over the past 100 years, roads have been constructed to serve a variety of purposes. Before World War II, roads were constructed on NFS lands primarily for fire and conservation activities. From 1944 until the mid to late 1980s, most roads on NFS lands were constructed to support timber harvest activities. Roads are also constructed to support other uses including recreation; permits (mining, special uses); road access to private lands within or adjacent to NFS lands; and road access for cleanup purposes (restoring abandoned mines). Once roads are constructed they may need to be reconstructed or maintained.

During the 1990s more roads nationally were decommissioned than reconstructed (fig. 3-11). This trend continues; see the Affected Environment section for specifics in Idaho.

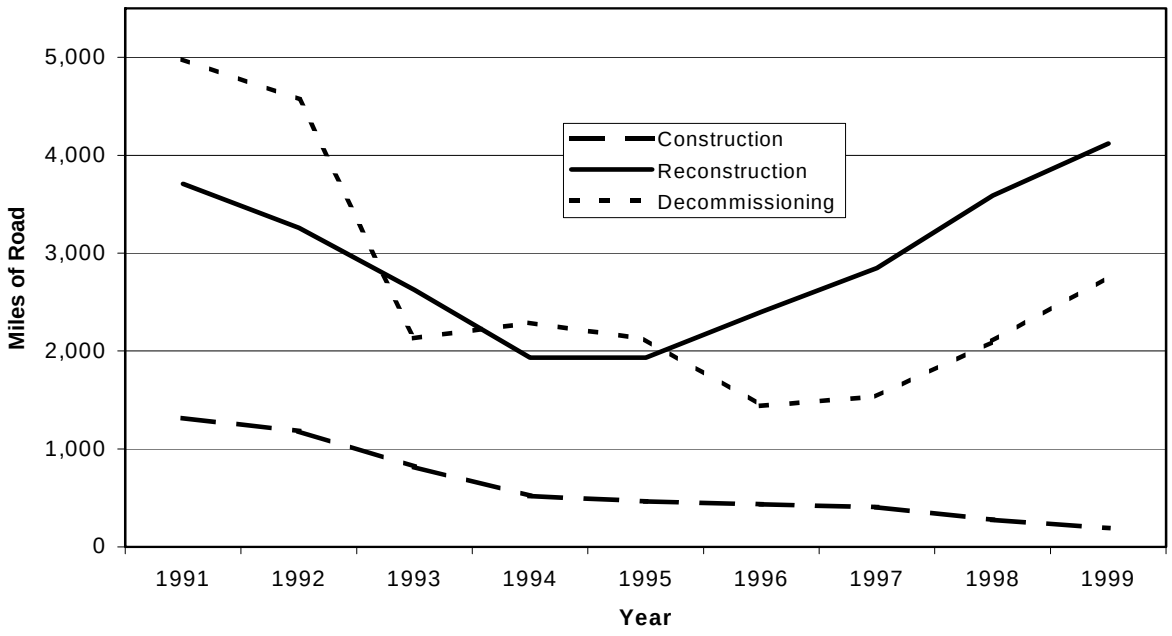
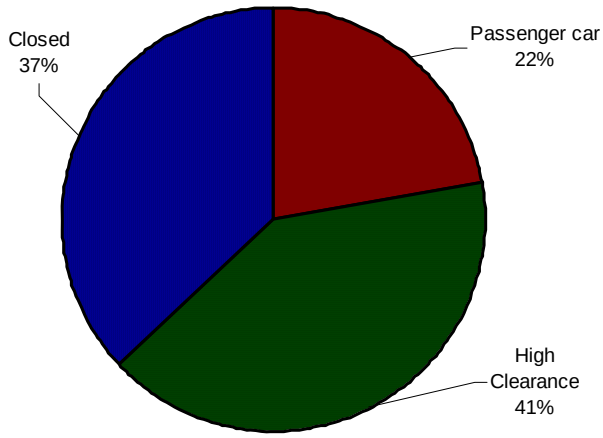


Figure 3-11. Trends in road construction, reconstruction, and decommissioning for NFS roads (USDA Forest Service 2007k)

AFFECTED ENVIRONMENT

The Forest Service maintains and administers approximately 386,000 miles of roads on NFS lands, 33,800 miles of which are in the State of Idaho. NFS roads serve a wide variety of forest users and join with county, State, and national highways to connect rural communities and urban centers with NFS lands. Recreation is the single largest use or activity supported by the NFS roads, accounting for approximately 90 percent of the daily traffic. Administrative use (9 percent) and commercial use (1 percent) make up the balance (Coghlan and Sowa 1998).

Some NFS roads are designed and maintained to accommodate low-clearance passenger cars, and others are designed and maintained for high-clearance vehicles such as sport-utility vehicles, pickups, and jeeps (fig. 3-12). Within Idaho, about 7,540 miles, or 22 percent, of NFS roads are maintained for low-clearance passenger cars. Another 13,760 miles, or 41 percent, of NFS roads are designed and maintained for high-clearance vehicles. The remaining 12,510 miles, or 37 percent, are single-use roads (for example, fire access) that are generally closed after their initial use and kept closed between uses.

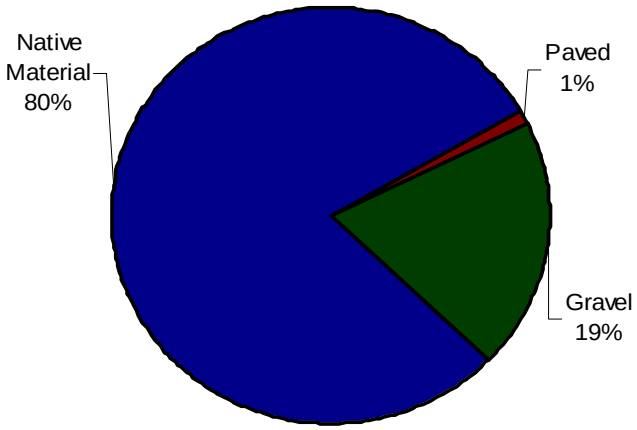


Road design	Miles
Passenger car	7,540
High clearance	13,760
Closed to vehicles	12,510
Total miles [a]	**33,810**

[a] *Does not include unauthorized roads.*

Figure 3-12. Types of vehicle use on NFS roads in Idaho. (USDA Forest Service 2007k)

While the Forest Service manages approximately 410 miles of paved roads in Idaho, most higher standard NFS roads (6,580 miles) have gravel surfaces. About 26,820 miles are surfaced with native, on-site materials. Figure 3-13 displays the percentages of these road surfaces. Many national forest visitors travel single-lane, gravel-surfaced roads that are maintained for low-clearance passenger vehicles. An additional 10,000 miles of road are under the jurisdiction of public road agencies (State, counties) or private parties (adjacent private landowners, mining claimants) on NFS lands in Idaho (USDA Forest Service 2007k).

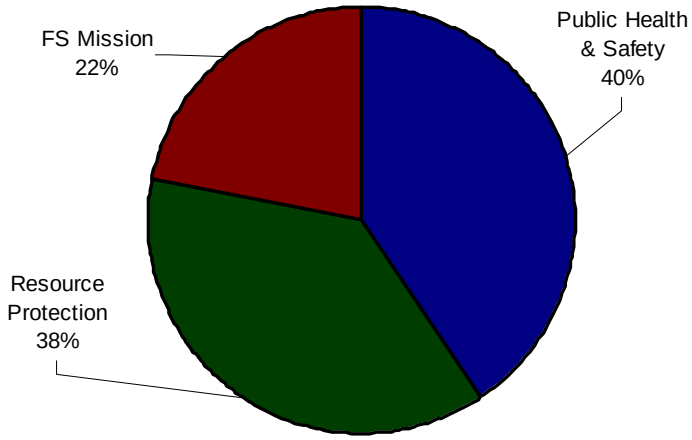


Road surface type	Miles
Paved	410
Gravel	6,580
Native material (dirt)	26,820
Total miles [a]	**33,810**

[a] *Does not include unauthorized roads.*

Figure 3-13. Types of road surface on NFS roads in Idaho. (USDA Forest Service 2007k)

Road maintenance activities are focused on resource protection, public health and safety considerations, and mission-related activities. Figure 3-14 shows the proportions of these annual road maintenance needs for Idaho national forests. Each new mile of NFS road competes for limited road maintenance funding. Annual maintenance on new roads costs, on average, approximately $1,500 per mile. In fiscal year 2006, the Forest Service received less than 20 percent of the estimated funding needed to maintain its existing road infrastructure (Moore 2007).



Annual maintenance requirements	Millions of dollars
Public health and safety	13
Resource protection	12
FS Mission	7
Total	**32**

Figure 3-14. Annual road maintenance needs in Idaho. (USDA Forest Service 2007k)

The criteria used during RARE I and II permitted the presence of some roads in areas that were inventoried for wilderness consideration (USDA Forest Service 2000k). Subsequent roadless area inventories used the same criteria. Today, approximately 2,050 miles of roads currently exist on less than 5 percent of the land area in Idaho Roadless Areas (table 3-16). Some of these roads pre-date the roadless area inventories, while others have been constructed where forest plans permitted development.

Data on roads has been updated between draft and final based on more current inventories from the forests. The more current inventory may include forest roads, other public roads, private roads, and unauthorized roads. The unauthorized roads include but are not limited to "jammer roads," user created routes, and other roads that were never authorized through contract or permit.

Table 3-16. Miles of roads within Idaho Roadless Areas by national forest

Forest	Road miles
Boise	89
Caribou	184
Challis	511
Clearwater	14
Idaho Panhandle	51
Kootenai	3
Nez Perce	12
Payette	62
Salmon/Challis	596
Sawtooth	225
Targhee	279
Wallowa-Whitman	24
Total	**2,050**

Over the past decade and a half, NFS road construction in Idaho has declined by 90 percent, from a high of 1,315 miles in 1991 to 129 miles in 2006. Most of these roads were built to support timber harvest. During the period 1991 to 1999, about 2,660 miles of road were decommissioned each year (USDA Forest Service 2000k). From 2000 to 2006, about 1,560 miles of road were decommissioned each year. More than 13 miles of road are decommissioned for every mile of new road constructed (USDA Forest Service 2006b).

In Idaho, about 50 miles of road were constructed from 2001 to 2006; 260 miles of road were reconstructed; and 1,380 miles of road were decommissioned (fig. 3-15). In Idaho, more than 30 miles of road have been decommissioned over the past 6 years for every mile of new road constructed (USDA Forest Service 2006b).

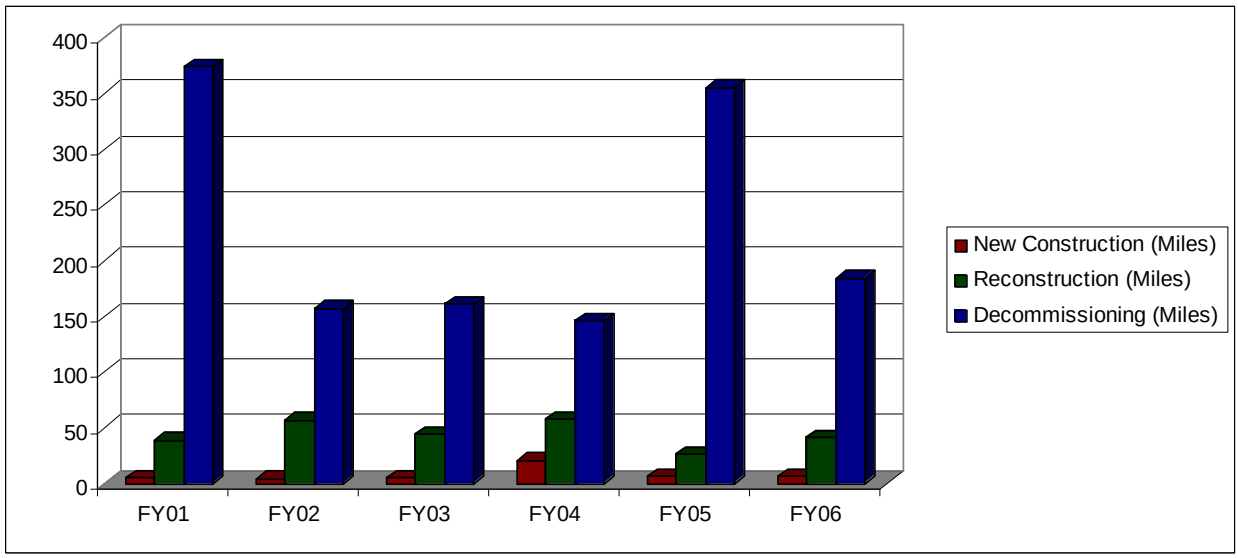


Figure 3-15. Miles of road constructed, reconstructed, and decommissioned in Idaho 2001–2006

ENVIRONMENTAL CONSEQUENCES

Roads can have both beneficial and negative effects. Beneficial effects include providing a more developed form of access for such multiple uses as timber harvest, grazing, mining, fire suppression, forest management, ecosystem restoration, research, monitoring, recreation, subsistence uses, emergency rescue, and to meet other access needs; providing easier access to private lands within and adjacent to NFS lands; and providing historical and cultural value. Non-access-related benefits include providing edge habitat and firebreaks. Properly constructed or reconstructed roads can mitigate negative effects of past roading on water quality and riparian habitats (USDA Forest Service 2000k).

Roads have known undesired and negative effects, including impacts on hydrology and geomorphic features such as debris slides; sedimentation; human-caused fire ignitions; habitat fragmentation; predation and wildlife mortality; invasion by exotic species; dispersal of pathogens; chemical contamination; and effects on some recreational experiences, water quality, soil productivity, and biodiversity (USDA Forest Service 2000r).

Specific effects of road construction and reconstruction on individual resources are discussed later in this chapter. A key underlying assumption to all effects analyses are that road impacts are proportional to the miles of construction and reconstruction. Therefore, this analysis displays differences in road construction and reconstruction among alternatives.[49]

[49] Neither the Proposed or Modified Rules identify what existing roads in Idaho Roadless Areas are needed or unneeded and no alternatives would change current levels of roaded access; therefore, this EIS does not analyze these elements. In 2001, the Agency approved the Roads Policy (36 CFR §212), which provides the Forest Service direction about its transportation system. The Roads Policy gives managers a scientific process to inform their decision-making about what roads are needed and unneeded. In 2005, the Agency published a new travel management rule governing motor vehicle use on national forests and grasslands (USDA Forest Service 2005b). The Travel Management Policy requires each unit to designate roads, trails, and areas as open (or closed) to motor vehicle use by class of vehicle, and if appropriate, by time of year. No wheeled motorized use would be permitted unless it occurs on a designated route or area. Travel management decisions are made under separate travel planning processes and are ongoing

All Alternatives

Road construction / reconstruction likely would not see an increase in the foreseeable future (next 15 years) because the appropriated road budget is flat or declining and there is no indication this trend will change. In addition, there is a backlog of road maintenance; therefore, there is no emphasis on constructing new roads that need to be maintained. If roads need to be constructed they would likely be temporary. Table 3-17 presents the yearly average miles of projected road construction and reconstruction by alternative.

Road Maintenance. None of the alternatives would restrict or limit road maintenance. In general, those activities needed to maintain a road's current design standard, maintenance level, or traffic service level would be permitted. Maintenance activities needed to meet new environmental or safety requirements resulting from law, regulation, or policy would also be permitted. However, if it were desirable to make that road two-lane, and pave it to accommodate an increased need for access, those improvements may not be allowed because such changes would constitute reconstruction, which may be prohibited depending on the alternative.

Road Decommissioning. None of the alternatives would restrict or limit road decommissioning. Road decommissioning is limited by available funding tied to timber harvest levels (timber sale contracts and stewardship contracts can help fund decommissioning) and would likely continue at recent historical trends. Any temporary roads constructed would be decommissioned after use.

Table 3-17. Miles of projected road construction/reconstruction by alternative, yearly average

	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Permanent–other	0.8	0.8	0.8	0.8
Temporary–other	0.2	0.2	0.2	0.2
Reconstruction–other	0.0	0.0	0.0	0.0
Total	1.0	1.0	1.0	1.0
Permanent–timber	0	4.0	0.0	0.0
Temporary–timber	0	2.0	1.5	1.2
Reconstruction–timber	0	5.0	1.5	1.1
Total	0	11.0	3.0	2.3
Grand totals	1.0	12.0	4.0	3.3
Permanent–total	0.8	4.8	0.8	0.8
Temporary–total	0.2	2.2	1.7	1.4
Reconstruction–total	0.0	5.0	1.5	1.1
Decommissioning [a]	1.0	3.2	2.7	2.4

[a] *Decommissioned miles for Existing Plans and the Proposed and Modified Idaho Roadless Rules are assumed to sum the annual construction rate for temporary roads, plus the projected rate for the 2001 Roadless Rule.*

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for all Idaho national forests. Definitions of common terminology were coordinated between Forest Service policy efforts for the 2001 Road Policy, 2008 Planning Regulations, and the 2001 Roadless Rule. However, as a result of the 2005 Travel Management Policy, the terms "unclassified road" and "classified road" are no longer being used. Updated definitions are found in the 2005 Travel Management Policy (36 CFR 212.1) and the glossary.

2001 Roadless Rule (no Action)

Under the 2001 Roadless Rule, no roads would be constructed or reconstructed in support of timber cutting because that action is prohibited (table 3-17). Road construction / reconstruction is permissible for seven exceptions, primarily in relation to health and safety; for reserved or outstanding rights; or to prevent irreparable resource damage. Based on past trends and future planned actions, about 1 mile of road per year is projected to be constructed under the 2001 Roadless Rule. Over a 15-year period, about 15 miles of road are projected to be constructed, of which 12 miles would likely be permanent and 3 miles temporary. Any roads constructed or reconstructed because of the exceptions are subject to other laws, regulations, and policies governing these activities. In general, road construction or reconstruction done under one of the exceptions would be the minimum needed to meet the required short-term access need, if possible, and would be designed to minimize and mitigate impacts on the roadless character.

Prohibiting new roads for timber cutting would prevent any construction activities that would result in adding road miles in roadless areas. The prohibition on reconstruction would prevent any construction activities associated with timber harvest that would result in improving or relocating an existing road in a roadless area.

Existing Plans

Under Existing Plans, road construction / reconstruction is prohibited in management prescriptions similar to the Wild Land Recreation and Primitive themes and in forest plan special areas. Road construction / reconstruction is permitted in certain situations in management prescriptions similar to the Backcountry theme and is permitted in the GFRG theme (appendix B).

Under Existing Plans about 12 miles of roads (including forest roads, public roads not under Forest Service jurisdiction, private roads, and temporary roads) per year are projected to be constructed or reconstructed under various authorities in Idaho Roadless Areas (table 3-17). Almost 90 percent of these roads would be constructed / reconstructed in support of timber cutting. Based on the average annual projections, about 180 miles of road would be constructed or reconstructed over the next 15 years under some kind of authorization. Of the 180 miles, about 72 miles of road construction would be permanent, 33 miles temporary, and 75 miles would be reconstructed. Most of the planned timber-related roads are single-purpose roads closed to traffic between uses or are short-term (temporary) roads that would be decommissioned. Temporary roads would typically be decommissioned within 1 year after use (see appendix O).

Closing or decommissioning roads after use would reduce the long-term effects on the environment and roadless character. On the other hand, although temporary road construction must comply with law, regulation, and policy, in general temporary roads are not designed or constructed to the same standards as permanent roads and are not intended to be part of the NFS transportation system. The result can be a higher risk of environmental impacts over the short run. The effects of road construction and reconstruction are described for the alternatives for each resource elsewhere in this chapter.

Proposed Idaho Roadless Rule (Proposed Action)

In the Wild Land Recreation, Primitive, and Special Areas of Historic and Tribal Significance (SAHTS) themes, road construction / reconstruction would be prohibited, except when

provided for by statue or treaty or when needed pursuant to reserved or outstanding rights or other legal duty of the United States[50]. In the Backcountry theme, the Proposed Rule would permit road construction / reconstruction under several exceptions. In the GFRG theme, road construction / reconstruction is permissible.

Based on these themes, and on historical and planned levels of road construction and reconstruction, about 4 miles of road (including forest roads, public roads not under Forest Service jurisdiction, private roads, and temporary roads) per year are projected to be constructed or reconstructed annually (table 3-17). Almost 75 percent of these roads would be constructed / reconstructed in support of timber cutting. Based on the average annual projections, about 61 miles of road would be constructed or reconstructed over the next 15 years under some kind of authorization. About 12 miles of road construction would be permanent and 26 miles temporary. An additional 23 miles would be reconstructed.

The Proposed Rule would permit road construction / reconstruction in the Backcountry and GFRG themes to provide road access for phosphate exploration and development. The projection of 1 mile per year of road construction / reconstruction for other uses includes roads constructed to access existing phosphate leases (table 3-17). Phosphate exploration and development has been ongoing in Idaho Roadless Areas, and several areas are currently under lease (section 3.5, Minerals and Energy).

The Proposed Rule would also permit road construction / reconstruction in the GFRG theme for any mineral or energy development. Only oil and gas and geothermal exploration are likely to occur in Idaho Roadless Areas (see section 3.5, Minerals and Energy). Oil and gas are found only on the Caribou-Targhee National Forest and may be developed on the Caribou portion of the forest (section 3.5, Minerals and Energy). The Caribou is undergoing a leasing analysis that predicts four exploration wells could be drilled over the next 15 years. Six miles of road are anticipated to be needed to access these wells. The projection does not account for this road access because it is unknown if the wells would be located in GFRG within an Idaho Roadless Area.

The projection also does not account for geothermal energy development because at this time there is no trend information to reasonably predict a surge in geothermal activity. The assumption is that geothermal development would first take place where roads are already developed, generally outside Idaho Roadless Areas because of the reduced cost of development. It is probable that sometime in the future geothermal development in Idaho Roadless Areas may become economical. If and when this happens, the road development required to develop geothermal wells could be greater than the road construction / reconstruction projections based on past and current trends.

Under the Proposed Rule, new roads that are constructed outside of GFRG must be temporary unless the responsible official determines that a permanent road meets the exceptions. Roads constructed for discretionary mineral activities must be conducted in a manner that minimizes effects on surface resources, and complies with all applicable lease requirements, applicable forest plan direction, regulations, and laws. Roads constructed or reconstructed must be decommissioned when they are no longer needed or when the lease, contract, or permit expires, whichever is sooner.

[50] Other legal duty refers to obligations with other laws and regulations not expressly mentioned.

Modified Idaho Roadless Rule (Preferred Alternative)

In the Wild Land Recreation, Primitive, and SAHTS themes, road construction / reconstruction would be prohibited, except when provided for by statue or treaty or when needed pursuant to reserved or outstanding rights or other legal duty of the United States.

In the Backcountry theme, the Proposed Rule was modified to: (1) permit road construction / reconstruction under the same seven exceptions as the 2001 Roadless Rule; (2) prohibit road construction / reconstruction to access new mineral leases; and (3) to constrain where roads could be constructed / reconstructed to facilitate timber cutting.

Under the Modified Rule, only temporary roads could be constructed to facilitate timber cutting within the community protection zones, or to facilitate timber cutting done to reduce the significant risk of wildland fire effects to at-risk communities and municipal water supply systems. Under the Modified Rule, new roads that are constructed to facilitate timber harvest in the Backcountry theme must be temporary and must be decommissioned when no longer needed, or upon expiration of the contract, and the provision to decommission may not be waived (see appendix O) for more information on temporary roads and road decommissioning). Temporary road construction would be conducted in a manner that minimizes effects on surface resources, and may only be used for the specified purpose.

Road construction / reconstruction to access new mineral leases in the Backcountry and GFRG themes was also modified for this alternative. Road construction / reconstruction would be prohibited to access new mineral leases in the Backcountry theme. In the GFRG theme road construction / reconstruction is permissible only to access the 5,770 acres of unleased phosphate deposits in specific locations (plus additional unknown deposits adjacent to these areas – see fig. 3-20, section 3.5 Minerals and Energy); and would be prohibited to access oil and gas, geothermal development or salable mineral materials[51].

The Modified Rule would permit road construction / reconstruction in the GFRG themes to provide road access for phosphate exploration and development. The projection of 1 mile per year of road construction / reconstruction for other uses includes roads constructed to access existing phosphate leases (table 3-17). Phosphate exploration and development has been ongoing in Idaho Roadless Areas, and several areas are currently under lease (section 3.5, Minerals and Energy).

Based on these themes, and on historical and planned levels of road construction and reconstruction, about 3.3 miles of road (including forest roads, public roads not under Forest Service jurisdiction, private roads, and temporary roads) per year are projected to be constructed or reconstructed annually (table 3-17). Almost 75 percent of these roads would be constructed / reconstructed in support of timber cutting. Based on the average annual projections, about 50 miles of road would be constructed or reconstructed over the next 15 years under some kind of authorization. About 12 miles of road construction would be permanent and 21 miles temporary. An additional 17 miles would be reconstructed.

[51] The Forest Service may authorize the use or sale of common variety mineral materials and associated road construction / reconstruction only if the use of these mineral materials is incidental to a permitted activity.

CUMULATIVE EFFECTS

During scoping the public expressed concerned about the cumulative effects of the prohibitions and permissions of road construction / reconstruction and how they may affect future access in combination with the 2001 Roads Policy and the 2005 Travel Management Policy. None of the alternatives include management direction regarding access management. The 2001 Roads Policy is an analysis process that provides information to inform the Agency of what roads are needed and what roads may no longer be needed. The decision to keep or decommission roads is made at a later time, either through project planning or other planning efforts.

The 2005 Travel Management Policy directs the Agency to designate which roads, trails, and areas will be open to motorized travel. All Idaho national forests are going through travel planning activities, including a separate public involvement process, as well as NEPA. The prohibitions in the three alternatives may limit the amount of new construction, thereby limiting any new access to roadless areas. However, based on past experience, there have been few roads constructed in roadless areas, and those roads that have been constructed have generally been closed to motorized travel once the activity was completed. That trend likely will not change because of budgets and other priority work. None of the alternatives would have a measurable impact on access to NFS lands or on rural highway access when considered on a State or national scale because: (1) they do not include access decisions and (2) new road construction is projected to be minimal in the foreseeable future.

Approximately 33,800 miles NFS roads were constructed in the State of Idaho primarily to support timber harvest on NFS lands, and the miles of roads constructed have declined as the timber program has declined. Idaho national forests decommissioned 29 miles of road for every 1 mile of new road construction during the years of 2001 to 2006. Based on foreseeable projections of road construction / reconstruction and decommissioning, it is likely that there would be no net increase in roads under any alternative except Existing Plans.

However, in the long term, the Modified Rule when taken in combination with other national policies and regional planning efforts could result in fewer roads on NFS lands and more acres being managed for their roadless character. Neither would happen as a direct result of implementing this rule.

3.5 Minerals and Energy Resources

Changes Between Draft and Final

All Sections

- Added discussion of new alternative, Modified Idaho Roadless Rule.

Leaseable Minerals

Oil and gas.

- Updated information on potential for development.

Geothermal.

- Updated acreage associated with management themes base on correction to data – appendix E.

Phosphate.

- Added discussion about total amount of phosphate deposits in Idaho.
- Updated number of acres leased and unleased based on further review of (Bureau of Land Management (BLM) records.
- Updated information regarding Smoky Canyon Mine.

Abandoned and Inactive Mines

- Added discussion on "orphaned" mines.
- Added discussion on phosphate mines and Comprehensive Environmental Response, Compensation, and Liability Act) CERCLA sites.

Other

- Added sections on wind energy and wood biomass.

Introduction

A wide variety of mineral and energy resources occur in Idaho Roadless Areas. Mineral resources may be classified into three categories: locatable minerals, leasable minerals, and saleable minerals. The analysis evaluates how each alternative may affect the ability to access and recover mineral resources and provides a foundation for the analysis provided in other resource sections.

Locatable minerals are generally metals (such as gold and silver) but also include rare earth elements such as uranium and special uncommon varieties of sand, stone, gravel, pumice, pumicite, and cinders. Development of such minerals is subject to the General Mining Law of 1872.

Leasable minerals are those minerals that can be explored for and developed under one of several Federal mineral leasing acts. Leasable minerals in Idaho include energy mineral resources such as oil, gas, and geothermal, as well as non-energy minerals such as phosphate.

Moreover, for lands acquired or administered under the Weeks Act (PL 61-435) and the Bankhead-Jones Act (PL 75-210), the 1872 Mining Law does not apply and deposits of otherwise locatable minerals such as gold and garnet are leasable.

Although it varies by commodity, surface use associated with the exploration and development of leasable minerals generally requires excavation pits, facilities, power lines, pipelines, communication sites, and associated transportation systems. Efficient exploration and development of leasable minerals is generally not possible without the ability to build roads. In the case of oil, gas, and geothermal resources, the industry has the capability to avoid disturbing sensitive surface resources by using directional drilling techniques. However, directional drilling is unlikely to be widely used in Idaho because of economic and technological limitations such as unknown resource potential and complex geology.

The Government's decision regarding whether to lease leasable mineral resources is discretionary, meaning that leasing may or may not be allowed. Once issued, a lease then becomes an irretrievable commitment of the resource; the lease cannot be cancelled by the Government except by due process when the lessee does not meet the terms and conditions of the lease. The BLM has the exclusive authority to dispose of leasable mineral resources on National Forest System (NFS) lands. However, BLM may not lease oil, gas, or geothermal resources on NFS lands over the objections of the Forest Service. In the case of phosphate, BLM must seek Forest Service recommendations for measures to protect surface resources, but may lease without Forest Service consent. A Federal lease conveys to the holder the right to explore and develop the leased commodity subject to lease terms, stipulations, and applicable regulations.

Saleable minerals are common varieties of sand, stone, gravel, soil, and clay. Generally, they are widespread and of low value, used primarily for construction or landscaping materials. Their value depends on market factors, quality of the material, and availability of transportation. Disposal of these resources is at the sole discretion of the Forest Service and is subject to the provisions of 36 CFR 228, subpart C. Under these regulations, the Forest Service may either: (1) sell material for commercial use or for personal use by the public; (2) allow free use of material for personal use in limited quantities or for public projects by other Federal agencies or State and local governments; or (3) use material itself for Agency projects on NFS lands. The regulations also require that disturbance associated with mineral material sites is approved by the Forest Service in an operating plan that includes provisions to protect the environment and reclaim the surface in a timely manner.

Other areas discussed in this section include abandoned and inactive mines, geological and paleontological resources, energy corridors, and wood biomass.

Locatable Minerals: Affected Environment

Valuable deposits of locatable mineral resources potentially exist in Idaho Roadless Areas. Of the 281 roadless areas, 102 contain an estimated 2,085 active mining claims. The number of claims within Idaho Roadless Areas constantly changes as new claims are staked and others are allowed to lapse by the claimholders.

LOCATABLE MINERALS: ENVIRONMENTAL CONSEQUENCES

All Alternatives

In the long term, it is reasonable to assume that future exploration, mining, and mineral processing activities would continue to occur in Idaho Roadless Areas where valuable deposits exist. While it is not possible to accurately predict where and when development would occur, the existence of active mining claims within a given roadless area is one indicator of where there is both potential for a valuable mineral deposit and for future mineral-related activity. When necessary, construction or reconstruction of roads for locatable mineral exploration or development is part of the reasonable right of access provided under the General Mining Law. Therefore, none of the alternatives would affect rights of reasonable access to prospect and explore lands open to mineral entry and to develop valid claims.

All proposals for locatable mineral exploration or development are subject to the planning and design requirements governing locatable minerals in 36 CFR 228, subpart A, and the appropriate level of environmental analysis. The plan of operations would be approved subject to modifications identified in the environmental analysis and would be binding on the operator.

Under all alternatives, an estimated average of 1 mile or less per year of road construction or reconstruction is projected to occur in Idaho Roadless Areas during the next 15 years for all non-timber-related activities, including mineral activities, such as access to locatable minerals and exploration within existing lease areas (see section 3.1, Introduction, Assumptions and Projections). It is anticipated that should the rise in the price of metals continue, there would be a corresponding increase in exploration activity on mining claims resulting in an increase in road construction or reconstruction within Idaho Roadless Areas.

LEASABLE MINERALS: AFFECTED ENVIRONMENT

Coal

Currently there are no existing leases or pending lease applications on NFS lands in Idaho, and no demonstrated industry interest. Consequently, no foreseeable activity (that is, in the next 15 years) is anticipated for exploration or development of coal reserves; therefore, coal will not be discussed further.

Oil and Gas

Since 1903, about 145 wells have been drilled throughout Idaho to explore for oil and gas, but not one has yet yielded a commercial discovery. With no commercial discovery, all but one of the oil and gas leases on NFS lands in Idaho have expired. The only active oil and gas lease on NFS lands in Idaho is located in the Bear Creek Roadless Area of the Caribou-Targhee National Forest. An additional burden on development potential of oil and gas on Idaho forests is the lack of an infrastructure on or near NFS lands to accommodate getting the product to market. Any oil and gas discovery would have to be substantial to justify the expense of having to either construct a lengthy pipeline or a truck a long distance.

Presently, the potential for occurrence of oil and gas is unknown to low in all Idaho national forests, with the exception of the Caribou-Targhee National Forest. While there is potential for occurrence on this forest, the potential for development is much less certain. This is evident in a 2003 U.S. Geological Surveys assessment of undiscovered oil and gas resources within the

Wyoming Thrust province (Kirschbaum 2003). This assessment made an allocation of the potential for undiscovered oil and gas reserves for individual States within the province. Idaho, which made up 38.4 percent of the province area, was allocated none of the undiscovered oil resources, and 1 percent of the undiscovered gas resources.

In light of higher energy prices, oil and gas interest in the vicinity of the Caribou National Forest has increased. In addition to a number of leases having recently been issued on BLM and State lands adjacent to the national forest, an exploratory well was started on private land near Grays Lake in fall 2007 within 2 miles of the forest. Information on the results of this drilling is not yet available. In 2005, more than 200,000 acres of land on the Caribou-Targhee National Forest were nominated by the industry for oil and gas leasing. In response, the forest initiated a leasing analysis for both the national forest and the Curlew National Grasslands. The draft reasonably foreseeable development scenario being prepared for the EIS process predicts four exploratory wells would be drilled on the Caribou over the next 15 years (Robison 2007). For analysis purposes in the EIS, each well is assumed to require 6 miles of new roads to access the well pads. It is anticipated—based on the geology, the historical level and success rate of drilling activity, the near lack of infrastructure to support oil or gas development, and the lack of any historical or currently producing oil/gas wells/fields in southeast Idaho and surrounding area—that none of the four wells drilled would be capable of economic commercial production (Robison 2007).

The forest supervisor of the Targhee National Forest issued an oil and gas leasing decision in 2000 (Reese 2000). The decision made much of the forest either unavailable for leasing or available for leasing with a no surface occupancy (NSO) lease stipulation. The large expanse of the designated NSO areas renders them virtually impossible to economically explore and develop. Directional drilling could be used to explore portions of NSO leased lands adjacent to areas where surface occupancy may be allowed. However, it is not expected that the industry would incur the extra expense of directional drilling without the promise of the full economic enjoyment of the entire lease area. This is particularly true in relatively unexplored areas such as Idaho Roadless Areas, where the complex geology and lack of known commercial production greatly increase the financial risk of drilling. Although the Targhee portion of the Caribou-Targhee National Forest hosts the only Federal oil and gas lease on NFS lands in Idaho, no wells have been drilled in the national forest since the leasing decision.

Geothermal

Geothermal resources are underground reservoirs of hot water or steam created by heat from the earth. Geothermal is considered a “clean” energy source because it does not produce any greenhouse gases. Geothermal steam and hot water can reach the surface of the earth in the form of hot springs, geysers, mud pots, or steam vents. These resources also can be accessed by wells, and the heat energy can be used for generating electricity or other “direct uses,” such as dehydrating vegetables or heating greenhouses, homes, commercial buildings, and aquaculture operations. Direct uses of geothermal energy do not require the intermediate to high temperatures required for power generation.

The full extent of Idaho’s geothermal resource potential has yet to be discovered. Idaho has only recently (in 2006) experienced the construction start of its first commercial geothermal power facility on private land at Raft River. In addition to this single electrical-generating facility, Idaho also hosts 73 operating direct-use facilities at more than 40 separate resource areas in the

State. This relatively limited geothermal development throughout the State has been attributed to years of low-cost hydroelectric power (Fleischmann 2006).

The Geothermal Task Force of the Western Governor's Association estimated that Idaho has 855 megawatts (MW) of near-term economic potential resources (that is, by 2015) and 1,670 MW of long-term potential (by 2025). A megawatt is enough energy to power 300 houses. This report gives 305 MW at six identified sites and 550 MW at "other Idaho sites" that are not named in the reports. One of the six identified sites is on the Salmon National Forest and is projected to have a near-term resource capacity of 10 MW. Other than the resource estimate for the single site in the Salmon National Forest, there is no overall estimate of geothermal resource capacity of Idaho's national forests or Idaho Roadless Areas (Geothermal Task Force 2006).

Historically, there was interest in geothermal leasing on national forests in Idaho in the late 1970s and early 1980s. Areas of interest included the Island Park area of the Targhee National Forest, Vulcan Hot Springs in the Boise National Forest, and Big Creek Hot Springs in the Salmon National Forest. Although some NFS lands in Idaho were leased for geothermal, the leases were never developed and eventually expired. Presently, there are no geothermal leases on NFS lands in Idaho.

Higher energy prices and new legislative incentives contained in the 2005 Energy Policy Act have renewed interest in geothermal leasing. In August 2005, Ormat Nevada Incorporated (Ormat), an active company in the geothermal power industry, filed six geothermal lease applications for 11,130 acres in the Boise National Forest, which includes 7,000 acres of the Peace Rock Roadless Area. Ormat also filed another three geothermal lease applications for 5,600 acres in the Salmon National Forest, which includes about 33 acres of the West Panther Creek Roadless Area.

The BLM and Forest Service have initiated a national programmatic EIS for geothermal development to assist in geothermal leasing and permitting on BLM public lands and NFS lands. The draft programmatic EIS was released in May 2008 (USDI Bureau of Land Management 2008). When completed, the EIS would help the Forest Service decide whether or not to allow the BLM to lease lands with medium to high geothermal potential, including the lands contained in the Boise and the Salmon-Challis National Forest applications. None of the Idaho forests have a current leasing decision for geothermal resources (U.S. Department of Energy [USDE], USDI Bureau of Land Management, and USDA Forest Service 2005).

A regional geothermal resource assessment produced by the Southern Methodist University (SMU) Geothermal Heat Laboratory (Southern Methodist University 2004) was used in this analysis to identify the geothermal resource potential of Idaho Roadless Areas. This 2002 assessment was used because it is broad enough to provide coverage for all of Idaho. The SMU report produced a qualitative composite of information on heat flow, thermal gradient, sediment thickness, and hot springs. Based on these variables, the assessment produced digital map coverage of broad areas of geothermal resources and rated these resources as having high, medium, or low development potential. The SMU assessment does not include information on specifically where, what kind, or how much actual geothermal development would occur within these areas. Figure 3-16 shows the extent of the high, medium, and low areas of geothermal potential in Idaho. The SMU map is probably an optimistic projection of Idaho's geothermal potential because it is based on a qualitative composite, covering broad expanses of land.

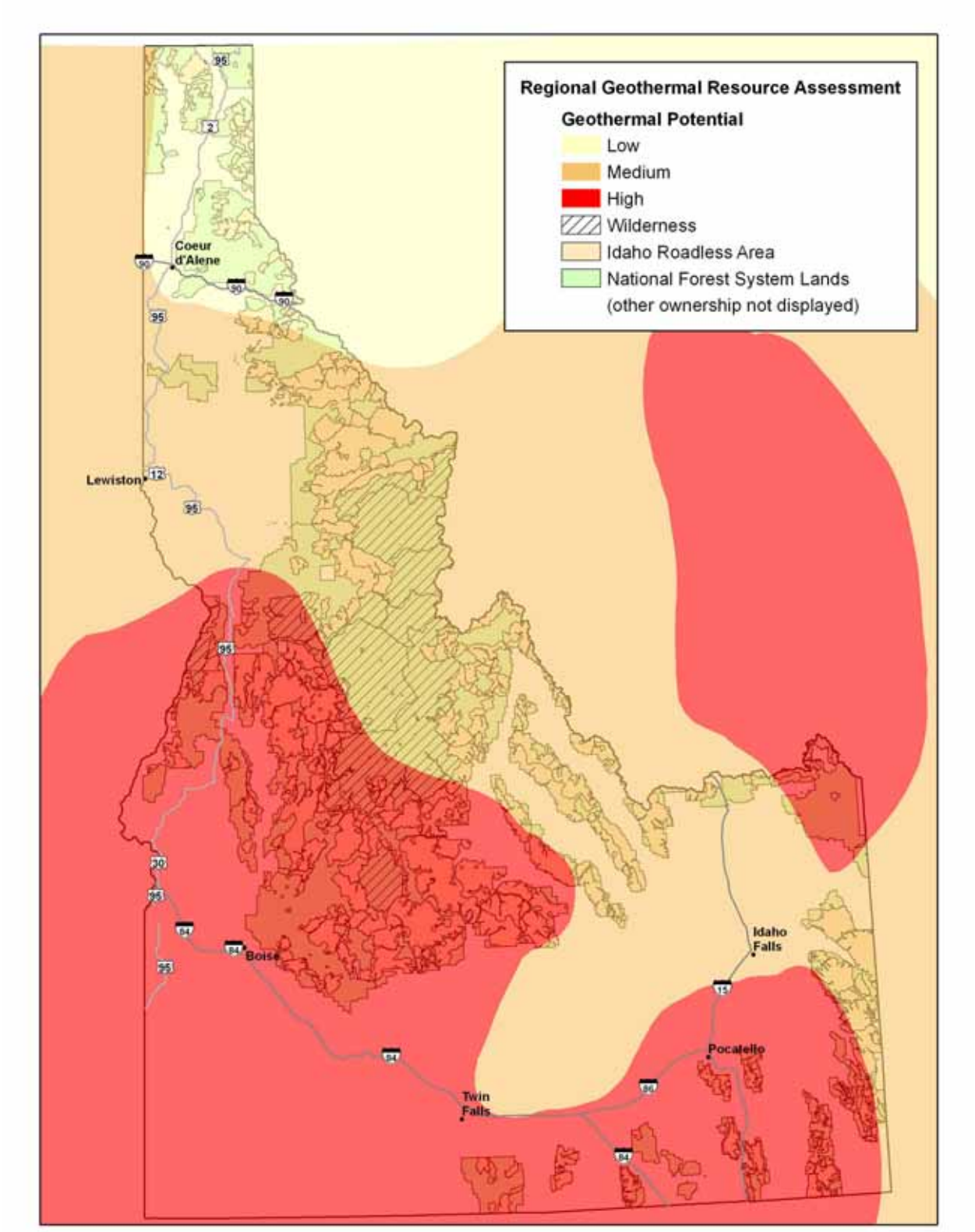

Figure 3-16. Overlap of Idaho Roadless Areas and geothermal potential

Another estimate of Idaho's geothermal potential can be found on the Idaho Department of Water Resources website at www.idahogeothermal.org. Other maps can be viewed at www.eere.energy.gov/geothermal/geomap.html and www.smu.edu/geothermal/2004NAMap/2004NAmap.htm. Although these maps are helpful in identifying where there is geothermal potential, there has not been any history of geothermal activities on NFS lands to predict specifically where, what kind, or how much actual geothermal development would occur within the areas of potential. Table 3-18 summarizes the acreage of geothermal potential from the SMU report for both Idaho Roadless Areas and non-roadless area NFS lands in Idaho.

Table 3-18. Acreage of geothermal resource potential on NFS lands in Idaho

Geothermal resource potential	High	Medium	Low	Total
Inside Idaho Roadless Areas	4,837,400	3,961,500	505,500	9,304,400
Outside Idaho Roadless Areas	5,370,800	5,389,200	1,436,300	12,196,300
Total NFS lands	10,208,200	9,350,700	1,941,800	21,500,700

Phosphate

The Caribou-Targhee National Forest contains significant deposits of economically recoverable phosphate that is used in the production of fertilizers, animal feed, and elemental phosphorus. Idaho phosphate production is a significant national resource. Phosphate production from the three active Idaho mines and one active mine in Utah represented about 15 percent of total U.S. marketable production in 2007 (USGS 2008). Royalty revenues from phosphate-related activity in Caribou County, Idaho, on Federal leases for fiscal year 2007 were almost $2.3 million (USDI Minerals Management Service 2007). FY2007 royalties in Idaho are down from previous years because a significant amount of production was produced from State and private land.

From 1960 through the 1980s, the U.S. Geological Survey designated 80,170 acres of land in Southeastern Idaho as known phosphate lease areas (KPLAs). KPLA land contains identified economic or marginally economic phosphate deposits. Economic extraction of the phosphate from a KPLA is currently or potentially feasible. Federal phosphate deposits within a KPLA are subject to competitive leasing. The Caribou-Targhee National Forest contains 47,210 acres, or 59 percent, of KPLA lands in the State. Table 3-19 shows the breakdown of KPLA on the Forest.

Table 3-19. Acreage of KPLA on NFS lands in Idaho

KPLA	Outside Idaho Roadless Areas	Inside Idaho Roadless Areas
Leased	17,640	5,990
Unleased	9,120	14,460
Total	26,760	20,450
Already mined out	4,920	30

The Targhee portion of the Caribou-Targhee National Forest currently has three active phosphate leases issued in the mid-1950s, totaling 1,690 leased acres. Of this leased acreage, about 1,090 acres are within the Mt. Jefferson Roadless Area. Some mining occurred shortly thereafter on leased portions outside and adjacent to the roadless area. There has been no phosphate activity in the area since that time and none is expected in the foreseeable future.

Currently, the Caribou portion of the Caribou-Targhee National Forest has 49 active phosphate leases affecting 22,000 acres[52] of NFS lands. Of these active leases, approximately 6,140 acres are within six roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek) (table 3-20 and fig. 3-17). Almost all the leased lands in roadless areas (6,100 acres) have yet to be mined. All the leased lands within roadless areas were issued prior to the effective date of the 2001 Roadless Rule. It is a common occurrence for existing leases to be modified to prevent the bypass or waste of mineable phosphate reserves that become evident as mining advances.

Table 3-20. Idaho Roadless Areas potentially affected by phosphate mining (acres rounded to nearest 10th)

Forest	Idaho Roadless Area	Acres under existing lease (leased acres w/in a KPLA)[1]	Percentage affected by existing leases	Unleased KPLA acres[2]	Percentage affected by potential KPLA future leases	KPLA location
Caribou	Dry Ridge	1,400 (1,350)	7	780	4	Eastern edge
Caribou	Huckleberry Basin	2,090 (2,080)	13	2,120	13	Northwest edge
Caribou	Meade Peak	550 (550)	1	2,470	6	Northeast edge
Caribou	Sage Creek	1,900 (1,850)	22	2,080[3]	24	Southern portion
Caribou	Schmid Peak	40 (40)	<1	20	<1	Eastern edge
Caribou	Stump Creek	160 (120)	<1	120	<1	Southern edge
Caribou Totals		**6,140 (5,990)**	**- -**	**7,590**	**- -**	**- -**
Targhee	Bald Mountain	0 (0)	0	1,430	9	Northeast edge
Targhee	Bear Creek	0 (0)	0	5,060	5	Northeast edge
Targhee	Poker Peak	0 (0)	0	380	2	Northeast edge
Targhee	Mount Jefferson	1,090 (0)	2	0	0	- -
Targhee Totals		**1,090 (0)**	**- -**	**6,870**	**- -**	**- -**
Forest Totals		**7,230 (5,990)**	**- -**	**14,460**	**- -**	**- -**

[1] *Not all existing lease acres are within a KPLA (known phosphate lease area).*

[2] *Estimated acres do not include ½-mile buffer added to the Caribou's KPLAs to allow for additional facilities needed for exploration and/or mine operations if lease is approved.*

[3] *840 acres in Sage Creek roadless area were recommended to not be leased per 1998 analysis. An additional 200 acres may also be withheld from leasing unless industry can demonstrate that selenium concerns can be addressed.*

[52] This acreage is based on GIS which is different than the lease total shown in BLMs LR2000 database.

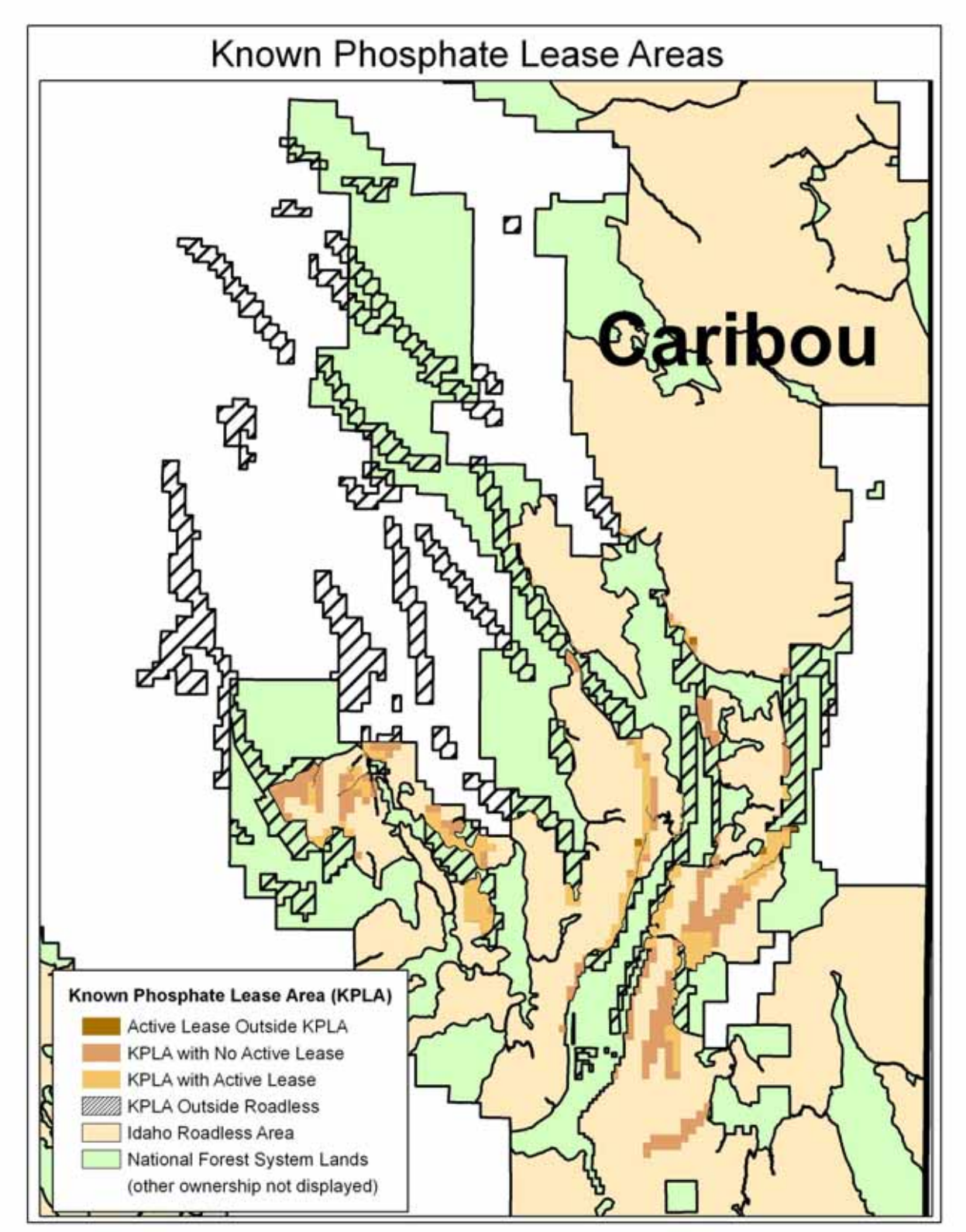

Figure 3-17. Overlap of Idaho Roadless Areas and existing phosphate leases and known unleased phosphate deposits on the Caribou portion of the Caribou-Targhee National Forest.

In addition, 14,460 acres of phosphate deposits within Idaho Roadless Areas are unleased and are located within known phosphate lease areas (KPLAs) (fig. 3-17). Table 3-20 summarizes the acreage of KPLAs within roadless areas on the Caribou-Targhee National Forest. The phosphate deposits generally exist on the edges of the roadless area, which would leave the core of the roadless area intact should mining occur. Of the 14,460 acres of KPLA, 840 of KPLA in the Sage Creek Roadless Area would not be available for development because of a previous decision which recommends no leasing within the Deer Creek watershed (USDA Forest Service 1998).

Phosphate is currently being surface mined from two mines located on the Caribou portion of the forest, the Dry Valley Mine and the Smoky Canyon Mine. Operations at a third surface mine on the Caribou, the North Rasmussen Ridge Mine, have been temporarily suspended but are expected to resume within the next 3 years. The Dry Valley Mine and the North Rasmussen Ridge Mine are not operating near roadless areas and would not be affecting roadless areas for the foreseeable future (J. Cundick, pers. comm., 2007). The Smoky Canyon Mine currently is not operating within a roadless area, but is projected to advance its mining operations to leased lands within the Sage Creek and Meade Peak roadless areas within the next 15 years. There are currently no other proposed mine plans involving national forest system lands. While exploration and mine permitting processes may be initiated within other roadless areas, for analysis purposes it will be assumed the Smoky Canyon Mine will be the only operating phosphate mine within roadless areas in the foreseeable future.

An EIS has been completed for a proposed expansion of the Smoky Canyon Mine (USDI BLM and USDA Forest Service 2007). The Smoky Canyon expansion proposes to mine about 2 million tons of phosphate ore per year from 2,080 acres of leased lands, which includes 520 acres of lease modifications. The proposed mine plan expansion would disturb a total of 1,340 acres, which includes 1,040 acres of surface in the Sage Creek Roadless Area and 60 acres in the Meade Peak Roadless Area. About 320 acres of the total surface disturbance within the roadless areas is proposed to occur off of existing lease holdings or on proposed lease modifications.[53]

Over the 16-year life of the project, the Smoky Canyon Mine expansion would construct about 8 miles of main haul road, which includes 4.4 miles within the roadless areas, disturbing about 120 acres. With an operating width of 100 feet, main haul roads require an overall disturbance with of 100 to 500 feet, depending on terrain. In addition to the main haul road, 980 acres of disturbance would occur with the two affected roadless areas as the surface mine, soil, and overburden storage piles, settling ponds, ditches, and power lines are developed.

As the surface mine advances, it follows the long, linear surface outcrop pattern of the phosphate deposits. Fully developed, the active pit area would be several hundred feet wide and 200–400 feet deep (fig. 3-18). The mining operation continues along the trend of the deposit, backfilling and reclaiming the pit as the ore is removed (fig. 3-19). Due to an increase in volume as it is removed, some overburden cannot be returned as pit backfill and remains in external storage areas. The mine would be a 24-hours-per-day operation as the overburden and ore are drilled, blasted, loaded, and hauled using a shovel-and-truck fleet. All surface disturbances would be reclaimed after the project is completed with the exception of about 70 acres (steep pit

[53] There are about 520 acres with the proposed Smokey Canyon lease modifications, but only 180 acres would have surface disturbance. The remaining 140 acres of disturbance would occur off of existing or proposed leases.

walls and a section of road that would be left for future use). An average of about 70 acres of the roadless areas would be of disturbed per year (1,100 acres / 16 years).

Best management practices (BMPs) for selenium controls have been used at active phosphate mines in Southeastern Idaho since 2000 and are undergoing continual improvement. The Smoky Canyon Mine expansion would use a variety of environmental commitments and BMPs to reduce the potential for selenium mobilization and migration from the mine site, including: pit backfilling, selective handling of overburden, use of low selenium chert for road construction, runoff and sediment control measures, and improved cover design for overburden (USDI BLM and USDA Forest Service 2007). The operator would also be required to implement an extensive monitoring program to assess impacts on water, soils, vegetation, wildlife, and fisheries. Analysis of the Smoky Canyon preferred alternative, which uses the previously mentioned BMPs, predicts there would be no exceedences of groundwater quality protection standards or surface water quality standards attributable to the proposed mining activities (USDI BLM and USDA Forest Service 2007).

In addition to the proposed lease modifications associated with the Smoky Canyon Mine expansion, there are about 3,700 acres of pending lease modifications, prospecting permits, and exploration license applications in the Caribou-Targhee National Forest. Given a history of phosphate deposits being leased outside of KPLA boundaries (table 3-19); it is assumed that the Caribou-Targhee National Forest has additional roadless areas outside KPLAs with phosphate potential. Lands outside KPLAs would need further exploration to determine their leasing potential.

Figure 3-18. Open pit

Figure 3-19. Reclaimed pit

LEASABLE MINERALS: ENVIRONMENTAL CONSEQUENCES

All Alternatives

Phosphate. None of the alternatives would prohibit road construction or reconstruction associated with developing existing leases on the Caribou-Targhee National Forest or the continuation, extension, or renewal of these leases.

Consequently, the 1,100 acres of reasonably foreseeable road construction and mining disturbance within the Sage Creek and Meade Peak Roadless Areas associated with developing existing leases at the proposed Smoky Canyon Mine expansion is expected to occur under all alternatives[54]. This development is likely to occur over the next 15 years.

Projecting beyond the Smoky Canyon Mine expansion, it is reasonable to assume that the remaining unmined phosphate deposits currently under lease, roughly 6,100 acres, within seven roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, Stump Creek, and Mount Jefferson) would also be mined. Using the Smoky Canyon expansion as an example of the level of expected activity, an estimated 17 miles of haul road construction and other surface mining disturbance would ultimately take place within the seven roadless areas. This disturbance is assumed to be spread out over an extremely long period of time (50 or more years) as mines are eventually permitted and developed.

2001 Roadless Rule

The 2001 Roadless Rule did not prohibit mineral leasing in Idaho Roadless Areas but did prohibit the construction or reconstruction of roads associated with leases issued after January 12, 2001, the date the rule was published. Proposals for exploration or development of leasable minerals using existing roads or not requiring construction or reconstruction of roads within Idaho Roadless Areas were not affected. Prohibition of road construction or reconstruction in roadless areas would factor into the analysis of lands available for lease when leasing decisions are made.

Oil and Gas. The Caribou-Targhee National Forest is the only forest in Idaho with potential for oil and gas activity in the foreseeable future (next 15 years). There is currently one existing oil and gas lease in the Bear Creek Roadless Area, but it was issued in 2007 and therefore is subject to 2001 Roadless Rule provisions.

The Targhee portion of the Caribou-Targhee National Forest issued a decision in 2000 that either precludes leasing or places an NSO stipulation on leases within roadless areas on the Targhee. The 2001 Roadless Rule would have no effect on the oil and gas leasing decision already in place on the Targhee, but would reinforce the likelihood that there would be little interest in leasing lands for oil and gas.

The 2001 Roadless Rule could preclude oil and gas development in roadless areas on the Caribou portion of the Caribou-Targhee National Forest. It is expected there would be little commercial interest in oil and gas leasing in roadless areas because the 2001 Roadless Rule prohibits road construction / reconstruction to access new leases. This expectation is based on recent action taken by oil and gas lessees in Utah's Uinta National Forest. Upon learning that

[54] This projection assumes that the 160 acres of disturbance associated with the proposed south lease modification is determined to be consistent with the 2001 Roadless Rule.

their leases would be subject to the reinstated 2001 Roadless Rule, these lessees requested that BLM suspend their leases, asserting that they were "prevented from operating on the leases."

If the four exploratory wells projected in the reasonably foreseeable development scenario require new road construction or reconstruction for access, they would have to be located outside roadless areas. However, based on the U.S. Geological Survey's assessment that there is low potential for undiscovered resources in southeast Idaho and assuming industry is not likely to commit resources to areas with low potential, the impacts of the 2001 Roadless Rule on oil and gas exploration and development should be minimal.

Geothermal. There are no existing geothermal leases on Idaho Roadless Areas. Therefore, there would be no new roads developed under the specific exemption in the 2001 Roadless Rule for that purpose. Any new leases issued would be subject to the 2001 Roadless Rule road prohibitions. Assuming the density of existing roads within roadless areas is not adequate to explore and develop geothermal resources, it is expected there would be little commercial interest in geothermal leasing. This expectation is based on the reaction of Utah oil and gas lessees, who requested a suspension of their leases upon learning that their leases were subject to the roadless rule provisions, claiming they were prevented from operating on their leases.

Exploration methods used for geothermal are similar to those used for oil and gas. Consequently, little, if any, development of geothermal resource potential is expected on the 9.3 million acres of Idaho Roadless Areas. About 10.6 million acres of NFS lands outside Idaho Roadless Areas with high to medium geothermal potential may be available for exploration and development, depending on the existing plan direction (table 3-18). The impact on the recovery of geothermal resources cannot be quantified because there is no specific resource estimate from which to draw.

Phosphate. Under the 2001 Roadless Rule, there would be no new road construction or reconstruction within Idaho Roadless Areas on the 14,460 acres of known unleased deposits on the Caribou-Targhee National Forest. This assumes BLM would issue any new leases with a stipulation that would subject the lease to the 2001 Roadless Rule prohibitions; therefore, it is expected there would be no commercial interest in new phosphate leasing within roadless areas. Accordingly, the phosphate deposits on this acreage would not be mined because roads could not be built to support neither the advance drilling needed to specifically define the mineable deposit, nor the actual mining of the deposit itself.

Although the inability of industry to lease and mine recoverable reserves from these lands would not be a near-term impact, for the long term this alternative would forego the recovery of an estimated 651 million tons of phosphate resource. This estimate assumed 45,000 tons of recoverable phosphate ore from each acre mined, and applied this per-acre figure to the entire 14,460 unleased acres. This per-acre estimate is based on an example of a typical recovery rate of existing mines in the area and is subject to significant variation depending on actual conditions encountered should these lands be mined.

In addition to unleased lands associated with known deposits, undiscovered phosphate deposits may exist within other portions of Idaho Roadless Areas. It is unlikely these potential resources would be explored to determine if economic reserves exist since no new roads could be constructed to access new drill sites.

Existing Plans

Management of leasable mineral resources in Idaho Roadless Areas would be guided by Existing Plans. If one doesn't already exist, an environmental impact statement is usually prepared on a forest-wide basis to address leasing decisions. Areas with management prescriptions to protect roadless area values either may not be leased, may be leased with an NSO stipulation, or may generate a forest plan amendment. Areas with management prescriptions that allow road construction or reconstruction may be leased subject to standard lease terms and any other supplemental stipulations deemed appropriate and necessary by the Forest Service.

Oil and Gas. The Caribou-Targhee National Forest is the only forest with potential for oil and gas activity in the foreseeable future (next 15 years). The Targhee portion of the forest issued a decision in 2000 that either precludes leasing or places an NSO stipulation on the roadless areas on the Targhee. Without either a lease or the ability to occupy the surface, it is unlikely that oil and gas wells would be constructed within roadless areas on the Targhee.

The Caribou portion of the forest is conducting an analysis to decide which NFS lands would be made available for leasing and under what terms and conditions (USDA Forest Service and USDI BLM 2006). Under the Existing Plans management prescriptions, road construction is permissible on approximately 251,900 acres of the 741,700 acres in roadless areas. A portion of the forest's 369,300 acres managed under Backcountry-equivalent prescriptions may also be available to allow road building for oil and gas. Despite the availability of these roadless areas and the 450,200 acres of non-roadless areas, oil and gas activity is still predicted to be low for the foreseeable future. With the low potential for recoverable oil and gas reserves in southeast Idaho and assuming industry is not likely to commit resources to explore low-potential areas, the lack of access to those roadless areas in the forest where road construction/reconstruction is prohibited should have minimal impact on the recovery of oil and gas resources.

Geothermal. Without any trend data for geothermal exploration and development activities on NFS lands in Idaho, it is difficult to predict the amount of geothermal activity that would occur in Idaho Roadless Areas under Existing Plans. Some level of exploration and development may occur if road construction or reconstruction is not prohibited under a specific forest plan prescription and if surface occupancy is permitted. Table 3-21 provides a summary of Idaho Roadless Areas acreage by geothermal resource potential and forest plan prescriptions grouped into equivalent State management themes. The impact on the recovery of geothermal resources cannot be quantified for any of the themes discussed here because there is no specific resource estimate from which to draw.

Table 3-21. Acres of Idaho Roadless Areas by Existing Plan theme equivalent and geothermal resource potential

Existing Plan theme equivalent	Acres of geothermal resource potential			
	High	Medium	Low	Total
Wild Land Recreation	824,000	460,600	35,900	1,320,500
Primitive	1,343,600	434,400	126,200	1,904,200
Backcountry	2,098,600	2,139,300	245,100	4,483,100
GFRG	387,000	797,600	77,900	1,262,500
Forest plan special areas	184,100	129,600	20,500	334,200
Total	4,837,300	3,961,500	505,600	9,304,400

None of the forests in Idaho have a current leasing decision for geothermal, which would need to be completed before lands could be offered for lease. Leasing decisions would take into account roads standards for respective forest plan prescriptions and identify other required lease stipulations to protect surface resources. One such stipulation, commonly used on oil and gas leases throughout the Intermountain West, would likely be no surface occupancy on slopes steeper than 40 percent because of the difficulty in reclaiming large drill sites in these areas. Table 3-22 shows the Idaho Roadless Areas acreage where surface occupancy or road building would be allowed because slopes are less than 40 percent. About 50 percent of Idaho Roadless Areas are less than 40 percent slope.

Table 3-22. Acres of Idaho Roadless Areas by Existing Plan theme equivalent and geothermal resource potential with slopes less than 40 percent [1]

Existing Plan theme equivalent	Acres of geothermal resource potential with slopes less than 40 percent			
	High	Medium	Low	Total
Wild Land Recreation	306,300	203,900	15,200	525,400
Primitive	602,500	196,900	49,300	848,700
Backcountry	1,187,400	1,061,500	105,200	2,354,100
GFRG	249,100	458,000	30,700	737,800
Forest plan special areas	89,500	60,200	10,100	159,800
Total	2,434,800	1,980,500	210,400	4,625,800

[1] *Based on overlay of the SMU map with the Existing Plan themes.*

Geothermal resources under the forest plan management prescriptions similar to Wild Land Recreation, Primitive, and certain forest plan special areas are not expected to be developed because of prohibitions on road construction or reconstruction. This expectation is based on the experience with certain oil and gas lessees in Utah who believe they cannot develop a lease without the ability to construct new roads. The methods used to explore for geothermal are similar to those used in oil and gas. Furthermore, the density of existing roads is probably not adequate to explore and develop the geothermal resource in these areas. It is also likely that in large portions of these areas, surface occupancy would not be allowed to avoid steep slopes and to protect other sensitive surface resources, further supporting the prediction that no development would occur. These areas constitute about 38 percent of Idaho Roadless Areas.

Under the forest plan management prescriptions similar to the Backcountry theme, road construction or reconstruction would be permissible only under limited circumstances on some of the lands and precluded completely on other portions. Some forest plans—such as the Boise, Payette, and Sawtooth—preclude road construction or reconstruction for new leases (see appendix B). On those lands where new or reconstructed roads are precluded, there would not likely be any geothermal leasing or associated activities. Given that road construction or reconstruction could occur in at least some of the Backcountry lands, there is potential that some level of geothermal activity would occur. If fully developed, roads, transmission lines, and other facilities would likely be constructed (see appendix I for a description of general development of geothermal resources). The Backcountry theme contains a substantial amount (48 percent) of the roadless areas with geothermal potential, with the majority being high and medium potential. About 51 percent of Idaho Roadless Areas in the Backcountry theme have slopes less than 40 percent and could have some potential for development (table 3-22), provided road construction or reconstruction is permitted.

Management prescriptions in Existing Plans similar to the GFRG theme would permit road construction or reconstruction to access mineral leases. The amount of activity would be relative to the amount of land available. GFRG lands constitute 14 percent of the total roadless areas in the State. About 58 percent of Idaho Roadless Areas in GFRG have slopes less than 40 percent (table 3-22). These lands have potential to host some level of geothermal activities because of the open access. Any future exploration or development would undergo project-level environmental analysis at the time activity is proposed. If fully developed, roads, transmission lines, and other facilities would likely be constructed (see appendix I for a description of general development of geothermal resources).

Currently lease applications have been submitted for geothermal development, which could affect 7,000 acres of the Peace Rock Roadless Area on the Boise National Forest and 33 acres of the West Panther Roadless Area on the Salmon National Forest. Lands in the Peace Rock Roadless Area are in management prescriptions similar to Backcountry, and lands in the West Panther Roadless Area are in management prescriptions similar to GFRG. These areas could be made available for leasing depending on the outcome of a site-specific leasing analysis and decision; development as described in appendix I could then occur.

Phosphate. The existing Caribou Forest Plan, covering the Caribou portion of the Caribou-Targhee National Forest, permits leasing of the estimated 6,750 acres[55] of unleased known phosphate lease areas (KPLAs) and/or other possible roadless areas that contain undiscovered phosphate resources. Unleased KPLAs in the forest plan have a dual management prescription. In addition to the variety of prescriptions that apply to the unleased KPLAs, the forest plan recognizes these lands as having potential to be leased for phosphate exploration and possible mining. If a request to lease KPLA acreage is received, an environmental analysis is completed before the BLM makes its decision on the request. If leases are issued, the lands are then managed under the prescription for active phosphate mines. The prescription includes a ½-mile buffer around the KPLA to accommodate support facilities or developments, including lease modifications or fringe acreage leases that could be needed for mine activities. If phosphate leases are issued, the lessee would be allowed reasonable access when future exploration drilling and mining are permitted. Reasonable access in these instances could include road construction or reconstruction outside of the ½-mile buffer around KPLAs. Using the Smoky Canyon expansion as an example of the level of expected activity, roughly 98 percent of the total amount of haul road construction necessary for a given mining project would ultimately take place within the half-mile buffer round KPLAs and in roadless areas.

The 6,870 acres of unleased KPLA in the Targhee portion of the Caribou-Targhee National Forest would have to undergo a separate NEPA analysis to determine how much of the 6,870 acres of KPLA could actually be leased.

Apart from modifying existing leases to prevent bypassing small areas of ore, there is expected to be little demand for unleased KPLA acreage within roadless areas for the foreseeable future (within 15 years) because of the amount of reserves the industry already has under lease. However, for analysis purposes, in the long term (50 or more years) it is assumed that all 13,620 acres of unleased KPLA within Idaho Roadless Areas contain mineable reserves and would eventually be leased. This is an overly conservative assumption as some KPLA acreage would

[55] Estimate excludes 840 acres of unleased KPLA in Sage Creek roadless area which the Forest Service recommended unavailable per 1998 leasing analysis.

likely not be leased because of unfavorable geologic, environmental, or logistical conditions. Should these KPLAs be leased, roads, pits, and other surface mining facilities would be expected to be constructed within these roadless areas. This disturbance would spread out over an extremely long period of time (50 or more years) as mines are developed. If all unleased KPLAs are leased, there would be a potential to incrementally affect the forest's roadless area acreage by less than 1 percent.

The history of phosphate development in the area has shown that lease modifications or fringe acreage leases are a regular occurrence to avoid the waste of isolated blocks of phosphate ore. Some of these lease types could be for lands within the ½-mile buffer surrounding the unleased KPLA under this alternative. Using a ratio of existing leased acres outside KPLA to leased acres inside KPLA throughout the Caribou-Targhee National Forest, it can be estimated that the buffer area around unleased KPLAs could contribute up to an additional 14 percent, or about 1,910 acres, to lands where mining may occur.

Proposed Idaho Roadless Rule (Proposed Action)

Under the Proposed Idaho Roadless Rule, the Forest Service would not recommend, authorize, or consent to road construction / reconstruction for new mineral or energy leases[56] in Idaho Roadless Areas managed under the Wild Land Recreation, Primitive, and SAHTS themes. These areas constitute 3,101,500 acres, or 33 percent of the total roadless area acreage in the State. The Idaho Roadless Rule would also not recommend, authorize or consent to authorize surface occupancy in the Wild Land Recreation, Primitive, and SAHTS themes.

The Proposed Rule also would prohibit road construction / reconstruction in the Backcountry theme, except as associated with phosphate leasing. Surface occupancy without road construction / reconstruction would be permissible for all mineral leasing. The rule would permit both surface occupancy and road construction / reconstruction for phosphate resources in the Backcountry theme.

The GFRG theme would permit both surface occupancy and road construction or reconstruction for all leasable mineral activities.

Oil and Gas. The Caribou-Targhee National Forest is the only forest in Idaho with potential for oil and gas activity in the foreseeable future (next 15 years). The Targhee portion of the forest issued a decision in 2000 that either precludes leasing or places an NSO stipulation on any leases issued within the roadless areas on the Targhee. Without either a lease or the ability to occupy the surface, it is unlikely that oil and gas wells would be constructed on leases issued within roadless areas on the Targhee. Without a lease, industry would have no authority to locate upon the surface or drill wells to explore for oil and gas. An NSO stipulation means a lessee could not construct surface locations for wells on the lease. Directional drilling could be used to explore portions of NSO leases adjacent to areas where surface occupancy may be permitted. However, the large expanse of the Targhee's NSO areas renders them virtually impossible to economically explore and develop entirely via directional drilling methods. It is not expected that industry would incur the extra expense of any directional drilling without the promise of the full economic enjoyment of the entire lease area. This is particularly true in relatively unexplored areas such as Idaho's roadless areas, where complex geology and no known commercial production greatly increase the financial risk of drilling.

[56] Applies to new energy or mineral leases obtained after the effective date of the final rule.

The Proposed Rule prohibits surface occupancy and road construction or reconstruction for oil and gas within the Wild Land Recreation (42,100 acres) or Primitive theme (44,400 acres) found on the Caribou portion of the Caribou-Targhee National Forest[57]. Similar to the previous discussion regarding the impact of the Targhee leasing decision, these prohibitions would preclude exploration and development of oil and gas resources in these areas because the large expanse of these areas would make it virtually impossible to develop the resource without occupying the site.

The Proposed Rule would permit surface occupancy within the Backcountry theme but prohibits road construction or reconstruction for oil and gas resources (369,400 acres). Despite the ability to occupy the surface, it is expected there would be little commercial interest in leasing lands under this theme because of the road prohibition. This expectation is based on the recent experience with certain oil and gas lessees in Utah who requested BLM to suspend the terms of their leases in roadless areas because they stated they could not develop the leases without the ability to construct new roads.

The Proposed Rule would permit surface occupancy and road construction or reconstruction for oil and gas exploration and development within roadless areas managed under the GFRG theme (251,800 acres). All but two of the roadless areas on the Caribou portion of the Caribou-Targhee National Forest have GFRG. Oil and gas activity would likely occur on lands in GFRG within roadless areas, or the 450,200 acres of non-roadless lands. Given the low potential for recoverable oil and gas reserves in southeast Idaho, the impact on recovery of oil and gas resources under the Idaho Roadless Rule would also be low.

Geothermal. Table 3-23 identifies the acres of Idaho Roadless Areas allocated by geothermal resource potential and the Proposed Rule theme. Geothermal resources under the Wild Land Recreation, Primitive, and SAHTS themes, as well as forest plan special areas, would not be developed because no surface occupancy and no new roads are permitted. NSO means a lessee could not construct surface locations for wells on any leases issued. Directional drilling could be used to explore portions of NSO leases adjacent to areas where surface occupancy may be permissible. However, the large expanse of the involved roadless areas renders them virtually impossible to economically explore and develop entirely via directional drilling methods. It is not expected that the industry would incur the extra expense of any directional drilling without the promise of the full economic enjoyment of the entire lease area. This is particularly true in relatively unexplored areas such as Idaho's roadless areas, where complex geology and lack of known commercial production greatly increase the financial risk of drilling.

The Proposed Rule would permit surface occupancy within the Backcountry theme but prohibits road construction or reconstruction for geothermal resources. Despite the ability to occupy the surface, it is expected there would be little commercial interest in leasing lands under this theme because of the road prohibition, for reasons similar to oil and gas. Thus, given the restrictions associated with the Wild Land Recreation, Primitive, Backcountry and SAHTS themes, 93 percent of the Idaho Roadless Areas are not expected to experience any activity to develop geothermal resources.

[57] Oil and gas surface occupancy and road construction / reconstruction are also prohibited in the SAHTS theme; however, this theme does not apply to roadless areas on the Caribou portion of the Caribou-Targhee National Forest.

Table 3-23. Acreage of Idaho Roadless Areas by Proposed Idaho Roadless Rule theme and geothermal resource potential

Idaho Roadless Rule theme	Acres of geothermal resource potential			
	High	Medium	Low	Total
Wild Land Recreation	859,500	475,700	43,000	1,378,200
Primitive	1,372,500	269,700	10,700	1,652,900
Backcountry	2,069,600	2,779,300	410,800	5,259,700
GFRG	351,600	236,500	20,500	608,600
SAHTS	0	70,700		70,700
Forest plan special areas	184,100	129,600	20,500	334,200
Total	4,837,300	3,961,500	505,500	9,304,300

Under the Proposed Rule, geothermal activity on lands in the GFRG theme would be permitted to occupy the surface and to construct or reconstruct roads. GFRG lands constitute 7 percent of Idaho Roadless Areas, with the majority having high to medium resource potential. As discussed earlier, the Forest Service would perform a leasing analysis prior to leasing geothermal resources. One specific lease stipulation that is commonly required to be made a part of any issued leases is that no surface occupancy be allowed on slopes that are 40 percent or greater. As shown in table 3-24, about 63 percent of Idaho Roadless Areas in the GFRG theme have slopes that are less than 40 percent and could be developed for geothermal. It is reasonable to expect that lands in the GFRG theme would experience some level of road construction or reconstruction to support geothermal activities sometime in the future.

Table 3-24: Acreage of Idaho Roadless Areas by Proposed Idaho Roadless Rule theme and geothermal resource potential with slopes less than 40 percent

Idaho Roadless Rule theme	Acres of geothermal resource potential with slopes less than 40 percent			
	High	Medium	Low	Total
Wild Land Recreation	319,700	218,300	15,900	553,900
Primitive	618,200	138,100	4,900	761,200
Backcountry	1,174,200	1,380,100	171,000	2,725,300
GFRG	233,100	140,700	8,600	382,400
SAHTS	0	43,200	0	43,200
Forest plan special areas	89,500	60,200	10,100	159,800
Total	2,434,700	1,980,600	210,500	4,625,800

Currently lease applications have been submitted for geothermal development including 7,000 acres of the Peace Rock Roadless Area on the Boise National Forest and 33 acres of the West Panther Roadless Area on the Salmon National Forest. Lands in both roadless areas are in the Backcountry theme under the Idaho Roadless Rule. Geothermal resources are unlikely to be developed in these areas because the rule would permit surface occupancy but prohibits road construction and reconstruction to access the geothermal resource. Experience elsewhere with oil and gas leases, which use similar exploration methods, suggest that operators believe they cannot develop leases without the ability to build roads.

Phosphate. As shown in Table 3-25, there are 14,460 acres of known unleased deposits on the Caribou-Targhee National Forest. About 13,190 acres (91 percent) of this total would be managed under the Backcountry and GFRG themes. Under these themes, road construction or

reconstruction would be permissible to develop phosphate resources. Consequently, the 13,190 acres of unleased phosphate deposits could be leased to provide for the mining of phosphate reserves. If these KPLA's are fully developed, roughly 593 million tons of phosphate could potentially be recovered[58]. About 1,280 acres of known unleased deposits located in the Primitive theme would not likely be leased and developed because of the road prohibitions.

The history of phosphate development in the area has shown that lease modifications or fringe acreage leases are a regular occurrence to avoid the waste of isolated blocks of phosphate ore. Some of these lease types could be issued for lands surrounding the unleased KPLA under this alternative. Using a ratio of existing leased acres outside of KPLA to leased acres inside of KPLA throughout the Caribou-Targhee, it can be estimated that areas around unleased KPLAs could contribute up to an additional 14 percent, or about 1,850 acres, to lands where mining may occur.

There would be no near-term impacts on the recovery of phosphate resources under the Idaho Roadless Rule because the foreseeable development would occur in the Backcountry and GFRG themes, which are not subject to the road construction / reconstruction prohibitions. The longer term impact could be the potential loss of recoverable phosphate from the 1,280 acres of presently known unleased phosphate areas (59 million tons estimated) and any yet undiscovered phosphate within themes with road prohibitions.

Table 3-25. Acres of Existing Phosphate Leases and Unleased KPLA in Idaho Roadless Areas by Proposed Idaho Roadless Rule theme (acres rounded to nearest 10th)

Idaho Roadless Area	Acres of leased phosphate and unleased KPLA							
	Wild Land Recreation		Primitive		Backcountry		GFRG	
	Leased	Unleased KPLA	Leased	Unleased KPLA	Leased	Unleased KPLA	Leased	Unleased KPLA
Caribou portion of the Caribou-Targhee National Forest								
Dry Ridge	- -	- -	- -	- -	1,220	570	180	210
Huckleberry Basin	- -	- -	- -	- -	- -	- -	2,090	2,120
Meade Peak	- -	- -	50	900	- -	- -	500	1,570
Sage Creek	- -	- -	- -	- -	230	550	1,670	1,530
Schmid Peak	- -	- -	- -	- -	40	- -	- -	20
Stump Creek	- -	- -	- -	- -	80	40	80	80
Caribou Total	- -	- -	**50**	**900**	**1,570**	**1,160**	**4,520**	**5,530**
Targhee portion of the Caribou-Targhee National Forest								
Bald Mountain	- -	- -	- -	- -	- -	1,430	- -	- -
Bear Creek	- -	- -	- -	- -	- -	4,160	- -	910
Poker Peak	- -	- -	- -	380	- -	- -	- -	- -
Mount Jefferson	- -	- -	1,090	- -	- -	- -	- -	- -
Targhee Total	- -	- -	**1,090**	**380**	- -	**5,590**	- -	**910**
Forest Totals	- -	- -	**1,140**	**1,280**	**1,570**	**6,750**	**4,520**	**6,440**

[58] Recoverable reserve figures are based on typical recovery rates of existing mines in the area and is subject to significant variation depending on actual conditions encountered should these lands be mined.

Modified Idaho Roadless Rule (Preferred Alternative)

Under the Modified Idaho Roadless Rule, the Forest Service would not recommend, authorize, or consent to road construction / reconstruction for new mineral or energy leases[59] in Idaho Roadless Areas managed under the Wild Land Recreation, Primitive, Backcountry, and SAHTS themes. These areas constitute 8,563,900 acres, or 92 percent of the total roadless area acreage in the State. The Modified Rule would also not recommend, authorize, or consent to authorize surface occupancy in the Wild Land Recreation, Primitive, and SAHTS themes. The Modified Rule would permit surface occupancy for all types of mineral leasing in the Backcountry theme except where prohibited by the forest plan[60].

The Modified Rule also would prohibit road construction / reconstruction for all types of leasable mineral activities in the GFRG theme, except to access specific phosphate deposits. Surface occupancy without road construction / reconstruction would be permissible for all mineral leasing in the GFRG theme except where prohibited by the forest plan[61]. Road construction or reconstruction to access phosphate deposits may be considered only after reviewing other access options and resource needs, and must be consistent with applicable land management plan components.

Oil and Gas. No new road construction or reconstruction to support oil and gas exploration or development would be allowed under any theme of the Modified Rule. As such, it is anticipated there would be little commercial interest in leasing oil and gas within Idaho Roadless Areas. This projection is based upon a number of the basic assumption for mineral activities that are stated in section 3.1, Introduction. In relatively unexplored areas such as Idaho Roadless Areas, the economic development of oil and gas resources depends on the ability to occupy the surface and the ability to locate access roads where needed. However, given the low potential for recoverable oil and gas within the Caribou-Targhee National Forest (currently recognized as the only Idaho national forest that would host oil and gas activity in the foreseeable future), the impact of this alternative to the recovery of this resource is also expected to be low.

Geothermal. No new road construction or reconstruction to support geothermal exploration or development would be allowed under any theme of the Modified Rule. Despite the ability to occupy the surface, it is expected there would be little commercial interest in leasing lands under this theme because of the road prohibition, for reasons similar to oil and gas. Consequently, this alternative is expected to preclude any development of the geothermal resource potential on all of Idaho's 9,304,300 roadless areas, much of it considered medium to high resource potential. The impact of this lack of development cannot be reasonably quantified because there is no specific resource estimate to draw from.

Phosphate. Many public comments on the draft EIS expressed concern about the potential impacts of the exception for road construction and reconstruction associated with phosphate leasing throughout the entirety of the Backcountry theme. Responding to these concerns, the Modified Rule eliminates the Backcountry theme road building exception for post-rule leases

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[59] Applies to new mineral leases obtained after the effective date of the final rule.

[60] (i.e., the oil and gas leasing decision on the Targhee portion of the Caribou Targhee National Forest would apply to surface use and occupancy in the Backcountry theme).

[61] (i.e., the oil and gas leasing decision on the Targhee portion of the Caribou Targhee National Forest would apply to surface use and occupancy in the GFRG theme).

and focuses the road construction or reconstruction exception to areas in and adjacent to specific KPLAs in the Caribou portion of the Caribou-Targhee National Forest in the GFRG theme. Moreover, while some of these known phosphate areas were redesignated from the Backcountry theme to the GFRG theme, there were several KPLAs that remained in the Backcountry theme and were made subject to the prohibition on road construction and reconstruction. Phosphate-specific features of the Modified Rule include:

- Unleased KPLAs amounting to 6,500 acres that were in areas of high surface resource values were retained in the Backcountry theme and therefore would not allow new roads for post-rule phosphate leasing;
- 910 acres of unleased KPLA located in the Bear Creek Roadless Area remained in the GFRG theme to accommodate other management objectives but are subject to a prohibition on road construction or reconstruction for all mineral leasing activity; and
- Recognizing the need for off-lease facilities and potential lease modifications in phosphate mining, generally a ½-mile buffer surrounds those KPLAs within the GFRG theme where road development for phosphate is allowed – see figure 3-20.

There would be no near-term impact on phosphate recovery under the Modified Rule because development for the foreseeable future would occur on existing leases that predate the rule. For the longer term, the impacts on phosphate recovery under the Modified Rule are evaluated on the basis of the amount of unleased KPLA that can be developed. As shown in table 3-26, surface occupancy and road construction or reconstruction would be allowed to develop 5,770 acres of unleased KPLA in the Modified Rule GFRG theme. Assuming this entire acreage is eventually leased and mined, roughly 260 million tons[62] of phosphate ore would be recovered. The history of phosphate development in the area has shown that lease modifications or fringe acreage leases are a regular occurrence to avoid the waste of isolated blocks of phosphate ore. Some of these lease types could be for lands within the ½-mile buffer surrounding the unleased KPLA under this alternative. Using a ratio of existing leased acres outside of KPLA to leased acres inside of KPLA, it can be estimated that the buffer area around unleased KPLAs could contribute up to an additional 14 percent, or about 810 acres, to lands where mining may occur.

The 8,690 acres of unleased KPLA located in the Backcountry and Primitive theme, and GFRG in the Bear Creek, Bald Mountain and Poker Peak Roadless Areas, would be subject to road construction or reconstruction prohibitions. It is assumed there would be no interest in leasing these lands because industry would be unable to access drill sites to gather information about the ore body for mine evaluation and planning. Consequently, the Modified Rule could result in the potential loss of an estimated 390 million tons of recoverable phosphate ore and any yet undiscovered phosphate reserves within themes with road prohibitions.

[62] Recoverable reserve figures are based on typical recovery rates of existing mines in the area and is subject to significant variation depending on actual conditions encountered should these lands be mined.

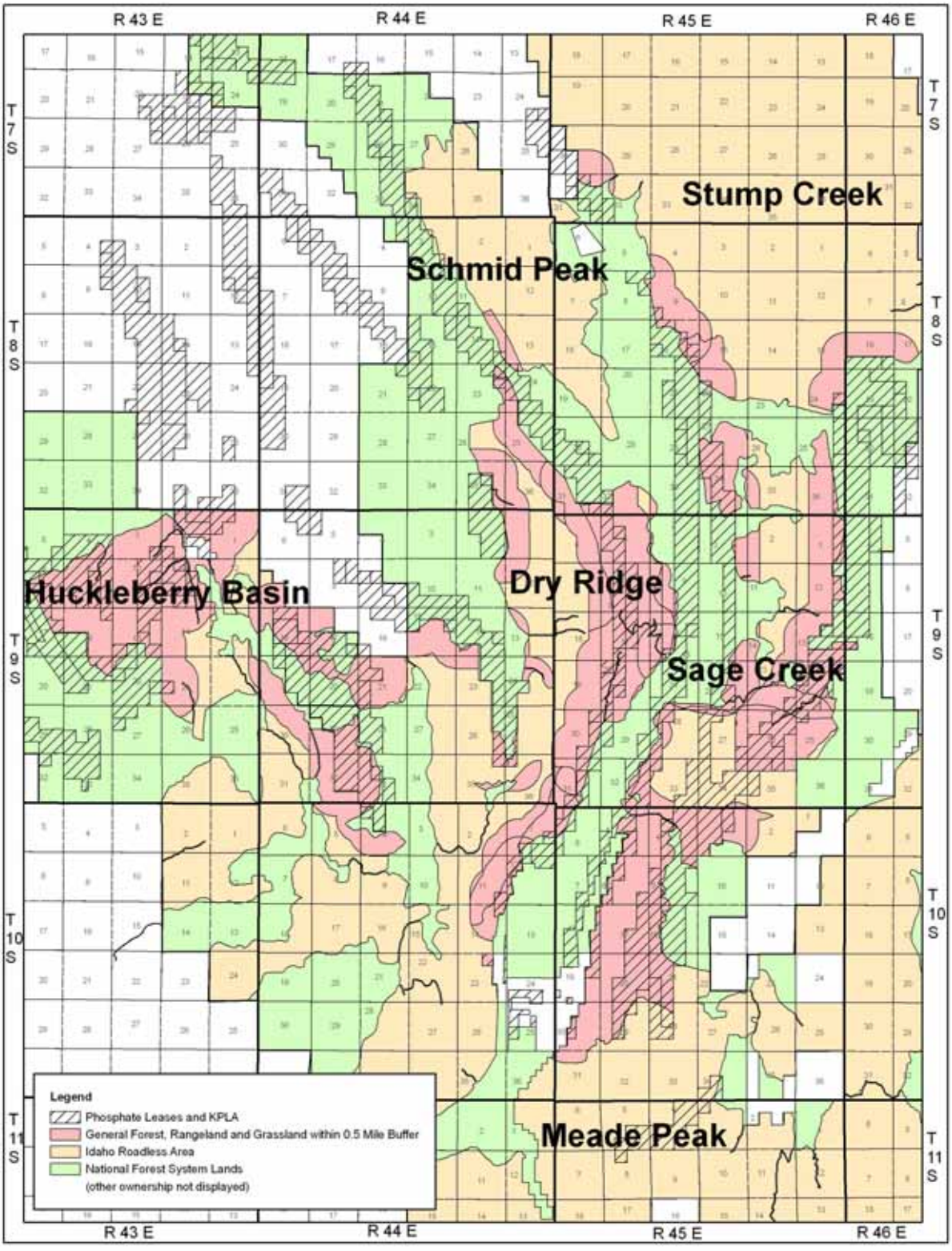

Figure 3-20. GFRG where road construction/reconstruction is allowed to access unleased phosphate deposits

Table 3-26. Acreage of Existing Phosphate Leases and Unleased KPLA in Idaho Roadless Areas by Modified Idaho Roadless Rule theme (acres rounded to nearest 10th)

Idaho Roadless Area	Acres of leased phosphate and unleased KPLA							
	Wild Land Recreation		Primitive		Backcountry		GFRG	
	Leased	Unleased KPLA	Leased	Unleased KPLA	Leased	Unleased KPLA	Leased	Unleased KPLA
Caribou portion of the Caribou-Targhee National Forest								
Dry Ridge	- -	- -	- -	- -	- -	0	1,400	780
Huckleberry Basin	- -	- -	- -	- -	- -	0	2,090	2,120
Meade Peak	- -	- -	50	900	- -	30	500	1,540
Sage Creek	- -	- -	- -	- -	- -	880	1,900	1,200
Schmid Peak	- -	- -	- -	- -	40	- -	- -	20
Stump Creek	- -	- -	- -	- -	- -	0	160	110
Caribou Total	- -	- -	**50**	**900**	**40**	**910**	**6,050**	**5,770**
Targhee portion of the Caribou-Targhee National Forest								
Bald Mountain	- -	- -	- -	- -	- -	1,430	- -	0
Bear Creek	- -	- -	- -	- -	- -	4,160	- -	0[1]
Poker Peak	- -	- -	- -	380	- -	- -	- -	- -
Mount Jefferson	- -	- -	1,090		- -	- -	- -	- -
Targhee Total	- -	- -	**1,090**	**380**	- -	**5,590**	**0**	**0**
Forest Totals	- -	- -	**1,140**	**1,280**	**40**	**6,500**	**6,050**	**5,770**

[1] *Road construction or reconstruction is prohibited on 910 acres of unleased KPLA in the Bear Creek Roadless Area under the Modified Idaho Roadless Rule.*

SALEABLE MINERALS: AFFECTED ENVIRONMENT

Statewide production of mineral materials in Idaho averaged 22.67 million tons per year for the 3-year period from 2002 through 2004. In comparison, the total tonnage of mineral material dispositions from Idaho's national forests reported for fiscal years 2003 through 2005 are shown in table 3-27:

Table 3-27. Mineral material dispositions from Idaho national forests, fiscal years 2003–2005

Fiscal year	Sales	Free use	Forest Service use
	----------tons----------		
2003	14,856	31,867	122,220
2004	65,612	80,713	137,784
2005	64,303	78,149	131,905
Average	48,257	63,576	130,636

The total average production of mineral materials from NFS lands represents just over 1 percent of the total mineral materials production for all of Idaho. Although a specific breakdown of amounts of mineral materials generated from roadless areas is not available, a survey of minerals specialists in four national forests with the largest reported mineral material tonnage suggests that mineral material contributions from roadless areas are generally small and used only for public road projects (free use) or local Forest Service use[63]. This lack of commercial

[63] Only free use permits were issued within Idaho Roadless Areas on these units.

interest is likely because: roadless areas are generally remote compared to where mineral materials are needed; the terrain is too rugged for developing such a low-value commodity; and there is widespread availability of other mineral material sources outside of roadless areas.

The amount of road construction or reconstruction associated with the small volume of mineral materials produced from Idaho Roadless Areas is included in the 1-mile-per-year estimate for all non-timber roads.

SALEABLE MINERALS: ENVIRONMENTAL CONSEQUENCES

2001 Roadless Rule (No Action)

The 2001 Roadless Rule prohibits road construction or reconstruction associated with developing new mineral material sites within Idaho Roadless Areas.

It is possible that new mineral material sites or expansion of existing sites could occur within roadless areas to provide material for new road construction or reconstruction associated with any of the exceptions under the 2001 Roadless Rule or for use on other Forest Service projects. Such mineral material sites would have to be developed along an existing road or adjacent to a road being built under one of the exceptions to the rule. This is expected to be a rare circumstance.

Because there has historically been little interest in the use of mineral materials from Idaho Roadless Areas, except for relatively small volumes for Forest Service projects, the effects on the production of this resource under the 2001 Roadless Rule should be minimal.

Existing Plans

About 1.26 million acres, or 14 percent of the total Idaho Roadless Areas, are within management prescriptions similar to the GFRG theme. These GFRG prescriptions permit road construction or reconstruction to develop or expand mineral material sites. Under most other Existing Plan prescriptions equivalent to the Wild Land Recreation, Primitive, and Backcountry themes, road construction or reconstruction for mineral material purposes could occur only under very limited circumstances.

Even with the access permitted under the GFRG theme, the remoteness of roadless areas and the widespread availability of mineral material sources outside of roadless areas, create a reasonable expectation that only a minimal volume of mineral materials would come from Idaho Roadless Areas. Assuming the demand for mineral materials remains at current levels, this trend should continue; low volumes of mineral materials would be produced from roadless areas, the principal uses being for Forest Service projects or for the limited instances when roads are constructed within roadless areas. The effects on saleable mineral production under this alternative would be minimal.

Proposed Idaho Roadless Rule (Proposed Action)

The sale of common variety mineral material sales would be prohibited within Wild Land Recreation, Primitive, and SAHTS themes after the effective date of the Proposed Idaho Roadless Rule. The Proposed Rule would permit the Forest Service to use mineral materials within these three themes to carry out various Forest Service programs involving construction and maintenance of physical improvements, provided no road construction is needed for access.

Road construction / reconstruction associated with developing new mineral material sites would also be prohibited in the Backcountry theme. Sale of mineral materials would still be allowed under this theme when it is incidental to a permitted activity. Such mineral material sites would have to be developed along an existing road or adjacent to a road being built under one of the exceptions to the Proposed Rule. This is expected to be a rare circumstance.

Under the GFRG theme, road construction and reconstruction would be allowed to develop mineral material sites for all types of dispositions (that is, sales, free use, and administrative use).

Even with the access permitted under the GFRG theme and the limited exception under the Backcountry theme, the remoteness of roadless areas and the widespread availability of mineral material sources outside of roadless areas create a reasonable expectation that only a minimal volume of mineral materials would come from Idaho Roadless Areas. Assuming the demand for mineral materials remains at current levels, this trend should continue; low volumes of mineral materials would be produced from roadless areas, with the principal uses being for Forest Service projects or for the limited instances when roads are constructed within roadless areas. The effects on saleable mineral production under this alternative would be minimal.

Modified Idaho Roadless Rule (Preferred Alternative)

As in the Proposed Rule, the sale of common variety mineral material sales would be prohibited within Wild Land Recreation, Primitive, and SAHTS themes after the effective date of the Idaho Roadless Rule. The Modified Rule would permit the Forest Service to use mineral materials within these three themes to carry out various Forest Service programs involving construction and maintenance of physical improvements, provided no road construction is needed for access.

Under the Modified Idaho Roadless Rule, in the Backcountry and GFRG themes the Forest Service may authorize the sale or use of common variety mineral materials and any road construction or reconstruction to access the same only if the use of the mineral materials is incidental to activity allowed under the Modified Rule. The volume of mineral materials used from roadless areas has historically been relatively small even under more permissive authorities. It is predicted the use of mineral materials for activities permitted under the Modified Rule would be an equally small volume. The effects on saleable mineral production from National Forests in Idaho under this alternative would be minimal.

Abandoned and Inactive Mines: Affected Environment

Abandoned and inactive mines sometimes pose public health and safety and / or environmental problems. On NFS lands where no responsible owner can be tied to a particular abandoned mine (that is, an “orphan” mine), the Forest Service would incur the cost to clean up the site. When a mine site is or has the potential for a hazardous substance release and a responsible party (past owners / operators) for the site can be identified, the Forest Service would seek cleanup under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (P.L. 96-510, Stat. 2767; 42 U.S.C. 9601, 9603, 9607, 9620) (CERCLA), more commonly known as the Superfund law. CERCLA allows the Forest Service to direct responsible parties to incur the costs to develop and implement plans to cleanup mines that release or threaten release of hazardous substances, pollutants, or contaminants. CERCLA may

also be used to direct owners/operators of active mine mines to take action to remedy releases or threatened releases of hazardous substances.

Thus far, a total of 315 orphaned abandoned mines and associated facilities have been identified on the 66 Idaho Roadless Areas. Abandoned mines, quarries, and other mineral sites that pose human health, environmental, or safety risks may require some type of reclamation or mitigation. It is common for abandoned mines to have an existing road in place from when the mine was developed. Some road reconstruction may be needed to improve access to the mine itself to accomplish reclamation goals. However, these road improvements would be only temporary because closing and reclaiming the mine roads is integral to achieving the overall reclamation goals of the abandoned mine land program.

In southeast Idaho, CERCLA authority is being used by Federal and State regulatory agencies to require involved mining companies to address the release of selenium to the environment at current and historical phosphate mines. Selenium, present in elevated levels in the geologic formation that hosts the phosphate ore, is an essential nutrient for humans and animals but is toxic in high amounts. Selenium releases from these mines have had negative impacts on fish, wildlife, and domestic livestock in the vicinity of the mines. Beginning in 1997, a number of regional, area-wide, and site-specific investigations have been completed to provide a broad understanding of the sources, release mechanisms, transportation pathways, potential receptors, and known and potential environmental effects of selenium and other constituents of concern in the phosphate production area of Southeastern Idaho. The reports on these investigations are available on the Southeast Idaho Selenium Information System website at http://giscenter-ims.isu.edu/SISP/Area_Wide_Reports.html

Since 1999, a number of assessments of selenium's impacts to public health have been completed. The Bureau of Community and Environmental Health (BCEH), Division of Health, Idaho Department of Health and Welfare (IDHW), in a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR), conducted public health assessments and consultations for the phosphate area in Southeast Idaho. As part of this cooperative agreement, BCEH released two health consultations in 1999 to evaluate selenium contamination in the groundwater and selenium contamination in beef, elk, sheep, and fish in the resource Area. In 2003, BCEH released another health consultation to evaluate selenium contamination in fish in streams of the upper Blackfoot River watershed. In a February 2006 report, BCEH revisited the conclusions and recommendations made in past health consultations for groundwater, beef, elk, sheep, and fish. BCEH concluded the Southeast Idaho Phosphate Mining Resource Area constituted "no apparent public health hazard," but to be cautious, issued recommendations on: (1) the amount of Yellowstone Cutthroat and Brook trout children under the age of seven should eat from East Mill Creek because of selenium contamination; and (2) the amount of elk liver people can safely eat per month (BCEH 2006).

There are 15 major operating and inactive phosphate mine in Southeastern Idaho that are being investigated for the release or threatened release of hazardous substances, including selenium (Buck and Jones 2007). Of this total, 11 mines involve NFS lands on the Caribou portion of the Caribou-Targhee National Forest, including three sites that are or would be actively mining on the forest. CERCLA authority is or would be used to address selenium releases at 9 of the 11 sites involved. The remaining sites are still actively mining, and selenium would be addressed with Federal authorities under the requirements for operating mines under the Federal mineral leasing laws. Idaho Roadless Areas have been only minimally affected by historical mining and

any associated selenium releases. Of the 14,250 acres disturbed by phosphate mining in southeast Idaho to date, only 33 acres of disturbance (in the Dry Ridge Roadless Area) have occurred within roadless areas (USDI BLM and USDA Forest Service 2007).[64]

Abandoned and Inactive Mines: Environmental Consequences

All Alternatives

Learning from the vast body of completed and ongoing studies on the selenium issue in southeast Idaho combined with the application of best management practices as new phosphate mines are permitted, phosphate mining that occurs under any of the alternatives is not anticipated to result in the release of hazardous substances because mines are reclaimed. Abandoned and inactive mine sites that represent a public safety hazard but not an environmental hazard are not covered by CERCLA or Clean Water Act authorities. Some of the 315 sites in roadless areas may fit this criterion. If so, prohibitions on road construction or reconstruction may prohibit the Forest Service from taking corrective action at a specific site to reduce a threat to public safety.

2001 Roadless Rule (No Action)

An exception under the 2001 Roadless Rule provides for the construction or reconstruction of roads needed to conduct a response action under CERCLA or to conduct a natural resource restoration action under CERCLA, Oil and Hazardous Substance Liability, Sec. 311 of the Clean Water Act, or the Oil Pollution Act. Therefore, under this alternative, the Forest Service or other responsible entities would continue to respond to CERCLA violations and/or safety hazards that may be encountered at the 315 abandoned mines, quarries, and other mineral sites that have been currently identified within 66 of Idaho Roadless Areas as well as at any sites identified in the future. Construction or reconstruction of any necessary temporary roads for this activity would be permissible. The exact number of these identified sites that may result in problems at sites is not known until site-specific assessments are completed.

Existing Plans

Under Existing Plans, the Forest Service and other responsible entities would continue to respond to CERCLA violations at abandoned mines, quarries, and other mineral sites that are located within roadless areas where road construction or reconstruction is permissible (table 3-28). A forest plan could be amended to permit road construction/reconstruction if road access is necessary to respond to CERCLA violations in areas with management prescriptions that prohibit new roads.

[64] Phosphate Mine Layer, Southeast Idaho Selenium Information System, http://giscenter-ims.isu.edu/SISP/maps/viewer.htm

Table 3-28. Number of abandoned mine/facility sites by under the Existing Plan, the Proposed Idaho Roadless Rule and Modified Idaho Roadless Rule, by theme

Theme	Existing plans no. of mine/facility sites	Proposed Rule no. of mine/facility sites	Modified Rule no. of mine/facility sites
Wild Land Recreation	18	22	22
Primitive	31	33	33
Backcountry	203	247	248
GFRG	55	5	4
SAHTS	0	0	0
Forest plan special areas	8	8	8
Total	315	315	315

Proposed Idaho Roadless Rule (Proposed Action)

The Idaho Roadless Rule includes an exception that would permit road construction or reconstruction in all themes when provided by statute or treaty or pursuant to reserved or outstanding rights or other legal duty of the United States. Under this exemption roads could be constructed or reconstructed to respond to CERCLA violations. Therefore, under this alternative, the Forest Service and other responsible entities would continue to respond to CERCLA violations that may be encountered at the 315 abandoned mines, quarries, and other mineral sites that have been or would be identified within all 66 Idaho Roadless Areas.

Modified Idaho Roadless Rule (Preferred Alternative)

The Modified Idaho Roadless Rule includes an exception that would permit road construction or reconstruction in all themes when provided by statute or treaty or pursuant to reserved or outstanding rights or other legal duty of the United States. Under this exemption roads could be constructed or reconstructed to respond to CERCLA violations. Therefore, under this alternative, the Forest Service and other responsible entities would continue to respond to CERCLA violations that may be encountered at the 315 abandoned mines, quarries, and other mineral sites that have been or would be identified within all 66 Idaho Roadless Areas.

Geological and Paleontological Resources: Affected Environment and Environmental Consequences

Paleontological resources are recognized as important both for their scientific and natural resource values and in terms of the active protection required in their management. Identification of fossil resource probability in an area and establishment of the appropriate management prescriptions are accomplished in the forest planning process. Management prescriptions are generally based on scientific significance of a specimen and sensitivity ranking of a locality. Existing policies regulate the collection and disposition of vertebrate but usually not invertebrate or plant fossils. Generally, NFS lands are available for collecting rocks and minerals, except on lands withdrawn to prohibit these activities.

Geologic processes such as landslides, earthquakes, or volcanic hazards affect human lives. To enhance public understanding and appreciation, the Forest Service may develop interpretive sites to highlight examples of these processes.

Karst and cave resources occur on NFS lands in Idaho that are underlain by limestone or marble or in areas that have exposed basaltic flows. Some of the values associated with karst and cave

resources are their ability to store and transmit groundwater, their importance as subterranean wildlife habitats, their importance as cultural resource or paleontological sites, and their ability to provide interpretive sites or recreational opportunities for spelunkers or cavers. They can also present hazards, such as sinkholes, to resource use and development.

The geologic and paleontological resources described above are not predicted to result in any new road construction or reconstruction in roadless areas; therefore, no effects under the Proposed Action or any alternative are expected.

ENERGY CORRIDORS: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Recognizing the fundamental importance of the delivery of energy supplies to the Nation's economic well-being, Congress passed Section 368 of the Energy Policy Act of 2005 to require certain Federal Agencies to designate major energy corridors on Federal lands in 11 Western states, including Idaho, and to coordinate with each other to create a cooperative, efficient process for applicants to apply for rights-of-way in such corridors. Congress stated in Section 368 that the Agencies should incorporate the designated corridors into their respective land use or resource management plans. Congress also directed the Agencies to conduct environmental reviews that are required to designate corridors and add the designated corridors to the plans.

As directed by Congress in Section 368 of the Energy Policy Act of 2005, the Forest Service is participating in preparing a programmatic EIS to designate energy corridors on land it administers for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities in 11 contiguous Western States and to incorporate these designations into affected Agency land use plans (USDE, USDI BLM, and USDA Forest Service 2005). Energy corridors not addressed in the programmatic analysis would be subject to a separate environmental analysis.

None of the Idaho corridors being addressed in the programmatic EIS would affect Idaho Roadless Areas; therefore, no effects on roadless areas due to these designated energy corridors are anticipated. In addition, there would be no associated effects to these energy corridors from any of the alternatives.

There are other minor energy corridor rights-of-way throughout Idaho Roadless Areas. There are 8.6 miles of pipeline (8 inches in diameter or larger) within 4 Idaho Roadless Areas within the Caribou portion of the Caribou-Targhee National Forest and Idaho Panhandle National Forests. In addition, there are 43.2 miles of electrical transmission lines located within 21 roadless areas on the Boise, Caribou-Targhee, Idaho Panhandle, Payette, and Salmon-Challis National Forests (Hlohowskyj 2008). Some of these rights-of-way are likely to have access roads for maintenance purposes.

None of the alternatives would have an impact on these existing authorized uses. Also, none of the alternatives would have an impact on the addition of new pipelines or transmission lines within an existing corridor, as long as no new road construction or reconstruction would be involved.

The impacts from creating new energy corridors within Idaho Roadless Areas under each of the alternatives would depend on the on whether or not road construction or reconstruction is needed for the project and what activities are permissible under the involved management theme. New energy corridor projects needing roads would likely occur only in those Idaho Roadless Areas where road construction or reconstruction is allowed or is permissible. The

average annual miles of new road projected for non-timber activities, which would include energy corridors, is one mile per year under each of the alternatives (see Section 3.4 Road Construction / Reconstruction).

ALTERNATE ENERGY: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The National Energy Policy Act of August 8, 2005, recognized the importance of a diverse portfolio of domestic energy. The law contains 13 recommendations designed to increase America's use of renewable and alternative energy. One of these recommendations directs the Secretaries of the Interior and Energy to re-evaluate access limitations to Federal lands in order to increase renewable energy production, such as biomass, wind, geothermal, and solar.

Wind Energy

Wind power plants, or wind farms as they are sometimes called, are clusters of wind turbines scattered over a large area for the purpose of generating electricity. A typical wind turbine stands as tall as a 20-story building and has three blades that span 200 feet across. The most serious environmental drawbacks to wind farms may be their negative effect on wild bird populations and the visual impact on the landscape.

Idaho wind resource maps indicate exposed mountain summits and ridge crests within many Idaho Roadless Areas have the sustained wind speeds conducive to run wind turbines (http://www.eere.energy.gov/windandhydro/windpoweringamerica/maps_template.asp?stateab=id). Winter is the season of highest wind power in these areas because mean upper air wind speeds are highest during this season. However, severe icing, access problems, and damaging storm winds severely restrict the suitability of wind energy development for many of the higher mountain summits and ridge crests in [Idaho] (USDE 1986). (http://www.nrel.gov/wind/resource_assessment.html). In addition to a sufficient wind resource, economical wind power projects need road access and proximity to an electrical transmission line, two features that are generally lacking in most Idaho Roadless Areas. Given the technological, logistical, and environmental issues associated with constructing wind turbines in the more mountainous roadless areas, it is expected these areas have low potential and there would be little interest in developing wind energy projects in Idaho Roadless Areas. Consequently, there should be minimal development for wind energy in Idaho Roadless Areas under any theme in any of the alternatives.

Wood Biomass

The Departments of Agriculture and the Interior are implementing the National Fire Plan, the President's Healthy Forests Initiative, the Healthy Forests Restoration Act, and the Tribal Forest Protection Act of 2004 to address the risk of catastrophic wildfire and to improve forest and rangeland health on Federal lands by thinning biomass density. Complementing this effort, in June 2003, the Departments of Energy, the Interior, and Agriculture announced an initiative to encourage the use of woody biomass from forest and rangeland restoration and hazardous fuels treatment projects. The three Departments signed a Memorandum of Understanding (MOU) on Policy Principles for Woody Biomass Utilization for Restoration and Fuel Treatment on Forests, Woodlands, and Rangelands, supporting woody biomass utilization as a recommended option to use to reduce hazardous fuels rather than burning or using other on-site disposal methods

The technology to generate energy from wood has expanded tremendously in the wake of price increases in fossil fuel. Business or residential use of wood biomass for the generation of heat or

electrical energy can be economical if there is an adequate supply of wood product within a reasonable distance; hauling wood biomass from outside a 50-mile radius is usually not economical (USDA Forest Service 2004h). Transportation for delivery from the supply site to the wood combustion or wood-processing unit is the primary expense of wood fuel. It is anticipated that any medium- to large-scale wood biomass projects in roadless areas would not be conducted independently, but rather in conjunction with a timber harvest or fuels treatment project. Road access would be an essential requirement for any such biomass projects to allow the product to be transported to the facility where it would be utilized. Furthermore, only those timber harvest or fuels treatment projects within an economically feasible distance of the point of utilization would be suitable as a joint venture with a biomass project. The potential for using wood biomass under the various alternatives would be a by-product of the potential for those timber harvest and fuels treatment projects that would use or build roads (see sections 3.2, Vegetation and Forest Health, and 3.3, Fuel Management). Consequently, alternative impacts on or from the wood biomass resource would be minimal.

CUMULATIVE EFFECTS

The discussion contained in this Minerals and Energy section serves basically as a development scenario that feeds into the analysis of environmental consequences for other surface resources. As such, the cumulative effects of the Proposed Action or the other alternatives on the physical, social, and economic environment when added to other past, present, and reasonably foreseeable mineral activities are addressed in the other respective resource sections.

3.6 PHYSICAL RESOURCES

CHANGES BETWEEN DRAFT AND FINAL EIS

- Spatial data for sensitive soils was updated.
- The Class I airsheds were buffered around the whole airshed instead of the mid-point.
- Information about 303(d) streams was updated based on more current data.
- Based on public comment, the proximity to both surface and groundwater sources for community water supplies were identified. The draft EIS identified only surface water sources because they were considered the most sensitive to road-related contamination. Community water systems are defined as: a public water system that regularly serves year-round residents (i.e., a system that serves people at their homes; examples include systems that serve towns or subdivisions). This information was used as a proxy for "municipal watersheds."
- Added analysis based on the Modified Idaho Roadless Rule.

INTRODUCTION

The Physical Resources analysis evaluates the potential environmental consequences on soil, water, and air. These resources have measurable characteristics that can be assessed in light of the prohibitions and permissions for timber cutting, road construction / reconstruction, and discretionary mineral activities, as well as natural processes. High-quality or undisturbed soil, water, and air are important characteristics of Idaho Roadless Areas; therefore, the analysis evaluates the potential consequences on these components.

SOILS: AFFECTED ENVIRONMENT

The soil resource is a key element for maintaining the productive potential of an area. Maintenance depends on the protection of the surface soils from erosion, displacement, and compaction; and on the continued input of organic matter to the soil.

About 23 million acres in Idaho have highly sensitive soils, of which about 3.1 million acres may be found in Idaho Roadless Areas STATSGO Soils Map for Idaho [USDA Natural Resource Conservation Service --]). These are soils prone to surface erosion and / or have terrain susceptible to landslides.

SOILS: ENVIRONMENTAL CONSEQUENCES

Road construction / reconstruction and timber cutting can affect soil productivity by compacting soils, increasing erosion, displacing soils, depleting nutrients, increasing overland flow in areas of high amounts of precipitation and soil disturbance, and reducing soil strength.

The soils analysis evaluates the number of acres of sensitive soils with high hillslope erosion potential and / or landslide risks, by management theme (table 3-29).

All Alternatives

Best management practices (BMPs) and contract requirements.[65] BMPs represent the state of current knowledge on preventing pollution from non-point sources. Using the most up-to-date BMPs for the design, operation, and maintenance of forest roads and timber cutting and other ground-disturbing activities would prevent or mitigate most adverse impacts on watershed resources, including soils. It is assumed that each project would implement BMPs. Forest practices audit results in Idaho show that 99.6 percent of BMPs are implemented (IDEQ 2007).

Existing leases. None of the alternatives would prohibit road construction or reconstruction on existing leases. About 7,230 acres of phosphate deposits can be found in seven roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, Stump Creek, and Mount Jefferson) and are under existing lease. Some of these acres have been mined to date (30 acres). About 1,100 acres associated with the Smoky Canyon Mine expansion (see section 3.5, Minerals and Energy) are reasonably foreseeable to be developed within the next 15 years. The Smoky Canyon Mine expansion would affect the Sage Creek and Meade Peak Roadless Areas.

It is also reasonable to assume that the remaining phosphate deposits currently under lease, roughly 6,100 acres within the seven roadless areas, would likely be permitted and developed sometime in the extended future (50 or more years). Using the Smoky Canyon expansion as an example of the level of activity expected, an estimated 17 miles of haul road construction and other surface mining disturbance would ultimately take place within the seven roadless areas. Environmental reviews would be conducted prior to exploration and development and any necessary mitigation to lessen impacts on soil resources would be considered.

Table 3-29. Acres by management theme, by alternative having high sensitivity soils

Theme	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Wild Land Recreation	0	213,300	261,200	292,500
Primitive	0	744,600	599,100	653,100
SAHTS	0	0	25,600	21,700
Similar to Backcountry	3,116,300	0	0	0
Backcountry	0	1,589,000	1,865,800	1,912,900*
GFRG	0	460,300	255,500	127,000
Forest plan special areas		109,100	109,100	109,100

**About 126,500 of Backcountry are in the community protection zone.*

2001 Roadless Rule (No Action)

About 3.1 million acres of the 9.3 million acres of Idaho Roadless Areas have soils that are highly susceptible to erosion and / or landslide risk (table 3-29). Generally, road construction can increase the risk and extent of erosion and landslide risk on these land types. Often road

[65] BMPs are defined in *The State of Idaho Water Quality Standards and Wastewater Treatment Requirements* (Idaho Administrative Procedures Act 16.01.2003,01) as "a practice or combination of practices determined by the Department [of Health and Welfare] to be the most effective and practicable means of preventing or reducing the amount of pollution generated by nonpoint sources." The Idaho Division of Environmental Quality is delegated authority to implement Section 208 of the Federal Clean Water Act to evaluate whether the BMPs adequately protect beneficial uses. In 1980, the Idaho Water Quality Standards were amended to identify the Forest Practices Act rules and regulations as the silvicultural BMPs for Idaho (Idaho Department of Health and Welfare 1985, 1989, as reported in Seyedbagheri 1996).

reconstruction can reduce the risk by fixing existing erosion and landslide sources (USDA Forest Service 2000r). The 2001 Roadless Rule generally prohibits road construction and reconstruction, thereby limiting the risk of erosion and landslides. Only about 12 miles of road construction and 3 miles of road reconstruction are projected to occur in the foreseeable future (next 15 years) in Idaho Roadless Areas under the 2001 Roadless Rule. Using current design and construction standards, this level of construction / reconstruction would have minimal risk to soil processes.

The 2001 Roadless Rule prohibits road construction / reconstruction for new mineral leases. Mineral and energy development would be permitted as long as new roads are not needed and existing roads do not need reconstructed; however, without road access it is unlikely development would occur (see section 3.1, Introduction, Assumptions and Projections). Based on this assumption there would be limited risk to soil resources.

Existing Plans

Under Existing Plans, road construction / reconstruction is prohibited in the prescriptions equivalent to the Wild Land Recreation and Primitive themes except for a few situations. About 957,900 acres of the 3.1 million acres of highly sensitive soils are in theses themes; therefore, there would be little to no effect on about a third of the highly sensitive soils.

About 1.6 million acres of highly sensitive soils are in management prescriptions similar to the Backcountry theme. Road construction / reconstruction is permitted to varying degrees in Existing Plans (see appendix B). About 460,300 acres of Existing Plans are in management prescriptions similar to the GFRG theme and have highly sensitive soils (table 3-29). Road construction and reconstruction is permissible in the GFRG theme.

Based on foreseeable projections (section 3.1, Introduction, Assumptions and Projections), about 105 miles of road are projected to be constructed and 75 miles reconstructed in the foreseeable future (next 15 years) in Idaho Roadless Areas. This level of construction / reconstruction would have minimal adverse risk to soil processes because the activity would be spread across 6 million acres and forest plan components provide additional criteria for protecting sensitive soils.

The Caribou Forest Plan permits leasing of the estimated 6,750 acres of known unleased phosphate deposits and / or other possible roadless areas that contain undiscovered phosphate resources[66]. These known unleased phosphate deposits occur in six roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek) and would likely be developed over an extended period of time (50 or more years). In addition, there are 6,870 acres of unleased phosphate deposits on the Targhee portion of the forest within the Bald Mountain, Bear Creek, and Poker Creek Roadless Areas. An environmental analysis would have to be completed to determine how many of the 6,870 acres could actually be leased.

There is a potential risk to soil resources on these 13,620 acres[67] when and if development should occur. Site-specific analysis would occur prior to any future exploration or development and mitigations applied.

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[66] About 840 acres in the Sage Creek Roadless Area are recommended for no surface occupancy (section 3.5, Minerals and Energy).

[67] Based on past history, phosphate mining could occur on an additional 1,910 acres around unleased KPLAs (see section 3.5 Minerals and Energy).

Existing Plans would allow road construction / reconstruction for geothermal development in some locations in management prescriptions similar to Backcountry and GFRG. It is unknown where and to what degree geothermal resources would be developed; however, because about half the Idaho Roadless Areas have high to medium potential, it is likely some development would eventually occur. Currently lease applications have been submitted for geothermal exploration that could affect about 7,000 acres of the Peace Rock Roadless Area on the Boise National Forest and 33 acres of the West Panther Roadless Area on the Salmon National Forest. If fully developed, roads, transmission lines, and other facilities would likely be constructed (see appendix I for a description of general development of geothermal resources). Site-specific analysis would occur prior to exploration or development of geothermal energy resources and would include consideration of sensitive soils.

Proposed Idaho Roadless Rule (Proposed Action)

Under the Proposed Idaho Roadless Rule, about 885,900 acres of the 3.1 million acres of highly sensitive soils are located in the Wild Land Recreation, Primitive, and SAHTS themes. These themes prohibit road construction / reconstruction; therefore, there would be no effect on about a third of the highly sensitive soils.

About 1,865,800 acres of highly sensitive soils are in the Backcountry theme and 255,500 acres in the GFRG theme. Both these themes permit road construction / reconstruction for certain actions. Based on foreseeable projections (section 3.1, Introduction) about 38 miles of road are anticipated to be constructed and 23 miles reconstructed over the foreseeable future (next 15 years) in Idaho Roadless Areas. This level of construction / reconstruction would have minimal adverse risk to soil processes because it would be spread across about 6 million acres. In addition, the Propose Rule emphasizes the use of techniques to reduce resource effects from road construction.

There are 14,460 acres of known unleased phosphate deposits on the Caribou-Targhee National Forest. About 13,190 acres (91 percent) are located within the Backcountry and GFRG themes. Under these themes road construction or reconstruction would be permissible to develop these phosphate deposits.

These deposits are located within nine roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek on the Caribou portion of the forest; and Bald Mountain, Bear Creek, and Poker Creek on the Targhee portion of the forest) and could eventually be mined over an extended period of time (50 or more years). There is a potential risk to soil resources on these 13,190 acres[68] when and if development should occur. Site-specific analysis would occur prior to any future exploration or development and mitigations applied.

About 1,280 acres of unleased phosphate deposits are in the Primitive theme. The Primitive theme prohibits road construction / reconstruction or surface occupancy for phosphates; therefore, this area would likely not be developed (see the Minerals section) and there would be no effect on soil resources found in this area.

The Proposed Rule would also allow road construction / reconstruction for geothermal development in the GFRG theme. About 7 percent of Idaho Roadless Areas are in this theme, but only about 4 percent could be developed because of slope restrictions on the remaining 3

[68] Based on past history, phosphate mining could occur on an additional 1,850 acres around unleased KPLAs (see section 3.5 Minerals and Energy).

percent (see section 3.5, Minerals and Energy, table 3-22). It is likely some of these areas would be developed over time; however, except for two pending lease applications there is no information about where or when the activity would occur. If fully developed, roads, transmission lines, and other facilities would likely be constructed (see appendix I for a description of general development of geothermal resources). Site-specific analysis would occur prior to exploration or development of geothermal energy resources and would include consideration of sensitive soils.

Currently lease applications have been submitted for geothermal exploration within 7,000 acres of the Peace Rock Roadless Area on the Boise National Forest and 33 acres of the West Panther Roadless Area on the Salmon National Forest. Both these areas are in either the Primitive or Backcountry theme; therefore, they would not be developed because of the inability to construct roads to access the area (see section 3.5, Minerals and Energy). No soil resources would be affected in these areas.

Modified Idaho Roadless Rule (Preferred Alternative)

Under the Modified Idaho Roadless Rule, road construction / reconstruction would be prohibited on about 967,300 acres of the 3 million acres of highly sensitive soils in the Wild Land Recreation, Primitive, and SAHTS themes; therefore, there would be no elevated risk to about a third of the highly sensitive soils.

About 1,912,900 acres of highly sensitive soils are in the Backcountry theme in the Modified Rule. Road construction and reconstruction would be allowed in limited situations in the Backcountry theme, primarily in areas within the community protection zone (CPZ). About 126,500 acres of sensitive soils are in the CPZ. About 127,000 acres of highly sensitive soils are in the GFRG theme, which permits road construction and reconstruction activities (table 3-29). The proposed rule was modified to clarify that forest plan components that provide sideboards on project design, such as protection of sensitive soils, still would apply.

Based on foreseeable projections (section 3.1, Introduction), about 33 miles of road are anticipated to be constructed and 17 miles reconstructed over the foreseeable future (next 15 years) in Idaho Roadless Areas. This level of construction / reconstruction would have minimal risk to soil processes because it would be spread across about 6 million acres and applicable forest plan requirements would be applied. Only temporary roads may be used to facilitate timber harvest in the Modified Rule. Temporary roads would be conducted in manner that minimizes effects on surface resources and may be used only for the specified purpose. Temporary roads would be decommissioned upon completion of the project, or expiration of the contract, or permit, whichever is sooner. Appendix O provides additional information regarding temporary roads and decommissioning.

There are 14,460 acres of known unleased phosphate deposits on the Caribou-Targhee National Forest. Under the Modified Idaho Roadless Rule, roads could be constructed or reconstructed to access about 5,770 acres[69] of unleased phosphate deposits in the GFRG theme.

These deposits are located within nine roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek on the Caribou portion of the forest and could eventually be mined over an extended period of time (50 or more years). There is a

[69] Based on past history, phosphate mining could occur on an additional 810 acres around unleased KPLAs (see section 3.5 Minerals and Energy).

potential risk to soil resources on these 5,770 acres when and if development should occur. Site-specific analysis would occur prior to any future exploration or development and mitigations applied.

About 8,690 acres of unleased KPLA in the Backcountry and Primitive theme, and KPLA in the GFRG theme in the Bear Creek, Bald Mountain, and Poker Peak Roadless Areas would be subject to road construction / reconstruction prohibition. The Primitive theme also prohibits surface occupancy for phosphates; therefore, this area would likely not be developed (section 3.5 Minerals and Energy) and there would be no effect on soil resources found in this area. The Backcountry theme prohibits road construction and reconstruction to access unleased phosphate deposits, but permits surface use and occupancy. However, without access it is unlikely these deposits would be developed.

Similar to the 2001 Roadless Rule, the Modified Rule prohibits road construction / reconstruction for new mineral leases in all themes. In addition, the Modified Rule prohibits surface use and occupancy of new mineral leases in the Wild Land Recreation, Primitive, and SAHTS themes. Surface use and occupancy would be permitted in the Backcountry and GFRG themes if allowed in the forest plans. It is unlikely new mineral development would occur in any of the themes without road access; therefore, there would be limited risk to soil resources.

WATER: AFFECTED ENVIRONMENT

Water Quality

Roads, timber cutting, mining, energy development, and other land-disturbing activities may affect water quality by baring soil surfaces to erosion or increasing the release of certain nutrients from the decomposition of timber cutting by-products (leaves, branches, and other organic matter). Nutrients such as nitrogen, phosphorous, potassium, and calcium may increase in stream water following timber management activities (Hornbeck and Leak 1992). Elevated nutrient levels in streamflow usually return to normal in 1 to 4 years (Chamberlin et al. 1991).

The Environmental Protection Agency (EPA) has delegated the primary responsibility to implement actions that comply with the Clean Water Act to the State and Tribes to assure management practices comply with their requirements. State-integrated 303(d) / 305(b) reports are generally submitted to and approved by the EPA every 2 years. These reports enumerate the number of water bodies not meeting their beneficial uses and State water quality standards. About 8,600 miles of stream in Idaho do not meet State water quality standards, of which about 2,930 miles (34 percent) are in Idaho Roadless Areas (table 3-30, in the Environmental Consequences section).

Idaho has completed total daily maximum load (TMDL) analysis for many of the 303(d)-listed watersheds. The Forest Service has been an active cooperator in this effort and this cooperation will continue into the future. As these reports or watershed analyses are completed, restoration needs are identified and prioritized, and corrective actions will be taken on national forests in Idaho as funding becomes available. Budgets used for watershed restoration may remain flat in nominal terms but decline in real terms into the foreseeable future.

Water Supply

Growing populations in urban and rural areas will increase demand for reliable quantities of high-quality water for domestic, agricultural, and industrial purposes. Communities dependent

on surface water supplies are most vulnerable to changes as a result of land management actions. Public water sources are termed source waters. In Idaho more than 95 percent of all source waters are from groundwater. The physical area around a well or surface water intake is used as the focal point of a source water assessment. The State of Idaho, Department of Environmental Quality (DEQ), conducts source water assessments that (a) delineate land areas to be protected and (b) identify potential contaminant sources and the susceptibility of these sources to contamination. Source water protection involves voluntary drinking water protection activities implemented at the local or community level. Public water systems are divided into three main groups:

- **Community**: A public water system that regularly serves year-round residents (i.e., a system that serves people at their homes; examples include systems that serve towns or subdivisions).
- **Non-community, non-transient**: A public water system that serves at least 25 of the same people, four or more hours per day, for four or more days per week, for 26 or more weeks (i.e., a system that always serves the same people, but not at their homes; examples include systems that serve schools or businesses).
- **Non-community, transient**: A public water system that does not serve at least 25 of the same people, four or more hours per day, for four or more days per week, for 26 or more weeks (i.e., a system that serves different people all the time; examples include systems that serve campgrounds or rest areas) (IDEQ, 2007).

About 1.2 million acres of community water supply systems (both ground and surface water) overlap with Idaho Roadless Areas (fig. 3-22 and table 3-31, in the Environmental Consequences section).

Wildland fires and community water supply systems. Following fires with severe effects, sediment yields may increase and recovery may take from 5 to 15 years (DeBano et al. 1998). In the most severe cases, even with large expenditures of emergency stabilization, significant increases in sediment yield over background levels have been observed. One study documented sediment yield following the Cerro Grande Fire-Los Alamos, New Mexico, that burned in high mixed-conifer forest dominated by ponderosa pine, Douglas-fir, and white fir. The area was typical of southwestern forests where fire had not been allowed to play a natural role. As a result, meadows and openings between trees resulted in a higher than natural number of stems per unit area. The fire burned approximately 32 percent of a 6.41-square-mile watershed at moderate or severe levels, 32 percent experienced low severity, and the rest was unburned. This fire burned approximately 250 homes and threatened the Los Alamos National Laboratory. Figure 3-21 illustrates the amount of sediment yielded from the watershed as a result of the fire. The first year following the fire yielded approximately 500 times more sediment than the previous 52 years combined (Lavine et al. 2006).

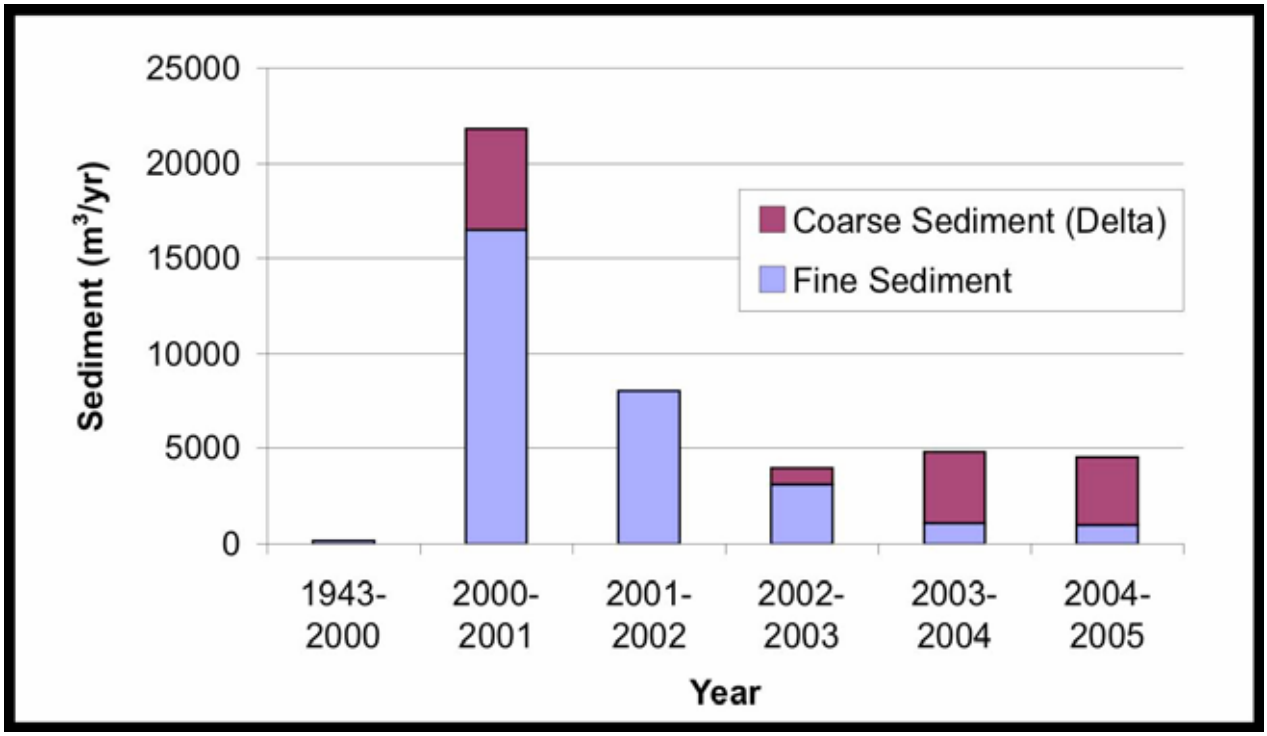

Figure 3-21. Sediment Yield, Los Alamos Canyon, following the Cerro Grande Fire

The Myrtle Creek Watershed serves as the Bonners Ferry, Idaho, municipal watershed; it provides water to approximately 3,500 residents. Several episodes of fire-related turbidity (cloudy appearance) were observed followed the 3,600-acre Myrtle Creek Fire in 2003. On July 4, 2004, approximately 1.5 inches of high-intensity rain fell on the burned area. Turbidity readings far exceed drinking water standards of 5 NTUs above natural background if the natural background is under 50 NTU (USDA Forest Service, 2008i).

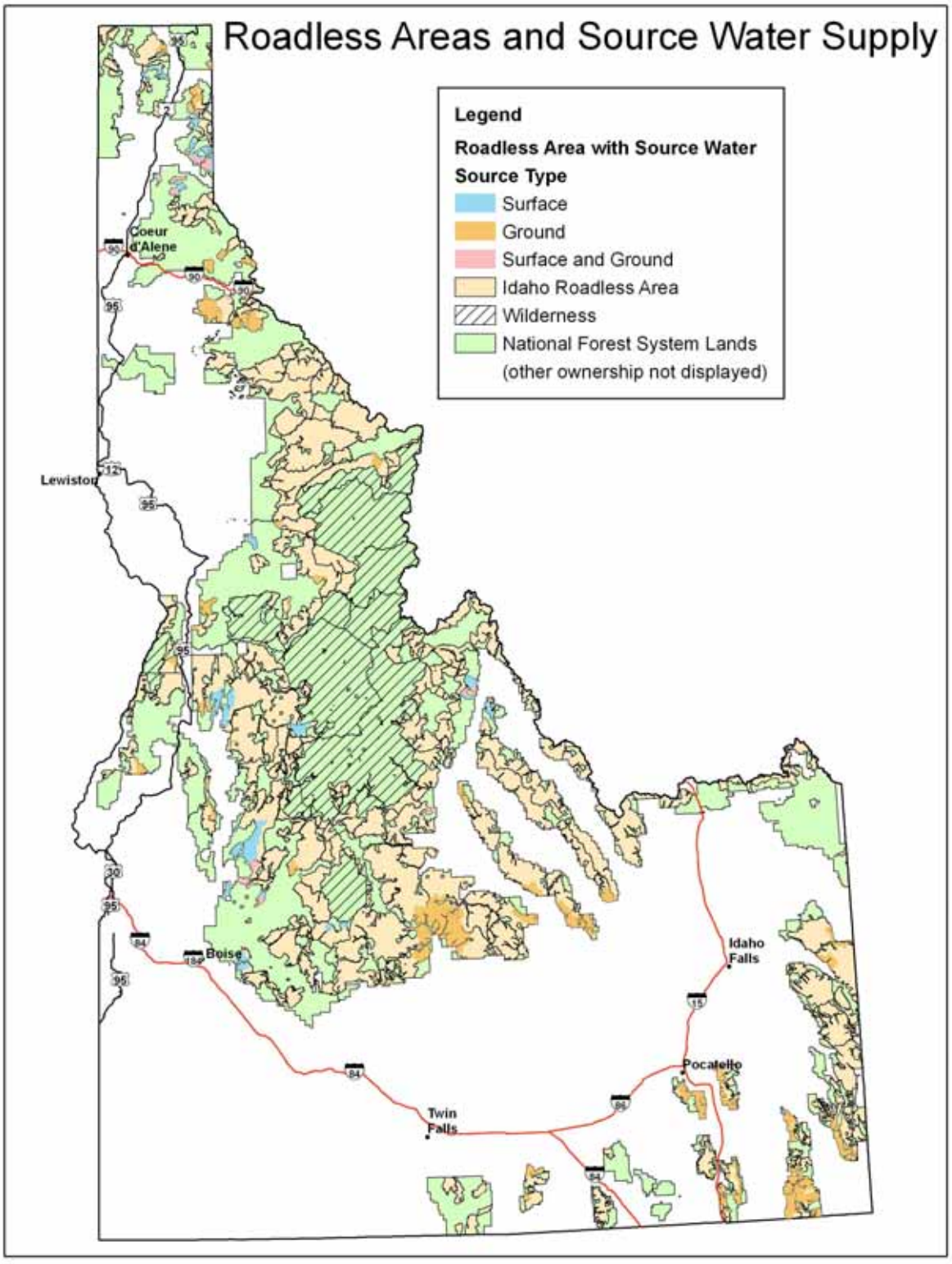

Figure 3-22. Overlap of Idaho Roadless Areas with community water supply systems.

WATER: ENVIRONMENTAL CONSEQUENCES

The watershed analysis evaluates: (1) the number of Idaho Roadless Areas located in watersheds that do not meet water quality standards identified in Idaho's 303(d) list of impaired watersheds; and (2) the acres of watersheds used for source water community supplies (both surface and groundwater).

All Alternatives

Water yield and flooding. Large magnitude flood events are generally the result of extended periods of precipitation and/or rapid snow melt runoff that exceeds the capacity of the soil to hold additional water (Lull and Reinhart 1972, Swanston 1991). Although land use practices may reduce soil water-holding ability, flooding can occur regardless of the land use practices. The increased risk of flood flows from small research watersheds following logging has been documented.

Small-watershed studies in the Rocky Mountains indicate that a 15 percent or greater timber harvest (activities that generally remove the overstory canopy) can increase measurable annual water yield (Stednick 1996). Although possible, under foreseeable management scenarios, it is unlikely that any small watershed (10,000 to 40,000 acres) would be harvested at levels approaching 15 percent in any of the alternatives within a 25- to 30-year tree/vegetation recovery period. Therefore, neither flooding nor total water yield is anticipated in these small watersheds as a result of any of the alternatives. However, large-scale wildfires may reduce tree cover by more than 15 percent within small watersheds. In this case, increased risk flooding and debris flows would be anticipated (Parrett et al. 2004).

Timber harvest activities. Timber harvest includes two general types of activities that may affect water resources: (1) the cutting and skidding or other transport of the trees within the logging unit, and (2) post-logging residue fuels treatment.

In 1974 the State of Idaho established a comprehensive Forest Practices Act (Idaho Code 38-13). The purpose is to encourage timber harvest and related activities that maintain or enhance trees, soil, water, wildlife and aquatic habitat. BMPs have been promulgated as Rules Pertaining to the Idaho Forest Practices Act (IDAPA 20.02.1). Since their adoption, BMPs have been an effective tool for minimizing impacts from forest practices (Idaho Department of Lands 2000). In addition, Forest Service Contract Provisions have improved, specifically the provisions that regulate how logs are moved from where the tree was felled within the harvest unit to landings where they can be loaded on trucks.

Jammer logging, with its high road densities, is no longer practiced on NFS lands. Traditional skid trails may still be used but today they are required to be carefully located to minimize the density needed and are used only under specified soil moisture conditions. Other practices used include logging over frozen ground and snow, more frequent use of felling/bunching equipment, and use of forwarders to reduce the number of equipment passes over soil surfaces. Skyline and/or helicopter yarding is now standard on steeper terrain. These practices are designed to reduce physical ground disturbance.

Fuels treatments can vary by site and may include: hand or machine piling and burning, broadcast burning, whole-tree yarding, and either selling the slash as a product or burning large piles at the landing. Of these, machine piling must be carefully conducted to minimize impacts such as bare soil; soil compaction (with reduced infiltration rates, greater surface runoff, and

loss of productivity); and associated potential surface erosion (2400-6 and 2400-6T Standard and Special Contract Provisions, R1/4 Soil and Water Conservation Practices).

Timber cutting effect on runoff timing. Timing of water runoff (how quickly a watershed generates runoff and the time it takes for that water to travel downstream) can change as roads and related drainage structures intercept, collect, and divert water. This accelerates water delivery to the stream, by intercepting, concentrating, and diverting runoff; the result is that more water becomes storm runoff, which increases the potential for runoff peaks to occur earlier, be of greater magnitude, and recede more quickly than in unroaded watersheds (Wemple et al. 1996, USDA Forest Service 2000r). In addition, timber cutting can reduce the percentage of precipitation that otherwise would be intercepted and evaporated before hitting the soil; timber cutting also makes available for runoff the water from precipitation that would have been used by trees. The USDA publication *Forest Service Roads: A Synthesis of Scientific Information* (USDA Forest Service 2000r) summarizes most of the effects of roads and timber harvests on hydrologic regimes.

Fire frequency. It is anticipated that the warmer conditions with earlier snow melt seen in Idaho over the past decade would continue. The risk of wildland fire would likely increase commensurate with the warming climate (see section 3.2, Vegetation and Forest Health, Carbon Storage and Climate Change). Continued efforts to reduce fuel hazards by thinning vegetative fuel cover, conducting controlled burns, and wider use of prescribed natural fire would be ongoing. Priority for fuels treatment and fire suppression would continue to be given to wildland-urban interface areas (or community protection zones) and municipal watersheds (Westerling et al. 2006, Mote et al. 2005).

Fuels Treatment. As a result of increased fire activity since the mid 1980s, fuel reduction is being conducted across the Western United States in an effort to reduce risk. Although fire suppression is thought to have increased the risk of larger, more intense wildfire, especially in the drier forest types, by reducing the natural role of fire in thinning forests, climate is thought to be the dominant factor because periods of large intense fires have happened long before effective fire suppression was begun. Upper elevation subalpine forests are not felt to have changed significantly in response to fire suppression because these forests were dense historically, with relatively long periods between stand-replacing fires (Schoennagel et al. 2004). Dry ponderosa pine forests have become denser and may benefit most from thinning and prescribed burning, which may move forests toward more natural conditions (Schoennagel et al. 2004). Across the Rocky Mountain region, mid-elevation forests may present the most problem for land managers because these forests have mixed fire regimes (Schoennagel et al. 2004). Fire use fires (prescribed natural fires), where fire are allowed to burn to achieve desired ecosystem adjustment, and use of controlled burns will likely become increasingly important tools for fuels treatment.

Roads. A detailed report presenting a synthesis of scientific information related to forest roads is provided in (USDA Forest Service 2000r). The potential impact of roads on erosion and sedimentation often exceed all other activities associated with timber harvest (Satterlund and Adams 1992, p. 325). Where system roads remain open, the risk of erosion and sedimentation generally decreases over time following construction (Thomas and Megahan 1998, MacDonald and Coe 2005), although roads may be a continual source of chronic erosion and sedimentation. Road surfaces are compacted and have low infiltration capacities; this means that precipitation will become surface runoff that can concentrate and be discharged in areas where concentrated

flow was not present before the road was constructed. Drainage patterns and roads are both networks, but they generally run perpendicular to each other; i.e., roads usually cut across slopes while streams flow down slopes. Common effects of roads on watersheds can occur where roads intersect drainages. Increases in the percentage of fine sediment measured below road stream intersections have been measured in granitic soils in Colorado (Schnackenberg and MacDonald 1998).

Designing road stream intersections to accommodate disturbances (large floods, debris flows, etc.) is important to reduce road failures (USDA Forest Service 2000r). A dense road network interacting with a dense stream network has a higher likelihood of effects than a limited road network overlaying a sparse drainage pattern. Roads that parallel drainages in close proximity to streams are at particular risk of adversely affecting stream systems. Forest roads located adjacent to water bodies are often a direct source of sediments, other pollutants, and increased flow volume. In steep landslide-prone terrain, the risk of mass movement (landslide and debris torrents) can be greatly increased by roads (USDA Forest Service 2000r).

Temperature. Road construction, reconstruction, and timber harvest may cause water temperature to change where groundwater is intercepted and brought to the surface or where loss of tree cover in riparian areas reduces shading. These effects are especially pronounced where the stream channel shape is wider and shallower (Hornbeck and Leak 1992). Temperatures may rise sharply in exposed areas, and some of those elevated temperatures may then return to normal levels as water re-enters shaded areas downstream or receives cool inflow from other streams or groundwater (USDA Forest Service 2000g). Smaller or shallower streams are generally more susceptible to temperature fluctuations than larger or deeper streams (Chamberlin et al. 1991).

Temporary roads. To address long-term road-caused erosion and sedimentation and to reduce road maintenance costs, a large percentage of new roads used for timber harvest (whether temporary or designed system roads) would be closed following construction. Both categories would have increased risks of erosion and sedimentation during the construction phase and for the first few years after construction. Temporary roads built with fewer design specifications may present a higher short-term risk than designed roads with detailed construction specifications. Research in Idaho has shown that appropriate stabilization techniques can greatly reduce road-related erosion (Buroughs and King 1989). Roads closed and left in a self-maintaining, long-term storage condition, or decommissioned, should eventually recover to near background levels of erosion and sedimentation risk as vegetation reestablishes effective ground cover increases. The length of time would vary according to factors such as treatments used when road was closed, climate, soil type, and terrain.

Existing phosphate leases. About 7,230 acres of phosphate deposits can be found in seven roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, Stump Creek, and Mount Jefferson) and are under existing lease. About 30 acres have been mined to date. About 1,100 acres associated with the Smoky Canyon Mine expansion are reasonably foreseeable to be developed within the next 15 years. The Smoky Canyon Mine expansion would affect the Sage Creek and Meade Peak Roadless Areas.

It is also reasonable to assume that the remaining phosphate deposits currently under lease, roughly 6,100 acres within the seven roadless areas, would likely be permitted and developed sometime in the extended future (50 or more years). Using the Smoky Canyon expansion as an

example of the level of activity expected, an estimated 17 miles of haul road construction and other surface mining disturbance would ultimately take place within the seven roadless areas.

All nine of the roadless areas have 303(d)-listed streams. One of these streams, in the Sage Creek Roadless Area is designated as 303(d) streams due to selenium. Any future development would require separate analysis to address a specific plan of operations. It is likely mitigation would be required to reduce potential effects from selenium and address 303(d) streams.

Approximately 130 acres of existing phosphate leasing areas are in watersheds with community water supplies. To comply with the Clean Water Act these activities must adhere to the National Pollutant Discharge Elimination System (NPDES) permit program controls that regulate point sources that discharge pollutants into waters of the United States. Point sources are discrete conveyances such as pipes or man-made ditches. Industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters. In Idaho the EPA is responsible for issuing NPDES permit.

Extraction of mineral resources using current BMP can be accomplished with acceptable impacts on water quality (BMPs for mining in Idaho 1992). Selenium contamination with phosphate mining has become an issue in recent years (VanKirk and Hill 2006). Selenium-specific BMPs have been developed for the Smoky Canyon Mine on the Caribou portion of the Caribou Targhee National Forest (USDI and USDA Forest Service 2007). The level of effectiveness of the measures adopted has been questioned (Myers 2007). If future adjustments are needed, then they would be addressed (USDI BLM and USDA Forest Service 2007).

Many legacy mine sites within NFS boundaries have been identified for treatment as funding becomes available. Some are being addressed through the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), which is the Federal law for investigating and correcting contamination.

2001 Roadless Rule (No Action)

Under the 2001 Roadless Rule, road construction / reconstruction and timber cutting would be permissible in limited situations. Over the next 15 years about 12 miles of permanent road are projected to be constructed and about 3 miles temporary, and timber cutting is projected to occur on 9,000 acres. About 2,930 miles of stream have been listed as 303(d) within the 9.3 million acres of Idaho Roadless Areas (table 3-30). There are about 1.18 million acres within roadless areas that contribute to a community public water system, either ground or surface water (table 3-31). Based on the foreseeable projections, the limited road construction / reconstruction, and timber cutting would have minimal risk to 303(d)-listed streams or drinking water, because the activities would be dispersed over time and space.

Under the 2001 Roadless Rule, road construction / reconstruction would be prohibited to access known unleased phosphate deposits on 14,460 acres on the Caribou-Targhee National Forest; therefore, there would be no additional effects from phosphate mining on these 14,460 acres (section 3.5, Minerals and Energy). In addition, it is likely there would be little to no geothermal development within Idaho Roadless Areas under the 2001 Roadless Rule because road construction / reconstruction is prohibited; therefore, there would be no effect on water resources from geothermal exploration and development.

Table 3-30. Total miles of 303(d)-listed streams, by management theme, by alternative

Theme	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Wild Land Recreation	0	270	320	340
Primitive	0	520	370	370
SAHTS	0	0	50	50
Similar to Backcountry	2,930	0	0	0
Backcountry	0	1,390	1,610	1,780
GFRG	0	530	360	170
Forest plan special areas	0	220	220	220
Total		2,930	2,930	2,930

About 190 miles of 303(d) listed streams are in backcountry community protection zones.

Table 3-31. Acres of watersheds with groundwater, surface water, and both ground and surface water community public waters systems, by management theme, by alternative

Theme	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Wild Land Recreation				
Groundwater system	0	87,200	86,400	91,400
Surface water system	0	14,200	15,500	15,500
Both systems	0	4,700	6,000	6,000
Total	**0**	**106,100**	**107,900**	**112,900**
Primitive				
Groundwater system	0	207,500	177,800	172,800
Surface water system	0	115,300	93,300	93,300
Both systems	0	31,500	14,500	14,500
Total	**0**	**354,300**	**285,600**	**280,600**
SAHTS				
Groundwater system	0	0	100	100
Surface water system	0	0	0	0
Both systems	0	0	0	0
Total	**0**	**0**	**100**	**100**
Similar to Backcountry				
Groundwater system	860,900	0	0	0
Surface water system	239,400	0	0	0
Both systems	80,800	0	0	0
Total	**1,181,100**	**0**	**0**	**0**
Backcountry				
Groundwater system	0	416,100	477,600	498,500
Surface water system	0	89,600	118,200	118,300
Both systems	0	29,000	54,400	54,600
Total	**0**	**534,700**	**650,200**	**671,400**
GFRG				
Groundwater system	0	114,900	83,800	62,900
Surface water system	0	18,000	10,200	10,200

Theme	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Both systems	0	14,700	5,000	4,800
Total	**0**	**147,600**	**99,000**	**77,900**
Forest plan special areas				
Groundwater system	0	35,100	35,100	35,100
Surface water system	0	2,200	2,200	2,200
Both systems	0	900	900	900
Total	**0**	**38,200**	**38,200**	**38,200**

In the Modified Rule, about 64,200 acres of groundwater, 11,500 acres of surface water, and 26,000 acres of both ground and surface water systems overlap community protection zones.

Existing Plans

About 27 percent of the 303(d)-listed stream segments are located in management prescriptions similar to the Wild Land Recreation and Primitive themes. Road construction or reconstruction is prohibited and very limited timber cutting is permitted (table 3-30). About 39 percent of the watersheds with a community public water system are also located in these themes (table 3-31). Therefore, in these areas there would be little added risk to 303(d)-listed streams or community public water systems from activities in the Wild Land Recreation and Primitive themes because very little if any ground-disturbing activities would be permitted.

About 18 percent of the 303(d)-listed stream segments, and 12 percent of the watersheds with a community public water system, are located in a management prescription similar to the GFRG theme. Road construction and reconstruction are generally allowed in these areas. About 47 percent of the 303(d)-listed stream segments and 45 percent of the watersheds with a community public water system are located in management prescriptions similar to the Backcountry theme. Road construction and reconstruction are allowed only in limited situations (tables 3-30 and 3-31, and appendix B).

Based on foreseeable projections, about 105 miles of road are anticipated to be constructed and 75 miles reconstructed over the next 15 years in Idaho Roadless Areas. About 72 miles are anticipated to be permanent roads and 33 miles temporary. As described above in the All Alternatives section, road construction and reconstruction could affect water quality depending on the location, duration, and site-specific circumstances of the road construction. Although even well-designed and -constructed roads would create some increased risk of erosion and sedimentation, proper location and design and the use of BMPs during construction can minimize the risk; however, the risk cannot be totally avoided.

About 40,500 acres of timber harvest are projected to occur over the next 15 years. These activities are likely to occur in areas where forest plan prescriptions are equivalent to the GFRG and Backcountry themes. Timber cutting could affect water quantity depending on how much is harvested in one area. However, since less than a half a percent of all roadless areas are projected to be harvested over the next 15 years, it is unlikely this degree of cutting would be measurable at the 10,000 to 40,000 acre watershed scale.

Roads used to facilitate timber cutting in priority areas could reduce the risks to water resources. Watershed studies have indicated that water and sediment yield increases from fires vary significantly depending on fire intensity and severity. Low-intensity, low-severity fires generally return to pre-fire conditions within 3 years, while high-intensity, high-severity fires

may take more than 15 years to recover (DeBano et al. 1998). Fuel-reduction projects could reduce the severity of wildland fires (Finney and Cohen 2003, USDI and USDA Forest Service 2006).

Currently, all Forest Service permanent and temporary roads needed for timber sales are designed and constructed using water, soil, and air BMPs that meet or exceed those required by the State of Idaho. Road design and management criteria incorporate the latest knowledge and experience, resulting in fewer effects—such as surface erosion, landslides, sedimentation, and dust emissions—on water, soil, and air resources. Proper design and construction of new roads and maintenance of existing and new roads can limit but not eliminate these effects (USDA Forest Service 2000r).

Budgets should remain flat in nominal terms but are likely to decline in real terms. This implies: (1) a reduction in the miles of roads being maintained, by putting roads into self-maintaining, long-term storage, or decommissioning (obliterating) them; (2) little new construction; and (3) lowered maintenance standards on remaining roads. To address budget shortfalls, emphasis has been placed on placing existing roads in long-term storage or obliterating them altogether. It is highly likely that many more miles of road would be placed into storage or obliterated than would be built in any of the land management themes (see section 3.4, Road Construction / Reconstruction).

The Caribou Forest Plan permits leasing of the estimated 6,750[70] acres of known unleased phosphate deposits and / or other possible roadless areas that contain undiscovered phosphate resources. These known unleased phosphate deposits occur in six roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek) and would likely be developed over an extended period of time (50 or more years). In addition, there are 6,870 acres of unleased phosphate deposits on the Targhee portion of the forest within the Bald Mountain, Bear Creek, and Poker Creek Roadless Areas. An environmental analysis would have to be completed to determine how many of the 6,870 acres could actually be leased.

About 640 acres of unleased phosphate deposits overlap community water supply systems (groundwater) within Dry Ridge, Huckleberry Basin, and Meade Peak Roadless Areas. All nine of the roadless areas have 303(d)-listed streams, including one, in the Sage Creek Roadless Area due to selenium. Any future development would require separate site-specific analysis to address exploration and development. Mitigation would be required to reduce potential effects from selenium and to address 303(d)-listed streams and community water supply systems.

Existing Plans would allow road construction / reconstruction for geothermal development in some locations in management prescriptions similar to Backcountry and GFRG. It is unknown where and to what degree geothermal resources would be developed; however, because about half of Idaho Roadless Areas have high to medium potential, it is likely some development would eventually occur. Currently lease applications have been submitted for geothermal exploration that could affect about 7,000 acres of the Peace Rock Roadless Area on the Boise National Forest and 33 acres of the West Panther Roadless Area on the Salmon National Forest. If fully developed, roads, transmission lines, and other facilities would likely be constructed

[70] Another 910 acres of unleased phosphate deposits are in the Bear Creek Roadless Area in the GFRG theme. However, no road construction or reconstruction is permitted to access these deposits. Based on past history, phosphate mining could occur on an additional 1,910 acres around unleased KPLAs on the Caribou-Targhee National Forest (see section 3.5 Minerals and Energy).

(see appendix I for a description of general development of geothermal resources). Water resources, such as 303(d)-listed streams or surface drinking water would be considered during site-specific analysis, and mitigations would be applied.

Proposed Idaho Roadless Rule (Proposed Action)

About a 25 percent of the 303(d)-listed stream segments are located in the Wild Land Recreation, Primitive, and SAHTS themes. These themes prohibit road construction or reconstruction and permit very limited, if any, timber cutting (table 3-30). About 33 percent of the source drinking water supplies are also located in these themes (table 3-31). In these themes there would be no effect on 303(d)-listed streams or watersheds with a community public water system because limited activities would occur.

About 12 percent of the 303(d)-listed stream segments and 8 percent of the community water supply systems are located in the GFRG theme, where road construction and reconstruction are generally permissible; and 55 percent are located the in Backcountry theme, where road construction and reconstruction are allowed only in limited situations (table 3-30).

Based on foreseeable projections, about 61 miles of road are anticipated to be constructed / reconstructed over the next 15 years in Idaho Roadless Areas under the Proposed Idaho Roadless Rule. Of this total about 12 miles would be permanent roads, 26 miles would be temporary, and 23 miles of road would be reconstructed. The risk incurred by building small numbers of mostly temporary roads would be minimal and their adverse effects would last only a few years for those roads that are properly placed into long-term storage or obliterated following the management activity. In addition, the Proposed Rule emphasizes using techniques to reduce resource effects from road construction.

About 18,000 acres of timber harvest are projected over the next 15 years and would primarily occur in the Backcountry and GFRG themes. Timber cutting could affect water quantity depending on how much is harvested in one area. Less than a quarter of one percent of all roadless areas is projected to be harvested and spread out over all the National Forest of Idaho. Over the next 15 years, it is unlikely this degree of cutting would have measurable effects on water quality at the watershed scale of 10,000 to 40,000 acres.

Roads used to facilitate timber cutting in priority areas could reduce the risks to water resources under this alternative. Watershed studies have indicated that water and sediment yield increases from fires vary significantly depending on fire intensity and severity. Low-intensity, low-severity fires generally return to pre-fire conditions within 3 years, while high-intensity, high-severity fires may take more than 15 years to recover (DeBano et al. 1998). Fuel-reduction projects could reduce the severity of wildland fires (Finney and Cohen 2003, USDI and USDA Forest Service 2006).

There are 14,460 acres of known unleased phosphate deposits on the Caribou-Targhee National Forest. About 13,190 acres[71] (91 percent) are located within the Backcountry and GFRG themes. Under these themes road construction or reconstruction would be permissible to develop these phosphate deposits. These deposits are located within nine roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek on the Caribou

[71] Based on past history, phosphate mining could occur on an additional 1,850 acres around unleased KPLAs (see section 3.5 Minerals and Energy).

portion of the forest; and Bald Mountain, Bear Creek, and Poker Creek on the Targhee portion of the forest) and could eventually be mined over an extended period of time (50 or more years).

About 640 acres of unleased phosphate deposits overlap community water supply systems (groundwater) within Dry Ridge, Huckleberry Basin, and Meade Peak Roadless Areas. All nine of the roadless areas have 303(d)-listed streams, including one, in the Sage Creek Roadless Area due to selenium. Any future development would require separate site-specific analysis to address exploration and development. Mitigation would be required to reduce potential effects from selenium and to address 303(d)-listed streams and community water supply systems. Any phosphate mining activities in these roadless areas would have to ensure the streams stream conditions are maintained or improved and ground water supplies are protected.

About 1,280 acres of unleased phosphate deposits are in the Primitive theme in the Proposed Rule. The Primitive theme prohibits road construction / reconstruction or surface occupancy for phosphates; therefore, this area would likely not be developed (section 3.5, Minerals and Energy) and there would be no effect on water resources found in these areas.

The Proposed Idaho Roadless Rule would also permit road construction / reconstruction for geothermal development in the GFRG theme. About 7 percent of Idaho Roadless Areas are in this theme, but only about 4 percent could be developed because of slope restrictions on the remaining 3 percent (section 3.5, Minerals and Energy, table 3-24). It is likely some of these areas would be developed over time; however, except for two pending lease applications there is no information about where or when the activity would occur. If fully developed, roads, transmission lines, and other facilities would likely be constructed (see appendix I for a description of general development of geothermal resources). Site-specific analysis would occur prior to exploration or development of geothermal energy resources and would include consideration of water resources.

Currently lease applications have been submitted for geothermal exploration within 7,000 acres of the Peace Rock Roadless Area on the Boise National Forest and 33 acres of the West Panther Roadless Area on the Salmon National Forest. Both these areas are in either the Primitive or Backcountry theme; therefore, they would not be developed because of the inability to construct roads to access the area (see section 3.5, Minerals and Energy). No water resources would be affected in these areas.

Modified Idaho Roadless Rule (Preferred Alternative)

About a 26 percent of the 303(d)-listed stream segments are located in the Wild Land Recreation, Primitive, and SAHTS themes under the Modified Idaho Roadless Rule. These themes prohibit road construction or reconstruction and permit very limited, if any, timber cutting (table 3-30). About 33 percent of the source drinking water supplies are also located in these themes (table 3-31). In these themes there would be no effect on 303(d)-listed streams or watersheds with a community public water system because limited activities would occur.

Under the Modified Rule, about 6 percent of the 303(d)-listed stream segments and 7 percent of the community public water system are located in the GFRG theme, where road construction and reconstruction are generally permissible. About 6 percent of the 303(d)-listed stream segments and 9 percent of the community public water system are located in the Backcountry theme, within the community protection zone where temporary road construction and reconstruction are allowed only in limited situations (tables 3-30 and 3-31). Road construction / reconstruction could also occur to a limited degree outside the CPZ in the Backcountry theme if

needed to reduce significant risk to at-risk communities or municipal water supply systems. About 57 percent of the Backcountry theme overlaps community public water systems, but not all these systems are at risk from wildland fire effects. The risks and needs to treat the risk would be evaluated at a project-level basis.

About 15,000 acres of timber harvest are projected under the Modified Rule. Timber harvest would primarily occur in the GFRG and within Backcountry CPZ. Timber cutting could affect water quantity depending on how much is harvested in one area. However, since less than a quarter of 1 percent of all roadless areas is projected to be harvested over the next 15 years, it is unlikely this degree of cutting would have measurable effects at the 10,000 to 40,4000 acre watershed scale.

Based on foreseeable projections, about 50 miles of road are anticipated to be constructed / reconstructed over the next 15 years in Idaho Roadless Areas under this alternative. Of this total about 12 miles would be permanent roads, 21 miles would be temporary, and 17 miles of road would be reconstructed. The risk incurred by building small numbers of mostly temporary roads would be minimal and their adverse effects would last only a few years for those roads that are properly placed into long-term storage or obliterated following the management activity. In addition, the Modified Idaho Roadless Rule emphasizes using techniques to reduce resource effects from road construction (see Appendix O for additional information on temporary road construction and decommissioning).

Temporary roads could be constructed to facilitate timber harvest outside the CPZ where needed to reduce significant adverse effects on communities or municipal water supply systems. Watershed studies have indicated that water and sediment yield increases from fires vary significantly depending on fire intensity and severity. Low-intensity, low-severity fires generally return to pre-fire conditions within 3 years, while high-intensity, high-severity fires may take more than 15 years to recover (DeBano et al. 1998). Fuel-reduction projects could reduce the severity of wildland fires (Finney and Cohen 2003, USDI and USDA Forest Service 2006).

There are 14,460 acres of known unleased phosphate deposits on the Caribou-Targhee National Forest. Under the Modified Idaho Roadless Rule, roads could be constructed or reconstructed to access about 5,770 acres[72] of unleased phosphate deposits in the GFRG theme. These deposits are located within six roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek) on the Caribou portion of the forest and could eventually be mined over an extended period of time (50 or more years).

About 640 acres of unleased phosphate deposits overlap community water supply systems (groundwater) within Dry Ridge, Huckleberry Basin, and Meade Peak Roadless Areas. All six of the roadless areas have 303(d)-listed streams, including one, in the Sage Creek Roadless Area due to selenium. Any future development would require separate site-specific analysis to address exploration and development. Mitigation would be required to reduce potential effects from selenium and to address 303(d)-listed streams and community water supply systems. Any phosphate mining activities in these roadless areas would have to ensure the stream conditions are maintained or improved.

[72] Based on past history, phosphate mining could occur on an additional 810 acres around unleased KPLAs on the Caribou-Targhee National Forest (see section 3.5 Minerals and Energy).

About 1,280 acres of unleased phosphate deposits are in the Primitive theme under the Modified Rule, and 6,500 acres in the Backcountry theme[73] in the Bald Mountain, Bear Mountain, and Poker Peak Roadless Areas on the Targhee portion of the Caribou-Targhee National Forest. The Primitive theme prohibits road construction / reconstruction or surface occupancy for phosphates; therefore, this area would likely not be developed (section 3.5, Minerals and Energy) and there would be no effect on water resources found in this area. The Backcountry theme prohibits road construction and reconstruction to access unleased phosphate deposits, but permits surface use and occupancy. However, without access it is unlikely these deposits would be developed; therefore no effect on water resources would be found in these areas.

Similar to the 2001 Roadless Rule, the Modified Rule prohibits road construction / reconstruction for new mineral leases in all themes. In addition, the Modified Rule prohibits surface use and occupancy of new mineral leases in the Wild Land Recreation, Primitive, and SAHTS themes. Surface use and occupancy would be permitted in the Backcountry and GFRG themes if allowed in the forest plans. It is unlikely new mineral development would occur in any of the themes without road access; therefore, no water resources would be affected in these areas.

AIR: AFFECTED ENVIRONMENT

Air Quality

Congress established a national goal to prevent visibility impairment and improve visibility in all class I areas. Class I air quality areas are NFS wilderness areas, national parks, or national wildlife refuges greater than 5,000 acres in size and designated prior to the establishment of the Clean Air Act Amendments of 1977. Class I areas can also include lands designated by Tribes or States. These areas serve as benchmarks for monitoring changes in air quality over adjacent lands. There are four class I areas within Idaho and another 10 within 50 miles of the Idaho border. About 7.5 million acres of Idaho Roadless Areas are within 50 miles of a class I airshed (fig. 3-23 and table 3-32 [in the Environmental Consequences section]).

The goal is to reduce regional haze that now affects class I areas to near natural background levels. Atmospheric emissions from road construction; unsurfaced or gravel road dust; volatile organic compounds from gasoline or soot from diesel engines; open pit mining operations; and smoke from fire-use fires, slash treatment, or wildfires all may contribute to haze levels. The Idaho Department of Environmental Quality (DEQ) is consulted and authorizes prescribed burning to reduce adverse effects by choosing timeframes that will allow for maximum dispersion of smoke (Story and Dzomba 2005).

[73] Another 910 acres of unleased phosphate deposits are in the Bear Creek Roadless Area in the GFRG theme. However, no road construction or reconstruction is permitted to access these deposits (section 3.5, Minerals and Energy).

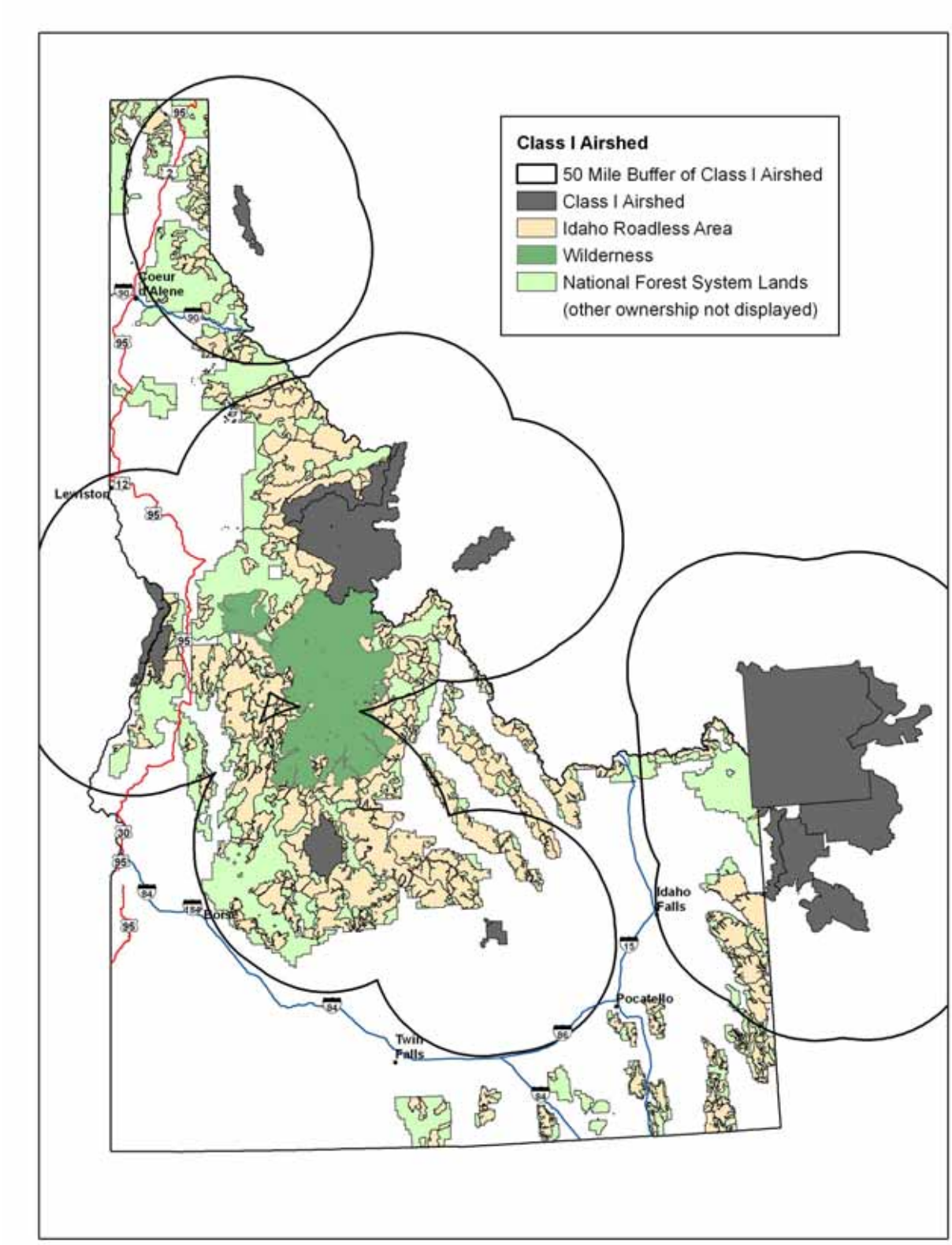

Figure 3-23. Idaho Roadless Areas within 50-mile radius of class I airshed

AIR: ENVIRONMENTAL CONSEQUENCES

About 7.5 million acres of the 9.3 million acres of Idaho Roadless Areas are within 50 miles of class I airsheds (table 3-32). Atmospheric emissions from road construction and use include: (a) particulate matter consisting of suspended (less than 25 microns in diameter) and larger coarse soils; (b) nitrogen and volatile organic compounds from gasoline engines; and (c) soot from diesel engines. These pollutants contribute to visibility reduction.

Mechanical and other fuel treatment before prescribed burning in areas with large fuel accumulations is an important aspect to meeting air quality standards. The direct removal of fuel reduces potential site emissions and indirectly reduces fuel consumption, and hence, pollutants. Emissions generated during prescribed burning in untreated forests could exceed standards.

Table 3-32. Number of acres within 50 miles of a class I air quality protection area

Theme	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Wild Land Recreation	0	1,215,800	1,265,000	1,366,700
Primitive	0	1,782,400	1,570,000	1,640,000
SAHTS	0	0	70,700	48,600
Similar to Backcountry	7,450,300	0	0	0
Backcountry	0	3,455,100	4,030,600	3,933,000*
GFRG	0	706,900	223,900	171,900
Forest plan special areas	0	290,100	290,100	290,100

**About 370,900 acres are in the community protection zone.*

2001 Roadless Rule (No Action)

Under the 2001 Roadless Rule, about 12 miles of road are projected to be constructed and 3 miles reconstructed over the next 15 years. This level of construction / reconstruction would have no effect on air quality. Timber cutting is projected to occur on about 9,000 acres over the next 15 years. It is likely some of these areas with vegetation treatment would be followed up with prescribed burns. Any burning would be completed in accordance with State air quality regulations. Prescribed burning on these few acres would not have a measurable effect because of the few number of acres treated over an extended period of time and land area. The removal of fuel on these few acres would not measurably affect the extent and intensity of wildland fire because so few acres are treated.

Existing Plans

About 7.45 million acres of the class 1 airsheds are located within 50 miles of management prescriptions that permit road construction / reconstruction and / or timber cutting (table 3-32). Under this alternative about 105 miles of road are anticipated to be constructed and 75 miles reconstructed over 15 years. It is likely this construction / reconstruction would be spread across Idaho, and not concentrated in one area; therefore, there would be no measurable effect on air quality. Timber cutting is projected to occur on about 40,500 acres from Idaho Roadless Areas over the next 15 years. It is likely many of these areas would be prescribed burned. Although smoke generated from these burns might affect class I areas, any burning would be completed according to State air quality guidelines. Smoke from prescribed burns are more manageable

and predictable than those from wildland fires because they are required to adhere to strict burning guidelines.

Proposed Idaho Roadless Rule (Proposed Action)

Under the Proposed Idaho Roadless Rule, road construction / reconstruction is prohibited on about 3,101,500 acres. Generally these areas are close to class I airsheds, because the Wild Land Recreation and Primitive themes generally abut wilderness areas. These prohibitions would not affect class I airsheds because no activities would occur. Timber cutting and prescribed burning could occur in the Primitive and SAHTS themes.

Road construction / reconstruction and timber cutting, sale, or removal would be permitted to some degree on about 4.25 million acres within 50 miles of a class I airshed (table 3-32). About 38 miles of road are projected to be constructed (temporary and permanent construction) and 23 miles reconstructed over the next 15 years. This level of construction would have little risk of measurable effect on air quality because it is so dispersed and minute.

Timber cutting, sale, or removal to reduce hazardous fuels and for stewardship purposes is anticipated to occur on about 18,000 acres over the next 15 years. As noted for Existing Plans, any prescribed burning completed on these acres may affect air quality; however, because of strict burning guidelines the overall effect would be closely managed.

Modified Idaho Roadless Rule (Preferred Alternative)

Under the Modified Idaho Roadless Rule road construction / reconstruction is prohibited on about 3,251,000 acres. Generally these areas are close to class I airsheds, because the Wild Land Recreation and Primitive themes generally abut wilderness areas. These prohibitions would not affect class I airsheds because no activities would occur. Timber cutting and prescribed burning could occur in the Primitive and SAHTS themes.

Road construction / reconstruction and timber cutting, sale, or removal would be permitted to some degree on about 594,800 acres within 50 miles of a class I airshed (table 3-32), and would infrequently occur 3.65 million acres. About 33 miles of road are projected to be constructed (temporary and permanent) and 17 miles reconstructed over the next 15 years. This level of construction would have no measurable effect on air quality because it is so dispersed and minute.

Timber cutting, sale, or removal to reduce hazardous fuels and for stewardship purposes is anticipated to occur on about 15,000 acres over the next 15 years. As noted for Existing Plans, any prescribed burning completed on these acres may affect air quality; however, because of strict burning guidelines the overall effect would be closely managed.

Physical Resources: Cumulative Effects

Cumulative effects on soil, water, and air resources are generally considered as incremental changes that alone are not overwhelming but when combined create impacts that are judged to be detrimental or beneficial. Assessment of management-caused cumulative effects must be done in the spatial and temporal context of naturally occurring events such as wildfire, drought, floods, earthquakes, and insect infestations, which can all drastically alter physical conditions and affect soil, water, and air resources even without human-induced perturbations.

Between 2001 and 2006, approximately 29 miles of road in Idaho have been decommissioned for every mile of new construction (section 3.4, Road Construction /Reconstruction). Reconstruction of existing roads to current standards generally results in improved drainage structures and reduced risk to water quality. Decommissioned roads are left in a self-maintaining condition. Generally culverts are pulled and in some cases partial or total recontouring is conducted as needed to protect water quality.

The minimal amount of annual road construction anticipated in any of the management themes indicates that effects directly associated with road construction or ancillary effects would be limited to a relatively few areas within Idaho.

Of the indicators selected, few showed large differences and it is unlikely that changes in water quality, timing, or yield would be measured at the watershed scale most often associated with project analysis (10,000 to 40,000 acres). None of the changes are expected to be measurable at the river basin or Statewide scale for the risk factors used in this analysis. However, the differences may be important at site-specific locations and be measurable at smaller watershed scales. Site-specific effects of possible future road building—or ancillary effects such as mining operations, geothermal development, or off road vehicle use initiated following new road construction—may be locally important but cannot be assessed within this EIS. The potential is likely highest for areas where roads could be constructed to access unleased phosphate deposits where ground disturbance would be the greatest. Selenium has been identified as a contaminant associated with phosphate mining. Selenium can bio-accumulate and can be toxic to both terrestrial and aquatic plants and animals. The risks of selenium would need to be identified and addressed in the project planning process. The Proposed Rule or the Modified Rule do not change the requirements to comply with the National Forest Management Act; National Environmental Policy Act; Clean Water Act; and other acts, executive orders, and policies.

The cumulative effects of some programmatic policy and management decisions—such as INFISH, PACFISH, Northern Rockies Lynx Management direction, management direction for grizzly bears in the Greater Yellowstone Ecosystem, and the Roads Policy and Travel Management Policy, as described in appendix N— mitigate the environmental impacts of road building and/or tree cutting by limiting activities, identifying roads no longer needed, and identifying specifically which roads are open and closed to motorized travel. The 2001 Roadless Rule, the Proposed Rule and the Modified Rule rules would further reduce impacts through their various prohibitions on road building in Idaho Roadless Areas. These additional protections would vary by alternative, commensurate with the projected levels of activities described in Tables 3-2 and 3-3. However, given the small scale of activities expected in Idaho Roadless Areas under each of the four alternatives, the differences in soil, air and water quality from the three alternatives are not expected to be measurable.

The National Fire Plan, Healthy Forests Initiative, Healthy Forests Restoration Act, and Energy Policy Act were considered by projecting the potential activities (timber cutting and mineral development) that were foreseeable to occur based on the prohibitions and permissions in each alternative. Therefore, these policies were evaluated in the previous sections.

3.7 Botanical Resources

Changes Between Draft and Final EIS

- Information regarding "element occurrences" (EOs) has been updated since the draft EIS based on information provided by the Idaho Conservation Data Center (ICDC). The new tables are based on point data for EOs that fall within roadless areas as opposed to extrapolation of polygon data used in the draft EIS analysis.
- Narrowleaf grape fern (*Botrychium lineare*) was removed from candidate status on Dec. 6, 2007 (USDI, Fish and Wildlife Service 2007); therefore, it is has been removed from table 3-33 and was added to the sensitive species list.
- Slickspot peppergrass (*Lepidium papilliferum)* was added as a "proposed Endangered" species by U.S. Fish and Wildlife Service (FWS) on July 18, 2008 (USDI, Fish and Wildlife Service 2008c).
- General editorial changes and additional information to improve understanding of topics covered in the document were made.
- Added analysis for new alternative Modified Idaho Roadless Rule.

Introduction

Idaho Roadless Areas contain undisturbed landscapes that provide habitat for some of the rarest elements of the Idaho flora—threatened, endangered, proposed, candidate, and sensitive plant species.

Currently three threatened or candidate plant taxa (species, subspecies, or varieties) occur within Idaho Roadless Areas, according to the Idaho Conservation Data Center's (ICDC) Element Occurrence Database (Idaho Department of Fish and Game [IDFG] 2007). In addition, 66 plant taxa designated as sensitive by Forest Service regional foresters occur within Idaho Roadless Areas based on GIS analysis data: 27 in the Intermountain Region (R4) (USDA Forest Service 2004c) and 39 in the Northern Region (R1) (USDA Forest Service 2004d).

The analysis evaluates the known occurrences of threatened, candidate, and sensitive species and their overlap with Idaho Roadless Areas, and the potential environmental consequences of the prohibitions and permissions to the occurrences.

Affected Environment

Threatened, Endangered, Proposed, and Candidate Plants

Table 3-33 provides a list of plants that have Federal status as threatened or candidate species and whether or not they overlap with Idaho Roadless Areas. There are no plants listed as endangered under the Endangered Species Act (ESA) within National Forest System (NFS) lands in Idaho. Of the six threatened, proposed and candidate species found in Idaho, three have known occurrences that are located in Idaho Roadless Areas, (see fig. 3-24)

Table 3-33. Threatened, proposed and candidate species on NFS lands in Idaho: Federal and State status, occurrence within Idaho Roadless Areas, and National Forest distribution

Species name	Common name	Global[1]	State[2]	Federal satus[3]	Occurrence in Idaho Roadless Areas[4]	National forest distribution[5]
Castilleja christii	Christ's Indian paintbrush	G1	S1	Candidate	Mount Harrison	Sawtooth
Howellia aquatilis	water howellia	G2	S1	Threatened	No	ph (Nez-Perce, Clearwater, Idaho-Panhandle)
Lepidium papilliferum	slickspot peppergrass	G2	S2	Proposed Endangered	No	ph (Boise NF Mountain Home RD)
Mirabilis macfarlanei	MacFarlane's four-o-clock	G2	S1	Threatened	Big Canyon Idaho	Nez-Perce (administered by Wallowa-Whitman)
Silene spaldingii	Spalding's silene	G2	S1	Threatened	No	Nez-Perce (ph on Clearwater)
Spiranthes diluvialis	Ute ladies'-tresses	G2	S1	Threatened	Garns Mountain	Caribou-Targhee

[1] ***Global*** *= global ranking as assigned by Idaho Natural Heritage Program,* ***G1 =*** *globally critically imperiled,* ***G2 =*** *globally imperiled.*

[2] ***State*** *= Idaho State ranking,* ***SH =*** *State historical occurrence,* ***S1 =*** *State critically imperiled,* ***S2 =*** *State imperiled*

[3] ***Federal*** *= listing as per the Endangered Species Act*

[4] *Occurrence based on GIS overlay with Idaho Roadless Areas.*

[5] ***ph*** *= potential habitat.*

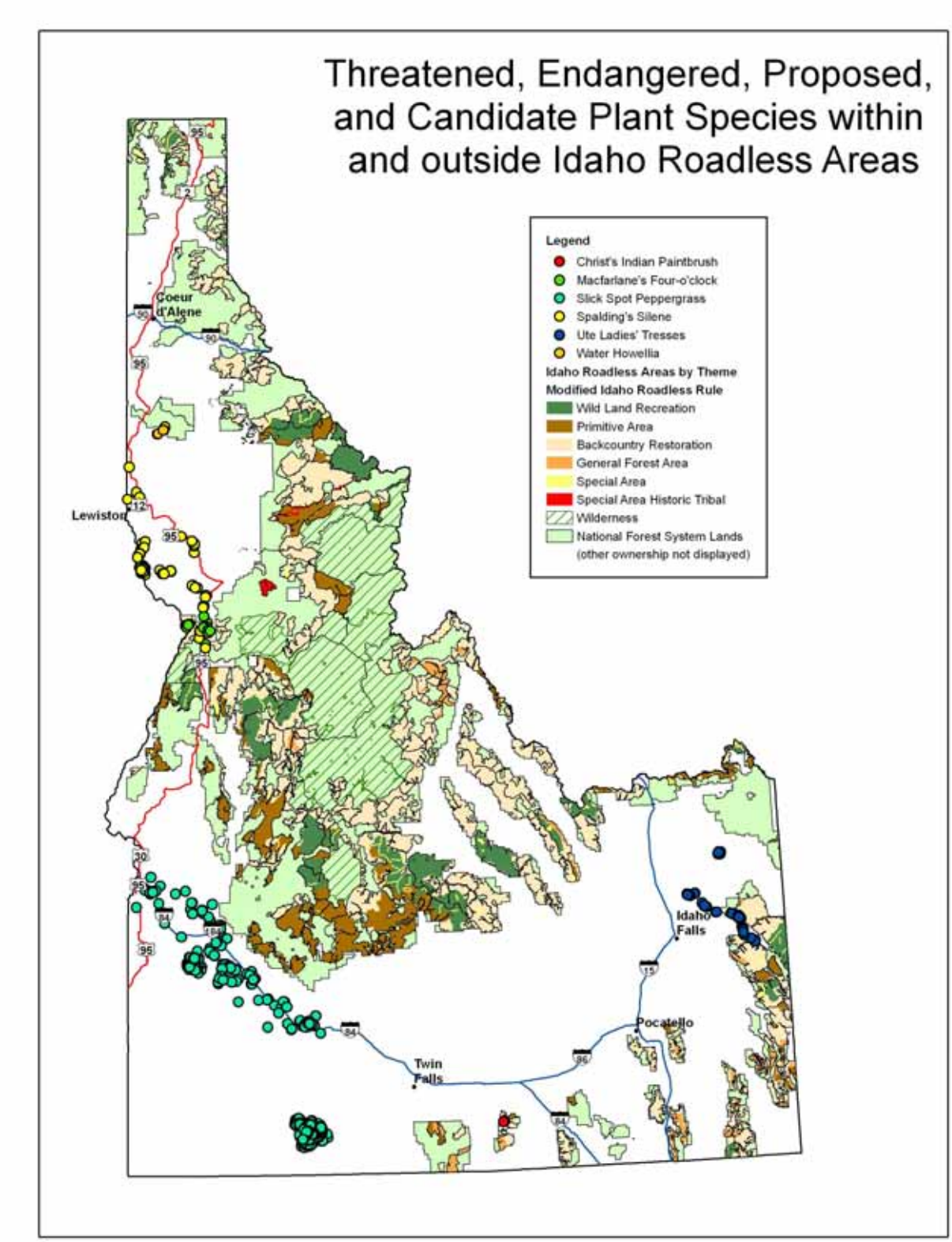

Figure 3-24. Threatened, endangered and candidate plant species inside and outside Idaho Roadless Areas

Christ's Indian paintbrush (*Castilleja christii).* This paintbrush is a rare yellow-flowering plant found only on the top of Mount Harrison, Cassia County, on the Sawtooth National Forest, within the Mount Harrison Roadless Area. The species is confined to a 220-acre population in subalpine meadows and sagebrush habitats within the Mt. Harrison Interpretive Area, with a small portion of the population occurring within a research natural area. *Castilleja christii* is currently a candidate for federal listing under the ESA and is on the FWS 2007 Federal Candidate Notice of Review (USDI Fish and Wildlife Service 2007 [72 FR 69034]) . Management of this species is guided by a Candidate Conservation Agreement recently renewed between the Sawtooth National Forest and the FWS for a ten-year period (USDA Forest Service and USDI Fish and Wildlife Service 2005).

Water howellia (*Howellia aquatilis*). Water howellia is a regional aquatic endemic which grows in ephemeral pools, glacial pothole ponds and old river oxbows. It is extremely limited throughout its range – currently known from 13 small sites in western Montana, northwest California, northern Idaho, and eastern and western Washington. The life cycle of water howellia is tied to the local hydrology of ephemeral pools and has very specific habitat requirements. A critical feature of water howellia habitat is that these ponds dry out by the end of the growing season. Most ponds are shallow with firm bottoms, have no outlet, and are depend on groundwater, flooding and precipitation as their source of moisture. Water howellia has always been considered extremely rare within the botanical record. It was listed as a federally threatened species in 1994 (USDI Fish and Wildlife Service, 1994a [59 FR 35860]). The sole occurrence known from the state of Idaho is found in Latah County on private lands along the flood plain of the Palouse River in Northern Idaho. There are no known individuals, populations or habitat on NFS lands within the Idaho Roadless areas and will therefore not be affected by this Rule.

Slickspot peppergrass (*Lepidium papilliferum).* Slickspot peppergrass is a herbaceous annual or biennial plant that occurs in sagebrush-steppe habitats. It is limited to slickspots within the sagebrush-steppe in southwestern Idaho found along the Snake River Plain and Owyhee Plateau in Ada, Canyon, Gem, Elmore, Payette, and Owyhee counties, Idaho. *Lepidium papilliferum* is threatened by a variety of activities including reduction in habitat quality, invasion by non-native species, livestock trampling, increased wildfire intervals, irrigated agriculture, and off-highway vehicle use and fragmentation. It was proposed for federal listing as an endangered species in 2002 (USDI Fish and Wildlife Service 2002a [67 FR 46441]). In 2003 the FWS announced an extension of the comment period due to substantial disagreement regarding sufficiency of available data to make a final determination (USDI Fish and Wildlife Service 2003c [68 FR 42666]).

A Candidate Conservation Agreement was developed between the affected cooperating parties from Idaho to implement conservation measures to protect the plant and its habitat in 2003 resulting in the withdrawal of the final listing rule (USDI Fish and Wildlife Service 2003d and 2004). In August 2005, the District Court of Idaho reversed the withdrawal of the rule following a complaint by Western Watersheds with direction that the case be remanded to the Secretary of Interior for reconsideration. After additional review and the courts requested the FWS to make a final listing determination by January 2007. A determination to withdraw the listing rule was made on Jan 12, 2007 (USDI Fish and Wildlife Service 2007b [72 FR 1672]). Following a new June 4, 2008 court decision, the slickspot peppergrass is now been reinstated as a "proposed endangered" species (USDI, Fish and Wildlife Service 2008c). There are no known individuals or populations on NFS lands. Potential habitat may be found in the Boise National Forest on the

Mountain Home Ranger District. The low elevation sagebrush-steppe habitats where Slickspot peppergrass may be found, timber cutting, road construction for fuel reduction purposes and geothermal development are not likely to be affected under this Rule.

Macfarlane's four-o'clock (*Mirabilis macfarlanei***).** MacFarlane's four-o'clock is a long-lived perennial species narrowly endemic to portions of the Snake, Salmon, and Imnaha river canyons in northeastern Oregon and adjacent west-central Idaho. This plant usually emerges from the ground by early April, blooms May through June, sets seed by mid-summer (June to July), then dies back to a large, tuberous root growing deep in the soil until the following spring It grows in warm, dry, river canyon grassland habitats dominated by bluebunch wheatgrass. Many of the known populations occur within the Hell's Canyon National Recreation Area. Talus rock often underlies the soils and several sites are unstable and prone to erosion. Plants are most commonly found on steep grassland slopes between 1,000 and 3,000 feet in elevation.

MacFarlane's four-o'clock is currently listed as threatened under the ESA (USDI Fish and Wildlife Service 1996 [61 FR 10693]). Originally, MacFarlane's four-o'clock was listed as endangered in 1979 (USDI Fish and Wildlife Service 1979 [44 FR 61912]) with only three known populations. Since then, additional populations have been discovered resulting in the change to threatened status March 15, 1996. Critical habitat has not been designated for this species. The FWS published the Revised Recovery Plan for MacFarlane's four-o'clock (USDI Fish and Wildlife Service 2000). The nine occurrences found within the Big Canyon Roadless Area are on lands administered by the Wallowa-Whitman National Forest.

Spalding's catchfly (*Silene spaldingii*). Spalding's catchfly is a Palouse prairie endemic restricted to mesic grasslands that make up the Palouse region in southeastern Washington, northwestern Montana, adjacent portions of Oregon, Idaho and British Columbia. In Idaho, Palouse prairie is confined to a narrow band along the western edge of central and north-central Idaho, centering on Latah County. More than 98 percent of the original Palouse prairie habitat has been lost or modified by agricultural conversion, grazing, invasion by non-native species, and urbanization (Noss et al. 1995). *Silene spaldingii* was listed as a Federally threatened species under the ESA in 2001 (USDI Fish and Wildlife Service 2001a [66 FR 51598]). Several populations Spalding's catchfly occur in the west-central portion of the state, including two occurrences on the Nez-Perce National Forest primarily on steep canyon grasslands. There are no known individuals, populations or habitat on NFS lands within the Idaho Roadless Areas and will therefore not be affected by this rule.

Ute ladies'-tresses (*Spiranthes diluvialis*). Ute ladies'tresses is a perennial, terrestrial orchid found in moist meadow habitats associated with floodplains, oxbows, and stream and river terraces, subirrigated or spring-fed abandoned stream channels and valleys, lakeshores, and human-modified riparian and lacustrine habitats (Fertig et al. 2005). The species is characterized by ¾-inch white flowers spirally arranged along 7-32-inch stems. *Spiranthes diluvialis* ranges in elevation from 720 to 1,830 ft in Washington to 7,000 feet in northern Utah. It typically occurs in stable wetland and seepy area associated with historical floodplains of major rivers as well as wetlands and seeps near freshwater springs. Occupied sites are almost always associated with a high water table, usually within 5-18 inches below the surface. Populations of Ute ladies'-tresses have been found in many western states such as: Colorado, Utah, Montana, Nebraska, Nevada, Washington, Wyoming, and Idaho. Although the range of the orchid is large, it most often occurs as localized small metapopulations that are comprised of clusters of occurrences. Ute

ladies'-tresses was listed as a federally threatened species in 1992 (UDSI Fish and Wildlife Service 1992a [57 FR 2048]).

In Idaho, the species was first discovered along the Snake River floodplain in 1996 (Moseley 1998). There are 22 known occurrences scattered along the Snake River over 49 river miles, from near its confluence with Henry's Fork to below the Palisades Dam. In 2002, a new occurrence was discovered at the Chester Wetlands segment of the Idaho Fish and Game Sand Creek Wildlife Management Area (Murphy 2002) and in 2003, another occurrence was found on private land along Texas Slough (Murphy 2004). All occurrences along the South Fork of the Snake River are considered part of the same metapopulation (Murphy 2004). Five populations of Ute ladies'-tresses are found in the Garns Mountain Roadless Area on the Targhee portion of the Caribou-Targhee National Forest. This species is jointly managed by the Forest Service and BLM under the South Fork Activity Plan. Habitat for this species is found along mesic meadows and floodplains in low gradient valley bottoms along the South Fork of the Snake River.

Sensitive Plant Species

Currently there are 66 sensitive plant taxa known to occur within 80 Idaho Roadless Areas, including the three threatened and candidate species previously discussed (tables 3-33 and 3-34, and appendix K, tables K-1 and K-2). Populations of these plant species are infrequent and many have a localized distribution across the landscape. They are associated with an array of plant communities, unique habitats, and geological formations. The character, distribution, and extent of habitats depend on numerous factors: the size of the area; the type, intensity and timing of management-induced and natural disturbances that have occurred; and the landscape context within which they are found. Each species is also different with respect to critical life history characteristics, habitat requirements, and ecological sensitivity. Consequently, it is extremely difficult, and potentially misleading, to generalize the effects of various management activities on all these species. This is especially true with narrowly endemic species and populations at the fringe of their natural range. Some of the species occurring within certain management themes areas may be highlighted for discussion because of the significance of the potential effects of those activities.

Habitat Guilds. Sensitive plant species are often found in specific habitats. Because of the large number of rare species within Idaho, sensitive plants can be assigned to one or more rare plant guilds, which are groupings based on similar habitat characteristics and life history requirements that are useful for analysis purposes. The groupings or habitat associations used for this analysis are: aquatic, riparian, fens, grasslands, wetlands and moist meadows, forest understory, shrublands and woodlands, subalpine meadows, alpine, and rock outcrops / talus slopes.

Table 3-34. Distribution of threatened, proposed, candidate and sensitive (TPCS) species that overlap with Idaho Roadless Areas, by habitat guilds

Riparian/ forest streambanks	Moist cliffs, seeps, and banks
Allium madidum, swamp onion	*Mimulus alsinoides,* chickweed monkeyflower
Rubus bartonianus, bartonberry	*Mimulus ampliatus,* spacious monkeyflower
Spiranthes diluvialis, Ute Ladies' tresses orchid	
Thelypteris nevadensis, Sierra wood-fern	**Wetlands and moist meadows**
	Agoseris lackschewitzii, pink agoseris
Fens and fen margins	*Botrychium lanceolatum var. lanceolatum,* lance-leaved moonwort
Carex leptalea, bristle-stalked sedge	*Dryopteris cristata,* crested shield-fern
Drosera intermedia, spoon-leaved sundew	*Epilobium palustris,* swamp willow-weed
Gaultheria hispidula, creeping snowberry	*Hypericum majus,* large Canadian St. John's-wort
Lycopodiella inundata, northern bog clubmoss	*Iris versicolor,* blueflag
	Schoenoplectus subterminalis, water clubrush
Salix pedicellaris, bog willow	
Scheuchzeria palustris, pod grass	**Forest understory and gaps**
Trientalis arctica, northern starflower	*Allotropa virgata,* candystick
Vaccinium ocycoccos, bog cranberry	*Astragalus paysonii,* Payson's milkvetch
	Blechnum spicant, deer-fern
Grasslands	*Botrychium lineare,* narrowleaf grape fern
Allium tolmiei var. persimile, Tolmie's onion	*Botrychium minganense,* Mingan moonwort
Botrychium ascendens, triangular-lobed moonwort	*Botrychium montanum,* mountain moonwort
Calochortus nitidus, broad-fruit mariposa	*Botrychium pedunculosum,* stalked moonwort
Halimolobos perplexa var. perplexa, puzzling halimolobos	*Botrychium pinnatum,* northern moonwort
Mirabilis macfarlanei, MacFarlane's four-o'clock	*Buxbaumia viridis,* green bug moss (moss)
	Calamagrostis tweedii, Cascade reedgrass
Shrublands/ woodlands	*Cardamine constancei,* Constance's bittercress
*Haplopappus insecticruris, b*ugleg goldenweed	*Cornus nuttallii,* Pacific dogwood
Lepidium papilliferum, slickspot peppergrass	*Cypripedium fasciculatum,* clustered lady's-slipper
Mimulus clivicola, bank monkeyflower	*Hookeria lucens,* light hookeria (moss)
Oxytropis besseyi var. salmonensis, Challis crazyweed	*Lycopodium dendroideum,* ground-pine
Penstemon lemhiensis, Lemhi penstemon	*Penstemon compactus,* Mt Naomi penstemon
*Phacelia minutissima,*least phacelia	*Phegopteris connectilis,* northern beechfern
	Polystichum braunii, Braun's sword-fern
Subalpine openings, meadows, and grasslands	*Rhizomnium nudum,* naked mnium (moss)
Castilleja christii, Christ's Indian paintbrush	*Streptopus streptopoides,* krushea
Cymopteris davisii, Davis' wavewing	*Synthyris platycarpa,* evergreen kittentail
Cymopteris douglasii, Douglas' wavewing	*Waldsteinia idahoensis,* Idaho strawberry
Dasynotus daubenmirei, Daubenmire's dasynotus	
Douglasia idahoensis, Idaho douglasia	**Alpine**
Saxifraga bryophora var. tobiasiae, Tobias' saxifrage	*Astragalus vexilliflexus var. nubilis,* White Cloud milkvetch
	Draba globosa, pointed draba
Cliffs, rocky outcrops, and talus slopes	*Lesquerella paysonii,* Payson's bladderpod
Astragalus amnis-amissi, Lost River milkvetch	*Poa abbreviate ssp. marshii,* Marsh's bluegrass
Astragalus aquilonius, Lemhi milkvetch	
Chrysothamnus parryi ssp. montanus, centennial rabbitbrush	
Collomia debilis var. camporum, flexible alpine collomia	
Thelypodium repandum, wavy-leaf thelypody	
Thlaspi idahoense var. aileeniae, Aileen's pennycress	

ENVIRONMENTAL CONSEQUENCES

All Alternatives

Field surveys would be conducted in all areas considered for project activities that contain high potential suitable habitat, and appropriate mitigation would be applied. There are 702 individual element occurrences of various threatened, proposed, candidate, and sensitive (TPCS) species in Idaho Roadless Areas (table 3-35 and -36, and appendix K, tables K-1 through K-4).

Road Construction, Reconstruction, and Maintenance. Past, present and future construction and maintenance of roads have both adverse and positive effects on roadside plant populations. Road corridors associated with energy development in areas with or without transmission lines have been known to reduce the overall survival rate of the endangered Kern mallow (Cypher 2005). On the other hand, road maintenance may benefit those species that have a competitive edge in disturbed environments or depend on early seral conditions to establish new individuals and populations. Roads increase access to and provide an avenue for weed invasion. Roads can be placed on ridgetops, in riparian areas, or through scree slopes, which are often important habitats for a number of species. Reconstruction and maintenance of existing roads can directly or indirectly affect plant populations by introducing competitive weeds and altering availability of light, nutrients, and moisture. Maintenance of roads may increase traffic along these roads and thus increase potential for disturbance of plant populations adjacent to roads.

Habitat fragmentation. Habitat fragmentation can affect rare plant species demographics (location) and genetics. Habitat fragmentation may change a plant species demographic by affecting its interaction with pollinators, interrupting its ability to move,and changing its micro-climate (the local area in which it lives) by opening up the vegetation. Habitat fragmentation can affect genetics by increasing self-pollination or by changing the ability for a plant to disperse. However, these effects have not resulted in large-scale extinctions of any rare forest plants (Honnay and Bossuyt 2005).

A plant's susceptibility to habitat fragmentation depends on life-history traits related to plant dispersal, establishment, or persistence (Kolb and Diekmann 2005). In the case of long-lived perennials, long-term persistence of small and isolated forest plant populations may be due to the fact they reproduce clonally and therefore persist for long generation times. However, the consequences of prolonged clonal reproduction (and suppression of sexual reproduction) has been that locally less-adapted clones become out competed by expanding clone members of more adapted species' expanding their range (Hartnett and Bazzaz 1985). Almost all (90 percent) of angiosperms are pollinated by animals, especially insects (Wilcock and Neiland 2002), and fragmentation can negatively affect pollinator abundance, diversity, and visitation (Steffan–Dewenter and Tscharntke 1999).

Although an increasing number of studies conclude that habitat fragmentation is broadly harmful to native bees, not all evidence points in that direction. There is evidence that fractions of native bee communities can persist in habitats that have been modestly altered by human activities (Marlin and LaBerge 2001), and the possible effects of habitat fragmentation on bees are only now beginning to be understood (Cane 2001). Fragmentation implies increased edge effects, which may be as important as isolation (Turner et al. 1996). Edge effects influence plant dynamics such as regeneration, interspecies competition, predation, seed dispersal, and

pollination (Murcia 1995). In addition, the changed microclimate of increased air and soil temperature, characterized by increased light penetration, directly affects plant population dynamics. Edge effects also influence bryophyte community structure in border habitats where abrupt differences in microclimatic conditions between the different forest conditions exist (Pharo and Zartman 2007).

Spread of non-native invasive plants and animals and edge-dwelling species. Non-native weeds directly affect plants and plant populations through competitive displacement above ground and in the seed bank. Indirect impacts include herbicide spraying and mechanical ground disturbance to control noxious weeds once they gain a foothold. Competition from invasive non-native species and noxious weeds can result in the loss of habitat, loss of pollinators, and decreased numbers of species. Roads, trails, and canopy reduction can provide ideal pathways for the introduction of exotic and non-native species. Indirectly, herbicide spraying can destroy populations of native pollinators by contaminating nesting materials and pollen resources (Pierson et al. 2000), further decreasing the capability and reproductive success of TPCS species. Some species of non-native plants will alter hydrological regimes, changing and reducing the habitat available to TPCS plants.

Human access. The most important direct impact on plants related to human access is trampling, both by hikers and via newly available routes for off-highway vehicles use (Liddle 1975, 1991). These types of activities particularly threaten many TPCS species. Road building and the development of facilities used by recreationists also contribute to plant impacts, because these developments make more areas accessible and concentrate use; dispersed camping and recreation have similar impacts but these are more difficult to monitor. Parking areas, particularly undesignated areas, can have similar impacts on plants. Other recreational impacts include off-highway vehicle use, which can also disturb soil and thus affect both habitat and potential habitat. Roads often provide easy access to plant hobbyists and collectors. Roads and trails can contribute to the spread of noxious weeds and can increase accessibility to native wildlife and livestock, which can exacerbate the impacts of trampling and congregation.

Vegetation management impacts. Timber cutting, road construction, and associated infrastructure development may alter the hydrologic processes needed for sensitive plants such as Ute ladies'-tresses orchid and rare moss species of wetland-associated habitat groups (aquatic, fens and fen margins, riparian, and wet coniferous forest). Changes to the hydrologic processes in wetlands may result in both a decrease and increase of wetland water levels. Timber cutting can create sudden changes in seral stage, or an abundance of early seral stages, and also reduce the available habitats for those plants that require mid-to-late seral stages (such as clustered lady-slipper orchid). However, those species that prefer openings, early-seral conditions, or some ground disturbance, could benefit from moderate levels of mechanical activities. Changing patch dynamics across the landscape could also have beneficial or adverse effects on TPCS plant species and their pollinators. Restoration of historical fire regimes and conditions for different potential vegetation groups may benefit some TPCS species in the long term.

Phosphate development. About 7,230 acres of phosphate deposits can be found in seven roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, Stump Creek, and Mount Jefferson) and are under existing lease. About 30 acres have been mined to date. About 1,100 acres, associated with the Smoky Canyon Mine expansion, are reasonably

foreseeable to be developed within the next 15 years. The Smoky Canyon Mine expansion would affect the Sage Creek and Meade Peak Roadless Areas.

It is also reasonable to assume that the remaining phosphate deposits currently under lease, roughly 6,100 acres within the seven roadless areas, would likely be permitted and developed sometime in the extended future (50 years or more). Using the Smoky Canyon expansion as an example of the level of activity expected, an estimated 17 miles of haul road construction and other surface mining disturbance would ultimately take place within the seven roadless areas. Prior to mining, plant surveys would be conducted and any special protection measures would be applied.

2001 Roadless Rule (No Action)

The 2001 Roadless Rule prohibits road construction / reconstruction across all Idaho Roadless Areas, except under seven exceptions. Timber cutting is also prohibited except in a few cases (such as restoration of ecosystem processes and addressing uncharacteristic wildfire effects). Based on the prohibitions and permissions, about 15 miles of road are projected to be constructed over the next 15 years, and timber cutting is projected to occur on 9,000 acres.

TPCS plant species would benefit from the low amount of road construction / reconstruction under the 2001 Roadless Rule. With the few exceptions for timber cutting, this alternative presents a low risk to TPCS plant resources because of the lack of potential disturbance.

By restricting timber cutting to activities necessary for resource stewardship, many of the adverse effects of timber cutting would be minimized, while maintaining a management tool potentially needed for ecological restoration. Mechanical vegetation manipulation to reduce fuel loading may be desirable in some areas where there is an abnormally high risk of high intensity, large-scale fires. Fuels-reduction stewardship activities may be beneficial to some sensitive plant populations if impacts on their habitats are not excessive or permanent. Other types of stewardship timber cutting to meet objectives for watershed restoration and enhancement of riparian vegetation could benefit species such as Ute ladies' tresses orchid.

The priorities for fuels treatments in roadless areas would likely remain in those areas where there is a risk to life and property. With the possible exception of some local site-specific examples, the prohibitions on road construction / reconstruction and most timber cutting activities are not likely to affect the overall amount or severity of wildfires. As a result, the effects of wildfires on TPCS plant species are likely to be similar with or without the prohibitions. This alternative would not measurably affect the current ability to manage TPCS plant populations or their habitats.

The 2001 Roadless Rule limits road construction and reconstruction to reserved or outstanding rights; or as provided for by statute or treaty; or for the continuation, extension, or renewal of a mineral lease. Because roads cannot be constructed for future mineral leasing, there would be no additional effects on plant species.

No adverse environmental effects on TPCS plant species or their habitats would be expected from the 2001 Roadless Rule, because it does not directly authorize any ground-disturbing activities. Ground-disturbing activities permitted under this alternative include limited road construction / reconstruction and limited timber cutting across the entire 9.3 million acres of Idaho Roadless Areas. The Forest Service and other Government agencies with jurisdictional responsibilities would retain the tools necessary to manage these resources.

Existing Plans

Road construction / reconstruction is prohibited in management prescriptions similar to Wild Land Recreation theme (1,320,500 acres) and is generally not permitted in existing forest plan special areas such as research natural areas, eligible wild and scenic rivers, or designated wild and scenic rivers (about 334,500 acres) (appendix Q, table Q-1). Limited to no effects on plant species would occur on these lands.

Only timber cutting, to a very limited degree, is generally allowed in management prescriptions similar to the Primitive theme (1,904,100 acres). Limited to no effects on plant species would occur on these lands.

About 4,482,000 acres are in management prescriptions similar to Backcountry, where road construction / reconstruction is generally allowed, as is timber cutting for certain purposes. Timber cutting in these prescriptions is generally designed to meet other resource needs. About 293 TCS plant species are known to occur in Backcountry (tables 3-35 and 3-36 and appendix K, tables K-3 and K-4). About 1,263,200 acres are in prescriptions similar to GFRG, where road construction / reconstruction and timber cutting are allowed; about 57 TPCS plant species are known to occur within GFRG (tables 3-35 and 3-36 and appendix K, tables K-3 and K-4).

Where road construction / reconstruction and to some degree timber cutting occur, there is a potential to affect plant species through direct mortality, habitat loss, and disturbance. About 105 miles of road are projected to be constructed and 75 miles reconstructed over the next 15 years for timber cutting and non-timber-cutting related activities. Timber cutting is projected to occur on about 40,500 acres over the next 15 years. Based on this degree of foreseeable activity, Existing Plans would most likely fragment some TPCS populations and habitats, disrupt plant-pollinator interactions, and provide corridors for non-native species invasion.

The Caribou Forest Plan permits leasing of the estimated 6,750 acres of known unleased phosphate deposits and / or other possible roadless areas that contain undiscovered phosphate resources. These known unleased phosphate deposits occur in six roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek) and would likely be developed over an extended period of time (50 years or more). In addition, there are 6,870 acres of unleased phosphate deposits on the Targhee portion of the forest within the Bald Mountain, Bear Creek, and Poker Creek Roadless Areas. An environmental analysis would have to be completed to determine how much of the 6,870 acres could actually be leased. There is a potential risk to sensitive plant species habitats on these 13,620 acres[74] when and if this development occurs. Site-specific analysis would occur prior to any future leasing and mitigations applied.

Existing Plans may allow road construction / reconstruction for geothermal development in Backcountry and GFRG. It is unknown where and to what degree geothermal resources would be developed; however, because about half the Idaho Roadless Areas in these themes have high to moderate potential, it is likely some development would eventually occur. Currently lease applications have been submitted for geothermal exploration within 7,000 acres of the Peace Rock Roadless Area on the Boise National Forest and 33 acres of the West Panther Roadless Area on the Salmon National Forest. If fully developed, roads, transmission lines, and other facilities would likely be constructed (see appendix I for a description of general development

[74] Based on past history, phosphate mining could occur on an additional 1,910 acres around unleased KPLAs on the Caribou-Targhee National Forest (see section 3.5, Minerals and Energy).

of geothermal resources). Plant resources such as TPCS would be considered during site-specific analysis, and mitigations would be applied.

Table 3-35. Number of occurrences of known threatened, proposed and candidate plant element occurrences by alternative and similar theme

Theme	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Wild Land Recreation	0	0	0	0
Primitive/SAHTS	0	0	0	0
Similar to Backcountry	16	0	0	0
Backcountry	0	9	9	5
Backcountry CPZ	0	0	0	6
GFRG	0	2	2	0
Forest plan special areas	0	5	5	5
Total	16	16	16	16

SAHTS=Special Areas of Historical and Tribal Significance; CPZ = community protection zone; GFRG = General Forest, Rangeland, and Grassland

Table 3-36. Number of occurrences of known sensitive plant element occurrences by alternative and similar theme

Theme	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Wild Land Recreation	0	81	90	102
Primitive/SAHTS	0	97	82	100
Similar to Backcountry	686	0	0	0
Backcountry	0	284	336	266
Backcountry CPZ	0	0	0	46
GFRG	0	55	9	3
Forest plan special areas	0	169	169	169
Total	686	686	686	686

SAHTS=Special Areas of Historical and Tribal Significance; CPZ = community protection zone; GFRG = General Forest, Rangeland, and Grassland

Proposed Idaho Roadless Rule (Proposed Action)

Under the Proposed Idaho Roadless Rule road construction / reconstruction would be prohibited in Wild Land Recreation, Primitive, and SAHTS themes (about 3,101,500 acres), and very limited timber cutting would be allowed in the Primitive and SAHTS themes; therefore, there would be limited to no effects to sensitive plants and their habitats for the 171 TPCS plant occurrences that are found within these theme areas (tables 3-35 and 3-36,and appendix K, and tables K-3 and K-4).

Road construction / reconstruction and timber cutting would be permitted in limited situations in Backcountry (5,258,700 acres) and would be permissible in GFRG (609,600 acres). Eleven TPCS plant occurrences may be found in GFRG and 345 TPCS plant occurrences may be found in the Backcountry theme (tables 3-35 and 3-36 and appendix K, tables K-3 and K-4). Within the Backcountry theme there are nine Element Occurrences of the federally listed Macfalane's Four-o'clock and there is a potential that undiscovered populations or potential habitat may be adversely affected by activities allowed under this theme. About 38 miles of road construction and 23 miles of road reconstruction are projected over the next 15 years. Timber cutting is

projected on 18,000 acres over the next 15 years for stewardship and fuel reduction purposes. This would affect about 0.2 percent of total Idaho Roadless Area acreage over 15 years.

By restricting timber cutting to activities necessary to address forest health and hazardous fuels, many of the adverse effects of timber cutting would be minimized, while maintaining a management tool potentially needed for ecological restoration. Mechanical vegetation manipulation to reduce fuel loading may be desirable in some areas where there is an abnormally high risk of high intensity, large-scale fires. Fuels reduction activities may be beneficial to some sensitive plant populations if impacts on their habitats are not excessive or permanent. Other types of timber cutting to meet objectives for watershed restoration and enhancement of riparian vegetation could be designed to benefit species such as Ute ladies' tresses orchid, however, given the overlap of these permitted activities with potential habitat and undiscovered populations of Ute ladies'-tresses orchid, this species may be adversely affected by activities that could occur under these themes .

Under the Proposed Rule, two occurrences of Christ's Indian paintbrush fall within the GFRG theme but no additional impacts are expected due to the already existing roads that access the occupied area and potential habitat. The Proposed Rule would permit road construction / reconstruction and surface occupancy within the Backcountry and GFRG themes to access unleased phosphate deposits. There are 14,460 acres of known unleased phosphate deposits on the Caribou-Targhee National Forest. About 13,190 acres (91 percent) are located within the Backcountry and GFRG themes. These deposits are located within nine roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek on the Caribou portion of the forest; and Bald Mountain, Bear Creek, and Poker Creek Roadless Areas on the Targhee portion of the forest) and could eventually be mined over an extended period of time (50 years or more). There is a potential risk to sensitive plant species habitat on these 13,190 acres[75] when and if this development occurs. Site-specific analysis would occur prior to any future leasing and mitigations applied.

About 1,280 acres of unleased phosphate deposits are in the Primitive theme. The Primitive theme prohibits road construction / reconstruction or surface occupancy for phosphates; therefore, this area would likely not be developed (see section 3.5, Minerals and Energy) and there would be no effect on plant species found in this area.

The Proposed Rule would also allow road construction / reconstruction for geothermal development in the GFRG theme. About 7 percent of Idaho Roadless Areas are in this theme, but only about 4 percent could be developed because of slope restrictions on the other 3 percent (see section 3.5, Minerals and Energy, table 3-24). It is likely some of these areas would be developed over time; however, except for two pending lease applications there is no information about where or when the activity would occur. If fully developed, roads, transmission lines, and other facilities would likely be constructed (see appendix I for a description of general development of geothermal resources). Plant resources would be considered during site-specific analysis, and mitigations would be applied.

Currently lease applications have been submitted for geothermal exploration within 7,000 acres of the Peace Rock Roadless Area on the Boise National Forest and 33 acres of the West Panther Roadless Area on the Salmon National Forest. Both these areas are in either the Primitive or

[75] Based on past history, phosphate mining could occur on an additional 1,850 acres around unleased KPLAs (see section 3.5 Minerals and Energy).

Backcountry theme; therefore, they would not be developed because of the inability to construct roads to access the area (see section 3.5, Minerals and Energy). No plant resources would be affected in these areas.

In most cases, minimal to no adverse environmental effects on TPCS plant species or their habitats would be expected from the Proposed Rule, because it does not directly authorize any ground-disturbing activities; however some species could be adversely affected by activities that occur pursuant to the Proposed Rule. The Forest Service and other Government agencies with jurisdictional responsibilities would retain the tools necessary to manage these resources. The Proposed Rule would not change current TPCS plant direction and would require site-specific analysis prior to implementing projects on the ground.

Modified Idaho Roadless Rule (Preferred Alternative)

Under the Modified Idaho Roadless Rule road construction / reconstruction would be prohibited in Wild Land Recreation, Primitive, and SAHTS themes (about 3.25 million acres), and very limited timber cutting would be allowed in the Primitive and SAHTS themes; therefore, there would be limited to no effects to sensitive plants and their habitats for the 201 TPCS plant occurrences that are found within these theme areas (tables 3-35 and 3-36, and appendix K, and tables K-3 and K-4).

About 5.31 million acres are in the Backcountry theme. The permissions to construct road construction were modified from the Proposed Rule. Temporary road construction and road reconstruction could occur within the community protection zone (CPZ) if the community protection objectives cannot be reasonably accomplished without a temporary road. About 442,000 acres are estimated to be within the CPZ zone in the Backcountry theme. Nine Element Occurrences and potential habitat for Macfalane's Four-o'clock are found within the Backcountry and Backcountry / CPZ areas. Temporary road construction would be conducted in a manner that minimizes surface disturbances, could only be used for the specified purpose, and would be decommissioned once the activity is completed or the contract is done. Given the overlap with themes permitting such activities, there is a potential that undiscovered individuals, populations or habitat may be adversely affected by activities that could occur under these themes. Within the Backcountry / CPZ, there are 52 TPCS plant occurrences (tables 3-35 and 3-36, appendix K, tables K-3 and K-4).

Outside the CPZ, temporary roads could be constructed to facilitate timber cutting to reduce the significant risk of wildland fire effects on communities or municipal water supply systems. Temporary roads may only be constructed if the activity cannot be reasonably accomplished without a temporary road and if due consideration is given to the conservation of roadless area characteristics. Two occurrences of Christ's Indian paintbrush fall within Backcountry outside of CPZ but no additional impacts from this theme are expected due to the already existing roads that access the occupied area and potential habitat. Temporary road construction within this theme is anticipated to be very infrequent on the 4.87 million acres of Backcountry outside the CPZ because of the additional conditions. About 271 TPCS plant occurrences may be found in the Backcountry theme outside the CPZ (tables 3-35 and 3-36, and appendix K, tables K-3 and K-4).

Road construction / reconstruction and timber cutting would be permissible in the GFRG theme (405,900 acres). Three sensitive plant occurrences, and no threatened or candidate species occurrences, are known in the GFRG theme (tables 3-35 and 3-36, and appendix K, tables K-3

and K-4). About 33 miles of road construction and 17 miles of road reconstruction are projected over the next 15 years and are projected to occur primarily in the GFRG theme and within CPZ in the Backcountry theme. Timber cutting is projected on 15,000 acres over the next 15 years for stewardship and fuel reduction purposes. This would affect about 0.16 percent of total Idaho Roadless Area acreage over 15 years.

By restricting timber cutting to activities necessary to address hazardous fuels and to a limited degree forest health, many of the adverse effects of timber cutting would be minimized, while maintaining a management tool potentially needed for ecological restoration. Mechanical vegetation manipulation to reduce fuel loading may be desirable in some areas where there is an abnormally high risk of high-intensity, large-scale fires. Fuels-reduction activities may be beneficial to some sensitive plant populations if impacts on their habitats are not excessive or permanent. Other types of timber cutting to meet objectives for watershed restoration and enhancement of riparian vegetation could be designed to benefit species such as Ute ladies' tresses orchid, however, given the overlap of these permitted activities with potential habitat and undiscovered populations of Ute ladies'-tresses orchid, this species may be adversely affected by activities that could occur under these themes.

The Modified Rule would permit road construction / reconstruction and surface occupancy within the GFRG theme to access unleased phosphate deposits. There are 14,460 acres of known unleased phosphate deposits on the Caribou-Targhee National Forest. Under the Modified Rule, about 5,770 acres (40 percent) are located within the GFRG themes. These deposits are located within six roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek on the Caribou portion of the forest and could eventually be mined over an extended period of time (50 years or more). There is a potential risk to sensitive plant species habitat on these 5,770 acres[76] when and if this development occurs. Site-specific analysis would occur prior to any future leasing and mitigations applied.

About 8,690 acres of unleased phosphate deposits are in the Primitive, Backcountry, and GFRG themes in the Bear Creek, Bald Mountain, and Poker Peak Roadless Areas. Road construction and reconstruction would be prohibited to access these deposits. Without road access it is unlikely these deposits would be developed (section 3.5, Minerals and Energy); therefore, there would be no effect on botanical resources found in this area.

Similar to the 2001 Roadless Rule, the Modified Rule prohibits road construction / reconstruction for new mineral leases, other than phosphate in all themes. In addition, the Modified Rule prohibits surface use and occupancy of new mineral leases in the Wild Land Recreation, Primitive, and SAHTS themes. Surface use and occupancy would be permitted in the Backcountry and GFRG themes if allowed in the forest plans. It is unlikely new mineral development would occur in any of the themes without road access; therefore, there no botanical resources would be affected in these areas.

In most cases minimal or no adverse environmental effects on TPCS plant species or their habitats would be expected from the Modified Rule, because it does not directly authorize any ground-disturbing activities; however some species could be adversely affected by activities that occur pursuant to the Modified Rule. The Forest Service and other Government agencies with jurisdictional responsibilities would retain the tools necessary to manage these resources.

[76] Based on past history, phosphate mining could occur on an additional 810 acres around unleased KPLAs on the Caribou-Targhe National Forest (see section 3.5 Minerals and Energy).

The Modified Rule would not change current TPCS plant direction and would require site-specific analysis prior to implementing projects on the ground.

CUMULATIVE EFFECTS

The past, present, and reasonably foreseeable programmatic actions listed in appendix N have and would generally benefit TPCS plant species in Idaho as a whole. Existing plans, as well as manual direction (FSM 2670) provide direction to mitigate potential impacts on TPCS species resulting from project activities.

Like the Proposed Idaho Roadless Rule, the Modified Idaho Roadless Rule would overall be beneficial to biological diversity, including species populations and habitats, similar to the 2001 Roadless Rule. Compared to the Proposed Rule, the Modified Rule would provide 101,700 more acres in the Wild Land Recreation theme, and 69,900 more acres in the Primitive theme and cover an additional 30 EO's under these more protective themes. The Roads Policy and National Travel Management Policy generally result in reducing disturbance. Although the alternatives permit road construction / reconstruction into roadless areas, the trend has been to construct fewer roads and to decommission more roads (see section 3.4, Road Construction / Reconstruction).

The National Fire Plan, Healthy Forests Initiative, Healthy Forests Restoration Act, and the Energy Implementation Plan may all encourage activities to occur, but none of these policies dictate where the activities would occur or how they would be designed. Potential foreseeable actions based on these policies, such as timber cutting and mineral and energy development, were considered in the analysis. Existing plan direction that provides guidance on how to protect plant species, or conservation strategies for individual plant species, can be applied during project design. Cumulatively, there would be minimal to no adverse effect on any known occurrence of TPCS species in Idaho Roadless Areas under any alternative because these species would be considered in project design and appropriate conservation measures applied.

3.8 AQUATIC SPECIES

CHANGES BETWEEN DRAFT AND FINAL EIS

- Included the Southwest Idaho Eco-group (SWIEG) land management plan document as a guiding document for fisheries management in Idaho.
- Expanded discussion on aquatic threatened and endangered species and their habitats.
- Clarified the distribution of designated critical habitat for aquatic threatened and endangered species and re-ran the critical habitat analysis relating to overlap with Idaho Roadless Areas.
- Based on new information for threatened and endangered fish species distribution, threatened and endangered fish species richness for each roadless area was recalculated.
- A discussion of essential fish habitat, bull trout key recovery habitat, and bull trout core areas were added.
- Added discussion on individual aquatic sensitive species.
- Added a risk analysis of selected management activities that could occur under the proposed alternatives.
- Added analysis for the new alternative, Modified Idaho Roadless Rule

INTRODUCTION

Idaho Roadless Areas function as biological strongholds for populations of threatened, endangered, and sensitive species. They provide large, relatively undeveloped landscapes that are important to biological diversity and the long-term survival of many at-risk species. The analysis evaluates the environmental consequences of the prohibitions and permissions for timber cutting, road construction / reconstruction, and discretionary mineral activities by alternative on selected aquatic species (including threatened, endangered, sensitive [TES], and management indicator species [MIS]) and their habitats.[77]

Species sustainability and ecosystem integrity are aquatic habitat characteristics considered in this analysis. Key characteristics for aquatic species include: range of the species in Idaho, threatened and endangered species' designated critical habitat, essential fish habitat (EFH),

[77] Other Idaho aquatic species of greatest conservation need are not specifically included in this analysis and encompass a variety of organisms including mollusks, insects, amphibians, and fish. The species included in this analysis (appendix L, table 1) serve as a surrogate for this larger group of cold-water species. The cold-water group requires stream environments that have clean, cold water. Salmonid species are considered useful surrogates for aquatic invertebrates. Lee et al. (1997) in the Interior Columbia River Basin assessment provided several reasons for focusing on salmonid species as cold-water biota indicators. These include:

- More is known about them and therefore we are more likely to discern important environmental relationships;
- They are widely distributed, which allows for broad-scale comparisons;
- They act as predators, competitors, and prey for a variety of other aquatic and terrestrial animals, so they are likely to influence the structure and function of aquatic ecosystems;
- They are potentially more sensitive to disturbance than other species groups.

native fish strongholds, native fish priority watersheds, bull trout core areas, and bull trout key recovery habitat. In addition, characteristics of habitat integrity (such as water quality, channel processes, sediment regime, instream flows, and riparian vegetation) were considered in relation to the proposed alternatives.

Potential environmental consequences to aquatic species and habitats from the prohibitions and permissions in the alternatives were determined by considering the kinds and numbers of species potentially affected; identifying the important and sometimes unique characteristics of roadless areas that foster biodiversity; and evaluating the potential effects of road construction, road reconstruction, timber cutting, and discretionary minerals activities on those characteristics. These effects are discussed for aquatic species and habitats.

Consultation and Coordination

The U. S. Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS) have oversight responsibilities for implementation of the ESA.

Consultation for this Idaho Roadless Rule effort has followed the guidance for consultation on programmatic level proposals outlined in the August 30, 2000, National Memorandum of Agreement (MOA) signed by the Bureau of Land Management (BLM), Forest Service, NMFS, and the FWS (USDA Forest Service, USDI BLM, U.S. Dept. of Commerce NMFS, and USDI FWS 2000).

A biological assessment has been prepared for this final EIS (USDA Forest Service 2008e) and can be found in the project file and on the internet at http://roadless.fs.fed.us/idaho.shtml.

Affected Environment

The State of Idaho contains numerous rivers, streams, and lakes. Most of Idaho is included in the interior Columbia River basin with the exception of the Bear River basin, in southeast Idaho. Bear River basin is part of the Great Basin and flows into the Great Salt Lake. Idaho Roadless Areas support a diversity of aquatic habitats and communities, including habitat for 17 aquatic TES species (appendix L, table L-1) and numerous other native aquatic species including fish, amphibians, and invertebrates.

The Columbia River basin fisheries in Idaho are world-renowned for their salmon, steelhead, and native trout populations. The Bear River basin, including Bear Lake and its tributaries, support several endemic species, including Bonneville cisco, Bonneville whitefish, Bear Lake whitefish, and Bear Lake sculpin. In addition, the fisheries resources of the State are important for the Tribes in Idaho. Most of the native fish populations in Idaho have suffered declines. Similarly, native amphibians such as the Coeur d'Alene salamander, western toad, and Columbia spotted frog have also experienced population declines.

Human activities since the late 1800s have altered some of the landscape across Idaho. Clearing of streams for passage of boats and milling of logs downstream reduced habitat complexity and the connection between streams and their floodplains. Dams and diversions resulted in dramatic changes to stream conditions and the passage of aquatic species upstream and downstream. Ground-disturbing activities such as mining, road building, and logging have resulted in higher sediment loading to streams and channel alterations that often times resulted in unfavorable conditions for aquatic species (Meehan 1991). In the interior Columbia River basin (including most of Idaho), the ecological integrity of streams, lakes, and wetlands was

significantly compromised by the late 1920s (Lee et al. 1997). Increasing human population, technological advances (for example, centrifugal pumps), and availability of heavy equipment after World War II greatly accelerated the development of new irrigation projects, timber harvest, dam construction, and road building (Lee et al. 1997). Individually and in combination, these activities continued to fragment and compromise the remaining hydrologically connected and vegetated reaches of streams (Lee et al. 1997).

Features of altered ecosystems include changes (generally reductions) in species diversity, changes in species distributions, and losses of habitat types or ecosystem status (Reeves et al. 1995). Native salmonid assemblages are simplified in watersheds that have been affected by various human activities (Reeves et al. 1995). Large blocks of unroaded areas such as Idaho Roadless Areas may support isolated aquatic populations because of road-related effects and other causes of habitat alteration in adjacent areas (USDA Forest Service 2000a).

Aquatic Ecosystems

Approximately 32 percent of Idaho is roadless, including congressionally mandated wilderness (7 percent), NFS roadless areas (18 percent), and BLM roadless (7 percent). The 9.3 million acres of Idaho Roadless Areas play an important role in the condition of aquatic ecosystems and aquatic species across the State.

Key aquatic ecological characteristics that contribute to aquatic/riparian ecosystem integrity include (USDA et al. 1993 [FEMAT], Furniss et al. 1991):

- Riparian and aquatic habitats necessary to foster the unique genetic fish stocks that evolved within the specific geographic region;
- Habitats to support diversity and productivity of native and non-native plant, vertebrate, and invertebrate populations that contribute to the viability of aquatic- and riparian-dependent communities;
- Habitats and conditions that discourage and prevent the establishment and spread of invasive species;
- Water quality, including temperature, to a degree that provides for stable and productive riparian and aquatic ecosystems;
- Stream channel integrity, channel processes, and the sediment regime (including the elements of timing, volume, and character of sediment input and transport) under which riparian and aquatic ecosystems developed;
- Instream flows to support healthy riparian and aquatic habitats, the stability and effective function of stream channels, and the ability to route flood discharges;
- Natural timing and variability of the water table elevation in meadows and wetlands;
- Riparian vegetation to:
    - Provide an amount and distribution of large woody debris characteristic of natural aquatic and riparian ecosystems;
    - Provide adequate summer and winter thermal regulation within the riparian and aquatic zones; and

- Help achieve rates of surface erosion, bank erosion, and channel migration characteristic of those under which the communities developed.

These characteristics are becoming more valuable in an increasingly developed landscape. Large undisturbed landscapes generally have high ecological characteristics contributing to aquatic riparian ecosystem integrity. Idaho contains more wild and remote public land than any State outside of Alaska (Curley et al. 2004).

Waters in Idaho Roadless Areas have been shown to function as biological strongholds and refuges for many fish species (Lee et al. 1997). Smaller streams, such as many of those found in roadless areas, provide important habitat for resident and migratory aquatic species and also influence the quality of habitat in larger, downstream reaches (Chamberlin et al. 1991).

Strong fish populations that include the most productive, abundant, and diverse populations are likely to be most resilient to environmental disturbance and most likely to survive and recover from catastrophic disturbance (Rieman et al. 1993). Idaho Roadless Areas provide for aquatic species strongholds and opportunities to better understand aquatic and riparian ecosystems that have experienced minimal disturbance. Strong populations of native fish are critical for short-term persistence and long-term recovery.

Biodiversity

In the ecological literature, diversity refers to both the number of species present and their relative abundance. Thus, an area with many abundant species is more "diverse" than an area with an equal number of species, few of which are abundant and most of which are rare. A relative measure of Idaho's aquatic biodiversity is shown in table 3-37.

Table 3-37. Idaho's biodiversity rank relative to the 50 United States and the District of Columbia (Stein 2002)

Category	Rank	Number of species or percent at risk
Amphibian diversity	48	12 species
Amphibian risk	19	8.3 percent at risk
Freshwater fish diversity	47	42 species
Freshwater fish risk	10	19.0 percent at risk

The number of native species present in a watershed ("richness") is an important element of diversity and reflects heterogeneity in the physical environment (Lee et al. 1997). A high degree of species overlap might reflect strong habitat diversity. Even with a fairly narrow group like salmonids, each species relies on different habitats and environments, with variable and wide-ranging life-history patterns. The co-occurrence of several salmonids suggests suitable habitats exist over relatively large landscapes, not just those tied to the local subwatershed. High richness may also indicate critical common areas that serve as corridors, wintering areas, or seasonal refuges for the varied life histories in the assemblage. The loss of such areas could portend a loss of richness on both local and regional scales.

The size of an area, kinds and intensity of management-induced and natural disturbances that have occurred, and the landscape context in which it is found, all affect the quality, distribution, and extent of these habitats. Some of these waters may now play a relatively much greater role in supporting aquatic species and biodiversity than in the past due to cumulative loss of other, potentially more biologically rich habitat within associated drainages.

ESA Threatened and Endangered Species

Federally listed threatened and endangered aquatic species that occur in Idaho include Snake River Basin steelhead, Snake River spring/summer Chinook salmon, Snake River fall-run Chinook salmon, bull trout, Snake River sockeye salmon, and Kootenai River white sturgeon (table 3-38).

Table 3-38. Acres of threatened and endangered fish species range in Idaho and percent overlap with Idaho Roadless Areas

Species	Acres of species range in Idaho	Acres of species range in Idaho Roadless Areas	Percent of species range that overlaps Idaho Roadless Areas
Snake River basin steelhead	11,533,800	3,313,800	27
Snake River spring/summer Chinook	10,512,900	2,980,900	28
Snake River fall-run Chinook	790,400	40,300	5
Snake River sockeye	1,655,700	346,800	21
Bull trout	16,746,400	5,581,700	33
Kootenai white sturgeon	167,800	16,000	10

Three primary documents guide the management of federally listed fish species on NFS lands in Idaho:

1. Interim Strategy for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California (PACFISH) (USDA Forest Service and USDI Bureau of Land Management 1995);
2. Inland Native Fish Strategy (INFISH) (USDA Forest Service 1995).
3. Southwest Idaho Eco-group (SWIEG) (Boise, Payette, and Sawtooth National Forests) land management plans (USDA Forest Service 2003).

Although the aquatic conservation strategies in these three documents were developed for federally listed fish species, the requirements, including standards and guidelines, from these three documents apply to all activities that could occur in Idaho Roadless Areas and would result in benefits to all aquatic species and their habitats.

The Forest Service and BLM developed the Interim Strategies for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho and Portions of California, known as PACFISH. PACFISH is an ecosystem-based, aquatic habitat and riparian-area management strategy for Pacific salmon, steelhead, and sea-run cutthroat trout habitat on lands administered by the two agencies and outside the area subject to implementation of the Northwest Forest Plan (USDA Forest Service and USDI Bureau of Land Management 1995). PACFISH amended regional guides, forest plans, and land use plans by applying management measures for all ongoing and proposed or new projects that pose an unacceptable risk to anadromous fish involving the management of timber, roads, grazing, and other land uses.

The Inland Native Fish Strategy (INFISH) was developed by the Forest Service to provide an interim strategy for inland native fish in eastern Oregon and Washington, Idaho, western Montana and portions of Nevada (USDA Forest Service 1995).

In 1995 PACFISH and INFISH amended the forest plans for all national forests in the Columbia and Klamath River basins. Forests in Idaho covered by the 1995 PACFISH and INFISH amendment include: Idaho Panhandle, Clearwater, Nez Perce, Boise, Payette, Sawtooth, Salmon-Challis, and Wallowa-Whitman. PACFISH and INFISH provide programmatic direction for management of lands administered by the Forest Service and BLM. Both PACFISH and INFISH are interim strategies intended to provide protection against extinction or further endangerment of fish stocks and intended to maintain long-term management options.

In 2003 the Southwest Idaho Eco-group (SWIEG)—composed of the Boise, Payette, and Sawtooth National Forests—revised their forest plans. The revised forest plans replace the PACFISH and INFISH interim strategies. Biological opinions provided by the FWS (May 30, 2003) and NOAA-Fisheries (June 9, 2003) for the revised forest plans replaced the PACFISH and INFISH biological opinions (USDI Fish and Wildlife Service 2003; USDC National Oceanic and Atmospheric Administration [NOAA] 2003).

Snake River Basin Steelhead

Steelhead (*O. mykiss)* in the Snake River Basin were listed as a threatened species on August 18, 1997 (USDC NOAA 1997); threatened status was reaffirmed on January 5, 2006 (USDC NOAA 2006). The Snake River steelhead distinct population segment (DPS) includes all naturally spawned anadromous steelhead populations below natural and manmade impassable barriers in streams in the Snake River Basin of southeast Washington, northeast Oregon, and Idaho; also included are six artificial propagation programs: the Tucannon River, Dworshak National Fish Hatchery, Lolo Creek, North Fork Clearwater, East Fork Salmon River, and the Little Sheep Creek / Imnaha River Hatchery steelhead hatchery programs. A final designation of Snake River basin steelhead critical habitat was published on September 2, 2005 (USDC NOAA 2005b), with an effective date of January 2, 2006.

Steelhead, which are the anadromous life form of rainbow / redband trout, were historically found along the west coast of North America from southern California to central Alaska. the interior Columbia River basin steelhead ranged from east of the Cascades upstream in the Columbia River and tributary streams to natural geologic barriers such as Shoshone Falls on the Snake River (Behnke 2002). In Idaho, steelhead had access to most of the Clearwater, Salmon, Weiser, Payette, Boise, Owyhee, Bruneau, and Salmon Falls Creek drainages. Populations using the tributaries above Hells Canyon Dam were eliminated with the construction of the Hells Canyon complex in the 1950s and earlier upriver dams.

The Snake River steelhead DPS occupies the Snake River basin of southeast Washington, northeast Oregon, and Idaho. The DPS includes all naturally spawned populations of A-run and B-run steelhead in the Snake River and its tributaries (USDC NOAA 2006). A-run steelhead are believed to occur throughout the Snake River Basin. B-run fish (steelhead with a 2-year ocean residence and larger body size) are thought to be produced only in the Clearwater, Middle Fork Salmon, and South Fork Salmon Rivers. These subbasins have wild steelhead that are unaffected by hatchery production and are considered strongholds for genetically unique, B-run steelhead populations (Lee et. al. 1997).

The Dworshak Dam, completed in 1971, caused the extirpation of Chinook and steelhead runs in the North Fork Clearwater River drainage. Several artificial propagation programs are considered part of the DPS: the Tucannon River natural stock; the North Fork Clearwater River stock reared at Dworshak National Fish Hatchery and Clearwater Fish Hatchery and released in

the Clearwater and Salmon Rivers; East Fork Salmon River local stock; and the Little Sheep Creek / Imnaha River Hatchery steelhead hatchery programs (USDC NOAA 2006). About 100 roadless areas in Idaho have habitat that supports Snake River basin steelhead, and about 3.3 million acres overlap its range (table 3-38).

The primary reasons leading to declines in steelhead numbers in the Snake River Basin include widespread reductions of habitat, recreational over-use, flow impairment throughout the Snake River basin, and substantial modification of the seaward migration corridor by hydroelectric power development on the Snake and mainstem Columbia Rivers (USDC NOAA 1997). Snake River steelhead are vulnerable to small-scale habitat changes because of their long freshwater residence. Steelhead subpopulations should respond favorably to subbasin- or watershed-scale habitat improvements. Also of concern are threats to genetic integrity and displacement of naturally produced fish from past and present hatchery practices.

Snake River Spring/Summer Chinook Salmon

Snake River spring / summer Chinook salmon were listed as threatened under the ESA in 1992 (USDC NOAA 1992a, see correction USDC NOAA 1992b); threatened status was reaffirmed in 2005 (USDC NOAA 2005a). Critical habitat was designated for Snake River spring / summer Chinook salmon on December 28, 1993 (USDC NOAA 1993) and later revised on October 25, 1999 (USDC NOAA 1999). Critical habitat includes all river reaches presently or historically accessible and adjacent riparian zones, except reaches above impassable natural falls such as Upper Napias Creek.

About 100 roadless areas in Idaho have habitat that supports spring / summer Chinook salmon. Approximately 2,980,900 acres of Idaho Roadless Areas overlap the range of Snake River spring / summer Chinook salmon (table 3-38).

Snake River spring / summer Chinook salmon historically spawned in the Snake River tributaries of the Clearwater, Salmon, Weiser, Payette, and Boise rivers. The Idaho portion of the Snake River spring / summer Chinook salmon Evolutionarily Significant Unit (ESU) consists of all the Salmon River drainage and the Snake River drainage upstream to Hells Canyon Dam. This ESU includes production areas characterized by spring- and summer-timed returns, and combinations from the two adult timing patterns.

Snake River spring / summer Chinook salmon must migrate past a series of eight mainstem Snake and Columbia River hydroelectric dams to and from the ocean. In addition, hydropower development in the Columbia River basin has resulted in inundation of habitat, and predator populations have increased because of hydroelectric development that has created ideal foraging areas. Species status reviews have concluded that mainstem Columbia and Snake River hydroelectric projects have resulted in major disruption of migration corridors and have affected flow regimes and estuarine habitat.

Snake River Fall-Run Chinook Salmon

Snake River fall-run Chinook salmon were listed as threatened under the ESA in 1992 (USDC NOAA 1992a, see correction USDC NOAA 1992b); threatened status was reaffirmed in 2005 (USDC NOAA 2005a). Critical habitat for Snake River fall-run Chinook salmon was designated on December 28, 1993 (USDC NOAA 1993).

About 40,300 acres of the Snake River fall-run Chinook salmon range overlaps Idaho Roadless Areas (table 3-38). The John Day and North Fork Slate Roadless Areas on the Nez Perce

National Forest; the Hells Canyon / 7 Devils Scenic and Patrick Butte Roadless Areas on the Payette National Forest; and the Big Canyon ID and Klopton Creek-Corral Creek ID Roadless Areas on the Wallowa-Whitman National Forest have habitat supporting fall-run Chinook salmon.

Snake River fall-run Chinook salmon enter the Columbia River in July and August. The Snake River component of the Chinook salmon fall run migrates past the lower Snake River mainstem dams from August through November. Historically, Snake River fall-run Chinook salmon spawned in the Snake River upriver to the Hagerman Valley and in lower portions of the Salmon and Clearwater Rivers. Populations using the river above Hells Canyon Dam were eliminated with the construction of the Hells Canyon complex from 1955 to 1967 and earlier upriver dams.

The Idaho portion of the Snake River fall-run Chinook salmon ESU consists of the Clearwater drainage up to Lolo Creek except for the North Fork above Dworshak Dam; the Salmon River drainage upstream to the Little Salmon River; and the Snake River drainage upstream to Hells Canyon Dam. The Snake River fall-run Chinook salmon ESU includes hatchery stock from four propagation efforts: Lyons Ferry Hatchery, Nez Perce Tribal Hatchery, Oxbow Hatchery, and the Fall Chinook Acclimation Ponds Program.

Habitat loss and modification, including migration barriers, are believed to be the major factors of decline for fall-run Chinook populations. It is estimated that approximately 80 percent of historical spawning habitat was lost (including the most productive areas) with the construction of a series of Snake River mainstem dams (USDC, NOAA 2005a [70 FR 37185]). These factors have greatly reduced the abundance of natural-origin spawners in the Snake River.

The loss of spawning habitats and the restriction of the ESU to a single extant naturally spawning population has increased the ESU's vulnerability to environmental variability and catastrophic events (USDC, NOAA 2005a [70 FR 37185]). The diversity associated with populations that once resided above the Snake River dams has been lost, and the impact of straying out-of–ESU fish has the potential to further compromise ESU diversity.

Snake River Sockeye Salmon

Snake River sockeye salmon were listed as an endangered species on November 20, 1991 (USDC NOAA 1991); endangered status was reaffirmed June 28, 2005 (USDC NOAA 2005a). The ESU includes all anadromous and residual sockeye salmon from the Snake River basin, Idaho, as well as artificially propagated sockeye salmon from the Redfish Lake captive propagation program. Critical habitat for Snake River sockeye salmon was designated on December 28, 1993 (USDC NOAA 1993). Approximately 346,800 acres of the Snake River sockeye range overlaps Idaho Roadless Areas (table 3-38). However, none of the areas of overlap occur in sockeye spawning or rearing habitat. The only areas of overlap are with sockeye migration route habitat.

Snake River sockeye salmon use the mainstem Snake River and mainstem Salmon River as a migration corridor to and from Redfish Lake, Idaho. This species spawns and rears only within the Sawtooth National Recreation Area on the Sawtooth National Forest. At the time of listing, the Snake River sockeye salmon ESU was limited to Redfish Lake but enhancement has increased distribution to Alturas and Petit Lakes. Idaho Roadless Areas that are located in the Redfish Lake, Alturas Lake, and Pettit Lake basins include: Hanson Lakes, Huckleberry, and Pettit Roadless Areas on the Sawtooth National Forest.

In Idaho, sockeye salmon historically spawned and reared in the large lakes accessible to the ocean (Payette and Salmon River drainages). Access to all lakes in the Stanley Basin was seriously reduced in 1910 by the construction of Sunbeam Dam on the main stem Salmon River. The original adult fishway was ineffective at passing fish over the dam and was replaced with a concrete structure in 1920, but access continued to be impeded until the dam was partially removed in 1934. Even after passage was restored at Sunbeam Dam, sockeye salmon were unable to use spawning areas in two of the lakes in the Stanley Basin because of fish eradication projects. Welsh (1991) reported such projects in Pettit Lake (treated with toxaphene in 1960) and Stanley Lake (treated with a mixture of rotenone and toxaphene in 1954). Agricultural water diversions cut off access to most of the lakes. During the 1950s and 1960s, Redfish Lake was probably the only lake in Idaho that was still used by sockeye salmon each year for spawning and rearing (Bjornn et al. 1968).

The Payette Lake population was eliminated in the early 1990s because of dam construction on the Payette River. Currently sockeye salmon are only found in lakes in the Stanley Basin of the upper Salmon River, primarily Redfish and Alturas Lakes. The very low numbers of naturally spawning individuals, limited habitat for spawning, and migration barriers have put Snake River sockeye salmon at a high risk for extinction (USDC NOAA 2005a).

Bull Trout

The bull trout (*Salvelinus confluentus*) in the conterminous United States was listed as threatened on November 1, 1999 (USDI, Fish and Wildlife Service 1999). Earlier rulemakings had listed the Columbia River DPS of bull trout as threatened (USDI, Fish and Wildlife Service 1998). The Columbia River DPS occurs throughout the entire Columbia River basin within the United States and its tributaries, excluding bull trout found in the Jarbidge River, Nevada. Critical habitat has been designated for bull trout (USDI, Fish and Wildlife Service 2005); however, none is designated on NFS lands. About 170 roadless areas in Idaho have habitat that supports bull trout and about 5.6 million acres overlap with the range of bull trout (table 3-38).

Idaho contains approximately 48 percent of the stream miles and 39 percent of the lakes and reservoirs for this species (Reighn, personal communication, June 15, 2007). Although Idaho contributes to a significant portion of the occupied habitat for bull trout, the populations in Idaho have declined severely (46 percent) within their historical ranges in the State.

The Columbia River bull trout population segment is represented by relatively widespread subpopulations that have declined in overall range and numbers of fish. Most Columbia River bull trout occur in isolated, fragmented habitats that support low numbers of fish and are inaccessible to migratory bull trout. The few remaining bull trout ‘‘strongholds’’ in the Columbia River basin tend to be found in large areas of contiguous habitats in the Snake River basin of central Idaho mountains, upper Clark Fork and Flathead Rivers in Montana, and several streams in the Blue Mountains in Washington and Oregon.

Bull trout have more specific habitat requirements than most other salmonids. Habitat components that influence bull trout distribution and abundance include water temperature, cover, channel form and stability, substrate for spawning and rearing, and migratory corridors. Bull trout are found in colder streams and require colder water than most other salmonids for incubation, juvenile rearing, and spawning. Spawning and rearing areas are often associated with cold-water springs, groundwater infiltration, and/or the coldest streams in a watershed.

Maintaining bull trout habitat requires stream channel and flow stability (Rieman and McIntyre 1993). Juvenile and adult bull trout frequently inhabit side channels, stream margins, and pools with suitable cover (Sexauer and James 1997). These areas are sensitive to activities that directly or indirectly affect stream channel stability and alter natural flow patterns. For example, altered stream flow in the fall may disrupt bull trout during the spawning period, and channel instability may decrease survival of eggs and young juveniles in the gravel during winter through spring (Fraley and Shepard 1989, Pratt 1992, Pratt and Huston 1993).

Bull trout distribution, abundance, and habitat quality have declined range-wide. Declines in bull trout distribution and abundance are the results of combined effects of the following: reduction in habitat quality and fragmentation, the blockage of migratory corridors, poor water quality, angler harvest and poaching, entrainment (process by which aquatic organisms are pulled through a diversion structure or other device) into diversion channels and dams, and introduced non-native species. Specific land and water management activities that continue to depress bull trout populations and reduce habitat quality include dams and other diversion structures, forest management practices, road construction and maintenance, livestock grazing, agriculture, mining, and urban and rural development. Some threats to bull trout are the continuing effects of past land management activities.

Kootenai River White Sturgeon

The Kootenai River white sturgeon was listed as an endangered species in 1994 (USDI, Fish and Wildlife Service 1994). Critical habitat was designated for Kootenai River white sturgeon on September 6, 2001 (USDI, Fish and Wildlife Service 2001). Critical habitat included 11.2 miles of river below Bonners Ferry, Idaho. Through an interim rule an additional 6.9 miles of critical habitat were designated on February 8, 2006 (USDI, Fish and Wildlife Service 2006). Kootenai River white sturgeon critical habitat was revised on July 9, 2008 with a final rule (USDI, Fish and Wildlife Service 2008) to include a total of 18.3 miles of the Kootenai River within Boundary County, Idaho. The final rule becomes effective August 8, 2008. About 16,000 acres in the Katka Peak, Mt. Willard, Lake Estelle, and Selkirk Roadless Areas on the Idaho Panhandle National Forest overlap the range of the Kootenai River white sturgeon (table 3-38).

The white sturgeon (*Acipenser transmontanus)* is an ancient fish that inhabits large river, lake, and marine environments from southern California to Cook Inlet of Alaska. It is a migratory species reaching lengths nearly 20 feet, weights of 1,970 pounds, and ages of 100 years or more. The Kootenai River white sturgeon exhibits both riverine and adfluvial life histories.

The Kootenai River white sturgeon is restricted to 168 miles of the Kootenai River from Cora Linn Dam, Canada, upstream to Kootenai Falls, Montana. The white sturgeon is native to the Kootenai River drainage of Montana, Idaho, and British Columbia (Brown 1971), and has been geographically isolated from the lower Columbia River stocks by Bonnington Falls (Cora Linn Dam), near Nelson, British Columbia. White sturgeon migrate freely throughout the Kootenai River (Andrusak 1980) but are uncommon upstream of Bonners Ferry, Idaho (Graham 1981, Apperson and Anders 1991). There are no published reports of sturgeon using lateral tributaries in Idaho or Montana (Partridge 1983); however, some accounts suggest that sturgeon may occur, if not actually rear, in several lateral tributaries of the Kootenai River. Most adult fish reside in Kootenay Lake and make extended (more than 60 mile) migrations to spawn in a 19-km stretch below Bonners Ferry, Idaho. Some adult fish remain in the river and overwinter in the deep (more than 98 foot) pools.

The most recent population estimate from the Idaho Department of Fish and Game indicates there are approximately 600 adult sturgeon in the Kootenai system. Natural reproduction has been confirmed in the Kootenai River. Currently most juvenile fish in the population are hatchery-reared fish (USDA Forest Service 2002). Historically, the Kootenai River stock supported commercial and recreational fisheries, as well as a subsistence fishery for the native Kootenai Tribe. These fish supported a commercial fishery until 1944, a sport harvest of 10 to 20 fish per year from 1944 through the 1970s, and a sport harvest of 50 to 52 fish per year from 1979 to 1981 (Partridge 1983). The legal harvest of white sturgeon was closed in Montana in 1979 (Graham 1981) and closed in Idaho in 1984 (Apperson and Anders 1990).

Several factors have contributed to the reduced productivity of Kootenai River white sturgeon. In December 2000, the FWS issued a biological opinion stating that Libby Dam (completed in 1974) is the primary factor affecting the Kootenai River white sturgeon. Operation of Libby Dam has changed the natural hydrograph (magnitude and timing of flows) and eliminated the spring (May to July) high flows required for successful reproduction, and has produced large daily / weekly fluctuations in discharge that reduce habitat quality as well as increase mortality risk. Operation of the dam has also modified the annual thermal regime that sturgeon likely use (in part) as cues for spawning (Holton 1980, Apperson and Anders 1991).

Other factors of decline include the closure of the fertilizer plant in 1987, a significant source of nutrients, near Kimberly, British Columbia; and the installation of a treatment facility in 1979 to remove heavy metals being discharged from the St. Mary River near Kimberly (Knudson 1994). Mining (copper) pollution and other chemical pollutants (lead, zinc, vermiculite, PCBs, and organochlorides) are suspected to be potential threats to sturgeon reproduction (Partridge 1983, Apperson 1992). Evidence of declining Kootenai River and Kootenay Lake productivity due to pollution abatement and dam operations has led to speculation that population recovery will be inhibited as a result (Daley et al. 1981). The degree of threat that water quality represents is unknown.

Non-point source pollution from forest management activities has not been identified as a factor in the decline of the Kootenai River white sturgeon. However, the direct and indirect effects of timber harvest and related actions can influence the magnitude and timing of peak stream flows (Harr 1981). Forestry and related actions can also affect stream temperatures and nutrient and sediment loads (Scrivener 1982, Furniss et al. 1991). Depending on the magnitude of cumulative actions and the proximity of activities to potentially affected habitat, a host of other physical characteristics of the environment may also be affected. Forestry and related activities rarely result in chemical pollution, but could indirectly remobilize materials stored in stream substrate by altering peak flows. Another contributing factor to the white sturgeon decline is the elimination of side channel slough habitat in the Kootenai River floodplain due to diking and bank stabilization to protect agricultural lands from flooding.

Threatened and Endangered Fish Species Richness

The total number of aquatic threatened and endangered fish species known to occur in each Idaho Roadless Area was used to characterize species richness within a roadless area. There are 170 roadless areas that are within the range for aquatic threatened and endangered species (appendix L, table L-3). Idaho Roadless Areas with the greatest overlap of threatened and endangered fish species are especially valuable for their species richness and contribution to biodiversity. Four roadless areas overlap five threatened and endangered species (table 3-39); 30 roadless areas overlap with four threatened and endangered species (table 3-39); 66 roadless

areas overlap with three aquatic species; 3 roadless areas overlap with two species; 70 roadless areas overlap with one species and 77 roadless areas overlap with no species. Figure 3-25 shows Idaho Roadless Areas that provide habitat for multiple (1–5) threatened and endangered aquatic species.

Table 3-39. Idaho Roadless Areas that provide habitat for multiple (four or five) threatened and endangered fish species

Idaho Roadless Area	Forest
Hanson Lakes	Boise/Challis/Sawtooth
Smoky Mountains	Boise/Sawtooth
Grouse Peak	Challis
Red Hill	Challis
Squaw Creek	Challis
Camas Creek	Challis/Salmon
Lemhi Range	Challis/Salmon
Taylor Mountain	Challis/Salmon
Boulder-White Clouds	Challis/Sawtooth
Railroad Ridge	Challis/Sawtooth
Adjacent to Gospel Hump	Nez Perce
Gospel Hump	Nez Perce
John Day*	Nez Perce
Mallard	Nez Perce
North Fork Slate Creek*	Nez Perce
Cottontail Point/Pilot Peak	Payette
Hells Canyon/7 Devils Scenic	Payette
Patrick Butte*	Payette
Goldbug Ridge	Salmon
Haystack Mountain	Salmon
Jesse Creek	Salmon
Long Tom	Salmon
Napais	Salmon
Napoleon Ridge	Salmon
Perreau Creek	Salmon
Phelan	Salmon
Sal Mountain	Salmon
Sheepeater	Salmon
West Big Hole	Salmon
Huckleberry	Sawtooth
Loon Creek	Sawtooth
Pettit	Sawtooth
Big Canyon ID	Wallowa-Whitman
Klopton Creek – Corral Creek ID*	Wallowa-Whitman

** Roadless areas with 5 threatened and endangered species*

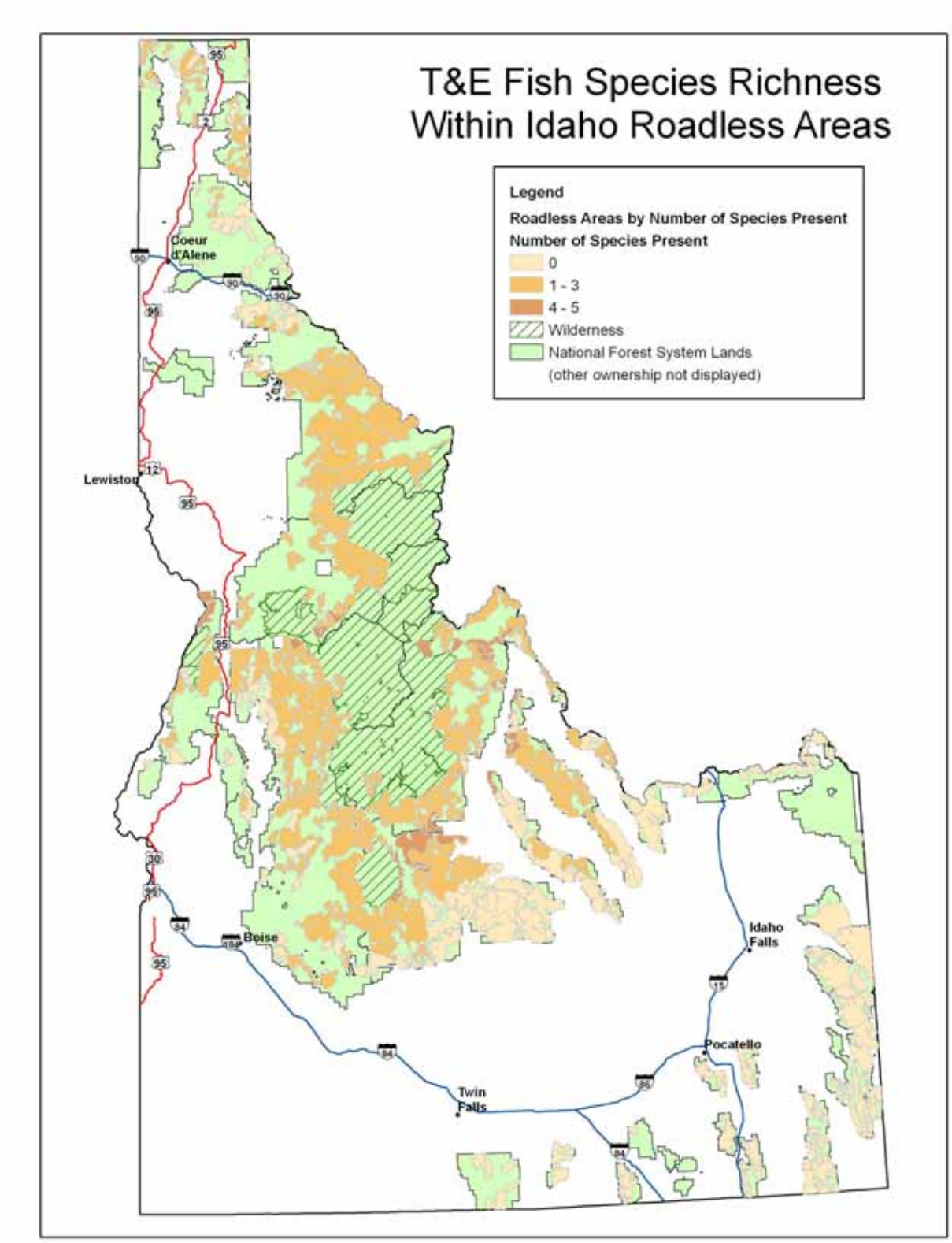

Figure 3-25. Idaho Roadless Areas that provide habitat for multiple (1–5) threatened and endangered aquatic species.

Designated Critical Habitat

Critical habitat has been designated for all the threatened and endangered fish species in Idaho. Table 3-40 displays the overlap of designated critical habitat for Idaho threatened and endangered fish species and Idaho Roadless Areas.

Table 3-40. Threatened and endangered fish critical habitat in Idaho Roadless Areas

Species	Total miles of designated critical habitat	Designated critical habitat within Idaho Roadless Areas	Percent critical habitat in Idaho Roadless Areas
Snake River basin steelhead	8,338	980	12
Snake River spring/summer Chinook salmon	6,415	643	10
Snake River fall-run Chinook salmon	792	0	0
Bull trout*	--	0	0
Snake River sockeye	1,583 3,098 lake acres	216 No lake acres	14 0
Kootenai River white sturgeon	18.3	0	0

* *No bull trout critical habitat is designated on NFS lands (USDI Fish and Wildlife Service 2005)*

Essential Fish Habitat

The identification of EFH is a requirement of the Magnuson-Stevens Act (MSA), as is consultation on actions that may affect EFH (USDC NOAA 2002) (Section 305(b) of the MSA, implementing regulations in 50 CFR Part 600.920). This designation applies to Chinook and Coho salmon habitat within Idaho.

In Idaho, Chinook EFH overlaps with, and is identical to designated critical habitat for fall-run and spring/summer Chinook salmon. The location of Chinook EFH, and effects on Chinook EFH would therefore be the same as those described for Chinook designated critical habitat within this analysis.

Coho EFH occurs in one watershed[78] which overlaps with three Idaho Roadless Areas. Approximately 6,000 acres of Eldorado Creek and very small acreages of North Lochsa Slope and Bighorn-Weitas Roadless Areas overlap in this watershed.

Bull Trout Key Recovery Habitat

Note that no bull trout critical habitat is designated on NFS lands (USDI, Fish and Wildlife Service 2005). However, the analysis of bull trout includes areas identified as bull trout key recovery habitat. Bull trout key recovery habitat includes known and potential areas of bull trout spawning and rearing. Since critical habitat is not designated on NFS lands it is important to recognize and evaluate the potential effects of the proposed action to the key recovery habitat for this species. There are about 1,320 miles (14 percent) of bull trout key recovery habitat that overlap with Idaho Roadless Areas.

[78] Watershed number 17060306.

Bull Trout Core Areas

Core areas for bull trout were identified throughout the range of the species by the FWS (USDI Fish and Wildlife Service 2005). A core area is a system of watersheds within larger basin. Each watershed is the habitat for a local population that interacts with other local populations throughout the larger basin. The system of core areas is intended to provide for the long-term persistence and the restoration and maintenance of ecological and metapopulation processes (USDA Forest Service 1996a). Priority watersheds mentioned in the following section fit within core areas. Similar to fish strongholds and priority watersheds, minimal ground-disturbing management activities in these special areas is desirable. Some 6,714,400 acres (28 percent) of bull trout core areas are within Idaho Roadless Areas.

Priority Watersheds

Priority watersheds (also called "special emphasis" or "key" watersheds) are areas that provide for high-quality habitat and stable populations of listed fish species. Priority watersheds are a cornerstone of most species conservation strategies (Lee et al. 1997) and were designated as part of the strategies for managing anadromous and inland native fish in the Columbia Basin. The goal of these watersheds is to maintain the best habitats and fish populations, and generally watersheds are chosen that have the highest potential for rehabilitation. Priority watersheds have been identified for spring/summer Chinook, steelhead, and bull trout.

Of the Idaho Roadless Areas, 57 percent contain priority watersheds identified for conservation of threatened and endangered fish species, including steelhead, spring-summer Chinook salmon, and bull trout. In Idaho, no priority watersheds are designated for fall-run Chinook. More than 40 percent of the acreage in designated priority watersheds for these aquatic species is located in roadless areas. Table 3-41 displays the percentage of priority watersheds in Idaho Roadless Areas by species.

Table 3-41. Threatened and endangered fish priority watersheds in Idaho Roadless Areas

Fish species	Acres of priority waterheds	Acres of priority watersheds in Idaho Roadless Areas	Percent of priority watersheds in Idaho Roadless Areas
Snake River basin steelhead	3,955,900	1,111,600	28
Snake River spring/summer Chinook salmon	4,888,100	1,885,800	38
Bull trout	7,996,500	3,477,200	43

Several of the threatened and endangered fish priority watersheds contribute to species richness by providing habitat for several of the species. Of the roadless areas that contain priority watersheds, 15 provide priority watershed areas for all three species (steelhead, spring/summer Chinook salmon, and bull trout) (table 3-42). About 50 roadless areas are priority watersheds for two species. These roadless areas provide important habitat for multiple species and are of very high value to aquatic biodiversity.

Table 3-42. Idaho Roadless Areas that provide priority watershed areas for steelhead, spring/summer Chinook salmon, and bull trout

Idaho Roadless Area	National forest
Challis Creek	Challis
Loon Creek	Challis/Sawtooth
Dixie Summit - Nut Hill	Nez Perce
East Meadow Creek*	Nez Perce
John Day	Nez Perce
Little Slate Creek	Nez Perce
Little Slate Creek North	Nez Perce
Mallard	Nez Perce
North Fork Slate Creek	Nez Perce
Salmon Face	Nez Perce
West Meadow Creek*	Nez Perce
Rapid River	Nez Perce/Payette
Camas Creek	Salmon/Challis
Lemhi Range	Salmon/Challis
Taylor Mountain	Salmon/Challis

**Note: East Meadow Creek Roadless Area and West Meadow Creek Roadless Area function as a complex because they are located on either side of the Meadow Creek drainage. Both have equal influence on Meadow Creek aquatic resources.*

Fish Strongholds

Fish strongholds were identified in the Interior Columbia Basin Ecosystem Management Project (ICBEMP) assessment (Lee et al. 1997) for seven key native salmonids including: steelhead, spring/summer Chinook salmon, fall-run Chinook salmon, bull trout, redband trout, westslope cutthroat trout, and Yellowstone cutthroat trout. ICBEMP salmonid strongholds are directly associated with strong populations. In Idaho, there are no ICBEMP strongholds identified for either spring/summer-run or fall-run Chinook salmon. Strongholds identified in Idaho for the five remaining salmonid species are used in this analysis.

Strong populations have the following characteristics:

1. All major life-history forms (for example, resident, fluvial, adfluvial) that historically occurred within the watershed are present;
2. Numbers are stable or increasing and the local population is likely to be at half or more of its historical size or density; and
3. The populations or meta-population within the watershed, or within a larger region of which the watershed is a part, probably contains at least 5,000 individuals or 500 adults.

Both fish strongholds and priority watersheds are valuable for their contribution to conservation and recovery of species and their habitats. Even small areas can contribute significant value depending on their location and contribution to interconnecting populations, providing for a larger meta-population, distance to a source population and contribution to genetic and phenotypic diversity.

A substantial amount of Idaho Roadless Areas (23 percent) provides important habitat for these five key salmonids. In Idaho, 32 percent of the strong populations for these species are in roadless areas. Acres of Idaho Roadless Areas contributing to Idaho fish strongholds by species are shown in Table 3-43.

Table 3-43. Idaho Roadless Areas contributing to fish strongholds (acres)

Fish species	Idaho Roadless Area acres contributing to fish strongholds
Bull trout	453,500
Redband trout	660,300
Steelhead	54,000
Yellowstone cutthroat trout	279,400
Westslope cutthroat trout	915,000

ICBEMP fish strongholds for bull trout, redband trout, steelhead, Yellowstone cutthroat trout, and westslope cutthroat trout overlap about half of the roadless areas, with 33 roadless areas providing strongholds for multiple species (appendix L, table L-4).

Forest Service Sensitive Species

Forest Service aquatic sensitive species within the analysis area include both fish and amphibians. All the Forest Service aquatic sensitive species have some overlap with Idaho Roadless Areas (table 3-44). Some of these species have very limited distributions (e.g., Wood River sculpin, Coeur d'Alene salamander); because of their limited distribution, smaller areas can be significant to the continued support of the population size and distribution.

Table 3-44. Percentage of sensitive species range that overlaps with the Idaho Roadless Area

Sensitive species (Forest Service region)	Acres of species range	Acres of species range that overlaps Idaho Roadless Areas	Percent of species range in Idaho that overlaps Idaho Roadless Areas
Fish			
Bonneville cutthroat trout (R4)	1,162,800	269,400	23
Burbot (R1)	262,700	32,500	12
Inland redband trout (R1)	9,306,100	3,976,300	43
Pacific lamprey (R1)	1,875,000	304,500	16
Chinook salmon (naturalized populations) (R1)	3,589,700	656,800	18
Yellowstone cutthroat trout [fine-spotted Snake River cutthroat trout] (R1 & R4)	4,089,800	929,500	23
Westslope cutthroat trout (R1 & R4)	17,742,300	4,951,700	28
Wood River sculpin (R4)	1,083,400	359,900	33
Amphibians			
Coeur d'Alene salamander (R1)	8,479,500	1,953,500	23
Columbia spotted frog (R4)	36,864,500	8,209,700	22
Western toad (R1)	46,734,500	8,867,800	19

R1=Northern Region; R4=Intermountain Region.
Acres and percent based on predicted habitat.

The following species-specific information is primarily taken from the Idaho Comprehensive Wildlife Conservation Strategy (Idaho Department of Fish and Game 2005). Additional information regarding species requirements may be found in the Aquatics Specialist Report (USDA Forest Service 2008e).

Bonneville Cutthroat Trout

The Bonneville cutthroat trout is a Region 4 sensitive species. Bonneville cutthroat trout are considered critically imperiled in the state of Idaho. About 269,400 acres (23 percent) of Bonneville cutthroat trout range overlap with Idaho Roadless Areas (table 3-44).

The native distribution of Bonneville cutthroat trout includes the Bonneville Basin of Utah, Idaho, Wyoming and Nevada. The Idaho distribution primarily includes the Bear River drainage and headwater tributaries of small streams entering the Great Salt Lake from the north (Behnke 2002). Additionally, a lake form is found in Bear Lake. Current population estimates in Idaho are not available, but a recent status review found that about 65 percent of available habitat is occupied.

The Bonneville cutthroat trout occupies most of the available tributary habitat in the Bear River drainage. The most abundant and well-distributed populations occur in the Logan, Cub, and Thomas Fork River tributaries; many of the remaining tributaries support relatively low-density populations, and most populations are isolated. Localized extirpations appear to have occurred in five tributaries of the Bear River.

Bonneville cutthroat trout occupy most of the available tributary habitat in the Bear River drainage in Idaho; however, populations are at low densities and some local extirpations have occurred. Populations of fluvial Bonneville cutthroat trout in the larger streams of the Bear River drainage are depressed. Bonneville cutthroat trout in Bear Lake are supported by hatchery production as a result of limited natural reproduction. Threats to persistence were identified as water management, livestock grazing, non-native fish interactions including hybridization, and angler harvest.

Burbot

The burbot is a Region 1 sensitive species. In Idaho, burbot are found only in the Kootenai River drainage. This species is considered imperiled in the state of Idaho and is State-listed as endangered. About 32,500 acres (12 percent) of the burbot range overlaps with Idaho Roadless Areas (table 3-44).

The altered hydrograph on the Kootenai River below Libby Dam for hydropower and flood control has resulted in higher winter time velocities, which may restrict upstream migration of the weak swimming burbot (Paragamian et al. 2000). Daily flow fluctuations for peak power generation may also flush eggs from spawning areas. Nutrient settling above Libby Dam has reduced productivity of the river. The development of agricultural lands has resulted in a loss of habitat for juvenile fish with the elimination of slough backwaters by the diking of the river channel to prevent flooding.

Inland Redband Trout

Inland redband trout is a Region 1 sensitive species. This species is considered imperiled in the state of Idaho. About 3,976,300 acres (43 percent) of the inland redband trout range overlaps with Idaho Roadless Areas (table 3-44).

Inland redband trout are found in the interior Columbia River basin from east of the Cascades upstream to geologic barriers such as Shoshone Falls on the Snake River and Kootenai Falls on the Kootenai River and in the upper Fraser River (Behnke 2002). However, they were not in the Clark Fork and Coeur d'Alene drainages. Inland redband trout are present in the Salmon and Clearwater drainage along with steelhead. However, because of difficulties of identifying juveniles of these two life forms, redband trout in these drainages will be included under the steelhead distribution. Current range-wide abundance in Idaho is unknown; however, resident redband trout above Hells Canyon and Dworshak dams are locally abundant.

Resident populations of redband trout persist at some level in all major areas of historical distribution in Idaho. Population estimates for redband trout inhabiting desert habitats in southern Idaho are currently being developed but are not complete at this time.

Habitat loss, fragmentation of current habitat, isolation of existing populations, and hybridization with coastal rainbow trout and cutthroat trout are the principal issues facing inland redband trout.

Pacific Lamprey

Pacific lamprey is a Region 1 sensitive species. This species is considered imperiled in the State of Idaho. About 304,500 acres (16 percent) of the Pacific lamprey range overlaps with Idaho Roadless Areas (table 3-44).

In Idaho, the Pacific lamprey was originally distributed in all drainages of the Snake River below Shoshone Falls, except the Palouse River. It is now restricted to the Clearwater and Salmon River drainages and tributaries to the Snake River below Hells Canyon Dam. The Pacific lamprey was once abundant in Idaho waters and used by native peoples for food. Juveniles were commonly seen in Idaho streams in the 1960s. The species is currently irregularly distributed in the Clearwater drainage (Cochnauer and Claire 2003). The size structure of juveniles (ammocoetes) indicates declining recruitment.

The Hell's Canyon Dam complex on the Snake River and Dworshak Dam on the North Fork Clearwater River have eliminated access to nearly half the historical habitat in Idaho. Eight dams and reservoirs are migration barriers in the Snake and Columbia rivers. Systems designed to improve survival of salmonid smolts migrating downstream can be lethal to Pacific lampreys. Ammocoetes can be entrapped in screens, and transportation of juveniles using barge tanks is particularly stressful because tanks do not have substrates for hiding and resting. Returning adults may not negotiate the fish ladders as well as other anadromous species.

Habitat reductions associated with mining, livestock grazing, stream channelization, logging, road construction, and urbanization have been identified as the most important issues affecting distribution in accessible habitat Loss of riparian cover can increase water temperatures and reduce stream productivity. Culverts with a water drop can prevent adults from returning to spawning and rearing streams.

Chinook Salmon (Naturalized Populations)

Naturalized Chinook salmon is a Region 1 sensitive species. This species is a species of conservation need in the State of Idaho. About 656,800 acres (18 percent) of the Naturalized Chinook salmon range overlaps with Idaho Roadless Areas (table 3-44).

Snake River spring/summer and fall-run Chinook salmon (federally listed as threatened in 1992) historically were found spawning in the Clearwater River. The Clearwater River is a tributary to the Snake River, which flows into the Columbia River. Chinook salmon in the Clearwater River were not included in the Federal listing as threatened because of the loss of these populations in the 1950s. Although not listed in the ESU, the reestablished Clearwater River populations, which are considered 'naturalized', need conservation consideration as part of the historical range and interactions with other populations.

Like several other species of salmonids in the region, populations of Chinook salmon have steadily declined during the past few decades. The Snake River spring/summer and fall-run Chinook salmon population declines are attributed to a multitude of natural and human-induced factors, including reduction in habitat quality and the development of hydroelectric dams in the basin.

The decline of returning Chinook salmon adults has not only affected individual populations but also the aquatic ecosystem as a whole, because of the complex ecological interactions that depend on the existence of all salmonid species. In addition to environmental impacts, fish population declines also have affected local native tribes who depend on salmon for subsistence and cultural needs. The Nez Perce Tribe is one of only a few in the Columbia River basin to have reserved rights to harvest anadromous fish. The Treaty of 1855 reserved the right for members of the Nez Perce Tribe to fish in all "usual and accustomed places," both on and off of their reservation along the Clearwater River in Idaho.

The Nez Perce Tribe established a hatchery with the goal to recover Chinook salmon in the Clearwater River drainage. The Nez Perce Tribal Hatchery project represents one of the first full-scale implementations of a fish hatchery program using the naturalized rearing enhancement approach (NATURES). The goal of NATURES is to produce fish with growth, behavior, coloring, and other developmental traits exhibited by wild fish.

The Nez Perce Tribe subscribes to a different philosophy of hatchery management, wherein juveniles are released in targeted habitat, with the goal of allowing adults to return and spawn in those locations. While some adults are retained as broodstock for hatchery production, all adults in excess of broodstock needs are allowed to spawn naturally. The Nez Perce Tribal Hatchery represents one of the first full-scale implementations of "supplementation," wherein the hatchery directly contributes to natural production and thereby should help restore naturally reproducing populations of spring and fall Chinook salmon in the Clearwater River subbasin.

The Nez Perce Tribe believes that designing the hatchery to mimic the fish's natural environment will result in a stock of juveniles that experience higher survival rates and retain behavioral traits of the population from which they were derived—thus increasing the ability of this valuable resource to reproduce in the wild.

Yellowstone Cutthroat Trout (Snake River Fine Spotted Cutthroat Trout)

The Yellowstone cutthroat trout is a sensitive species in both Regions 1 and 4. In Region 4 this species is listed on the sensitive species list as the 'Snake River fine spotted cutthroat trout'. Biochemical-genetic studies have revealed very little genetic difference between the large-spotted form of Yellowstone cutthroat trout and the fine-spotted cutthroat trout of the Snake River basin (USDI Fish and Wildlife Service 2006a [71 FR 8818]). The large-spotted and fine-spotted Yellowstone cutthroat trout are considered a single entity by the FWS (USDI Fish and

Wildlife Service 2006). Yellowstone cutthroat trout are considered imperiled in the State of Idaho. About 929,500 acres (23 percent) of the Yellowstone cutthroat trout range overlaps with Idaho Roadless Areas (table 3-44).

Native distribution of Yellowstone cutthroat trout includes the Yellowstone River drainage in Montana and Wyoming, and the upper Snake River drainage in Idaho, Wyoming, Utah, and Nevada (Behnke 2002). May et al. (2003) estimated that Yellowstone cutthroat trout inhabit about 63 percent of the historical range in Idaho.

Reduction in historically occupied range, habitat loss, fragmentation of current habitat, predation by non-native fish, isolation of existing populations, and hybridization with rainbow trout and other subspecies of cutthroat trout are the principal risk factors facing Yellowstone cutthroat trout (May et al. 2003).

Westslope Cutthroat Trout

Westslope cutthroat trout is a sensitive species in both Regions 1 and 4. This species is considered imperiled in the State of Idaho. About 4,951,700 acres (28 percent) of the Westslope cutthroat trout range overlaps with Idaho Roadless Areas (table 3-44).

In Idaho, westslope cutthroat trout inhabit the Salmon, Clearwater, Coeur d'Alene, Clark Fork, and Kootenai drainages. Westslope cutthroat trout live in small mountain streams, main rivers, and large natural lakes. They require well-oxygenated water; clean, well-sorted gravels with minimal fine sediments for successful spawning; temperatures less than 70^{o} F, and a complexity of instream habitat structure such as large woody debris and overhanging banks for cover.

Reduction in historically occupied range, habitat loss, fragmentation of current habitat and isolation of existing populations, and hybridization with rainbow trout and other subspecies of cutthroat trout are the principal issues facing westslope cutthroat trout (Shepard et al. 2003). Extensive introductions of Yellowstone cutthroat trout have been made in the range of westslope cutthroat trout, and "hybridization" has resulted.

Wood River Sculpin

Wood River sculpin is a sensitive species in Region 4. This species is considered imperiled in the State of Idaho. About 359,900 acres (33 percent) of the Wood River sculpin range overlaps with Idaho Roadless Areas (table 3-44).

The Wood River sculpin occurs only in the Wood River drainage in south central Idaho. The current distribution is limited primarily to drainages in the higher elevations above Magic and Little Wood River dams, including parts of Camas Creek, Big Wood, and Little Wood Rivers.

Floodplain encroachment, the development of irrigation projects, and stream channelization from residential development; as well as migration barriers at road crossings; have resulted in a loss of habitat and connectivity among populations. Loss of riparian habitat and reduced flows in streams can increase water temperature, reducing habitat suitability. Reduction in water quality from pesticides and herbicides affects this sculpin and aquatic insects prey. Dams, diversion structures, culverts, and dewatered stream channels can fragment populations resulting in loss of gene flow. Introduced fish species can increase predation or competition. Hybridization with introduced sculpins is also a potential threat.

Coeur d'Alene Salamander

Coeur d'Alene salamander is a sensitive species in Region 1. This species is considered imperiled in the State of Idaho. About 1,953,500 acres (23 percent) of the Coeur d'Alene salamander range overlaps with Idaho Roadless Areas (table 3-44).

This species is irregularly distributed across northern Idaho, western Montana, and southeastern British Columbia. Populations in Idaho constitute the core of the range. The majority of records are from the St. Joe and North Fork Clearwater River basins (Wilson et al. 1997), but the species also occurs in the Selway, Kootenai, and Moyie drainages.

Habitat loss and fragmentation are the greatest threats to populations. Potential sources of decreased water quality and aquatic habitat include: (1) chemical pollution arising from mining, pesticide application, or road maintenance (for example, application of substances used for dust control or road surfacing); (2) flow alteration caused by water diversion or impoundment; and (3) sedimentation arising from timber harvest, mining, road maintenance and improvements, trail construction, and recreational activities.

The loss of riparian habitat, including habitat at occupied sites and corridors between occupied habitat patches, is a potential threat. Causes of decreased riparian habitat include road construction and improvement, timber harvest, and water diversion. The loss of connectivity among occupied sites is of importance because dispersal events may maintain the viability of small populations. Other potential threats include introduction of non-native predators or competitors, such as game fish or bullfrogs.

Columbia Spotted Frog

The Columbia spotted frog is a Region 4 sensitive species. This species is considered imperiled in the State of Idaho. About 8,209,700 acres (20 percent) of the Columbia spotted frog range overlaps with Idaho Roadless Areas (table 3-44).

In Idaho the distribution of the Columbia spotted frog extends to the south of the Snake River as a series of small populations centered on the east slopes of the Owyhee Mountains in Owyhee County, with isolated populations in the Bruneau River drainage in Owyhee County and the headwaters of Salmon Falls Creek in Twin Falls County. These populations are included in the Great Basin DPS as recognized by the FWS.

The loss of wetland and riparian habitats is a pervasive threat. Desert wetland systems are particularly vulnerable to disturbance because anthropogenic uses tend to be focused in aquatic habitats. Agricultural activities—such as water withdrawal, diversion, and livestock use—can contribute to habitat loss. Disease is a potentially important, yet little understood, threat to population viability. Chytridiomycosis (often abbreviated "chytrid") is an amphibian disease caused by the fungus *Batrachochytrium dendrobatidis*. This disease has been implicated in the loss of amphibian populations worldwide and may occur within spotted frog populations of this region.

Western Toad

The western toad is a Region 1 sensitive species. This species has no special status in Idaho. About 8,867,800 acres (19 percent) of the western toad range overlaps with Idaho Roadless Areas (table 3-44). The western toad is found in a wide variety of habitats including wetlands, forests, woodlands, sagebrush, meadows, and floodplains in the mountains and mountain

valleys (Brunson 1952, Carpenter 1953, Black 1970, Campbell 1970, Cavallo 1997, Hart et al. 1998).

Similar to other amphibian species in Idaho, the western toad has experienced loss of habitat from land management activities such as water withdrawal and diversion, agriculture (including use of herbicides and pesticides), livestock use, and wetland modification. Western toads often use roads for dispersal, and there are numerous documented reports of this species being crushed by vehicles.

Disease is perhaps the leading cause of decline for this species (Maxell 2000). Carey (1993) observed the disappearance of several populations of western toads in the West Elk Mountains of Colorado between 1974 and 1982, and during this period found many toads with symptoms of red-leg disease, a common bacterial infection in amphibians and fish. More recently the chytrid fungus *B. dendrobatidis*—which is suspected to be responsible for declines of amphibians in Australia, Central America, and the Western United States—has been found to have caused mass mortalities in western toad populations in Colorado during the summer of 1999 (Berger et al. 1998; Daszak et al. 1999, 2000; Morell 1999; Milius 1999, 2000; Carey 2000).

Sensitive Species Richness

Several roadless areas are within the range of seven sensitive species. These areas of species richness are displayed in table 3-45 and appendix L, table L-5. Additionally, 54 roadless areas overlap with five or more sensitive species (see fig. 3-26). Areas of multiple species overlap are important for species conservation and biodiversity.

Table 3-45. Idaho Roadless Areas that have seven aquatic sensitive species (amphibians and fish)

Idaho Roadless Area	National forest
Bighorn - Weitas	Clearwater
Lochsa Face	Clearwater
North Lochsa Slope	Clearwater
O'Hara - Falls Creek	Nez Perce
Rackliff - Gedney	Clearwater/Nez Perce
Silver Creek - Pilot Knob	Nez Perce
Weir - Post Office Creek	Clearwater
West Meadow Creek	Nez Perce

Management Indicator Species

All the Idaho national forest aquatic MIS species, except one, are already included in the aquatic species being evaluated as threatened, endangered, or sensitive (TES) in this analysis (appendix L, table L-2). The only species not included as TES is rainbow trout, which was identified by the Idaho Panhandle National Forest as an MIS (1987). The range of rainbow trout overlaps with 600,900 acres of the roadless areas on the Idaho Panhandle National Forest. This overlap equals about 28 percent of the total range for rainbow trout on the Idaho Panhandle National Forest.

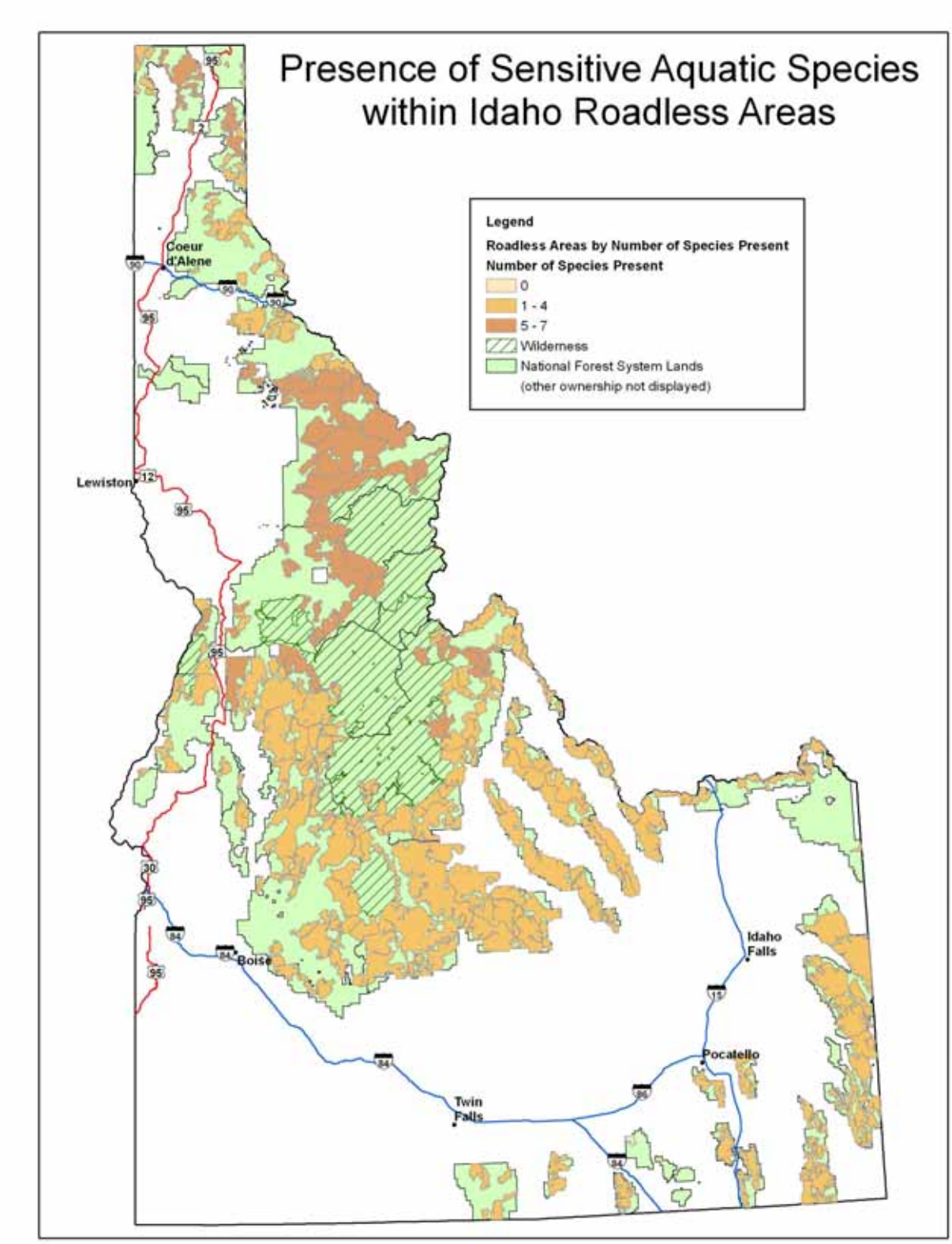

Figure 3-26. Idaho Roadless Areas that provide habitat for multiple (1–7) sensitive aquatic species.

General Effects of Selected Management Activities on Aquatic Animal Habitats and Species

The following section summarizes the general effects that roads, timber cutting, and discretionary mineral development could have on aquatic species and their habitats.

Roads

Road construction / reconstruction, maintenance, use, and even the presence of roads in a watershed can have numerous adverse effects on aquatic ecosystems and the species they support. Recent changes in road designs and application of best management practices have been effective in some instances at moderating or avoiding many adverse effects. While the localized effect of an individual road-stream crossing may not have a substantial adverse effect, the cumulative effect of road networks and multiple crossings increases the potential for major adverse effects to aquatic habitats (USDA Forest Service 2000c). The discussion in this section captures the principal effects that have been associated with roads, but these are potential effects; furthermore, not every road would necessarily exhibit each or even many of these effects. Also, the effects of roads may vary with physical and biological conditions and the physical location of the road (Luce et al. 2001). Section 3.6, Physical Resources, provides a discussion of potential geomorphic and hydrologic effects of roads on watershed and stream channel conditions.

Potential effects from roads on aquatic habitat include (Furniss et al. 1991, USDA Forest Service 2000c):

- Increasing sediment loads in streams;
- Modifying watershed hydrology and stream flows;
- Altering stream channel morphology;
- Increasing habitat fragmentation and loss of connectivity;
- Reducing water quality, including increasing chance of chemical pollution; and
- Altering water temperature regimes.

These physical alterations can potentially result in a variety of adverse effects on aquatic species including:

- Increased mortality of amphibians, from crushing;
- Loss of spawning and rearing habitat, and deep pools, from excess sediment deposition;
- Increased mortality of eggs and young from lower levels of oxygen in stream gravels;
- Increased susceptibility to disease and predation;
- Increased reproductive failure;
- Shifts in macro invertebrate communities to those tolerating increased sediment or other types of diminished water quality;
- Increased susceptibility to over harvest and poaching;
- Loss of protective cover and resting habitat through changes in channel structure including large woody debris, overhanging banks, and deep pools;

- Competition from non-native species;
- Loss of habitat caused by habitat reduction, barriers to passage, increased gradient, high temperatures, and other factors; and
- Increased vulnerability of subpopulations to catastrophic events and loss of genetic fitness, related to loss of habitat connectivity.

Analysis done for the Interior Columbia Basin Ecosystem Management Project (Lee et al. 1997) indicates that strong fish populations are often associated with low road density. The biological opinion issued by the NMFS for PACFISH (USDA and USDI 1995) identified roads as a primary cause of salmonid decline, and indicated that roads may have unavoidable effects on streams, regardless of how well they are located, designed, or maintained. In discussing the effects of management activities in inventoried roadless areas in the Pacific Northwest, the ecosystem management assessment team headed by Jack Ward Thomas (USDA et al. 1993) concluded that such activities would increase the risk of damage to aquatic and riparian habitat and could potentially reduce the capacity and capability of key watersheds important for maintaining salmonid populations.

The broad view of the ecological effects of roads reveals a multiplicity of effects, it also suggests that it is unlikely that the consequences of roads will ever be completely mitigated or remediated (Trumbulak and Frissell 2000). Thus it is critical to retain remaining roadless or near-roadless portions of the landscape in their natural state (Trumbulak and Frissell 2000).

Timber Cutting

The effects of activities associated with timber cutting (such as tree felling, yarding, landings, site preparation by burning or scarification, fuels reduction, brush removal and whip felling, and forest regeneration) are often difficult to separate from the effects of roads and road construction. The road systems developed to cut timber are often a significant factor affecting aquatic habitats, as discussed above. Negative effects from timber cutting tend to increase when activities occur on environmentally sensitive terrain with steep slopes composed of highly erodible soils (Lee et al. 1997). Some of the potential effects on aquatic habitat can include the following (Chamberlin et al. 1991, Hicks et al. 1991, Beschta et al. 1987):

- Increasing erosion;
- Increasing sediment supply and storage in channels;
- Modifying watershed hydrology and streamflow, including the timing or magnitude of runoff events;
- Decreasing stream bank stability, and altering stream channel morphology;
- Changes in water quality and quantity;
- Decreased recruitment of large woody debris to aquatic habitats;
- Diminishing habitat complexity;
- Altering energy relationships involving water temperature, snowmelt, and freezing; and
- Altering riparian composition and function.

If present, these physical changes in habitat would have many of the same biological effects as previously listed under the effects of roads, above. With the recent increased emphasis on use of best management practices and other protective measures in the design and implementation of timber cutting activities, the effects can often be mitigated to some extent. Cumulatively, however, timber cutting activities within a watershed can have pronounced and lasting effects on aquatic habitat (Chamberlin et al. 1991).

Mineral Activities

Idaho Roadless Areas contain saleable, leasable, and locatable mineral resources. Mining for these materials occurs as surface mining or underground mining. Although any mining activity may have negative effects on aquatic ecosystems, the largest impacts have generally been associated with surface mining (Lee et al. 1997).

Mining activities can affect aquatic ecosystems in a number of ways: through the addition of large quantities of sediments, the addition of solutions contaminated with metal or acids, the acceleration of erosion, increased bank and streambed instability, changes in channel formation and stability, and removal of riparian vegetation (Lee et al. 1997).

In general, surface mining causes higher stream flows and greater storm flow volumes than underground mining because of a greater amount of surface area disturbance with associated removal of vegetation and topsoil, greater amounts of spoils, and general compaction of the area (Southern Appalachian Man and the Biosphere 1996). Stream channels can adjust to increased flows and sediment loads; however, such alterations can have adverse effects on the quality of aquatic habitat.

Sediments can enter streams through erosion of mine tailings (Besser and Rabeni 1987), by direct discharge of mining wastes to aquatic systems, and through movement of groundwater (Davies-Colley et al. 1992). Coarse sediments delivered to channels are likely to be deposited relatively quickly, affecting nearby aquatic habitat. Finer materials settle out more slowly and may create turbid water conditions for long distances downstream, affecting primary production and biomass by reducing the amount of light available to algae and rooted aquatic plants (Lee et al. 1997). Increases in turbidity can cause direct mortality to aquatic species, reduce growth and feeding activity (Nelson et al. 1991), and affect the abundance and diversity of benthic invertebrates (Lee et al. 1997). Excessive fine sediment deposition in stream substrates can reduce the quality of spawning habitat for salmonids and eliminate habitat for some bottom-dwelling aquatic species by filling in spaces in gravels (Nelson et al. 1991).

Of particular concern to aquatic resources in Idaho is selenium contamination resulting from phosphate mining. Selenium contamination has occurred world-wide in association with common and economically important activities such as fossil fuel processing, mining, and irrigation, resulting in dozens of cases in which fish and wildlife populations have been affected (Van Kirk and Hill 2006). The southeast Idaho phosphate mining region, with includes the Caribou National Forest, is one of the most extensive and productive phosphate fields in the world (Jasinski et al. 2004). The bioaccumulative nature of selenium in aquatic systems is well-documented (Presser et al. 1994, Dobbs et al. 1996, Maier et al. 1998, Garcia-Hernandez et al. 2000, Hamilton 2002). Documented individual-level effects of selenium in fish include decreased egg incubation period, hatch rate, pre-swim-up fry survival, post-swim-up fry survival, juvenile winter survival, juvenile growth, adult survival, and adult growth (Van Kirk and Hill 2006). Modeling results from Van Kirk and Hill (2006) concluded that decreased

juvenile survival in cutthroat trout due to selenium toxicity could result in decreased population size.

Extent and Duration of Effects

For aquatic habitats, the indirect effects of disturbances associated with road construction and timber cutting could extend well beyond those areas directly affected, given the influence that upslope areas and upstream reaches have on the condition of downstream habitat (Chamberlin et al. 1991). The types and extent of impacts on aquatic habitats would depend on road location and design, proximity to accessible habitat, mitigation measures applied, and the activities enabled. For fish populations, habitat alterations can adversely affect all life-stages, from egg to adult, and habitat essential for migration, spawning, incubation, emergence, rearing, feeding, and security (Furniss et al. 1991).

The duration of effects, or recovery time, depends on a variety of factors. Site productivity, rainfall, and length of growing season influence the rate and success of vegetation regrowth. Some of the other factors influencing the duration of physical effects on a watershed and associated stream channels include: the type, location, extent, and duration of an activity; magnitude of adverse effects; dominant hydrologic and geomorphic processes within the watershed; overall watershed condition; and the effectiveness of mitigation and reclamation activities. The duration of biological effects can extend beyond the recovery time for the physical environment and can be irreversible if a species is extirpated from the watershed.

Specific Effects of Management Activities on Aquatic Species in Idaho Roadless Areas

In this section, the risk of the selected management activities—road construction / reconstruction, timber cutting, and discretionary mining—on TES and MIS aquatic species in Idaho is presented. These estimates are based on the degree to which the species might be *exposed* to the selected management activities (improbable, probable). Exposure is a function of the species overlap with Idaho Roadless Areas and expected management activities that might occur in the Idaho Roadless Areas under various themes. The likelihood and intensity of species *response* to management activities is also considered. An estimate of the risk (low, moderate, high) to that species is based on the exposure and anticipated response of a species. Determinations made at each juncture were based on scientific information presented in the previous section and the Idaho Comprehensive Wildlife Conservation Strategy (IDFG 2005); and on species-specific information provided by the FWS, NMFS, management plans, and recovery plans. Table 3-45 summarizes the risk levels for aquatic species.

Table 3-45. Estimate of the risk that roads, timber cutting, and discretionary mining could pose to threatened, endangered, and Forest Service sensitive species.

Species	Low risk	Moderate risk	High risk
Federally threatened and endangered			
Snake River basin steelhead		X	
Snake River spring/summer Chinook		X	
Snake River fall-run Chinook		X	
Snake River sockeye	X		
Bull trout		X	
Kootenai white sturgeon	X		
Forest Service sensitive species			
Bonneville cutthroat trout			X
Burbot	X		
Inland redband trout		X	
Pacific lamprey		X	
Snake River Chinook salmon (naturalized)		X	
Yellowstone cutthroat trout			X
Westslope cutthroat trout		X	
Wood River sculpin		X	
Coeur d'Alene salamander		X	
Columbia spotted frog		X	
Western toad			X
Management indicator species not addressed above			
Rainbow trout	X		

In general, species associated with lake and deep river aquatic systems were categorized as a low risk for effects from the selected management activities. These habitats are not likely to be affected by road-related activities, timber harvest, or discretionary minerals activities in the Idaho Roadless Areas. However, species that depend on stream habitats were categorized at a moderate risk because of the likelihood of exposure to indirect and direct effects resulting from the selected management activities. The only exception to this 'rule' for stream-dependent species is the rainbow trout. Because of the wide-distribution of this species on the Idaho Panhandle National Forest, this species is likely to experience direct and indirect effects from the selected management activities; however, it is unlikely to be at a moderate risk of decreased populations sizes or experience population fragmentation because of these activities. The range of three species listed in Table 44a at a high risk overlap the known phosphate leasing areas on the Caribou-Targhee National Forest. These species are at a high risk from potential activities associated with discretionary mining.

ENVIRONMENTAL CONSEQUENCES

All Alternatives

There are about 20,450 acres of known phosphate leasing areas (KPLAs) and existing lease areas inside Idaho Roadless Areas, of which about 70 percent are unleased.

None of the alternatives would prohibit road construction or reconstruction associated with developing existing mineral leases. About 1,100 acres of phosphate within existing lease areas (Smoky Canyon Mine) are reasonably foreseeable for development. Mine expansion is expected to occur within Sage Creek and Meade Peak Roadless Areas under each alternative. No threatened or endangered species occur within the Sage Creek or Meade Peak Roadless Areas; however, both these roadless areas are within the range of the sensitive Yellowstone cutthroat trout. Sage Creek and a small portion of Meade Peak Roadless Areas are considered strongholds for Yellowstone cutthroat trout.

All alternatives permit road construction and reconstruction to access existing leases. Additionally, all alternatives permit surface occupancy on these existing leases, regardless of management theme. An additional 6,100 acres under existing lease, within the Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, Stump Creek, and Mount Jefferson Roadless Areas could be developed sometime in the future (50 or more years). These roadless areas provide habitat for both Yellowstone cutthroat trout and Bonneville cutthroat trout, which are Forest Service sensitive species.

Any future phosphate development could affect aquatic ecosystems in a number of ways: through the addition of sediment; the addition of solutions contaminated with metals, acids, and / or selenium; the acceleration of erosion; increased bank and streambed instability; changes in channel formation and stability; and removal of riparian vegetation (Lee et al. 1997). Any future development would undergo environmental analysis, and environmental mitigations would be required to lessen effects.

2001 Roadless Rule

The 2001 Roadless Rule prohibits road construction / reconstruction except when done under seven exceptions (see section 2.2 in chapter 2). Under the 2001 Roadless Rule, 12 miles of permanent roads are projected to be constructed and 3 miles of temporary roads in Idaho Roadless Areas over the next 15 years. The 2001 Roadless Rule allows some timber cutting for threatened and endangered species habitat improvement, ecosystem restoration, and hazardous fuel reduction purposes. No road construction is permitted to support timber cutting for these purposes. Timber cutting is projected to occur on about 9,000 acres over the next 15 years.

By restricting timber harvest to activities necessary for resource stewardship and prohibiting new road construction (in most cases), many of the adverse effects of timber harvest would be minimized, while maintaining a management tool potentially needed for ecological restoration. Fuels-reduction stewardship activities within a watershed may be indirectly beneficial to some aquatic populations. For example, careful thinning to reduce fuel loading in some areas where there is an abnormally high risk of high-intensity, large-scale fires may lower the risk of extirpation of an isolated fish population from a wildfire, particularly where habitat complexity and spatial diversity have already been diminished and where fish would have difficulty in repopulating because of lack of habitat connectivity.

Based on foreseeable projections, most timber-cutting activities are not likely to affect the overall amount or severity of wildfires. As a result, the effects of wildfires on aquatic species are likely to be similar with or without the prohibitions. Whereas the benefits of less ground disturbance from road construction and timber cutting are well-documented in the literature, it is less clear whether failure to reduce fuel loading would constitute a substantially increased level of risk for aquatic communities.

Aquatic habitat management activities that are not dependent on new or reconstructed road access could be implemented under the 2001 Roadless Rule. Overall, the need for additional road access to manage aquatic habitat within Idaho Roadless Area appears to be minimal. This alternative would not measurably affect the current ability to manage aquatic habitat. In general aquatic habitats and species would benefit from the prohibitive nature of this alternative. All Idaho Roadless Areas would be managed under a similar set of guidelines that are fairly restrictive in relation to road construction / reconstruction, timber cutting, and discretionary minerals activities.

Under the 2001 Roadless Rule, there would be no new road construction or reconstruction within Idaho Roadless Areas to access the 14,460 acres of unleased KPLA on the Caribou-Targhee National Forest. Surface use and occupancy would be permitted on new leases as long as no new roads are constructed to access these deposits. However, it is likely phosphate deposits on this acreage would not be mined because roads could not be built to support advance drilling needed to specifically to define the mineral deposits.

Summary of Effects, 2001 Rule

The 2001 Roadless Rule is the most prohibitive of the four alternatives in relation to road construction / reconstruction and maintenance; timber cutting, sale and removal; and discretionary mineral activities. The aquatic species considered include species that require a variety of aquatic habitats and habitat components. Given the permissions and prohibitions under the 2001 Roadless Rule, there should generally be little to no impact on key aquatic habitats and habitat components should be provided for including: (1) spawning habitat with water quality and quantity (including flow regimes) conditions and substrates favorable to incubation and larval development; (2) rearing habitat with water quality (including temperature conditions) and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; (3) rearing habitat with foraging to support juvenile development; (4) cover habitat including shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks; and (5) migration corridors for adults and juveniles free of obstruction and excessive predation with favorable water quantity and quality conditions.

However, the exact locations of future projects cannot be predicted nor are there restrictions on the distribution of effects spatially or temporally; therefore, the potential for adverse effects to occur cannot be totally discounted. Adverse effects could occur because of short-term habitat modification or increased chance for mortality from activities permitted under the 2001 Roadless Rule. As mentioned previously, road-related activities have the potential to increase sediment delivery to streams, alter flow patterns and stream morphology, increase habitat fragmentation and reduce water quality. Roads also carry a risk of future failure and require maintenance to help ensure they do not fail or contribute to habitat loss. Timber cutting, sale, and removal can result in ground disturbance and increased erosion. It can also reduce vegetation near aquatic habitats, resulting in less shade, potentially warmer water

temperatures, and less woody debris recruitment into the habitat. Implementation of road and timber harvest best management practices designed to maintain good water quality help to minimize the risk of adverse effects on aquatic species and their habitats from these land management activities.

One of the largest benefits to aquatic species and their habitats under the 2001 Roadless Rule alternative is that there are no lands under this alternative managed similar to the General Forest, Rangeland, or Grassland theme. Under this alternative discretionary mining is prohibited in known phosphate areas that are currently unleased. Because of this prohibition on discretionary mining, there is a low risk to aquatic species on the Caribou-Targhee National Forest due to selenium contamination.

Effects on Threatened and Endangered Species and Their Habitats

Actions that could occur pursuant to the 2001 Roadless Rule may affect individual Snake River Basin steelhead, Snake River sockeye salmon, Snake River fall-run Chinook salmon, Snake River spring/summer Chinook salmon, bull trout, Kootenai River white sturgeon, and habitats for these species.

At the project level, all activities would be subject to existing INFISH, PACFISH, and/or SWIEG requirements that are designed to avoid or minimize adverse effects on threatened and endangered fish and their habitats. Project-level NEPA is required for all timber cutting, sale, and removal; road construction/reconstruction; and mineral activities in Idaho Roadless Areas. Given these factors, the 2001 Roadless Rule poses a low risk to individuals, metapopulations, and habitats for the threatened and endangered species.

Because the Kootenai River white sturgeon resides only in the mainstem of the Kootenai River the risk effects on this species from actions that could occur pursuant to this alternative is so low the effects are discountable and insignificant.

Furthermore, by providing prohibitions beyond the existing forest plans, the 2001 Roadless Rule may beneficially affect threatened and endangered aquatic species and their habitats by promoting large continuous lands that have unroaded character.

Effects on Sensitive Species and Their Habitats

Actions that could occur pursuant to the 2001 Roadless Rule could affect individual Bonneville cutthroat trout, burbot, inland redband trout, Pacific lamprey, Chinook salmon (naturalized populations), Yellowstone cutthroat trout, westslope cutthroat trout, Wood River sculpin, Coeur d'Alene salamander, Columbia spotted frog, and western toad, and habitats for these species, but are not likely to cause a trend toward Federal listing or a loss of viability for any of the aquatic sensitive species considered.

At the project level, all activities will be subject to existing forest plan standards and guidelines and where appropriate the INFISH, PACFISH, and/or SWIEG requirements. Because of the scientifically based Aquatic Conservation Strategies and the aquatic/riparian standards and guidelines provided in INFISH, PACFISH, and the SWIEG forest plans, activities that occur pursuant to these three documents would provide protective measures for aquatic sensitive species in addition to the threatened and endangered species for which they were developed.

Project-level NEPA is required for all timber cutting, sale, and removal; road construction/reconstruction, and mineral activities in Idaho Roadless Areas; therefore, all aquatic sensitive

species would have biological evaluations completed and mitigation measures implemented at the project level. Given these factors, the 2001 Roadless Rule poses a low risk to individuals, metapopulations, and habitats for aquatic sensitive species in Idaho Roadless Areas.

Implementation of the 2001 Roadless Rule may beneficially affect sensitive aquatic species and their habitats by promoting large continuous lands that have unroaded character.

Effects on MIS Species and Their Habitat

Actions that could occur pursuant to the 2001 Roadless Rule may affect rainbow trout and / or their habitat on the Idaho Panhandle National Forest. Because of the wide distribution of rainbow trout on the Idaho Panhandle National Forest, potential effects of land management activities under this alternative should not result in adverse effects on this species, including decreased populations, population fragmentation, or changes to the species distribution.

Existing Plans

Under Existing Plans road construction / reconstruction, timber cutting, and discretionary mineral activities are generally prohibited on about 3.22 million acres of land within Idaho Roadless Areas (35 percent of the roadless areas). These areas would continue to provide excellent habitat for aquatic species because of the limited amount of human-induced disturbance. About 4.48 million acres are in management prescriptions similar to Backcountry and some level of road construction / reconstruction would be permitted, as well as timber cutting. Discretionary mineral activities may or may not be permitted depending on the forest plan direction (appendix B). About 1.26 million acres are in prescriptions similar to the GFRG theme. Road construction / reconstruction, timber cutting and discretionary mineral activities are generally permitted in these areas.

About 105 miles of road construction and 75 miles of reconstruction are projected in Idaho Roadless Areas under the Existing Plans over the next 15 years. This estimate includes both permanent and temporary roads for timber cutting and non-timber related activities. Timber cutting is projected to occur on about 40,500 acres over the next 15 years. These activities could reduce the quality and quantity of fish habitat in some roadless areas, with increased potential for adverse effects on some TES species. However, all activities would be done under the management direction of Existing Plans, most of which provide specific guidance (such as PACFISH and INFISH) to reduce adverse effects to TES species.

To help assess the scope of this alternative in relation to aquatic TES species, the overlap of the assigned themes was compared against acres contributing to species richness (areas supporting several species) and strongholds (table 3-46, appendix L, table L-6). Under the Existing Plans alternative the greatest overlap occurs with the management prescription similar to the Backcountry theme (table 3-46). Of particular interest to aquatic species are areas of overlap with the permissive GFRG theme because the most ground-disturbing activities could occur under this theme.

Table 3-46. Acres by theme overlapping important aquatic threatened, endangered, or species (TES) habitats, Existing Plans

Wild Land Recreation	Primitive	Backcountry	GFRG	FPSA[1]	SAHTS
Acres in Idaho Roadless Areas overlapping the range of 4 or 5 threatened and endangered species					
222,800	496,100	1,162,700	285,700	86,100	0
Acres in Idaho Roadless Areas overlapping priority watersheds for 3 species[2]					
0	125,300	770,600	154,500	15,400	0
Acres in Idaho Roadless Areas overlapping large strongholds or strongholds for multiple fish species					
813,200	1,078,500	1,942,200	131,700	147,700	0

[1] *Management direction under the Idaho Roadless Rule would not apply to forest plan special areas such as research natural areas, wild and scenic rivers, developed sites, etc. (appendix Q, table Q-1).*

[2] *Steelhead trout, Chinook salmon, and bull trout*

Under the Existing Plans road construction and reconstruction may be allowed to access 14,460 acres of unleased KPLA on the Caribou-Targhee National Forest. However, only 13,620 acres may be considered for leasing because a previous decision recommends no leasing on 840 acres within the Deer Creek watershed in the Sage Creek Roadless Area. The Caribou Forest Plan permits leasing of the estimated 6,750 acres of known unleased phosphate deposits and / or other possible roadless areas that contain undiscovered phosphate resources[79]. The known unleased phosphate deposits occur in six roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek) and would likely be developed over an extended period of time (50 or more years). In addition, there are 6,870 acres of unleased phosphate deposits on the Targhee portion of the forest within the Bald Mountain, Bear Creek, and Poker Creek Roadless Areas. An environmental analysis would have to be completed to determine how much of the 6,870 acres could actually be leased. No threatened or endangered aquatic species occur in the unleased phosphate roadless areas. However, several Forest Service sensitive species have ranges that overlap these roadless areas, including Bonneville cutthroat trout, Yellowstone cutthroat trout, western toad, and Columbia spotted frog. There is a potential risk to sensitive aquatic species and their habitats on these 14,460 acres when and if this development should occur. Site-specific analysis would occur prior to any future leasing and mitigations applied.

Summary of Effects, Existing Plans

Existing Plans permit road construction / reconstruction, timber cutting, and discretionary mineral activities to some degree. Based on projections for timber cutting, less than 0.5 percent of Idaho Roadless Areas likely would be affected under Existing Plans; with the potential for phosphate mining, less than 0.7 percent would be affected. Where these activities occur, especially if roads are constructed, or if the activities are concentrated, there could be adverse effects on aquatic species and their habitats, including potential effects on species richness, critical habitat, EFH, priority watersheds, fish strongholds, bull trout core areas, and key bull trout spawning and rearing habitats. Fish and amphibians could be directly and / or indirectly affected by land management activities permitted under this alternative.

[79] About 840 acres of unleased KPLA in the Sage Creek Roadless Area have been recommended as unavailable by the Forest Service, per a 1998 leasing analysis. About 1,910 acres of undiscovered phosphate deposits are projected based on past history (section 3.5, Minerals and Energy).

The Existing Plans have the most acres of land included in management prescriptions similar to the GFRG theme. This theme is the most permissive of the themes. It also has the fewest acres equivalent to the Wild Land Recreation theme, which is the most restrictive theme. Of particular concern with this alternative are maintenance and restoration of key aquatic habitat elements including: (1) spawning habitat with water quality and quantity (including flow regimes) conditions and substrates favorable to incubation and larval development; (2) rearing habitat with water quality (including temperature conditions) and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; (3) rearing habitat with foraging to support juvenile development; (4) cover habitat including shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks; and (5) migration corridors for adults and juveniles free of obstruction and excessive predation with favorable water quantity and quality conditions.

Effects on Threatened and Endangered Species and Their Habitats

Actions that could occur under the Existing Plans alternative could affect individual Snake River Basin steelhead, Snake River sockeye salmon, Snake River fall-run Chinook salmon, Snake River spring/summer Chinook salmon, bull trout, Kootenai River white sturgeon, and habitats for these species. Unlike the other three alternatives, the Existing Plans alternative does not place any special recognition on larger areas with unroaded character and the contribution these areas make to fish strongholds and fish threatened and endangered recovery efforts.

At the project level, all activities would be subject to existing INFISH, PACFISH, and/or SWIEG requirements that are designed to avoid or minimize adverse effects threatened and endangered fish and their habitats. Project-level NEPA is required for all timber cutting, sale, and removal; road construction/reconstruction; and mineral activities in Idaho Roadless Areas. Given these factors, the Existing Plans poses a low risk to individuals, metapopulations, and habitats for the threatened and endangered species.

Effects on Sensitive Species and Their Habitats

Actions under the Existing Plans could affect individual Bonneville cutthroat trout, burbot, inland redband trout, Pacific lamprey, Chinook salmon (naturalized populations), Yellowstone cutthroat trout, westslope cutthroat trout, Wood River sculpin, Coeur d'Alene salamander, Columbia spotted frog, and western toad and their habitats, but are not likely to cause a trend toward Federal listing or a loss of viability for any of the aquatic sensitive species considered.

Of particular concern are populations of Bonneville cutthroat trout and Yellowstone cutthroat trout in southeast Idaho. Both these species have declined considerably in Idaho following human development (Varly and Gresswell 1988, Duff 1988). Of the selected land management activities considered in this EIS, phosphate mining and the resulting potential for selenium contamination in southeast Idaho streams could have an adverse affect on these two species. It is expected that project-level NEPA would thoroughly evaluate potential effects on these species and their habitats, and that needed mitigation measures would be implemented at the project level.

In addition, at the project level all activities will be subject to existing forest plan standards and guidelines and where appropriate the INFISH, PACFISH, and/or SWIEG requirements. Because of the scientifically based aquatic conservation strategies and the aquatic/riparian standards and guidelines provided in INFISH, PACFISH, and the SWIEG forest plans,

implementation of these three documents would provide protective measures for aquatic sensitive species in addition to the threatened and endangered species for which they were developed.

Effects on MIS Species and Their Habitats

Actions that could occur under the Existing Forest Plans may affect rainbow trout and/or their habitat on the Idaho Panhandle National Forest. Because of the wide distribution of rainbow trout on the Idaho Panhandle National Forest, potential effects of land management activities under this alternative should not result in adverse effects on this species, including decreased populations, population fragmentation, or changes to the species distribution.

Proposed Idaho Roadless Rule (Proposed Action)

Under the Proposed Idaho Roadless Rule, road construction/reconstruction, timber cutting (with limited exception), and discretionary mineral activities are prohibited on about 3.1 million acres of land within the Wild Land Recreation, Primitive, and SAHTS themes (33 percent of the Idaho Roadless Areas). Aquatic ecological values would be maintained under these themes because these themes protect aquatic resources including TES and MIS species, threatened and endangered critical habitat, EFH, native fish strongholds, priority watersheds, bull trout core areas, and bull trout key recovery habitat, by limiting human-induced activities.

About 5.25 million acres are in Backcountry. Road construction/reconstruction would be permissible under several exceptions, including support of timber cutting for forest health and fuel-reduction purposes. Most new roads would be temporary, unless the responsible official determines that a permanent road meets the road exceptions and it would not substantially alter any of the roadless characteristics. The Backcountry theme permits both surface occupancy and road construction/reconstruction to access unleased phosphate deposits.

To help assess the scope of this alternative in relation to aquatic TES species, the overlap of the themes was compared against acres contributing to species richness (areas supporting several species) and strongholds (table 3-47, appendix L, table L-7). About 609,600 acres are in the GFRG theme. Road construction/reconstruction, timber cutting, and discretionary mineral activities are permissible in this theme. About 5,400 acres of Idaho Roadless Areas within the GFRG theme are located in strongholds for multiple species and about 57,200 acres are located in areas of high biodiversity (four or five threatened or endangered species) and the GFRG theme (table 3-47). There is no GFRG in roadless areas that provide priority watershed areas for steelhead trout, Chinook salmon, and bull trout. Portions of the Cuddy Mountain, Boulder-White Clouds, French Creek, Mallard Larkins, Needles, Red Mountain, and Ten Mile/Black Warrior Roadless Areas are in the GFRG theme and overlap with one of the fish strongholds (appendix L, table L-7).

Table 3-47. Acres by theme overlapping important aquatic TES habitats, Proposed Idaho Roadless Rule

Wild Land Recreation	Primitive	Backcountry	GFRG	FPSA[1]	SAHTS
Acres in Idaho Roadless Areas overlapping the range of 4 or 5 threatened and endangered species					
260,000	434,500	1,415,600	57,200	86,000	0
Acres in Idaho Roadless Areas overlapping priority watersheds for 3 species[2]					
0	164,700	815,700	0	15,400	0
Acres in Idaho Roadless Areas overlapping large strongholds or strongholds for multiple fish species					
858,000	1,040,800	2,013,000	5,400	147,700	48,400

[1] *Management direction under the Idaho Roadless Rule would not apply to forest plan special areas such as research natural areas, wild and scenic rivers, developed sites, etc. (appendix Q, table Q-1).*

[2] *Steelhead trout, Chinook salmon, and bull trout*

About 38 miles of road construction and 23 miles of road reconstruction are projected to occur over the next 15 years under this alternative. This estimate includes both permanent and temporary roads for timber-cutting and non-timber-related activities. Timber cutting is projected to occur on about 18,000 acres over the next 15 years (about 0.1 percent of all the Idaho Roadless Areas). Activities would incorporate mitigation measures to reduce effects, especially if the activity may affect TES species. This level of road construction / reconstruction and timber cutting may reduce aquatic habitat quantity and quality in a limited portion of some roadless areas.

Timber cutting, road construction / reconstruction, and discretionary mineral activities would be permissible within the GFRG theme. However, these activities would have to comply with ESA and management direction for threatened and endangered species included in existing plans (such as direction provided through the PACFISH and INFISH amendments or through subsequent forest plan revision).

All the national forests in Idaho—except for the Challis, Clearwater, Nez Perce, and Wallowa-Whitman—have roadless areas in the GFRG theme. The Caribou portion of the Caribou-Targhee National Forest has the most acreage of any of the forests in the GFRG theme (251,900 acres). Most of the Caribou's roadless areas in the GFRG theme support Bonneville cutthroat trout and Yellowstone cutthroat trout, which are R4 sensitive species.

There are 14,460 acres of known unleased phosphate deposits on the Caribou-Targhee National Forest. About 13,190 acres (91 percent) are located within the Backcountry and GFRG themes. Under these themes road construction or reconstruction would be permissible to develop these phosphate deposits. These deposits are located within nine roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek on the Caribou portion of the forest; and Bald Mountain, Bear Creek, and Poker Creek Roadless Areas on the Targhee portion of the forest) and could eventually be mined over an extended period of time (50 or more years). There is a potential risk to habitats for sensitive aquatic species (Bonneville cutthroat trout, Yellowstone cutthroat trout, western toad, and Columbia spotted frog) on these 13,190 acres when and if this development should occur. Site-specific analysis would occur prior to any future leasing and mitigations applied. No threatened or endangered aquatic species are found in these roadless areas.

About 1,280 acres of unleased phosphate deposits are in the Primitive theme. The Primitive theme prohibits road construction / reconstruction or surface occupancy for phosphates;

therefore, this area would likely not be developed (section 3.5, Minerals and Energy) and there would be no effect on sensitive aquatic species found in this area.

Summary of Effects, Proposed Idaho Roadless Rule

Under the Proposed Idaho Roadless Rule, limited ground-disturbing activities are likely to occur in Wild Land Recreation, Primitive, and SAHTS themes because of the prohibitions on activities related to road construction / reconstruction and discretionary minerals, and the prohibitions, with exceptions, for timber cutting. These three themes in general should result in minimal impacts on natural processes, habitat integrity, and species diversity. All key aquatic habitat elements should be maintained, including: (1) spawning habitat with water quality and quantity (including flow regimes) conditions and substrates favorable to incubation and larval development; (2) rearing habitat with water quality (including temperature conditions) and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; (3) rearing habitat with foraging to support juvenile development; (4) cover habitat including shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks; and (5) migration corridors for adults and juveniles free of obstruction and excessive predation with favorable water quantity and quality conditions.

Areas in the Backcountry theme have a higher potential for ground-disturbing activities (including road construction / reconstruction, timber cutting, and discretionary minerals activities) occurring depending on future land uses and the risk of wildland fire. Areas in the GFRG theme have the greatest potential for risk of adverse effects on aquatic species and habitats. The level of road construction / reconstruction and timber cutting projected may reduce aquatic habitat quantity and quality in a limited portion of some roadless areas, but it is unlikely to reduce the overall biodiversity, or quantity and / or quality of critical habitat, EFH, strongholds, priority watersheds, bull trout core areas, and bull trout key recovery habitat found in Idaho Roadless Areas.

Effects on Threatened and Endangered Species and Their Habitats

Land management activities that could occur pursuant to the Proposed Rule may result in adverse effects on individual Snake River Basin steelhead, Snake River sockeye salmon, Snake River fall-run Chinook salmon, Snake River spring / summer Chinook salmon, bull trout, Kootenai River white sturgeon, and habitats for these species.

Requirements at the project level would help to avoid or minimize adverse effects on aquatic species and their habitats. All activities would be subject to existing INFISH, PACFISH, and / or SWIEG requirements. Also, project-level NEPA is required for all timber cutting, sale, and removal; road construction / reconstruction; and mineral activities in Idaho Roadless Areas. Given these factors, the Propose Rule poses a low risk to individuals, metapopulations, and habitats for the threatened and endangered species. Because the Kootenai River white sturgeon resides only in the mainstem of the Kootenai River, the risk of effects on this species from actions that could occur pursuant to this alternative is so low the effects are discountable and insignificant.

By providing prohibitions beyond the existing forest plans, the Proposed Rule may beneficially affect threatened and endangered aquatic species and their habitats by promoting large continuous lands that have unroaded character.

Effects on Sensitive Species and Their Habitat

Actions that could occur pursuant to the Proposed Rule could affect individual Bonneville cutthroat trout, burbot, inland redband trout, Pacific lamprey, Chinook salmon (naturalized populations), Yellowstone cutthroat trout, westslope cutthroat trout, Wood River sculpin, Coeur d'Alene salamander, Columbia spotted frog, and western toad and their habitats but are not likely to cause a trend toward Federal listing or a loss of viability for any of the aquatic sensitive species considered.

At the project level, all activities would be subject to existing forest plan standards and guidelines and where appropriate the INFISH, PACFISH, and/or SWIEG requirements. Because of the scientifically based aquatic conservation strategies and the aquatic/riparian standards and guidelines provided in INFISH, PACFISH, and the SWIEG forest plans, implementation of projects in accordance with these three documents would provide protective measures for aquatic sensitive species in addition to the threatened and endangered species they were developed for.

Project level NEPA is required for all timber cutting, sale, and removal; road construction/reconstruction; and mineral activities in Idaho Roadless Areas; therefore, all aquatic sensitive species would have biological evaluations completed and mitigation measures implemented at the project level. Given these factors, the Proposed Rule poses a low risk to individuals, metapopulations, and habitats for aquatic sensitive species in Idaho Roadless Areas.

Implementation of the Proposed Rule may beneficially affect sensitive aquatic species and their habitats by promoting large continuous lands that have unroaded character.

Effects on MIS Species and Their Habitats

Actions that could occur pursuant to the Proposed Rule may affect rainbow trout and/or their habitat on the Idaho Panhandle National Forest. Because of the wide distribution of rainbow trout on the Idaho Panhandle National Forest, potential effects of land management activities under this alternative should not result in adverse effects to this species, including decreased populations, population fragmentation, or changes to the species distribution.

Modified Idaho Roadless Rule (Preferred Alternative)

The Modified Idaho Roadless Rule alternative was developed in response to public comments and input on the Proposed Rule. Under the Modified Rule, road construction/reconstruction, timber cutting (with limited exception), and discretionary mineral activities are prohibited on about 3.25 million acres of land within the Wild Land Recreation, Primitive, and SAHTS themes (33 percent of the Idaho Roadless Areas). Aquatic ecological values would be maintained under these themes because these themes protect aquatic resources including TES and MIS species, threatened and endangered critical habitat, native fish strongholds, and priority watersheds, by limiting human-induced activities.

About 5.3 million acres are in the Backcountry theme. The permissions to construct road construction were modified from the Proposed Rule for this alternative. Temporary road construction and road reconstruction could occur within the community protection zone (CPZ) if the community protection objective cannot be reasonably accomplished without a temporary road. About 442,000 acres are estimated to be within the CPZ in the Backcountry theme. Temporary road construction would be conducted in a manner that minimizes surface disturbances, could only be used for the specified purpose and would be decommissioned once

the activity is completed or the contract is done. Outside the CPZ, temporary roads could be constructed to facilitate timber cutting to reduce the significant risk of wildland fire effects on communities or municipal water supply systems, only if the activity cannot be reasonably accomplished without a temporary road and the activity maintains or improves one or more roadless area characteristics over the long-term. Use of this exception would be infrequent. Most areas in the Backcountry theme, outside the CPZ would be managed similar to the 2001 Roadless Rule.

To help assess the scope of this alternative in relation to aquatic TES species, the overlap of the themes was compared against acres contributing to species richness (areas supporting several species) and strongholds (table 3-48, appendix L, table L-8). Most of the acres shown in table 3-48 are in the Backcountry theme. Within the Backcountry theme about 1,200,200 acres of overlap of roadless areas occurs with four or five threatened and endangered species (table 3-48) and approximately 189,600 acres are within the Backcountry CPZ. Approximately 785,600 acres of the Backcountry theme overlap with priority watersheds for steelhead trout, Chinook salmon, and bull trout and approximately 30,100 acres are in the Backcountry CPZ; and approximately 1,747,600 acres overlaps with large strongholds or strongholds for multiple species and 136,100 acres are in Backcountry CPZ (table 3-48, appendix L, table L-8).

About 405,900 acres are in the GFRG theme. Road construction / reconstruction, timber cutting, and discretionary mineral activities are permissible in these areas. About 4,600 acres of Idaho Roadless Areas within the GFRG theme are located in strongholds for multiple species and about 83,300 acres are located in areas of high biodiversity (four or five threatened or endangered species) and the GFRG theme (table 3-48). There is no GFRG theme in roadless areas that provide priority areas for steelhead trout, Chinook salmon, and bull trout. Portions of the Cuddy Mountain, French Creek, Needles, Red Mountain, and Ten Mile / Black Warrior Roadless Areas are in the GFRG theme and overlap with one of the fish strongholds (appendix L, table L-8).

Table 3-48. Acres by theme overlapping important TES habitats, Modified Idaho Roadless Rule

Wild Land Recreation	Primitive	Backcountry	Backcountry CPZ	GFRG	FPSA[1]	SAHTS
Acres in Idaho Roadless Areas overlapping the range of 4 or 5 threatened and endangered species						
260,000	434,500	1,200,200	189,600	83,300	84,900	0
Acres in Idaho Roadless Areas overlapping priority watersheds for 3 species[2]						
68,400	96,300	785,600	30,100	0	15,400	0
Acres in Idaho Roadless Areas overlapping large strongholds or strongholds for multiple fish species						
949,900	1,102,000	1,747,600	136,100	4,600	147,700	26,300

[1] *Management direction under the Modified Rule would not apply to forest plan special areas such as research natural areas, wild and scenic rivers, developed sites, etc. (appendix Q, table Q-1).*

[2] *Steelhead trout, Chinook salmon, and bull trout*

Under the Modified Rule, about 38 miles of road construction and 23 miles of road reconstruction are projected to occur over the next 15 years. This estimate includes both permanent (for non-timber related activities) and temporary roads for timber cutting. Timber cutting is projected to occur on about 18,000 acres over the next 15 years (about 0.1 percent of all the Idaho Roadless Areas). Activities would incorporate mitigation measures to reduce effects, especially if the activity may affect TES species. This level of road construction / reconstruction

and timber cutting may reduce aquatic habitat quantity and quality in a limited portion of some roadless areas.

Timber cutting and road construction / reconstruction to facilitate timber cutting would be permissible within the GFRG theme. However, these activities would have to comply with ESA and management direction for threatened and endangered species included in existing plans (such as direction provided through the PACFISH and INFISH amendments or through subsequent forest plan revision). The Modified Rule states that land management plan components that are not inconsistent with this rule would continue to provide guidance for projects and activities within Idaho Roadless Areas.

All the national forests in Idaho—except for the Challis, Clearwater, Kootenai, Nez Perce, and Wallowa-Whitman—have roadless areas in the GFRG theme. The Caribou portion of the Caribou-Targhee National Forest has the most acreage of any of the forests in this theme (167,400 acres). Most of the Caribou's roadless areas in the GFRG theme support Bonneville cutthroat trout and Yellowstone cutthroat trout, which are R4 sensitive species. About 101,400 acres of GFRG are on the Salmon portion of the Salmon-Challis National Forest. Most of these areas have been previously roaded and harvested.

There are 14,460 acres of known unleased phosphate deposits on the Caribou-Targhee National Forest. Under the Modified Rule, road construction / reconstruction to access unleased phosphate deposits is prohibited in all themes except GFRG. There are about 5,770 acres of unleased phosphate deposits in the GFRG theme[80]. These deposits are located within six roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek on the Caribou portion of the forest and could eventually be mined over an extended period of time (50 or more years). About 810 acres adjacent to these areas are also projected to be mined if additional phosphate is found (section 3.5, Minerals and Energy).

There is a potential risk to habitats for sensitive aquatic species (Bonneville cutthroat trout, Yellowstone cutthroat trout, western toad, and Columbia spotted frog) on these 6,380 acres when and if this development should occur. Site-specific analysis would occur prior to any future leasing and mitigations applied. No threatened or endangered aquatic species are found in these roadless areas.

About 1,280 acres of unleased phosphate deposits are in the Primitive theme and 6,500 acres in the Backcountry theme in the Bald Mountain, Bear Mountain, and Poker Peak Roadless Areas on the Targhee portion of the Caribou-Targhee National Forest. The Primitive theme prohibits road construction / reconstruction or surface occupancy for phosphates; therefore, this area would likely not be developed (section 3.5, Minerals and Energy). The Backcountry theme prohibits road construction and reconstruction to access unleased phosphate deposits, but permits surface use and occupancy. However, without access it is unlikely these deposits would be developed. If no mineral development occurs in these areas then there would be no effect on aquatic resources from mineral-related activities.

Similar to the 2001 Roadless Rule the Modified Rule prohibits road construction / reconstruction for new mineral leases, other than phosphate in all themes. In addition, the Modified Rule

[80] Another 910 acres of unleased phosphate deposits are in the Bear Creek Roadless Area in the GFRG theme. However, no road construction or reconstruction is permitted to access these deposits (section 3.5, Minerals and Energy).

prohibits surface use and occupancy of new mineral leases in the Wild Land Recreation, Primitive and SAHTS themes. Surface use and occupancy would be permitted in the Backcountry and GFRG themes if allowed in the forest plans. It is unlikely new mineral development would occur in any of the themes without road access; therefore, no aquatic resources would be affected in these areas.

Summary of Effects, Modified Idaho Roadless Rule

Overall the Modified Rule alternative is unlikely to reduce aquatic biodiversity in Idaho Roadless Areas or result in a reduction of the quantity and / or quality of critical habitat, EFH, fish strongholds, priority watersheds, bull trout core areas, or bull trout key recovery habitat.

Key aquatic habitat elements should be maintained within all themes. Areas in the GFRG theme have the greatest potential for risk of adverse effects on aquatic species and habitat and key aquatic elements could be affected in these areas. As mentioned previously key aquatic habitat elements include: 1) spawning habitat with water quality and quantity (including flow regimes) conditions and substrates favorable to incubation and larval development; 2) rearing habitat with water quality (including temperature conditions) and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; 3) rearing habitat with foraging to support juvenile development; 4) cover habitat including shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks; and 5) migration corridors for adults and juveniles free of obstruction and excessive predation with favorable water quantity and quality conditions.

Limited ground-disturbing activities are likely to occur in Wild Land Recreation, Primitive, and SAHTS themes because of the restricted permissions on activities related to road construction / reconstruction, timber cutting and discretionary minerals. These three themes should provide for natural processes, aquatic and riparian habitat integrity, and species diversity.

Areas in the Backcountry theme within the CPZ have a higher potential for ground-disturbing activities including road construction / reconstruction, timber cutting occurring depending on the risk of wildland fire. Some limited activities may occur outside the CPZ. Road construction / reconstruction, timber cutting and discretionary minerals activities may reduce aquatic habitat quantity and quality in a limited portion of some roadless areas.

Effects on Threatened and Endangered Species and Their Habitat

Actions that could occur pursuant to the Modified Rule may affect individual Snake River Basin steelhead, Snake River sockeye salmon, Snake River fall-run Chinook salmon, Snake River spring / summer Chinook salmon, bull trout, Kootenai River white sturgeon, and habitats for these species. At the project level, all activities would be subject to existing INFISH, PACFISH, and / or SWIEG requirements that are designed to avoid or minimize adverse effects on threatened and endangered fish and their habitats. Project-level NEPA is required for all timber cutting, sale, and removal; road construction / reconstruction; and mineral activities in Idaho Roadless Areas. Given these factors, the Modified Rule poses a low risk to individuals, metapopulations, and habitats for threatened and endangered species.

Because the Kootenai River white sturgeon resides only in the mainstem of the Kootenai River, the risk of effects on this species from actions that could occur pursuant to this alternative is so low the effects are discountable and insignificant.

In addition, by providing prohibitions beyond the existing forest plans, the Modified Rule may beneficially affect threatened and endangered aquatic species and their habitats by promoting large continuous lands that have unroaded character.

Effects on Sensitive Species and Their Habitats

Actions that could occur pursuant to the Modified Rule may affect individual Bonneville cutthroat trout, burbot, inland redband trout, Pacific lamprey, Chinook salmon (naturalized populations), Yellowstone cutthroat trout, westslope cutthroat trout, Wood River sculpin, Coeur d'Alene salamander, Columbia spotted frog, and western toad, and habitats for these species, but are not likely to cause a trend toward Federal listing or a loss of viability for any of the aquatic sensitive species considered.

At the project level, all activities will be subject to existing forest plan standards and guidelines and where appropriate the INFISH, PACFISH, and/or SWIEG requirements. Because of the scientifically based aquatic conservation strategies and the aquatic/riparian standards and guidelines provided in INFISH, PACFISH, and the SWIEG forest plans, implementation of projects in accordance with these three documents would provide protective measures for aquatic sensitive species in addition to the threatened and endangered species for which they were developed.

Project -level NEPA is required for all timber cutting, sale, and removal; road construction/reconstruction; and mineral activities in Idaho Roadless Areas; therefore, all aquatic sensitive species would have biological evaluations completed and mitigation measures implemented at the project level. Given these factors, the Modified Rule poses a low risk to individuals, metapopulations, and habitats for aquatic sensitive species in Idaho Roadless Areas.

Implementation of the Modified Rule may beneficially affect sensitive aquatic species and their habitats by promoting large continuous lands that have unroaded character.

Effects on MIS Species and Their Habitat

Actions that could occur pursuant to the Modified Rule may affect rainbow trout and/or their habitat on the Idaho Panhandle National Forest. Because of the wide distribution of rainbow trout on the Idaho Panhandle National Forest, potential effects of land management activities under this alternative should not result in adverse effects on this species, including decreased populations, population fragmentation, or changes to the species distribution.

CUMULATIVE EFFECTS

For a description of cumulative effects to aquatic and terrestrial resources see section 3.9 Terrestrial Animal Habitat and Species.

3.9 Terrestrial Animal Habitat and Species

Changes Between Draft and Final EIS

- Bald eagle was delisted and is now addressed as a Forest Service sensitive species,
- Discussions pertaining to predicted habitat for federally listed terrestrial species have been replaced with more site-specific information on habitat, known locations, and descriptions of existing conservation strategies and direction.
- Added information on two Federal candidate species for listing under the endangered species act (ESA)—the yellow-billed cuckoo and the southern Idaho ground squirrel—and proposed critical habitat for lynx.
- Expanded discussion on terrestrial game species in Idaho.
- Information on the effects of selenium on terrestrial wildlife species was expanded.
- Additional information was provided on potential impacts to migratory birds.
- Added analysis for the new alternative, Modified Idaho Roadless Rule.

Introduction

In general, Idaho Roadless Areas provide large, relatively undisturbed blocks of important habitat for terrestrial animal species and communities. Most Idaho Roadless Areas provide high quality habitat for cavity- and snag-dependent species as well as summer and winter range for big game species. Other important habitat values include:

- Dispersal corridors;
- Connectivity between large blocks of habitat;
- Travel corridors;
- “Islands” of refugia;
- Habitat diversity and complexity;
- Old-growth forests;
- “Natural” levels of snag and down woody debris components within forested habitats across large areas;
- “Source” habitats and “strongholds” for sensitive species;
- Security and seclusion during incubation, hatching, or birthing and rearing of young;
- Reduced big game and furbearer vulnerability during hunting and trapping seasons as a result of limited roaded access.

The following analysis evaluates the potential changes to roadless area characteristics and their ability to provide habitat for terrestrial animal species, including but not limited to those Federally-listed, Forest Service sensitive, and management indicator species (appendix M, table M-1)

AFFECTED ENVIRONMENT

Idaho has a diverse assemblage of wildlife that occurs on an equally diverse landscape. There are approximately 1,200 native and non-native species of wildlife that occur within the five ecoregions of Idaho (IDFG 2005). Ecoregions denote geographic areas characterized by similar ecosystems and environmental resources. In Idaho the five ecoregions of Idaho are subdivided into 14 ecological sections (appendix M, table M-2).

Terrestrial Habitats Within Idaho Roadless Areas

Idaho Roadless Areas include a range of habitat types such as grasslands and shrublands, young forested stands, and old-growth forests. Forests cover about 33 percent, or approximately 21.4 million acres of Idaho. These forests vary from the very dry pinyon-juniper woodlands at lower elevations to cold alpine forest types at high elevations. Idaho Roadless Areas are dominated by three primary vegetation types: 40 percent Douglas-fir, 20 percent spruce/fir, and 8 percent lodgepole pine (see the section 3.2 Vegetation and Forest Health). All other forest cover types make up are less than 5 percent each of the total forest cover within Idaho Roadless Areas. The non-forest habitat types within the roadless areas are estimated to be 18 percent, including other vegetation types (such as grasslands, shrublands, and meadows), and barren areas (such as rock and ice). Appendix M, table M-3, displays the approximate forest type acreage in the State and within national forests of Idaho.

Threatened and Endangered Species

Idaho Roadless Areas provide habitat for one endangered terrestrial wildlife species – the woodland caribou – and three threatened terrestrial wildlife species – the Canada lynx, the grizzly bear [not including the Yellowstone distinct population segment (DPS)], and the northern Idaho ground squirrel (table 3-49).

On February 27, 2008, the U.S. Fish and Wildlife Service (FWS) designated and delisted the Northern Rocky Mountain gray wolf DPS (USDA Forest Service 2008a). On July 18, 2008, the district court of Montana issued a preliminary injunction on this FWS action, temporarily reinstating ESA protections previously provided to this species: the gray wolf north of Interstate 90 is listed as endangered and the gray wolf south of Interstate 90 is considered non-essential experimental population under 10j of ESA. Consequently, the analysis addresses the effects to the gray wolf based on its reinstated status.

In addition, there are two terrestrial species within Idaho that currently are classified as candidates for Federal listing: the yellow-billed cuckoo and the southern Idaho ground squirrel. Two species were recently delisted by the FWS: the Yellowstone DPS of the grizzly bear on March 29, 2007 and the bald eagle on July 9, 2007. These species are now classified as Forest Service sensitive and are addressed in this document under 'Forest Service Sensitive Species'.

Based on predicted distributions, there is the potential for all five listed terrestrial species and the two candidate species to be found in Idaho Roadless Areas[81]. Of these species, four—the woodland caribou, grizzly bear, and northern and southern Idaho ground squirrels—are geographically restricted in range to only one or two national forests. The Canada lynx and the gray wolf are broadly distributed across the State of Idaho from north to south, although the

[81] Predicted habitat as described in the draft EIS and appendix M, table M-4 was used as a course filter to determine whether or not threatened, endangered, or candidate species overlapped Idaho Roadless Areas

habitat requirements for the lynx are relatively narrow. The western yellow-billed cuckoo is broadly distributed throughout southern Idaho, but narrowly restricted to riparian corridors.

Table 3-49. Terrestrial threatened, endangered, and candidate species in Idaho and their overlap with Idaho Roadless Areas, based on specific habitat or recovery information.

Species	Habitat Parameter	Total acres	Acres In Idaho	Acres In Idaho Roadless Areas	Known occurrence in Idaho Roadless Areas (national forest)
Endangered species					
Gray wolf	Predicted distribution		231,520[1]	13,353	Documented wolf activity associated with 2 packs in roadless areas north of I-90.
Woodland caribou	South Selkirk Recovery area	959,900	320,500	131,900	Salmo/Priest (Idaho Panhandle)
Threatened species					
Canada lynx	Mapped lynx habitat		7,354,900	3,503,400	39 Idaho Roadless Areas on ten national forests
Grizzly bear - Selkirk Ecosystem	Selkirk Recovery Zone	689,400		158,500	Known occurrences in four roadless areas on the Idaho Panhandle National Forest
	Selkirk Recovery Zone – Core habitat	325,500		136,900	
Grizzly bear - Cabinet Yaak Ecosystem	Cabinet-Yaak Recovery Zone	1,548,900		122,900	None
	Cabinet-Yaak Recovery Zone – Core habitat	929,600		108,900	
Northern Idaho Ground squirrel	Probable historic distribution		847,300	220,900	One new colony in the Rapid River (Payette National Forest)
Gray wolf	Predicted distribution		16,654,900[2]	5,655,700	Documented wolf activity associated with 80 packs in roadless areas south of I-90.
Candidate species					
Yellow-billed cuckoo	Predicted Distribution		488,400	128,900	One known occurrence in the Oxford Mountain Roadless Area of the Caribou NF.
Southern Idaho ground squirrel	Predicted Distribution[3]		847,300	220,900	Undetermined

[1] *Predicted distribution north of I-90.*

[2] *Predicted distribution south of I-90.*

[3] *Predicted distribution for the southern Idaho ground squirrel was not extricable from that reported for the northern Idaho ground squirrel.*

Gray Wolf

The gray wolf has a circumpolar distribution in the northern latitudes. It occurs in Europe, Asia, and North America. In North America it is considered common in Alaska and most of Canada. Wolves are native to Idaho, and historically, were fairly common in most parts of the state with abundant big game. This species was once considered extirpated from Idaho. Now, "wolf populations occur in central and northern Idaho, and some individuals occur along the Wyoming-Idaho border. An estimated 500 individuals occurred in the state during 2004." (IDFG 2005). Further, the wolf is characterized by an increasing population trend, particularly throughout northern and central portions of the State.

Thirty-four percent (5,669,000 acres) of the gray wolf predicted distribution overlaps Idaho Roadless Areas: 13,350 acres north of I-90 and 5,655,700 acres south of I-90 (table 3-49). In addition, the home ranges of 82 documented packs and 4 suspected packs overlap Idaho Roadless Areas: two documented packs, the Calder Mountain and Solomon Mountain, north of I-90, and 80 packs south of I-90. High use of roadless areas by wolves is likely given that wolves persist most effectively in areas where human disturbance is low.

Woodland Caribou

Currently, woodland caribou in the continental United States are restricted to the panhandle of Idaho and the northeastern corner of Washington. These caribou are managed as part of the South Selkirk subpopulation, which extends north into British Columbia. The most recent surveys completed of the South Selkirk subpopulation estimated 46 individuals in 2008 (Wakkinnen et al. 2008), 3 of which were detected within the United States.

The recovery area for woodland caribou within the South Selkirk ecosystem encompasses approximately 959,900 acres across the United States and Canada: 320,500 acres in Idaho, 138,200 acres in Washington, and 501,200 acres in British Columbia (table 3-49).[82] As it is currently delineated, the recovery area includes lands above 4,000 feet in elevation within British Columbia and on the Colville National Forest, and lands above 4,500 feet on the Idaho Panhandle National Forest and the Idaho Department of Lands (USDI Fish and Wildlife Service 1993). Some lands below 4,500 feet in elevation on the Idaho Panhandle National Forests are included within the recovery area based on caribou utilization, target stand condition, and habitat connectivity.

Approximately 255,500 acres of the South Selkirk ecosystem caribou recovery area (27 percent) fall on the Idaho Panhandle National Forests, 131,900 acres (approximately 14 percent) of which are included in Idaho Roadless Areas (appendix M, table M-5). Seven roadless areas overlap the caribou recovery area: Continental Mountain, Kootenai Peak, Little Grass Mountain, Saddle Mountain, Salmo / Priest, Selkirk, and Upper Priest.

Efforts to map the distribution and condition of caribou habitat within the South Selkirk ecosystem caribou recovery area were initiated in 1997 as a cooperative project between British Columbia Ministry of Environment, the Colville National Forest, Washington Department of Fish and Wildlife, Idaho Department of Fish and Game, and the Idaho Panhandle National Forests. Recent habitat modeling by Kinley and Apps (2007) builds upon early cooperative

[82] Based on the GIS analysis conducted for the purposes of this document. Differs only slightly from acreage reported in the Recovery Plan.

efforts and further classified the relative suitability of seasonal habitats[83]. Based on habitat suitability scores applied to seasonal habitats, high or moderate categories encompass those areas that are currently considered 'suitable'; those habitats categorized as 'low' are those capable of providing for caribou, but are not currently 'suitable' (Layser 2008).

Northern Idaho Ground Squirrel

The entire range of this geographically restricted subspecies covers an approximate 1,200 square-mile area with colonies found primarily in dry, montane meadows between 3,280 and 5,580 feet in elevation. The probable historic distribution (PHD) of the northern Idaho ground squirrel [84] developed by the NIDGS Technical Working Group delineates the species current and historical range. This PHD overlaps the Payette and Boise National Forests, but the species is known to occur only on the Payette National Forest, endemic to Adams and Valley counties near New Meadows, Lost Valley Reservoir, and nearby surrounding areas (USDI Fish and Wildlife Service 2003a).

Of the 847,300 acres of the PHD for the northern Idaho ground squirrel, 6 percent (220,900 acres) falls within Idaho Roadless Area (table 3-49). To date, there is only one documented location of this ground squirrel within an Idaho Roadless Area—a new colony was discovered in 2006 in the Rapid River Roadless Area. Of 40 known metapopulation sites (to be differentiated from colonies) for the northern Idaho ground squirrel within the probable historic distribution of the species, none occur within Idaho Roadless Areas as of 2008.

The PHD of the northern Idaho ground squirrel overlaps four roadless areas: Indian Creek, Cuddy Mountain, Council Mountain, and a tiny sliver of Rapid River. Two additional roadless areas are situated between metapopulations—Poison Creek and Snowbank—and seven roadless areas surround the outer boundaries of the probable historic distribution—Bear Wallow, Peace Rock, Stony Meadows, Needles, French Creek, Patrick Butte, and Hells Canyon / Seven Devils Scenic Area. Based on the proximity of these 13 roadless areas to the PHD, current metapopulation sites, or existing colonies, these roadless areas could provide habitat that serves as linkage and / or connectivity between adjacent metapopulations or that might eventually support the northern Idaho ground squirrel.

The FWS (USDI Fish and Wildlife Service 2003a, 2007a) lists the chief threat to the northern Idaho ground squirrel as habitat loss, and fragmentation due to the following: conifer encroachment into meadow habitats, changes in vegetation composition and structure, agricultural conversions, and rural development. Other threats may include mortality associated with illegal recreational shooting, poisoning, and competitive exclusion by the larger Columbian ground squirrel). Conservation of and management for northern Idaho ground squirrel on national forest system (NFS) lands (i.e., the Payette National Forest) is guided by the following: The Recovery Plan for the northern Idaho ground squirrel (USDI Fish and Wildlife Service 2003a), the land and resource management plans for the Boise, Payette, and Sawtooth National Forests (USDA Forest Service 2003), and district-level 5-year Habitat Management Plans (USDI Fish and Wildlife Service 2003a).

[83] For a detailed description of these habitats and mapping methods, see Kinley and Apps (2007).

[84] The PHD must be distinguished from the 'predicted distribution' data which was provided by CDC.

Grizzly Bear

Three recovery zones overlap NFS lands in Idaho—the Cabinet-Yaak (CYRZ), Selkirk (SRZ), and Bitterroot (BRZ) Ecosystems—the former two of which overlap Idaho Roadless Areas. These three recovery zones are described in more detail below.

Cabinet-Yaak Ecosystem. The Cabinet-Yaak Ecosystem (CYRZ) encompasses a total of 1,548,900 acres in northeastern Idaho and northwestern Montana. This recovery zone overlaps three National Forests: Idaho Panhandle, Kootenai, and Lolo. In Idaho, the CYE includes portions of the Kootenai and Idaho Panhandle National Forests. Approximately 122,900 acres (approximately 8 percent) of the CYRZ overlaps Idaho Roadless Areas (table 3-49).

Security is a critical element of grizzly bear habitat. The CYE includes 929,600 acres of grizzly bear core habitat, areas typically characterized by limited roads and low potential for human disturbance. About 108,900 acres of grizzly bear core habitat overlap Idaho Roadless Areas, which constitutes approximately 12 percent of total grizzly bear core habitat in the CYRZ (table 3-49). The low overlap of CYRZ with Idaho Roadless Areas is due to the relatively limited acreage overlapping into Idaho; the majority of this recovery zone is in Montana.

The grizzly bear population in the CYRZ is estimated conservatively at 30 to 40 bears (Kasworm et al. 2000). From the 1980s through 1999, the population slowly increased. However, mortalities during 1999 through 2002 may have put the population on a slightly declining trend, although the confidence interval makes this conclusion statistically uncertain (Wakkinen and Kasworm 2004).

Selkirk Ecosystem. This recovery zone is about 689,400 acres in size, spanning portions of northwestern Idaho, northeastern Washington, and southwest Canada. The recovery zone overlaps two national forests, the Idaho Panhandle and the Colville. About 158,500 acres overlap (23 percent) Idaho Roadless Areas on the Idaho Panhandle National Forests (table 3-49).

Approximately 47 percent of the SRZ (325,500 acres) is considered grizzly bear core habitat, of which about 136,900 acres (42 percent) are located in Idaho Roadless Areas (table 3-49).

The grizzly bear population in the SRZ is estimated about 45 to 55 bears, with a slowly increasing population (Wakkinen and Kasworm 1997). As of 2002, this slight trend towards an increasing population was still apparent, although like the CYRZ confidence interval makes this conclusion statistically uncertain (Wakkinen and Kasworm 2004).

Bitterroot Ecosystem. "The Bitterroot Ecosystem recovery zone is one of the largest contiguous blocks of Federal land remaining in the lower 48 United States. The core of the BRZ contains the Selway-Bitterroot Wilderness and Frank Church-River of No Return Wilderness. Together these two wilderness areas make up the largest block of wilderness habitat in the Rocky Mountains. The BRZ also contains significant areas of multiple use lands where wildlife and fisheries values coexist with resource use and recreation. The BRZ formerly contained grizzly bears, but they are now considered extirpated due to excessive human-caused mortality." (excerpted from USDI Fish and Wildlife Service 1993a).

On September 3, 2007 a black bear hunter shot a grizzly bear in the upper Kelly Creek drainage of Idaho within the Bitterroot Experimental Population Area. Prior to the confirmed recent shooting, grizzly bears have been absent from the BRZ for more than 60 years. At this time, the FWS does not consider this one male grizzly bear to constitute a population. Future surveys are planned in this area, upon which the FWS in conjunction with other agencies, will determine

whether the BRZ contains a grizzly bear population." (USDI Fish and Wildlife Service - -) The BRZ recovery area does not include Idaho Roadless Areas although it is near and adjacent to roadless areas in Idaho. The BRZ is not discussed further because there is a lack of overlap with Idaho Roadless Areas and the ecosystem and the grizzly bear habitat is currently considered 'unoccupied'.

Canada Lynx

The following national forests in Idaho have mapped primary and secondary vegetation as lynx habitat to assist in project-level analyses: Bitterroot, Boise, Clearwater Idaho Panhandle, Kootenai, Nez Perce Payette, Salmon-Challis, Sawtooth, Targhee, and Wallow-Whitman. Based on the lack of appropriate vegetation types, there is no mapped lynx habitat on the Caribou National Forest. In total, mapped lynx habitat on these forests covers 7,354,800 acres (appendix M, table M-6). Approximately 3,503,400 acres (approximately 48 percent) of mapped lynx habitat on Idaho's national forests overlap Idaho Roadless Areas (appendix M, table M-6).

Based on historical and current documentation of lynx presence and reproduction, mapped lynx habitat is considered 'occupied' on the following national forests in Idaho (USDA Forest Service and USDI Fish and Wildlife Service 2006): Idaho Panhandle, Clearwater, Kootenai, and Targhee[85]. Because of the absence of recent records of lynx presence and reproduction, the Nez Perce, Wallowa-Whitman, and Salmon-Challis are considered "unoccupied." The FWS includes Canada lynx on 90-day species lists for the Payette, Boise, and Sawtooth National Forests; however, based on criteria applied to the other forests in Idaho, occupancy by lynx may be unlikely.

Canada Lynx Proposed Critical Habitat. Approximately 51 miles^2 (approximately 32,940 acres) of the Northern Rocky Mountains Unit overlap into Idaho, which represents about 17 percent of that unit. The majority (98 percent) of proposed lynx critical habitat in Idaho occurs on Federal lands in northeastern Idaho. Of the 37,000 acres of proposed lynx critical habitat in Idaho, 5,700 acres overlap Idaho Roadless Areas, all falling within the Buckhorn Ridge Roadless Area. This equates to approximately 0.08 percent of the entire Northern Rocky Mountains Unit.

Western Yellow-Billed Cuckoo

Although its presence is rare in Idaho, there are documented occurrences of yellow-billed cuckoo in southeastern Idaho, where most of its predicted breeding distribution is concentrated along riparian corridors. Of the 488,400 acres of yellow-billed cuckoo breeding distribution in Idaho, 128,900 acres (26 percent) overlaps Idaho Roadless Areas (table 3-49).

Southern Idaho Ground Squirrel

The southern Idaho ground squirrel occurs in an area of about 80 square miles in Payette, Gem, and Washington Counties. The population has been extirpated or is exceptionally small in the northern portions of the former range. The species is locally abundant near Emmett and Payette,

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[85] *The Occupied Mapped Lynx Habitat Amendment to the Canada Lynx Conservation Agreement* (USDA Forest Service and FWS 2006) established criteria for defining occupied lynx habitat. According to this amendment, all mapped lynx habitat on an entire national forest is considered "occupied" by lynx when:

1. There are at least 2 verified lynx observations or records since 1999 on the national forest unless they are verified to be transient individuals; or
2. There is evidence of lynx reproduction on the national forest.

where colonies are associated with anthropogenic habitat, such as agricultural land and golf courses. Populations are sparse and fragmented in formerly occupied native habitat, which is found primarily on public lands.

Forest Service Sensitive Species

Nine mammals, 1 reptile, and 18 birds listed as Forest Service sensitive species have predicted distribution in Idaho Roadless Areas. Of these 28 sensitive species, 24 are known to occur in Idaho Roadless Areas. Sensitive species and their habitat requirements are listed in appendix M, table M-8. Table M-8 also displays the acreage of predicted distribution in both the State and in Idaho Roadless Areas as well as the percentage of predicted distribution in roadless areas by sensitive species. Several sensitive species have less than 10 percent of predicted distribution in Idaho Roadless Areas, including:

- Trumpeter swan—less than 1 percent;
- Spotted bat—1.9 percent;
- Common loon—2.4 percent;
- Townsend's big-eared bat—3.3 percent;
- Fringed myotis—3.4 percent;
- Ring-necked snake—6.4 percent;
- Pygmy rabbit—6.9 percent;
- Greater sage grouse—6.0 percent ;
- Columbian sharp-tailed grouse—6.1 percent.

Species occurrence information may be lacking on sensitive species because wildlife survey work may not be complete in Idaho Roadless Areas. Sensitive species with no known occurrences in Idaho Roadless Areas at this time are the spotted bat and the black swift. Species with occurrences in three or fewer Idaho Roadless Areas are the fringed myotis, northern bog lemming, black-backed woodpecker, trumpeter swan, common loon, pygmy nuthatch, and ringneck snake.

Flammulated owls and wolverines occur in Idaho roadless areas on 10 National Forests in Idaho. Wolverines have the highest percentage (42 percent) of predicted distribution and occur within the most Idaho roadless areas (48). Remoteness and inaccessibility are important habitat attributes for wolverines, and this high rate of occurrence and predicted distribution suggests the importance of Idaho Roadless Areas to wolverines.

The 45 roadless areas on the Idaho Panhandle National Forests have the most sensitive species associated with them. Eleven sensitive species—the northern bog lemming, fisher, wolverine, boreal owl, common loon, flammulated owl, great gray owl, harlequin duck, goshawk, Townsend's big-eared bat, and three-toed woodpeckers—are known to occur in at least one roadless area on the Idaho Panhandle National Forests.

Based on occurrence data and predicted distribution, the northern bog lemming is found only on the Idaho Panhandle National Forest. Northern bog lemmings are known to occur in Blacktail Mountain and Selkirk, 2 of the 45 roadless areas on the Idaho Panhandle National Forest.

Columbian sharp-tail grouse are known to occur in 4 Idaho Roadless Areas on the Sawtooth National Forest and 1 Idaho Roadless Area on the Caribou National Forest. Shrubland habitat available on the Caribou National Forest and within Idaho Roadless Areas may be used by Columbian sharp-tailed grouse during the winter months. There are 15 roadless areas within 1 mile of Columbian sharp-tailed grouse leks on the Caribou National Forest. No studies have been done to determine Columbian sharp-tailed grouse habitat use on the Caribou National Forest (Orme 2007).[86]

Approximately 1,294,800 acres of the predicted distribution for the greater sage grouse overlap Idaho Roadless Areas. This equates to about 6 percent of the total predicted distribution (21,424,200 acres) for this species across the entire State. Seven roadless areas contain 29 records of greater sage grouse leks, all located in the southeastern portions of the State (appendix M, table M-7). Persistent population declines in Idaho since 1965 likely contributed to this species being considered 'imperiled' in the State (IDFG 2005).

Two terrestrial wildlife species previously listed under the ESA were recently delisted and are now managed as Forest Service sensitive on NFS lands. In Idaho, the Yellowstone grizzly bear overlaps the Yellowstone Highlands ecosection of Idaho and is found on the Targhee National Forest. There are 61,200 acres of predicted distribution for grizzly bears in the Yellowstone Highlands. Grizzly bears occur in the Bald Mountain, Bear Creek, Lionhead, and Two Top Roadless Areas on the Targhee National Forest.

The bald eagle is broadly distributed along river corridors throughout Idaho, with a total predicted distribution in the state covering more than 9 million acres, of which 2.7 million acres overlap Idaho Roadless Areas. Fifteen roadless areas have known occurrences and eight national forests in Idaho have roadless areas that overlap with the predicted distribution for the bald eagle.

There are 125 Idaho Roadless Areas that have known occurrences of at least one threatened, endangered, or sensitive terrestrial wildlife species. Table 3-50 displays the 13 Idaho Roadless Areas by national forest with the occurrence of five or more threatened, endangered, and sensitive species.

Table 3-50. Idaho Roadless Areas with the most threatened, endangered, and sensitive (TES) terrestrial wildlife species

National forest	Idaho Roadless Area	Number of TES species
Idaho Panhandle	Salmo-Priest	7
Idaho Panhandle	Blacktail Mountain	6
Idaho Panhandle	Selkirk	6
Idaho Panhandle	Upper Priest	5
Targhee portion of Caribou-Targhee	Mt. Jefferson	7
Targhee portion of Caribou-Targhee	Garns Mountain	5
Payette	French Creek	7
Payette	Hells Canyon/7 Devils Scenic	6
Payette	Needles	5
Payette-Nez Perce	Rapid River	5

[86] Site-specific data were not available from other Idaho National Forests and thus we can not make any statements regarding presence or absence of sharp-tailed grouse leks on these forests.

National forest	Idaho Roadless Area	Number of TES species
Nez Perce	Mallard	7
Salmon-Challis	West Big Hole	5
Sawtooth	Hanson Lakes	5

Management Indicator Species (MIS)

The 12 national forests in Idaho have designated 11 mammals and 20 birds as management indicator species (MIS). Appendix M, table M-9, displays the terrestrial wildlife species selected to serve as management indicators by each national forest in Idaho.

Four of the 31 MIS are threatened or endangered species and have been discussed in the previous section. Fifteen of the 31 MIS are sensitive species and have been discussed previously. There are 12 MIS whose habitat overlaps Idaho Roadless Areas and that have not been previously discussed. These include the pileated woodpecker, elk, white-tailed deer, moose, pine marten, belted kingfisher, downy woodpecker, hairy woodpecker, northern flicker, red-napped sapsucker, red squirrel, and Williamson's sapsucker (appendix M, table M-9).

Idaho Species of Concern

The Idaho Conservation Data Center recognizes 379 terrestrial wildlife species that regularly occur and breed in the State. This list includes 15 amphibians, 22 reptiles, 104 mammals, and 238 birds (Scott et al. 2002). The number of State "species of concern" ranked from S1 to S3[87] that are not included as threatened, endangered, experimental, nonessential, sensitive, or MIS previously discussed in this EIS are displayed in table 3-51.

Table 3-51. Number of Idaho species of concern not discussed elsewhere

Taxa	S1	S2	S3	Total
Birds	16	18	34	68
Mammals	10	7	12	29
Reptiles	1	2	1	5
Insects	8	2	0	10

Migratory Birds and Idaho Priority Bird Species and Habitats

Migratory birds as a group encompass a broad array of avian taxa, including but not limited to the following: waterfowl (for example, ducks, geese, and swans); waders and shorebirds; woodpeckers; raptors; owls; songbirds; and upland game birds (for example, quail, pheasant, chukkars). The Idaho Partners in Flight Idaho Bird Conservation Plan (2000) identifies priority species and habitats and establishes objectives for bird populations and habitats in the State of Idaho. The northern two-thirds of Idaho are located within the Central Rocky Mountains Physiographic Area 64. The rest of Idaho is within the Columbia Plateau Physiographic Area 89.

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[87] *Species of concern* – species identified by the State of Idaho in need of conservation.

S1=State Critically imperiled: at high risk because of extreme rarity, rapidly declining numbers, or other factors that make it particularly vulnerable extirpation in the State.

S2=State Imperiled: at risk because of restricted range, few populations, rapidly declining numbers or other factors that make it vulnerable to range-wide extinction or extirpation.

S3=State Vulnerable: at moderate risk because of restricted range, relatively few populations, recent and widespread declines, or other factors that make it vulnerable to range-wide extinction or extirpation.

Idaho Priority Bird Species and Habitats. Breeding bird surveys are conducted annually during the peak of the nesting season across North America. Breeding bird survey routes are randomly located in order to sample habitats that are representative of the entire region (Sauer et al. 2005). There are 56 permanent active breeding bird survey routes in Idaho. Most of these routes have had breeding bird surveys conducted annually since the 1960s. Seven national forests have breeding bird survey routes, and 12 routes occur within all or portions of 17 Idaho Roadless Areas (appendix m, Table M-10).

Idaho Terrestrial Game Species

Game species are wild animals that people hunt or fish for food or recreation according to prescribed seasons and limits (USDA 1999, USDA 2000a). In many areas of the United States, NFS lands (including Idaho Roadless Areas) are a significant source of high-quality game species habitats, given the influences of private land conversions for urbanization, agriculture, and development. In some cases, NFS lands are strongholds for some game species. For example, black bear populations are increasing in some areas of the Eastern United States in part because of security within NFS lands (Vaughan and Pelton 1995). Because of their limited accessibility and human disturbance, Idaho roadless areas are important refuges for various games species throughout Idaho (Curley et al. 2004).

Primary game species in Idaho include: (1) big game—white-tailed deer, mule deer, elk, moose, bighorn sheep, mountain goat, pronghorn antelope, bear, and turkey; and (2) small game—upland birds (e.g., grouse, pheasant, quail, chukars); waterfowl (e.g., ducks, geese, swans); and small mammals (e.g., hare, cottontail rabbits, gray squirrel). White-tailed deer, elk, moose, grouse, and some waterfowl are considered Forest Service sensitive and/or MIS and thus are discussed above. The predicted distributions for these species overlap Idaho Roadless Areas in varying degrees. Approximately 6,375,300 acres mule deer summer habitat and 663,700 acres of winter habitat overlap Idaho Roadless Areas.

Game species are generally associated with mixed habitat patterns that include a variety of habitat types and age classes. Some games species are habitat generalists (for example deer, elk, and ruffed grouse), using a variety of habitats; these generalists therefore cannot be easily associated with specific habitat types (Southern Appalachian Man and the Biosphere 1996). Nevertheless, in forested areas, early seral patches, natural openings, and open woodlands are important components of game species habitats.

Biodiversity and Species Richness

In the ecological literature, diversity refers to both the number of species present and their relative abundance. Thus, an area with many abundant species is more “diverse” than an area with an equal number of species, few of which are abundant and most of which are rare. Marcot et al. (1997) examined centers of endemism (restricted to a small area) and high biodiversity within the Interior Columbia basin, much of which covers the state of Idaho. Two centers overlapped with Forest Service lands in Idaho—one located on the upper Panhandle, characterized by mixed conifer forests; and another located in the southwestern edge of the State along the Salmon River and Hell’s Canyon.

Based on the predicted distributions for the 42 TES and/or MIS species, every roadless area in Idaho overlaps with at least 13 of the species (table 3-52). In general, the findings corroborated that reported by Marcot et al. (1997).

Table 3-52. The number of species' predicted distributions that overlap Idaho Roadless Areas

Number of species	Number of Idaho Roadless Areas
13–17	24
18–22	37
23–25	49
26–28	112
29–32	51

In general, high species richness was noted in roadless areas in the Idaho Panhandle and along the southwestern Idaho Forests (fig. 3-27 and table 3-53), a finding similar to that reported by Marcot et al. (1997). It should be noted that Idaho Roadless Areas also provide habitat to a host of other wildlife species not discussed in detail here (appendix M, table M-11), and thus the number of species depicted here is a subset of total wildlife richness within these roadless areas.

Table 3-53. Species richness in Idaho Roadless Areas by national forest

National forest	Number of species				
	13–17	18–22	23–25	26–28	29–32
Boise	0	0	8	20	14
Caribou portion of Caribou-Targhee	11	23	0	0	0
Clearwater	0	1	10	5	0
Idaho Panhandle	0	1	5	27	14
Nez Perce	0	0	0	11	7
Payette	0	0	2	10	10
Salmon-Challis	4	5	15	33	1
Sawtooth	10	0	3	6	4
Targhee portion of Caribou-Targhee	0	8	7	1	0
Wallowa-Whitman	0	0	0	0	2

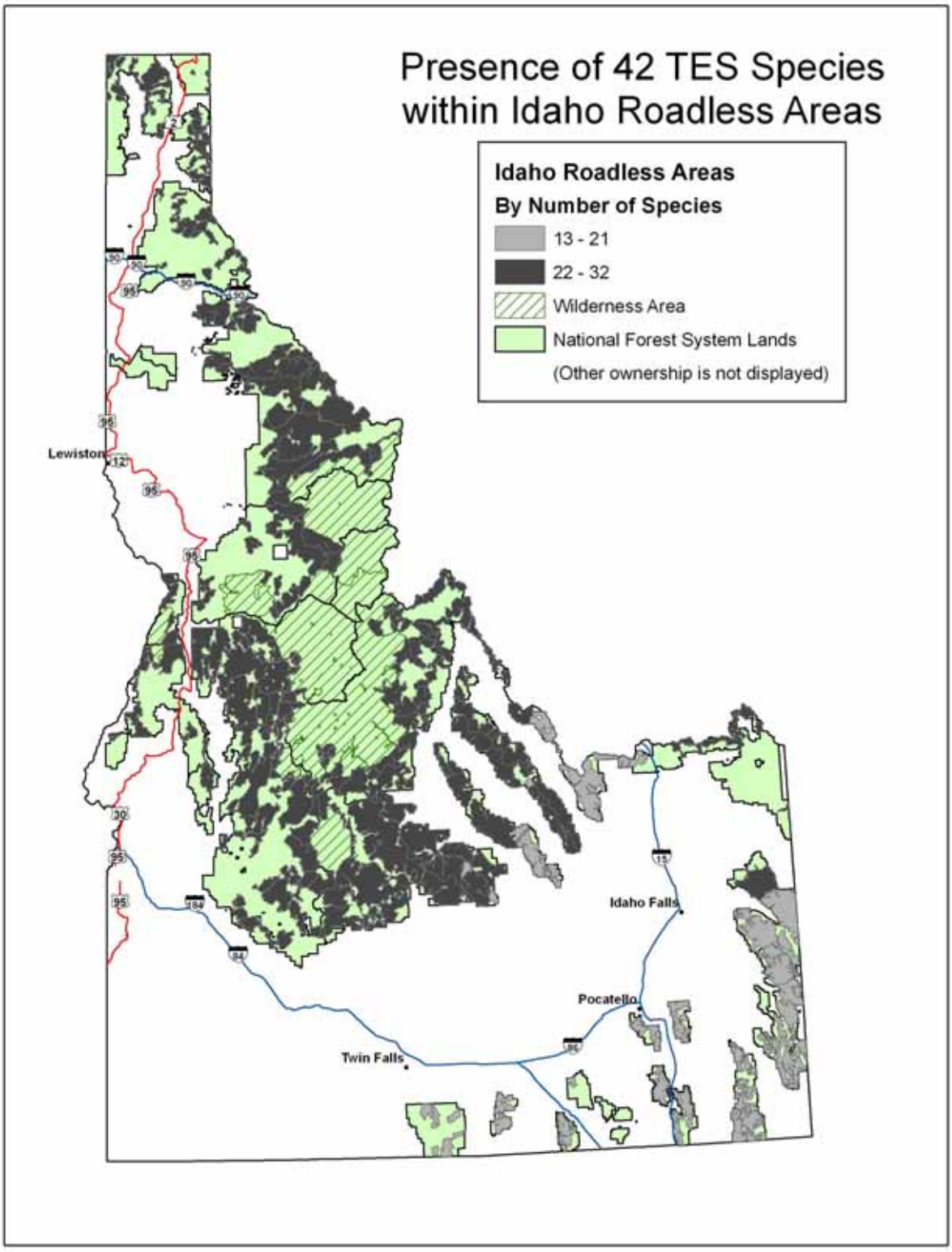

Figure 3-27. Terrestrial species richness in Idaho Roadless Areas.

ENVIRONMENTAL CONSEQUENCES

General Wildlife Responses

The following summarizes the general effects that road construction / reconstruction, timber cutting, sale, or removal, and discretionary mineral activities may have on terrestrial wildlife. The four alternatives evaluated represent different management strategies prescribing the conditions under which road construction / reconstruction, timber cutting, and discretionary mining could occur within Idaho Roadless Areas. All the alternatives may permit these activities within Idaho Roadless Areas, although they vary with respect to the circumstances, locations, and extent that these activities are permissible. To minimize the need to reiterate effects of these activities under all alternatives, a general discussion on the impacts of road construction / reconstruction, timber cutting, and discretionary mining on terrestrial wildlife species and their habitats in Idaho is provided, followed by a more specific evaluation of the implications of each alternative to these resources, including TES species, MIS, and Idaho terrestrial species of greatest conservation need. The Terrestrial and Aquatic Specialist Report (USDA Forest Service 2008e) provides additional detail.

Road Construction, Reconstruction, and Maintenance

The potential impacts of roads on terrestrial species and their habitats are well-documented in the scientific literature. Roads can affect habitat quality, availability, and effectiveness and can contribute directly or indirectly to mortality. Roads can create barriers to travel and dispersal. Almost all roads present some level of benefit and risk. These effects can vary greatly in degree (USDA Forest Service 2000r) and can shift over time. Some effects are immediately apparent but others may require external events, such as a large storm, to become visible. Still other effects may be subtle, such as increased susceptibility to invasion by nonnative species or pathogens noticed only when they become widespread in the landscape or with increased road use as recreation styles and motor vehicles change (USDA Forest Service 2000r). A road-related beneficial effect for one species, may, in fact, represent an adverse effect for another. For example, although forest edges, such as those created by road construction and timber cutting, may benefit some species, such as deer and bobwhite quail, they also provide roaded access to interior forest patches for opportunistic or predator species (Norse et al.1986).

Wildlife responses to habitat change and disturbance vary with species, individuals, activity, and context; nevertheless, road-related impacts have been documented in a number of taxonomic groups, including ungulates (Cole et al. 2004, Joly et al. 2006, Marshal et al. 2006, Preisler et al. 2006); carnivores (Fredrick 1991, Ream and Mattson 1982, Gaines et al. 2005, Waller and Servheen 2005); reptiles (Shine et al. 2004, Andrews and Gibbons 2005); amphibians (Marsh et al. 2005); and birds (Anthony and Isaacs 1989, Stolen 2003).

Timber cutting/Vegetation Management

Timber-cutting activities permitted in roadless areas under the four alternatives vary in degree from slashing in preparation for prescribed burns to commercial harvest that could remove large-diameter trees.

The effects of activities associated with timber cutting (such as tree felling, yarding, landings, site preparation by burning or scarification, fuels reduction, brush removal and whip felling, and forest regeneration) are often difficult to separate from the effects of roads and road construction. The road systems developed to cut / harvest timber are often a significant factor

affecting terrestrial habitats, as discussed above. Further, the nature of effects resulting from timber cutting (habitat loss, fragmentation, and human disturbance) is similar to those created by roads, albeit different with respect to scale, configuration, and total area directly affected.

Timber cutting can alter habitat availability, configuration, and effectiveness for terrestrial wildlife species. Timber cutting can fragment habitat by creating habitat edges that are not benign to many species (Noss and Cooperrider 1994). As with roads, fragmentation from timber harvest can create travel barriers to some species, which may make substantial amounts of suitable habitat inaccessible. These travel barriers can fragment and isolate populations into smaller subpopulations causing demography fluctuations, inbreeding, loss of genetic variability, and local population extinctions. Amphibian species, because of their temporally and spatially dynamic populations, may be especially prone to local extinction resulting from human-caused fragmentation (Gibbs 1998).

Beneficial effects on terrestrial species from timber cutting activities are often due to creating or maintaining some specific habitat condition. Timber cutting creates forest age-class diversity and mosaic habitats used by some species (Wisdom et al. 2000, USDA Forest Service 2000n, Southern Appalachian Man and the Biosphere 1996, USDA Forest Service 1995a, USDI Fish and Wildlife Service 1990, USDI Fish and Wildlife Service 1976). In fire-adapted ecosystems where fire suppression has altered composition and spatial distribution and configuration of openings, timber cutting can be a tool that can be used to improve the condition of these ecosystems.

Some species require early seral or open-forest habitats that can be created and maintained by properly planned, restorative timber cutting. Timber-cutting activities may also reduce the risk of uncharacteristic large, stand-replacing insect and disease outbreaks and severe wildland fires. These disturbance events can present both benefits and risks to some species (Wisdom et al. 2000), at least at a local level.

Mining

Roadless areas within Idaho contain saleable, leasable, and locatable mineral resources. Generally, many of the impacts discretionary mining could have on terrestrial wildlife species would result from the required infrastructure, primarily road construction and development. The impacts related to these activities include habitat loss, fragmentation, and human disturbance. Additional effects of selenium may occur where best management practices are not in place to minimize such effects.

Specific Effects of Management Activities on Terrestrial Wildlife Species in Idaho

In general, terrestrial species associated with open water systems, rocky cliffs, or mine shafts typically were categorized as a low risk for effect from selected management activities (table 3-54, appendix M, tables M-12, M-13, M-14). These included primarily birds—waterfowl, select raptors, and the black swift—and some bats. Species considered relatively ubiquitous and habitat generalists—such as the northern flicker, red squirrel, and white-tailed deer—were also considered at low risk relative to select management activities because individuals would be able to use alternate habitats unaffected by activities.

Species most likely to be vulnerable to activities were those associated with forested or grassland ecosystems where most roads, timber cutting, or discretionary mining could occur. Species such as the marten, fisher, goshawk, and great gray owl were considered at moderate risk because timber cutting activities can contribute to changes in forest structure. Cavity

nesters, such as several of the woodpecker species and the flammulated owl, ranked out as moderate risk because of the potential for timber cutting to remove or degrade important habitat components such as snags or small-diameter trees. Species sensitive to the effects of human disturbance or access or to loss of secure cover—such as the woodland caribou, elk, and greater sage grouse—also ranked out as moderate risk. The grizzly bear was the only species that ranked out as a high risk because of the severity of impact (increased direct mortality) and the likelihood of effects related to increased human-bear conflicts facilitated by roads.

For all species, including the grizzly bear, impacts resulting from select management activities would be subject to existing species-specific management direction in the form of standards, guidelines, and conservation measures intended to mitigate effects at the project level, and, in the case of federally listed species, contribute to recovery. Further, although the select management activities relevant to this proposal pose some level of risk to most species considered, vegetation treatments designed to improve and/or restore habitats could have beneficial effects on particular species (such as certain game species, northern Idaho ground squirrel, Canada lynx, and others).

Table 3-54: Estimate of the risk that roads, timber cutting, and discretionary mining could pose to threatened, endangered, Forest Sensitive, and Management Indicator species

Species	Low	Moderate	High
Federally Endangered, Threatened, and Candidate Species			
Canada lynx		X	
Grizzly bear			X
Northern Idaho ground squirrel	X		
Woodland caribou		Moderate-High	
Gray wolf	X		
Western yellow-billed cuckoo	X		
Southern Idaho ground squirrel	X		
Forest Service Sensitive Species			
American peregrine falcon	X		
Bald eagle	X		
Black swift	X		
Black-backed woodpecker		X	
Boreal Owl		X	
Columbian sharp-tailed grouse		X	
Common loon	X		
Fisher		X	
Flammulated owl		X	
Fringed myotis	X		
Great gray owl		X	
Greater sage grouse		X	
Grizzly bear			X
Harlequin duck	X		
Marten		X	
Mountain plover	X		
Mountain quail	X		
Northern bog lemming	X		
Northern goshawk		X	
Pygmy nuthatch		X	
Ring-necked snake	X		

Species	Low	Moderate	High
Pygmy rabbit	Low-moderate		
Spotted bat	X		
Three-toed woodpecker		X	
Townsend's big-eared bat	X		
Trumpeter swan	X		
White-headed woodpecker		X	
Wolverine		X	
Management Indicator Species not addressed above			
Belted kingfisher	X		
Downy woodpecker		X	
Elk		X	
Hairy woodpecker		X	
Moose		X	
Northern flicker	X		
Red squirrel	X		
Red-naped sapsucker		X	
White-tailed deer	Low-moderate		

All Alternatives

Land management activities in roadless areas often cost more to plan and implement than on other NFS lands (USDA Forest Service 2001). Typically these areas can be difficult to access or have not been the focus of past management and, therefore, have retained their roadless character. It is unlikely that Idaho Roadless Areas would be the primary focus of future land management activities that involve road construction, road reconstruction, or timber cutting because of these logistical constraints. The possible exceptions to this generalization are areas that have a high priority for fuels treatment, and areas with leasable mineral resources, such as phosphate and geothermal. Past and projected future land management activities in Idaho Roadless Areas have been and are expected to remain relatively low, which is reflected in the projected low amounts of permanent and temporary road construction and timber cutting for the alternatives.

Under all alternatives, existing species-specific management direction, best management practices, and legal requirements (for example, the ESA, Migratory Bird Treaty Act, National Forest Management Act, and others) remain applicable to all activities proposed in Idaho Roadless Areas. Therefore, management direction intended to minimize project effects to species—such as those outlined in the Northern Rockies Lynx Amendment (USDA Forest Service2007l), the Forest Plan Amendment for Grizzly Bear Habitat Conservation for the Greater Yellowstone Area National Forests (2006d), and individual Forest Plans—or Agency commitments to species conservation (that is, candidate conservation agreements) would be in place under all alternatives. Any projects anticipated to affect federally listed species or migratory birds would necessitate coordination and/or consultation with the FWS. All subsequent projects proposed in Idaho Roadless Areas would be subject to the requirements of NEPA, ESA, and NFMA.

None of the alternatives prohibit road construction or reconstruction associated with developing existing mineral leases on the Caribou-Targhee National Forest. About 7,230 acres of phosphate deposits can be found in seven roadless areas (Dry Ridge, Huckleberry Basin,

Meade Peak, Sage Creek, Schmid Peak, Stump Creek, and Mount Jefferson) and are under existing lease. About 30 acres have been mined to date. About 1,100 acres, associated with the Smoky Canyon mine expansion, are reasonably foreseeable to be developed within the next 15 years. The Smoky Canyon Mine expansion would affect the Sage Creek and Meade Peak Roadless Areas.

It is also reasonable to assume that the remaining phosphate deposits currently under lease, roughly 6,100 acres within the seven roadless areas, would likely be permitted and developed sometime in the extended future (50 or more years). Using the Smoky Canyon expansion as an example of the level of activity expected, an estimated 17 miles of haul road construction and other surface mining disturbance would ultimately take place within the seven roadless areas.

Any future phosphate development could affect terrestrial habitats in a number of ways: through physical removal of habitat and increased disturbance to adjacent habitat, increased potential for road-related mortality, and the potential to ingest forage contaminated with selenium. Any future development would undergo environmental analysis, and environmental mitigations would be required to lessen effects.

2001 Roadless Rule (No Action)

The 2001 Roadless Rule generally prohibits road construction / reconstruction. There are seven exceptions where this activity can occur. The 2001 Roadless Rule also generally prohibits timber cutting, except to restore threatened and endangered species habitat, or for other stewardship purposes. No road construction is permitted to support timber cutting activities.

Under the 2001 Roadless Rule, about 12 miles of permanent road construction and 3 miles of temporary roads are projected to occur over a 15-year period. Construction of 1 mile of road per year equates to a physical footprint approximately 0.5 acres in size or about 7.5 acres over 15 years. As discussed earlier, the indirect effects of roads extend beyond the road prism and have the potential to affect a much greater area. However, given the limited extent of road construction projected (15 miles over a 15-year period), the likelihood of negative impacts on any terrestrial wildlife species and their habitats resulting from road construction and reconstruction is exceptionally low.

Prohibitions on road construction / reconstruction in roadless areas would benefit most species, particularly species that have large home ranges, are sensitive to human disturbance, and / or experience increased mortality due to increased human access facilitated by roads. Although all species listed under ESA within Idaho stand to benefit from prohibitions on road construction, the grizzly bear and woodland caribou would likely benefit most because of reduced disturbance and wildlife-human interactions that are facilitated by roads.

Based on information provided by each national forest in 2000, the current need for road construction or reconstruction within roadless areas for recovery or protection of threatened, endangered, or sensitive species appears to be minimal. There is no reason to expect that this would change in the upcoming decades. It is unlikely that alternate means of access could not be found to accomplish recovery or conservation objectives, although costs may increase in some situations. Because all the prohibition alternatives provide an exception that an existing road may be realigned to prevent irreparable resource damage, adverse effects on TES and other species caused by existing roads may be mitigated.

Roads can facilitate treatments that are designed specifically to improve habitats for other terrestrial wildlife, particularly game species such as mule deer, elk, wild turkey, upland birds, and black bear. However such treatments in roadless areas, in the absence of revenues generated from associated timber harvest, are difficult to implement financially and thus infrequently proposed. Prohibitions on road construction / reconstruction in roadless areas would benefit big game species because areas without roads provide secure habitat for big game animals.

The 2001 Roadless Rule prohibits timber cutting, sale, or removal except as provided in four exceptions. A very low amount of timber cutting in Idaho Roadless Areas, about 9,000 acres over 15 years, is projected under the 2001 Roadless Rule. Because of the exceptions and the intent to maintain roadless characteristics, the type of timber cutting in Idaho Roadless Areas would be restricted to removal of small-diameter materials and to cutting that maintains some structure and canopy. Such treatments, compared to even-aged management regimes, are less likely to fragment habitats.

With the added prohibition against non-stewardship timber cutting and the limitations on the type and extent of change to existing vegetation, the 2001 Roadless Rule presents a very low risk to terrestrial wildlife resources from habitat loss and fragmentation resulting from timber cutting. Further, other impacts on wildlife species from timber cutting activities, such as disturbance, would be minimal.

The 2001 Roadless Rule also prohibits road construction and reconstruction associated with new leases. About 14,460 known phosphate deposits are currently not leased and would not be developed, and road access would not be provided for geothermal development. These areas would retain their roadless characteristics and continue to provide undisturbed terrestrial species habitat.

Summary of Effects. No adverse environmental effects on TES, MIS, migratory birds, Idaho species of concern, or big game terrestrial species, or their habitats would be expected from the 2001 Roadless Rule, because it does not directly authorize any ground-disturbing activities. Ground-disturbing activities permitted under this alternative include limited road construction / reconstruction and limited timber cutting across the entire 9.3 million acres of Idaho Roadless Areas. Overall, the effects on biodiversity would be beneficial.

Generally, most terrestrial wildlife species would benefit from prohibitions on road construction / reconstruction, and timber cutting in Idaho Roadless Areas because the adverse effects of these activities would be reduced. Limiting the ability to harvest timber for stewardship purposes except when needed for protection or recovery of TES species or to restore / maintain ecosystem characteristics, may reduce the capability to enhance habitat directly and indirectly at the stand level, but it is unlikely to have much impact at larger scales. The ability to use timber harvest to manage for early successional or other structural stages in some areas would be limited; however, where such a need is identified, prescribed fire can be an effective tool under certain conditions.

Existing Plans

Under this alternative, approximately 37 percent (3.22 million acres) of the 9.3 million acres of Idaho Roadless Areas are included in forest plan prescriptions similar to Wild Land Recreation and Primitive themes under which road construction / reconstruction, timber cutting, and discretionary minerals activities are generally prohibited. Timber cutting may be done on a very

limited basis under the Primitive theme, and in response to a threat (such as insects and disease, windstorms, salvage). In general, the limitations on road construction and reconstruction, timber cutting and harvest, and discretionary mining under these management prescriptions would benefit most terrestrial wildlife species. Consequently, these areas would continue to provide excellent habitat for terrestrial species because of the limited amount of human-induced disturbance.

Under Existing Plans, approximately 4.48 million acres are in prescriptions similar to the Backcountry theme; generally some level of road construction / reconstruction and timber cutting would be permitted. Discretionary mineral activities may or may not be permitted depending on the forest plan. Thus there is the potential for terrestrial wildlife species to be affected, particularly in forested habitats. Removal of diseased, dead, and down materials could have negative impacts on primary cavity nesters, although existing snag retention requirements already included in most forest plans would assist in mitigating some of these effects.

About 1.26 million acres are in prescriptions similar to GFRG. Most road construction / reconstruction and timber cutting are anticipated to take place in areas managed as GFRG. All forests except the Challis National Forest and the Wallowa-Whitman National Forest have roadless areas with prescriptions similar to this theme. However, most acres categorized as GFRG fall on the Caribou-Targhee, Idaho-Panhandle, Nez Perce, and Salmon National Forests. The terrestrial wildlife species found on these forests that are vulnerable to effects of roads, timber cutting, and discretionary mining, as discussed in the General Effects section above, could be differentially impacted under this theme.

Projected road construction and reconstruction under Existing Plans is 180 miles over 15 years, equivalent to about 90 acres, about half of which would likely be in the form of temporary roads or reconstruction. This estimate includes both permanent and temporary roads for timber cutting and non-timber related activities. The projected timber harvest is estimated to occur on 40,500 acres over 15 years, which could include both uneven-aged and even-aged management regimes.

Management of leasable mineral resources in prescriptions similar to GFRG would be guided by each forest's land and resource management plan. The existing Caribou forest plan permits leasing of the estimated 6,750 acres of unleased known phosphate lease areas (KPLA) and / or other possible roadless areas that contain undiscovered phosphate resources. These known unleased phosphate deposits occur in six roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek) and would likely to be developed over an extended period of time (50 or more years). In addition, there are 6,870 acres of unleased phosphate deposits on the Targhee portion of the Caribou-Targhee National Forest within the bald Mountain, Bear Creek, and Poker Creek Roadless Areas. If these areas were to be leased at some time in the future, roads, pits, and other surface mining facilities would be expected to be constructed. An environmental analysis would have to be completed prior to exploration and development of these phosphate reserves.

Federally listed species

In general, road construction / reconstruction, timber cutting, and discretionary mining activities pose a moderate to high risk to woodland caribou and grizzly bear (see appendix M, table M-12). Under Existing Plans, both species overlap prescriptions similar to GFRG (500 acres of the South Selkirk Caribou Recovery Area, and 5,900 acres of total grizzly bear core habitat) and

Backcountry theme (51,600 acres of the South Selkirk Recovery Area of 101,000 acres of grizzly bear core habitat) (appendix M, table M-15a) where select management activities are permitted in varying degrees. Although the overlap of habitats and these themes is relatively low for both species (less than 10 percent), there is the possibility that individual caribou and grizzly bears could be affected, adversely or beneficially, by activities permitted under these prescriptions. Management direction outlined in the Idaho Panhandle National Forests and Kootenai forest plans and the use of best science would help minimize or avoid adverse effects to grizzly bears and caribou resulting from most management activities.

Timber cutting activities pose a moderate risk to Canada lynx due to potential effects on snow-shoe hares, a primary prey species. Under Existing Plans, 496,700 acres (7 percent) and 1.7 million acres (23 percent) of mapped lynx habitat in Idaho overlaps prescriptions similar to GFRG and Backcountry, respectively (appendix M, table M-15a). Consequently, there is the potential for individuals to encounter and/or be affected by select management activities in 30 percent of mapped lynx habitat. Existing management direction for lynx provided in the Northern Rockies Lynx Amendment (USDA Forest Service 2007l), the Southwest Idaho Ecogroup forest plan, and the Lynx Conservation Assessment and Strategy would minimize adverse effects on lynx, particularly from timber harvest activities.

Estimated risk to northern Idaho ground squirrels (NIDGS) from road construction and reconstruction, timber cutting, and discretionary mining activities in Idaho Roadless Areas is low (appendix M, table M-12) based on the following: (a) 94 percent of the probable historic distribution falls outside Idaho Roadless Areas, (b) there is only one known colony in an Idaho Roadless Area and; (c) northern Idaho ground squirrel habitat is unlikely to coincide with areas where select management activities would occur unless they are specifically intended to address management of the northern Idaho ground squirrel. Less than 1 percent of the probable historic distribution overlaps prescriptions similar to GFRG; the remaining 5 percent of the probable historic distribution in is associated with relatively restrictive prescriptions (for example, Primitive, and forest plan special areas) (appendix M, table M-15a). Timber-cutting activities designed to improve habitat conditions for the northern Idaho ground squirrel could occur in prescriptions managed as Primitive. In such cases, there is the potential for short-term impacts on individuals in order to benefit the species in the long-term. Such short-term adverse effects on northern Idaho ground squirrels are unlikely but cannot be ruled out under Existing Plans.

A total of 615,280 acres of the predicted distribution for the gray wolf (9,540 acres north of I-90 and about 605,740 acres south of I-90) overlap prescriptions similar to GFRG, which is only 3.7 percent of its distribution statewide (appendix M, table M-15a). The home ranges for 45 packs overlap to some degree with GFRG: one pack north of I-90 and 53 packs south of I-90. Consequently, there is some potential for individual gray wolves, particularly south of I-90, to encounter activities. However, road construction/reconstruction, timber cutting, and discretionary mining pose a low risk to gray wolves because the likelihood that these activities might disturb or result in mortality of individual wolves is very low, even in these areas of overlap.

Select management activities in Idaho Roadless Areas pose a low risk to both candidate species: the southern Idaho ground squirrel and the western yellow-billed cuckoo. Activities undertaken pursuant to the Existing Plans is unlikely to adversely affect the southern Idaho ground squirrel (see discussion of northern Idaho ground squirrel, above). Under Existing Plans, the predicted

distribution for the western yellow-billed cuckoo overlaps GFRG by 7 percent (appendix M, table M-15a). Consequently, although the risk to the species is low, potential for individuals to be affected cannot be discounted, particularly from timber cutting and discretionary mining on the Caribou-Targhee, where the species is known to occur. Forest-wide standards and guidelines, particularly those designed to protect riparian corridors, would help minimize impacts on the western yellow-billed cuckoo and other riparian obligates.

Forest Sensitive Species

Of the sensitive species at moderate to high risk of impact from select management activities—black-backed woodpecker, boreal owl, sharp-tailed grouse, fisher, flammulated owl, great gray owl, marten, northern bog lemming, northern goshawk, pygmy nuthatch, three-toed woodpecker, Townsend's big-eared bat, white-headed woodpecker, and wolverine—few have predicted distributions that overlap prescriptions similar to GFRG by more than 5 percent (see appendix M, table M-15b). Therefore, although some individuals could encounter activities and their impacts, the likelihood is relatively low.

The Yellowstone population of grizzly bear is relatively sensitive to the effects of roads. However, only 10 percent of its predicted distribution in Idaho overlaps Idaho Roadless Areas, all on the Caribou-Targhee National Forest (appendix M, table M-15b). Furthermore, there is no overlap with prescriptions similar to GFRG and only 2 percent overlaps prescriptions similar to Backcountry, where limited activities could occur. Consequently, the likelihood that grizzly bears would encounter such activities in a roadless area is low. The Forest Plan Amendment for Grizzly Bear Conservation for the Greater Yellowstone Area National Forests outlines specific management direction for grizzly bear habitat on the Caribou-Targhee to minimize or avoid adverse effects on the species and to maintain a recovered population. Based on limited overlap with Idaho Roadless Areas and application of existing management direction, this alternative is not likely to result in significant negative impacts on the Yellowstone population of grizzly bear.

Greater sage-grouse are at moderate risk of impact because of their habitat associations and sensitivity to human disturbance. Although only 6 percent of the predicted distribution for greater sage-grouse falls in Idaho Roadless Areas (appendix M, table M-15b), 25 of 29 known leks occur in roadless areas that contain prescriptions similar to GFRG, mostly on the Sawtooth, Caribou, and Targhee National Forests. Consequently, there is the potential that individuals could be exposed to and potentially affected by road construction/reconstruction, timber cutting, and discretionary mining permitted in these areas. Management direction outlined in relevant forest plans should minimize impacts to ensure subsequent projects proposed do not result in a trend towards listing.

Management Indicator Species[88]

Of MIS that could be at moderate to high risk of impact—downy woodpecker, elk, hairy woodpecker, and moose—none have predicted distributions that overlap the GFRG theme by more than 5 percent (appendix M, table M-15b) and thus opportunities for impact are limited.

[88] Only addresses MIS not discussed in previous sections.

Other Terrestrial Wildlife Species and Biodiversity

Migratory birds as a group include an extremely diverse array of avian taxa. Those species at low risk of effects from select management activities (such as waterfowl, shore-birds, cliff dwellers, etc.) are unlikely be affected by this alternative. Migratory birds associated with forested or grassland ecosystems have a greater potential for overlap with management activities, and thus could be affected, particularly on the 1.26 million acres of roadless areas in prescriptions similar to GFRG. Fourteen of 17 roadless areas containing breeding bird survey routes include some lands to be managed as GFRG. Most migratory birds afford protection from 'take' under the Migratory Bird Treaty Act (MBTA). Consequently, any activities proposed in roadless areas would need to address the legal obligation mandated by the MBTA.

Some terrestrial game species, such as elk, deer, and turkeys, could benefit from certain types of timber cutting where habitats are improved or restored. However, in general, management activities in 1.26 million acres in prescriptions similar to GFRG have a greater potential to negatively affect most game species because roads and timber cutting have the potential to increase human access and reduce security cover. Discretionary mining can result in complete loss of habitat where permitted. Under Existing Plans, 1.2 million acres and 697,400 acres of the predicted distribution for elk and white-tailed deer, respectively, and another 105,400 acres of mule deer winter habitat, fall in prescriptions similar to GFRG, where there is the potential for habitat loss, or increased human disturbance due to select management activities.

Because Idaho Roadless Areas on the Idaho Panhandle National Forests overlap a large number of species distributions, management activities that could take place in areas managed as GFRG have the potential to affect more species, and thus an area of high species richness, than on other forests. The Salmon-Challis and the Caribou-Targhee National Forests contain the most roadless area acreage under prescriptions similar to GFRG—about 405,300 acres and 398,900 acres, respectively. Thirty-four of 58 roadless areas on the Salmon-Challis overlap the predicted distributions for a relatively large number of federally listed and forest sensitive species. Consequently, activities in these roadless areas have the potential to alter species richness in these areas, particularly where species present are at a moderate to high risk from such activities. In general, roadless areas on the Caribou-Targhee ranked lower in species richness (for TES species), than other forests; thus, designation of GFRG and the consequent potential for impacts on large numbers of TES species is lower in these areas.

Table 3-55 shows the Idaho Roadless Areas with the most TES terrestrial wildlife species and the amount of acres by themes. About 764,700 acres in roadless areas overlap with areas the most TES species. About 50 percent of these roadless areas are in equivalent themes that pose little risk to terrestrial species. About 3 percent are in GFRG, and 47 percent in prescription equivalent to Backcountry.

Table 3-55. Existing Plans, acres by equivalent theme for Idaho Roadless Areas with the most threatened, endangered, and sensitive (TES) terrestrial wildlife species

Forest	Roadless area	Wild Land Recreation	Primitive	Backcountry	GFRG	FPSA
Idaho Panhandle	Salmo-Priest	13,500	0	800	0	5,700
Idaho Panhandle	Blacktail Mountain #122	0	0	1,300	2,900	800
Idaho Panhandle	Selkirk	25,400	30,100	36,400	0	6,100
Idaho Panhandle	Upper Priest	0	0	4,500	2,000	6,200
Nez Perce	Mallard	0	0	12,700	6,900	0
Payette	French Creek	0	12,000	76,000	100	700
Payette	Hells Canyon/7 Devils Scenic	0	29,200	0	0	500
Payette	Needles	90,200	7,100	31,500	0	2,500
Payette- Nez Perce	Rapid River	0 0	6,000 14,000	45,700 2,400	0 300	6,000 4,300
Salmon	West Big Hole	0	26,000	43,900	11,600	2,900
Sawtooth	Hanson Lakes	15,000	2,500	13,800	0	8,600
Targhee*	Mt. Jefferson	0	41,000	13,200	0	6,800
Targhee*	Garns Mountain	0	0	90,600	0	5,000
Total		144,100	167,900	372,800	23,800	56,100

** Targhee portion of the Caribou-Targhee National Forest. GFRG-general forest, rangeland and grassland. FPSA =forest plan special area*

Summary of Effects

Existing Plans would not directly result in adverse environmental effects on terrestrial species or their habitats because no ground-disturbing activities are directly authorized. However, the projected trend for road construction / reconstruction, timber cutting, and discretionary mineral activities would be highest under this alternative. Given the numerous negative direct and indirect effects on terrestrial wildlife species and their habitats identified in the literature associated with these activities, the Existing Plans alternative has the greatest potential for adverse effects on terrestrial wildlife species and their habitats.

Proposed Idaho Roadless Rule (Proposed Action)

Under the Proposed Idaho Roadless Rule, road construction / reconstruction, and discretionary mineral activities would be prohibited in the Wild Land Recreation, Primitive and SAHTS themes (3.1 million acres). Timber cutting, sale, or removal would be prohibited with exceptions in the Primitive and SAHTS themes. Because of the prohibitions on ground-disturbing activities within Wild Land Recreation, Primitive, and SAHTS themes, these themes should provide for good conditions for terrestrial wildlife species and their habitats.

About 5.25 million acres are in the Backcountry theme. Road construction / reconstruction would be permissible under the same exceptions as the 2001 Roadless Rule and to facilitate timber cutting for stewardship and fuel reduction purposes. Most new roads would be temporary, unless the responsible official determines that a permanent road meets the road

exceptions and it would not substantially alter any of the roadless characteristics. About 38 miles of road are projected to be constructed and 23 miles reconstructed over a 15-year period.

Timber cutting would be permitted for forest health, threatened and endangered species habitat improvement, and fuel-reduction purposes. Removal of diseased, dead, and down materials could have negative impacts on primary cavity nesters, although existing snag retention requirements already included in most forest plans would help mitigate some of these effects. About 18,000 acres of timber cutting are projected to occur over 15 years.

About 609,600 acres are in the GFRG theme. Road construction / reconstruction, timber cutting, and discretionary mineral activities are permitted in these areas. All the national forests—except for the Challis, Clearwater, Nez Perce, and Wallowa-Whitman—have acres under the GFRG theme. The Caribou portion of the Caribou-Targhee National Forest (251,800), the Targhee portion of the Caribou-Targhee National Forest (147,000), and the Sawtooth National Forest (107,200) have the most acres of any of the forests in the GFRG theme. Many of the lands in the GFRG theme are managed as rangelands.

The Proposed Idaho Roadless Rule permits road construction / reconstruction for geothermal development in the GFRG theme. About 7 percent of Idaho Roadless Areas are in this theme, but only about 4 percent could be developed based on slope restrictions on the other 3 percent (see section 3.5, Minerals and Energy, table 3-24). It is likely some of these areas would be developed over time; however, except for two pending lease applications there is no information about where or when the activity would occur. If fully developed, roads, transmission lines, and other facilities would likely be constructed (see appendix I for a description of general development of geothermal resources). Site-specific analysis would occur prior to exploration or development of geothermal energy resources and would include consideration of terrestrial resources.

Currently, lease applications have been submitted for geothermal exploration within 7,000 acres of the Peace Rock Roadless Area on the Boise National Forest and 33 acres of the West Panther Roadless Area on the Salmon National Forest. Both these areas are in either the Primitive or Backcountry theme; therefore, they would not be developed because of the inability to construct roads to access the area (see section 3.5, Minerals and Energy). No terrestrial resources would be affected by geothermal development in these areas.

The Proposed Idaho Roadless Rule would allow road construction / reconstruction and surface occupancy for phosphate exploration and development within the Backcountry and GFRG themes. There are 14,460 acres of known unleased phosphate deposits on the Caribou-Targhee National Forest. About 13,190 acres[89] (91 percent) are located within the Backcountry and GFRG themes, where road construction or reconstruction would be permissible to develop these phosphate deposits. The deposits are located within nine roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek on the Caribou portion of the Caribou-Targhee National Forest; and Bald Mountain, Bear Creek, and Poker Creek on the Targhee portion of the forest) and could eventually be mined over an extended period of time (50 or more years). There is a potential risk to terrestrial species habitat on these 13,190 acres when and if this development should occur. Site-specific analysis would occur prior to any future leasing, and mitigations would be applied.

[89] Based on past history, phosphate mining could occur on an additional 1,850 acres around unleased KPLAs on the Caribou-Targhee National Forest (see section 3.5, Minerals and Energy).

Federally listed species

Changes in road densities pose a high risk to grizzly bears. Under the Proposed Idaho Roadless Rule, core habitat for grizzly bears overlaps GFRG—8,000 acres in the Selkirk ecosystem and 2,400 acres in the Cabinet-Yaak ecosystem. This overlap represents 2 percent and less than 1 percent of total core habitat in these recovery ecosystems, respectively. An additional 93,300 acres (10 percent) and 60,400 acres (18.5 percent) of grizzly bear core habitat fall in the Backcountry theme in the Cabinet-Yaak and Selkirk ecosystems, respectively (appendix M, table M-15a). Management direction outlined in the Idaho Panhandle and Kootenai forest plans would help minimize adverse effects on grizzly bears resulting from most management activities. Grizzly bears should benefit in the 18 percent of core habitat that falls in Wild Land Recreation and Primitive themes, where prohibitions on road construction / reconstruction and timber cutting should maintain areas free from human access and disturbance. However, because of the overlap of grizzly bear core habitat and management themes where select management activities are permitted, there is potential for individual grizzly bears to encounter and be adversely affected by activities permitted under these themes.

Approximately 4,700 acres of the South Selkirk Caribou Recovery Area (about 1 percent) falls in GFRG, where there are few restrictions on road construction / reconstruction, timber cutting, and discretionary mining. An additional 58,400 acres overlaps the Backcountry theme (6 percent), where such activities could occur under limited circumstances (appendix M, table M-15a). Management direction outlined in the Idaho Panhandle forest plan would help minimize adverse effects on caribou resulting from most management activities. Woodland caribou should benefit across the 6 percent of the South Selkirk Caribou Recovery Area that falls in Wild Land Recreation and Primitive themes, where prohibitions on road construction / reconstruction and timber cutting should maintain areas free from human access and disturbance. However, given the overlap with themes permitted such activities, there is potential that individual caribou may encounter and be adversely affected by activities that could occur under these themes.

Timber cutting activities pose a moderate risk to Canada lynx because of potential effects on snowshoe hares, a primary prey species. Under the Proposed Idaho Roadless Rule, 125,900 acres (2 percent) and 2.1 million acres (29 percent) of mapped lynx habitat in Idaho overlaps the GFRG and Backcountry themes, respectively (appendix M, table M-15a). Consequently, there is the potential for individuals to encounter and / or be affected by management activities in 31 percent of mapped lynx habitat on national forests in Idaho. Existing management direction for lynx provided in the Northern Rockies Lynx Amendment (USDA Forest Service 2007l), the Southwest Idaho Ecogroup forest plan, and the Lynx Conservation Assessment and Strategy should minimize adverse effects on lynx, particularly from timber harvest activities.

Estimated risk to northern Idaho ground squirrels from road construction and reconstruction, timber cutting, and discretionary mining activities in roadless areas is low (see appendix M, table M-12. Approximately 2,700 acres of the probable historic distribution (less than 1 percent) overlaps GFRG, and 1.5 acres overlaps Backcountry (appendix M, table M-15a). The remaining 5.1 percent of the probable historic distribution (42,800 acres) is in the Primitive theme, a relatively restrictive prescription. Timber-cutting activities designed to improve habitat conditions for the northern Idaho ground squirrel could occur in Primitive, but existing roads must be used. Timber cutting intended to improve northern Idaho ground squirrel habitat, such as removal of encroaching conifers from montane meadow ecosystems, could have short-term

impacts on individuals. Such short-term adverse effects on northern Idaho ground squirrels are unlikely but cannot be ruled out under the Proposed Idaho Roadless Rule. Species-specific management direction outlined in the Southwest Idaho Ecogroup forest plans would minimize adverse effects on the species.

A total of 87,700 acres of the predicted distribution for the gray wolf, all south of I-90, overlaps the GFRG theme, which is less than 1 percent of its distribution statewide (appendix M, table M-15a). The home ranges for 18 packs, all but one south of I-90[90], overlap GFRG to some degree. Consequently, there is some potential for individual gray wolves, particularly south of I-90, to encounter activities. However, road construction / reconstruction, timber cutting, and discretionary mining pose a low risk to gray wolves because the likelihood that these activities might disturb or result in mortality of individual wolves is very low, even in these areas of overlap.

Permissible management activities in Idaho Roadless Areas pose a low risk to both candidate species: the southern Idaho ground squirrel and the western yellow-billed cuckoo. Under the Proposed Rule, the predicted distribution for the western yellow-billed cuckoo overlaps GFRG by 7 percent (appendix M, table M-15a). Consequently, although the risk to the species is low, there is a potential for individuals to be affected by management activities, particularly timber cutting and discretionary mining on the Caribou-Targhee, where the species is known to occur. Forest-wide management direction, particularly those designed to protect riparian corridors, would help minimize impacts to the western yellow-billed cuckoo and other riparian obligates.

Sensitive Species

The black-backed woodpecker, boreal owl, sharp-tailed grouse, fisher, flammulated owl, great gray owl, northern bog lemming, northern goshawk, pygmy nuthatch, three-toed woodpecker, Townsend's big-eared bat, white-headed woodpecker, and wolverine do not have predicted distributions that overlap the GFRG theme by more than 3 percent (see appendix M, table M-15b). Although some individuals could encounter activities and their impacts, the likelihood is relatively low.

Under the Proposed Idaho Roadless Rule, the predicted distribution of the Yellowstone population of the grizzly bear does not overlap with the GFRG theme; about 1.72 percent overlaps with the Backcountry theme, where limited activities could occur. Consequently, the likelihood that grizzly bears would encounter activities is low (appendix M, table M-15b). The Forest Plan Amendment for Grizzly Bear Conservation for the Greater Yellowstone Area National Forests outlines specific management direction for grizzly bear habitat on the Caribou-Targhee to minimize or avoid adverse effects on the species and to maintain a recovered population. Based on limited overlap and application of existing management direction, the Proposed Idaho Roadless Rule is not likely to result in significant negative impacts on the Yellowstone population of grizzly bear.

Twenty-five of 29 known greater sage-grouse leks occur in roadless areas that contain GFRG on the Sawtooth, Caribou, and Targhee National Forests. Consequently, there is the potential that individuals could be exposed to and potentially affected by road construction / reconstruction, timber cutting, and discretionary mining permitted in these areas. Management direction

[90] Although none of the predicted distribution for the wolf above I-90 overlaps GFRG, the home range of one wolf pack located mostly north of I-90 overlaps areas south of I-90.

outlined in forest plans should minimize impacts to ensure subsequent projects do not result in a trend toward listing.

Management Indicator Species[91]

Of MIS that could be at moderate to high risk of impact—downy woodpecker, elk, hairy woodpecker, and moose—none have predicted distributions that overlap the GFRG theme by more than 1.6 percent (see appendix M, table M-15b); thus opportunities for impacts are limited.

Other Terrestrial Wildlife Species and Biodiversity

With regard to migratory birds, only 4 of 17 roadless area containing breeding bird survey routes include some lands to be managed as GFRG under the Proposed Idaho Roadless Rule. Most migratory birds afford protection from 'take' under the Migratory Bird Treaty Act (MBTA). Consequently, any activities proposed in roadless areas pursuant to this alternative would need to address the legal obligation mandated by the MBTA.

Some terrestrial game species, such as elk, deer, and turkeys, could benefit from certain types of timber cutting allowed in GFRG and Backcountry themes. However, in general, management activities in 609,600 acres in the GFRG theme have a greater potential to negatively affect most game species because roads and timber cutting have the potential to increase human access and reduce security cover, and discretionary mining can result in complete loss of habitat where permitted. Under the Proposed Idaho Roadless Rule, 549,500 acres and 157,700 acres of the predicted distribution for elk and white-tailed deer, respectively, and another 74,040 acres of mule deer winter habitat, fall in GFRG, where there is the potential for habitat loss, or increased human disturbance due to select management activities.

Table 3-56 shows the Idaho Roadless Areas with the most threatened, endangered, and sensitive (TES) terrestrial wildlife species and the amount of acres by themes. About 764,700 acres in roadless areas overlap with areas the most TES species. About 50 percent of these roadless areas are in equivalent themes that pose little risk to terrestrial species. About 1 percent are in GFRG, and 47 percent in prescriptions equivalent to Backcountry.

Summary

The Wild Land Recreation, Primitive, and SAHTS themes provide for natural processes, habitat integrity, and species diversity. Areas in the Backcountry theme have a higher risk of ground-disturbing activities (including road construction / reconstruction, timber cutting, and discretionary minerals activities) occurring, depending on future land uses and the risk of wildland fire. Areas in the GFRG theme have the greatest potential for increased risk of adverse effects on terrestrial animal species and habitat, although most species have less than 3 percent of their predicted distributions that overlap with this theme.

[91] Addresses only those MIS not discussed in previous sections.

Table 3-56. Proposed Idaho Roadless Rule acreage, by theme, for Idaho Roadless Areas with the most threatened, endangered, and sensitive (TES) terrestrial wildlife species

Forest	Roadless area	Wild Land Recreation	Primitive	Backcountry	GFRG	FPSA
Idaho Panhandle	Salmo-Priest	14,300	0	0	0	5,700
Idaho Panhandle	Blacktail Mountain #122	0	0	4,200	0	800
Idaho Panhandle	Selkirk	31,300	10,700	41,300	8,600	6,100
Idaho Panhandle	Upper Priest	0	0	6,300	200	6,200
Nez Perce	Mallard	0	0	19,600	0	0
Payette	French Creek	0	12,000	76,000	100	700
Payette	Hells Canyon/7 Devils Scenic	0	29,200	0	0	500
Payette	Needles	90,200	7,100	31,500	0	2,500
Payette- Nez Perce	Rapid River	0	51,700 16,700	0	0	6,000 4,300
Salmon	West Big Hole	0	20,500	61,000	0	2,900
Sawtooth	Hanson Lakes	15,100	2,500	13,700	0	8,600
Targhee*	Mt. Jefferson	0	41,000	13,200	0	6,800
Targhee*	Garns Mountain	0	0	90,800	0	4,800
Total		150,900	191,400	357,600	8,900	55,900

** Targhee portion of the Caribou-Targhee National Forest. GFRG=general forest, rangeland, and grassland. FPSA =forest plan special area*

Modified Idaho Roadless rule (Preferred Alternative)

Under the Modified Idaho Roadless Rule, road construction / reconstruction and discretionary mineral activities would be prohibited in Wild Land Recreation, Primitive, and SAHTS themes (about 3.25 million acres), and timber cutting would be prohibited with limited exceptions in the Primitive and SAHTS themes; therefore, there would be very little effect on terrestrial wildlife resources including TES and MIS species. These areas would continue to provide secure habitat.

About 5.31 million acres are in Backcountry theme. Temporary road construction would be permitted within the Backcountry theme community protection zone (CPZ) to facilitate hazardous fuel reduction projects. About 442,000 acres are within the CPZ. Outside the CPZ temporary roads could be constructed to reduce the significant risk of wildland fire effects on at-risk communities or municipal water supply systems, if it is the only feasible way to accomplish objectives. The roads would be designed to minimize effects to resources, could only be used for the specified purpose and would be decommissioned after use. In most cases, the 4.87 million outside the CPZ would be managed the same as the 2001 Roadless Rule. In the Backcountry theme, timber cutting would be permitted for TES habitat improvement, to restore ecosystem composition and structure, or for fuel-reduction purposes.

About 405,900 acres are in the GFRG theme. Road construction / reconstruction and timber cutting are permitted in these areas. All the national forests—except for the Challis, Clearwater, Kootenai, Nez Perce, and the Wallowa-Whitman—have acreage under the GFRG theme. The Caribou portion of the Caribou-Targhee National Forest (167,400 acres) and the Salmon National Forest (101,400 acres) have the highest acreage of any of the forests in the GFRG

theme. Many of the lands in the GFRG theme on the Caribou portion of the Caribou-Targhee National Forest are managed as rangelands. Most of the lands in the GFRG theme on the Salmon National Forest are roaded[92].

About 33 miles of road are projected to be constructed and 17 miles reconstructed over a 15-year period. About 15,000 acres of timber cutting are projected to occur over 15 years for stewardship and fuel-reduction purposes. These activities would primarily occur in the GFRG theme and within the CPZ in the Backcountry theme.

There are 14,460 acres of known unleased phosphate deposits on the Caribou-Targhee National Forest. Under the Modified Rule, road construction / reconstruction to access unleased phosphate deposits is prohibited in all themes except GFRG. There are about 5,770 acres[93] of unleased phosphate deposits in the GFRG theme. These deposits are located within six roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek on the Caribou portion of the forest and could eventually be mined over an extended period of time (50 or more years).

Similar to the 2001 Roadless Rule, the Modified Rule prohibits road construction / reconstruction for new mineral leases, other than phosphate in all themes. In addition, the Modified Rule prohibits surface use and occupancy of new mineral leases in the Wild Land Recreation, Primitive, and SAHTS themes. Surface use and occupancy would be permitted in the Backcountry and GFRG themes if allowed in the forest plans. It is unlikely new mineral development would occur in any of the themes without road access; therefore, there would be no effect on terrestrial species or their habitat from these actions.

Federally listed species

Changes in road densities pose a high risk to grizzly bears. Under the Modified Idaho Roadless Rule, 8,000 acres in the Selkirk Ecosystem and 1,000 acres in the Cabinet-Yaak Ecosystem overlap core habitat for grizzly bears in the GFRG theme (appendix M, table M-15a). This overlap represents 2 percent and less than 1 percent of total core habitat in these recovery ecosystems, respectively. An additional 500 acres (less than 1 percent) and 11,700 acres (1 percent) of grizzly bear core habitat overlap the Backcountry CPZ in the Selkirk Ecosystems and Cabinet-Yaak, respectively (appendix M, table M-15a). Management direction outlined in the Idaho Panhandle and Kootenai forest plans, and the use of best science at the project level, would help minimize or avoid adverse effects on grizzly bears resulting from most management activities. Grizzly bears should benefit in the 16.5 percent of total core habitat across both the Cabinet Yaak and Selkirk Ecosystems that falls in Wild Land Recreation and Backcountry themes, where prohibitions on road construction / reconstruction and timber cutting should maintain areas free from human access and disturbance. However, because of the overlap of grizzly bear core habitat and management themes where select management activities are permitted, there is a potential for individual grizzly bears to encounter and be adversely affected by activities permitted under these themes.

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[92] The roadless area inventory for the Salmon portion of the Salmon-Challis National Forest has not been updated since the 1980s; therefore, road construction and timber harvest have occurred in some roadless areas since that time. If these areas were re-inventoried they would not be part of the updated inventory because they do not meet the requirements in FSH 1909.12, chapter 70.

[93] Based on past history, phosphate mining could occur on an additional 810 acres around unleased KPLAs on the Caribou-Targhee National Forest (see section 3.5, Minerals and Energy).

Approximately 4,600 acres of the South Selkirk Caribou Recovery Area (about 1 percent) fall in GFRG, where there are few restrictions on road construction / reconstruction, timber cutting, and discretionary mining. An additional 58,500 acres overlap Backcountry (6 percent), where such activities could occur but under relatively limited circumstances (appendix M, table M-15a). There is no overlap with Backcountry CPZ. Management direction outlined in the Idaho Panhandle National Forests forest plan and the use of best science at the project level would help minimize or avoid adverse effects on caribou resulting from most management activities. Woodland caribou should benefit across the 5.7 percent of the South Selkirk Caribou Recovery Area that falls in Wild Land Recreation and Primitive themes, where prohibitions on road construction / reconstruction and timber cutting should maintain areas free from human access and disturbance. However, given the overlap with themes where activities are permitted, there is possibility that individual caribou may encounter and be adversely affected by activities.

Timber-cutting activities pose a moderate risk to Canada lynx because of potential effects on snowshoe hares, a primary prey species. Under the Modified Rule, 115,700 acres (2 percent) and 2.03 million acres (28 percent) of mapped lynx habitat in Idaho overlaps the GFRG and Backcountry themes, respectively (appendix M, table M-15a). About 152,400 acres (2 percent) are in Backcountry CPZ. Consequently, there is the potential for individuals to encounter and / or be affected by timber cutting activities in 31 percent of mapped lynx habitat. Existing management direction for lynx provided in the Northern Rockies Lynx Amendment (USDA Forest Service 2007l), the Southwest Idaho Ecogroup forest plan, and the Lynx Conservation Assessment and Strategy would minimize adverse effects on lynx, particularly from timber harvest activities.

Approximately 2,700 acres, less than 1 percent, of the probable historic distribution for the northern Idaho ground squirrel overlap GFRG, and 1.5 acres overlap the Backcountry theme. The remaining 5.1 percent of the probable historic distribution (42,800 acres) is in the Primitive theme, a relatively restrictive prescription (appendix M, table M-15a). Timber cutting activities designed to improve habitat conditions for the northern Idaho ground squirrel could occur in the Primitive theme, but existing roads must be used. It is possible that timber cutting intended to improve northern Idaho ground squirrel habitat, such as removal of encroaching conifers from montane meadow ecosystems, could have short-term impacts on individuals. Such short-term adverse effects on northern Idaho ground squirrels are unlikely but cannot be ruled out under the Modified Rule. Species-specific standards and guidelines outlined in the forest plans for the Southwest Idaho Ecogroup should serve to minimize any adverse effects on the species that might occur pursuant to this alternative.

Under the Modified Rule, about 117,100 acres of the predicted distribution for the gray wolf overlap the GFRG theme, all south of I-90, which is less than 1 percent of its distribution statewide (appendix M, table M-15a). The home ranges for 18 packs, all but one south of I-90[94], overlap GFRG to some degree. Consequently, there is some potential for individual gray wolves, particularly south of I-90, to encounter activities. However, road construction / reconstruction, timber cutting, and discretionary mining pose a low risk to gray wolves because the likelihood that these activities might disturb or result in mortality of individual wolves is very low, even in these areas of overlap.

[94] Although none of the predicted distribution for the wolf above I-90 overlaps GFRG, the home range of one wolf pack located mostly north of I-90 overlaps areas south of I-90.

Management activities permitted under the Modified Rule pose a low risk to both candidate species: the southern Idaho ground squirrel and the western yellow-billed cuckoo. However, the potential remains for individuals to be affected (see discussion of the northern Idaho ground squirrel, above). Under this alternative, the predicted distribution for the western yellow-billed cuckoo overlaps GFRG by 3 percent (appendix M, table M-15a). Consequently, although the risk to the species is low, there is a potential for individuals to be affected by management activities, particularly timber cutting and discretionary mining on the Caribou-Targhee, where the species is known to occur. Again, forest-wide management direction, particularly those designed to protect riparian corridors, would help minimize impacts on the western yellow-billed cuckoo and other riparian obligates.

Forest Sensitive Species

Of sensitive species that could be at moderate to high risk of impact (table 50b, and appendix M, table M-13)—black-backed woodpecker, boreal owl, sharp-tailed grouse, fisher, flammulated owl, great gray owl, northern bog lemming, northern goshawk, pygmy nuthatch, three-toed woodpecker, Townsend's big-eared bat, white-headed woodpecker, and wolverine—none have predicted distributions that overlap GFRG areas by more than 2 percent (see appendix M, table M-15b). Although some individuals could encounter activities and their impacts, the likelihood is relatively low.

Under the Modified Rule, 3.6 percent of the predicted distribution of the Yellowstone population of the grizzly bear in Idaho overlaps GFRG; 10.6 percent overlaps Backcountry / CPZ, where limited activities could occur (appendix M, table M-15b). In these areas of overlap, there is a potential for grizzly bears to encounter road construction / reconstruction, timber cutting, and road construction / reconstruction to access specific unleased phosphate deposits in the GFRG theme on the Caribou portion of the Caribou-Targhee National Forest. The Forest Plan Amendment for Grizzly Bear Conservation for the Greater Yellowstone Area National Forests outlines specific management direction for grizzly bear habitat on the Caribou-Targhee to minimize or avoid adverse effects on the species and to maintain a recovered population.

Twenty of 29 known greater sage-grouse leks are located the GFRG theme on the Sawtooth, Caribou, and Targhee National Forests. Consequently, there is the potential for individuals to be exposed to and potentially affected by road construction / reconstruction, timber cutting, and road construction / reconstruction to access specific unleased phosphate deposits on the Caribou portion of the Caribou-Targhee National Forest. Less than 1 percent of predicted habitat of the greater sage-grouse overlaps the GFRG theme and Backcountry CPZ combined. Management direction outlined in relevant forest plans should minimize impacts to ensure subsequent proposed projects do not result in a trend toward listing.

Management Indicator Species[95]

Of MIS that could be at moderate to high risk of impact—marten, downy woodpecker, elk, hairy woodpecker, and moose—none have predicted distributions that overlap GFRG areas by more than 1.6 percent (appendix M, table M-15b); thus, opportunities for impacts are limited.

[95] Addresses only those MIS not discussed in previous sections.

Other Terrestrial Wildlife Species and Biodiversity

With regard to migratory birds, only 5 of 17 roadless areas containing breeding bird survey routes include some lands to be managed as GFRG under the Idaho Roadless Rule. Most migratory birds afford protection from 'take' under the MBTA. Consequently, any activities proposed pursuant to the Modified Idaho Roadless Rule would need to address the legal obligation mandated by the MBTA.

Some terrestrial game species, such as elk, deer, and turkeys, could benefit from certain types of timber cutting allotted in GFRG and Backcountry under this alternative. However, in general, management activities in the GFRG theme (405,900 acres) and in the Backcountry CPZ (442,000 acres) have a greater potential to negatively affect most game species because roads and timber cutting have the potential to increase human access and reduce security cover. Discretionary mining can result in complete loss of habitat where permitted. Under the Modified Rule, 389,700 acres, 253,900 acres, 153,900 acres of the predicted distribution for elk, moose, and white-tailed deer, respectively, and another 31,550 acres of mule deer winter habitat fall in GFRG, where there is the potential for habitat loss or increased human disturbance due to select management activities.

Table 3-57 shows the Idaho Roadless Areas with the most TES terrestrial wildlife species and the amount of acres by themes. About 764,700 acres in roadless areas overlap with areas the most TES species. About 52 percent of these roadless areas are in equivalent themes that pose little risk to terrestrial species. About 3 percent are in GFRG, and 45 percent in prescription equivalent to Backcountry.

Table 3-57. Modified Idaho Roadless Rule acreage, by theme, for Idaho Roadless Areas with the most threatened, endangered, and sensitive (TES) terrestrial wildlife species

Forest	Roadless area	Wild Land Recreation	Primitive	Backcountry/ Backcountry CPZ	GFRG	FPSA
Idaho Panhandle	Salmo-Priest	14,300	0	0	0	5,700
Idaho Panhandle	Blacktail Mountain #122	0	0	4,200/500	0	800
Idaho Panhandle	Selkirk	42,000	0	41,300/300	8,600	6,100
Idaho Panhandle	Upper Priest	0	0	6,500/500	0	6,200
Nez Perce	Mallard	0	0	19,600/3,600	0	0
Payette	French Creek	0	12,000	76,000/3,900	100	700
Payette	Hells Canyon/7 Devils Scenic	0	29,200	0	0	500
Payette	Needles	90,200	7,100	31,500	0	2,500
Payette- Nez Perce	Rapid River	51,700 16,700	0 0	0	0	6,000 4,300
Salmon	West Big Hole	0	20,500	51,400/3,400	9,600	2,900
Sawtooth	Hanson Lakes	15,100	2,500	13,700/4,200	0	8,600
Targhee*	Mt. Jefferson	0	41,300	10,200/1,800	2,700	6,800
Targhee*	Garns Mountain	0	0	88,000/8,300	2,600	4,800
		230,000	112,600	342,400/ 26,500	23,600	55,900

** Targhee portion of the Caribou-Targhee National Forest.*

Summary

Under the Modified Idaho Roadless Rule, roadless areas in the Wild Land Recreation, Primitive, and SAHTS themes should be well-protected from ground-disturbing activities because of the prohibitions, with limited exceptions, on activities related to road construction / reconstruction, timber cutting, and discretionary minerals. These three themes should provide for natural processes, habitat integrity, and species diversity. Areas in the Backcountry theme are also afforded a good deal of protection. Lands in the Backcountry CPZ have a higher risk of ground-disturbing activities (including road construction / reconstruction and timber cutting) occurring, depending on the risk of wildland fire. Areas in the GFRG theme have the greatest potential for increased risk of adverse effects to terrestrial animal species and habitat, although most species have less than 3 percent of their predicted distributions that overlap with this theme.

TERRESTRIAL AND AQUATIC SPECIES: CUMULATIVE EFFECTS

The cumulative effects of the alternatives were addressed by considering land use and land conversion trends, as well as laws, regulations, and policies that affect species, habitat characteristics, and biodiversity. The cumulative effects on both terrestrial and aquatic species are addressed here to reduce redundancy.

All Alternatives

Since NFS lands, including roadless areas, provide habitats for so many terrestrial and aquatic species, the anticipated beneficial effects of roadless area conservation in combination with the other forest planning and broad-scale assessments could cumulatively benefit terrestrial and aquatic species at State, regional, and local scales. All the alternatives that contain direction for roadless area management would have the potential for important cumulative beneficial effects on conservation of native biological diversity and species viability by reducing substantial causes of habitat loss and reduction in habitat quality. Biological strongholds and other important habitats for terrestrial and aquatic species would receive substantial cumulative protection against future disturbance, considering the level of protection currently provided by existing policy, conservation strategies, forest plans, and other protected land designations.

The roadless areas when considered alone may not be as important as when considered in combination with other land conservation laws, policies, and strategies. For example, many roadless areas in combination with wilderness areas, Nature Conservancy preserves, some NFS land allocations, national parks, or conservation easements provide larger contiguous habitat blocks that provide for biodiversity conservation.

Non-Federal Habitat

There are about 53 million acres of land in Idaho, of which about 20.5 million acres are NFS lands. The Federal Government manages approximately 60 percent of all Idaho lands; the remaining 40 percent is in non-Federal ownership. Because non-Federal lands are a smaller percentage of all lands in Idaho, they are often influenced by management on Federal lands.

The role of non-Federal lands in maintaining and recovering species and their habitats is not well-defined. Idaho's current population of 1.4 million people is expected to be 2 million by 2030 and much greater by 2100 (IDFG 2005). The increased demands these individuals will place on the land will increase the value of roadless areas on Federal land for terrestrial and

aquatic species. In light of projected future population trends, Idaho Roadless Areas can provide some of the best terrestrial and aquatic species habitat in Idaho into the future.

The Idaho Comprehensive Wildlife Conservation Strategy (IDFG 2005) provides a foundation for sustaining Idaho's fish and wildlife and the habitats on which they depend. The strategy provides general directions for wildlife conservation and a stimulus to engage partners in conservation of Idaho's wildlife resources. In addition, there are several species-specific recovery plans and conservation strategies for species occurring in Idaho, such as the Idaho Bull Trout Plan (Batt 1996). Several of the tribal governments within Idaho have developed wildlife and fisheries conservation and restoration plans. Because of these efforts, terrestrial and aquatic habitats on non-Federal land would in general remain stable or slightly improve over the long term. Some lands may experience impacts on natural resources from urbanization and development, resource demands (for example, minerals), and recreation. Some conditions resulting in lower habitat quality on non-Federal land may limit the potential effectiveness of habitat conservation and restoration on Federal lands.

Non-native Invasive Species

Non-native invasive species are a problem throughout Idaho. Current State and Federal activities and authorities address some invasive species and their prevention and control, including the Idaho Invasive Plan (IDA 2005) and the National Strategy and Implementation Plan for Invasive Species Management (USDA Forest Service 2004a). Of particular concern is that the presence or spread of invasive species could potentially limit the effectiveness of habitat improvements or efforts to recover species. Roads often provide vectors for spread of invasive species. In general, areas with fewer roads have a lower risk of having invasive species populations established.

Impacts of Past Direction

Since 1995, PACFISH and INFISH have provided interim direction for management of lands administered by the BLM and Forest Service, including eight national forests within Idaho. Since 2003, for the Boise, Payette, and Sawtooth National Forests, the revised forest plans have replaced PACFISH and INFISH direction with comparable management direction for aquatic protection. Along with application of best management practices, the programmatic direction has cumulatively contributed to limitation on adverse effects of forest management on fish species and their habitats in Idaho and the interior Columbia River basin.

For much of the past decade, planning for the Forest Service's road transportation system, especially the 2001 Forest Service Roads Policy and the 2005 Travel Management Rule, has contributed to improved management of NFS roads and has reduced impacts on watersheds and aquatic resources. Over the coming year, as each Idaho national forest adopts a new travel plan that defines a system of approved roads and restricts motorized travel off roads, further improvement in watershed and aquatic conditions are likely.

More recently, expanded fuels management sparked by the Healthy Forests Initiative and the Healthy Forests Restoration Act has contributed some limited impacts on aquatic condition while reducing risk of wildland fire-associated aquatic damages in the long run. Recreation facility master planning now underway is intended to upgrade needed recreation sites while making them environmentally sound. Rehabilitating some sites while closing others would benefit nearby water and aquatic resources. Other past and upcoming plans, policies, and

directives described in appendix N are not expected to have material effects on aquatic resources in Idaho.

Impacts of Existing Management Practices

Existing management practices within and outside Idaho Roadless Areas have the potential to affect terrestrial and aquatic animal species and habitats. Land management activities such as timber harvest, road construction and maintenance, dams and diversions, livestock grazing, mining, and recreation can result in changes to vegetation composition and structure, successional processes, nutrient cycling, water quality and quantity, and habitat complexity. Other human activities related to urbanization can have dramatic effects on terrestrial and aquatic species and habitats.

Effects on terrestrial and aquatic habitats from human activities tend to be chronic disturbances rather than episodic. Native species did not evolve with chronic disturbances such as continual sediment inputs to aquatic habitats from poorly maintained roads. Species did, however, evolve and adapt to sediment inputs from events such as landslides. Human-caused impacts can be masked by natural disturbance processes such as flooding, fires, and soil mass movements. However, native species evolved with natural disturbances processes and they can often recover from these types of events, even when they appear to be catastrophic.

Idaho Roadless Areas provide areas where natural process can occur largely without human management influences. Information gained from these areas can help us to better understand cumulative effects occurring elsewhere on the landscape and their impacts on terrestrial and aquatic species and habitats.

Fire

Fire is one of the most important natural disturbances influencing the complexity and diversity of terrestrial and aquatic ecosystems (Beche et al. 2005). Fire is a part of the landscape in the western United States. Settlement, development, natural resource management, and climate variation have transformed the fire regimes, vegetation and fuel patterns, and overall functionality of western forests (Bisson et al. 2003). Despite efforts to prevent and suppress wildland fires, fire nonetheless revisits western landscapes at irregular intervals- sometimes with catastrophic effects, sometimes not (Bisson et al. 2003).

Fire poses a risk to aquatic organisms when populations are isolated or individuals are not very mobile and therefore do not have the capability to recolonize after local extirpation due to fire disturbance. Salmonids have evolved strategies to survive perturbations occurring at the frequency of wildland fire (10-100 years), but local populations of a species, especially if they are small and / or isolated, may be more ephemeral (Gresswell 1999). Perturbation associated with hydrological processes is probably the primary factor influencing postfire persistence of fishes, benthic macroinvertebrates, and diatoms in fluvial systems (Gresswell 1999). Fires can produce dramatic changes in aquatic and terrestrial ecosystems, including altered sediment and flow regimes, changes in vegetation structure and composition, fish mortality, and even local extinctions.

Fire can directly and indirectly affect aquatic and riparian communities at spatial scales ranging from microhabitats to entire watersheds (Beche et al. 2005). For many aquatic ecosystems, fire has played an important role in creating and maintaining suitable habitat at varying temporal scales (Minshall et al. 1989, Minshall 2003). Many species evolved under the influence of

recurrent fire, including stand-replacing events, and their long-term persistence relies heavily on the maintenance of important habitat components by these kinds of disturbance events.

At a landscape level, fires create and maintain habitat mosaics of different vegetation types (Mushinsky and Gibson 1991). These mosaics include a diversity of patch size, composition, and structure, as well as connectivity among patches. Smith (2000) identified the following landscape-level fire effects on terrestrial species: (1) changed availability of habitat patches and heterogeneity within them; (2) changed compositions and structures of larger areas, such as watersheds, which provide the spatial context for habitat patches; and (3) changed connections among patches. During the course of post-fire succession, all three of these landscape features are in flux.

Terrestrial and aquatic ecosystems are often referred to as separate ecosystems; however aquatic ecosystems are structured by interactions among terrestrial and aquatic processes and climate (Bisson et al. 2003). Wildfires influence hillslope erosion, stream sedimentation, and large woody debris recruitment to streams (Benda et al. 2003), Miller et al. 2003, Wondzell and King 2003). The timing and severity of erosion and sedimentation differ by geography, geology, precipitation regime, and fire regime. The dynamics of aquatic habitats are largely driven by topography, climate, and the pattern of disturbances such as fire and large storms (Bisson et al. 2003). Both aquatic and terrestrial ecosystems can benefit from disturbances such as fire. Fire is one of several disturbance processes that results in patterns of disturbance and recovery across the landscape yielding a mosaic of diverse, changing habitats and communities.

Factors Affecting Anadromous Fish

There are four anadromous fish species in Idaho: Snake River basin steelhead (threatened), Snake River spring/summer Chinook (threatened), Snake River fall-run Chinook (threatened), and Snake River sockeye salmon (endangered). Currently Idaho Roadless Areas provide some of the best habitat and strongest populations of these fish.

Human activities on Federal and non-Federal lands—including hydropower, hatcheries, harvest, and land management such as road building, grazing and recreation—have altered anadromous fish environments, leading to widespread declines (USDA Forest Service 2000r, pg. 139). Idaho Roadless Areas are key to recovery of salmon and steelhead stocks in decline, providing habitat to protect species until longer term solutions can be developed for migration, passage, hatchery, and harvest problems associated with the decline of anadromous fish (USDA Forest Service 2001). Maintaining current populations and future recovery of anadromous species in Idaho depends on reducing mortality from a variety of factors.

National Oceanic and Atmospheric Administration (NOAA) Fisheries, in partnership with Idaho's Office of Species Conservation, has begun to draft Idaho's portion of the Snake River Salmon and Steelhead Recovery Plan (USDC National Oceanic and Atmospheric Administration 2005), which is scheduled to be completed in 2008.

On April 24, 2007, the 9th circuit rejected the latest NOAA Fisheries 2004 biological opinion for Federal Columbia River operations, finding the opinion improperly determined such operations would not jeopardize the survival or recovery of eight listed salmon and steelhead species. The appellate court upheld the district court's requirement that NOAA Fisheries consult on remand with States of Idaho, Montana, Oregon, and Washington, and any Tribes involved in the litigation, in developing a new biological opinion.

Terrestrial Wildlife Conservation Strategies

There are a number of terrestrial species-specific conservation strategies and recovery plans that have been developed to direct management for the protection and conservation of threatened and endangered species. For example, the Interagency Lynx Conservation Assessment and Strategy (Ruediger et al. 2000) was developed to provide a consistent and effective approach to conservation of the Canada lynx on Federal lands in the conterminous United States. The Grizzly Bear Recovery Plan (USDI Fish and Wildlife Service 1993a) identifies actions necessary for the conservation and recovery of grizzly bears. These conservation strategies provide additional conservation benefits to TES terrestrial wildlife species.

Climate Change

Warming of the global climate is unequivocal (Independent Scientific Advisory Board [ISAB] 2007). Changes have already been observed in many species' ranges, consistent with changes in climate (ISAB 2007, Hansen et al. 2001). These changes include poleward and elevationally upward movements of many insects, birds, trees, and forbs. Future climate change many lead to fragmentation of suitable habitats that may inhibit adjustment of plants and wildlife to climate change through range shifts (ISAB 2007, Hansen et al. 2001).

Changes due to climate change and global warming could be compounded considerably in combination with other disturbances such as fire. Fire frequency and intensity have already increased in the past 50 years, and especially in the past 15 years, in the shrub steppe and forested regions of the west (ISAB 2007). Larger climate-driven fires can be expected in Idaho in the future.

Climate change is also affecting phenology (the biology of timing of organisms), involving aspects such as animal hibernation and migration. In addition, for species such as bull trout that require colder water temperatures to survive and reproduce, warmer temperatures could lead to significant decreases in available suitable habitat.

Changes in hydrology and temperature caused by changing climate have the potential to negatively affect aquatic ecosystems in Idaho, with salmonid fishes being especially sensitive. Average annual temperature increases due to increased carbon dioxide are affecting snowpack, peak runoff, and base flows of streams and rivers (Mote et al. 2005). Increases in water temperature will cause a shift in the thermal suitability of aquatic habitats for resident species (Poff et al. 2002). The intensity of effects will vary spatially. These changes will have a variety of impacts on terrestrial and aquatic habitats in Idaho.

Climate change has the potential to affect most freshwater life history stages of trout and salmon (ISAB 2007, O'Neal 2002). Increased frequency and severity of flood flows during winter can affect over-wintering juvenile fish and incubating eggs in the streambed. Eggs of fall and winter spawning fish, including Chinook, coho, chum, and sockeye salmon, and bull trout, may suffer high levels of mortality when exposed to increased flood flows (ISAB 2007). Bull trout require very cold, headwater streams for spawning (Rieman et al. 2007); therefore, warming may disproportionately affect this species.

Biodiversity

Based on current literature (Flather et al. 1999, Noss and Cooperrider 1994, Stein et al. 2000) it is possible to conclude that with or without conservation of roadless areas, biodiversity is at an increased risk of adverse cumulative effects from increased population growth and associated

land uses, land conversions, and non-native species invasions. Maintenance of roadless characteristics, however, may lessen this risk at least in the short term (20 years). By reducing the level of potential adverse impacts on roadless areas, some of the last relatively undisturbed large blocks of land outside of designated wilderness that contribute to species biodiversity would be conserved.

Conservation of roadless characteristics could have beneficial effects on biodiversity conservation at the local, regional, national forest, and national levels. There would be similar incremental beneficial effects on biodiversity conservation when any of the prohibitions is combined with past, present, and reasonably foreseeable land uses and conversions, as well as laws, regulations, policies, and non-native species invasions. The local, regional, and national cumulative beneficial effects on TES species and biodiversity could include:

- Conserving and protecting large contiguous blocks of habitat that provide habitat connectivity and biological strongholds for a variety of terrestrial and aquatic plant and animal species including TES species;
- Providing important local and regional components of conservation strategies for protection and recovery of listed TES species;
- Providing increased assurances that biological diversity would be conserved at a landscape level, including increased area of ecoregions protected, improved elevational distribution of protected areas, decreased risk of additional timber harvest and road-caused fragmentation, and maintenance and restoration of some natural disturbance processes;
- Providing increased assurance that biodiversity would be supported within Idaho Roadless Areas, including the maintenance of native plant and animal communities where non-native species are currently rare, uncommon, or absent.

The value of Idaho Roadless Areas in conserving biodiversity is likely to increase as habitat loss elsewhere increases in scope and magnitude. With these increasing trends, the importance of roadless area conservation and other laws, regulations, and policies in the management of biodiversity is also likely to increase. Whether the cumulative beneficial effects of the prohibitions and other past, present, and reasonably foreseeable actions would fully offset predicted future increases in land uses, land conversions, and non-native species invasions is difficult to assess. Yet, it is possible to conclude that without the prohibitions, there would likely be an increased risk of adverse cumulative effects to biodiversity.

Conclusions on Cumulative Effects by Alternative

As population growth and associated land uses and land conversions place pressures on both NFS and non-NFS lands, the value and importance of Idaho Roadless Areas in conserving biological diversity will probably increase. In the future, habitat loss and loss of viable animal populations may be of a magnitude such that the beneficial effects of the prohibitions and other laws, regulations, and policies relative to the conservation of native biodiversity may be lost or overwhelmed. Even under this scenario, Idaho Roadless Areas would likely still convey some beneficial effects relative to conservation of terrestrial and aquatic animal species and habitat in Idaho.

2001 Roadless Rule

Overall, the 2001 Roadless Rule—when considered with the effects of land uses; land conversions; laws, regulations, and policies; and nonnative species invasions—would be beneficial to biological diversity, including species habitats, populations, and landscape diversity. Some of the potential beneficial effects include:

- Large contiguous blocks of habitat protected by providing habitat connectivity for a variety of species that need large connected landscapes;
- Decreased risk associated with fragmentation and isolation from timber cutting, road construction / reconstruction, and discretionary minerals activities;
- Conservation and protection of biological strongholds and other important habitats for terrestrial and aquatic animals, including TES species;
- Decreased risk associated with invasive species introductions and spread;
- Maintenance of native animal communities where non-native-species are currently rare, uncommon, or absent;
- Increased assurances that biological diversity would be conserved, both within the area and the overall landscape in which it is found;
- Provision of important components of conservation strategies for protection and recovery of federally listed proposed, threatened, endangered, and NFS regional forester sensitive species; and
- Maintenance or restoration of some level of natural disturbance processes at a local level and landscape levels, which are important controls for ecosystem composition, structure, and function.

Existing Plans

Because of the permissions provided in the Existing Plans—when considered with the effects of land uses; land conversions; laws, regulations, and policies; and nonnative species invasions—Existing Plans may or may not be sufficient to provide for biological diversity, including species habitats, populations, and landscape diversity into the future. This assessment was based largely on the following cumulative effects:

- The projected increasing trends in population growth, deleterious land uses, land conversion, and non-native species invasion are likely to contribute to increased risks to biodiversity.
- It is likely that Federal, State, local, and private land laws, regulations, and policies will become more pivotal in conserving biodiversity.
- Climate changes may lead to less favorable habitat availability for some TES species, leading to more restricted ranges and some local extirpations of populations.

Proposed Idaho Roadless Rule

The Proposed Idaho Roadless Rule permissions and prohibitions—when considered with the effects of land uses; land conversions; laws, regulations and policies; and nonnative species invasions—would overall be beneficial to biological diversity, including species habitats,

populations, and landscape diversity, for the same reasons listed above under the 2001 Roadless Rule.

The Proposed Rule would provide additional protections compared to the 2001 Roadless Rule on 3.1 million acres (33 percent of Idaho Roadless Areas), because the rule prohibits road construction, reconstruction, or surface occupancy on these lands. It would provide similar protections on 5.2 million acres (56 percent of Idaho Roadless Areas), even though it would permit limited road construction / reconstruction to facilitate timber cutting to address forest health concerns and to reduce hazardous fuels that could affect communities. It would provide lesser protections on 0.6 million acres (0.6 percent of Idaho Roadless Areas); however, not every acre within the 0.6 million acres is likely to be affected.

The Proposed Rule would permit phosphate development on 20,380 acres[96] (existing and unleased lands), whereas the 2001 Roadless Rule would permit development on 7,200 acres. This difference is immeasurable, within the context of Idaho Roadless Areas as a whole. The phosphate development would potentially occur on the edges of nine roadless areas, leaving the core of the roadless areas intact. Prior to development, additional environmental study would occur and any necessary protection measures would be applied.

Modified Idaho Roadless Rule

Like the Proposed Idaho Roadless Rule, the Modified Idaho Roadless Rule would overall be beneficial to biological diversity, including species habitats, populations, and landscape diversity, for the same reasons listed above under the 2001 Roadless Rule.

Compared to the Proposed Rule, the Modified Rule would provide 101,700 more acres in the Wild Land Recreation theme, and 69,900 more acres in the Primitive theme. These changes are small percentages and would not result in discernible effects on terrestrial and aquatic resources. The Modified Rule would provide 54,200 acres more in the Backcountry theme; however, with the changes in the Modified Rule most of the Backcountry (4.87 million acres) theme would be managed in a manner similar to the 2001 Roadless Rule. In addition there would be 203,700 fewer acres in the GFRG theme, a reduction of one-third. Both the changes in the permissions and prohibitions to the Backcountry theme and the reductions in the GFRG theme could benefit terrestrial and aquatic resources locally but would not be discernible at the Statewide scale.

The Modified Rule would permit phosphate development on 5,770 acres (unleased KPLA in the GFRG theme) in addition to existing leased lands (12,570 acres total), whereas the Proposed Rule would permit development on 20,380 acres. As with the Proposed Rule, the difference is minor, within the context of Idaho Roadless Areas as a whole.

[96] 13,190 unleased plus 7,200 currently leased.

3.10 SCENIC QUALITY

CHANGES BETWEEN DRAFT AND FINAL EIS

- The analysis for the potential change in scenic integrity was changed because the draft EIS overstated the potential effects. It implied that all areas within certain themes would have a reduction in scenic integrity. The analysis in the final EIS focuses on the likely change over the next 15 years based on the projections because this better reflects the potential effects on scenic integrity.
- A discussion of the effects of the new alternative, Modified Idaho Roadless Rule was added.

INTRODUCTION

Scenery with natural-appearing landscapes enhances people's lives and benefits society (Driver et al. 1991). It is a primary reason that people choose to recreate on the NFS lands, and it contributes directly to real estate values in neighboring communities and residential areas. Scenic quality is based on two definable elements, landscape character and scenic integrity. Roadless areas inherently have high scenic quality because of the lack of human-induced disturbance.

The scenic quality of a forest is not static; it changes over time. To varying degrees, roads, timber cutting, insect infestations, and wildland fires all affect the scenic integrity of a landscape. Managers may influence the effects of natural events to some extent by managing vegetation with silvicultural and fuels treatments. The positive impacts on scenic quality resulting from reduction of the effects of these events may be offset by the negative impacts of road construction and vegetative treatments. However, wildland fire events, insect or disease infestations, landslides, and other natural events are considered a part of that landscape's natural processes. Such events and resultant landscape changes (even if visually unappealing) are consistent with High or Very High levels of scenic integrity.

All resource management activities in Idaho Roadless Areas strive to achieve long-term sustainable landscape character goals within the scenic integrity objectives identified in the land management planning process using the Scenery Management System (SMS) (USDA Forest Service 1996) or with establishment of visual quality objectives using the Visual Management System (USDA Forest Service 1974). These visual or scenic management objectives define allowable levels of change on specific land areas.

The basis for describing scenic quality is the SMS, as described in *Landscape Aesthetics*[97]. This handbook defines a system for inventory and analysis of the aesthetic values of NFS lands and replaces the old Visual Management System. The analysis evaluates how the prohibitions and

[97] *Landscape Aesthetics: A Handbook for Scenery Management* (USDA Forest Service 1996) defines high scenic quality and provides the framework for comparing alternatives and discussing cumulative effects. This workbook was the result of more than 20 years of landscape management field implementation; the work of dozens of researchers in fields such as landscape architecture, psychology, sociology, economics, and ecology; and guidance by regional and national landscape architects.

permissions for timber cutting, road construction / reconstruction, and discretionary mineral activities would affect the ability to maintain or enhance the supply of high scenic quality[98].

The SMS identifies landscape character and scenic integrity as the basis for scenic quality. Landscape character is the overall visual impression of landscape attributes that provide a landscape with an identity and sense of place; it consists of the combination of physical, biological, and cultural attributes that make each landscape identifiable and distinct. Scenic integrity is a measure of the wholeness or completeness of the landscape, including the degree of visual deviation from the landscape character valued by constituents. Scenic integrity is a continuum ranging over five levels of integrity from Very High to Very Low. The following are definitions of the five levels (USDA Forest Service 1996):

- Very High (Unaltered)—refers to landscapes where the valued landscape character is intact with only minute, if any, deviations. The existing landscape character and sense of place is expressed at the highest level.
- High (Appears Unaltered)—refers to landscapes where the valued landscape character appears intact.
- Moderate (Slightly Altered)—refers to landscapes where the valued landscape character appears slightly altered. Noticeable deviations must remain visually subordinate to the landscape character being viewed.
- Low (Moderately Altered)—refers to landscapes where the valued landscape character appears moderately altered. Deviations begin to dominate the valued landscape but they borrow valued attributes from the surrounding landscape.
- Very Low (Heavily Altered)—refers to landscapes where the valued landscape character appears heavily altered. Deviations may strongly dominate the valued landscape.

AFFECTED ENVIRONMENT

Idaho Roadless Areas generally do not carry evidence of management activities and currently have a high degree of scenic integrity. The scenic integrity of landscapes in these roadless areas is generally High or Very High, which indicates a low level of landscape modification due to a lack of high-intensity management activities in the past (USDA Forest Service 2000). However, some Idaho Roadless Areas have had extensive use including cattle grazing, off-highway vehicles, timber sales, and mining; therefore, the scenic integrity may have been modified, resulting in variable scenic integrity from Low to Very High depending on the extent, duration, and intensity of activities. Appendix C summarizes the existing characteristics for all the Idaho Roadless Areas including scenic integrity.

[98] This analysis assesses the potential for change to scenic integrity based on potential for change reflected in the various management themes or prescriptions for roadless area management. The amount of potential change is, in actuality, further constrained by the management strategy for scenic integrity objectives (SIOs) or visual quality objectives (VQOs) that are in place for each forest plan. Calculations of existing forest plan SIOs or VQOs by roadless area and management theme have not been calculated in this analysis because they are too variable and speculative for analysis at this scale and would be analyzed during site-specific project planning. As a result, the potential for change in scenic integrity is likely considerably overstated depending on the visual objectives that are in place for any given Idaho Roadless Area. This overstatement would likely be reflected in the themes of GFRG and Backcountry that show the greatest amount of potential change.

ENVIRONMENTAL CONSEQUENCES

All Alternatives

The alternatives do not affect valid existing rights. Therefore, potential effects on scenery from these rights may occur within the limits of existing forest plans. About 7,230 acres of leased phosphate deposits can be found in seven roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, Stump Creek and Mount Jefferson) on the Caribou-Targhee National Forest. About 30 acres have been mined and reclaimed; therefore, these areas exhibit a Moderate scenic value. About 1,100 acres associated with the Smoky Canyon Mine expansion are reasonably foreseeable to be developed within the next 15 years. The Smoky Canyon Mine expansion would affect the Sage Creek and Meade Peak Roadless Areas.

It is also reasonable to assume that the remaining phosphate deposits currently under lease, roughly 6,100 acres within the seven roadless areas, would likely be permitted and developed sometime in the extended future (50 or more years). As these areas are mined, their scenic value would be reduced to Low (table 3-58; see also fig. 3-18, open pit, in section 3.5, Minerals and Energy); however, upon the completion of mining their scenic values would be upgraded to a level commensurate with the quality of reclamation implemented (see fig. 3-19, reclaimed phosphate pit).

Table 3-58. Potential for change in scenic integrity under all alternatives from existing phosphate leases

Roadless area management	Current acres in High to Very High scenic integrity	Acres maintained in High to Very High scenic integrity	Acres potentially reduced to Low scenic integrity[1]
All alternatives	9,304,300	9,297,100	7,200

[1]*Acres associated with existing phosphate leasing on the Caribou-Targhee National Forest.*

2001 Roadless Rule (No Action)

The 2001 Roadless Rule is anticipated to maintain the current high levels of scenic integrity in the roadless areas. The 2001 Roadless Rule would allow road construction under limited situations. About 15 miles of road construction / reconstruction are projected to occur over the next 15 years. It is anticipated that the amount of change from such new road construction would have a negligible change on the current High and Very High scenic integrity in most roadless areas. In those few areas where roads are constructed, the scenic integrity could change from High to Low or Moderate. It is likely these changes would occur on the fringe of a roadless area.

The 2001 Roadless Rule would allow limited cutting of small-diameter material for specific purposes. About 9,000 acres are anticipated to be treated over the next 15 years. The intensity of change associated with such activities is not expected to create a measurable change in scenic integrity, though there could be minor localized effects. The magnitude or amount of area per project that would potentially be affected is also considered to be relatively minor, typically several hundred acres or less. Vegetation management would result in short-term changes in scenic quality. However, the amount and types of timber cutting allowed would enhance vegetative health and reduce fuel loading, thereby providing protection from pests, insects, diseases, and large fires. Over the long term, scenic integrity could be maintained or improved with these activities (USDA Forest Service 2000, p. 3-229). Based on the anticipated intensity and magnitude of change from potential vegetation management, it is anticipated that the most of

the current High and Very High scenic integrity within all Idaho Roadless Areas would be retained (table 3-59).

Vegetation management is anticipated to be limited because of road construction limitations and limitations on small-diameter tree cutting, both elements rendering vegetation management to be costly and of low economic value. Such vegetation management is anticipated to be minimal and would retain the High scenic integrity of the areas.

Under the 2001 Roadless Rule, road construction / reconstruction to access new mineral leases is prohibited, and surface use and occupancy are permitted. However, without road access it is unlikely new leases would be developed; therefore, there would be no change to scenery resources.

Table 3-59. Potential for change in scenic integrity under the 2001 Roadless Rule

Theme	Acres maintained in High to Very High scenic integrity	Acres of projected change to High or Moderate scenic integrity from timber cutting or road construction/ reconstruction	Acres of projected changed to Moderate or Low scenic integrity from phosphate mining over the long-term	Acres potentially reduced to Low scenic integrity[2]
Total all Roadless Areas	8,960,900[1]	9,000	0	7,200

[1]An additional 334,500 acres in Idaho Roadless Areas are in wild and scenic rivers or other special designations and would not be affected by the management direction. Scenic integrity in these areas would remain High to Very High.

[2]Acres associated with existing phosphate leasing on the Caribou-Targhee National Forest.

Existing Plans

The potential effects on scenic quality vary according to the overall management prescriptions or themes assigned to a given Idaho Roadless Area. Appendix B describes each management prescription and how the prescriptions correspond to an equivalent theme. Table 3-60 presents potential for change in scenic integrity under the Existing Plans.

Table 3-60. Potential for change in scenic integrity under the Existing Plans

Theme	Acres maintained in High to Very High scenic integrity	Acres of projected change to High or Moderate scenic integrity from timber cutting or road construction/ reconstruction	Acres of projected changed to Moderate or Low scenic integrity from phosphate mining over the long-term	Acres potentially reduced to Low scenic integrity[2]
Total all Roadless Areas	8,915,780[1]	40,500	13,620	7,200

[1] An additional 334,500 acres in Idaho Roadless Areas are in wild and scenic rivers or other special designations and would not be affected by the management direction. Scenic integrity in these areas would remain High to Very High.

[2]Acres associated with existing phosphate leasing on the Caribou-Targhee National Forest.

Management prescriptions similar to Wild Land Recreation (1,320,500 acres) are likely to retain their High to Very High scenic integrity because limited activity is permitted to occur in these areas. Generally natural processes dominate. Prescriptions similar to Primitive (1,904,100 acres) generally prohibit road construction and permit very limited timber cutting; therefore, these areas are also likely to retain their High to Very High scenic integrity (table 3-56).

Management prescriptions similar to Backcountry (4,482,000 acres) generally permit road construction / reconstruction for a few purposes and timber cutting generally to improve wildlife or other important habitat components. Typically the actions allowed (prescribed fire, thinning, fuels reduction) might result in a change from Very High to High or High to Moderate. In GFRG areas, road construction and reconstruction are permissible, as is timber cutting for a variety of purposes. About 105 miles of road are projected to be constructed and 75 miles reconstructed over the next 15 years, and timber cutting is projected to occur on 40,500 acres.

Scenic quality could be reduced in areas where road construction / reconstruction occurs, especially in the 1.26 million acres of GFRG. In areas with prescriptions similar to the Backcountry theme, it is likely that scenic quality would not be reduced as much because these prescriptions generally encourage the use of temporary roads (short-term impact) and retention of more trees because of wildlife considerations. There may be some beneficial effects on scenic quality from silvicultural and fuels treatments that reduce the potential magnitude of natural events such as insect infestations and wildland fires. Also, potential effects would be moderated because of priority treatment of hazardous fuels around communities and by applying SIOs and VQOs from forest plans.

The Caribou Forest Plan permits leasing of the estimated 6,750 acres[99] of known unleased phosphate deposits and / or other possible roadless areas that contain undiscovered phosphate resources. These known unleased phosphate deposits occur in six roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek) and would likely be developed over an extended period of time (50 years or more).

In addition, there are 6,870 acres of unleased phosphate deposits on the Targhee portion of the Caribou-Targhee National Forest within the Bald Mountain, Bear Creek, and Poker Creek Roadless Areas. An environmental analysis would have to be completed to determine how much of the 6,870 acres could actually be leased[100]. At present there is no commercial interest in these areas.

If these areas are mined (over the next 50 or more years), their scenic value would be reduced to Low; however, upon the completion of mining their scenic values would be upgraded to a level commensurate with the quality of reclamation implemented.

Existing Plans would permit road construction / reconstruction for geothermal development in some locations in management prescriptions similar to Backcountry and GFRG. It is unknown where and to what degree geothermal resources would be developed; however, since about half of the roadless areas in management prescriptions similar to Backcountry and GFRG have high to moderate potential it is likely some development would eventually occur. Currently lease applications have been submitted for geothermal exploration within 7,000 acres of the Peace Rock Roadless Area on the Boise National Forest and 33 acres of the West Panther Roadless Area on the Salmon National Forest. If fully developed, roads, transmission lines, and other

[99] About 900 acres in the Sage Creek Roadless Area are recommended for no surface use or occupancy (section 3.5, Minerals and Energy).

[100] If all 13,620 acres were developed then based on past history, phosphate mining could occur on an additional 1,910 acres around unleased KPLAs on the Caribou-Targhee National Forest (see section 3.5, Minerals and Energy).

facilities would likely be constructed (see appendix I for a description of general development of geothermal resources), which would reduce the scenic integrity of the roadless areas affected.

Proposed Idaho Roadless Rule (Proposed Action)

The potential effects on scenic quality vary according to the overall management theme assigned to a given roadless area (appendix E). Road construction / reconstruction is prohibited in the Wild Land Recreation, Primitive, and SAHTS themes; and timber cutting is permitted under limited circumstances in the Primitive and SAHTS themes; therefore, scenic integrity would be maintained at the High to Very High levels (table 3-61).

Table 3-61. Potential for change in scenic integrity under the Proposed Idaho Roadless Rule

Theme	Acres maintained in High to Very High scenic integrity	Acres of projected change to High or Moderate scenic integrity from timber cutting or road construction/ reconstruction	Acres of projected changed to Moderate or Low scenic integrity from phosphate mining over the long-term[1]	Acres potentially reduced to Low scenic integrity[3]
Wild Land Recreation	1,378,000	--	0	
Primitive	1,652,800	--	0	1,140
SAHTS	70,700	--	0	
Backcountry	5,252,050	--	6,750	1,570
GFRG	603,170[2]	--	6,440	4,520
Total	**8,938,720**	**18,000**	**13,190**	**7,200**

[1] *About 1,280 acres of known unleased phosphate deposits are in Primitive and would not be developed because road construction/reconstruction is not allowed. About 13,190 acres of unleased phosphate areas could be developed over an extended period of time.*

[2] *An additional 334,500 acres in Idaho Roadless Areas are in wild and scenic rivers or other special designations and would not be affected by the management direction. Scenic integrity in these areas would remain High to Very High.*

[3] *Acres associated with existing phosphate leasing on the Caribou-Targhee National Forest. 30 acres already mined out*

Limited timber cutting and road construction would be permissible in the Backcountry theme, primarily to restore ecosystems and reduce the effects of uncharacteristic and unwanted wildland fires. Road construction / reconstruction and timber cutting would be permissible in GFRG. About 38 miles of road are projected to be constructed and 23 miles reconstructed over the next 15 years, and timber cutting is projected to occur on about 18,000 acres over the next 15 years.

The Proposed Idaho Roadless Rule encourages any necessary new roads to be temporary in nature. Any roads constructed would likely reduce the scenic integrity; however, if they are temporary, these roads would revegetate over time and the scenic integrity would improve. Timber cutting in the Backcountry theme must maintain at least one or more of the roadless area characteristics. It is assumed that any timber cutting would be light on the land and focus on what is left rather than what is taken. Typically the actions allowed (prescribed fire, thinning, fuels reduction) might result in a change from Very High to High or High to Moderate. Timber cutting could modify scenic integrity at least in the short term in the Backcountry and GFRG themes, but is assumed to maintain at least a moderate level of scenic quality given the requirements of the theme. It is likely that cutting would be spread across

multiple roadless areas across the State, thus reducing the potential change in any one Idaho Roadless Area. Also, potential effects would be moderated because of priority treatment of hazardous fuels around communities and by applying SIOs and VQOs from forest plans.

There are 14,460 acres of known unleased phosphate deposits on the Caribou-Targhee NF. About 13,190 acres[101] (91 percent) are located within the Backcountry and GFRG themes. Under these themes road construction or reconstruction would be permissible to develop these phosphate deposits.

These deposits are located within nine roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek on the Caribou portion of the forest and Bald Mountain, Bear Creek, and Poker Creek on the Targhee portion of the forest) and could eventually be mined over an extended period of time (50 or more years). As these areas are mined, their scenic values would be gradually changed to a level commensurate with the quality of reclamation implemented (see fig. 3-19, reclaimed mine, in section 3.5, Minerals and Energy).

About 1,280 acres of unleased phosphate deposits are in the Primitive theme. The Primitive theme prohibits road construction / reconstruction or surface occupancy for phosphates; therefore, this area would likely not be developed (see section 3.5, Minerals and Energy). Scenic quality would not be affected on these lands.

The Proposed Rule would also permit road construction / reconstruction for geothermal development in the GFRG theme (609,600 acres). It is unknown where and to what degree geothermal resources would be developed; however, about 7 percent of the roadless areas are located in GFRG and 4 percent (382,400 acres) have slopes less than 40 percent (see section 3.5, Minerals and Energy, table 3-24). It is likely that some development would eventually occur on these lands. If fully developed, roads, transmission lines, and other facilities would likely be constructed (see appendix I for a descriptions of general development of geothermal resources). This development would reduce the scenic quality on these lands; however, no information is available of where or when such development would occur. Site-specific analysis would be completed prior to authorizing exploration and development.

Currently lease applications have been submitted for geothermal exploration within 7,000 acres of the Peace Rock Roadless Area on the Boise National Forest and 33 acres of the West Panther Roadless Area on the Salmon National Forest. However, lands in these roadless areas are in the Backcountry or Primitive themes; therefore, development would be prohibited and there would be no effect on scenic quality.

Modified Idaho Roadless Rule (Preferred Alternative)

The Modified Idaho Roadless Rule is similar to the Proposed Rule but has fewer potential adverse effects on scenery resources. The potential effects on scenic quality vary according to the overall management theme assigned to a given roadless area (appendix E). Road construction / reconstruction is prohibited in the Wild Land Recreation, Primitive, and SAHTS themes and limited to temporary roads only in Backcountry; and timber cutting is permitted under limited circumstances in the Primitive and SAHTS themes; therefore, scenic integrity would be maintained at the High to Very High levels (table 3-62).

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[101] Based on past history, phosphate mining could occur on an additional 1,850 acres around unleased KPLAs on the Caribou-Targhee National Forest (see section 3.5, Minerals and Energy).

Table 3-62. Potential for change in scenic integrity under the Modified Idaho Roadless Rule

Theme	Acres maintained in High to Very High scenic integrity	Acres of projected change to High or Moderate scenic integrity from timber cutting or road construction/ reconstruction	Acres of projected changed to Moderate or Low scenic integrity from phosphate mining over the long-term[1]	Acres potentially reduced to Low scenic integrity[3]
Wild Land Recreation	1,479,700	--	--	
Primitive	1,722,700	--	--	1,140
SAHTS	48,600	--	--	
Backcountry	5,312,300	--	--	40
GFRG	400,830	--	5,770	6,050
Total	**8,949,130[2]**	**15,000**	**5,770**	**7,200**

[1]*About 1,280 acres of known unleased phosphate deposits are in Primitive and 6,430 acres in the Backcountry theme and would not be developed because road construction/reconstruction is not allowed. About 5,770 acres of unleased phosphate deposits in the GFRG theme could be developed over an extended period of time. Note: there are an additional 910 acres of known phosphate deposits in the Bear Creek Roadless Area in the GFRG theme, but road construction/reconstruction is not permitted to access these unleased deposits.*

[2]*An additional 334,500 acres in Idaho Roadless Areas are in wild and scenic rivers or other special designations and would not be affected by the management direction. Scenic integrity in these areas would remain High to Very High.*

[3]*Acres associated with existing phosphate leasing on the Caribou-Targhee National Forest. 30 acres already mined out*

The Proposed Rule was modified to permit road construction / reconstruction only in the Backcountry theme in the community protection zone (CPZ) or for projects designed to reduce the significant risk of wildland fire to communities or municipal water supply systems. About 442,000 acres are in the CPZ in the Backcountry theme. Timber cutting outside these areas would primarily use existing roads or aerial systems. Road construction / reconstruction and timber cutting would be permissible in GFRG. About 33 miles of road are projected to be constructed and 17 miles reconstructed over the next 15 years, and timber cutting is projected to occur on about 15,000 acres over the next 15 years.

The Modified Rule requires any necessary new roads to be temporary in nature except in the GFRG theme. Any roads constructed would likely reduce the scenic integrity; however, if they are temporary, these roads would revegetate over time and the scenic integrity would improve. Timber cutting outside the CPZ in the Backcountry theme must maintain at least one or more of the roadless area characteristics. Even for activities within the CPZ, as well as outside it is assumed that any timber cutting would be light on the land and focus on what is left rather than what is taken. Typically the actions allowed (prescribed fire, thinning, fuels reduction) might result in a change from Very High to High or High to Moderate. Timber cutting could modify scenic integrity at least in the short term in the Backcountry and GFRG themes, but is assumed to maintain at least a moderate level of scenic quality given the requirements of the theme. It is likely that cutting would be spread across multiple roadless areas across the State, thus reducing the potential change in any one Idaho Roadless Area. Also, potential effects would be moderated because of priority treatment of hazardous fuels around communities and by applying SIOs and VQOs from forest plans.

There are 14,460 acres of known unleased phosphate deposits on the Caribou-Targhee National Forest. Under the Modified Rule, road construction / reconstruction is permitted only to access

unleased deposits in the GFRG theme. There are about 5,770 acres[102] (40 percent) located within the GFRG theme.

These deposits are located within six roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek on the Caribou portion of the forest) and could eventually be mined over an extended period of time (50 or more years). As these areas are mined, their scenic values would be gradually changed to a level commensurate with the quality of reclamation implemented (see fig. 3-19, reclaimed mine, in section 3.5, Minerals and Energy).

About 8,690 acres of unleased phosphate deposits are in the Primitive, Backcountry and GFRG theme in the Bear Creek, Bald Mountain, and Poker Peak Roadless Areas. Road construction and reconstruction would be prohibited to access these deposits. Without road access it is unlikely these deposits would be developed (see section 3.5, Minerals and Energy); therefore there would be no effect on the scenic quality found in these areas.

Under the Modified Rule, road construction / reconstruction is prohibited in all themes to access other new mineral leases such as geothermal or oil and gas. Surface use and occupancy would be permitted in the GFRG and Backcountry themes if allowed in the forest plans. With the lack of road access it is unlikely new leases would be developed; therefore, there would be no change to scenery resources.

CUMULATIVE EFFECTS

The roadless area management themes for the alternatives apply only to roadless areas in Idaho. Effects on scenic integrity would be confined to those roadless areas. The cumulative effects analysis area consists of the network of roadless areas within the State of Idaho consisting of 9,304,300 acres.

Programmatic actions described in appendix N would have no effect on scenic integrity because these actions do not prescribe or identify site-specific actions. The National Fire Plan, Healthy Forests Initiative, Healthy Forests Restoration Act, and Energy Plan describe actions necessary to meet their objectives, but they do not dictate where the actions would occur. The analysis above projected activities that could occur in response to these policies, including timber cutting and discretionary mineral development.

2001 Roadless Rule (No Action)

Past actions and events have shaped the current landscape. The current High to Very High scenic integrity is a reflection of the low level of active management in these areas. It is anticipated that current or planned actions and foreseeable future actions occurring within the roadless areas would generally retain the current High to Very High scenic quality designations. The potential for cumulative effects on scenic integrity is limited by the requirements of the 2001 Roadless Rule; as a result, the cumulative effects are the same as the environmental consequences described in the previous section.

[102] Based on past history, phosphate mining could occur on an additional 810 acres around unleased KPLAs on the Caribou-Targhee National Forest (see section 3.5 Minerals and Energy).

Existing Plans

The roadless area management prescriptions for Existing Plans are a direct reflection of those management prescriptions for the affected Idaho Roadless Areas. Effects on scenic integrity would be as disclosed in those final EISs associated with those plans and in the analysis in the previous section. Cumulatively, scenic integrity is likely to be reduced on a total of 20,820 acres in nine roadless areas because of phosphate mining currently under lease and areas with the potential to be leased. Additional areas may also be affected within management prescriptions similar to the Backcountry and GFRG themes associated with long-term development of geothermal energy.

Proposed Idaho Roadless Rule (Proposed Action)

Past actions and events have shaped the current landscape. The current High to Very High scenic integrity designation is a reflection of the low level of active management in these areas. Future actions would be guided by the management themes for this alternative, and by existing plan and handbook direction. Cumulatively, scenic integrity is likely to be reduced on 20,390 acres in nine roadless areas because of phosphate mining currently under lease and areas with the potential to be leased. Additional areas may also be affected within the GFRG theme associated with long-term development of geothermal energy. Because proposed activities are limited in extent and spread across the State, cumulative effects are expected to be non-significant and the same as those described in the environmental consequences section.

Modified Idaho Roadless Rule (Preferred Alternative)

Past actions and events have shaped the current landscape. The current High to Very High scenic integrity designation is a reflection of the low level of management activities in these areas. Future actions would be guided by the management themes for this alternative, and by existing plan and handbook direction. Cumulatively scenic integrity is likely to be reduced on 12,970 acres in seven roadless areas because of phosphate mining currently under lease and areas with the potential to be leased. No additional areas would be affected within the GFRG theme associated with long-term development of oil and gas or geothermal energy because of the prohibition for road construction. Because proposed activities are limited in extent and spread across the State, cumulative effects are expected to be non-significant and the same as those described in the environmental consequences section.

3.11 RECREATION

CHANGES BETWEEN DRAFT AND FINAL EIS

- A discussion of the effects of the new alternative, Modified Idaho Roadless Rule was added.
- Existing ski areas (Pebble Creek, Bald Mountain, and Lost Trail) within Idaho Roadless Areas and the lift-serve expansion approved in concept in the master development plan for Brundage ski area are placed into forest plan special areas in the Proposed and Modified Rules.

INTRODUCTION

Idaho Roadless Areas often provide outstanding dispersed recreation opportunities, such as camping, canoeing, cross-country skiing, fishing, hiking, hunting, picnicking, and wildlife viewing. The recreation analysis evaluates the potential environmental consequences to dispersed recreation, including the ability to provide Primitive, Semi-Primitive Non-Motorized, and Semi-Primitive Motorized classes of recreation and the potential changes to those classes. The analysis also evaluates the potential consequences on developed recreation and recreation special uses.

Many definitions of recreation exist, each emphasizing a slightly different aspect of an enjoyable pursuit. The basic premise behind recreation is the pleasurable and constructive use of one's spare time. This sense of refreshment, relaxation, and the active pursuit of pleasure are realized through participation in recreational activities suited to individual preference. The top five activities pursued on NFS lands are viewing natural features, general relaxation, hiking, viewing wildlife, and driving for pleasure (USDA Forest Service 2004e).

This analysis uses the recreation opportunity spectrum (ROS) as the basis for analyzing the effects and evaluating the possible changes to Idaho Roadless Areas available for dispersed recreation, developed recreation, and special uses. The disclosed environmental consequences are based on factors such as trends in recreation use; the prohibitions and permissions for timber cutting, road construction / reconstruction, and discretionary mineral activities; and the availability of future Idaho Roadless Areas to meet growing future demands.

The ROS provides a framework for stratifying and defining classes of outdoor recreation environments, activities, and experience opportunities. The ROS is divided into six classes arranged along a continuum: Primitive, Semi-Primitive Non-Motorized, Semi-Primitive Motorized, Roaded Natural, Rural, and Urban (USDA Forest Service 1986). The basic assumption underlying the ROS is that quality outdoor recreation is assured by providing a diverse set of opportunities.

Definitions of the ROS classes[103] are as follows:

Primitive—an area that is essentially an unmodified natural environment of large size. Interaction between users is very low and evidence of other users is minimal. The area is managed to be essentially free from evidence of human-induced restrictions and controls. Motorized use within the area is not permitted.

Semi-Primitive Non-Motorized (SPNM)—an area that has a predominantly natural or natural-appearing environment of moderate to large size. Interaction between users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but they are subtle. Motorized use is not permitted.

Semi-Primitive Motorized (SPM)—an area that has a predominantly natural or natural-appearing environment of moderate to large size. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present but is subtle. Motorized use is permitted.

Roaded Natural—an area that has predominantly natural-appearing environments with moderate evidences of the sights and sounds of humans. Such evidences are usually in harmony with the natural environment. Interaction between users may be low to moderate, but evidence of other users is prevalent. Resource modification and practices are evident but harmonize with the natural environment. Conventional motorized use is provided for construction standards and facilities design.

Rural — an area with a substantially modified natural environment. Sights and sounds of humans are readily evident, and the interaction between users is moderate to high. A considerable number of facilities are designed for use by large numbers of people. Facilities for intensified motorized use and parking are available.

Urban —a substantially urbanized environment, although the background may have natural-appearing elements. Affiliation with individuals and groups is prevalent, as is the convenience of sites and opportunities. Large numbers of users can be expected, both on-site and in nearby areas. Facilities for highly intensified motor vehicle use and parking are available. Regimentation and controls are obvious and numerous.

When compared with characteristics of Idaho Roadless Areas, ROS classes Primitive, SPNM, and SPM are most representative of the outdoor recreation environments, activities, and experience opportunities available. However, some portions of Idaho's roadless areas may provide more of a Roaded Natural environment because of the presence of existing roads and users.

Dispersed recreation is generally associated with activities that do not require constructed facilities (except for trails). Non-motorized activities (such as hiking, biking, and backcountry skiing) and motorized activities (such as snowmobiling and off-highway vehicle (OHV) use) best represent dispersed recreation; thus, dispersed recreation is generally associated with Primitive, SPNM, and SPM ROS classes.

[103] The ROS classes should not be confused with the themes, as the themes do not address motorized use. Motorized use decisions are made through forest plans and / or travel planning and is currently allowed in some themes.

Developed recreation is typically associated with developed or modified settings, generally in SPM, Roaded Natural, Rural, and Urban ROS classes; it includes camping in constructed campgrounds, developed opportunities for OHV use, and downhill skiing at a resort.

Special use permits generally authorize a broad range of commercial recreational activities, both motorized and non-motorized, in dispersed and developed settings. Special use permits are issued for almost every type of outdoor recreational activities and can occur in every ROS class setting from Primitive to Urban.

DISPERSED RECREATION: AFFECTED ENVIRONMENT

Idaho Roadless Areas provide outstanding opportunities for dispersed recreation activities, such as hiking, camping, horseback riding, picnicking, wildlife viewing, cross-country skiing, and canoeing.

Much of the dispersed recreational value of Idaho Roadless Areas lies in their unique Primitive, SPNM, and SPM recreation opportunities. They provide settings for dispersed recreational activities that are prohibited in designated wilderness areas and not readily available in developed or modified settings with system roads. For example, wilderness areas prohibit, with few exceptions, mechanical forms of transport and motorized uses such as OHVs, mountain bikes, and snowmobiles. Wheelchair or handicapped access is very limited. In addition, Idaho Roadless Areas generally have a low level of human-induced change. However, some Idaho Roadless Areas have had extensive use including cattle grazing, OHVs, timber sales, and mining; therefore, these roadless areas provide a different type of dispersed recreation (see appendix C).

Viewing natural features, general relaxation, hiking, and viewing wildlife, which are four of the top five activities pursued on NFS lands (USDA Forest Service 2004e) are generally associated with dispersed recreation. The demand for Primitive, SPNM, and SPM classes and dispersed recreation opportunities is increasing (Cordell et al. 1999a and b).

Idaho Roadless Areas provide some of the most productive fishing and hunting opportunities in the United States (Curley et al. 2004). They also provide quality and critical habitat for Chinook salmon, steelhead, and cutthroat trout, which are popular recreational fishing species. The highest success rates for both deer and elk hunters Statewide (Curley et al. 2004, IDFG 2005) can be found in Idaho Roadless Areas. While hunting and fishing can occur in areas managed for the more developed end of the ROS class spectrum, they typically provide a much different setting and experiences and in many cases result in a lower success rates.

DISPERSED RECREATION: ENVIRONMENTAL CONSEQUENCES

All Alternatives

Effects from road construction/ reconstruction. Road construction / reconstruction can change dispersed recreation settings by changing the appearance and level of activity in an area. If the construction / reconstruction occurs in a Roaded Natural setting, then the level of change could be minor because the area already has moderate levels of the sights and sounds of humans. If the construction / reconstruction occurs in a SPM setting, then the effects would depend on the type and extent of disturbance. For example, if temporary roads were constructed, then the change in setting may be temporary in nature; sights and sounds would be evident during the activity but would decrease over time as recovery / revegetation of the road occurs. If roads

were constructed or reconstructed in SPMN, then the change in the dispersed recreation experience could be more long-lasting and evident.

Timber cutting. Timber cutting would not change the dispersed recreation opportunities within an area; however, timber cutting could change the natural appearance of an area until the area regenerates. The changes to the appearance of an area depend on the extent and intensity of the timber cutting. For example, even-aged management such as clearcutting 50 acres would change the natural-appearing landscape because all trees are removed and a large opening is created. Uneven-aged management, such as group shelterwoods, may remove all trees within small areas (1 or 2 acres) and thin the surrounding area, resulting in a natural-appearing environment (see section 3.2 Vegetation and Forest Health, fig. 3-8). Thinning or fuels reduction activities may open standing vegetation and allow greater accessibility for walking, hunting, and other movement through an area of treatment. Some cutting may actually enhance recreation opportunity by creating openings, establishing edges attractive for wildlife viewing, and improving sight distances. Intensive treatments that change the natural appearance of the area could have an adverse effect on the satisfaction of the recreation experience in the treatment area, but because the expected size of treatment areas is expected to be small it is not likely to affect the overall recreation setting or experience since dispersed recreation activities usually involve large tracts of land and long distances.

Existing mineral and energy leases. None of the alternatives would prohibit road construction or reconstruction associated with developing existing leases. About 7,230 acres of phosphate deposits can be found in seven roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, Stump Creek and Mount Jefferson) and are under existing lease. About 30 acres have been mined to date. About 1,100 acres associated with the Smoky Canyon Mine expansion are reasonably foreseeable to be developed within the next 15 years. The Smoky Canyon Mine expansion would affect the Sage Creek and Meade Peak Roadless Areas. Dispersed recreation opportunities would likely be excluded from these 1,100 acres during the development and operation of the mine.

It is also reasonable to assume that the remaining phosphate deposits currently under lease, roughly 6,100 acres within the seven roadless areas, would likely be permitted and developed sometime in the extended future (50 or more years). As these areas are developed, recreational opportunities would be excluded until the sites are reclaimed.

Dispersed OHV use. About 2,000 miles of road exist in Idaho Roadless Areas, some of which were created by OHV users. Dispersed OHV use is guided by Existing Plan direction and travel planning. Neither the 2001 Roadless Rule, the Proposed Idaho Roadless Rule, nor the Modified Rule provide direction on where and when OHV use would be permissible in roadless areas; therefore, there would be no effect on current OHV use in Idaho Roadless Areas.

2001 Roadless Rule (No Action)

The 2001 Roadless Rule prohibits road construction and reconstruction in Idaho Roadless Areas (9.3 million acres) except under very limited circumstances. The limited road construction and reconstruction could change the dispersed recreation opportunities within a given area of treatment, but there would be little expected change across the broader landscape. Although all 9.3 million acres would be available for development, it is unlikely all areas would be roaded because of the very limited exceptions for road construction and reconstruction. About 12 miles of road are projected to be constructed and 3 miles reconstructed over the foreseeable future

(next 15 years). Roads are most likely to be constructed / reconstructed in areas previously roaded (Roaded Natural) or in SPM because these areas are generally the closest to the edge of boundary of roadless area, and because these ROS classes allow for motorized use. This level of disturbance would not measurably change the dispersed recreation opportunities in any given area.

The 2001 Roadless Rule prohibits timber cutting, with a few exceptions. Generally timber cutting would retain roadless characteristics and would be natural-appearing, especially after a couple of years when the vegetation has regrown. Timber cutting is projected to occur on about 9,000 acres over the next 15 years. This level of activity would not measurably alter roadless area characteristics, especially over time.

The 2001 Roadless Rule also prohibits road construction and reconstruction associated with new mineral and energy leases. About 14,460 acres of known phosphate deposits are currently not leased and would not be developed; road access would also not be provided for geothermal development. These areas would retain their roadless characteristics and provide dispersed recreation opportunities.

Idaho Roadless Areas would continue to provide excellent habitat for wildlife and fisheries; therefore, hunting and fishing opportunities would continue.

Existing Plans

Under Existing Plans, road construction / reconstruction, timber cutting, and discretionary mineral activities are generally not permitted on about 3.22 million acres of Idaho Roadless Areas. These areas include management prescriptions similar to the Wild Land Recreation and Primitive themes. Some timber cutting could occur in the Primitive theme but would likely not be done to a degree that would change the roadless character.

About 4.48 million acres are in management prescriptions similar to the Backcountry theme; generally some level of road construction / reconstruction and timber cutting is permitted (appendix B). About 1.26 million acres are in management prescriptions similar to the GFRG theme. About 105 miles of road are projected to be constructed and 75 miles reconstructed over the next 15 years, and timber cutting is projected to occur on 40,500 acres. Most of the activity would likely occur in the GFRG areas, with lesser amounts in Backcountry. This level of road construction / reconstruction could change dispersed recreation opportunity settings in some areas from a SPM to Roaded Natural; however, if roads are decommissioned after use then the change would be more temporary in nature. Additional, projected road decommissioning would result in no net increase in roads over the next 15 years (section 3.4, Road Construction / Reconstruction, table 3-17).

Timber cutting on 40,500 acres over 15 years may change the natural appearance of some areas for a period of time until the area regenerates. The type of cutting would depend on the Existing Plan prescriptions and visual quality requirements (section 3.10, Scenic Quality). Based on this level of cutting, less than 1 percent of the roadless areas would be affected over 15 years. The activities associated with this timber cutting and road construction have the most likelihood of changing the recreation setting of all the alternatives because the emphasis for management would be multiple-use oriented rather than protection of roadless values. However, because these activities are widely distributed around the State, dispersed recreation opportunities would not materially change, although the feeling of remoteness and solitude could change for a period of time in the area of activity.

The Caribou Forest Plan permits leasing of the estimated 6,750 acres of known unleased phosphate deposits and/or other possible roadless areas that contain undiscovered phosphate resources. The known unleased phosphate deposits occur in six roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek) and would likely be developed over an extended period of time (50 years or more). In addition, there are 6,870 acres of unleased phosphate deposits on the Targhee portion of the Caribou-Targhee National Forest within the Bald Mountain, Bear Creek, and Poker Creek Roadless Areas. An environmental analysis would have to be completed to determine how much of the 6,870 acres could actually be leased. It is likely to take an extremely long time to develop these sites (50 or more years), but if they are developed then dispersed recreation opportunities would not be available on these areas. Based on past history, phosphate mining could occur on an additional 1,910 acres around unleased KPLAs (see section 3.5, Minerals and Energy).

Existing Plans would permit road construction/reconstruction for geothermal development in some locations in management prescriptions similar to Backcountry and GFRG (appendix B). It is unknown where and to what degree geothermal resources would be developed[104]; however, because about half the Idaho Roadless Areas in these themes have high to moderate potential for geothermal resources, it is likely that some development would eventually occur. Currently lease applications have been submitted for geothermal exploration, which could affect about 7,000 acres of the Peace Rock Roadless Area on the Boise National Forest and 33 acres of the West Panther Roadless Area on the Salmon National Forest. If fully developed, roads, transmission lines, and other facilities would likely be constructed (see appendix I for a description of general development of geothermal resources), which would change the type of dispersed recreation opportunities of the roadless areas affected. Site-specific analysis would be conducted prior to any geothermal exploration or development.

Hunting and fishing opportunities could be affected in locations where phosphate or geothermal development occurs because of the level of disturbance associated with these activities. Hunting and fishing opportunities likely would not change in areas where timber cutting and associated road construction occurs because of the dispersed nature of these activities, recovery of vegetative conditions, and use of temporary roads.

Proposed Idaho Roadless Rule (Proposed Action)

Under the Proposed Idaho Roadless Rule, timber cutting, road construction/reconstruction, and discretionary mineral activities would generally not be permitted on about 3.1 million acres of Idaho Roadless Areas. These areas include the Wild Land Recreation, SAHTS, and Primitive themes. Some timber cutting could occur in the Primitive theme but would likely not be done to a degree that would change the roadless character. The magnitude and extent of treatments in these themes would not likely affect the recreation setting.

About 5.25 million acres are in the Backcountry theme, where road construction/ reconstruction and timber cutting are permissible under limited exceptions. About 0.6 million acres are in the GFRG theme. About 38 miles of road are projected to be constructed and 23 miles reconstructed over the next 15 years, and timber cutting is projected to occur on 18,000 acres. Most of the activity would likely occur in the GFRG theme, with lesser amounts in Backcountry. This level of road construction/reconstruction could change dispersed recreation opportunity settings in

[104] See section 3.5, Minerals and Energy, for further information.

some areas from a SPM to Roaded Natural; however, if roads are decommissioned after use then the change would be more temporary in nature. Projected road decommissioning would result in no net increase in roads over the next 15 years (section 3.4, Road Construction / Reconstruction, table 3-17). The Proposed Rule would require the use of temporary roads unless there is specific reason to warrant a permanent road.

Timber cutting on 18,000 acres over 15 years may change the natural appearance of some areas for a period of time until the area regenerates. Under the Proposed Rule, timber cutting would be done only for ecosystem restoration or fuels management, with the intent of focusing on what is left, not what is removed. Based on this level of cutting, less than a half of 1 percent of the roadless areas would be affected over 15 years. Dispersed recreation opportunities would not change as a result of timber cutting but the feeling of remoteness and solitude may change in some locations for a period of time.

There are 14,460 acres of known unleased phosphate deposits on the Caribou-Targhee National Forest. About 13,190 acres (91 percent) are located within the Backcountry and GFRG themes. Under these themes road construction or reconstruction would be permissible to develop these phosphate deposits[105].

These deposits are located within nine roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek on the Caribou portion of the forest and Bald Mountain, Bear Creek, and Poker Creek on the Targhee portion of the forest) and could eventually be mined over an extended period of time (50 years or more years). When and if these sites are developed then dispersed recreation opportunities would not be available on these areas.

About 1,280 acres of unleased phosphate deposits are in the Primitive theme. The Primitive theme prohibits road construction / reconstruction or surface occupancy for phosphates; therefore this area would likely not be developed (see section 3.5, Minerals and Energy); and there would be no effect on dispersed recreation opportunities found in this area.

The Proposed Rule would also permit road construction / reconstruction for geothermal development in the GFRG theme. About 7 percent of Idaho Roadless Areas are in this theme, but only about 4 percent could be developed because of slope restrictions on the other 3 percent (see section 3.5, Minerals and Energy, table 3-24). It is likely some of these areas would be developed over time; however, except for two pending lease applications there is no information about where or when the activity would occur. Development could only occur within the GFRG theme, which is designated only on the Boise, Caribou, Idaho Panhandle, Payette, Salmon, Sawtooth and Targhee National Forests. If fully developed, roads, transmission lines, and other facilities would likely be constructed (see appendix I) for a description of general development of geothermal resources), which would reduce dispersed recreation opportunities of the roadless areas affected. Site-specific analysis would be conducted prior to any geothermal exploration or development. About 93 to 96 percent of the roadless areas would not see any exploration or development.

Currently lease applications have been submitted for geothermal exploration within 7,000 acres of the Peace Rock Roadless Area on the Boise National Forest and 33 acres of the West Panther

[105] Based on past history, phosphate mining could occur on an additional 1,850 acres around unleased KPLAs (see section 3.5 Minerals and Energy).

Roadless Area on the Salmon National Forest. Both these areas are in the Backcountry or Primitive themes, which prohibit road construction or reconstruction to access mineral resources; therefore, they would not be developed under the Idaho Roadless Rule.[106] There would be no effect on dispersed recreation opportunities in these areas.

Hunting and fishing opportunities could be affected in locations where phosphate or geothermal development occurs because of the level of disturbance associated with these activities. Hunting and fishing opportunities likely would not change in areas where timber cutting and associated road construction occur because of the dispersed nature of these activities, recovery of vegetative conditions, and use of temporary roads.

Modified Idaho Roadless Rule (Preferred Alternative)

Under the Modified Idaho Roadless Rule, timber cutting, road construction / reconstruction, and discretionary mineral activities would generally not be permitted on about 3.25 million acres of Idaho Roadless Areas. These areas include the Wild Land Recreation, SAHTS, and Primitive themes. Some timber cutting could occur in the Primitive theme but would likely not be done to a degree that would change the roadless character. The magnitude and extent of treatments in these themes would not likely affect the recreation setting.

About 5.31 million acres are in the Backcountry theme, where road construction / reconstruction and timber cutting are permissible under limited conditions. Within the Backcountry theme most road construction would occur in the CPZ (442,000 acres). About 405,900 acres are in the GFRG theme. About 33 miles are projected to be constructed and 17 miles reconstructed over the next 15 years, and timber cutting is projected to occur on 15,000 acres. Most of the activity would likely occur in the GFRG theme, with lesser amounts in Backcountry, primarily in the Backcountry CPZ. This level of road construction / reconstruction could change dispersed recreation opportunity settings in some areas from a SPM to Roaded Natural; however, if roads are decommissioned after use then the change would be more temporary in nature. All roads used to facilitate timber cutting would be temporary and would be required to be decommissioned. Projected road decommissioning would result in no net increase in roads over the next 15 years (section 3.4, Road Construction / Reconstruction, table 3-17).

Timber cutting on 15,000 acres over 15 years may change the natural appearance of some areas for a period of time until the area regenerates. Under the Modified Rule, timber cutting would be done only for ecosystem restoration or fuels management, with the intent of focusing on what is left, not what is removed. Based on this level of cutting, less than a half of 1 percent of the roadless areas would be affected over 15 years. Dispersed recreation opportunities would not change as a result of timber cutting but the feeling of remoteness and solitude may change in some locations for a period of time.

The Modified Rule would have less effect on the recreation setting than would the Proposed Rule because of the expected lower levels of road construction / reconstruction and timber cutting. This alternative would have substantially less effect than the Existing Plans because nearly half the amount of road construction / reconstruction and timber cutting would be expected during the planning period. Because the Modified Rule has more opportunity for road

[106] The Backcountry theme allows for surface occupancy, but development is unlikely to occur because of economic limitations and the availability of geothermal resources in other areas (see section 3.5, Minerals and Energy).

construction / reconstruction and timber cutting than the 2001 Roadless Rule in some themes, in total the Modified Rule does have more potential for adversely affecting recreation settings; however, because of the types of effects described above, the Modified Rule is not likely to incur a substantial change to dispersed recreation settings.

There are 14,460 acres of known unleased phosphate deposits on the Caribou-Targhee National Forest. These deposits are located within six roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek on the Caribou portion of the forest) and could eventually be mined over an extended period of time (50 or more years). Under the Modified Roadless Rule, in the GFRG theme, road construction / reconstruction is permitted only to access unleased deposits; there are about 5,770 acres[107] (40 percent) of such deposits located within the GFRG theme. When and if these sites are developed then dispersed recreation opportunities would not be available on these areas.

About 8,690 acres of unleased phosphate deposits are in the Primitive, Backcountry and GFRG theme in the Bear Creek, Bald Mountain, and Poker Creek Roadless Areas. Road construction and reconstruction would be prohibited to access these deposits. Without road access it is unlikely these deposits would be developed (section 3.5 Minerals and Energy); therefore there would be no effect on dispersed recreation opportunities found in these areas.

Under the Modified Rule, road construction / reconstruction is prohibited in all themes to access other new mineral leases such as geothermal or oil and gas. Surface use and occupancy would be permitted in the GFRG and Backcountry themes if allowed in the forest plans. With the lack of road access it is unlikely new leases would be developed; therefore, there would be no change dispersed recreation opportunities.

Hunting and fishing opportunities could be affected in locations where phosphate development occurs because of the level of disturbance associated with these activities. Hunting and fishing opportunities likely would not change in areas where timber cutting and associated road construction occurs because of the dispersed nature of these activities, recovery of vegetative conditions, and use of temporary roads.

DEVELOPED RECREATION: AFFECTED ENVIRONMENT

Of the 9.3 million acres of Idaho Roadless Areas, less than 5 percent contain authorized roads, recreation sites, and other facilities. These areas reflect a more developed end of the ROS, typically Roaded Natural settings within Idaho roadless areas.

Idaho projects population growth of 52 percent from 2001 to 2030. Idaho will continue to be one of the Nation's fastest growing States, and a major contributor to that growth will be people over the age of 64 (Idaho Commerce and Labor 2005). This general increase in total population and in individuals over 64 years of age will place a greater demand on developed recreation. The largest age group of forest recreationists nationwide is 40–49 years (USDA Forest Service 2004e).

Camping and picnicking at developed sites, driving for pleasure, and visiting interpretive sites and visitor centers are examples of activities associated with the developed end of the ROS. The more developed ROS classes often involve a greater social interaction with other people, higher

[107] Based on past history, phosphate mining could occur on an additional 810 acres around unleased KPLAs on the Caribou-Targhee National Forest (see section 3.5 Minerals and Energy).

levels of managerial control, and more evidence of human activity. Traditionally, expansion of these developed recreation opportunities occurred by increasing the standard of existing facilities or expanding into roadless areas, ultimately shifting the ROS classes from Primitive, SPNM, and SPM to Roaded Natural or Rural. This shift reduces the amount of Primitive and SPNM settings and increases the value of the remaining, more remote, primitive settings generally associated with roadless areas.

DEVELOPED RECREATION: ENVIRONMENTAL CONSEQUENCES

Most developed recreation use on NFS lands depends on permanent roads for access to developed sites. Increased recreation use of all types will increase demand for more roads and more developed sites. For example, a popular dispersed recreation area near a road may become a developed site to minimize environmental damage and manage the number of people; popular backcountry destination areas may require new trailheads; or as the NFS road system stabilizes, increased use may require reconstruction to a higher level of design. As Idaho's population growth continues to increase, so, too, will demands for opportunities at the more developed end of the ROS, generating additional pressure in existing areas available for development or road-based recreation opportunities.

Historically, developed recreation followed roads built for timber, fire, mining, or other resource management activities. As use became heavy and demand for amenities increased, some areas became suitable for developed sites, resulting in a wide dispersion of small- to medium-sized developed sites.

In the foreseeable future, recreation budgets are projected to remain low. As a consequence, the Forest Service is developing facility master plans that analyze the benefit and costs of managing each facility. The plans' recommendations are trending toward elimination of low-use camping sites and a focus on improvement and maintenance of existing, popular developed sites. Most of these sites are in the developed portions of national forests, near lakes and streams and accessed by roads. Any developed portions of Idaho Roadless Areas would most likely have the roads obliterated or gated and would not lead to additional developed recreation.

In general, development of developed recreation opportunities at the edge of roadless areas would not create a change in ROS setting. The types, kinds, and sizes of developed facilities most expected in remote locations adjacent to Idaho roadless areas (trailheads, small campgrounds, and recreation cabins) would continue to support a Roaded Natural setting.

2001 Roadless Rule (No Action)

The 2001 Roadless Rule prohibits road construction / reconstruction to access existing or new developed recreation sites, unless they are associated with a special use permit issued prior to the rule. The 2001 Roadless Rule limits opportunities for new developed recreation within Idaho Roadless Areas; however, there are no reasonably foreseeable developed recreation actions that would be affected at this time.

Existing Plans

Under Existing Plans, road construction / reconstruction is generally prohibited on about 3.22 million acres of Idaho Roadless Areas. These areas include management prescriptions similar to the Wild Land Recreation themes. Some road construction / reconstruction to provide roaded access to developed recreation may be permitted in Primitive themes in certain situations.

Existing Plans generally permit road construction / reconstruction in management prescriptions similar to the Backcountry and GFRG themes. Existing Plans would permit roaded access for developed recreation in Idaho Roadless Areas; however, there are no foreseeable proposals for developed recreation sites at this time. In addition, with Agency budgets for facilities being reduced, it is unlikely that roads would be constructed or reconstructed to access these sites.

Proposed Idaho Roadless Rule (Proposed Action)

Under the Proposed Idaho Roadless Rule, road construction / reconstruction would not be permitted to provide roaded access for developed recreation on about 8.36 million acres of Idaho Roadless Areas, unless the sites are associated with an existing special use permit. No roads could be constructed / reconstructed in the Wild Land Recreation, Primitive, SAHTS, and Backcountry themes for recreation development.

Road construction and reconstruction are permitted in the GFRG theme (0.6 million acres), including to provide roaded access to developed recreation. However, no GFRG is located on the Challis, Clearwater, Nez Perce or Wallowa-Whitman National Forests; therefore, opportunities for future developed recreation sites or facilities would be limited on these units. However, at this time there are no reasonably foreseeable developed recreation actions that would be affected.

Modified Idaho Roadless Rule (Preferred Alternative)

Under the Modified Idaho Roadless Rule, road construction / reconstruction would not be permitted to provide roaded access for developed recreation on about 8.9 million acres of Idaho Roadless Areas, unless the sites are associated with an existing special use permit. No roads could be constructed / reconstructed in the Wild Land Recreation, Primitive, SAHTS, and Backcountry themes for recreation development.

Road construction and reconstruction are permitted in the GFRG theme (0.4 million acres), including to provide roaded access to developed recreation. However, no GFRG is located on the Challis, Clearwater, Nez Perce or Wallowa-Whitman National Forests; therefore, opportunities for future developed recreation sites or facilities would be limited on these units. However, at this time there are no reasonably foreseeable developed recreation actions that would be affected.

Recreation Special Uses: Affected Environment

Outfitters and Guides

Visitors to national forests frequently turn to others to facilitate their recreation experience, which may come in the form of lodging, rental equipment, or guiding services. Recreation special use permits are used by Forest Service managers to authorize others to provide these desired services. Permits form a legally binding relationship between the Forest Service and other entities, primarily from the private sector.

Currently there are 430 outfitter and guide special use authorizations in Idaho (USDA Forest Service 2006f) and it is reasonable to assume that as Idaho's population grows and ages, the demand for these guided experiences will also continue to increase. Many people are capable of total self-sufficiency in conducting their activity. Others often want or need assistance to experience the outdoors either for their convenience or to help ensure their safety. Furthermore, people with disabilities, first-time visitors, and visitors from out-of-State often choose outfitters

and guides to gain access to opportunities, experiences, and settings that would otherwise be unavailable to them.

Idaho outfitters and guides provide activities such as sightseeing, hunting, fishing, and rafting. Many of these activities or recreation opportunities are authorized by special use permits and occur in roadless areas. Rivers within Idaho Roadless Areas provide high-quality whitewater rafting, and outfitters and guides help visitors enjoy high-quality experiences as an extension of the Forest Service's mission. Even though guided recreationists provide a small percentage of the total recreation visitor days that occur on national forests, they provide a great benefit to the State's economy and especially to the economy of communities where outfitters and guides are based.

Outfitting and guiding activities in Idaho Roadless Areas usually provide recreation opportunities for an unconfined type of outdoor recreation experience, free of common urban distractions. In areas managed as Primitive and SPNM, opportunities such as hiking, boating, caving, mountaineering, hunting, horseback riding, fishing, cross-country skiing, and mountain biking are offered. Areas managed as SPM offer additional opportunities such as motorized boating; snowmobiling; OHV driving (motorcycle, ATV, or 4-by-4); and aircraft transport to remote areas.

The need for a particular type of special use authorization is determined in the forest plan or by user demand. For many communities adjacent to public lands, recreation opportunities provide the potential to increase and diversify their economies. Chambers of commerce, visitor bureaus, and businesses advertise these areas for the diverse opportunities they provide for recreation enjoyment. The growth and use of the Internet provides current information to everyone about these once remote recreation areas and the opportunities they provide.

Ski Resorts

The primary developed recreational use requiring an authorization on NFS lands is ski resorts. There are 134 resorts operating on NFS lands nationally that receive an estimated 30 million skier visitors per year (National Ski Area Association 2004). There are 18 ski resorts in Idaho, of which Idaho national forests play host to nine resorts, which receive an estimated 1.3 million ski visits. Three existing ski resorts (Pebble Creek, Bald Mountain, and Lost Trail) have facilities that overlap Idaho Roadless Areas. One ski resort, Brundage Mountain, has a lift serve expansion that has been approved in concept in the master development plan which would overlap the Patrick Butte Roadless Area.

Ski areas undoubtedly provide an important developed recreation experience on NFS lands. During the 2005/06 season, national skier and snowboarder visits hit an all-time record of 58.8 million visits, up 3.3 percent from the previous season and up 2 percent from the previous record set in 2002/03 (RRC Associates 2006). With the population growth in many of the key Western ski States, as well as overall income growth, the rising ski area visitor trend is projected to continue into the foreseeable future. The settings, experience, and activities usually associated with ski areas are more in line with the developed end of the ROS. Much of the NFS land adjacent to ski areas in Idaho is roadless and falls into the SPNM or SPM ROS classes. Expansion of ski areas could directly affect the adjacent NFS lands' roadless characteristics and move these areas' ROS classes to the more developed end of the spectrum. Ski area expansions can also provide positive economic effects on the surrounding area, while at the same time

changing the area's recreational experiences. Summer use in and around ski resorts is also growing, which could push the ROS classes to the more developed end of the spectrum.

RECREATION SPECIAL USES: ENVIRONMENTAL CONSEQUENCES

All Alternatives

In Idaho, outfitters and guides are assigned specific locations for their activities; therefore, any effects on outfitting and guiding would be specific effects on the local outfitter where proposed activities in roadless areas were to occur. The actual effects would depend on the size, extent, and duration of the activity and how it might affect the outfitted activity provided. In general, hunting, fishing, and general dispersed recreation activities would not be adversely affected because the level of proposed road construction / reconstruction and timber cutting would be fairly small and localized within any outfitter's area of operation. There is usually ample operating area to adjust outfitter operations to avoid short-term activity impacts. All decisions regarding existing and future special use permits would be project-specific and require compliance with all environmental regulations. Activities undertaken pursuant to existing permits would be unaffected by this programmatic action. Recreational special use permits occur in every ROS class and setting found in NFS lands. Processing and administering special use permits would be governed by forest plans.

Proposed recreation developments such as expansion of ski areas or recreation resorts into Idaho Roadless Areas would be allowed to continue under existing Forest Service procedures if special use permits are in existence prior to the adoption of any direction and the proposed activities or expansion occur within the boundaries established by the special use authorization.

Minerals development associated with the existing Smokey Canyon phosphate mine on the Caribou portion of the Caribou-Targhee National Forest has the potential to remove 1,100 acres of SPM ROS class from all recreational opportunities until reclaimed; however, there are no anticipated effects on any special use activities associated with recreation providers. An additional 6,100 acres of existing phosphate lease areas within six roadless areas (Dry Ridge, Huckleberry, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek) could be developed over an extended period of time (50 or more years). All recreational opportunities would be foregone as these areas are developed.

2001 Roadless Rule (No Action)

The 2001 Roadless Rule prohibits road construction / reconstruction and timber cutting, with a few exceptions. Most roadless areas would retain their roadless characteristics and any foreseeable activity would have minimal effect on outfitter and guide services in roadless areas. Outfitting and guiding related to hunting and fishing would not be affected because there is no anticipated change to big game or fisheries.

In addition, the 2001 Roadless Rule prohibits road construction / reconstruction in a roadless area to provide roaded access to a ski area; therefore, there is no potential to develop or expand ski areas that require roaded access in Idaho Roadless Areas. However, at this time, there are no foreseeable expansions or new developments that would be affected.

Existing Plans

Under Existing Plans, road construction / reconstruction is generally not permitted on about 3.22 million acres of Idaho Roadless Areas. These areas include management prescriptions similar to

the Wild Land Recreation and Primitive themes. These areas would retain their roadless characteristics and there would be little to no effect on existing outfitting and guiding services.

About 4.48 million acres are in management prescriptions similar to the Backcountry theme. Road construction / reconstruction and timber cutting are permissible in many situations (appendix B). About 1.2 million acres are in management prescriptions similar to the GFRG theme, where road construction / reconstruction and timber cutting are permissible. About 105 miles are projected to be constructed and 75 miles reconstructed over the next 15 years, and timber cutting is projected to occur on 40,500 acres. These activities could change recreational experiences but should not affect outfitting and guiding services or opportunities because of the dispersed nature of these activities, recovery of vegetative conditions, and use of temporary roads.

Management prescriptions similar to Backcountry generally would permit road construction / reconstruction to provide roaded access for new ski area development or expansion. Road construction / reconstruction is permissible to provide roaded access for new ski area development or expansion in management prescriptions similar to the GFRG theme (1.2 million acres). However, at this time there are no foreseeable ski area expansions or developments in Idaho Roadless Areas[108].

Proposed Idaho Roadless Rule (Proposed Action)

Under the Proposed Idaho Roadless Rule, road construction / reconstruction is generally not permissible on about 3.10 million acres of Idaho Roadless Areas that include the Wild Land Recreation, Primitive, and SAHTS themes. These areas would retain their roadless characteristics and there would be little to no effect on existing outfitting and guiding services.

About 5.25 million acres are in the Backcountry theme, where road construction / reconstruction and timber cutting would be permissible in limited situations. About 0.6 million acres are in the GFRG theme, where road construction / reconstruction and timber cutting would be permissible. About 38 miles are projected to be constructed and 23 miles reconstructed over the next 15 years, and timber cutting is projected to occur on 18,000 acres. These activities could change recreational experiences but should not affect outfitting and guiding services and opportunities because of the dispersed nature of the activities, recovery of vegetation, and the emphasis on the use of temporary roads.

Existing ski areas, where there are developed sites or proposed developed sites[109] (lift towers, etc.) in Idaho Roadless Areas, would be managed under forest plan special areas; therefore, management direction provided in forest plans would apply.

Road construction / reconstruction would be prohibited in the Backcountry theme for development or expansion of existing special use permits outside permit boundaries; therefore,

[108] Brundage Mountain on the Payette National Forest has a lift serve expansion that has been approved, in concept, in its master development plan; however there are no current plans for this expansion. If, and when, this expansion is proposed it would undergo further review and opportunity for comment under NEPA.

[109] Proposed developed sites include expansions approve in concept in master development plans such as in Brundage Mountain. There are no current plans for this expansion. If, and when, this expansion is proposed it would undergo further review and opportunity for comment under NEPA.

this could limit ski areas expansion and development outside of existing permit boundaries. However, there are no foreseeable expansions or developments at this time.

Road construction / reconstruction would be permissible in the GFRG theme (609,600 acres). Ski area expansion and development outside existing permit boundaries, or new developments, could occur in these areas, although none has been identified as reasonably foreseeable at this time. Under the Proposed Rule, no GFRG was classified on the Challis, Clearwater, Nez Perce, or Wallowa-Whitman National Forests; therefore, new ski area opportunities that need roaded access would be precluded on these forests (if within a roadless area).

Modified Idaho Roadless Rule (Preferred Alternative)

Under the Modified Idaho Roadless Rule, road construction / reconstruction is prohibited on about 3.25 million acres of Idaho Roadless Areas that include the Wild Land Recreation, Primitive, and SAHTS themes. These areas would retain their roadless characteristics and there would be little to no effect on existing outfitting and guiding services.

About 5.3 million acres are in the Backcountry theme, where road construction / reconstruction and timber cutting would be permissible in limited situations. Within the Backcountry theme road construction would primarily occur within the community protection zone (CPZ), (442,000 acres). About 405,900 acres are in the GFRG theme, where road construction / reconstruction and timber cutting would be permissible. About 33 miles are projected to be constructed and 17 miles reconstructed over the next 15 years, and timber cutting is projected to occur on 15,000 acres. These activities could change recreational experiences but should not affect outfitting and guiding services and opportunities because of the dispersed nature of the activities, recovery of vegetation, and the emphasis on the use of temporary roads.

Existing ski areas, where there are developed sites or proposed developed sites[110] (lift towers, etc.) in Idaho Roadless Areas, would be managed under forest plan special areas; therefore, management direction provided in forest plans would apply.

Road construction / reconstruction would be prohibited in the Backcountry theme for development or expansion of existing special use permits outside permit boundaries; therefore, this could limit ski areas expansion and development. However, there are no foreseeable expansions or developments at this time.

Road construction / reconstruction would be permissible in the GFRG theme (405,900 acres). Ski area expansion and development outside existing permit boundaries, or new developments could occur in these areas, although none has been identified as reasonably foreseeable at this time. Under the Modified Idaho Roadless Rule, no GFRG was classified on the Challis, Clearwater, Nez Perce, or Wallowa-Whitman National Forests; therefore, new ski area opportunities that need roaded access would be precluded on these forests (if within a roadless area).

[110] Proposed developed sites include expansions approved in master development plans such as in Brundage Mountain. There are no current plans for this expansion. If, and when, this expansion is proposed it would undergo further review and opportunity for comment under NEPA.

Cumulative Effects

Idaho's approximately 53 million acres of land—about 60 percent of which are in Federal ownership—provide a variety of recreational opportunities. Conserving Idaho Roadless Areas would have mixed effects on recreation activities. Idaho Roadless Areas have traditionally been viewed as places where future developed recreation, such as resort development, could potentially expand. A prohibition on road construction and reconstruction in Idaho Roadless Areas would maintain the current recreation land availability, while preventing road-based recreational developments. The effects on dispersed recreation opportunities are especially mixed. Currently, roadless areas are seen as important places where dispersed motorized and mechanized uses may sometimes occur. However, as motorized recreation expands into roadless areas, there are direct conflicts with other users who may be seeking quiet and solitude. Motorized and mechanized uses can also conflict with other resources including soil and water protection and plant and animal habitat quality. Maintaining a balance between competing uses in roadless areas has become increasingly difficult, as large areas available for dispersed recreation decline because of development.

Decisions made through travel planning could affect the amount of area available for motorized and non-motorized travel and indirectly affect dispersed recreation opportunities. If roads cannot be constructed in Idaho Roadless Areas to facilitate recreation opportunities, then additional pressures could be placed outside roadless areas. However, as noted earlier, recreation budgets are declining and the Agency is beginning to review recreation facility master planning, which would focus resources on the most appropriate recreation opportunities to meet changing public desires and demands.

Actions by other land management agencies can be important factors in affecting demand for recreation opportunities on Idaho Roadless Areas. The National Park Service continues to develop management direction for snowmobiles in Yellowstone National Park. If the amount of snowmobile use (generally associated with SPM ROS class) is reduced from its current level, additional pressure may be placed on the Forest Service to accommodate this displaced use on NFS lands. Other programmatic decisions as described in appendix N are likely to have little to no additional cumulative effect on recreation resources in Idaho.

3.12 WILDERNESS

CHANGES BETWEEN DRAFT AND FINAL EIS

- The Wilderness section was split into three different sections: wilderness (section 3.12), recommended wilderness (section 3.13), and roadless characteristics (section 3.14), because these are three separate entities.
- Added a discussion of effects for the new alternative, Modified Idaho Roadless Rule.

INTRODUCTION

In 1964, Congress established a National Wilderness Preservation System, composed of federally owned areas designated by Congress as "wilderness areas" (16 U.S.C. 1131–1136, 78 Stat 890). A wilderness is recognized as an area "where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." Wilderness areas generally appear to be affected by the forces of nature; have opportunities for primitive and unconfined recreation; are of sufficient size (typically greater than 5,000 acres) to be managed as wilderness; and contain other ecological, geological, scientific, educational, scenic or historical values. Wilderness areas are managed to protect natural conditions and primeval character; motorized equipment and transport, developments, and commercial enterprise are prohibited.

As part of the forest planning process, potential wilderness areas are identified (FSH 1909.12, Chapter 70) using a three-step process: (1) identifying lands that satisfy the definition of wilderness found in section 2c of the 1964 Wilderness Act; (2) evaluating lands as to their wilderness potential; and (3) review and approval of wilderness recommendations. Generally, inventoried roadless areas served as the pool for potential wilderness areas.

This analysis evaluates the effects from the prohibitions and permissions of Idaho's Roadless Areas on designated wilderness.

AFFECTED ENVIRONMENT

The National Wilderness Preservation System was established in 1964 to preserve and protect a portion of the undeveloped Federal lands in their natural condition. Across the United States there are more than 107 million acres designated as wilderness within 702 areas. There are five designated wilderness areas in Idaho comprising 3,962,000 acres (table 3-63). Congress has the sole authority to designate wilderness.

Wilderness character is often used to describe a wilderness area. Wilderness character is defined as untrammeled, natural, undeveloped, and having opportunities for solitude or a primitive and unconfined recreation (Landres et al. 2005).

As defined in Landres et al. (2005), *untrammeled* means wilderness is essentially unhindered and free from modern human control or manipulation. *Natural* means wilderness ecological systems are substantially free from the effects of modern civilization. *Undeveloped* means wilderness is essentially without permanent improvements or modern human occupation. *Outstanding opportunities for solitude or a primitive and unconfined type of recreation* means wilderness provides outstanding opportunities for people to experience solitude or primitive and unconfined recreation, including the values of inspiration and physical and mental challenge. These

attributes are used to measure the potential consequences of the prohibitions and permissions of each alternative on the wilderness resource[111].

Table 3-63. Existing wilderness areas in Idaho

Wilderness area	Acres	Description
Frank Church-River of No Return	2,366,000	Largest wilderness in the lower 48 States; consists of canyons and uplands surrounding the Middle Fork and Main Salmon Rivers in Central Idaho
Gospel Hump	206,000	Glaciated mountain complex around Buffalo Hump south of Grangeville Idaho
Hells Canyon	84,000	Portions of the deepest canyon in North America, located within the Hells Canyon National Recreation Area
Sawtooth	217,000	Steep, majestic mountain tops in the Sawtooth Range, located within the Sawtooth National Recreation Area
Selway-Bitterroot	1,089,000	Rugged headwaters of the Lochsa and Selway rivers along the Idaho- Montana border
Total	3,962,000	

The Selway-Bitterroot Wilderness was included in the Wilderness Act in 1964 and was the first wilderness area designated in Idaho; some portions of the Selway-Bitterroot Wilderness are located in Montana. This wilderness area is the third largest in the lower 48 States and is managed by the Forest Service.

In the 1970s three new wilderness areas were designated in Idaho: the Sawtooth Wilderness (P.L. 92-400 the Sawtooth Wilderness and Recreation Area); the Hells Canyon Wilderness (P.L. 94-199); and the Gospel-Hump Wilderness (P.L. 95-237 Endangered American Wilderness Act).

In 1980, Congress designated the Frank Church-River of No Return Wilderness (P.L. 96-312 Central Idaho Wilderness Act). The Frank Church-River of No Return Wilderness is bordered by Selway Bitterroot Wilderness on the north and the Gospel-Hump Wilderness to the northwest and is the second largest wilderness area in the lower 48 States.

In 2005, Representative Alan Simpson introduced new legislation that would designate portions of the Boulder-White Clouds Roadless Area as wilderness (H.R. 222, Central Idaho Economic Development and Recreation Act (CIEDRA, 2007). Should legislation not be acted upon in the 110th Congress, it is anticipated similar language will be introduced in the 111th Congress.

Environmental Consequences

All Alternatives

Effects on designated wilderness areas depend on the prohibitions and permissions for timber cutting, road construction / reconstruction, and discretionary mineral materials that could affect one of the wilderness attributes: untrammeled, natural, undeveloped, opportunities for solitude, or opportunities for primitive and unconfined recreation. None of the alternatives would directly affect existing wilderness because the management direction would not apply to designated wilderness areas; therefore, there would be no effects on the untrammeled, natural,

[111] The Wilderness Act does not constrain projects proposed adjacent to wilderness boundaries because of the mere presence of wilderness. The effects from projects adjacent to wilderness areas should not be the sole reason for deferring or declining a project proposal.

undeveloped, or primitive and unconfined recreation opportunities within a wilderness area. However, activities permitted in Idaho Roadless Areas contiguous or adjacent to designated wilderness could affect opportunities for solitude and could affect the scenery as viewed from a wilderness area. The degree of effect would depend on the frequency, duration, extent, and type of activity that occurs.

For all alternatives, roads constructed along or near a wilderness boundary could have an effect on the feeling of solitude because of the sounds made during construction and potentially during the use of the road. Timber cutting could affect the natural appearance of an adjacent area. These effects are expected to be rare and limited because of the remoteness of existing wilderness areas and the very low likelihood these activities would occur in roadless areas adjacent to wilderness compared to roadless areas in more developed settings and near communities at risk. The Sawtooth Wilderness is the area most likely to be affected because of its proximity to Stanley, Atlanta, and Sawtooth Valley communities where fuels treatments may be proposed. Other fuels treatments around remote settlements around the Frank Church-River of No Return Wilderness are likely to be of very limited size and extent, so they should have no material effect on adjacent wilderness.

All alternatives permit road construction / reconstruction to access valid existing rights, such as hard-rock mining and mineral leases. About 7,230 acres of phosphate deposits can be found in seven roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, Stump Creek, and Mount Jefferson) and are under existing lease. About 30 acres have been mined to date. About 1,100 acres associated with the Smoky Canyon Mine expansion are reasonably foreseeable to be developed within the next 15 years. The Smoky Canyon Mine expansion would affect the Sage Creek and Meade Peak Roadless Areas. Neither of these roadless areas are near or adjacent to wilderness; therefore, there would be no effect on wilderness areas from phosphate mining.

2001 Roadless Rule (No Action)

Under the 2001 Roadless Rule, the prohibitions and exemptions on road construction and timber cutting apply uniformly to all Idaho Roadless Areas. Where road construction or timber cutting is permitted under an exception near or adjacent to existing wilderness, there maybe effects on wilderness depending on the viewshed, distance from wilderness boundary, and natural drainage.

About 1.7 million acres (20 percent) of Idaho Roadless Area lands lie adjacent to existing wilderness (table 3-64). Based on foreseeable projections, about 15 miles of road construction / reconstruction and 9,000 acres of timber harvest are anticipated to occur over the next 15 years. If these activities are located within the 1.7 million acres adjacent to wilderness, there may be short-term effects (during the duration of the activity) on the feeling of solitude, especially near the edge of a wilderness boundary. However, it is likely very few projects would occur adjacent to wilderness because most projects, especially timber cutting, are more likely to occur closer to mills, closer to communities (to reduce uncharacteristic wildland fire effects), and in areas with better accessibility.

The 2001 Roadless Rule does not permit road construction / reconstruction for new mineral leases so it is unlikely that oil and gas, geothermal resources, or additional known phosphate deposits would be developed (section 3.5, Minerals and Energy); therefore, there would be no associated effects.

Table 3-64. Acres of management theme adjacent to existing wilderness

Theme	2001 Roadless Rule	Existing Plans	Proposed Rule	Modified Rule
Wild Land Recreation	0	140,300	138,500	206,900
Primitive	0	514,500	553,000	484,600
Backcountry	1,726,400	841,900	954,100	954,100*
GFRG	0	158,400	9,400	9,400
FPSA	0	71,300	71,300	71,300
SAHTS	0	0	100	100

GFRG=General Forest, Rangeland, and Grassland theme; FPSA=forest plan special area; SAHTS=Special Areas of Historical and Tribal Significance theme.

**About 117,900 acres overlap Backcountry CPZ.*

Existing Plans

Existing Plans prohibit road construction / reconstruction and to a large degree timber cutting in areas recommended as wilderness and in Primitive areas (about 3.22 million acres). Only very limited effects on solitude in designated wilderness areas are likely because very limited timber cutting would be permissible.

Generally road construction / reconstruction, timber cutting, and to some degree discretionary mineral activities are permissible in management prescriptions similar to the Backcountry and GFRG themes. About 841,900 acres of management prescriptions similar to the Backcountry theme (about 4 percent of total Backcountry) are adjacent to existing wilderness and 158,400 acres of GFRG (about 12 percent of total GFRG) (table 3-64). Based on foreseeable projections, about 105 miles of road are anticipated to be constructed and 75 miles reconstructed over the next 15 years, and 40,500 acres of timber harvest. These activities are likely to be located in the Backcountry and GFRG themes; however, only a limited amount of these themes are adjacent to existing wilderness. Some of these activities could affect solitude within a wilderness area by the initial construction or harvesting activities or the long-term use of the roads, especially in those areas near a wilderness boundary. Decommissioning roads would reduce the overall effect. Projected road decommissioning would result in no net increase in the amount of roads over the next 15 years (section 3.4, Road Construction / Reconstruction, table 3-17).

Existing Plans may allow road construction / reconstruction for geothermal development in some locations in management prescriptions similar to Backcountry and GFRG. It is unknown where and to what degree geothermal resources would be developed; however, since about half the Idaho Roadless Areas have high to moderate potential, it is likely some development would eventually occur.

Currently lease applications have been submitted for geothermal exploration, which could affect about 7,000 acres of the Peace Rock Roadless Area on the Boise National Forest and 33 acres of the West Panther Roadless Area on the Salmon National Forest. The Peace Rock Roadless Area is not adjacent to a designated wilderness area; therefore, there would be no affect from this development. The 32,700-acre West Panther Roadless Area is adjacent to the Selway-Bitterroot Wilderness. Only 33 acres of the West Panther Roadless Area are being considered for exploration and development and it is unlikely (given the size of the roadless area) that geothermal development would affect the opportunities for solitude of the Selway-Bitterroot Wilderness.

If other roadless areas should be explored and developed, roads, transmission lines, and other facilities would likely be constructed (see appendix I for a description of general development of geothermal resources), which would could affect the opportunities for solitude within a designated wilderness area. Project-specific analysis would be completed prior to approval.

Oil and gas are found only on the Caribou-Targhee National Forest, and no designated wilderness areas are located on this forest within the State of Idaho. There would be no effect from road construction / reconstruction to access oil and gas resources.

Proposed Idaho Roadless Rule (Proposed Action)

The Proposed Idaho Roadless Rule prohibits road construction / reconstruction and to a large degree timber cutting in the Wild Land Recreation, Primitive, and SAHTS, about 3.1 million acres. Within these themes there would be minimal to no indirect effect on designated wilderness, because of the limited activity.

In Backcountry, road construction / reconstruction, timber cutting, and discretionary mineral activities are permissible to a limited degree; about 954,100 acres of Backcountry (about 18 percent of all Backcountry) are located adjacent to existing Wilderness. In GFRG these activities are not prohibited; about 9,400 acres (1 percent of all GFRG), in two roadless areas (Meadow Creek and Ten Mile / Black Warrior on the Boise National Forest), are located adjacent to designated wilderness.

Based on foreseeable projections for all roadless areas, about 38 miles of road are anticipated to be constructed and 23 reconstructed over the next 15 years, and timber cutting could occur on 18,000 acres. These activities are likely to be located in the Backcountry and GFRG themes; however, only a limited amount (10 percent of all roadless acres) of these themes are adjacent to existing wilderness. Depending on the location of the project, some of these activities could affect the opportunities for solitude within wilderness areas area by the initial construction or harvesting activities or the long-term use of the roads. Projected road decommissioning would likely result in no net increase in the total amount of roads over the next 15 years (section 3.4, Road Construction / Reconstruction, table 3-17).

The Proposed Rule permits road construction / reconstruction for new mineral leases in GFRG. Known unleased phosphate deposits and oil and gas resources are found in Idaho only on the Caribou-Targhee National Forest. None of the resources are located adjacent to designated wilderness areas; therefore, there would be no effect from road construction / reconstruction on the ability to access oil and gas or unleased phosphate deposits.

Most GFRG lands have high to moderate potential for geothermal resources. However, only two roadless areas (Meadow Creek and Ten Mile / Black Warrior on the Boise National Forest) have GFRG that is located adjacent to designated wilderness areas. If the geothermal resource were explored and developed in these roadless areas, then it could potentially affect the opportunities for solitude found in the Sawtooth and Frank Church-River of No Return Wilderness Areas. The degree of effect would depend on the location and level of development; however, there are no current development proposals for these areas.

Currently lease applications have been submitted for geothermal exploration, including 7,000 acres of the Peace Rock Roadless Area on the Boise National Forest and 33 acres of the West Panther Roadless Area on the Salmon National Forest. These roadless areas are located in Backcountry; therefore, no road construction / reconstruction could occur to provide road access

to this resource. In addition, the Peace Rock Roadless Area is not adjacent to a designated wilderness area. The 32,500-acre West Panther Roadless Area is adjacent to the Selway-Bitterroot Wilderness; however, only 33 acres are being considered in the lease application.

Modified Idaho Roadless Rule (Preferred Alternative)

The Modified Idaho Roadless Rule is very similar in effects to the Proposed Rule, except for two main differences. The first difference occurs in the Backcountry theme areas adjacent to wilderness (43 areas, 954,100 acres), where additional restrictions on road construction and timber harvest are applied outside the community protection zones (CPZ). Because there are few CPZs adjacent to designated wilderness (25 areas, 117,700 acres) the Modified Rule would have fewer impacts over time than the Proposed Rule.

The second difference applies to a theme change for the Rapid River Roadless Area. Under the Modified Rule this area is assigned to the Wild Land Recreation theme instead of the Primitive theme. This theme change removes the potential for timber cutting activities adjacent to the Hells Canyon Wilderness in the Rapid River Roadless Area.

Based on foreseeable projections for all roadless areas, about 33 miles of road are anticipated to be constructed and 17 miles reconstructed over the next 15 years, and timber cutting is projected to occur on 15,000 acres. These activities are likely to be located in the Backcountry and GFRG themes; however, only a limited amount (10 percent of all roadless acres) of these themes are adjacent to existing wilderness. Depending on the location of the project, some of these activities could affect opportunities for solitude within wilderness areas by the initial construction or harvesting activities or the long-term use of the roads. Decommissioning of roads would also reduce the effect from roads in these areas. Projected road decommissioning would result in no net increase in the total amount of roads over the next 15 years (section 3.4, Road Construction / Reconstruction, table 3-17).

As with the Proposed Rule, there would be no effects from permitting access to unleased phosphate deposits on Caribou-Targhee National Forest under the Modified Rule. No road construction or reconstruction is permitted to access other new mineral leases such as oil and gas or geothermal development; therefore, there would be no effect on wilderness from these activities.

Cumulative Effects

Idaho Roadless Areas are managed under a variety of management prescriptions in Existing Plans. Implementation of the 2001 Roadless Rule or the Proposed or Modified Rules would help establish a uniform approach to managing these areas. Because many Idaho Roadless Areas are adjacent to wilderness areas, large tracts of land would remain essentially unroaded and undeveloped. The Proposed and Modified Rules would increase the amount of land managed as Wild Land Recreation over Existing Plans. These lands would retain their outstanding characteristics and unique values and add to the almost 4 million acres of designated Wilderness in Idaho.

3.13 Recommended Wilderness

Changes Between Draft and Final EIS

- The Wilderness section was split into three different sections: wilderness (section 3.12), recommended wilderness (section 3.13), and roadless characteristics (section 3.14), because these are three separate entities.
- Added a discussion of effects for the new alternative, Modified Idaho Roadless Rule.

Introduction

Recommended wilderness areas are lands identified through forest planning as having undeveloped character and wilderness potential. During forest planning the current undeveloped lands within a forest are assessed using the three-step process discussed in the introduction to section 3.12, Wilderness, to determine if they should be recommended to Congress for the inclusion in the National Wilderness Preservation System. This section evaluates the potential effects on recommended wilderness from the prohibitions and permissions in the alternatives.

Affected Environment

Currently, there are 28 areas (1,320,500 acres) identified in existing plans as recommended for wilderness designation within Idaho. These areas are shown in table 3- 65. Other Idaho Roadless Areas were not recommended for wilderness because they fall short of the Agency's recommended wilderness evaluation criteria, (FSH 1909.12, Chapter 70). Effects on roadless characteristics in light of the prohibitions and permissions on these other Idaho Roadless Areas are evaluated in the other sections of the EIS.

Recommended wilderness areas are managed to maintain wilderness character and values until such time as Congress acts upon the Agency recommendation or a different Agency recommendation is made. Roadless areas that are recommended for wilderness have management prescriptions that protect the wilderness character of the area, but these areas are not managed as wilderness.

There is only one wilderness study area in Idaho, Grandmother Mountain on the Idaho Panhandle National Forest. Portions of this wilderness study area were recently acquired through a land exchange.

Environmental Consequences

2001 Roadless Rule (No Action)

Under the exceptions permitted by the 2001 Roadless Rule, road construction / reconstruction and timber cutting could occur in areas recommended for wilderness through specific project planning or the forest planning process; however, this is unlikely to happen as existing plans generally exclude timber cutting and road construction activities in recommended wilderness. The 2001 Roadless Rule would not affect any of the recommendations made in forest plans for recommended wilderness areas.

Existing Plans

Under the Existing Plans about 1,320,500 acres are recommended for wilderness (table 3- 65). Areas recommended for wilderness would be managed to protect and preserve existing wilderness character. Hence, they prohibit road construction / reconstruction, timber cutting, or discretionary mineral activities (appendix B). A very limited amount of timber cutting is permissible in some recommended wilderness areas, incidental to other uses such as trail construction. Recommendations for wilderness designation would be reviewed during the next round of forest planning, typically in 10 to 15 years.

Proposed Idaho Roadless Rule (Proposed Action)

The Proposed Idaho Roadless Rule would provide management direction that supersedes forest plan direction or other Agency policies for management of recommended wilderness areas with respect to road construction / reconstruction and timber cutting, sale, or removal. It does not change or modify other forest plan direction, Agency policy, or guidance. Because the Wild Land Recreation theme is generally similar to current Forest Service management policies for recommended wilderness areas with respect to road construction / reconstruction and timber cutting, about the same protection of wilderness attributes for these areas would be provided.

In its Petition (see chapter 1), the State of Idaho applied the Wild Land Recreation theme to most areas recommended for wilderness in Existing Plans; however, for the Idaho Panhandle and Clearwater National Forests, the State incorporated recommendations from the proposed revised plans (table 3-65). This change on the Idaho Panhandle and Clearwater National Forests reflects the collaborative process being used during the forest plan revisions. The portion of the Grandmother Mountain Roadless Area, which is classified as a wilderness study area, would be managed as Wild Land Recreation under the Proposed Rule.

The Proposed Rule would designate 1,378,000 acres as Wild Land Recreation. Road construction / reconstruction and timber cutting would be prohibited. Timber cutting for administrative use (trail construction) or personal use (firewood) would be permissible. In addition, the Proposed Rule would prohibit the sale of saleable mineral materials, as well as surface occupancy for new mineral leases. These prohibitions add additional protections until Congress has an opportunity to address wilderness. The Proposed Rule provides additional protections to 57,500 acres over the Existing Plans.

As noted in table 3-65, the Proposed Rule does not apply the Wild Land Recreation theme to all lands recommended for wilderness in Existing Plans. The wilderness recommendations made during forest planning would not change; however, these lands would be managed pursuant to the Proposed Rule. The following discusses the implications of those differences.

Portions of the Boulder-White Clouds Roadless Area (those portions not included in the proposed wilderness legislation), and all of the Winegar Hole Roadless Area, would be managed under the Primitive theme. Limited timber cutting, mainly associated with fuel treatments, could occur from existing roads or from the use of aerial systems in these two roadless areas; however, the likelihood is very low because of limited commercial values, distance from developments, and remoteness of the areas. Timber cutting, if it were to occur in these areas, could change the wilderness character to a limited degree. Timber cutting would likely occur on the edges of these roadless areas because of the lack of road access. Fuel treatments are most likely around the edges of the Boulder-White Clouds Roadless Area, which is adjacent to housing developments in the Sawtooth Valley. The interior of roadless areas

would retain their inherent character; however, along the edges, timber cutting could affect the naturalness of the area and the undeveloped character. The extent of cutting is not expected to be sufficient to affect untrammeled qualities for these areas. Over time as the vegetation re-grows, this effect would lessen.

On the Idaho Panhandle and Clearwater National Forest a portion of the Mallard Larkins Roadless Area (about 5,400 acres and 6,400 acres respectively) are in the Backcountry theme. Timber cutting and road construction / reconstruction are permissible in the Backcountry theme. These activities could affect the wilderness character on these lands, especially if road construction / reconstruction occurs.

On the Idaho Panhandle National Forest a portion of the Selkirk Roadless Area (about 14,900 acres) are recommended as wilderness in existing plans, but would be managed as Primitive or Backcountry in the Proposed Rule. However a different set of lands in the Selkirk Roadless Area were placed into the Wild Land Recreation theme (20,800 acres) based on the collaborative work conducted during forest plan revision. Timber cutting and road construction / reconstruction would be permissible in the Backcountry theme. Road construction would be prohibited in the Primitive theme. These activities could affect the wilderness character on these lands, especially if road construction / reconstruction occurs.

Table 3-65. Areas[1] recommended for wilderness in Existing Plans; acreage of Wild Land Recreation in the Proposed and Modified Idaho Roadless Rule; discussion of the difference

Forest	Area name	Existing Plans Recommended Wilderness (acres)	Proposed Rule Wild Land Recreation (acres)	Modified Rule Wild Land Recreation (acres)	Discussion
Boise Region 4	Sawtooth Additions (Hanson Lake)	13,600	13,600	13,600	No difference
	Payette Crest (Needles)	3,300	3,300	3,300	No difference
	Red Mountain	85,900	85,900	85,900	No difference
	Sawtooth Additions (Ten Mile/ Black Warrior)	76,500	76,500	76,500	No difference
	Total	**179,300**	**179,300**	**179,300**	
Caribou[2] Region 4	Caribou City	28,900	28,900	28,900	No difference
	Mount Naomi	13,200	13,200	13,200	No difference
	Total	**42,100**	**42,100**	**42,100**	
Challis Region 4	Borah Peak	108,500	109,200	109,200	700-acre addition around fringe areas
	Boulder-White Clouds	35,200	115,800	115,800	80,600 acres of the Boulder-White Clouds roadless area are included in H.R. 222; this recommendation was incorporated
	Pioneer Mountains	49,600	49,600	49,600	No difference
	Total	**193,300**	**274,600**	**274,600**	

Forest	Area name	Existing Plans Recommended Wilderness (acres)	Proposed Rule Wild Land Recreation (acres)	Modified Rule Wild Land Recreation (acres)	Discussion
Clearwater Region 1	Hoodoo	111,300	151,900	151,900	Added 40,600 acres of the Great Burn
	Mallard Larkins	65,500	59,100	59,100	Proposed Rule - 6,400 acres placed in the Backcountry theme based on commissioners' recommendation Modified Rule – 6,400 acres placed into Primitive theme based on public comment
	North Fork Spruce-White Sand	9,500	9,500	9,500	No difference
	Sneakfoot Meadows	9,600	9,600	9,600	No difference
	Total	**195,900**	**230,100**	**230,100**	
Idaho Panhandle Region 1	Grandmother Mountain	0	6,800	6,800	6,800 acres; acquired land and part of a wilderness study area
	Mallard Larkins	76,100	49,500	72,100	Proposed Rule - 22,100 acres placed into SAHTS Modified Rule – 22,100 acres placed into WLR, and added some small areas adjacent to existing roads Proposed and Modified Rules – 4,000 acres are placed into Backcountry
	Salmo Priest	13,500	14,300	14,300	800 acres added based on proposed plan
	Scotchman Peaks	9,400	10,900	10,900	1,400 acres added based on proposed plan
	Selkirk	25,400	31,300	42,000	Proposed Rule – 14,900 acres recommended in existing plans not included; but a different 20,800 acres added. Modified Rule -7,000 acres recommended in existing plans not included; but a different 23,600 acres added.
	Total	**124,400**	**112,800**	**146,100**	
Kootenai	Scotchmans Peak	400	0	0	Dropped small area

Forest	Area name	Existing Plans Recommended Wilderness (acres)	Proposed Rule Wild Land Recreation (acres)	Modified Rule Wild Land Recreation (acres)	Discussion
Nez Perce	Rapid River	0	0	16,700	Added based on public comment
Payette Region 4	Secesh	110,300	110,300	110,300	No difference
	Payette Crest (Needles)	90,200	90,200	90,200	No difference
	Rapid River	0	0	51,700	Added based on public comment
	Total	**200,500**	**200,500**	**252,200**	
Sawtooth Region 4	Boulder-White Clouds	158,900	115,500	115,500	43,400 acres of the Boulder-White Clouds roadless area was not included in H.R.3603; therefore, these lands were placed in the Primitive theme
	Pioneer Mountains	58,400	58,400	58,400	No difference
	Sawtooth Additions (Hanson Lakes roadless area)	15,100	15,100	15,100	No difference
	Total	**232,400**	**189,000**	**189,000**	
Targhee[3] Region 4	Italian Peaks	48,700	48,700	48,700	No difference
	Lionhead	11,200	11,200	11,200	No difference
	Winegar (Weinegger) Hole	2,600	0	0	Placed in the Primitive theme due to Country recommendation
	Diamond Peak	29,500	29,500	29,500	No difference
	Palisades	60,200	60,200	60,200	No difference
	Total	**152,200**	**149,600**	**149,600**	
Statewide	**Grand Total[1]**	**1,320,500**	**1,378,000**	**1,479,700**	

[1] *Forest plan special areas such as wild and scenic rivers and research natural areas are not included in the totals.*

[2] *Caribou portion of the Caribou-Targhee National Forest.*

[3] *Targhee portion of the Caribou-Targhee National Forest.*

Modified Idaho Roadless Rule (Preferred Alternative)

In the Modified Idaho Roadless Rule, the Proposed Rule was changed to add three additions to the Wild Land Recreation category: Rapid River on the Payette and Nez Perce National Forests (68,400 acres); a portion of the Selkirk Roadless Area (10,700 acres on the Idaho Panhandle National Forest); and 22,100 acres of the Mallard Larkins (the Pioneer Area that was in SAHTS) on the Idaho Panhandle National Forest. This would increase lands in the Wild Land Recreation theme by 101,700 acres compared to the Proposed Rule and by 157,200 acres compared to Existing Plans. The effects would be similar to the Proposed Rule, except as below.

On the Clearwater National Forest 6,400 acres in the Mallard Larkins Roadless Area were changed from the Backcountry theme to the Primitive theme under the Modified Rule. Timber cutting is permissible in this area and could occur from adjacent roads or using aerial systems. The interior of roadless areas would retain their inherent character; however, along the edges timber cutting could affect the naturalness of the area and the undeveloped character. The extent of cutting is not expected to be sufficient to affect untrammeled qualities for these areas.

On the Idaho Panhandle National Forest a portion of the Selkirk Roadless Area (about 7,000 acres) are recommended as wilderness in existing plans, but would be managed as Backcountry in the Modified Rule. In addition a different set of lands in the Selkirk Roadless Area were placed into the Wild Land Recreation theme (23,600 acres). The lands placed in the Primitive theme under the Proposed Rule were changed to Wild Land Recreation under the Modified Rule to more correctly reflect collaborative discussions during revision. Timber cutting and road construction / reconstruction would be permissible in the Backcountry theme; however there is no overlap with community protection zones in this area; therefore road construction would be unlikely. If roads are constructed they could affect the wilderness character on these lands.

CUMULATIVE EFFECTS

Idaho Roadless Areas are managed under a variety of management prescriptions in Existing Plans. Implementation of the 2001 Roadless Rule or the Proposed or Modified Idaho Roadless Rules would help establish a uniform approach to managing these areas. The Proposed or Modified Rules could reduce controversy and result in more stability by recognizing those lands with important wilderness character and those individual portions of roadless areas where some development could occur.

Other programmatic actions listed in appendix N would not affect the amount or availability of roadless areas, with the potential exception of the Roads Policy. The Roads Policy directs the Agency to determine which roads are needed and which roads are unneeded. As described in section 3.4, Road Construction / Reconstruction, more roads are being decommissioned than constructed. Indirectly, decommissioning roads could result in expanding a roadless area boundary.

During future forest planning, roadless lands would be reexamined and evaluated for their wilderness potential. To the extent that these lands are not affected by development activities, they will be available for future consideration as wilderness. Because of the limited expected development activities across all alternatives in the next 15 years, more than 99.9 percent of Idaho's roadless lands should continue to exhibit wilderness characteristics into the future.

3.14 Roadless Area Characteristics

Changes Between Draft and Final EIS

- The Wilderness section was split into three different sections: wilderness (section 3.12), recommended wilderness (section 3.13), and roadless characteristics (section 3.14), because these are three separate entities.
- Added a discussion of effects for the new alternative, Modified Idaho Roadless Rule.

Introduction

Idaho Roadless Areas are the "reservoir" of undeveloped lands from which future wilderness designations are considered. Each roadless area is evaluated during the forest planning process to determine if it provides wilderness characteristics and whether or not it should be recommended for wilderness. Areas not recommended for wilderness could still be considered for wilderness by Congress. Impacts on the area's inherent wilderness character, its undeveloped nature, its naturalness, the opportunity to provide primitive and unconfined recreation, and its natural ecosystem forces would detract from future consideration of the area as wilderness. This analysis evaluates the effects from the prohibitions and permissions of Idaho's Roadless Areas on roadless area characteristics.

Affected Environment

Idaho Roadless Areas make up about 9.3 million acres. Each roadless area has unique characteristics. Some roadless areas (1) contain outstanding or unique features, where there is minimal or no evidence of human use; (2) contain culturally significant areas; (3) contain general roadless area characteristics where human uses may or may not be apparent; and (4) display high levels of human use, including past road construction, timber cutting, and mining. Appendix C provides a detailed description of each roadless area. Appendix D summarizes the roadless area characteristics. This EIS evaluates the potential effects to roadless area characteristics including those noted in section 1.7 Issues.

Environmental Consequences

2001 Roadless Rule (No Action)

The 2001 Roadless Rule limits the suite of road construction / reconstruction and timber cutting allowed across all Idaho Roadless Areas. About 9,000 acres of timber cutting and 15 miles of road construction are projected to occur over the next 15 years. These limitations would enable the vast majority (99.9 percent) of roadless areas to retain their existing character long into the future. Future activities could have potential effect on the undeveloped and natural qualities of roadless areas but because the acreage is expected to be very limited it should not affect natural ecosystem forces or opportunities for primitive and unconfined recreation.

Existing Forest Plans

Some existing forest plan management prescriptions would preserve wilderness character (such as recommended wilderness and Primitive); others permit activities that could change the existing character (such as prescriptions similar to Backcountry and GFRG). About 105 miles of

road construction and 75 miles of road reconstruction are projected to occur over the next 15 years, and timber cutting is projected to occur on 40,500 acres over the next 15 years. Any areas developed could adversely affect their wilderness potential. In the foreseeable future it is difficult to determine which roadless areas would be affected, because the locations of future activities are unknown, with the exception of phosphate leasing. Any mineral development would change the existing character of the lands affected. The majority of roadless areas (99.5 percent) would still be unaffected. Future activities could have potential effects on the undeveloped and natural qualities of roadless areas; however, because the acreage is expected to be very limited in any specific area, such activities should not affect natural ecosystem forces or opportunities for primitive and unconfined recreation

Proposed Idaho Roadless Rule (Proposed Action)

Under the Proposed Action, lands in the Wild Land Recreation theme (1,378,000) would retain their existing character. Lands in the Primitive and SAHTS themes are likely to retain most of their inherent character, except when timber cutting occurs. Timber cutting may be done only from existing roads or through aerial systems. Because of this limitation, timber cutting is likely to only occur on the edge of a roadless area. Consequently, the existing character may be modified on the edges of a roadless area, while the interior may be kept intact. Timber cutting in these themes is projected to be rare and done only to reduce hazardous fuels. Future activities in these themes could have potential effects on the undeveloped and natural qualities of roadless areas; however, because the acreage is expected to be very limited, such activities should not affect natural ecosystem forces or opportunities for primitive and unconfined recreation.

Lands in the Backcountry theme often would retain their existing character, because timber cutting and road construction are anticipated to be infrequent. Where these activities occur, the inherent characteristics of the lands in this theme would change. If roads are constructed it may take longer for the area to return to a “natural” state than if timber cutting alone were to take place. Future activities could have slightly higher potential effects on the undeveloped and natural qualities of roadless areas in this theme; however, because the acreage is expected to be very limited, such activities should not affect natural ecosystem forces or opportunities for primitive and unconfined recreation.

Lands in the GFRG theme often display relatively more evidence of human use, including roads, fences, water impoundments, evidence of vegetative manipulation, and mineral exploration / extraction. Depending on the degree of previous activity, additional activities may or may not change the existing character. Where disturbance has occurred in the past, the change would not be as great as in areas with little past disturbance. Areas without past disturbance would likely lose their inherent wilderness character, especially if roads are constructed or mineral resources are developed.

Under the Proposed Rule, about 38 miles of road construction and 23 miles of road reconstruction are projected to occur over the next 15 years, and timber cutting is projected to occur on 18,000 acres. This is only about 0.1 percent of Idaho’s total roadless lands. Any areas developed could adversely affect their wilderness potential. In the foreseeable future, it is difficult to determine which roadless areas would be affected, because the locations of future activities are unknown, with the exception of phosphate leasing. Future activities could have the highest potential effect on the undeveloped and natural qualities of roadless areas under this alternative because of road construction / reconstruction; however, because the acreage is

expected to be very limited, such activities should not affect natural ecosystem forces or opportunities for primitive and unconfined recreation. The majority of roadless areas (99.9 percent) would remain unaffected in the reasonably foreseeable future.

Modified Idaho Roadless Rule (Preferred Alternative)

Under the Modified Rule, lands in the Wild Land Recreation theme (1,479,700) acres would retain their existing character. Lands in the Primitive and SAHTS themes are likely to retain most of their inherent character, except when timber cutting occurs. Timber cutting may be done only from existing roads or through aerial systems. Because of this limitation, timber cutting is likely to only occur on the edge of a roadless area. Consequently, the existing character may be modified on the edges of a roadless area, while the interior may be kept intact. Timber cutting in these themes is projected to be rare and done only to reduce hazardous fuels. Future activities in these themes could have potential effects on the undeveloped and natural qualities of roadless areas; however, because the acreage is expected to be very limited, such activities should not affect natural ecosystem forces or opportunities for primitive and unconfined recreation.

In the Modified Rule, the management direction in the Backcountry theme was changed from the Proposed Rule. Road construction / reconstruction would occur only within the CPZ, or where there is a significant risk of wildland fire to at-risk communities or municipal water supply systems. About 442,000 acres are within the CPZ. Roads to facilitate timber cutting would be temporary and must be decommissioned after use. Lands in the Backcountry theme often would retain their existing character, because timber cutting and road construction are anticipated to be infrequent; however, where these activities occur, the inherent characteristics of the lands would change. If roads are constructed it may take longer for the area to return to a "natural" state than if timber cutting alone were to take place. Future activities could have slightly higher potential effects on the undeveloped and natural qualities of roadless areas in this theme; however, because the acreage is expected to be very limited, such activities should not affect natural ecosystem forces or opportunities for primitive and unconfined recreation.

Under the Modified Rule, lands in the GFRG theme often display relatively more evidence of human use, including roads, fences, water impoundments, evidence of vegetative manipulation, and mineral exploration / extraction. Depending on the degree of previous activity, additional activities may or may not change the existing character. Where disturbance has occurred in the past, the change would not be as great as in areas with little past disturbance; areas without past disturbance would likely lose their inherent wilderness character, especially if roads are constructed or mineral resources are developed.

Under the Modified Rule, about 33 miles of road construction and 17 miles of road reconstruction are projected to occur over the next 15 years, and timber cutting is projected to occur on 15,000 acres over the next 15 years. The majority (99.9 percent) of Idaho Roadless Areas would remain unaffected. Any areas developed could adversely affect their wilderness potential. In the foreseeable future, it is difficult to determine which roadless areas would be affected, because the locations of future activities are unknown, with the exception of phosphate leasing.

CUMULATIVE EFFECTS

Idaho Roadless Areas are managed under a variety of management prescriptions in Existing Plans. Implementation of the 2001 Roadless Rule or the Proposed or Modified Idaho Roadless Rules would help establish a uniform approach to managing these areas. Because many Idaho Roadless Areas are adjacent to wilderness areas, large tracts of land would remain essentially unroaded and undeveloped. In the past, roadless areas were managed as a bank for future resource development or special designation. If these areas were managed for their own inherent values, there could be less pressure to designate these lands as wilderness or other special designation to shield the land from development. The Proposed or Modified Rules could reduce controversy and result in more stability by recognizing those lands with important wilderness character and those individual portions of roadless areas where some development could occur.

Other programmatic actions listed in appendix N would not affect the amount or availability of roadless areas, with the potential exception of petitions to change roadless area management submitted from other states. Based on the previously submitted state petitions, the Agency estimates there would be less than a 6 percent decrease in the 49.2 million acres currently protected by the 2001 Roadless Rule over the next 15 years (approximately 3 million acres). This estimate assumes future petitions would request removal of the 2.8 million acres identified in the 2001 Roadless Rule as having some level of activity that affected some of its roadless characteristics as well as other specials areas like ski area expansions and specialized mineral and energy resource areas.[112] These decreases would most likely be in the western forests. From forest planning efforts since the 2001 Roadless Rule, the Agency has seen individual forests with increases in inventoried roadless areas. Subsequent petitions may ask for protection of these areas which are currently outside the protection of the 2001 Roadless Rule.[113]

The Agency anticipates that future proposed project activities in an individual roadless area that may affect roadless characteristics through road construction, timber harvesting, and other development activities would still see intense public scrutiny, administrative appeals, and in some cases, legal challenge. However, the Agency believes that changes to individual roadless areas would be incrementally small, changing a portion of the area and not the entire area, and would be infrequent.

[112] The Agency is mindful that in the 22 years between RARE II and the 2001 Roadless Rule, project activities occurred at a level where 2.8 million acres of the 58.5 million acres (less than 5 percent) in inventoried roadless areas that may have affected some their roadless characteristics.

[113] Located in New Hampshire and Maine, the 2005 White Mountain National Forest plan proposes an increase of inventoried roadless acres. New Mexico's request for inclusion of the Valle Vidal is an example of a state petition requesting an increase. The proposed Colorado roadless rule may include over 300,000 acres of new roadless designation.

3.15 CULTURAL RESOURCES

CHANGES BETWEEN DRAFT AND FINAL EIS

- Added analysis for the new alternative, Alternative 4, the Modified Idaho Roadless Rule.

INTRODUCTION

Cultural resources include areas, sites, buildings, art, architecture, memorials, and objects that have scientific, historical, or cultural value. These resources link people to their cultural history, provide insight into how people lived in the past, and reveal past and ongoing relationships between people and the natural world. For purposes of this analysis, the definition of cultural resources encompasses the property types covered by the Antiquities Act, the Historic Sites Act, the Reservoir Salvage Act, the National Historic Preservation Act (NHPA), and the Archeological Resources Protection Act, and their implementing regulations (16 USC 470, 36 CFR 60, and 36 CFR 800).

Heritage tourism is one of the fastest growing sectors of the tourism industry, and it is ranked among the top two or three reasons that people take vacations (USDA Forest Service 1999a). In 1994 and 1995, an estimated 123.3 million people visited an historic or prehistoric site in the United States (Cordell 1999). It is estimated that up to 90 percent of the Nation's prehistoric sites were destroyed by development by the 1960s (USDA Forest Service 1999a). National Forest System (NFS) lands contain many of the best preserved sites that remain in the United States, in some of the least disturbed natural settings. These sites provide opportunities for Americans to learn about their cultural heritage (USDA Forest Service 1999a). The Preserve America initiative (Executive Order 13287) directs all agencies to engage in the development of heritage tourism.

Idaho Roadless Areas are likely to contain a significant proportion of the least damaged cultural resources that occur on NFS lands because of the lack of human-caused disturbance. Given the widespread destruction of cultural resources located on private lands to date and the rapidly growing interest in heritage tourism nationwide, cultural sites on NFS lands can be expected to become increasingly valuable resources both to American Indians and to people wishing to visit in the future.

Under Executive Order 11593, Protection and Enhancement of the Cultural Environment, and Section 110 of the NHPA, Federal agencies are charged with the task of inventorying the historic and prehistoric sites located on the lands they manage. In addition, the NHPA and NEPA require that Federal agencies take into account the effects of any development or management actions on historic and cultural properties and seek ways to avoid, minimize, or mitigate any adverse effects.

To comply with these laws, agencies conduct cultural resource inventory in areas where projects are proposed. If a site is identified, it is evaluated to determine whether it is significant[114] and eligible for listing in the National Register of Historic Places. If a site is significant and the site would be affected by actions proposed in the preferred alternative, the preferred alternative may not proceed until steps are taken to avoid, minimize or mitigate adverse effects.

[114] Significant cultural resources are defined in 36 CFR 60. Historic properties are considered significant if they qualify for inclusion in the National Register of Historic Places.

Consultation on mitigation measures, or alternative plans, is required if proposed projects or development activities are undertaken in areas having cultural sites that are considered significant to local American Indian Tribes and other ethnic groups. Executive Order 13007 states that agencies must accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and avoid adversely affecting the physical integrity of such sacred sites. Also, where appropriate, agencies shall maintain the confidentiality of sacred sites. This policy helps further the objectives of the America Indian Religious Freedom Act (AIRFA) and the Religious Freedom Restoration Act (RFRA) to provide freedom to worship through ceremonials and traditional rites.

The Archaeological Resources Protection Act of 1979 protects archaeological resources and sites on public and Native American lands to prevent their loss and destruction. The act requires criminal prosecution or civil remedies for the unauthorized disturbance of archaeological resources. It also establishes a permit process for archeological investigations on Federal lands. The permitting process requires consultation with affected tribal governments when a permitted activity would affect resources of interest to the Tribes.

The Native American Graves Protection and Repatriation Act of 1990 requires timely consultation with culturally affiliated Tribes when human remains are inadvertently discovered in the course of implementing projects on Federal lands.

The Forest Service consults with at least 11 American Indian Tribes in the course of managing the resources on NFS lands in Idaho. The analysis below evaluates the potential risk to cultural resources found in Idaho Roadless Areas.

AFFECTED ENVIRONMENT

Approximately 2.2 million acres (about 10 percent of NFS lands) in Idaho have been inventoried and more than 14,500 cultural resources have been identified. Since most inventories are project-driven, the percentage of inventory is lower in roadless areas. It is estimated that NFS lands in Idaho may contain more than 200,000 cultural sites.

The average site density on NFS lands in Idaho is about one site in every 150 acres[115]. This site density is an estimate based primarily on inventory work done in advance of timber sales, mining operations, and rangeland management actions. Therefore, it is not a statistically valid estimate that can be reliably applied to Idaho Roadless Areas. However, it is a reasonable estimate that can be applied to compare the alternatives' potential effects.

Of the more than 14,500 cultural resources identified on NFS lands in Idaho, more than 3,700 (approximately 25 percent) are considered significant and eligible for inclusion on the National Register of Historic Places. Most of the other 10,800 sites have not yet been evaluated for significance. Of the cultural sites that have been recorded on NFS lands, less than 1 percent have been stabilized or restored, most have not been studied or evaluated, and only 66 have been listed on the National Register of Historic Places.[116]

Most cultural resource inventories have been conducted on lands where development or management projects have been proposed because of the legal requirement to consider the

[115] Based on all previous inventory information as reported to Congress.

[116] Site density projections are not discussed in the final EIS due to concerns from Tribal interests.

effects and disclose the impacts of such projects on cultural resources. Many undocumented cultural resources exist in roadless areas, where development has been relatively minimal.

ENVIRONMENTAL CONSEQUENCES

Building roads and implementing management actions such as timber harvest may, at times, adversely affect cultural resources. In the past, roads were often built in culturally sensitive locations along rivers and creeks, or through open areas. Although best management practices now discourage road development in riparian areas and floodplains, some buried or surface remains of archaeological sites may inadvertently be damaged by various ground-disturbing activities. Whenever roads are constructed there may be a variety of associated impacts to consider—roads and the disturbance associated with construction, construction camps, borrow pits, and staging areas may cause adverse effects on the integrity of historic or cultural sites. Enhanced road access may increase secondary impacts associated with visitor use for recreation activities.

Surveys conducted in advance of road construction and reconstruction, timber harvest, or other activities, may result in the identification of unknown and unrecorded cultural resources. Such discoveries might eventually lead to the protection, restoration, and potential development of some sites for interpretive and educational purposes.

All Alternatives

All alternatives require compliance with existing laws and regulations; therefore, before any management actions could take place the standard process for considering effects would be conducted as required by the implementing regulations for the National Historic Preservation Act (36CFR 800). In most cases, a cultural resource inventory would be conducted. In every case, Tribal consultation would be an integral part of the process. If needed, mitigation would be applied.

About 7,230 acres of phosphate deposits can be found in seven roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, Stump Creek, and Mount Jefferson) and are under existing lease. About 1,100 acres associated with the Smoky Canyon Mine expansion are reasonably foreseeable to be developed within the next 15 years. The Smoky Canyon Mine expansion would affect the Sage Creek and Meade Peak Roadless Areas.

It is also reasonable to assume that the remaining phosphate deposits currently under lease, roughly 6,100 acres within the seven roadless areas, would likely be permitted and developed sometime in the extended future (50 or more years). Using the Smoky Canyon expansion as an example of the level of activity expected, an estimated 17 miles of haul road construction and other surface mining disturbance would ultimately take place within the seven roadless areas. Prior to mining, cultural resource surveys would be conducted; if cultural resources are found, the appropriate mitigation would be applied.

It should be noted that activities can result in positive outcomes. Generally surveys are not conducted unless there is a proposed project action, so projects provide the opportunity to document the resources in the designated areas. Finding cultural resources can also provide more opportunity to provide tourism, educational, and interpretive opportunities to tribes and the public regarding their heritage on NFS lands.

2001 Roadless Rule (No Action)

The 2001 Roadless Rule prohibits road construction / reconstruction (including road access to new mineral leasing areas) across all 9.3 million acres, except in seven situations. About 12 miles of permanent road construction and 3 miles of temporary roads are projected over the next 15 years. This amount of road construction / reconstruction would limit the risk to retaining the current integrity and character of cultural resources. There would be low potential for disturbance, vandalism, and looting.

Existing Plans

Under Existing Plans road construction / reconstruction is prohibited in areas with management prescriptions similar to the Wild Land Recreation or Primitive themes (about 3.22 million acres). On these lands there would be little risk to cultural resources because there would be no disturbance. Road construction / reconstruction is allowed on about 1,263,200 acres in areas with management prescriptions similar to GFRG theme, and is also allowed to a limited degree on 4,282,000 acres in areas with management prescriptions similar to Backcountry. About 105 miles of road are projected to be constructed and 75 miles reconstructed over the next 15 years across all Idaho Roadless Areas. This level of activity would have a low to moderate risk to cultural resources depending on where they occur. Generally, newly constructed roads are not open to public travel; therefore, there would still be a low risk of vandalism and looting.

The Caribou Forest Plan permits leasing of the estimated 6,750 acres of known unleased phosphate deposits and / or other possible roadless areas that contain undiscovered phosphate resources. These known unleased phosphate deposits occur in six roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek) and would likely be developed over an extended period of time (50 or more years). In addition, there are 6,870 acres of unleased phosphate deposits on the Targhee portion of the Caribou-Targhee National Forest within the Bald Mountain, Bear Creek, and Poker Creek Roadless Areas. An environmental analysis would have to be completed to determine how much of the 6,870 acres could actually be leased. There is a potential risk to cultural resources on these 13,620 acres[117] on the Caribou-Targhee National Forest when and if this development occurs. Site-specific analysis would occur prior to any future leasing and mitigations applied.

Existing Plans would permit road construction / reconstruction for geothermal development in some locations in management prescriptions similar to Backcountry and GFRG. It is unknown where and to what degree geothermal resources would be developed; however, since about half of Idaho Roadless Areas have high to moderate potential it is likely that some development would eventually occur. Currently lease applications have been submitted for geothermal exploration, which could affect about 7,000 acres of the Peace Rock Roadless Area on the Boise National Forest and 33 acres of the West Panther Roadless Area on the Salmon National Forest. If fully developed, roads, transmission lines, and other facilities would likely be constructed (see appendix I for a description of general development of geothermal resources). Site-specific analysis would be completed, including consideration of cultural resources, prior to approval of any exploration or development of geothermal resources.

[117] Based on past history, phosphate mining could occur on an additional 1,910 acres around unleased phosphate deposits on the Caribou-Targhee National Forest (see section 3.5 Minerals and Energy).

Proposed Idaho Roadless Rule (Proposed Action)

Road construction / reconstruction would be prohibited in Wild Land Recreation, Primitive, or SAHTS themes (about 3.1 million acres). On these lands there would be little risk to cultural resources because there would be no disturbance.

The Proposed Idaho Roadless Rule provides special management direction for about 70,700 acres of areas of historical and tribal significance. Three areas have been identified: Pilot Knob on the Nez Perce National Forest, Nimiipuu and Lewis and Clark National Historic Trails on the Clearwater National Forest, and the Mallard Larkins Pioneer Area on the Idaho Panhandle National Forest. The following descriptions are derived from *Lewis and Clark on the Lolo Trail* (USDA Forest Service 2004f):

> Pilot Knob is located in the Silver Creek-Pilot Knob roadless area. A key visual attraction in this area is Pilot Rock, a massive, bare rock formation almost in the center of the area. Pilot Rock is reported to be an ancient "vision quest" site for the Nez Perce Indian Tribe.
>
> The Nimiipuu (or Nee-Me-Poo) and Lewis and Clark trails are part of the Lolo Trail, which is a registered National Historic Landmark and National Historic Trail. This trail was a major travel route between the Columbia Basin and the Montana country prehistorically. Lewis and Clark traveled over sections of the trail in their journeys of 1805–06. The area has the unique distinction of possessing the longest remaining undisturbed section of the Lewis and Clark Trail in the country.
>
> For the Nimiipuu (the Nez Perce), the Lolo Trail was the "Road to Buffalo Country," a route families traveled each summer to hunt buffalo and trade with Plains tribes to the east. For the Salish, it was the "Trail to the Nimiipuu," a route to salmon fishing and trading with Plateau and Coastal tribes. The Nimiipuu hunted and gathered food across their Plateau homeland, from the Bitterroots to the Blue Mountains in present-day Oregon.
>
> In the early 1700s horses spread north from Spanish colonies in New Mexico, eventually reaching the Nimiipuu homeland, becoming part of the Nimiipuu way of life and providing a means to travel the Lolo Trail and beyond faster and farther than ever before. Nearly 2 centuries later, in 1877, five bands of Nimiipuu followed the Lolo Trail in their attempt to elude General O. O. Howard and the U.S. Army attempting to move them onto a reservation. The journey across the 1,170- mile route lasted nearly 4 months. It began near Wallowa, Oregon (the homeland of Chief Joseph's band), and ended at the Bear Paw Mountains near Chinook, Montana. The route was designated the Nez Perce (Nee-Me-Poo) National Historic Trail in 1986 (taken from Lewis and Clark on the Lolo Trail, USDA Forest Service)
>
> The Mallard Larkins Pioneer Area encompasses the Mallard Larkins and Black Mountain-Nub Peak group of lakes and peaks, which was set aside for its outstanding scenic, roadless, and primitive recreational qualities.

Management direction under the Proposed Rule would retain the current integrity and character of cultural resources; limit the potential for conflict between interest groups over the use and management of these special cultural areas; and limit the risk of destruction of resources by prohibiting road construction / reconstruction and surface occupancy for leasable minerals in the Wild Land Recreation, Primitive, and SAHTS themes. Some limited timber cutting could occur if done off existing roads or via helicopter but is unlikely to modify the current integrity because helicopter logging systems would be used.

Road construction / reconstruction would be permitted on 609,600 acres of GFRG, and to a limited degree on 5,258,700 acres within the Backcountry theme. About 38 miles of road are projected to be constructed and 23 miles reconstructed over the next 15 years. This level of activity would have a low risk to cultural resources, and surveys would be conducted during the analysis for these site-specific actions.

Road construction / reconstruction would be permitted to access new phosphate leasing areas in the Backcountry theme, and any new mineral leasing areas (oil and gas, geothermal) in the GFRG theme.

There are 14,460 acres of known unleased phosphate deposits on the Caribou-Targhee National Forest. About 13,190 acres[118] (91 percent) are located within the Backcountry and GFRG themes. Under these themes road construction or reconstruction would be permissible to develop these phosphate deposits.

These deposits are located within nine roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek on the Caribou portion of the forest; and Bald Mountain, Bear Creek, and Poker Creek on the Targhee portion of the forest) and could eventually be mined over an extended period of time (50 or more years). There is a potential risk to cultural resources on these 13,190 acres when and if this development occurs. Site-specific analysis would occur prior to any future leasing and mitigations applied.

The Proposed Rule would permit road construction / reconstruction for geothermal development in some locations in management prescriptions similar to Backcountry and GFRG. About 7 percent of Idaho Roadless Areas are in this theme, but only about 4 percent could be developed because of slope restrictions on the other 3 percent (section 3.5, Minerals and Energy, table 3.24). It is likely some of these areas would be developed over time; however, except for two pending lease applications there is no information about where or when the activity would occur. If fully developed, roads, transmission lines, and other facilities would likely be constructed (see appendix I for a description of general development of geothermal resources). Cultural resources would be considered during site-specific analysis and mitigations applied.

Currently lease applications have been submitted for geothermal exploration within 7,000 acres of the Peace Rock Roadless Area on the Boise National Forest and 33 acres of the West Panther Roadless Area on the Salmon National Forest. Both these areas are in either the Primitive or Backcountry theme; therefore, they would not be developed because of the inability to construct roads to access the area (section 3.5, Minerals and Energy). No cultural resources would be affected in these areas.

Management direction under the Backcountry and GFRG themes could affect the current integrity and character of cultural resources; increase the potential for conflict between interest groups over the use and management of these special cultural areas; and increase the risk of destruction of resources by permitting road construction / reconstruction for a variety of activities.

[118] Based on past history, phosphate mining could occur on an additional 1,850 acres around unleased phosphate deposits (see section 3.5 Minerals and Energy).

Modified Idaho Roadless Rule (Preferred Alternative)

Road construction / reconstruction would be prohibited in Wild Land Recreation, Primitive, or SAHTS themes (about 3.251 million acres). On these lands there would be little risk to cultural resources because there would be no disturbance. Management direction under the Modified Idaho Roadless Rule would retain the current integrity and character of cultural resources; limit the potential for conflict between interest groups over the use and management of these special cultural areas; and limit the risk of destruction of resources by prohibiting road construction / reconstruction and surface occupancy for leasable minerals in the Wild Land Recreation, Primitive and SAHTS themes. Some limited timber cutting could occur if done off existing roads or via helicopter but is unlikely to modify the current integrity because helicopter logging systems would be used.

Road construction / reconstruction would be permitted on 405,900 acres in the GFRG theme, and to a limited degree on 442,000 acres within CPZ in the Backcountry theme. Road construction / reconstruction could occur to a very limited degree on 4,870,900 acres in the Backcountry theme outside the CPZ if analysis shows there could be a significant risk to at-risk communities or municipal water supply systems from wildland fire. The use of this exception is likely to be infrequent because of additional conditions and need for regional forester approval.

About 33 miles of road are projected to be constructed and 17 miles reconstructed over the next 15 years within the GFRG and Backcountry themes. Only temporary roads are permitted in the Backcountry theme and can only to be used for their specified purpose. This level of activity would have a low risk to cultural resources, and surveys would be conducted during the analysis for these site-specific actions.

The Modified Rule would also prohibit road construction / reconstruction to access about 8,690 acres of unleased phosphate deposits in the Primitive and Backcountry themes within the Bald Mountain, Bear Mountain, and Poker Peak Roadless Areas in the GFRG theme; therefore, these areas would likely not be developed (see section 3.5, Minerals and Energy, table 3-26). There would be no effect on cultural resources found in these areas. Surface occupancy and road construction or reconstruction would be allowed to develop 5,770 acres[119] of unleased phosphate deposits. There is a potential risk to cultural resources on these 5,770 acres when and if this development occurs. Site-specific analysis and consultation would occur prior to any future leasing and mitigations applied.

The Modified Rule also prohibits road construction / reconstruction to access other new mineral leases in the GFRG theme; therefore, there would be no roads constructed to access geothermal or oil and gas leases.

Management direction under the Modified Rule would increase the potential for retaining the current integrity and character of cultural resources; limit the potential for conflict between interest groups over the use and management of these special cultural areas; and limit the risk of destruction of resources by prohibiting road construction / reconstruction and surface occupancy for leasable minerals, except in those areas associated with specific areas of potential phosphate development in the GFRG theme.

[119] Based on past history, phosphate mining could occur on an additional 810 acres around unleased phosphate deposits on the Caribou-Targhee National Forest (see section, 3.5 Minerals and Energy).

CUMULATIVE EFFECTS

NFS lands contain a substantial share of the Nation's cultural resources and a significant portion of the least damaged cultural resources occur in roadless areas. Given the widespread destruction of cultural resources located on private land to date, and the rapidly growing interest in heritage tourism, cultural sites on NFS lands can be expected to become increasingly unique and valuable resources that more people wish to visit in the future. These trends will pose a dilemma for their management with regard to providing a balance of protection and visitation opportunities. The cumulative effects of these trends and of the alternatives would be an emphasis on cultural resource and site conservation in Idaho Roadless Areas due to reduced disturbance and visitation; and a focus on inventory, restoration, interpretation, and tourism opportunities on lands that are developed and that would allow future road construction.

Other programmatic policy and management decisions do not directly affect cultural resources, because none of them prescribe site-specific actions. The National Fire Plan, Healthy Forests Initiative, Healthy Forests Restoration Act and Energy Policy all encourage actions be implemented to meet their objectives. This analysis considered what activities (timber cutting and mineral development) would be projected to occur to meet these policies in the foreseeable future. Therefore, the analysis considered the potential cumulative effect of these policies on cultural resources.

3.16 Idaho and Affected Indian Tribes

Changes Between Draft and Final EIS

- Included additional information about the five Idaho Tribes, including a summary tribal interests and treaty rights.
- Provided additional information on Government-to-Government relationships.
- Added analysis of the new alternative, Modified Idaho Roadless Rule.

Introduction

There are numerous American Indian Tribes with interests in Idaho. In addition, there are five federally recognized Tribes with significant land holdings within Idaho and NFS lands lie within their aboriginal territories. They share some common watersheds and, in some cases, have reservations neighboring NFS lands. These "Idaho Tribes" are the Kootenai Tribe of Idaho, Nez Perce Tribe, Coeur d'Alene Tribe, Shoshone-Paiute Tribes, and the Shoshone-Bannock Tribes. These five Idaho Tribes were recognized by the Indian Claims Commission as having significant Indian Title to lands within Idaho (USDI Geological Survey 1978).

Affected Environment

Tribal Interests

Each Idaho Tribe has interests in the management of National Forest System (NFS) lands that include the right to be protected from any adverse impacts on their reservation land and property. The Agency largely fulfills its role in protecting those interests (clean water, clean air) when it consults with each Tribe and complies with all related environmental and natural resource management laws.

In addition, three Idaho Tribes have some specific off-reservation reserved rights, through treaties and agreements with the United States, on NFS land. These include statutory rights to natural resources on the forests such fish, wildlife, and plants. In general, forest management must protect or enhance the resources upon which these reserved rights depend. When there is a conflict with a Tribe's reserved right on a forest and a primary purpose for the NFS lands, every effort is made to minimize the impact and mitigate environmental effects.

Coeur d'Alene Tribe

The Schitsu'umsh, "Those who are found here," originated in the regions of present-day northwestern United States. The tribe comprises three family bands. The first band is made up of those families living along and near the Coeur d'Alene River; the second band is made up of those living along the St. Joe River; and the third band is made up of those families living near Hayden Lake, Coeur d'Alene Lake, and Spokane River. Their ancestral lands encompassed nearly 5,000,000 acres in what are now Idaho, Washington, and Montana. The tribe traditionally hunted buffalo on the Montana plains, fished for salmon at Spokane Falls, and dug for cams and other wild root crops near Kalispell and present-day Palouse. Tribal members used the ancient trade routes between their homelands and those of other indigenous groups, including the Nez Perce, Shoshone, and Bannock. Members of the Schitsu'umsh tribe traveled as far west

as the Pacific coast. The Schitsu'umsh became known as the Coeur d'Alene, "Heart of the Awl," following their encounter with French trappers.

Shoshone-Paiute Tribes

The federally recognized Duck Valley Reservation is home to Shoshone Indians, descendants of the Newe people, as well as home to Paiutes, descendants of the Numa. The Duck Valley Reservation dates back to the Treaty of Ruby Valley, signed by the United States and the Western Shoshone Tribes in 1863. Ancestral lands of the western Shoshone and northern Paiute tribes make up the present day Duck Valley Reservation. In the 1800s Euro-Americans moved onto the lands of the bands and extended families.

Kootenai Tribe of Idaho

The Kootenai Tribe of Idaho is one of six bands of the greater Kootenai Nation. Aside from the Idaho band, the Kootenai people may be found in British Columbia and northwestern Montana. The Kootenai traditionally relied on the region's rivers, lakes, prairies, and mountain forests for their sustenance. Today the tribe is actively engaged in preserving its traditions and heritage, which have been integral to its survival. Elders continue to speak the native language, with some informal teaching it to the young people. The Kootenai remains a small, tenacious band that continues to hold fast to its sovereignty and pursue its goal of expanding its land base.

The Kootenai Tribe of Idaho reserved off-reservation treaty rights are described in part as follows:

> "The exclusive right of taking fish in all the streams running through or bordering said reservation is further secured to said Indians; as also the right of taking fish at all usual and accustomed places, in common with citizens of the Territory, and of erecting temporary buildings for curing; together with the privilege of hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed land" (Treaty with the Flatheads, Kootenai, and Upper Pend d'Oreilles, 1855; Article 3).

Nez Perce Tribe

The Nimilpuus originated in the northwest region of the United States. Their ancestral homelands encompassed present-day north-central Idaho, northeastern Oregon, and southeastern Washington. Carbon dating of village sites along the Snake River and its tributaries indicates that the Nimilpuus occupied these regions as long as 11,000 years ago. There are indications of even older settlements. The Nimilpuus encountered the Lewis and Clark Expedition in 1805. Translators from that group identified the people as Nez Perce, or "pierced nose" (French). The assignment of this term to the Nimilpuus is not clear as the tribe did not practice nose piercing. However, the name was accepted and the tribe became known as the Nez Perce Tribe of Idaho.

In 1948, the tribe became a self-governing Nation under an adopted constitution and bylaws. As with many other Tribes, the Nez Perce have experienced a cultural renaissance during the past half century. A revival of traditional arts and crafts, dance, and religion has been ongoing since the 1940s. Today, the Nez Perce are involved in writing their own history and reviving the Nez Perce language.

The Nez Perce reserved off-reservation treaty rights are described in part as follows:

> "The exclusive right of taking fish in all the streams where running through or bordering said reservation is further secured to said Indians; as also the right of taking fish at all usual and accustomed places in common with citizens of the Territory; and of erecting temporary buildings for curing, together with the privilege of hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed land" (Treaty with the Nez Perce of 1855, Article 3).
>
> The United States also agrees to reserve all springs or fountains not adjacent to, or directly connected with, the streams or rivers within the lands hereby relinquished, and to keep back from settlement or entry so much of the surrounding land as may be necessary to prevent the said springs or fountains being enclosed; and, further, to preserve a perpetual right of way to and from the same, as watering places, for the use in common of both whites and Indians" (Treaty with the Nez Perce of 1863, Article 8).

Shoshone-Bannock Tribes

The Shoshone-Bannock Tribes of Fort Hall comprise members of the eastern and western bands of the Northern Shoshone and the Bannock, or Northern Paiute, bands. Ancestral lands of both tribes occupied vast regions of land encompassing present-day Idaho, Oregon, Nevada, Utah, Wyoming, Montana, and into Canada. The tribes are culturally related and, although both descend from the Numic family of the Uto-Aztecan linguistic phylum, their languages are dialectically separate. When the Northern Paiutes left the Nevada and Utah regions for southern Idaho in the 1600s, they began to travel with the Shoshones in pursuit of buffalo. They then became known as the Bannocks.

Shoshone-Bannock reserved off-reservation treaty rights are described in part as follows:

> "…but they shall have the right to hunt on the unoccupied lands of the United States so long as game may be found thereon, and so long as peace subsists among the whites and Indians on the borders of the hunting districts" (Treaty with the Eastern Band Shoshoni and Bannock, 1868, Article 4).
>
> "As long as any of the lands ceded, granted, and relinquished under this treaty remain part of the public domain, Indians belonging to the above-mentioned tribes, and living on the reduced reservation, shall have the right, without any charge therefore, to cut timber for their own use, but not for sale, and to pasture their livestock on said public lands, and to hunt thereon and to fish in the streams thereof" (Agreement of February 5, 1898, ratified June 6, 1900, Article IV).
>
> "The water from streams on that portion of the reservation now sold which is necessary for irrigation on land actually cultivated and in use shall be reserved for the Indians now using the same, so long as said Indians remain where they now live" (Agreement Article VIII).

Government-to-Government Relationships

The United States has a unique relationship with American Indian Tribes as provided in the Constitution of the United States, treaties, and Federal statutes. These relationships extend to the Federal Government's management of public lands. The Forest Service strives to ensure that the rights and interests that Tribes have within Idaho's roadless areas are protected. In addition to a Tribe's legal interests in forest management the forest service has discretionary authority to provide additional priorities and preferences for Idaho Tribes based on their unique status with the United States.

On September 23, 2004, President George W. Bush issued an Executive Memorandum recommitting the Federal Government to work with federally recognized American Indian Tribal Governments on a Government-to-Government basis, demonstrating strong support and respect for Tribal sovereignty and self-determination. President Bush also reaffirmed an earlier Executive Order (13175), Consultation and Coordination with Indian Tribal Governments, which requires agencies to consult with tribal officials early in the process of developing proposed regulations.

Management of roadless areas has been a topic of interest and importance to tribal governments. During the promulgation of the 2001 Roadless Rule, Forest Service line officers in the field were asked to make contact with Tribes to ensure awareness of the initiative and rulemaking process. Outreach to Tribes was conducted at the national forest and grassland level, which is the appropriate Forest Service leadership level for initially conducting Government-To-Government dialog with tribal leaders on this EIS. Tribal representatives remained engaged concerning these issues during the subsequent litigation and rulemaking efforts.

During the development of its proposed roadless rule (2005–06), the State of Idaho solicited input from the Coeur D'Alene, Kootenai, Nez Perce, Shoshone-Bannock, and Shoshone-Paiute Tribes. The State's Petition indicates that a vital part of its public process in developing its Petition was the recommendations and comments received from American Indian Tribes. The Governor's Office was keenly aware of the spiritual and cultural significance some of these areas hold for the Tribes.

In spring 2007, the Forest Service began to analyze the State's roadless management proposal under the Administrative Procedures Act. Initially the Forest Service sent out scoping letters to national Tribal organizations, announced the project in the local media, and in the Schedule of Proposed Actions for all of the forests in Idaho; however, no Tribes responded with issues. Next, in late summer 2007, the Forest Service sent out a briefing letter tailored to tribal Governments, displaying the three draft alternatives and the proposed analysis process. The briefing paper also described a process for Government-To-Government consultation once the draft EIS was released. The team leader presented this brief on August 20, 2007, to the Idaho Council on Indian Affairs. Four of the five federally recognized Tribes based in Idaho were present.

After the release of the draft EIS, Government-To-Government consultation continued with all the interested Tribes. More than 10 meetings were held with tribal councils prior to, during, and after the formal comment period. Comments were received from all five federally recognized Tribes. Several adjustments to the Proposed Rule were influenced based on Government-To-Government consultation (see discussion of the Modified Idaho Roadless Rule below).

ENVIRONMENTAL CONSEQUENCES

All Alternatives

Impacts on tribal governments and tribal practices from resource management activities are not expected as this is a programmatic EIS and site-specific activities are not identified. It is projected that none of the alternatives would cause direct impacts on tribal governments or affect treaty rights. Once site-specific projects or activities are proposed, compliance with applicable laws including environmental and procedural laws would be considered and consultation requirements fulfilled. Historic and prehistoric cultural resource and traditional properties would be protected by law as described in the Cultural section of this document (section 3.15).

2001 Roadless Rule (No Action)

The 2001 Roadless Rule prohibits road construction / reconstruction and timber cutting in Idaho Roadless Areas with some exceptions. Based on trend information, about 15 miles of road construction / reconstruction and 9,000 acres of timber cutting are projected over the next 15 years. Because of the minimal amount of disturbance allowed and projected, there would likely be less conflict between interest groups and Tribes over the use and management of areas that may contain sacred sites. If privacy were necessary for sacred sites, maintaining roadless characteristics would help maintain the privacy. A roadless condition might improve the habitat of plants that the Tribes use during gathering activities. Without future roaded access to Idaho Roadless Areas, it could be difficult for some tribal members (such as elders) to access cultural sites, hunting grounds, fishing grounds, and gathering grounds located there.

The exercise of treaty rights and traditional uses of roadless areas may be enhanced by maintaining the integrity of landscapes and plant resources in those areas. In Idaho, traditional tribal uses include the harvesting of food plants as well as medicinal and basketry materials. Sacred sites, as defined in EO 13007, are likely to be located in Idaho Roadless Areas. Under the 2001 Roadless Rule landscape integrity and sacred sites are likely to be maintained because of the limited amount of activities that are permitted under this alternative.

Existing Plans

Existing Plans prohibit road construction / reconstruction in management prescriptions similar to the Wild Land Recreation and Primitive themes (about 3.22 million acres). In these areas there would be no effect on Tribes over the use and management of areas that may contain sacred sites. About 4,482,000 acres are in management prescriptions similar to the Backcountry theme, and 1,263,200 acres are in prescriptions similar to GFRG. About 105 miles of road construction, 75 miles of road reconstruction, and 40,500 acres of timber cutting are projected to occur over a 15-year period within Idaho Roadless Areas under Existing Plans. In addition, road construction and reconstruction to access new mineral leases (oil and gas, and geothermal) would be permitted in the GFRG theme, and to access unleased phosphate deposits in the Backcountry and GFRG theme (about 13,620 acres).

There is some potential risk to sacred sites where American Indians conduct ceremonies that require privacy in areas in prescriptions similar to the Backcountry and GFRG themes. If a road were built to or near such a site, the associated increase in visitation could make it difficult to conduct ceremonies there, undermining the important cultural practice. A Tribe could request that the Forest Service temporarily close the site to non-tribal members for a short period under

the new 2008 Farm Bill Authority. Roads, timber cutting, and mining may also alter the character of places that have historical or cultural value, thereby diminishing their value.

The exercise of treaty rights and traditional uses of roadless areas may be enhanced by maintaining the integrity of landscapes and plant resources in those areas. In Idaho, traditional tribal uses include the harvesting of food plants as well as medicinal and basketry materials. Sacred sites, as defined in EO 13007, are likely to be located in Idaho Roadless Areas. Under Existing Plans there is a potential that landscape integrity and sacred sites may be affected because of the activities that are permitted under this alternative. However, prior to implementing resource management activities, impacts on tribal governments and tribal practices would be assessed and consultation requirements fulfilled.

Proposed Idaho Roadless Rule (Proposed Action)

The Proposed Idaho Roadless Rule prohibits road construction / reconstruction in the Wild Land Recreation, Primitive, and SAHTS themes (about 3.1 million acres). In these areas there would be little conflict between interest groups and Tribes over the use and management of areas that may contain sacred sites. About 5,258,700 acres are in the Backcountry theme and 609,600 acres are in the GFRG theme. Road construction / reconstruction and timber harvest are permissible in GFRG, and permitted in specific situations in Backcountry. About 38 miles of road construction, 23 miles of road reconstruction and 18,000 acres of timber cutting are projected to occur over 15 years within Idaho Roadless Areas. In addition, road construction and reconstruction to access new mineral leases (oil and gas, and geothermal) would be permitted in the GFRG theme, and to access unleased phosphate deposits in the Backcountry and GFRG theme (about 13,190 acres).

There is some potential risk to sacred sites where American Indians conduct ceremonies that require privacy in the Backcountry and GFRG themes. If a road were built to or near such a site, the associated increase in visitation could make it difficult to conduct ceremonies there, undermining the important cultural practice. A Tribe could request that the Forest Service temporarily close the site to non-tribal members for a short period under the new 2008 Farm Bill Authority. Roads, timber cutting, and mining may also alter the character of places that have historical or cultural value, thereby diminishing their value.

The exercise of treaty rights and traditional uses of roadless areas may be enhanced by maintaining the integrity of landscapes and plant resources in those areas. In Idaho, traditional tribal uses include the harvesting of food plants as well as medicinal and basketry materials. Sacred sites, as defined in EO 13007, are likely to be located in Idaho Roadless Areas. Under Proposed Idaho Roadless Rule there is a still a potential that landscape integrity and sacred sites may be affected because of the activities that are permitted under this alternative. However, prior to implementing resource management activities impacts on Tribal governments and Tribal practices would be assessed and consultation requirements fulfilled.

Modified Idaho Roadless Rule (Preferred Alternative)

Based on consultation with Tribes and public comments, several changes were made to the Proposed Rule. The following highlights some of the changes that respond to tribal concerns.

1. Language was added to the rule that states “This subpart does not modify the unique relationship between the United States and Indian Tribes that requires the Federal Government to work with federally recognized Indian tribes on a Government-To-

Government basis as provided for in treaties, laws, or executive orders. Nothing herin limits or modifies prior existing tribal rights, including those involving hunting, fishing, gathering and protection of cultural and spiritual sites."

2. The rule was changed to strengthen the relationship of the Idaho Roadless Rule with land management plan components that provide direction for managing / protecting the fish, wildlife, gathering, and cultural resources that are essential to meeting the Agencies trust duty and fulfilling statutory off-reservation treaty rights.
3. About 257,700 acres on the Caribou-Targhee and Sawtooth National Forests were changed from GFRG to Backcountry, including lands in Toponce, Oxford, and Elkhorn Mountains Roadless Areas.
4. The Rapid River Roadless Area on the Nez Perce and Payette National Forests was changed from Primitive to Wild Land Recreation.
5. The permissions for road construction / reconstruction were narrowed in the Backcountry theme. Temporary roads may be constructed to facilitate hazardous fuel treatment projects within the community protection zone (narrow area around communities—no more than 1½ miles wide); or to reduce the significant risk of wildland fire effects to an at-risk community or municipal water supply system.
6. In the case of significant risk, additional analysis must be completed that shows that conditions are conducive to a wildland fire disturbance and there would be adverse effects on an at-risk community or municipal water supply system as a result. The analysis must also show the activity cannot be reasonably accomplished without a temporary road and that the activity maintains or improves one or more of the roadless area characteristics over the long-term.
7. Areas in the Backcountry theme where there are no communities or municipal water supply systems would be managed like the 2001 Roadless Rule (for example, no road construction, and limited timber cutting for ecosystem composition and structure or for improvement of threatened, endangered, or sensitive species habitats). Many of the areas within the Backcountry theme that were of tribal concern have few, if any, communities or municipal water supply systems.
8. The Modified Rule permits but decreases road construction and reconstruction to access 5,770 acres of unleased phosphate deposits in the GFRG theme. Road construction / reconstruction would be prohibited to access unleased deposits in the Bear Creek, Bald Mountain, and Poker Creek Roadless Areas.

The Modified Rule prohibits road construction / reconstruction in the Wild Land Recreation, Primitive, and SAHTS themes (about 3.25 million acres). In these areas there would be little conflict between interest groups and Tribes over the use and management of areas that may contain sacred sites. About 5,312,900 acres are in the Backcountry theme and 405,900 acres are in the GFRG theme. Road construction / reconstruction and timber harvest are permissible in GFRG. In the Backcountry theme, temporary road construction and road reconstruction would be permitted to facilitate timber cutting to reduce hazardous fuels in CPZ (442,000 acres). In addition, outside the CPZ, temporary road construction would be permitted to reduce significant risk of wildland fire effects to at-risk communities or municipal water systems if that is the only way to accomplish objectives. Regional forester approval is also required. About 33 miles of road construction, 17 miles of road reconstruction, and 15,000 acres of timber cutting are projected to occur over 15 years within Idaho Roadless Areas.

In addition, road construction and reconstruction to access new mineral leases (oil and gas, and geothermal) would be prohibited in the GFRG theme; therefore, there would be no effect on tribal interests from these activities. Road construction and reconstruction would be permitted to access unleased phosphate deposits on 5,770 acres in the GFRG theme.

There is some potential risk to sacred sites where American Indians conduct ceremonies that require privacy in areas in the Backcountry (primarily within the CPZ) and GFRG themes. However, under the Modified Rule, roads to facilitate timber cutting would be temporary and could be used only for the specified purpose. A Tribe could request that the Forest Service temporarily close the site to non-tribal members for a short period under the new 2008 Farm Bill Authority. The exercise of treaty rights and traditional uses of roadless areas may be enhanced by maintaining the integrity of landscapes and plant resources in those areas. In Idaho, traditional tribal uses include the harvesting of food plants as well as medicinal and basketry materials. Sacred sites, as defined in EO 13007, are likely to be located in Idaho Roadless Areas. Under Modified Idaho Roadless Rule, landscape integrity, except in possibly in phosphate lease areas, would be maintained or enhanced because of the limited activities permitted and the design of those activities (reduce wildland fire risk, retain large trees, restore ecosystem composition, and structure, etc.). Some sacred sites could be affected because of the activities that are permitted under this alternative. However, prior to implementing resource management activities, impacts on tribal governments and tribal practices would be assessed and consultation requirements fulfilled.

Cumulative Effects

In general, the effects of other programmatic management and policy decisions listed in Appendix N would be limited because they do not approve site-specific actions. However management decisions such as PACFISH, INFISH, the Northern Rockies Lynx Management direction, and the management direction for grizzly bears in the Greater Yellowstone ecosystem ensure that projects are conducted in a way that minimize impacts to fish and wildlife habitat. By doing this, these programmatic actions safeguard the exercise of treaty rights and traditional uses of NFS lands. The 2001 Roadless Rule, the Proposed Rule and the Modified Rule may further enhance the traditional use of Idaho Roadless Areas through their various prohibitions on road construction / reconstruction, tree cutting, sale, or removal, and mining activities in Idaho Roadless Areas. In the context of the State of Idaho as a whole, these alternatives would limit activities on NFS lands that have the potential to conflict with the exercise of treaty rights and traditional uses. These additional protections would vary by alternative, commensurate with the projected levels of activities. Prior to implementing resource management activities, impacts on Tribal interests and Tribal practices would be assessed and consultation requirements fulfilled.

3.17 Social and Economics

Changes Between Draft and Final EIS

- There was an error found in the acres of projected timber cutting under the 2001 rule for the draft EIS. This number had also been used to calculate the timber cutting for the Proposed Idaho Roadless Rule. These numbers were corrected.
- Road miles were also recalculated for each of the alternatives by adding all the other road miles to a prorated total of timber miles in each alternative. The adjustment was based on the proportion of GFRG acres in the Proposed and Modified alternatives compared to the Existing Plans alternative. These two classes of road miles were then summed to produce annual estimates which are used to model annual impacts for the next 15 years for each of the five economic impact areas.
- All recalculated impacts still remain smaller than 1 percent of existing jobs and labor income for each of the five economic areas during the next 15 years.

Introduction

People value, enjoy, and use national forests, including Idaho Roadless Areas. The social and economic components of this analysis address what may be regarded as some of the fundamental aspects affecting people's lives in relation to the management and use of national forests and roadless areas. Social and economic components consider the lifestyles, collaborative environment, and beliefs and values of people—which include the local economies, amenity uses, commodity uses, recreation uses, and value preferences.

The social analysis reviewed public comments on the notice of intent and derived three key variables: (1) public values and beliefs about natural resources and roadless areas; (2) the collaborative environment and citizen-government relationships; and (3) lifestyles. Values and beliefs are important components of public evaluations of the Proposed Idaho Roadless Rule, and these values and beliefs are also likely to influence the actions of groups and individuals in response to each alternative. The collaborative environment directly influences the willingness and ability of citizens to work with one another and with land management agencies to implement management of roadless areas. Lifestyles express the patterns of activity connecting people to public lands and particularly roadless areas.

To describe the diverse economic activity in Idaho adequately, functional economic areas were delineated. Bureau of Economic Analysis economic areas (EA) were used as the functional economies in Idaho (Johnson and Kort 2004). The economic areas are based on factors such as labor flows, purchases of goods and services, and newspaper subscriptions. There are five economic areas that cover Idaho (fig. 3-28 and table 3-66). Teton, Oneida, and Franklin Counties in Idaho were part of economic areas in Wyoming and Utah. For this analysis, these counties were removed from the economic areas in those States and placed into the Southeast Idaho economic area (Pocatello / Idaho Falls) for completeness.

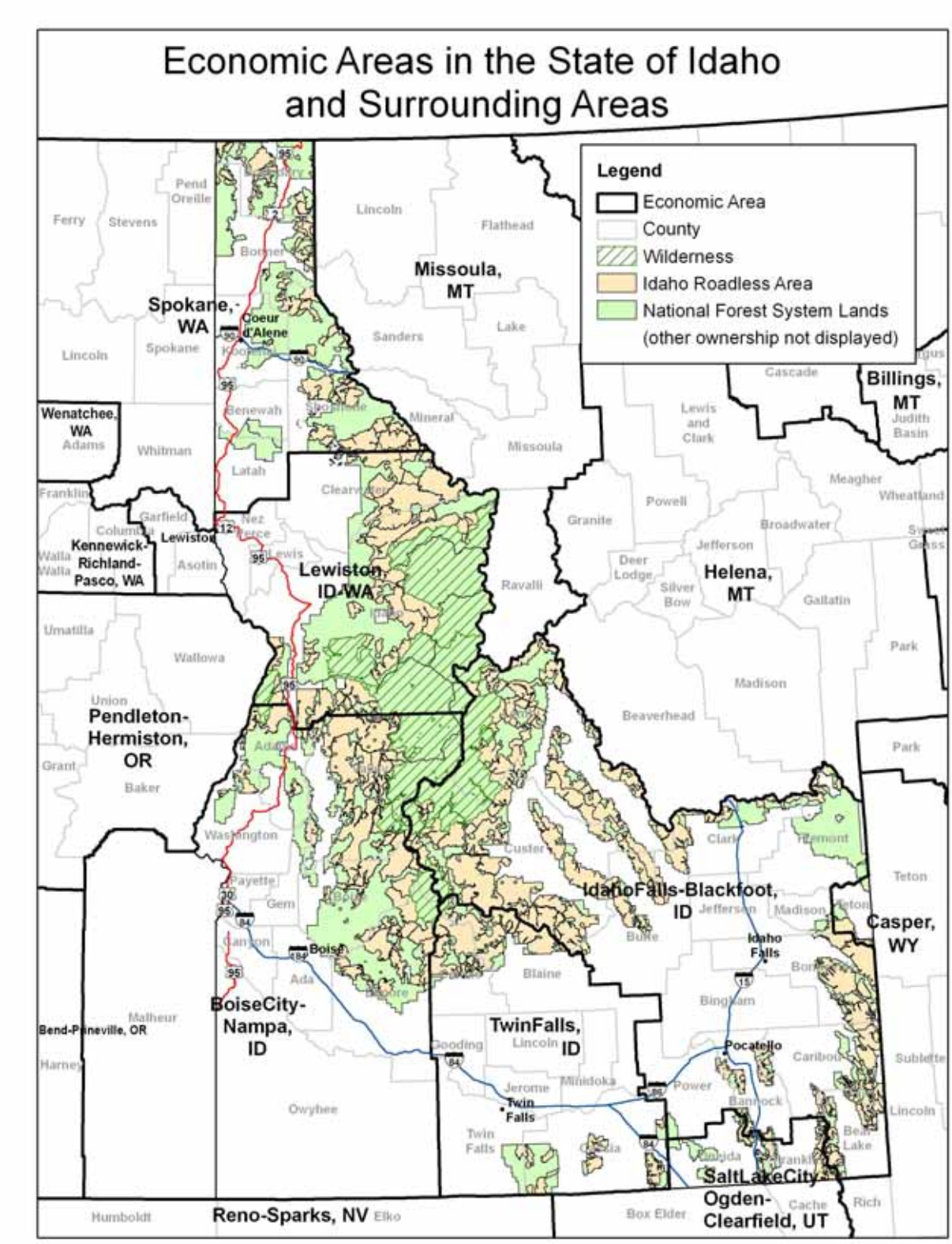

Figure 3-28. Economic areas in the State of Idaho and surrounding areas

Table 3-66. Counties by Bureau of Economic Analysis economic area

North Idaho	Central Idaho	Southeast Idaho	South Central	Boise
Benewah	Asotin, WA	Bannock	Blaine	Ada
Bonner	Clearwater	Bear Lake	Camas	Adams
Boundary	Garfield, WA	Bingham	Cassia	Boise
Ferry, WA	Idaho	Bonneville	Gooding	Canyon
Kootenai	Lewis	Butte	Jerome	Elmore
Latah	Nez Perce	Caribou	Lincoln	Gem
Lincoln, WA		Clark	Minidoka	Malheur, OR
Pend Oreille, WA		Custer	Twin Falls	Owyhee
Shoshone		Franklin		Payette
Spokane, WA		Fremont		Valley
Stevens, WA		Jefferson		Washington
Whitman, WA		Lemhi		
		Madison		
		Oneida		
		Power		
		Teton		

SOCIAL CONTEXT: AFFECTED ENVIRONMENT

Values and Beliefs

Since its inception, the Forest Service has managed National Forest System (NFS) lands according to the principle of multiple-use. This principle allows the Agency to manage land for a variety of uses, including amenity, commodity, non-commodity, and recreation. The Multiple-Use Sustained-Yield Act (Public Law 104-333) formalized this management philosophy, stating that the Forest Service is to manage resources to best meet the needs of the American public, with flexibility to provide for "periodic adjustments in use to conform to changing needs and conditions" (section 4(a) of the act [16U.S.C. 531]). Recent social assessments and surveys indicate continued support for the principle of multiple-use, including outdoor recreation, timber, watershed protection, range health and protection, minerals, wilderness characteristics, and fish and wildlife security. Beliefs and values about the multiple-use principle are noteworthy and influence the interpretation of management and planning activities. For example, some people perceive multiple-use as not allowing for all uses in all places, but as allowing for mixes of diverse uses, perhaps in designated areas. Concerns regarding use conflicts have often been expressed. In general, if a particular category of use is damaging resources or disrupting user experiences, then the Forest Service may have to curtail or eliminate that use in certain areas (Russell and Adams-Russell 2004, Lybecker et al. 2005, Parker et al. 2002, Rasker and Alexander 2003).

The implication of values and beliefs provides a necessity for active balancing when implementing the multiple use principle. Designating certain areas for selected types of management requires careful consideration not only of the resources but also of people's beliefs and values, needs and wants, and individual and community connections to forest resources. Since Americans show diverse orientations to these resources, the use, management, and designation of NFS lands is often inherently controversial. This controversy is also apparent in

special designations managed by the Forest Service, such as wild and scenic rivers and wilderness.

A central issue in the controversy about Idaho Roadless Areas is debate over the balance of commodity and non-commodity uses. Whereas people once valued national forests primarily as a source of commodities, in recent years values regarding these lands have shifted towards recreation, environmental qualities, aesthetics, and amenities. Another central issue for Idaho Roadless Area management is access, particularly the designation of motorized and non-motorized areas and how they can be balanced. This topic was strongly raised in comments responding to the notice of intent for this rulemaking. Because of its complexity and site specificity, this topic will be addressed in independent travel management planning at the forest level.

Controversy and conflict over forest management is often founded on the differing values people may hold toward nature and its management. There are two commonly described orientations to the ways Americans tend to view nature (Russell and Adams-Russell 2004, pg. 94). The first is the "utilitarian" view: nature exists for humans to use. People with this view tend to consider active management as positive, asserting that it can shape and enhance the natural world. This orientation also tends to view human intervention as essential for the health of natural systems. The second view is the "naturalist" view: nature exists for its aesthetic and existence values. People holding this view tend to consider active management as non-effective manipulation of nature, often resulting in negative effects.

Although these two views are commonly noted in the published literature (e.g., Kempton et al. 1996), social science assessment work in Idaho (Russell and Adams-Russell 2004) and in northwestern Montana (Impact Assessment, Inc. 1995, Russell and Adams-Russell 2003) indicates that a "stewardship" perspective coexists with the utilitarian and naturalist orientations to nature. This stewardship perspective "emphasizes the coexistence of humans with natural resources, the responsibility of humans to maintain natural resources, and a respect for the integrity and health of ecological systems. Coexistence implies human activity can be compatible with the health and integrity of ecological systems" (Russell and Adams-Russell 2004, pg. 94). Stewardship values thus appear to share attributes of both the naturalist and utilitarian perspectives with an emphasis on the capacity of humans to coexist with, and to use, natural resources while also maintaining and promoting ecological health. The stewardship orientation appears to emphasize a set of contingencies about the relationship of humans with nature that evaluate actions in terms of the "balance" of ecosystem health, human intervention, and the future existence of a resource.

Other social variables may also influence how people perceive management direction, including: (1) lifestyles; (2) perceptions about the purpose of NFS lands and resources; and (3) perceptions about the role of governing agencies in managing and designating public resources (USDA Forest Service 2007s).

Research also indicates some specific values that people may hold towards forests, rangelands, and grasslands, and that these values may "play a critical role in identifying ecosystem management goals, setting the context for decision making, and guiding our choices" (Bengston and Xu 1995, pg. 1). Among the values identified for forest lands are those included in table 3-67 (as indicated by Brown and Reed 2000, pg. 243).

Table 3-67. Forest (and rangeland and grassland) values that people may hold

Type of value	Specific aspects for which forests are valued
Aesthetic	Because of the scenery, sights, sounds, smells, etc.
Biological diversity	Because it provides a variety of fish, wildlife, plant life, etc.
Cultural	Because it is a place for me to continue and pass down the wisdom and knowledge, traditions, and way of life of my ancestors
Economic	Because it provides timber, fisheries, minerals, or tourism opportunities such as outfitting and guiding
Future	Because it allows future generations to know and experience the forest as it is now
Historic	Because it has places and things of natural and human history that matter to me, others, or the nation
Intrinsic	In and of itself for its existence, no matter what others think about the forest
Learning	Because one can learn about the environment through scientific observation or experimentation
Life sustaining	Because it helps produce, preserve, clean, and renew air, soil, and water
Recreation	Because it provides a place for favorite outdoor recreation activities
Spiritual	Because it is a sacred, religious, or spiritually special place or because one can feel reverence and respect for nature there
Subsistence	Because it provides necessary food and supplies to sustain my life
Therapeutic	Because it makes me feel better, physically and/or mentally

Any individual value or combination of these values in table 3-67 may apply to NFS lands in general and Idaho Roadless Areas in particular. Similarly, different interest groups or geographic communities may hold different combinations of these values. The potential for compatibility or conflict among these values characterizes the relationship of interest groups and communities with NFS lands and roadless areas.

Collaborative Environment: Citizen-Governmental Relationships

"Local vs. national" voices and their relative "weight" in planning and decision making constitute an ongoing issue in the management of national forests. This issue influences the relationship of citizens with the Forest Service that can affect compliance, collaboration, and trust of Agency decision-making and planning.

The issuance of the 2001 Roadless Rule resulted in a response spectrum from support to criticism and ultimately several lawsuits and injunctions. One of the primary criticisms of the 2001 Roadless Rule is the perception that it had little recognition of local issues and needs. Concerns were raised about how the national prohibitions would affect local involvement in decision-making. Public comments on the notice of intent and those received during the public comment period for the draft EIS show that some people believe that by prescribing national prohibitions on activities, the action alternatives would reduce local involvement. This fear would then undermine the collaborative land management planning process and the existing trust between Agency officials and local citizens. People commented that this contributed to the feeling that regardless of their input, decisions would ultimately be made by officials in Washington, D.C.—further undermining trust. People also commented that local involvement and decision-making is necessary for developing successful management approaches that are sensitive to the unique social and ecological conditions of individual forests, noting that a

national policy lacks this sensitivity. Many commented that local managers are in the appropriate position to solve local management concerns. Some people commented that they oppose this rule and its national prohibitions not because of the nature of the prohibitions themselves, but because they prefer all issues to be addressed and resolved locally.

In contrast, others commented that it is appropriate for the Forest Service to make decisions regarding roadless area protection at the national level because these issues have not been resolved in an expedient fashion at the local level, and because they believe that local officials are subject to the influence of local interest groups to the neglect of other interest groups and/or the majority of American opinion. Some commented that national forests are indeed "national" and thus should be considered at broader levels than just the local level.

The State of Idaho announced in June 2005 that it would submit a petition requesting specific regulatory protections and certain management flexibility for the 9.3 million acres of Idaho Roadless Areas. To ensure there was opportunity for local involvement, the State invited affected county commissioners to develop specific recommendations for the Idaho Roadless Areas in their respective counties. Many counties sponsored public meetings; more than 50 public meetings were held. In addition, the general public was encouraged to send comments directly to the Governor's Office for consideration. Criticism about the inclusiveness or representativeness of such meetings is not uncommon in public responses assessing the credibility of these activities. Some comments regarding the notice of intent and in response to the county meetings indicate these types of criticisms, highlighting the potential for impacts on the relationship of communities with the Forest Service.

Lifestyle

Lifestyle can be defined by the activities and patterns of behavior based on beliefs and values within a particular context. Lifestyle is expressed in customs, styles, or patterns of working, recreating, socializing, and other activities. Here, the lifestyle discussion indicates patterns of activity that can be affected by forest management and roadless area management decisions (Russell and Adams-Russell 2004, pg. 93).

A relevant distinction is the differentiation of "urban" and "rural" lifestyles. Thirty-five of Idaho's 44 counties are considered rural (no city with more than 20,000 residents). In 2003, rural areas accounted for about 88 percent of the State in terms of area and 36 percent of Idaho's population. The remaining population is located in urban areas, particularly Ada, Canyon, and Kootenai Counties. The social fabric is stronger in rural areas, which have significantly fewer problems of crime, divorce, and teen pregnancy and greater community cohesiveness and spirit (Idaho Department of Commerce, 2005, pg. 3).

Lifestyles in rural areas tend to have a more diverse and direct relationship with natural resources and public lands than most lifestyles in urban areas. There are about 53,487,000 acres of land in Idaho, of which about 20,464,000 acres are NFS lands. The Federal Government manages approximately 6S0 percent of all Idaho lands. Idahoans do care about management of NFS lands, if for no other reason than it is difficult for them not to be affected by indirect and/or direct impacts. National Forest System lands are noteworthy components of the lifestyles in Idaho communities. For example, in a social assessment for the Clearwater and Nez Perce National Forests, Russell and Adams-Russell (2004) provide a succinct description of lifestyles for the northern part of Idaho, which has relevance for the entire State.

"Lifestyles are customs and patterns of behavior. These are among the most straightforward aspects of community and social life that can be affected by forest management decisions. The characteristics of lifestyle identified by this work as noteworthy are occupation; recreation and outdoor activity; and, the integration of family, place, work, and recreation. To some extent these characteristics exist across the diverse lifestyles in the project area. Most lifestyles are associated with occupations connected to natural resource development such as ranching, farming, logging, mill work, and mining. Others are associated with the place of work such as rural towns and rural cities, where there is a more complex mix of people's lives. Occupation is a common organizing characteristic of lifestyles, but it is by no means the only relevant attribute. For this discussion, the relevant point is the association of lifestyles with occupation and especially those occupations in the natural resource extraction industries. These lifestyles have emerged from the traditions of frontier settlement and they have now moved into what might be termed a "settled frontier" pattern in which there is a high value placed on the continued use of natural resources for community development and as a source of jobs to support and raise a family.

A second noteworthy lifestyle characteristic is outdoor recreation and activity. These communities place a high value on the recreational amenities offered by the project area's extraordinary landscape. The rivers, lakes, mountains, trails, wildlife, and wilderness areas are important resources because they enable the resident's recreational lifestyles….

Hunting, fishing, hiking, trail riding, rafting, wildlife viewing, berry picking, bird watching, and a variety of other outdoor recreational activities are the past-times of people when they are not working. These activities are sometimes the occasion for family gatherings or otherwise reinforcing social bonds.

The third noteworthy characteristic of lifestyles in these communities is the linkage of family, work, place, and recreation. This point is a logical conclusion from the first two lifestyle characteristics, but it is distinguished here to call attention to the value placed on living in a scenic rural environment offering ample recreation opportunities and the capability to work and support a family.

Family work, place, and recreation are interdependent. The ability to raise a family in close proximity to scenic amenities coupled with ample recreation opportunities motivates a strong interest in any management action or plan affecting any one of these linked elements. These linkages… [Are] vulnerable to change…. (2004, pg. 99–100)."

This description suggests a tight linkage of activity patterns, values, and beliefs, with NFS lands. Combined with the ratio of public to private lands and the overall rural character of Idaho communities, this suggests the potential for impact on lifestyles from any management decision about Idaho Roadless Areas.

SOCIAL CONTEXT: ENVIRONMENTAL CONSEQUENCES

Comments received in response to the notice of intent and on the draft EIS were analyzed to prepare this EIS. As expected, most of the comments expressed were either "for" or "against" the Idaho Roadless Rule. As discussed earlier in this section, social assessments show strong support for a variety of uses occurring in certain areas. People who hold stronger convictions with respect to particular uses tend to be more vocal regarding their views; therefore, viewpoints that come forward, such as those expressed in public meetings and in letters, are often from people who strongly support an action, policy, or rule, and those who strongly don't. This causes a persistent debate between those two groups, and the debate tends to not engage others who are "somewhere in the middle." This debate is driven in large measure by competing sets of values and viewpoints that include fundamental differences in a respondent's: (1) background and way of life, (2) perception of the role of the forest, and (3) attitude about the role of government.

Values, Beliefs, and Lifestyles

A content analysis of the comments on the notice of intent indicates that there are strong proponents and strong opponents of the Proposed Rule. This analysis also indicates a strong expression of the "utilitarian" and "naturalist" orientations to nature. These orientations appear to structure beliefs about what is acceptable or what is not in the management of Idaho Roadless Areas.

Supporters of the Proposed Rule often identify themselves as persons who engage in motorized recreation on public lands or who, because of age or disability, are dependent on motorized access. Those who oppose the Proposed Rule are not as easily categorized. Although they generally do not identify themselves in terms of background and lifestyles, it is clear that the life experience of many opponents is rooted in a certain kind of relationship to forest lands, a relationship that clearly motivates a certain way of looking at the land. Thus, if road building were to occur in the Backcountry and the GFRG themes, those people in support of the Proposed Rule would likely be generally okay with that decision. Those who oppose the Rule would not.

Proponents of the Proposed Rule tend to see NFS lands in terms of the resources they offer for human use. Proponents see the forest as an ecosystem that, under proper management, is capable of providing a host of goods for human well-being, including numerous recreational opportunities. For these people, protection usually consists of managing these lands to ensure access, healthy forests, and sustained economic benefits. Hence, roads are viewed as necessary for some management activities including those that promote forest health, responsible and sustainable resource extraction, and emergency access; and that contribute to meeting increasing recreational demands. The failure to actively manage NFS lands, argue these people, would subject these lands to uncharacteristic insect infestations and catastrophic fire. They tend to see true protection as depending on active and prudent care of these lands. If timber cutting or mineral development were allowed in the Backcountry or in the GFRG themes, these people would likely evaluate the alternatives based on how they enhance economies or resource-dependent lifestyles and would generally be okay with that decision. They would support limited road construction / reconstruction in the Backcountry theme to facilitate timber cutting to improve forest health and reduce hazardous fuels.

On the other hand, those opposing the proposed rule, favoring greater protection of Idaho Roadless Areas, tend to see forest lands as whole ecosystems that are disrupted by human activity. For those respondents, protection usually consists of leaving Idaho Roadless Areas alone to evolve naturally through their own dynamic processes. Persons holding this view place a high priority on environmental protection. They believe Idaho Roadless Areas should be protected for their own intrinsic value as undisturbed (by humans) wildland, for the benefit of wildlife, and for the benefits that these areas offer humans. These places are seen as important sources of clean drinking water, clean air, as a curb on climate changes, and as places of solitude and spiritual renewal. Opponents tend to hold an inclusive view of all living things; however, they are not entirely insensitive to the competing concerns of those whose sources of enjoyment and / or livelihood depend on more active uses of NFS lands. But ultimately, opponents believe that the need for roadless protection outweighs those other concerns, and that those concerns can be mitigated—for example, through development of alternative materials and energy resources and the designation of less sensitive areas for motorized recreation.

Those opposing the Idaho Roadless Rule tend to do so because they see it as less restrictive than the 2001 Roadless Rule, particularly in the GFRG theme. They are concerned the GFRG theme would not limit road construction / reconstruction, timber cutting, or discretionary mineral activities and that activities permitted on these lands would adversely affect roadless characteristics. They are also concerned about permitting limited road construction / reconstruction to support timber cutting in the Backcountry theme. They would likely evaluate alternatives in terms of the overall effect on intrinsic values or how they provide environmental and ecosystem service benefits. If road construction, timber cutting, motorized travel, or mineral development were allowed to occur or increase, these people generally would be dissatisfied and in opposition.

Similar comments as described above were received on the draft EIS and the alternative described in the draft. Based on these comments, the Proposed Rule was modified to address some of the concerns and to try and provide a better balance the between the views. The Modified Idaho Roadless Rule reduces the acreage for the GFRG theme. It removes the permissions to permit road construction and reconstruction to access new mineral leases, other than for phosphate in select areas. Definitions and conditions are made more explicit than forest plan management direction.

In the Backcountry theme in the Modified Rule the permissions for road construction / reconstruction have been changed by refining the conditions under which roads may be built in support of timber cutting with the objective of reducing hazardous fuels. Temporary roads could be constructed only in the community protection zones (CPZ) to support hazardous fuel treatment projects. Temporary roads could also be constructed to reduce significant risk to at-risk communities or municipal water supply systems outside the CPZ, but the Rule has been modified to provide additional sideboards and constraints on using this exception. Use of this exception is expected to be infrequent. Most areas outside the CPZ in the Backcountry theme would be managed similar to the 2001 Roadless Rule. In addition, the permission for road construction / reconstruction to access new phosphate leasing areas has been removed from the Backcountry theme. Instead, road construction / reconstruction to access new phosphate leasing areas would be permitted only in the GFRG theme and only to select areas.

These changes improve the balance for the nationally recognized desire for conservation of roadless area characteristics with the objective of the Forest Service to be a good neighbor locally. These changes allow limited fuel treatment activities on NFS lands in order to reduce risk to private and public property and municipal watersheds from the effects of catastrophic wildland fires. The changes also allow for some local economic growth for communities highly dependent on resources found on the NFS. In addition, a majority of the Idaho Roadless Areas would be maintained and preserved in an unroaded state for the use and enjoyment of all Americans, present and future. As America's population grows, as it expands into rural areas, and as the pressures for goods and services from the NFS increase, these roadless lands will only increase in their value as bastions for public drinking water, plant and animal diversity, natural appearing landscapes, and other unique characteristics.

Collaborative Environment

Those people who support the Proposed Idaho Roadless Rule generally favor a multiple-use management strategy that allows a wide range of uses. They appear to believe that the Proposed Rule would allow greater local participation and influence in management decisions regarding NFS lands within Idaho, and that land within Idaho are best managed by Idahoans.

Opponents of the Proposed Rule generally express a preference for the 2001 Roadless Rule, which provides management prohibitions for Idaho Roadless Areas and sets a national standard for the management of roadless areas within national forests. Opponents express concern that the Proposed Rule would give local governments and agencies too much authority over national resources and that these local entities too often prefer "development and exploitation over conservation." They frequently note that NFS lands in Idaho are there for all Americans, not just those who live in Idaho. They assert that Idaho Roadless Areas are best managed at the national level because the lands are paid for by taxpayers throughout the country, not just those living in Idaho. These respondents believe that these Federal lands should not be managed for the economic benefit of residents from a single State.

Proponents seem to perceive the Idaho Roadless Rule as resulting in a balance of State, local, and national interests. The Federal Government retains control of management and decision-making, but State' rights are strengthened. Similarly, those who live nearby or adjacent to these lands and are likely to be most affected by their management have more direct input through the Governor's Office; these same persons can provide locally informed input about forest conditions and management. Proponents argue this local input can improve overall management of Idaho Roadless Areas and adapt management needs to specific locations rather than a single approach to Idaho Roadless Area management. Proponents appear to accept the Federal role in roadless area management but argue for consideration of the local communities and economies most affected by national-level decision-making.

The State of Idaho's intent is to contribute to a more positive governance environment and also to a more collaborative environment, with opportunities to collectively come up with solutions. One of the oft-expressed values of collaboration is that people get to participate in "the process," and that such first-hand experience and involvement often provides better "buy-in." Better buy-in, in turn, can foster better support and willingness from people to adhere to the designations. With this in mind, the Governor of Idaho established a roadless Rule Implementation Commission by Executive Order 2006-43 to foster the collaborative development of any projects under the Idaho Roadless Rule.

The Proposed Rule was modified as described above to provide a balance between national and local interests. The Proposed Rule was modified based on public comment, including, but not limited to, Government-to-Government consultation, recommendations from the Roadless Area Conservation National Advisory Committee, consultation with adjacent States, and input from the public at large. This modification is intended to meet the Agency's and State's intent of using a collaborative process to address the challenges of managing Idaho's roadless areas.

Collaborating with the State on the long-term strategy for the management of Idaho Roadless Areas allows for the recognition of national values and local situations and resolution of unique resource management challenges. Collaboration with others who have a strong interest in the conservation and management of roadless areas also helps to ensure balanced management decisions that maintain the most important characteristics and values of those areas.

ECONOMIC CONTEXT: AFFECTED ENVIRONMENT

Terminology

To understand the economic context and consequences described in this document, it is important to clarify the meaning of some of the basic economic terminology used. In particular, the word "value" can mean multiple things depending on the context of its use. Public land valuation has been described with various frameworks by various authors, often leading to confusion and inconsistent application of economic terminology.

Economics is the study of value tradeoffs used to allocate scarce resources to society. In economics, the value of a good or service is measured by what one would be willing to give up to obtain that good or service. An important distinction can first be drawn between use and non-use values. Use is actual interaction with the resource or roadless area, be it consumptive (which can involve renewable and non-renewable resources) or non-consumptive.

There is a spectrum of use levels that constitute the total value of roadless lands to people at various geographic scales. The most obvious values are direct consumptive use values from activities such as timber cutting and mining. Recently, there has been a heightened recognition of the value of many indirect consumptive uses, such as the provision of clean air and clean water by natural systems such as roadless areas. There are also many non-consumptive use activities such as recreation and wildlife and scenery viewing. Less obvious indirect use values also exist, such as reading about and watching television programs based on the wildlife and ecosystems located in Idaho Roadless Areas.

Finally, non-use values are the values that people derive from goods or services (including natural resources and public lands) that are independent of any use they may make of the good or service. These non-use values, which apply to Idaho Roadless Areas and the flora and fauna that live there, include existence, option, and bequest values (described in a later section). Although these values are often small on a personal basis, they extend over large geographic areas and, therefore, can be surprisingly large in total. The techniques used to estimate these values have improved in the past few decades, but relative comparisons are more readily accepted than total value estimates. Total economic value is the technically correct measurement to report existing economic value. Marginal economic value (the change in economic value associated with an incremental or unit change in production or consumption), on the other hand, is the reporting measure most useful when exploring value tradeoffs stemming from proposed management options.

Calculation of all of these types of values involves some combination of consumer expenditures and consumer surplus. Although expenditures related to timber cutting, mineral extraction, and recreation in Idaho Roadless Areas can be impressive, they convey only the price multiplied by quantity information and cannot be used to describe total economic value. Expenditures are the market clearing price multiplied by the equilibrium quantity of any good or service. Expenditures and revenues are components of costs and benefits, respectively. However, these are only the financial components of total costs and benefits. Consumer surplus is the amount of willingness to pay above the price in a market transaction (referred to as the net economic value or benefits minus costs). For example, the value of timber (cut to support hazardous fuel reduction) upwind of communities at risk is not simply the cost to cut and transport logs to a processing facility; the stumpage value also includes additional value not captured by the cost to obtain the resource alone.

In many cases, true markets are not available to help economists measure land management values. For example, expenditures associated with recreational use in roadless areas may be the amount of money spent to access and participate in an activity. Methods such as the travel cost method have been applied to calculate the money spent to obtain specific recreation experiences. Although the use of standard microeconomic theory enables both the demand for and value of these experiences to be calculated, obtaining the data to perform this analysis is often prohibitively expensive. In this example, the travel cost method relies on expenditure information, but expenditures should not be confused with total economic value, which is the sum of both consumer expenditures and consumer surplus.

While expenditure data alone do not convey total valuation information, they do illuminate an important idea, analyst perspective (Boardman et al. 1996, pg. 12). Expenditures represent costs to consumers but at the same time they represent revenues to various industries. This distinction helps explain why estimates of changes to jobs and income (called regional economic impacts) that accrue to an economic area as a result of changes to consumer demand cannot be summed with the total economic values of people willing to pay for goods and services from Idaho Roadless Areas. Accidentally summing these figures would result in double counting values that represent both costs and benefits accruing to the two distinct groups, with two different analytic perspectives. That is not to say that economic impacts are not important, which they are, but it explains why they are detailed and ascribed to the five Idaho economic areas and are summarized below.

Economic Non-commodity Values

Non-commodity Values. NFS lands provide a variety of non-commodity benefits to society. Examples include clean air, clean water, recreation opportunities, aesthetics, and biodiversity protection. Table 3-68 shows that, according to the National Visitor Use Monitoring (NVUM) surveys conducted between 2000 and 2004 (USDA Forest Service 2004e), the top seven primary recreation activities on the 10 Idaho national forests were hunting, viewing natural features, downhill skiing, snowmobiling, relaxing, fishing, and developed camping. Other activities that constitute the top three on any given national forest include hiking, walking, and sightseeing. Unfortunately, the data collection protocols used for the NVUM do not currently have sampling techniques capable of sorting out activities specific to Idaho Roadless Areas.

The rough terrain in many roadless areas restricts road-based development, and this has limited human access and by default maintained the wild and scenic characteristics in these areas that support many of the primary activities listed above. These wild and scenic qualities attract

adventurous recreational visitors for both consumptive and non-consumptive visitation. While wilderness areas are often noted as hotspots for outfitting, guiding, hunting, and fishing, many of these designated areas start at a ridgeline, making the area only slightly visible from scenic highways. Idaho Roadless Areas, in contrast, often surround these designated areas; they provide an area between actively and passively managed NFS lands and provide opportunities for scenic viewing of lands with a very natural appearance.

Table 3-68. Primary recreation activities on Idaho national forests based on national visitor use monitoring surveys

	All Idaho forests	Boise	Clearwater	Caribou-Targhee	Idaho Panhandle	Nez Perce	Payette	Salmon-Challis	Sawtooth
Number of national forest visits*	7,906,315	1,422,516	726,073	2,449,099	787,975	731,535	619,094	348,741	821,292
Lower bound 80 percent CI**	7,553,816	1,281,759	606,511	2,188,984	721,627	614,182	583,893	322,865	772,192
Upper bound 80 percent CI	8,258,814	1,563,273	845,635	2,709,194	854,323	848,888	654,295	374,617	870,392
Percent primary activity participation* **									
Developed camping	6.2	11.2	5.8	6.2	2.8	6.5	2.5	3.2	5.8
Primitive camping	2.8	0.2	5.7	3.6	0.9	6.8	2.2	1.4	1.0
Backpacking	0.9	0.4	0.6	1.3	0.5	1.1	0.5	0.6	1.0
Resort use	0.8	2.3	0.0	0.1	1.3	1.9	0.3	0.2	0.6
Picnicking	2.1	1.7	1.2	1.4	2.3	36.0	1.0	0.9	5.1
Viewing natural features	12.0	17.3	9.5	13.0	11.7	12.4	6.8	5.5	8.3
Visiting historic sites	0.5	0.0	0.8	0.0	0.7	0.9	1.2	3.2	0.1
Nature center activities	0.2	0.0	0.1	0.6	0.1	0.0	0.0	0.3	0.1
Nature study	0.1	0.0	0.4	0.0	0.0	0.2	0.0	0.0	0.1
Relaxing	11.2	6.0	23.5	2.6	9.0	17.0	9.4	8.0	23.6
Fishing	7.9	8.3	10.2	8.0	6.3	8.1	8.4	16.4	2.1
Hunting	15.4	18.6	7.8	21.2	16.9	14.2	13.2	16.0	2.9
OHV use	4.2	0.1	3.6	8.4	6.0	3.0	2.5	2.6	1.3
Driving for pleasure	3.6	0.7	3.0	4.3	6.9	3.1	5.5	8.1	1.0
Snowmobiling	11.2	10.0	6.4	25.8	1.0	4.7	4.8	0.1	1.1
Motorized water activities	1.0	2.6	0.0	0.4	0.5	2.4	0.9	0.0	0.9
Other motorized activity	0.1	0.0	0.0	0.0	0.7	0.1	0.1	0.2	0.2
Hiking/walking	4.6	1.4	5.3	1.2	11.4	5.0	4.6	12.1	8.9
Horseback riding	0.3	0.0	0.1	0.2	1.0	0.2	0.3	1.0	0.5
Bicycling	1.7	0.3	0.9	2.1	4.6	0.0	1.8	0.0	2.9
Non-motorized Water	1.3	3.3	0.3	0.1	0.9	3.9	1.2	1.4	0.5
Downhill skiing	11.3	20.1	2.3	5.6	2.8	0.1	14.9	0.0	40.4

	All Idaho forests	Boise	Clearwater	Caribou-Targhee	Idaho Panhandle	Nez Perce	Payette	Salmon-Challis	Sawtooth
Cross-country skiing	3.3	6.2	7.7	1.6	0.3	6.4	0.7	0.0	2.1
Other non-motorized	1.4	3.4	0.3	0.4	1.8	1.6	2.1	2.1	0.8
Gathering forest products	1.4	0.3	1.7	0.0	8.8	1.5	4.6	0.7	0.0
Viewing wildlife	3.5		1.2		6.3		1.9	4.2	
Sightseeing	2.8	1.0		3.2		13.4			0.5
No activity	5.6	2.7	8.7	0.1	10.5	9.6	18.3	14.4	3.2

** National forest visits are annual figures compiled from a single year of sampling that occurred between 2000 and 2004.*

*** CI = confidence interval. The sampling design allows estimation of upper and lower estimates around the mean at the 0.8 confidence level; these form the limits of the confidence interval.*

**** Survey respondents were asked to select just one primary activity.*

Amenities and Environmental Functions. Many people who hold ecological values (described in the social section as "naturalists") view NFS lands as valuable because of the life-supporting environmental functions and services (for example, provision of clear air and clean water) they provide. Recent attempts have been made to quantify some of these ecological values as both amenity values and ecosystem services values. When prices are not charged for Idaho Roadless Areas goods or services, such that expenditures are not required to experience benefits from a roadless area, the total economic value can be described simply by revealing the consumer surplus.

In the past economists focused solely on market or observable portions of valuation. Amenity values from land management resources, on the other hand, do not have traditional markets to convey value information. Webster's dictionary (1984, pg. 100) defines an amenity as the quality of being pleasant or attractive, a feature that increases attractiveness or value, especially a piece of property and also as something that increases physical or material comfort. These amenities represent a combination of direct and indirect use and have been estimated recently with hedonic[120] pricing models typically applied to real estate markets. For example, Garrod and Willis (1992) found that distance to woodland and water both raised house prices in Great Britain; Powe et al. (1997) investigated the amenity benefits gained by local residents from access to recreation sites; and Kim and Johnson (2002) added consideration of forest management near houses, noting that visible recent clearcuts reduced house values in Oregon. This is important in the analyses because the various alternatives contain different mixes of land management emphases that make subtle adjustments to the level of amenities supplied to the American public.

These amenities also attract new residents and help retain long-time residents who collectively help support the quality of life and economic vitality. As Idaho transitions to a new century, there is a heightened awareness of the value of the national forests as a source of national ecosystem health, unique habitats and wildlife setting, and magnets for new residents. Several authors have published both theoretical and empirical articles describing how high-amenity physical settings are attracting both tourism and new business to the Western United States (Johnson and Rasker 1995, Beale and Johnson 1998). Public lands and opportunities for adventure and solitude associated with the Idaho Roadless Areas clearly fall within the class of

[120] Models where value is a function of quality.

public lands believed by these authors to be directly affecting settlement patterns. Other evidence supports the relationship between high population growth and areas with high recreation use (Johnson and Beale 1994). Ashton and Pickens (1995) found that recreation counties tend to be diversifying more rapidly than non-recreation counties, attributing this to Forest Service multiple-use policy that provides an environment that attracts both tourists and permanent residents to the area. Rasker (1994) and Power (1998, pg. 1-56) have emphasized the role of a high-quality natural environment, scenic beauty, and recreation opportunities in influencing population growth and shaping local economies.

Air purification, hydrologic system function, maintenance of biodiversity, pollination, waste filtration, carbon sequestration, and other ecosystem services occur daily on all NFS lands including Idaho Roadless Areas. Their value as biological strongholds for terrestrial and aquatic plants and wildlife and as sources of clean water have become increasingly important as habitat loss, non-native species invasions, and development continue to occur on other NFS lands and other lands nationally. For example, dams, water diversions, stream-channel control projects, and development have affected more than 3 million miles, or about 98 percent, of the streams in the United States. In every State in this country, the Environmental Protection Agency (US EPA 1998) has found stream and lake sediments polluted by contaminants from surrounding watersheds, and EPA estimates that about 10 percent of the stream and lake sediments in the United States contain contaminate levels sufficiently high to pose risks to fish-consuming wildlife and humans. In the mid 1980s, the U.S. Geological Survey estimated that the number of wetland habitat acres in the contiguous United States has diminished more than 50 percent since European colonization in the early 1600s; the estimated change has been from 221 million acres to 103 million acres (USDI Geological Survey 1996). With the exception of Alaska, few large, relatively undisturbed areas remain in this country outside of designated wilderness areas—which increases the relative value of the waters, wetlands, and other habitats that roadless areas support, and the biological diversity that they foster. While attempts to quantify the total economic value of these ecosystem services are underway across the world, debate persists regarding the magnitude of these values.

Non-use values from Idaho Roadless Areas. Non-use values can be another important consideration in management decisions. Non-use values are often difficult to measure because they are not consumptive values and in most cases they involve no purchase or direct use by those who benefit from them. Through both studies and contributions to conservation organizations, many Americans have demonstrated a willingness to protect wildlife and habitat in the remaining wild areas of North America, even though they will never interact with or use these resources. Krutilla (1967) and Krutilla and Fischer (1975) were responsible for publishing the first discussion of existence values, which is now seen by many as a real part of the willingness to pay for wildlife conservation and open space preservation.

The aquatic and terrestrial wildlife sections of this EIS (sections 3.8 and 3.9, respectively) describe the current status of many wildlife species whose existence is extremely valuable to many Americans. With many of these species showing general declines in population and adverse reactions to resource development, the significance and value of Idaho Roadless Areas as wildlife refuge areas is clear. In general these roadless areas are relatively free of non-native weeds infestation, habitat fragmentation, and human-caused disturbances that threaten many wildlife species and are harmful to watershed health, making them strong contributors to existence values.

A similar non-use value associated with Idaho Roadless Areas is option value, a term coined in Weisbrod's (1964) first discussion on the topic. Like other options in financial markets, this value is what people are willing to pay to have the option to use or enjoy use and existence values in the future. This option value is a distinct value, in addition to the existence value mentioned above. The next category of value in the non-use realm is bequest value. Like option value, the willingness to pay for this value derives from future persistence, but in this case it relates to the ability to pass use, existence, and option values to future generations.

Arrow and Fisher (1974) added the term quasi-option value to the non-use value literature, defining it as the willingness to pay to delay an irreversible decision. The reason authors gave for the value of delaying irreversible decisions was to prevent the potential value loss of wildlife-related benefits to humans. These benefits may come in the form of yet undeveloped health-related products such as plant extracts useful for manufacturing or through the future recognition of wildlife social structures useful for business organization. For these reasons, quasi-option value is offered as an additional reason to preserve remaining intact ecosystems.

The non-use values described above can extend well beyond the jurisdictional boundaries circumscribing lands affected by management changes. That is to say, many people across the country obtain value from the land, flora, and fauna in the Idaho Roadless Areas. Simply accounting for the values of people of Idaho would likely neglect a large portion of the non-use values held for these areas. For example, after studying four natural resource public goods in the United States, Loomis (2000) made a general statement about how State and economic value jurisdictions compare for non-use value. He stated that "the results indicate commonly used state and political jurisdictions reflect an average of 13 percent of total benefits in the economic jurisdiction."

The understanding of the impact of management emphasis changes on non-use values attached to Idaho Roadless Areas is further complicated by the recent recognition that healthy forests systems are dynamic and require disturbance. When most of the non-use values emerged in the literature, the forestry community's understanding of ecosystem dynamics was far less mature; therefore, the ideas of preserving a static condition were more credible in terms of maintaining ecosystem health and the associated non-use values.

Economic Commodity Values

Commodities (such as wood products, wildlife-related recreation, minerals, range). Commodities produced from NFS lands provide benefits to society in a variety of products. These include timber and non-timber forest products (sawlogs, roundwood, herbs, mushrooms, decorative boughs, and other greens); metals; minerals; crude oil; natural gas; and meat. Many people appreciate both the commodity and non-commodity values of NFS lands. They view humans as trying to make use of natural resources on a sustained yield basis to meet their needs (Grumbine 1999) and see a role of NFS lands as providing goods and services for people.

Moving along the spectrum of non-commodity toward commodity uses, hunting and fishing is an important activity on Idaho national forests. The roadless areas in Idaho provide core habitat supporting abundant game species that provide pursuit and dietary subsistence opportunities; as well as wide-ranging carnivore species that now persist only in limited areas of the Nation. The aquatic and terrestrial wildlife sections of this EIS disclose how important many of Idaho's Roadless Areas are in supporting habitat for many species facing rapid population declines.

Several studies have been done in Idaho to estimate the value of some of the popular wildlife-related recreation activities in Idaho. The relative magnitude of expenditures compared to consumer surplus varies based on many factors. For example, several decades ago Sorg and Loomis (1985) estimated that the gross value of a cold-water fishing trip in Idaho was $80 (which was worth roughly $125 in 2004 dollars when adjusted for inflation with the gross domestic product (GDP) deflator). This represented roughly $37 per trip in expenditures (for example, transportation, food, lodging, tackle), plus $43 per trip in consumer surplus (that is, the amount the typical angler would be willing to pay over and above actual expenditures). Similarly, Sorg and Nelson (1986) also estimated that net willingness to pay in addition to actual expenditures for elk hunting in Idaho ranged from $52 to $100 ($87 to $167 in 2004 dollars) per trip in 1982 and 1983. These are just two examples of how values accrue to people through social and personal benefits.

Phosphate production from NFS lands has increased since the mid-1980s, both in total quantity and as a proportion of domestic production. Western production will remain important for providing raw material for fertilizer in the Western region and for production of elemental phosphorous (Jasinski 1999). Most Western NFS production occurs on the Caribou portion of the Caribou-Targhee National Forest, accounting for about 15 percent of domestic production in 2001 (USDA Forest Service 2003). Oil and gas mining, on the other hand, is not occurring in Idaho Roadless Areas; there are no existing oil and gas leases in these areas. Saleable minerals in Idaho Roadless Areas are also negligible across the State.

The full extent of Idaho's geothermal resource has yet to be discovered. The Geothermal Task Force of the Western Governor's Association estimated that Idaho has 855 mega-watts (MW) of near-term economic potential reserves (by 2015) and 1,670 MW of long-term potential (by 2025). Apart from this specific site resource estimate, there is no overall estimate of geothermal resource capacity in Idaho Roadless Areas.

There has been some timber cutting in Idaho Roadless Areas between 2001 and 2004, with sales operating in the Idaho Panhandle, Nez Perce, and Sawtooth National Forests, totaling about 950 acres (roughly 1.5 square miles) and producing approximately 8.5 million board feet (MMBF) of timber. As forest plans have been revised in recent years, there has been a substantial decrease in the allowable timber sale quantity and areas designated as suitable for timber cutting. This decrease in timber cutting reflects the increased recognition that roadless areas are important for ecological and human-centered reasons. It also shifted the environmental effects of U.S. wood fiber consumption to Canada and the southern United States (MacCleery and LeMaster 1999). Overall, NFS lands supply approximately 2 percent of the Nation's wood products.

Timber Revenue and Costs. The Forest Service spends money to prepare timber sales, do environmental analyses, and conduct other administrative and planning activities associated with timber sales. However, the Forest Service does not necessarily recover its costs from timber sales; therefore, costs may exceed revenues (Table 3-69). Timber sales on national forests are conducted for a number of reasons other than for commodity purposes. Many sales are conducted to meet other resource management objectives that require the manipulation of vegetation, such as improved wildlife habitat, hazardous fuels reduction, and forest health.

Table 3-69 provides information on the costs and revenues associated with timber sales in Idaho's national forests. Revenue data were compiled from sold and harvest reports compiled by the Northern and Intermountain Regions. The average revenue figures below were

calculated using a 3-year average (fiscal years 2004–2006) of timber volumes and values (adjusted for inflation to 2006 dollars) for forest products sold on the national forests.[121]

Table 3-69. Average annual revenues and costs and average net revenue for Idaho National Forest timber sale programs (2004–2006)

Forest	Average revenue per MBF*	Average cost per MBF	Average net revenue per MBF
	---------- Dollars ----------		
Region 1			
Idaho Panhandle	148	141	7
Clearwater	156	120	36
Nez Perce	71	77	-6
Region 4			
Boise	51	101	-50
Payette	117	238	-121
Salmon-Challis	35	125	-90
Sawtooth	48	100	-52
Caribou-Targhee	96	125	-29

** MBF=thousand board feet*

Revenue Sharing. In the mid 1800s, as Federal lands began to be reserved from disposal, local governments became concerned about lost property tax revenues because these Federal lands were not subject to property taxation. Therefore, starting in the early 20th century, the Forest Service was directed to share 25 percent of its revenues with local governments for the benefit of public schools or roads. This was followed over the years by other revenue-sharing legislation (such as the Taylor Grazing Act and the Refuge Revenue Sharing Act), but the controversy over revenue-sharing continued because of two main issues. First, revenue sharing was tied to the value and amount of the products sold, both of which fluctuate from year to year, so revenue-sharing was an undependable source of income for local governments. Second, many felt that the amount of the payments was too low compared to the taxes these lands would have generated if privately held.

To alleviate some of these problems, in 1976 Payment in Lieu of Taxes (PILT) legislation was passed to provide an additional, and more stable, source of Federal land payments. However, over the years revenue-sharing payments began to falter, as harvests from Federal timber lands declined and Congress continued to fail to appropriate the funds necessary to fully fund the PILT program. In 2000, the Secure Rural School and Community Self-Determination Act (SRSA)

[121] Recent information on timber management costs were not readily available because of changes in how these items are tracked in the Forest Service's accounting system. Therefore, information obtained from the Forest Service Washington Office on timber management outlays for fiscal years 2000 to 2002 was used to provide estimates of timber management costs for Idaho's national forests, and these costs were adjusted to reflect 2006 costs. Costs used in this analysis included silvicultural exams, sale preparation, harvest administration, and appeals and litigation. The sum of costs for the 3 years (after adjusting to 2006 dollars) was divided by the sum of timber volumes sold during the period 2004 to 2006 to arrive at the average cost figures shown in the table. For most Idaho national forests, average net revenue per million board feet was negative, ranging from a negative $6/MBF for the Nez Perce National Forest to a negative $90/MBF for the Salmon-Challis. Average net revenue was positive for two forests, the Idaho Panhandle and the Clearwater.

was enacted to provide transitional payments to rural counties affected by declining revenue-sharing payments. Counties receiving 25 percent fund payments were given the option of continuing these payments or switching to the SRSA, which provides payments based on a county's pro-rata share of each State's average high-three payments from the old system (1986–1999) (Gebert et al. 2005, 2004). This legislation ran through fiscal year 2006. However, in May, 2007, Congress extended the act for an additional year and legislation has been proposed to extend it through 2013.

As long as the SRSA remains in effect, these payments would remain the same (except for adjustments for inflation) regardless of alternative. However, should this legislation lapse, payments would once again be based upon the resources extracted and the prices those resources command on the market. In recent history, such payments have been substantially less than those received under the SRSA. Additionally, if the SRSA is not extended, the payments received by counties would differ depending on alternative because of the various amounts of timber harvest.

State-level economic profile. The Idaho economy is a diverse economy with a blend of industries such as agriculture, manufacturing, services, and government accounting for a large proportion of economic activity. Based on industry output, manufacturing is by far the largest contributor to the Idaho economy with approximately 23 percent of the total output (appendix J, table J-2).

Wood products manufacturing contributes nearly 4 percent of total output and 1.5 to 2.5 percent of employment, value added, and labor income. Mining makes up a very small part of the Idaho economy, accounting for less than 1 percent of output, employment, labor income, and value added. Road construction also accounts for less than 1 percent of Idaho's total output, employment, labor income, and value-added.

BEA Economic Areas

Economic Profile. Tables J3–J7 in appendix J display economic information for each of the Bureau of Economic Analysis (BEA) areas using 2004 Impact Analysis for Planning (IMPLAN) data (Minnesota IMPLAN 2006). The tables provide a snapshot of each BEA economic area from an industry-by-industry perspective measured by employment, labor income (payments to employees and proprietors), industry output (sales), and value added to inputs.

The following is a list of national forests modeled in each economic area (EA):

- North Idaho – Idaho Panhandle National Forest;
- Central Idaho – Clearwater and Nez Perce National Forests;
- South Central - Payette, Salmon-Challis, and Sawtooth National Forests;
- Southeast – Caribou and Targhee National Forests;
- Boise – Boise National Forest.

North Idaho

North Idaho is a diverse economy dominated by manufacturing, government, and service-related industries. Based on industry output, manufacturing and government are the largest contributors to the North Idaho economy, each accounting for approximately 15.8 percent of total output. Services, especially health and social services, is also a relatively large contributor from the standpoint of industry output, as is retail trade and construction. Based on employment (18.1 percent of the total), labor income (23.9 percent of the total), and value added (25.1 percent), the government sector contributes the largest relative share to the North Idaho economy. Retail trade, health and social services, manufacturing, and construction also have relatively large shares of employment, labor income, and value added (appendix J, table J-3).

Central Idaho

Based on industry output, the largest sector in the Central Idaho economy is the wood products industry, which contributes approximately 23.1 percent of Central Idaho's total output. However, based on employment (18.5 percent of the total), labor income (23.6 percent of the total), and value added (24.4 percent), the government sector contributes the largest relative share to the Central Idaho economy. Retail trade, health and social services, and wood products also have relatively large shares of employment, labor income, and value added. Mining and road construction make up a very small part of the Central Idaho economy, each accounting for less than 1 percent of output, employment, labor income, and value added (appendix J, table J-4).

South Central Idaho

The South Central Idaho economy is dominated by agriculture, manufacturing, and services. Based on industry output, manufacturing is the largest contributor to the South Central Idaho economy, with approximately 24.0 percent of the total output. Manufacturing is followed closely, in terms of output, by the agriculture, forestry, and hunting and fishing sectors, which contribute 21.3 percent of total output. Government is also a relatively large contributor from the standpoint of industry output. Based on employment, labor income, and value-added, government and agriculture contribute the largest relative shares to the South Central Idaho economy. Agriculture comes in first with respect to employment, contributing 15.1 percent of South Central Idaho's total employment. In terms of labor income and value-added, government contributes the largest share ,with 15.6 percent of labor income and 17.6 percent of value-added, with agriculture a close second, and manufacturing coming in third.

Wood products manufacturing contributes around 1 percent of total output, labor income, and value added, and less than 1 percent of employment. Mining also makes up a very small part of the South Central Idaho economy, accounting for less than 0.5 percent of output, employment, labor income, and value added. Road construction is slightly higher, contributing about 1 percent of labor income and less than 1 percent of total output, employment, and value-added (appendix J, table J-5).

Boise Idaho

The Boise economy is a diverse economy, with the largest sectors being manufacturing, government, and service-related industries. Based on industry output, manufacturing is the largest contributor to the Boise economy, with approximately 27.2 percent of the total output. Government, construction, and services are also relatively large contributors from the

standpoint of industry output. Based on employment (13.1 percent of the total), labor income (18.9 percent of the total), and value added (20.3 percent), the government sector contributes the largest relative share to the Boise economy. Retail trade, health and social services, and construction also have relatively large shares of employment, labor income, and value added.

Wood products manufacturing contributes 1.6 percent of total output in the Boise area. Wood products manufacturing also accounts for about 1 percent of the total Boise economy as measured by employment, labor income, and value-added. Road construction accounts for slightly less than 1 percent of the Boise economy, regardless of the measure used, while mining makes up less than 0.5 percent (appendix J, table J-6).

Southeast Idaho

The Southeast Idaho economy is dominated by manufacturing, government, and service-related industries. Based on industry output, manufacturing is the largest contributor to the Southeast Idaho economy, accounting for approximately 22.1 percent of total output. Services, especially professional scientific and technical services, and government are also relatively large contributors from the standpoint of industry output at about 12 percent each. Based on employment (15.9 percent of the total), labor income (19.6 percent of the total), and value added (21.2 percent), the government sector contributes the largest relative share to the Southeast Idaho economy. Based on employment, retail trade is the next largest contributor to the economy at 11 percent. However, based upon labor income and value-added, professional scientific and technical services surpasses retail trade, accounting for 18.4 percent of labor income and 13.1 percent of value-added. Wood products manufacturing, mining, and road construction each contributes less than 1 percent of total output, employment, labor income, and value added in Southeast Idaho (appendix J, table J-7).

Economic dependency, The National Forest-Dependent Rural Communities Economic Diversification Act of 1990 was passed to provide assistance to rural communities that are located in or near national forests and are economically dependent on forest resources or are likely to be economically disadvantaged by Federal or private sector natural resource or land management practices. The act specifies several eligibility criteria for program assistance for counties, including proximity to national forests (within 100 miles), exclusion from any metropolitan statistical area (as defined by the U.S. Office of Management and Budget), and total labor income (equal to or greater than 15 percent from forestry resources). Distribution of labor income attributable to forest- or wildland-related industries, including primary and secondary labor income effects, was recently estimated to assess changes in eligibility status; distributions are estimated using 2000 data (Gebert and Odell 2007).

A list of natural resource dependent counties was developed for this analysis (table 3-70). Appendix J describes how this list was developed.

Table 3-70. Natural-resource-dependent counties in Idaho economic areas potentially affected by the Idaho Roadless Rule

Bureau of Economic Analysis economic area	Counties where potential opportunities decrease under the Idaho Roadless Rule [1]	
	Wood products [2]	Mining-dependent counties [3]
North	Boundary, Bonner, Kootenai, Benewah, Shoshone, (ID), Ferry (WA), Latah, Pend Oreille (WA), Stevens (WA)	None
Central	Clearwater (ID), Lewis, Nez Perce, Asotin (WA)	None
Southeast	Bear Lake	Caribou, Oneida, Power, and Bannock
South Central	Blaine	None
Boise	None [4]	None

[1] *Counties not listed would see no change or potential increases in opportunities under the Proposed or Modified Idaho Roadless Rule.*

[2] *No counties were identified where wood products opportunities would decrease under the Proposed or Modified Idaho Roadless Rule relative to the 2001 Roadless Rule.*

[3] *Mining-dependent counties (likely to see increases in opportunities under the Proposed or Modified Idaho Roadless Rule compared to the 2001 Roadless Rule).*

[4] *Fewer than 200 acres, scattered across three counties within the Boise BEA were found where opportunities would decrease under the Proposed Idaho Roadless Rule.*

Analysis Assumptions

Timber, minerals, and road data were provided by national forests. This information was assigned to each economic area (EA) in order to develop economic impact estimates. Timber volume data were assigned to an EA based on information regarding the location of the national forest within the EA and the existence of timber processing facilities in the EA. If timber processing facilities did not exist or were limited, the timber volume was assigned to the nearest EA with timber processing facilities. Road information was assigned to an EA based on the location of the road activity within the EA. The economic impact estimates for road decommissioning were based on all miles of road by assigning all of the miles to the North Idaho EA.

The economic impact estimates for road decommissioning were based on all miles of road assigned to the North Idaho EA.

Mineral activity consisted of phosphate mining. All phosphate mining is located on the Caribou-Targhee National Forest, which lies within the Southeast Idaho EA.

Economic Context—Commodity Values: Environmental Consequences

2001 Roadless Rule (No Action)

The 2001 Roadless Rule prohibits road construction / reconstruction actions, except those associated with seven exceptions, and prohibits timber cutting, sale, or removal, with some exceptions. Table 3-71 displays the foreseeable outputs in Idaho Roadless Areas, by economic area, based on the 2001 Roadless Rule. Some timber cutting would be permitted for ecosystem restoration and hazardous fuel reduction purposes. No road construction is permitted to support timber cutting for these purposes. Timber harvest is projected to occur on about 9,000 acres (45.0 MMBF) over the next 15 years, primarily within the North Idaho area.

Road construction / reconstruction associated with existing mineral leases would continue; therefore, phosphate mining on existing leases on the Caribou-Targhee National Forest would continue. About 2,000,000 tons of phosphate deposits are projected to be removed over the foreseeable future (15 years) in the Southeast Idaho economic area.

About 17 miles of road would likely be constructed associated with roaded access to existing leases or areas associated with valid existing rights over the next 15 years. Fifteen miles of road decommissioning are projected to occur under the 2001 Roadless Rule.

Phosphate mining on 14,460 acres in known unleased phosphate areas on the Caribou-Targhee National Forest would not occur under the 2001 Roadless Rule. This mining is not anticipated to occur within the foreseeable future (next 15 years); however, under the 2001 Roadless Rule these areas would never be developed, foregoing any future economic contributions from this activity.

Table 3-71. Annual forest level outputs, 2001 Roadless Rule, summarized by BEA EA[1]

Bureau of Economic Analysis economic area	Harvest (MMBF)	Phosphate (tons)	Road decommissioning (miles)	Roads (miles)
North	2.56	0	1	0.07
Central	.10	0	0	0.00
Southeast	.29	2,000,000	0	1.04
South central	.01	0	0	0.05
Boise	.03	0	0	0.00
Total	3.00*	2,000,000	1	1.1

MMBF=thousand board feet

[1] Forest-specific data may be found in the socioeconomic specialist report in the project record.

**Volume may not add up due to rounding*

Employment and Labor Income. Table 3-72 displays the average annual estimated employment and labor income resulting from the IMPLAN input-output modeling for each economic impact area based on the forest-level outputs projected from the 2001 Roadless Rule (table 3-71).

In North Idaho, activities allowed under the 2001 Roadless Rule would annually contribute roughly 15 part- and full-time jobs to the 409,975 existing jobs and approximately $402,900 in labor income to the more than $15.390 billion in existing labor income (appendix J, tables J-8.1 and J-8.2). The most notable sectors affected would be agriculture and manufacturing and to a lesser degree healthcare and retail trade (appendix J, table J-8.1 and J-8.2). Overall, contributions to North Idaho's diverse economy would be less than 1 percent.

In Central Idaho, the 2001 Roadless Rule would annually contribute one part- and full-time job to the existing 47,311 jobs and approximately $13,600 in labor income to the existing $1.626 billion in labor income (appendix J, tables J-9.1 and J-9.2). No sectors would be affected. Overall, contributions to the existing economy (the largest sector being the wood products industry) would be less than 1 percent.

In South Central Idaho, the 2001 Roadless Rule would annually contribute no part- and full-time jobs to the existing 107,116 jobs and approximately $3,000 in labor income to the existing $3.390 billion in labor income (appendix J, tables J-10.1 and J-10.2). No sectors would be affected. Overall, contributions to South Central Idaho's diverse economy would be minimal.

In Boise Idaho, the 2001 Roadless Rule would annually contribute no part- and full-time jobs to the existing 404,538 jobs and approximately $5,100 in labor income to the $15.273 billion in annual labor income (appendix J, tables J-11.1 and J-11.2). No sectors would be affected. Overall, contributions to Boise Idaho's diverse economy would be minimal.

In Southeast Idaho, the 2001 Roadless Rule would annually contribute 585 part- and full-time jobs to the existing 185,237 jobs and approximately $23.62 million in labor income to the existing $6.568 billion in labor income (appendix J, table J-12.1 and J-12.2). The jobs and labor income are associated with continuation of phosphate mining under existing leases. Mining and agricultural sectors would be affected most in this economic sector, as well as accommodations, food services, retail, transportation, wholesale, and other service sectors. Overall, contributions to the Southeast Idaho's existing economy (the largest sector being the mining industry) would be less than 1 percent.

Table 3-72. Part- and full-time jobs contributed annually and labor income (in thousands of dollars) by Forest Service resource programs under the 2001 Roadless Rule

	North ID		Central ID		South Central ID		Boise		Southeast ID	
Resource program	Jobs (#)	Labor income ($1,000)	Jobs (#)	Labor income ($1,000)	Jobs (#)	Labor income ($1,000)	Jobs (#)	Labor income ($1,000)	Jobs (#)	Labor income ($1,000)
Recreation	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Wildlife and fish	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Grazing	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Timber	14	394.9	1	13.6	0	1.3	0	5.1	2	37.8
Minerals	0	0.0	0	0.0	0	0.0	0	0.0	582	23,543.1
Roads	1	7.9	0	0.0	0	1.7	0	0.0	1	43.3
Payments to States/ counties	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Forest Service expenditures	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total forest management	15	402.9	1	13.6	1	3.0	0	5.1	585	23,624.2

Note: Table totals reflect sums of numbers that were rounded for presentation in the above rows and may not match exactly.

Existing Plans

About 3.22 million acres within Idaho Roadless Areas have Existing Plan prescriptions that limit activities, especially those prescriptions that recommend the area for wilderness or manage the area for its primitive character. About 4,482,000 acres within Idaho Roadless Areas have prescriptions that permit road construction / reconstruction, timber cutting, and discretionary mineral activity to some degree. Similarly, about 1,263,200 acres are in a management prescription similar to GFRG. Road construction / reconstruction, timber cutting, and discretionary mineral activity would be permitted.

Potential timber harvest under Existing Plans over the next 15 years is projected to occur on about 40,500 acres (200.4 MMBF) with around 47 percent coming from the North Idaho economic area and 38 percent from the Central Idaho economic area (table 3-73). About 180 miles of road construction / reconstruction are projected to facilitate timber cutting. In addition, 15 miles of road are projected to be constructed / reconstructed to facilitate mineral access and

roaded access in response to valid existing rights. In addition, about 48 miles of road decommissioning are projected to be accomplished over the next 15 years.

The Caribou Forest Plan allows for development of phosphate in existing lease areas (7,230 acres[122]) as well as in those known phosphate areas that are not leased (13,620 acres[123]). About 2,000,000 tons of phosphates are projected to be removed on 1,100 acres over the foreseeable future (15 years) in the Sage Creek and Meade Peak Roadless Areas in the Southeast Idaho economic area (table 3-73) associated with the expansion of the Smoky Canyon Mine.

Phosphate mining on 6,750 acres in known unleased phosphate deposits on the Caribou portion of the Caribou-Targhee National Forest could occur under Existing Plans. This mining is not anticipated to occur within the foreseeable future (next 15 years); however, it is likely to occur sometime in the extended future (50 or more years) and would provide jobs and income if it is developed. Phosphate mining on the 6,870 acres of known unleased phosphate deposits on the Targhee portion of the forest would have to undergo environmental analysis to determine whether or not mineral leasing is permitted.

Existing Plans would allow road construction / reconstruction for geothermal development in some locations in management prescriptions similar to Backcountry and GFRG. It is unknown where and to what degree geothermal resources would be developed; however, since about half of Idaho Roadless Areas have high to moderate potential it is likely some development would eventually occur.

Currently lease applications have been submitted for geothermal exploration, which could affect about 7,000 acres of the Peace Rock Roadless Area on the Boise National Forest and 33 acres of the West Panther Roadless Area on the Salmon National Forest. If fully developed, roads, transmission lines, and other facilities would likely be constructed (see appendix I for a description of general development of geothermal resources).

Table 3-73. Annual forest level outputs under Existing Plans[1], summarized by BEA EA

Bureau of Economic Analysis economic area	Harvest (MMBF)	Phosphate (tons)	Road decommissioning (miles)	Roads (miles)
North	6.29	0	3.2	8.57
Central	5.02	0	0	0.86
Southeast	2.02	2,000,000	0	2.34
South central	0.01	0	0	0.05
Boise	0.03	0	0	0.20
Total	13.36*	2,000,000	3.2	12.01

[1] *Totals may not match due to rounding*

Employment and Labor Income. Table 3-74 displays the average annual estimated employment and labor income resulting from the IMPLAN input-output modeling for each economic impact area based on the forest level outputs projected from the Existing Plans (table 3-73).

[122] About 30 acres of existing leases in roadless areas are already mined

[123] Estimate excludes 840 acres of unleased KPLA in Sage Creek Roadless Area, which the Forest Service recommended unavailable per 1998 leasing analysis.

In North Idaho, activities allowed under Existing Plans would annually contribute roughly 44 part- and full-time jobs to the 409,975 existing jobs and approximately $1.32 million in labor income to the more than $15.390 billion in existing labor income (appendix J, table J-8.1 and J-8.2). The most notable sectors affected would be agriculture and manufacturing and to a lesser degree healthcare and retail trade (appendix J, table J-8.1 and J-8.2). Although Existing Plans could contribute more than the other alternatives, the contributions to North Idaho's diverse economy would still be less than 1 percent.

In Central Idaho, the Existing Plans would annually contribute 27 part- and full-time jobs to the existing 47,311 jobs and approximately $694,400 in labor income to the existing $1.626 billion in labor income (appendix J, table J-9.1 and J-9.2). Primarily the agriculture and manufacturing sectors could see additional jobs and labor income and to a lesser extent retail trade, health care, accommodations, and other services. Although Existing Plans could contribute more than the other alternatives, the contributions to Central Idaho's economy would still be less than 1 percent.

In South Central Idaho, Existing Plans would annually contribute no part- and full-time jobs to the existing 107,116 jobs and approximately $3,000 in labor income to the existing $3.390 billion in labor income (appendix J, table J-10.1 and J-10.2). No sectors would be affected. Overall, contributions to South Central Idaho's diverse economy would be minimal.

In Boise Idaho, the Existing Plans would annually contribute no part- and full-time jobs to the existing 404,538 jobs and approximately $12,700 in labor income to the $15.273 billion in annual labor income (appendix J, table J-11.1 and J-11.2). No sectors would be affected. Overall, contributions to Boise Idaho's diverse economy would be minimal.

In Southeast Idaho, the Existing Plans would annually contribute 598 part- and full-time jobs to the existing 185,237 jobs and approximately $23.88 million in labor income to the existing $6.568 billion in labor income (appendix J, table J-12.1 and J-12.2). The jobs and labor income are associated with continuation of phosphate mining under existing leases, as well as timber harvest projected under Existing Plans. Mining and agricultural sectors would be affected most in this economic sector, as well as accommodations, food services, retail, transportation, wholesale, and other service sectors. Overall, contributions to the Southeast Idaho's existing economy (the largest sector being the mining industry) would be less than 1 percent.

Table 3-74. Part- and full-time jobs contributed annually and labor income (in thousands of dollars) by Forest Service resource programs under Existing Plans

	North ID		Central ID		South Central ID		Boise		Southeast ID	
Resource program	Jobs (#)	Labor income ($1,000)	Jobs (#)	Labor income ($1,000)	Jobs (#)	Labor income ($1,000)	Jobs (#)	Labor income ($1,000)	Jobs (#)	Labor income ($1,000)
Recreation	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Wildlife and fish	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Grazing	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Timber	35	969.4	26	665.0	0	1.3	0	5.1	14	262.0
Minerals	0	0.0	0	0.0	0	0.0	0	0.0	582	23,543.1
Roads	9	346.4	1.0	29.4	0	1.7	0	7.6	2	77.4
Payments to States/counties	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Forest Service expenditures	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total forest management	44	1315.7	27	694.4	0	3.0	0	12.7	598	23,882.5

Note: Table totals reflect sums of numbers that were rounded for presentation in the above rows and may not match exactly.

Proposed Idaho Roadless Rule (Proposed Action)

About 3.1 million acres are in the Wild Land Recreation, Primitive, and SAHTS themes, where limited to no road construction / reconstruction, timber harvest, or discretionary mineral activities would occur. About 5,258,700 acres are in Backcountry, which would allow for some road construction / reconstruction, timber cutting and discretionary mineral activities to occur. About 609,600 acres are in the GFRG theme, which does not limit road construction / reconstruction, timber cutting, and discretionary mineral activities. Based on foreseeable projections, over the next 15 years, about 61 miles of road are likely to be constructed or reconstructed. Timber harvest over the next 15 years is projected to occur on 18,000 acres (87.6 MMBF) with around 63 percent coming from the North Idaho economic area and 32 percent from the Southeast Idaho economic area (table 3-75). About 40.5 miles of road decommissioning are also anticipated.

There are 14,460 acres of known unleased phosphate deposits on the Caribou-Targhee National Forest. About 13,190 acres (91 percent) are located within Backcountry and GFRG themes. Under these themes road construction or reconstruction would be permissible to develop phosphate deposits. About 1,280 acres of unleased phosphate deposits are in the Primitive theme, which prohibits road construction / reconstruction or surface occupancy for phosphates; therefore, this area would likely not be developed (see section 3.5, Minerals and Energy).

The Idaho Roadless Rule would also permit road construction / reconstruction for geothermal development in the GFRG theme. About 7 percent of Idaho Roadless Areas are in this theme, but only about 4 percent could be developed because of slope restrictions on the other 3 percent (see section 3.5, Minerals and Energy). It is likely some of these areas would be developed over time; however, except for two pending lease applications there is no information about where or when the activity would occur. If fully developed, roads, transmission lines, and other facilities would likely be constructed (see appendix I for a description of general development

of geothermal resources). Site-specific analysis would occur prior to exploration or development of geothermal energy.

Currently lease applications have been submitted for geothermal exploration within 7,000 acres of the Peace Rock Roadless Area on the Boise National Forest and 33 acres of the West Panther Roadless Area on the Salmon National Forest. Both these areas are in either the Primitive or Backcountry theme; therefore, they would not be developed because of the inability to construct roads to access the area (see the Minerals section).

Table 3-75. Annual forest level outputs under the Idaho Roadless Rule[1], summarized by BEA EA

Bureau of Economic Analysis economic area	Harvest (MMBF)	Phosphate (tons)	Road decommissioning (miles)	Roads (miles)
North	3.70	0	2.7	1.60
Central	0.18	0	0	0.00
Southeast	1.88	2,000,000	0	2.34
South Central	0.02	0	0	0.05
Boise	0.06	0	0	0.20
Total	5.84	2,000,000	2.7	4.18

[1] *Forest-specific data may be found in the socioeconomic specialist report in the project record.*

Employment and Labor Income. Table 3-76 displays the average annual estimated employment and labor income resulting from the IMPLAN input-output modeling for each economic impact area based on the forest level outputs projected from the Proposed Rule (table 3-75).

In North Idaho, activities allowed under the Proposed Rule would annually contribute roughly 23 part- and full-time jobs to the 409,975 existing jobs and approximately $645,100 in labor income to the more than $15.390 billion in existing labor income (appendix J, table J-8.1 and J-8.2). The most notable sectors affected would be agriculture and manufacturing and to a lesser degree healthcare and retail trade (appendix J, table J-8.1 and J-8.2)). Overall, the contributions to North Idaho's diverse economy would be less than 1 percent.

In Central Idaho, the Proposed Rule would annually contribute one part- and full-time jobs to the existing 47,311 jobs and approximately $23,500 in labor income to the existing $1.626 billion in labor income (appendix J, table J-9.1 and J-9.2). Primarily the agriculture and manufacturing sectors could see additional jobs and labor income. Overall, the contributions to Central Idaho's economy would be less than 1 percent.

In South Central Idaho, the Proposed Rule would annually contribute no part- and full-time jobs to the existing 107,116 jobs and approximately $4,300 in labor income to the existing $3.390 billion in labor income (appendix J, table J-10.1 and J-10.2). No sectors would be affected. Overall, contributions to South Central Idaho's diverse economy would be minimal.

In Boise Idaho, the Proposed Rule would annually contribute one part- and full-time jobs to the existing 404,538 jobs and approximately $17,800 in labor income to the $15.273 billion in annual labor income (appendix J, table J-11.1 and J-11.2). No sectors would be affected. Overall, contributions to Boise Idaho's diverse economy would be minimal.

In Southeast Idaho, the Proposed Rule would annually contribute 597 part- and full-time jobs to the existing 185,237 jobs and approximately $23.86 million in labor income to the existing $6.568 billion in labor income (appendix J, tables J-12.1 and 12.2). The jobs and labor income are

associated with continuation of phosphate mining under existing leases, as well as timber harvest projected under the Idaho Roadless Rule. Mining and agricultural sectors would be affected most in this economic sector, as well as accommodations, food services, retail, transportation, wholesale, and other service sectors. Overall, contributions to the Southeast Idaho's existing economy (the largest sector being the mining industry) would be less than 1 percent.

Table 3-76. Part- and full-time jobs contributed annually and labor income (in thousands of dollars) by Forest Service resource programs under the Proposed Idaho Roadless Rule

Resource program	North ID		Central ID		South Central ID		Boise		Southeast ID	
	Jobs (#)	Labor income ($1,000)	Jobs (#)	Labor income ($1,000$)	Jobs (#)	Labor income ($1,000)	Jobs (#)	Labor income ($1,000)	Jobs (#)	Labor income ($1,000)
Recreation	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Wildlife and fish	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Grazing	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Timber	21	569.4	1	23.5	0	2.6	0	10.2	13	243.9
Minerals	0	0.0	0	0.0	0	0.0	0	0.0	582	23,543.1
Roads	2	75.7	0	0.0	0	1.7	0	7.6	2	77.4
Payments to States/counties	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Forest Service expenditures	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total forest management	23	645.1	1	23.5	0	4.3	1	17.8	597	23,864.5

Note: Table totals reflect sums of numbers that were rounded for presentation in the above rows and may not match exactly.

Modified Idaho Roadless Rule

About 3.25 million acres are in the Wild Land Recreation, Primitive, and SAHTS themes, where limited to no road construction / reconstruction, timber harvest, or discretionary mineral activities would occur. About 5,312,900 acres are in Backcountry, which would allow for some road construction / reconstruction, timber cutting and discretionary mineral activities to occur. About 405,900 acres are in the GFRG theme, which does not limit road construction / reconstruction or timber cutting, but does limit some discretionary mineral activities.

Under the Modified Idaho Roadless Rule, timber harvest is projected to increase relative to the 2001 Roadless Rule but be substantially less than under existing forest plans. Timber harvest of 75.6 MMBF is projected to occur on 15,000 acres over 15 years with around 70 percent coming from the North Idaho economic area and 26 percent from the Southeast Idaho economic area (table 3-77). Based on foreseeable projections, over the next 15 years, about 50 miles of road are likely to be constructed or reconstructed, associated with timber cutting, phosphate production, and access easements. About 36 miles of road decommissioning are also anticipated in the next 15 years.

The Modified Rule would permit road construction / reconstruction and surface occupancy within the GFRG theme to access unleased phosphate deposits. There are 14,460 acres of known unleased phosphate deposits on the Caribou-Targhee National Forest. Under the Modified Rule, about 5,770 acres (40 percent) are located within the GFRG themes. These deposits are located within six roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek,

Schmid Peak, and Stump Creek on the Caribou portion of the forest and could eventually be mined over an extended period of time (50 years or more).

About 8,690 acres of unleased phosphate deposits are in the Primitive, Backcountry, and GFRG themes in the Bear Creek, Bald Mountain, and Poker Peak Roadless Areas. Road construction and reconstruction would be prohibited to access these deposits. Without road access it is unlikely these deposits would be developed (section 3.5, Minerals and Energy).

The Modified Rule would prohibit road construction / reconstruction to access geothermal development and oil and gas in all themes. Surface use and occupancy could occur, unless prohibited by the forest plans.[124]

Table 3-77. Annual forest level outputs under the Modified Idaho Roadless Rule, summarized by BEA EA

Bureau of Economic Analysis economic area	Harvest (MMBF)	Phosphate (tons)	Road decommissioning (miles)	Roads (miles)
North	3.51	0	2.4	1.34
Central	0.18	0	0	0.00
Southeast	1.28	2,000,000	0	1.88
South Central	0.01	0	0	0.05
Boise	0.06	0	0	0.20
Total	5.04	2,000,000	2.4	3.47

Employment and Labor Income. Table 3-78 displays the average annual estimated employment and labor income resulting from the IMPLAN input-output modeling for each economic impact area based on the forest level outputs projected from the Modified Rule (table 3-77).

In North Idaho, activities allowed under the Modified Rule would annually contribute roughly 21 part- and full-time jobs to the 409,975 existing jobs and approximately $604,500 in labor income to the roughly $15.390 billion in existing labor income (appendix J, tables J-8.1 and J-8.2). The most notable sectors affected would be agriculture and manufacturing and to a lesser degree healthcare and retail trade. Overall, the contributions to North Idaho's diverse economy would be less than 1 percent.

In Central Idaho, the Modified Rule would annually contribute one part- and full-time jobs to the existing 47,311 jobs and approximately $23,500 in labor income to the existing $1.626 billion in labor income (appendix J, tables J-9.1 and J-9.2). Primarily the agriculture and manufacturing sectors could see additional jobs and labor income. Overall, the contributions to Central Idaho's economy would be less than 1 percent.

In South Central Idaho, the Modified Rule would annually contribute no part- and full-time jobs to the existing 107,116 jobs and approximately $3,600 in labor income to the existing $3.390 billion in labor income (appendix J, tables J-10.1 and J-10.2). No sectors would be affected. Overall, contributions to South Central Idaho's diverse economy would be minimal.

In Boise Idaho, the Idaho Modified Rule would annually contribute one part- and / or full-time job to the existing 404,538 jobs and approximately $17,800 in labor income to the $15.273 billion

[124] A prior decision was made in the Targhee Forest Plan, which prohibits surface use and occupancy for oil and gas.

in annual labor income (appendix J, tables J-11.1 and J-11.2). No sectors would be affected. Overall, contributions to Boise Idaho's diverse economy would be minimal.

In Southeast Idaho, the Idaho Roadless Rule would annually contribute 593 part- and full-time jobs to the existing 185,237 jobs and approximately $23.77 million in labor income to the existing $6.568 billion in labor income (appendix J, tables J-12.1 and J-12.2). The jobs and labor income are associated with continuation of phosphate mining under existing leases, as well as timber harvest projected under the Idaho Roadless Rule. Mining and agricultural sectors would be affected most in this economic sector, as well as accommodations, food services, retail, transportation, wholesale, and other service sectors. Overall, contributions to the Southeast Idaho's existing economy (the largest sector being the mining industry) would be less than 1 percent.

Table 3-78. Part- and full-time jobs contributed annually and labor income (in thousands of dollars) by Forest Service resource programs under the Modified Idaho Roadless Rule

Resource program	North ID		Central ID		South Central ID		Boise		Southeast ID	
	Jobs (#)	Labor income ($1,000)	Jobs (#)	Labor income ($1,000)	Jobs (#)	Labor income ($1,000)	Jobs (#)	Labor income ($1,000)	Jobs (#)	Labor income ($1,000)
Recreation	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Wildlife and fish	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Grazing	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Timber	20	540.3	1	23.5	0	2.0	0	10.2	9	165.9
Minerals	0	0.0	0	0.0	0	0.0	0	0.0	582	23,543.1
Roads	2	64.1	0	0.0	0	1.7	0	7.6	2	62.2
Payments to States/counties	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Forest Service expenditures	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total forest managment	21	604.5	1	23.5	0	3.6	1	17.8	593	23,771.2

Note: Table totals reflect sums of numbers that were rounded for presentation in the above rows and may not match exactly.

Summary

The economic impact analysis, which estimates the changes in jobs and labor income for each of the five economic areas of Idaho, reveals that the magnitude of average annual job and labor income impacts associated with all alternatives would be small, not exceeding 1 percent change in any economic area. While expected contributions are small, they would not be distributed equally geographically across the State. Most impacts are projected to occur in Southeast Idaho, associated with phosphate mining, and North Idaho, associated with timber cutting and related road construction and decommissioning.

There would be some very small localized impacts in the agricultural, forestry, fishery services and Federal Government non-military sectors associated with timber cutting that does not produce commercial products from some future land management practices across the State, with the amounts of these activities varying slightly between alternatives but kept small by the general financial infeasibility of these projects.

Economic Context—Non-Commodity Values: Environmental Consequences

All Alternatives

None of the alternatives would apply management direction to activities occurring under existing leases or where there are valid existing rights. Phosphate mining under existing lease would continue in the Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, Stump Creek, and Mount Jefferson Roadless Areas. Roadless characteristics—including but not limited to recreation opportunities, scenic quality, habitat for fish and wildlife, and water quality—would continue to be modified on about 7,230 acres within these roadless areas. Phosphate mining would reduce the non-commodity values, amenities, environmental functions, and non-use values in a portion of these seven roadless areas.

2001 Roadless Rule (No Action)

Limited road construction / reconstruction and timber cutting would occur in Idaho Roadless Areas under the 2001 Roadless Rule. Natural processes would dominate. Roadless characteristics would remain intact overall. Idaho Roadless Areas would continue to provide high quality soil, water, and air; sources of public drinking water; diversity of plant and animal communities; habitat for threatened, endangered, proposed, candidate, and sensitive species; reference landscapes; Primitive, Semi-Primitive Non-Motorized, and Semi-Primitive Motorized classes of recreation; natural-appearing landscapes with high scenic quality; and protection of traditional cultural and scared sites. Although existence, option, and bequest values may decline as wildlife populations decline in many areas of the country, Idaho Roadless Areas would continue to support these values.

Existing Plans

Lands recommended for wilderness and managed in a manner similar to the primitive theme (3.22 million acres) would retain high non-commodity values, amenities, environmental function (such as ability to provide clean air and clean water), and non-use values. About 4.48 million acres are managed similar to the Backcountry theme; some road construction / reconstruction and timber cutting are allowed on these lands. About 1.26 million acres are managed similar to GFRG, and there are generally no prohibitions for road construction / reconstruction and timber cutting on these lands. About 105 miles of road construction and 75 miles of road reconstruction may occur over a 15-year period and 40,500 acres of timber harvest, which would affect less than 1 percent of the Idaho Roadless Areas.

The Caribou Forest Plan allows for phosphate mining on an additional 6,750 acres of known unleased phosphate deposits within the Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek Roadless Areas. An additional 6,870 acres of unleased phosphate deposits on the Targhee portion of the Caribou-Targhee National Forest are within the Bald Mountain, Bear Creek, and Poker Creek Roadless Areas. An environmental analysis would have to be completed to determine how much of the 6,870 acres could actually be leased.

As mines expand into these areas, non-commodity values would be further reduced. Over an extended period of time, non-commodity values and amenities could be reduced on a total of 20,850 acres (acres under existing lease, plus future leasing of known phosphate deposits, assuming all the deposits on the Targhee portion of the forest are leased).

Geothermal resources could be developed in some areas under Existing Plans. However, there is no reliable information for which to base projections; therefore, it is uncertain as to where and to what degree geothermal development would occur. It is assumed that development would begin in areas with existing roads, outside Idaho Roadless Areas, because these are generally cheaper to develop; however, given that about half the high-to-moderate geothermal development overlaps Idaho Roadless Areas, it is likely some development would occur, primarily in the themes similar to Backcountry and GFRG.

Those roadless areas where activities occur could see some changes in non-commodity values, amenities, environmental functions, and non-use values. The wildlife and physical resource section of this statement reveal that Existing Plans represent some risk to soil, water, air, and wildlife resources. Activities associated with Existing Plans including roads, power lines, and facilities could reduce the non-commodity values and amenities of the Idaho Roadless Areas affected. In general, because of the existing laws and regulations most environmental functions (such as the ability to provide clean air and clean water) should be retained; however, there could be some reductions in a few localized areas negatively affecting recreation use and non-use values. For example, there could be a change in the type of recreation experiences and scenic quality for visitors and nearby residents as well as impacts on populations of some rare wildlife that would affect people across the country.

Proposed Idaho Roadless Rule (Proposed Action)

Lands in the Wild Land Recreation, Primitive, and SAHTS themes (3.1 million acres) would retain high non-commodity values, amenities, environmental functions (such as the ability to provide clean air and clean water), and non-use values. About 5.25 million acres are in the Backcountry theme; some road construction / reconstruction and timber cutting are permitted on these lands. About 609,600 acres are in GFRG, and there are no prohibitions for road construction / reconstruction and timber cutting on these lands. About 38 miles of road construction and 23 miles of road reconstruction may occur over a 15-year period, along with 18,000 acres of timber harvest, which would affect less than two-tenths of 1 percent of the Idaho Roadless Areas.

The Proposed Idaho Roadless Rule permits phosphate mining on an additional 13,190 acres of unleased phosphate deposits within the Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, Stump Creek, Mount Jefferson, Bear Creek, and Poker Creek Roadless Areas. As mines expand into these areas, non-commodity values and amenities within the affected roadless areas would be reduced. Mining in these areas would not occur in all the roadless areas at one time but would be done over an extensive period of time (50 or more years).

Road construction / reconstruction for geothermal development is also permitted in the 609,600 acres of GFRG. Activities associated with this development—including roads, power lines, and facilities—would reduce the non-commodity values and amenities of the roadless areas affected. However, there is no reliable information for which to base projections; therefore, it is uncertain as to where and to what degree geothermal development would occur. It is assumed development would begin in areas with existing roads, outside Idaho Roadless Areas, because these are generally cheaper to develop; however, it is likely some development would occur over time.

Those roadless areas where activities occur could see some changes in non-commodity values, amenities, environmental functions, and non-use values. The Terrestrial Animal Habitats and Species and Physical Resources sections (sections 3.9 and 3.6 respectively) of this EIS reveal that this alternative does represent some risk to soil, water, air, and wildlife resources. Activities associated with the Proposed Rule—including roads, power lines, and facilities—could reduce the non-commodity values and amenities of the Idaho Roadless Areas affected. In general, because of existing laws and regulations, most environmental functions (such as the ability to provide clean air and clean water) should be retained; however, there could be some reductions in a few localized areas negatively affecting recreation use and non-use values, especially from areas that experience mineral or energy development. For example, there could be a change in the type of recreation experiences and scenic quality for visitors and nearby residents as well as impacts on populations of some rare wildlife, which would affect people across the country.

Modified Idaho Roadless Rule (Preferred Alternative)

Lands in the Wild Land Recreation, Primitive, and SAHTS themes (3.25 million acres) would retain high non-commodity values, amenities, environmental function (such as the ability to provide clean air and clean water), and non-use values. About 5.31 million acres are in the Backcountry theme; some road construction / reconstruction and timber cutting are permitted on these lands, primarily within CPZ (442,000 acres). Very limited road construction and timber cutting would occur outside the CPZ because of additional conditions. About 405,900 acres are in GFRG, and there are no prohibitions for timber cutting or road construction to facilitate timber cutting on these lands, but there are prohibitions for road construction / reconstruction to access new mineral leases other than phosphate. About 33 miles of road construction and 17 miles of road reconstruction may occur over a 15-year period, along with 15,000 acres of timber harvest, which would affect less than two-tenths of 1 percent of the Idaho Roadless Areas.

The Modified Rule permits road construction / reconstruction and surface occupancy for phosphate mining on 5,770 acres of unleased phosphate deposits within the Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek Roadless Areas. As mines expand into these areas, non-commodity values and amenities within the affected roadless areas would be reduced. Mining in these areas would not occur in all the roadless areas at one time but would be done over an extensive period of time (50 or more years).

Road construction / reconstruction for oil and gas and geothermal development is would be prohibited in all themes; therefore, there would be no effect on non-commodity values and amenities of the roadless areas from this activity.

Those roadless areas where activities occur (primarily on about 847,900 acres[125]) could see some changes in non-commodity values, amenities, environmental functions, and non-use values. The Terrestrial Animal Habitats and Species, and Physical Resources sections (sections 3.9 and 3.6 respectively) of this EIS reveal that this alternative does represent some risk to soil, water, air, and wildlife resources on those acres where road construction / reconstruction is allowed. Activities associated with the Modified Rule—including roads, power lines, and facilities to access phosphate deposits on 5,770 acres—could reduce the non-commodity values and amenities of the Idaho Roadless Areas affected. In general, because of existing laws and regulations, most environmental functions (such as the ability to provide clean air and clean

[125] GFRG theme and Backcountry CPZ.

water) should be retained; however, there could be some reductions in a few localized areas negatively affecting recreation use and non-use values, especially from areas that experience mineral or energy development. For example, there could be a change in the type of recreation experiences and scenic quality for visitors and nearby residents as well as impacts on populations of some rare wildlife, which would affect people across the country.

Under the Modified Rule, natural processes would dominate on about 8.47 million acres because road construction / reconstruction is generally prohibited. On these lands roadless characteristics would remain intact overall. Idaho Roadless Areas would continue to provide high quality soil, water, and air; sources of public drinking water; diversity of plant and animal communities; habitat for threatened, endangered, proposed, candidate, and sensitive species; reference landscapes; Primitive, Semi-Primitive Non-Motorized, and Semi-Primitive Motorized classes of recreation; natural-appearing landscapes with high scenic quality; and protection of traditional cultural and scared sites. Although existence, option, and bequest values may decline as wildlife populations decline in many areas of the country, Idaho Roadless Areas would continue to support these values.

CUMULATIVE EFFECTS

Overall, NFS lands provide approximately 2 percent of the Nation's timber harvest. Although the amount of timber coming off of Idaho Roadless Areas is very small in comparison to the national program, it can be critical to the economies of certain local communities. Nationally, any decrease in timber harvest from roadless areas would likely be compensated with offerings from private lands or imports.

Mineral and energy resources from Idaho Roadless Areas can be of substantial value, and lack of road access for exploration and development could have effects on future development of these resources. On a national scale, mineral and energy contributions from roadless areas are small; however, like the timber resource, these contributions can have critical economic impacts on local communities. Other Federal, State, and private lands, or imports, would probably continue to offset any decrease in mineral and energy supply from roadless areas.

Greatest pressures for forest conversion nationally would still be the eastern half of the 48 contiguous States and the west coast (Stein et al. 2005, Stein et al. 2007). This conversion would happen mainly on privately owned lands converted to housing developments.

As population growth and land conversion due to urbanization and development in the United States increase, the value of the ecological and social characteristics of all public lands, of which Idaho Roadless Areas are a part, will continue to increase relative to the economic values of the commodity resources, such as timber and minerals, contained in these areas. In the western, northeastern, and north central States, and in southeast Alaska, rural communities that are highly dependent on timber harvest or mineral extraction from NFS lands view inventoried roadless areas as important economic resources. During the past 18 years, many of these communities experienced the economic effects of a reduction in national forest timber harvesting levels, which have dropped from more than 12 billion board feet in 1987 to less than 3 billion board feet in 2006. Most of this harvest has always come from the portions of NFS lands already containing roads. Further economic loss from a reduced timber program, or additional loss from a reduction in the minerals program, without corresponding new local employment opportunities at the same wage scale, could add to the social and economic

problems faced by rural communities unable to diversify. Reductions in resource production may require some residents to relocate to obtain comparable employment.

Idaho Roadless Areas will continue to provide non-commodity values, amenities, and environmental functions. Other programmatic policies and decisions, described in appendix N, further protect or encourage the consideration of these values. Management direction associated with INFISH, PACFISH, forest plan amendments for the Greater Yellowstone area, the Northern Rockies Lynx Management direction, and the Idaho Comprehensive Wildlife Conservation Strategy, all provide sideboards on activities to protect and enhance fish and wildlife habitat. Other programmatic policy actions such as the Roads Policy and Travel Management Policy encourage the consideration of resource needs and effects during the planning process.

The National Fire Plan, Healthy Forests Initiative, Healthy Forests Restoration Act, and the Energy Policy Act were considered in each resource section. The reasonably foreseeable projections were based on implementing these policies; therefore, they have been considered from a cumulative effects standpoint.

3.18 Other Required Disclosures

Other Resources with Little or No Effect

Livestock Management

None of the alternatives would affect existing livestock management. Future road construction associated with livestock operations would be required to conform to the 2001 Roadless Rule and the Proposed and Modified Rules. Future road construction is not anticipated to support livestock operations because very few roads have been constructed to support existing operations. It is anticipated that existing roads would meet the needs of livestock operations; therefore, there would be no effect on livestock management.

Wild and Scenic Rivers

Within Idaho Roadless Areas there are about 212,700 acres of designated, eligible, or suitable wild and scenic river corridors. These areas would be managed according to forest plan direction. Designated rivers are managed according to their comprehensive plans, which may be incorporated into forest plans. By policy, eligible and suitable river segments are protected from activities that would adversely affect free flow or their outstandingly remarkable values until such time as Congress acts upon the Forest Service recommendations.

There would be no direct effect on wild and scenic river corridors from any of the action alternatives because these corridors would be managed to protect free flow and their outstandingly remarkable values. Under the forest plan management direction, potential projects could occur within a corridor but they would have to maintain or enhance the free flow and river values within the corridor. Corridors may be affected visually in the few cases where road construction or timber cutting takes place within the viewshed of the corridor. However, under all alternatives policy direction would protect free flow and outstandingly remarkable values from any direct or adverse effect.

Short-term Uses and Long-Term Productivity

NEPA requires consideration of "the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity" (40 CFR §1502.16). The Multiple-Use Sustained Yield Act (Public Law 104-333) defines productivity as part of multiple use-management. Specifically, "multiple use means that some land will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output."

In this context, none of the alternatives require an on-the-ground action to occur; therefore, the alternatives do not compel short-term uses.

The Proposed Idaho Roadless Rule prohibitions on road construction and reconstruction and surface occupancy in Idaho Roadless Areas within the Wild Land Recreation, Primitive, and SAHTS themes would maintain long-term productivity by reducing loss caused by road construction to watersheds, soils, critical habitat, and dispersed recreation activities when

compared to Existing Plans. The Proposed Rule would further protect these areas over the 2001 Roadless Rule by limiting surface occupancy associated with mineral leases.

For the Backcountry theme the Proposed Rule would provide additional protections over Existing Plans by limiting road construction and reconstruction and timber cutting to certain limited situations. Long-term productivity may be affected because the Proposed Rule would permit roads to be constructed or reconstructed to facilitate timber cutting on more lands than the 2001 Roadless Rule. However, if roads are needed the use of temporary roads is encouraged.

The Proposed Rule would provide additional protections over Existing Plans on about 0.6 million acres of GFRG, but the protections would be less than the 2001 Roadless Rule on about 0.6 million acres. Long-term productivity may be affected in those areas where phosphate production is permissible and occurs.

The Modified Idaho Roadless Rule would have effects similar to the Proposed Rule with respect to short-term uses and long-term productivity, except there would be less potential in the Modified Rule to affect long-term productivity in the Backcountry theme because additional conditions that limit road construction / reconstruction are provided. In addition, the Modified Rule would prohibit road construction / reconstruction to access unleased phosphate deposits in the Backcountry theme.

In the GFRG theme, the Modified Rule would have similar effects as the Proposed Rule, except there are fewer acres in the GFRG theme (203,700 acres) in the Modified Rule; therefore, there would be less potential to affect long-term productivity. In addition, the Modified Rule removes the permissions for road construction / reconstruction to access new mineral developments other than phosphate, such as geothermal or oil and gas. The Modified Rule also reduces the amount of unleased phosphate deposits where road could be constructed from 13,190 acres to 5,770 acres.

Unavoidable Adverse Effects

Selection of Existing Plans (alternative 2) would continue any existing unavoidable adverse effects of road construction, timber harvesting, and discretionary mineral development in Idaho Roadless Areas. Actions taken pursuant to the 2001 Roadless Rule (alternative 1) would also cause some unavoidable adverse effects such as a reduction in the number of acres available for forest health and fuels management treatments (see sections 3.2, Vegetation and Forest Health, and 3.3, Fuel Management).

Actions taken pursuant to the Proposed Idaho Roadless Rule (alternative 3) would also cause some unavoidable adverse effects, more likely in the 0.6 million acres of GFRG and to some degree where road construction or reconstruction occurs in the Backcountry theme. These effects would be less than those anticipated under Existing Plans, but more than the 2001 Roadless Rule. Actions taken pursuant to the Modified Idaho Roadless Rule (alternative 4) would also cause some unavoidable adverse effects, more likely in the 0.4 million acres of GFRG and to some degree where road construction or reconstruction occurs in the Backcountry theme, especially in the community protection zone. These effects would be less than those expected under the Proposed Rule.

Irreversible and Irretrievable Commitments of Resources

Irreversible commitments of resources are those that cannot be regained, such as the extinction of a species or the removal of mined ore. Irretrievable commitments are those that are lost for a period of time such as the temporary loss of timber productivity in forested areas that are kept clear for use as power line rights-of-way or roads.

The prohibition on road construction or reconstruction and surface occupancy in the Wild Land Recreation, Primitive, and SAHTS themes under the Proposed Idaho Roadless Rule would not cause irreversible or irretrievable commitments of resources because a prohibition of activities would prevent any on-the-ground action. These prohibitions would reduce road-caused and surface-occupancy-caused irreversible and irretrievable commitments of watershed, soil, critical habitat, and dispersed recreation resources in Idaho Roadless Areas as compared to Existing Plans or the 2001 Roadless Rule.

Activities undertaken pursuant to the limited permissions in the Backcountry theme under the Proposed Rule could result in an irretrievable change in roadless characteristics, especially where roads are constructed or phosphate mining occurs, but to a lesser degree than Existing Plans. Implementation of the permissions in GFRG theme (0.6 million acres) under the Proposed Rule could result in an irretrievable change in roadless characteristics; under Existing Plans, 1.2 million acres could be affected. Under the 2001 Roadless Rule, irretrievable changes in roadless characteristics are unlikely to occur except under the few allowances of road construction.

The prohibition on road construction or reconstruction and surface occupancy in the Wild Land Recreation, Primitive, and SAHTS themes under the Modified Rule would not cause irreversible or irretrievable commitment of resources because a prohibition of activities would prevent any on-the-ground action. These prohibitions would reduce road-caused and surface-occupancy-caused irreversible and irretrievable commitments of watershed, soil, critical habitat, and dispersed recreation resources in Idaho Roadless Areas as compared to Existing Plans or the 2001 Roadless Rule. There are 149,500 more acres in these themes in the Modified Rule than the Proposed Rule.

Activities undertaken pursuant to the limited permissions in the Backcountry theme under the Modified Rule could result in an irretrievable change in roadless characteristics, especially where roads are constructed or phosphate mining occurs, but to a lesser degree than Existing Plans or the Proposed Rule. Implementation of the permissions in GFRG theme (0.4 million acres) under the Modified Rule could result in an irretrievable change in roadless characteristics; under Existing Plans, 1.2 million acres could be affected. Under the 2001 Roadless Rule, irretrievable changes in roadless characteristics are unlikely to occur except under the few allowances of road construction.

Other Required Disclosures

NEPA at 40 CFR 1502.25(a) directs “to the fullest extent possible, agencies shall prepare draft environmental impact statements concurrently with and integrated with…other environmental review laws and executive orders.” None of the alternatives are actions that require consultation under the Fish and Wildlife Coordination Act because they do not require water to be impounded or diverted, or under the National Historic Preservation Act because there would be no ground-disturbing actions. Consultation in accordance with the ESA implementing

regulations has occurred with the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration.

Requirements for USDA rulemaking procedures under regulatory laws and executive orders—such as the Unfunded Mandates Reform Act, Executive Order 12988, and the Civil Justice Reform Act—are discussed in the preamble for the final rule. There are no anticipated effects on any State or county laws because of the permissions for existing rights. Effects on other Federal lands or non-Federal lands are disclosed under each resource section if an effect is anticipated.

CHAPTER 4. CONSULTATION AND COORDINATION

4.1 PUBLIC INVOLVEMENT

The management of undeveloped areas of the National Forest System (NFS) has been a topic of ongoing discussion since the 1920s. In the past 10 years, several formal public processes have been initiated. These include the involvement of the public in developing the 2001 Roadless Rule, the 2005 State Petition Rule, individual forest plan revisions, and most recently, the Idaho State Roadless Petition. Overall the public response represents two main points of view on natural resource management and decision-making regarding the management of inventoried roadless areas:

- An emphasis on environmental protection and preservation, and support for making decisions about roadless area management at the national level;
- An emphasis on responsible active management, and support for making decisions about roadless area management at the local level.

2001 ROADLESS AREA CONSERVATION RULE (2001 ROADLESS RULE)

The Forest Service received more than 360,000 individual responses, representing more than 500,000 comments, in response to its 1999 notice of intent to promulgate a rule. Close to 1.2 million responses were received by the Forest Service on the proposed 2001 Roadless Rule and draft EIS during their comment period. More than a million of those responses were form letters initiated by national interest groups. Agency responses to comments on the draft EIS are contained in *Agency Responses to Public Comments, Forest Service Roadless Area Conservation Final EIS* (USDA, Forest Service 2000, volume 3). Responses in Volume 3 relevant to the final rule are summarized in the preamble to the final rule published in the on January 12, 2001 (USDA Forest Service 2001 [66 FR 3244]).

2005 STATE PETITIONS RULE FOR INVENTORIED ROADLESS AREA MANAGEMENT (STATE PETITIONS RULE)

On May 4, 2001, the Secretary of Agriculture reaffirmed the Administration's commitment to providing protection for inventoried roadless areas in NFS lands. However, acknowledging concerns raised by local communities, Tribes, and States affected by the 2001 Roadless Rule, the Secretary also indicated that the Department would fairly address those concerns by re-examining the rule with a responsible and balanced approach.

On July 10, 2001, the Forest Service published an advanced notice of a proposed rule (USDA Forest Service 2001a [66 FR 35918]) seeking public comment about how best to proceed with long-term protection and management of roadless areas. During the public comment period, which closed on September 11, 2001, the Forest Service received more than 726,000 responses.

A proposed rule was published July 16, 2004 (USDA Forest Service 2004 [69 FR 42636]). Approximately 1.8 million comments were received from a wide variety of respondents. Responses relevant to the final rule are summarized in the preamble to the final rule published May 13, 2005 (USDA Forest Service 2005 [70 FR 25654]).

FOREST PLANNING

Public involvement has been extensive, from the development of the first generation of land management planning (forest planning) in the 1980s through subsequent revisions of those plans. Moreover, one of the key issues in each public involvement process has been the management of inventoried roadless areas. Local, regional, and national comments have been received during these extensive public processes. Forests revising their plans use a collaborative process for working with the public on the management of roadless areas. Five Idaho forests have completed revisions of their plans, five are in progress, and two have not initiated revision.

IDAHO STATE PETITION

On June 23, 2005, the Governor of Idaho announced that the State would develop a petition pursuant to the State Petitions Rule. In that announcement, the Governor solicited the help of local units of government to invite local communities to develop (through a public process) specific recommendations for inventoried roadless areas in portions of the national forests within their counties.

Following that announcement, local communities under the leadership of their respective county commissioners outlined a process for providing written recommendations to the Governor for review. Affected county commissioners held a series of public meetings to solicit public comment and develop their recommendations. Statewide, approximately 50 public meetings were held. To provide guidance and assistance in the process, a representative from either the Governor's Office or the Governor's Office of Species Conservation attended nearly every meeting. In addition to those meetings, the Governor's staff explained the Governor's vision for his local process during at least 10 additional meetings across the State. Because of the high volume of comments received, the county commissioners hired two independent contractors to compile submitted comments and prepare the commissioners' final recommendations to the Governor.

The State received comments or recommendations from 66 organizations, 30 counties, and 1,596 individuals. Some responses focused on individual roadless areas. Based on the comments submitted by the commissioners, individuals, and organizations, the Governor's staff developed management recommendations for each individual roadless area for the Governor's consideration. After development of the initial recommendations, the State engaged the Native American Tribes in Idaho, as fellow sovereigns, in discussions about these recommendations. The State of Idaho also contacted neighboring States to ensure inter-roadless area consistency. Based on the information gathered, the Governor assigned the management emphasis and the uses that would be permissible or prohibited for each management area.

The Governor's Petition demonstrates substantial engagement with local units of government, tribal governments, and the public at large, and well represents those who know, live, work, and recreate on these lands.

ROADLESS AREA CONSERVATION NATIONAL ADVISORY COMMITTEE (RACNAC)

The RACNAC was chartered by the Secretary to provide a national perspective on individual State petitions regarding roadless area management. On November 29 and 30, 2006, then Governor James Risch presented the Idaho State Petition to the RACNAC. They also heard comments from other State and Forest Service officials, and nine members of the public, including one State-level organization and three national organizations. The public comments were transmitted to the Forest Service and considered in the development of this EIS.

SCOPING

A notice of intent to prepare an EIS on "Roadless Area Conservation; National Forest System Lands in Idaho" was published April 10, 2007 (USDA Forest Service 2007 [68, FR 17816]). About 38,000 comments were received, of which 32,000 were form letters[126], while the remaining letters consisted of original responses or form letters with additional original text. These comments were evaluated and summarized in a report called Summary of Public Comments, which is provided in the Scoping section of the project record. The summary analyzes the public's responses specific to the Proposed Action, identifying significant concerns and issues.

SUMMARY OF PUBLIC INVOLVEMENT ON THE DRAFT EIS

The 90-day comment period on the draft EIS started December 21, 2007 with the publication of the Notice of Availability (USDA Forest Service 2007r [72 FR 72708]). The published comment period was to end on March 13, 2008. The proposed rule was published January 7, 2008, with the publication of the Notice of proposed rulemaking; request for 90-day comment (USDA Forest Service 2008a [73 FR 1135]). The comment period for the draft EIS was extended to April 7, 2008 to coincide with the end of the comment period for the proposed rule (USDA Forest Service 2008q).

The draft EIS, map packets, summaries, web links, and/or compact disc were mailed to approximately 5,400 federal, state, and local agencies, tribal representatives, and the public in late December 2007 and early January 2008.

Throughout Idaho, public meetings were held in 16 communities during January and February 2008. The communities included Boise, Bonners Ferry, Cascade, Challis, Coeur d' Alene, Council, Grangeville, Hailey, Idaho Falls, Kellogg, Lewiston, Mackay, Orofino, Pocatello, Salmon, and Twin Falls. Another public meeting was held in Washington, D.C. on January 17, 2008. Approximately 843 individuals attended these public meetings with approximately 326 providing public comments that were electronically recorded and transcribed. Written comments were also taken at this time. Both oral and written comments from the public meetings were included in the content analysis described in the following section.

Numerous newspapers also ran stories about the proposed rule/draft EIS and open houses. In addition, a segment on Idaho Roadless Areas was produced on NOW, Public Broadcasting System the week of February 22 2008, where the public was given a brief history of the 2001 Roadless Rule and the connection between the Idaho Petition and the Proposed Rule. Idaho citizens representing environmentalists and long-time ranchers, phosphate mining executives

[126] Form letters are five or more letters that contain identical text but are submitted by different people.

and the Under-Secretary for the Department of Agriculture were interviewed, discussing the pros and cons of mining phosphate.

Overall the public response represents two main points of view on natural resource management and decision-making regarding the management of roadless areas:

1. An emphasis on environmental protection and preservation, and support for making decisions about roadless area management at the national level;
2. An emphasis on responsible active management, and support for making decisions about roadless area management at the local level.

There is a third emphasis from people who didn't take clear sides in the debate. Many of these respondents believed a compromise could be made, regardless of their baseline values.

People, whose livelihoods depend on forest commodities, but had seen the slow decline over the years of traditional harvesting, offered suggestions to the Agency such as; offering more stewardship projects and assisting local residents in developing small start up businesses that could utilize small diameter wood. They were also concerned about losing access to remote areas where traditional hunting and fishing, out fitter and guiding, and personal recreation have taken place for generations. They believe less restrictive direction needs to be applied, as found in Primitive and Wild Land Recreation themes, and press for more acreage in Backcountry and General Forest, Rangeland, and Grassland (GFRG) themes, allowing for active land stewardship while at the same time, sustaining economic growth.

Some conservationists also wrote in, or spoke at public meetings, stating that they did understand the need to manage the roadless areas for wildfires and forest health, and did care what happened to local communities. But asked that perhaps the communities could be protected without commercial timber harvesting and maybe local residents could be actively encouraged to start small businesses that would focus on reuse and recycle programs. They also ask the Forest Service to increase recreational and ecotourism opportunities on NFS lands to help offset economic loss from less commercial logging and mining. These respondents would like less acreage being designated to GFRG and Backcountry themes with more going into the Wild Land Recreation and Primitive themes.

Interestingly enough, both sets of people were striving to reach a balance in Idaho Roadless Areas and found common ground regarding road construction. Whether an off-road enthusiast or a bird watcher, both types of respondents asked to keep Idaho Roadless Areas generally roadless.

During the comment period for the draft EIS, the RACNAC held several meetings to discuss the Proposed Idaho Roadless Rule and suggest modifications. These meetings were open to the public (RANCAC 2008 a-d) and the public comments were considered by the RACNAC. The RACNAC submitted a letter to the Secretary on May 30, 2008 with several recommendations to modify the Proposed Action (RACNAC 2008e) based in part on the public input.

4.2 List of Preparers

The following people were part of the Roadless interdisciplinary team that developed the draft and/or final Environmental Impact Statement for the Idaho Roadless Rule. The people are listed alphabetically by last name. Also included is the person's title, place of employment, education, work experience, and role in the analysis process.

Interdisciplinary EIS Team

Timothy Abing

Position: Physical Scientist, Intermountain Region

Education: B.S., mining engineering, University of Wisconsin

Experience: 2.5 years with the Forest Service as a physical scientist, 24 years with Bureau of Land Management as a mining engineer and petroleum engineer

Contribution: Coordinated and prepared the draft and final EIS minerals specialist report.

Megan Lyons Bogle

Position: Environmental Coordinator, Caribou-Targhee National Forest

Education: B.S., environmental studies, Ohio University

Experience: 27 years with the Forest Service as program manager for wilderness, developed recreation, special uses and small sales timber programs

Contribution: Helped coordinate and prepare appendices; supported specialists with background research and analysis.

Fred Bower

Position: Regional Transportation Planner, Region 1, Regional Office

Education: B.S., civil engineering, California State University, Chico

Experience: 15 years with the Forest Service as regional transportation planner, 4 years transportation analyst, 5 years forest transportation planner, 4 years district engineering

Contribution: Coordinated and prepared draft and final EIS roads specialist report.

Jessica Call

Position: Forest Planning Specialist, Washington Office, Ecosystem Management Coordination

Education: B.A., Biology;
M.S., Environmental Science;
Masters of Public Affairs

Experience: 2 years in WO in Policy Analysis; 1 year in Ecosystem Management Coordination

Contribution: Coordinated and prepared updates to appendix C for the final EIS.

Ann Carlson

Position:	Aquatic Ecologist, Northern Region
Education:	B.S., aquatic ecosystem assessment and management, Western Washington University; M.S., aquatic ecology, Utah State University
Experience:	14 years with the Forest Service as the forest fisheries program manager, Tahoe National Forest; 4 years as the Northern Region aquatic ecologist
Contribution:	Coordinated and prepared the draft and final EIS biologist specialist report and biological assessment.

Danielle Chi

Position:	Wildlife Program Leader, Intermountain Region
Education:	B.S., psychology, University of California, Davis M.A., psychology, San Diego State University Ph.D., wildlife biology, Utah State University
Experience:	2 years with the Forest Service as regional wildlife biologist; 5½ years with the U.S. Fish and Wildlife Service as wildlife biologist specializing in listed species and wetlands; 3–4 years with several environmental consulting firms as a consulting wildlife biologist
Contribution:	Coordinated and helped prepare the draft and final EIS biologist specialist report and biological assessment.

Joan E Dickerson

Position:	Assistant team leader, Idaho Roadless Rule, Northern Region
Education:	B.S., forest management, University of Idaho
Experience:	27 years with the Forest Service in planning, appeals, and litigation
Contribution:	Coordinated and help prepare the draft and final EIS.

Kim Foiles

Position:	GIS analyst, Region 1, Regional Office
Education:	B.S., wildlife biology, Colorado State University
Experience:	17 years with the Forest Service in GIS
Contribution:	Coordinated and helped prepare the draft EIS GIS mapping and analysis of fisheries and wildlife data.

Krista Gebert

Position:	Regional Economist, Northern Region (120-day-detail), Economist Rocky Mountain Research Station
Education:	B.A., economics, University of Montana M.A., economics, University of Montana
Experience:	10 years with the Forest Service as an economist for the Rocky Mountain Research Station; 1½ years with the Bureau of Business and Economic Research, University of Montana, as an economist

Contribution: Helped coordinate and prepare the draft EIS social economic specialist report, including sections on revenue-sharing, economic dependency, demographics, social, and economic environment.

Kathleen Geier-Hayes

Position: Fire Ecologist, Boise National Forest.

Education: B.S., fire ecology, Boise State University

M.S., forest resources, University of Idaho

Experience: 18 years with the Forest Service, Intermountain Research Station, as biological technician, forester, and research forester; 10 years Boise National Forest as fire ecologist

Contribution: Coordinated and helped prepare the draft and final EIS fire and fuels specialist report.

Bradley J Gilbert

Position: Idaho Roadless Project Manager, Northern Region

Education: B.S., mathematics, Colorado State University

M.S., Natural Resource Management, Colorado State University

Experience: 29 years with the Forest Service in a variety of planning and management positions

Contribution: Project team leader.

Linh Hoang

Position: Idaho Roadless Team, Northern Region

Education: B.A., biology, University of California at Santa Barbara

M.S., biology, Arkansas State University

Experience: 10 years with the Forest Service as a botanist

Contribution: Coordinated and help prepare response to comments.

Suzanne Johnson

Position: GIS Specialist, Intermountain Regional Office

Education: B.S., forest management, Utah State University

Experience: 22 years with the Forest Service; 5 years in forest inventory work; 17 years GIS work

Contribution: GIS analyst for draft and final EIS.

Dale Kanen

Position: Regional Tribal Relations Specialist, Northern and Intermountain Regions

Education: B.S., agricultural engineering

Experience: 33 years with the Forest Service; 4 years in road location and design, 11 years as fisheries enhancement engineer, 5 years as Federal subsistence program manager in Alaska, 9 years as district ranger, 3 years as director of the Office of Tribal Relations in the Washington Office, 1 year as regional tribal relations specialist

Contribution: Tribal consultation plan.

Kenneth Karkula

Position: NEPA Specialist, Washington Office
Education: B.S., wildlife biology;
Post graduate work, forestry, Northern Arizona University
Experience: 28 years with the Forest Service as district resource staff, forest recreation staff officer, national recreation special use program manger, and NEPA specialist
Contribution: NEPA procedures oversight, EIS liaison to the Washington Office, EIS liaison to the rule-writing team.

Karryl Krieger

Position: Supervisory Forest Planner, Salmon-Challis National Forest
Education: B.S., aquatic resources, Sheldon Jackson College
Experience: 18 years with the Forest Service as fisheries biologist and forest planner
Contribution: Assistant NEPA specialist.

Cynthia H. Manning

Position: Regional Social Scientist, Northern Region
Education: B.A., anthropology, University of Pittsburgh;
M.A., anthropology, University of Montana;
Graduate courses, University of Montana, College of Forestry and Conservation
Experience: 29 years with the Forest Service; 13 years as archaeologist, 16 years as social scientist
Contribution: Helped coordinate and prepare draft and final EIS social and economics specialist report.

Tom Martin

Position: Regional Silviculturist, Intermountain Region
Education: B.S., forest management science, Colorado State University
Continuing education, forest ecology and silviculture (CEFES XI)
Experience: 29 years with the Forest Service as a silviculturist
Contribution: Coordinated and prepared draft and final EIS forest management specialist report.

Greg McNamee

Position: Visual Information Specialist / GIS SCEP, Intermountain Region, Regional Office
Education: B.F.A., Miami University.
Currently Enrolled, applied GIS certification, University of Utah
Experience: 7 months with the Forest Service as GIS SCEP
Contribution: Helped prepare draft and final EIS GIS analysis and mapping.

Chris Miller

Position: Economist and Content Analysis Specialist, WO, Content Analysis Team
Education: Ph.D., environmental economics, University of Rhode Island
Experience: 3 years with the Forest Service as program analyst and economist; 6 years with the U.S. Environmental Protection Agency as an economist
Contribution: Coordinated / served as contracting office representative for content analysis; prepared proposed and final rule regulatory flexibility analysis.

Michael Niccolucci

Position: Regional Economist, Region 1, Regional Office
Education: B.A., economics, University of Montana;
M.A., economics, University of Montana
Experience: 25 years with the Forest Service as an economist in Research and Development and in National Forest System positions
Contribution: Coordinated and prepared employment and labor income estimates for the draft EIS economics section.

Marynell Oechsner

Position: Wildlife Biologist, TEAMS Enterprise
Education: B.S., biology, University of Wisconsin
Experience: 29 years of Federal Service, as a biological technician, district wildlife specialist or environmental specialist
Contribution: Helped coordinate and prepare the draft EIS terrestrial wildlife section including TES and management indicator species.

Joey Pearson

Position: Administrative Management Assistant, Boise National Forest
Education: Borah High School, Boise, ID
Experience: 16 years with the Forest Service, as administrative assistant in personnel and assistant to the forest supervisor, Payette National Forest; as forest plan revision assistant, SW Idaho Ecogroup; and as forest FOIA coordinator, planning, appeals and litigation, Boise National Forest
Contribution: Helped organized and prepare official record.

Brant Peterson

Position: Recreation Specialist, Payette National Forest
Education: B.S., forestry, Utah State University
Experience: 13 years with the Forest Service, in engineering and recreation
Contribution: Coordinated and prepared the draft EIS recreation and special uses specialist report.

Teresa Prendusi

Position: Regional Botanist, Intermountain Region
Education: B.S., biology, Humboldt State University and Sonoma State University
Experience: 16 years with the Forest Service as regional botanist
Contribution: Coordinated and prepared draft and final EIS TEPCS plants specialists report.

William G. Reed

Position: Regional Heritage Program Leader, Region 4, Regional Office
Education: B.A., anthropology, Fort Lewis College;
M.A., anthropology, Idaho State University;
Post-graduate, Massachusetts Institute of Technology and University of Nevada, Reno
Experience: 30 years with the Forest Service, in cultural resource management
Contribution: Coordinated and prepared draft and final EIS cultural resources section.

Dan Schlender

Position: Landscape Architect, Boise National Forest
Education: B.S., landscape architecture, University of Wisconsin
Experience: 29 years with the Forest Service and Bureau of Land Management, as landscape architect
Contribution: Helped coordinate and prepare the draft EIS scenic environment analysis.

Steve Shelly

Position: Regional Botanist, Northern Region
Education: B.S., botany, Miami University, Ohio;
M.S., botany, Oregon State University
Experience: 12 years with the Forest Service as botanist; 10 years with the Montana Natural Heritage Program as botanist
Contribution: Helped coordinate and prepare the draft EIS TES plant section.

Bruce Sims

Position: Regional Hydrologist, Northern Region.
Education: M.S., watershed management, University of Arizona;
B.S., secondary education, University of Texas, El Paso;
M.Ed., geography, University of Arizona
Experience: 28 years with the Forest Service as hydrologist
Contribution: Coordinated and prepared the draft and final EIS physical resources specialist report.

Curt Spalding

Position:	Environmental Coordinator, Mt. Baker-Snoqualmie National Forest
Education:	B.A., geology, Pomona College; graduate forestry classes
Experience:	30 years with the Forest Service in NEPA, appeals, litigation, planning, timber, recreation, minerals
Contribution:	Assisted with cumulative effects analysis and response to comments.

Jody Sutton

Position:	NEPA Specialist, Washington Office
Education:	Boise State University, Fine Arts Program
Experience:	17 yeas with the Forest Service in NEPA, NEPA training, planning, content analysis, writer/editor, and public involvement specialist
Contribution:	Helped coordinate and prepare response to comments.

Keith Stockmann

Position:	Economist, Northern Region
Education:	B.A., economics, Colby College; M.S., environmental studies, University Montana; Ph.D., forestry (applied wildland economics), University Montana, College of Forestry and Conservation
Experience:	9 years with the Forest Service; 7 years as economist/SCEP and 2 seasons as wilderness ranger/leave no trace presenter, Lolo National Forest
Contribution:	Helped coordinate and prepare draft and final EIS social economic specialist report.

Dan White

Position:	Cartographer, Intermountain Region
Education:	B.S., geography, Weber State University
Experience:	19 years with the Forest Service as cartographer
Contribution:	Helped prepare draft and final EIS GIS analysis and mapping, TESP, airsheds, original roadless area maps.

Elaine Waterbury

Position:	Coop Fire Specialist, Southwestern Region
Education:	B.S., forestry, Humboldt State University; Continuing Education, Pacific Northwest Region Silviculture Institute XV
Experience:	22 years with the Forest Service in Oregon and New Mexico as coop fire specialist, coop forestry, reforestation forester, NEPA interdisciplinary team leader, silviculturist
Contribution:	Helped coordinate and prepare draft and final EIS appendices, supported specialists with background research.

Randy Welsh

Position:	R4 Regional Program Leader for Wilderness and Wild and Scenic Rivers
Education:	B.S., wildland recreation management, University of Idaho; M.S., forest plan administration, Oregon State University
Experience:	30 years of progressive experience in Regions 1 and 4 on 4 National Forests with assignments at the District, Forest, and Regional levels.
Contribution:	Coordinated and prepared the final EIS wilderness, recommended wilderness, roadless characteristics, wild and scenic rivers, recreation and special uses and scenery specialist report.

Interagency Team

Jim Caswell, Director of BLM, formerly administrator of the Idaho Office of Species Conservation.

David Hensley, counsel to the Governor of Idaho.

Tom Perry, counsel to the Idaho Office of Species Conservation.

Other Contributors to the EIS and Rule

Andy Brunelle, Intermountain Region (R4), Boise National Forest

Bill Supulski, Washington Office

Carol LoSopio, Washington Office, Publishing Arts

Frank Roth, Intermountain Region (R4), Regional Office

Gina Owens, Washington Office

Julia Riber, Northern Region (R1), Regional Office

Ken Karkula, Washington Office

Karen Liu, Washington Office

Mary Carr, Washington Office, Publishing Arts

Monique LaPerriere, Washington Office, Publishing Arts

Pam Gardiner, Northern Region (R1), Regional Office

Randy Thompson, Caribou-Targhee Tribal Consultation Coordinator

Richard J Cook, Washington Office

Forest Service Regional and National Forest Coordinators

The following Forest Service employees were the primary contacts between the Roadless Team and field units. They coordinated data responses and internal reviews.

Barbara Schuster, Intermountain Region (R4), Regional Office

Tom Rhode, Northern Region (R1), Regional Office

Boyd C. Hartwig, Intermountain Region (R4), Payette National Forest

Chris Ryan, Northern Region (R1), Regional Office

Christine Bradbury, Northern Region (R1), Clearwater National Forest

David R. Olson, Intermountain Region (R4), Boise National Forest

Erin S. O'Connor, Intermountain Region (R4), Regional Office

Ihor Mereszczak, Northern Region (R1), Clearwater National Forest
Keith Simila, Intermountain Region (R4), Regional Office
Linda A Clark, Northern Region (R1), Idaho-Panhandle National Forest
Lyle E. Powers, Intermountain Region (R4), Salmon-Challis National Forest
Melany I Glossa, Northern Region (R1), Nez Perce National Forest
Patricia H Anderson Soucek, Intermountain Region (R4), Payette National Forest
Robbin Redman, Intermountain Region (R4), Caribou-Targhee National Forest
Robert Mickelsen, Intermountain Region (R4), Caribou-Targhee National Forest
Sharon LaBrecque, Intermountain Region (R4), Sawtooth National Forest

4.3 Tribes and Agencies Consulted and Others Contacted

Tribes

There are five federally recognized Tribes with significant land holdings within Idaho and NFS lands lie within their aboriginal territories. They share some common watersheds and, in some cases, have reservations neighboring NFS lands. These "Idaho Tribes" are the Kootenai Tribe of Idaho, Nez Perce Tribe, Coeur d'Alene Tribe, Shoshone-Paiute Tribes, and the Shoshone-Bannock Tribes. These five Idaho Tribes were recognized by the Indian Claims Commission as having significant Indian Title to lands within Idaho (USDI Geological Survey 1978).

On September 20, 2007 the State of Idaho and the Forest Service met with the Idaho Council on Indian Affairs and gave a joint overview presentation on the history of the Idaho Roadless Petition and the draft EIS associated with development of the Idaho Roadless Rule. A commitment was made by the State of Idaho and the Forest Service to meet with each Tribe to discuss in more detail the Idaho Roadless Rule prior to the release of the draft EIS. These meetings took place during the months of October and November, 2007, with the exception of the Shoshone-Paiute meeting which was January 10, 2008. Formal consultation has occurred when requested.

The Idaho Roadless Rule is distinguishable from many Forest Service actions in that it is based on the State's Petition to the Federal Government. The State of Idaho accepted the Secretary of Agriculture's (Secretary) invitation to create a petition under the Administrative Procedures Act (APA). The State of Idaho submitted a Petition to the Secretary to provide a strategy for roadless area management in Idaho. A decision was made by the Secretary to accept the Idaho State Petition as recommended by of the RACNAC. The Secretary is within legal authority of the APA to accept the Idaho State Petition on roadless area management and to conduct rulemaking accompanied by appropriate NEPA analysis.

The State of Idaho conducted its own public comment process during the development of its petition. However, after the Secretary accepted the Petition and during development of the draft EIS, the Forest Service met with four of the five Tribes in Idaho prior to the release of the draft EIS while the Proposed Rule was also under development. Due to scheduling difficulties the meeting with the Shoshone-Paiute Tribe occurred 3 days after the release of the Proposed Rule. The Tribes have also had opportunities to comment and consult on each of the three alternatives considered in the draft EIS, existing forest plans, 2001 Roadless Rule, and the Idaho State Petition.

Given the unique circumstances regarding this action, and given that the Proposed Rule was not formulated until the draft EIS was released, it was believed that consultation would be most constructive during the extended 90-day comment period on the draft EIS. Since the release of the draft EIS, several staff-to-staff and government-to-government meetings were held with each Tribe to further consultation. Many of their ideas and suggestions resulted in substantive improvements to the Modified Rule (see comment and response to 39.1, appendix R, and final EIS, section 3.16, Idaho Affected Tribes).

The Modified Rule reflects clarifications and additional restrictions to permissible activities, based on public and Tribal comments. The language in the final EIS has been strengthened to explain that prior to implementing resource management activities, impacts on Tribal government and Tribal practices would be assessed and consultation requirements fulfilled.

Government-to-government consultation would continue to occur for future projects. Finally, it is clarified this rule does not change any Tribal rights or any federal government responsibilities to Tribes. Consultation continues with interested Tribes until a decision is reached and during project implementation.

Some suggestions for managing lands outside Idaho Roadless Areas and other access management suggestions were not incorporated into the Modified Rule, because these suggestions were not within the scope of management direction provided by the Idaho Roadless Rule. The rule provides direction for activities (timber cutting, road construction /reconstruction, and mineral leasing) that are considered to have the greatest impacts to roadless character. Suggestions not associated with these three activities would be evaluated with the appropriate level of NEPA, Tribal consultation, and public involvement during other processes, such as forest planning, travel management planning, or site-specific project proposals.

AGENCIES

The Idaho Roadless Team met with, contacted, or received input from the following Federal, State, and local agencies; Tribes; and non-Forest Service persons during the development of the EIS.

The National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) and the U. S. Fish and Wildlife Service (FWS), have oversight responsibilities for implementation of the Endangered Species Act (ESA). Informal consultation and conferencing occurred on the Idaho Roadless Rule with frequent discussions among Forest Service, FWS and NMFS biologists. The Agency has prepared a biological assessment on the Modified Rule and has formally consulted with the FWS and NOAA.

To facilitate the consultation process, biologists from the Interdisciplinary Team have been coordinating with the biologists from the regulatory agencies prior to the release of the final EIS. The regulatory agency biologists attended one full Interdisciplinary team in May 2008. In addition, the Agencies have worked together to develop the Biological Assessment, in preparation of the Biological Opinions. To accomplish this cooperative work numerous telephone calls and several face-to-face meetings have occurred.

Coordination has also taken place in Washington, DC with the Environmental Protection Agencies and others.

AGENCIES AND TRIBES THAT WERE CONSULTED

Boise National Forest, Intermountain Region

Caribou-Targhee National Forest, Intermountain Region

Clearwater National Forest, Intermountain Region

Idaho Panhandle National Forest, Northern Region

Nez Perce National Forest, Northern Region

Payette National Forest, Intermountain Region

Salmon-Challis National Forest, Intermountain Region

Sawtooth National Forest, Intermountain Region

Wallowa-Whitman National Forest, Pacific Northwest Region

National Oceanic and Atmospheric Administration, Fisheries, David Mabe and Bill Lind
State of Idaho, Department of Fish and Game
State of Idaho, Governors Office
U.S. Department of Agriculture, Forest Service, Intermountain Regional Office
U.S. Department of Agriculture, Forest Service, Northern Regional Office
U.S. Department of Agriculture, Forest Service, Washington Office
U.S. Department of the Interior, Fish and Wildlife Service, Ted Koch
U.S. Department of the Interior, Bureau of Land Management, Susan Giannettino and Karen Porter
U.S. Environmental Protection Agency, Elaine Suriano
Coeur d'Alene Tribe
Kootenai Tribe of Idaho
Nez Perce Tribe
Shoshone-Bannock Tribes
Shoshone-Paiute Tribes

AGENCIES AND ORGANIZATIONS THAT WERE CONTACTED

Bob Fick, Idaho Department of Commerce and Labor
Bruce B. Ackerman, Ph.D., biometrician, Wildlife Bureau, Idaho Fish and Game
Pat Raino, Division of Transportation Planning and Programming, Idaho Transportation Department
David Colandner, Planning Services Section, Idaho Transportation Department
Steve Cox, Idaho Department of Agriculture (noxious weed data layers)
Richard Warnick, RSAC, U.S. Forest Service (forest risk data layers)
Joy Roberts, Forest Health Protection, U.S. Forest Service (insect and disease information)
Larry DeBlander, Forest Inventory and Analysis, U.S. Forest Service
Ken Anderson, Vegetation Management, U.S. Forest Service, Intermountain Region
Jim Morrison, IREMCG staff assistant, U.S. Forest Service, Northern Region
Marti Bridges, Idaho Department of Environmental Quality
Russ Lafayette, U.S. Forest Service, Eastern Region

4.4 Distribution of the Final Environmental Impact Statement

This final EIS has been distributed to individuals who submitted substantive comments during scoping and on the draft EIS and to those who specifically requested a copy of the entire set of documents. In addition, copies of the final EIS have been sent to the following Federal agencies, federally recognized Tribes, State and local governments, and organizations representing a wide range of views regarding roadless area management.

A complete list of all recipients of the final EIS is maintained in the project record and is available upon request.

Advisory Council on Historic Preservation

Agriculture, U.S. Department of

Animal and Plant Health Inspection Service
Policy and Planning Division, Office of Civil Rights
Rural Utilities Service
Natural Resources Conservation Service
National Agricultural Library

Commerce, U.S. Department of (DOC)

National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Habitat Conservationists Division
Northwest Region

Council on Environmental Quality

Defense, U.S. Department of

Deputy Assistant Secretary of Defense
U.S. Air Force Environment, Safety, and Occupational Health
Army Corps of Engineers
Northwestern Division South Pacific Division
Office of Chief of Navy Operations, Environmental Protection Division

Energy, U.S. Department of

Office of Environmental Compliance

Environmental Protection Agency

Office of Federal Activities, EIS Filing Section
EIS Review Coordinators: Region X

Federal Energy Regulatory Commission Housing and Urban Development, U.S. Department of

Environmental Officers: Seattle, WA

Interior, U.S. Department of the

Office of Environmental Policy and Compliance
Bureau of Land Management
Idaho State Office
National Park Service
Pacific West Region

Interstate Commerce Commission

Northwest Power Planning Council

Transportation, U.S. Department of

Assistant Secretary for Policy, Environmental Division
Federal Aviation Administration: Western-Pacific Region
Federal Highway Administration
Regional Administrator: Western Region
Federal Railroad Administration
Office of Transportation and Regulatory Affairs
Research and Special Program Administration
U.S. Coast Guard, Environmental Impact Branch

Congressional Delegations

State Governors

Idaho
Montana
Nevada
Oregon
Utah
Washington

Idaho State Agencies

Department of Lands
Department of Transportation
Fish and Game Management
Office of Species Conservation
Office of Energy

Federally Recognized Tribes

Forest Service Offices

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Glossary

Term	Definition
Active management	Management approach in which humans actively manipulate ecosystems through timber harvesting and thinning to improve forest health and to reduce fire hazard.
Adfluvial fish	Fish that migrate between lakes and rivers or streams.
Anandromous fish	Fish that hatch in fresh water, migrate to the ocean, mature there, and return to fresh water to reproduce; for example, salmon and steelhead.
At-risk community	As defined under section 101 of the Healthy Forests Restoration Act (HFRA) the term "at risk-community" means an area: (a) that is comprised of: (i) an interface community as defined in the notice entitled "Wildland Urban Interface Communities Within the Vicinity of Federal Lands That Are at High Risk From Wildfire" issued by the Secretary of Agriculture and the Secretary of the Interior in accordance with Title IV of the Department of the Interior and Related Agencies Appropriations Act, 2001 (114 Stat. 1009) (66 Fed. Reg. 753, January 4, 2001); or (ii) a group of homes and other structures with basic infrastructure and services (such as utilities and collectively maintained transportation routes) within or adjacent to Federal land; (b) in which conditions are conducive to a large-scale wildland fire disturbance event; and (c) for which a significant threat to human life or property exists as a result of a wildland fire disturbance event.
Authorized roads	Roads wholly or partially within or adjacent to National Forest System (NFS) lands that are determined to be needed for motor vehicle access, such as State roads, county roads, privately owned roads, NFS roads, and roads authorized by the Forest Service that are intended for long-term use.
Backcountry	(1) The State of Idaho Petition descriptive theme. (2) A generic term that refers to areas that are relatively unmodified and usually accessible only by foot, horse, watercraft, or off-highway vehicle (OHV).
Best management practices	A practice or usually a combination of practices that are determined by a State or a designated planning agency to be the most effective and practicable means (including technological, economic, and institutional considerations) of controlling point and nonpoint source pollutants at levels compatible with environmental quality goals.
Biological diversity	The variety and abundance of species, their genetic composition, their communities, and the ecosystems and landscapes of which they are a part. As used in this document, biodiversity refers to native biological diversity; therefore, increases in species diversity resulting from the introduction of nonnative species would not constitute an increase in biodiversity.
Biological stronghold	An area that supports all major life-history forms of a species that were historically found within that area, with stable or increasing population numbers at levels not substantially diminished from their historical size or density.
Cable logging	The transport of logs from the stump to a landing and stationary yarder using winch-driven cables to which the logs are attached.
Carrying capacity	A measure used to signify the optimum use that the area can accommodate without having unacceptable degradation of resources or undesirable social interaction, in accordance with specified standards usually found in the land and resource management plan.
Clearcutting	Cutting essentially all trees in a given area, which produces a fully exposed microclimate for the development of a new age class. See even-aged management.

Term	Definition
Community	(1) A group of species of plants and / or animals living and interacting at a particular time and place. (2) A group of people residing in the same place and under the same government; spatially defined places such as towns.
Community protection zone	An area extending ½ mile from the boundary of an at-risk community; or an area within 1 ½ miles of the boundary of an at-risk community, where any land: (a) has a sustained steep slope that creates the potential for wildfire behavior endangering the at-risk community; (b) has a geographic feature that aids in creating an effective fire break, such as a road or a ridge top; or (c) is in condition class 3 as defined by HFRA.
Condition class 1	Little departure from the natural fire regime and natural range of variability; risk of losing key ecosystem components is low.
Condition class 2	Moderately departed from the natural fire regime and natural range of variability; risk of losing key ecosystem components is moderate.
Condition class 3	Highly departed from the natural fire regime and natural range of variability; risk of losing key ecosystem components is high.
Contiguous	Used in a geographic sense, refers to situations where areas of land physically touch and share substantial common boundaries or have a common border of considerable length. The term is not intended to include 'point-to-point' touching or 'cornering', or instances where only small portions of land areas touch. It is not intended to encompass or encourage creative mapping exercises that result in irregular shapes, such as narrow corridors and 'gerrymandered' roadless areas.
Cultural resource	(1) Areas, sites, buildings, art, architecture, memorials, and objects that have scientific, historical, or cultural value. (2) Physical remains of human activity of an area of prehistoric or historic occupation (for example, sites, structures, buildings, networks, petroglyphs, artifacts, objects). Also the conceptual content or context of an area of prehistoric or historic occupation (such as a sacred site or setting for events). Cultural resources may be archaeological or architectural in nature. They are non-renewable and often fragile.
Decommissioning	Demolition, dismantling, removal, obliteration, or disposal of a deteriorated or otherwise unneeded asset or component, including necessary cleanup work. This action eliminates the deferred maintenance needs for the fixed asset. Portions of an asset or component may remain if they do not cause problems or require maintenance.
Developed recreation	Activities that are consistent with the settings and experiences identified with the Roaded Natural (RN), Rural ®, and Urban (U) classes of the recreation opportunity spectrum (ROS). These activities are usually associated with an area that has been improved or developed for recreation, such as campgrounds and picnic areas, scenic overlooks and interpretive sites, or visitor centers and resorts.
Dispersed recreation	Activities usually associated with backcountry and trails and are consistent with the settings and experiences identified with Primitive (P), Semi-Primitive Non-Motorized (SPNM), and Semi-Primitive Motorized (SPM) classes of the ROS. Examples of these activities include hiking, snowmobiling, mountain biking, wilderness use, backpacking, horseback riding, and OHV use.
Disturbance	A natural or human event that causes a change in the existing condition of an ecological system.
Ecosystem	An arrangement of organisms defined by the interactions and processes that occur among them. Ecosystems are often defined by their composition, function, and structure.

Term	Definition
Edge effect	The influence of two communities on populations in their adjoining boundary zone or ecotone, affecting the composition and density of the populations in these bordering areas.
Endangered species	A plant or animal species listed under the Endangered Species Act that is in danger of extinction throughout all or a significant portion of its range and which the appropriate Secretary has designated as a threatened species.
Endemic species	Native to, and restricted to, a specific geographical region.
Even-aged (silvicultural) management	The methods used to regenerate and maintain a stand with a single age class.
Exception	A specific circumstance where prohibited activity would be allowed within an inventoried roadless area that is otherwise subject to the prohibitions in the alternatives.
Exemption	A geographic area that is not subject to the prohibitions in the alternatives.
Fire frequency	How often fires occur within a given time period in a specified area.
Fire hazard	The overall potential for wildland fire in a vegetated ecosystem, often expressed as a condition of fuels on the ground and the probability of ignition. To reduce the fire hazard in an area, managers must deal primarily with the fine fuels on the surface of the forest floor and with the smaller diameter trees growing in the understory of a forest that provide a ladder to the larger, dominant overstory trees.
Fire intensity	The rate at which fuel is consumed and heat is generated.
Fire occurrence	Means the probability of wildfire ignition based on historic fire occurrence records and other information
Fire return interval	The average number of years between successive fires in a designated area.
Fire regime	The historical pattern of fire: how often (frequency); how hot (intensity); and how big (scale). It describes natural fire in terms of fire-return interval and amount of replacement of the upper life-form (Hardy et al. 2000). Fire regimes are classified into five categories.
Fire severity	Denotes the scale at which vegetation and a site are altered or disrupted by fire, from low to high. It is a combination of the degree of fire effects on vegetation and on soil properties.
Fire suppression	The practice of controlling forest and rangeland fires in a safe, economical, and expedient fashion while meeting the natural resource objectives outlined in each national forest's or grassland's land management plan.
Fluvial fish	Fish that migrate between main rivers and tributaries.
Forest health	Forest health is the perceived condition of forests based on age, structure, composition, function, vigor, level of insects and disease, presence and absence of exotic organisms, and resilience to disturbance including wildland fire.
Forest plan special area	Certain lands that would be managed pursuant to applicable land management components. These lands include areas such as research natural areas, designated and eligible wild and scenic river corridors, developed recreation sites, or other specified management purposes – see appendix Q, table Q-1
Forest road or trail	A road or trail wholly or partly within or adjacent to and serving the NFS that the Forest Service determines is necessary for the protection, administration, and utilization of the NFS and the use and development of its resources. 36 CFR 212.1
Forest type	A forest stand that is essentially similar throughout its extent in composition under generally similar environmental conditions. It includes temporary, permanent, climax and cover types. Dictionary of Ecology.
Fragmentation	The break-up of a large land area (such as a forest) into smaller patches isolated by areas converted to a different land type. The opposite of connectivity.

Term	Definition
Fuel management	The practice of evaluating, planning, and executing the treatment of wildland fuel to control flammability and reduce the resistance to control.
Fuel treatment or fuel reduction	The rearrangement or disposal of fuels to reduce fire hazard or to accomplish other resource management objectives.
Fuels	Living and dead parts of trees and shrubs, organic material, and surface material that can readily burn in a wildfire.
Ground-based logging	The dragging or carrying of trees or logs from the stump to the landing using various types of self-propelled machines (e.g., tractors, skidders, and forwarders).
Hazardous fuels	Excessive live or dead wildland fuel accumulations that increase the potential for uncharacteristically intense wildland fire and decrease the capability to protect life, property, and natural resources (USDI, USDA Forest Service 2006).
Historic range of variability	The fluctuations of composition, structure, and function within stable ecosystem over time.
Idaho Roadless Area	Those roadless areas in Idaho designated for management under the Idaho Roadless Rule (see appendix C). They are based on the most current inventory found either in existing plans, proposed plans, or the 2001 Roadless Rule.
Inventoried roadless area	Undeveloped areas (typically exceeding 5,000 acres) that meet the minimum criteria for wilderness consideration under the Wilderness Act and that were inventoried during the Forest Service's roadless area review and evaluation (RARE II) process, subsequent assessments, or forest planning. These areas are identified in a set of inventoried roadless area maps, contained in Forest Service Roadless Area Conservation, Final Environmental Impact Statement, Volume 2, dated November 2000, which are held at the national headquarters office of the Forest Service.
IMPLAN (Impact Analysis for Planning)	The input-output model used by the Forest Service to estimate economic effects by tracing the interrelationships between producers and consumers in an economy as measured by jobs and income.
Landscape	An area of interacting and interconnected patterns of habitats (ecosystems) that are repeated because of the geology, landform, soil, climate, biota, and human influences throughout the area. A landscape is composed of watersheds and smaller ecosystems.
Landscape character	See Scenery Management System.
Leasable mineral	Minerals that can be explored for and developed under one of several Federal mineral leasing acts. Leasable minerals in Idaho include energy mineral resources such as oil, gas, and geothermal, as well as non-energy minerals such as phosphate.
Locatable mineral	Generally metals (such as gold and silver) but also include rare earth elements such as uranium and special uncommon varieties of sand, stone, gravel, pumice, pumicite, and cinders. Development of such minerals is subject to the General Mining Law of 1872.
Management direction	A statement of multiple-use and other goals and objectives, the associated management prescriptions, and standards and guidelines for attaining them.
Mineral resources	A concentration of naturally occurring solid, liquid, or gaseous material in or on the earth's crust in such form and amount that economic extraction of a commodity from the concentration is currently or potentially feasible.
Motorized equipment	Machines that use a motor, engine, or other nonliving power sources. This includes, but is not limited to, chain saws, aircraft, snowmobiles, generators, motorboats, and motor vehicles. It does not include small battery-powered, hand-carried devices such as shavers, wristwatches, flashlights, cameras, stoves, or other similar small equipment.

Term	Definition
Municipal water-supply area	Watershed containing NFS lands that provides surface waters to facilities that treat and distribute water for domestic purposes. These purposes include normal household uses such as drinking, food preparation, bathing, washing clothes and dishes, watering lawns and gardens, and similar uses.
Municipal water supply system	As defined under section 101 of the Healthy Forests Restoration Act, the term "municipal water supply system" means the reservoirs, canals, ditches, flumes, laterals, pipes, pipelines, and other surface facilities and systems constructed or installed for the collection, impoundment, storage, transportation, or distribution of drinking water.
National Forest System road	A forest road other than a road which has been authorized by a legally documented right-of-way held by a State, county, or other public road authority (36 CFR 212.1).
Noxious weeds	Plant species designated as noxious weeds by the Secretary of Agriculture or by the responsible State official. These species are generally aggressive, difficult to manage, poisonous, toxic, parasitic, or a carrier or host of serious insects or disease; and are nonnative, new, or uncommon to the United States.
Off-highway vehicle (OHV)	(1) A four-wheeler, dirt bike, three-wheeler, or track- mounted vehicle or snowmobile whose intended use is off-road riding; these are most often not street-legal vehicles. (2) A motor vehicle that is designed for or capable of cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland, or other natural terrain (36 CFR 212.1).
Old-growth forest	Old growth forests[127] encompass the late stages of stand development, and are distinguished by old trees and related structural attributes. Old growth stands are typically distinguished from earlier stages by combinations of characteristics such as tree age, tree size, number of large old trees per acre, and stand density (expressed as basal area). Specific values for these attributes vary by local ecological type and forest type. Other characteristics sometimes associated with old growth (canopy layers, snags, down wood, etc) are not part of the old growth definition, because these can vary greatly even in stands that are clearly old growth. The associated characteristics may sometimes be useful is assessing certain specific resource values.
Passive management	Management approach in which human intervention in an ecosystem is minimal, with natural processes such as fire and insect and disease infestations allowed to play out their "natural" role. For fire management, this would mean allowing some lightning fires to burn or allowing only prescribed fires with burning prescriptions that mimic the natural fire regime in size, intensity, and frequency.
Precommercial thinning	The removal of trees not for immediate financial return but to reduce stocking, to concentrate growth on the more desirable trees, or to accomplish some other resource objective such as fuel reduction.
Prescribed burning	The fire management technique of purposely igniting a fire in a vegetative ecosystem to restore forest health and reduce fire hazard.
Prescription	A written statement defining goals and objectives and the actions or treatments needed to attain the goals and objectives. Prescriptions are written for discrete portions of NFS lands. A prescription can be resource-specific (such as for prescribed fire or silviculture) or, in the case of management prescriptions, broad to attain multiple use goals and objectives.

[127] Northern Region old growth definitions are documented in: Green, P.; Joy, J.; Sirucek, D.; Hann, W.; Zack, A.; Naumann, B. 1992 (errata corrected 02/2005). Old Growth Forest Types of the Northern Region.

Intermountain old growth definitions are documented in: Hamilton, R, C., Comp. Characteristics of Old-Growth Forests in the Intermountain Region.

Term	Definition
Primitive	A definition used in the ROS to characterize an area that is essentially an unmodified natural environment of large size. Interaction among users is very low and evidence of other users is minimal. The area is managed to be essentially free from evidence of human-induced restrictions and controls. Motorized use within the area is not permitted. Not to be confused with the Primitive theme.
Public road	Any road or street under the jurisdiction of and maintained by a public authority and open to public travel.
Rangeland	Land on which the native vegetation is predominately grasses, grass-like plants, forbs, or shrubs; not forest.
Recreation opportunity spectrum (ROS)	The ROS provides a framework for stratifying and defining classes of outdoor recreation environments, activities, and experience opportunities. ROS is divided into six classes arranged along a continuum: Primitive, Semi-Primitive Non-Motorized, Semi-Primitive Motorized, Roaded Natural, Rural, and Urban (USDA Forest Service 1986). The basic assumption underlying the ROS is that quality outdoor recreation is assured by providing a diverse set of opportunities.
Refugia	Areas that have not been exposed to great environmental changes and disturbances undergone by the region as a whole. In this EIS, refugia include Idaho Roadless Areas that are relatively free from human-caused disruptions and disturbances when compared to roaded areas; refugia provide conditions suitable for survival of species that may be declining elsewhere.
Resident fish	Fish that spend their entire life in fresh water; examples include bull trout and westslope cutthroat trout.
Restoration	Holistic actions taken to modify an ecosystem to achieve desired, healthy, and functioning conditions and processes. Generally refers to the process of enabling the system to resume acting or continue to act following disturbance as if the disturbances were absent. Restoration management activities can either be active (such as control of noxious weeds, thinning over-dense stands of trees, or redistributing roads) or passive (more hands-off), allowing natural processes to dominate.
Road	A motor vehicle travelway wider than 50 inches, unless designated and managed as a trail (36 CFR 212.1).
Road construction and reconstruction	The supervising, inspecting, actual building, and incurrence of all costs incidental to the construction or reconstruction of a road (36 CFR 212.1).
Road decommissioning	Activities that result in the stabilization and restoration of unneeded roads to a more natural state (36 CFR 212.1).
Road maintenance	The ongoing upkeep of a road necessary to retain or restore the road to the approved road management objective.
Road reconstruction	Activities that result in road realignment or road improvement, as defined below: Road improvement – Activities that result in an increase of an existing road's traffic service level, expansion of its capacity, or change from its original design function. Road realignment – Activities that result in a new location for an existing road or portions of an existing road, including treatment of the old roadway.
Road-based recreation	Activities that are normally associated with classified roads and are consistent with the settings and experiences identified with Semi-Primitive Motorized (SPM), Roaded Natural (RN), Rural (R), and Urban (U) classes of the ROS. Examples of these activities include car camping and picnicking, gathering berries and firewood, driving for pleasure, wildlife viewing, and OHV use.

Term	Definition
Roaded natural	A definition used in the ROS to characterize an area that has predominantly natural-appearing environments with moderate evidences of the sights and sounds of humans. Such evidences are usually in harmony with the natural environment. Interaction among users may be low to moderate, but evidence of other users is prevalent. Resource modification and practices are evident but harmonize with the natural environment. Conventional motorized use is provided for construction standards and facilities design.
Roadless areas	For the purposes of this EIS, the term is used in the same context as Idaho Roadless Areas.
Roadless characteristics	Roadless area characteristics include the following: soil, air, water; sources of public drinking water; diversity of plant and animal communities; habitat for threatened, proposed, candidate, and sensitive species, and for those species dependent on large, undisturbed areas of land; Primitives, Semi-Primitive Non-Motorized, and Semi-Primitive Motorized classes of recreation opportunities; reference landscapes; traditional cultural properties and sacred sites; other locally identified unique characteristics
Rural	A definition used in the ROS to characterize an area with a substantially modified natural environment. Sights and sounds of humans are readily evident, and the interaction among users is moderate to high. A considerable number of facilities are designed for use by large numbers of people. Facilities for intensified motorized use and parking are available.
Salable minerals	Common varieties of sand, stone, gravel, soil, and clay. Generally, they are widespread and of low value, used primarily for construction or landscaping materials.
Salvage	An intermediate cutting made to remove trees that are dead or in imminent danger of being killed by injurious agents.
Scenery Management System	A basis for describing scenic quality in the affected environment and analyzing alternatives in the environmental consequences; identifies landscape character and scenic integrity as the basis for scenic quality. Landscape character is the overall visual impression of landscape attributes that provide a landscape with an identity and sense of place. It consists of the combination of physical, biological, and cultural attributes that make each landscape identifiable and distinct. Scenic integrity is a measure of the wholeness or completeness of the landscape, including the degree of visual deviation from the landscape character valued by constituents. Scenic integrity is a continuum of five levels of integrity from very high to very low.
Scenic integrity	See Scenery Management System.
Sedimentation	Solid materials, both mineral and organic, in suspension or transported by water, gravity, ice, or air; may be moved and deposited away from their original position and eventually will settle to the bottom.
Semi-Primitive Motorized (SPM)	A definition used in the ROS to characterize an area that has a predominantly natural or natural-appearing environment of moderate to large size. Concentration of users is low, but there is often evidence of other users. The areas are managed in such a manner that minimum on-site controls and restrictions may be present, but are subtle. Motorized use is permitted.
Semi-Primitive Non-Motorized (SPNM)	A definition used in the ROS to characterize an area that has a predominantly natural or natural-appearing environment of moderate to large size. Interaction among users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but they are subtle. Motorized use is not permitted.
Sensitive species	Those plant and animal species identified by a regional forester for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or density or by significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

Term	Definition
Shelterwood harvest	The removal of most trees, leaving those needed for sufficient shade to produce a new age class in a moderated microenvironment. Removal of the shelter trees may or may not occur after regeneration becomes established.
Significant (cultural, historical)	36 CFR Part 60 sets out the legal criteria for evaluating the quality of significance in "districts, sites, buildings, structures, and objects of State and local importance." Historic properties are considered significant if they qualify for inclusions in the National Register of Historic Places.
Species richness	A measure of biological diversity referring to the number of species in an area.
Stand	A distinguishable, contiguous group of similar plants or trees that are uniform in age-class distribution, composition, and structure, and are growing on a site of uniform quality.
Stewardship	Administration of land and associated resources in a manner that enables them to be passed on to future generations in a healthy condition.
Structure	The sizes, shapes, and / or ages of the plants and animals in an area.
Substantially altered portion	An area within an Idaho Roadless Area where past road construction, timber cutting, or other uses have materially diminished the area's roadless characteristics.
Subwatershed	A drainage area of approximately 20,000 acres, equivalent to a 6th-field hydrologic unit code (HUC). Hierarchically, subwatersheds (6th field HUC) are contained within watersheds (5th-field HUC), which in turn is contained within a sub-basin (4th-field HUC).
Succession	A predictable process of changes in structure and composition of plant and animal communities over time. Conditions of the prior plant communities or successional stage create conditions that are favorable for the establishment of the next stage. The different stages of succession are often referred to as seral stages.
Temporary road or trail	A road or trail necessary for emergency operations or authorized by contract, permit, lease, other written authorization that is not a forest road or trail and that is not included in a forest transportation atlas (36 CFR 212.1). Temporary roads are available for administrative use until decommissioned.
Thinning	(1) The cutting down and / or removing of trees from a forest to lessen the chance of a ground fire becoming a crown fire; a method of preparing an area so that a prescribed fire can be more easily controlled. Thinning influences the available amount of fuel and fuel arrangement, and it can indirectly affect fuel moisture content and surface wind speeds. (2) A culture treatment made to reduce stand density of trees primarily to improve growth, enhance forest health, or recover potential mortality.
Threatened species	Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range and which the appropriate Secretary has designated as a threatened species.
Timber cutting	Timber cutting is used in this EIS to mean any cutting of any trees for management purposes. Timber cutting is a broad term and includes timber harvest (removal of commercial products) as well as other actions that result in the cutting of a tree with no removal of a commercial product—such as slashing, chipping, mulching, precommercial thinning, or personal use firewood.
Timber harvest	The process by which trees with commercial value are cut and removed from the forest to meet management objectives.
Timber sale	A contractual process of selling timber to a purchaser and implementing a series of harvesting requirements for what type, how, and when the trees are removed.
Trail	A route 50 inches or narrower in width or a route more than 50 inches wide that is identified and managed as a trail (36 CFR 212.1).

Term	Definition
Unauthorized road or trail	A road or trail that is not a forest road or trail or a temporary road or trail and that is not included in a forest transportation atlas (36 CFR 212.1).
Uncharacteristic wildland fire effect	An increase in wildfire size, severity, and resistance to control; and the associated impact on people, property, and fire fighter safety, compared to that which occurred in the native system (USDI, USDA Forest Service 2006).
Uneven-aged (silvicultural) management	Methods used to regenerate and maintain a multi-aged structure by removing some trees in all size classes, either singly, in small groups, or in strips.
Unwanted wildland fire	Any wildland fire in an undesirable location or season, or burning at an undesirable intensity, spread rate, or direction. In general, wildfire is unwanted in WUI (USDI, USDA Forest Service 2006).
Upper life form	Refers to the upper portion of vegetation. For example, in forested ecosystems, upper life form refers to the overstory trees; in shrubland ecosystems, it refers to the taller shrub component.
Urban	A definition used in the ROS to characterize a substantially urbanized environment, even though the background may have natural-appearing elements. Affiliation with individuals and groups is prevalent, as is the convenience of sites and opportunities. Large numbers of users can be expected, both on-site and in nearby areas. Facilities for highly intensified motor vehicle use and parking are available. Regimentation and controls are obvious and numerous.
Urban area	As defined by the Census Bureau for the 1990 census, an area comprising all territory, population, and housing units in urbanized areas, or places of 2,500 or more persons outside of urbanized areas. An urbanized area comprises one or more places ('central place') and the adjacent densely settled surrounding territory ('urban fringe') that together have a minimum of 50,000 persons.
Visual quality objectives	Resource management objectives established by the district manager or contained in a higher-level plan; these objectives reflect the desired level of visual quality based on the physical characteristics and social concern for the area.
Volume sold	The amount of timber actually purchased, which is usually less than offered volume because some sales are judged as economically marginal by prospective purchasers, and they receive no bids.
Volume harvested	The actual volume removed from the forest in a given year, which may be higher or lower than volume sold depending on market conditions. Most harvest volume was actually sold 1 to 3 years earlier.
Wilderness	A designated area defined in the Wilderness Act of 1964 in the following way: "A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (a) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (b) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (c) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (d) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value."
Wildfire	An unwanted wildland fire.
Wildland	Land other than that dedicated for other uses, such as agriculture, urban, mining, or parks.

Term	Definition
Wildland fire	A lightning- or human-caused fire that is either being suppressed or, if lightning-caused, allowed to burn (see wildland fire used for resource benefit). Often used synonymously with 'wildfire' or 'forest fire'.
Wildland fire use for resource benefit	The management of naturally ignited wildland fires to accomplish specific pre-stated resource management objectives in pre-defined geographic areas.
Wildland–urban interface (WUI)	The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.
Yarder	A machine for cable logging consisting of a system of power-operated winches and a tower used to haul logs from a stump to a landing.

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Acronyms and Abbreviations

Acronym	Meaning
ACS	Aquatic Conservation Strategy
ADA	Americans with Disabilities Act
AIDS	acquired immune deficiency syndrome
AIRFA	American Indian Religious Freedom Act
AMR	appropriate management response
ANILCA	Alaska National Interest Lands Conservation Act
ARPA	Archeological Resource Protection Act
ATSDR	Agency for Toxic Substances and Disease Registry
ATV	all-terrain vehicle
BA	Biological Assessment
BCEH	Bureau of Community and Environmental Health
BCR	Backcountry Restoration
BE	Biological Evaluation
BEA	Bureau of Economic Analysis
BLM	Bureau of Land Management
BMP	best management practice
CCF	hundred cubic feet
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIEDRA	Central Idaho Economic Development Recreation Act
CFR	Code of Federal Regulations
CTNF	Caribou-Targhee National Fores
CPZ	community protection zone
CWPP	County wildfire protection plans
DEQ	Department of Environmental Quality
EA	economic area
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act, as amended, 16 U.S.C. 1536(c), 50 CFR 402
FACA	Federal Advisory Committee Act
FEMAT	Forest Ecosystem Management Assessment Team
FIA	Forest Inventory and Assessment
FLPMA	Federal Land Policy Mgmt Act
FMP	Fire Management Plan
FPSA	Forest Plan Special Area
FR	Federal Register
FRCC	fire regime condition class
FS	Forest Service
FSH	Forest Service Handbook

Acronym	Meaning
FSM	Forest Service Manual
FWS	Fish and Wildlife Service
GDP	gross domestic product
GFRG	General Forest, Rangeland, and Grassland
GIS	geographic information system
GPS	Global positioning system
HFRA	Healthy Forests Restoration Act
HFI	Healthy Forests Initiative
HR	House Representative
ICBEMP	Interior Columbia Basin Ecosystem Management Project
ICDC	Idaho Conservation Data Center
ID	Idaho
IDA	Idaho Department of Agriculture
IDAPA	Idaho Forest Practices Act
IDFG	Idaho Department of Fish and Game
IDHW	Idaho Department of Health and Welfare
IDL	Idaho Department of Lands
ID Team	Interdisciplinary Team
IMPLAN	Impact Analysis for Planning
INFISH	Inland Native Fish Strategy
IRA	Idaho Roadless Areas
KPLA	Known Phosphate Leasing Areas
LANDFIRE	Landscape Fire and Resource Management Planning Tools Project
LRMP	Land Resource Management Plan
MIS	Management Indicator Species
MBF	thousand board-feet
MMBF	million board-feet
MUSYA	Multiple-Use Sustained Yield Act
MW	mega-watt
NEPA	National Environmental Policy Act
NFMA	National Forest Management Act
NFS	National Forest System
NFP	National Fire Plan
NFPORS	National Fire Plan Operations Reporting System
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NREPA	Northern Rockies Ecosystem Protection Act
NSO	no surface occupancy
NVUM	National Visitor

Acronym	Meaning
NWPS	National Wilderness Preservation System
OHV	off-highway vehicle (motorcycles, 4x4s, ATVs)
PACFISH	Interim Strategy for Managing Anadromous Fish-Producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California
PILT	Payment in Lieu of Taxes
R1	Region 1 (Northern Region)
R4	Region 4 (Intermountain Region)
RACNAC	Roadless Area Conservation National Advisory Committee
RARE I or II	Roadless Area Review and Evaluation
RCRA	Resource Conservation and Recovery Act
RFDS	reasonable, foreseeable development scenario
ROD	Record of Decision
ROS	Recreation Opportunity Spectrum
SAHTS	Special Areas of Historic and Tribal Significance
SIO	scenic integrity objectives
SMS	Scenery Management System
SMU	Southern Methodist University
SPM	Semi-primitive motorized
SPNM	Semi-primitive non-motorized
SRSA	Secure Rural School and Community Self-Determination Act
STATSGO	State Soil Geographic Database
SWIEG	Southwest Idaho Ecogroup
TCS	threatened, candidate and sensitive species
TES	threatened, endangered, and sensitive species
TEPCS	threatened, endangered, proposed, candidate, and sensitive species
TMDL	total maximum daily load
USC	U.S. Code
USDA	U.S. Department of Agriculture
USDE	U.S. Department of Energy
USDI	U.S. Department of Interior
VQO	visual quality objective
WHR	Wildlife Habitat Relationships
WFU	wildland fire use
WLR	Wildland Restoration
WQLS	Water Quality Limited Segments
WUI	wildland-urban interface

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