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Environmental Assessment

Gooding
Cattle and Horse
Allotment Management Plan Revision

Fairfield Ranger District,
Sawtooth National Forest
Camas County, Idaho

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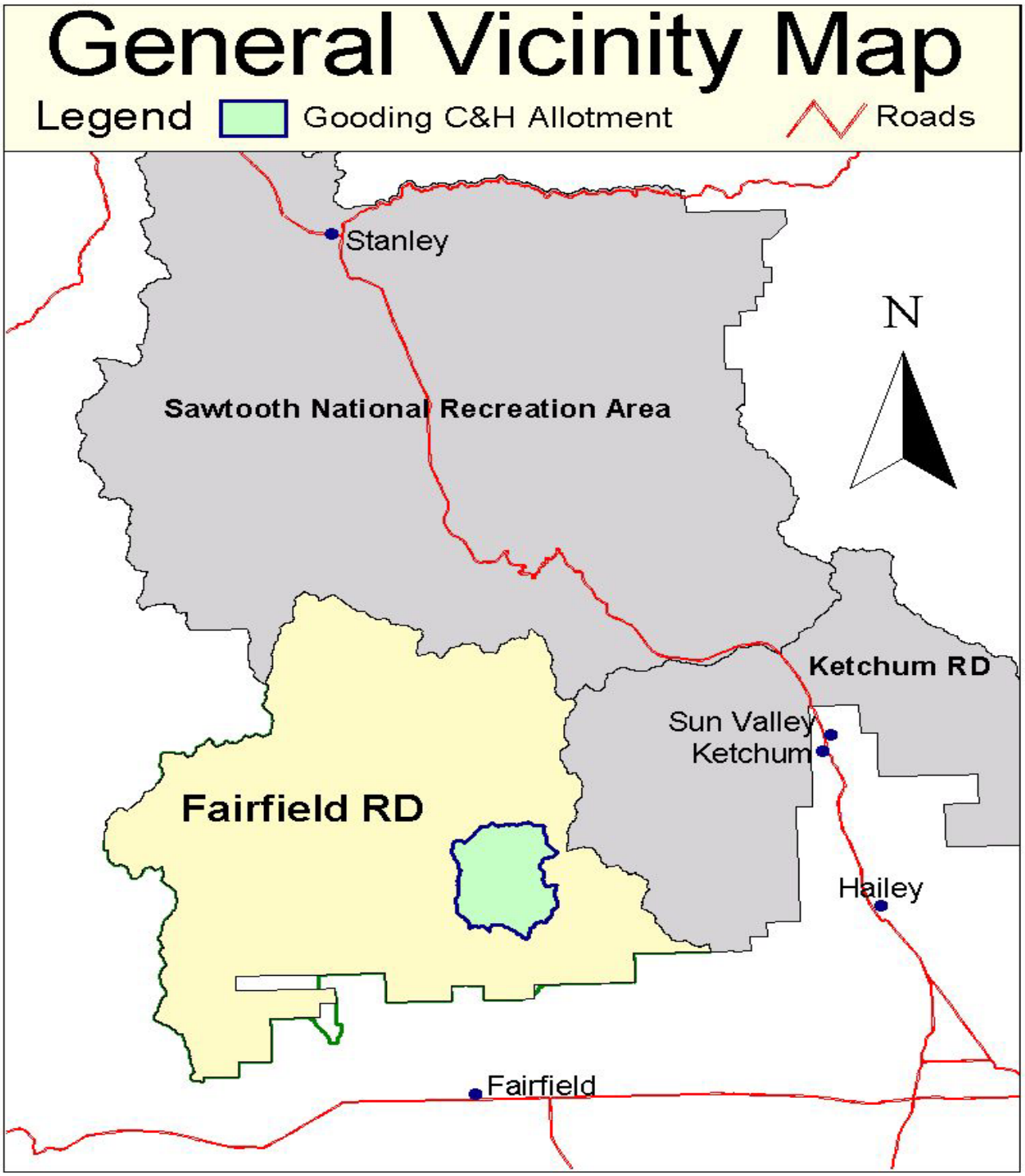

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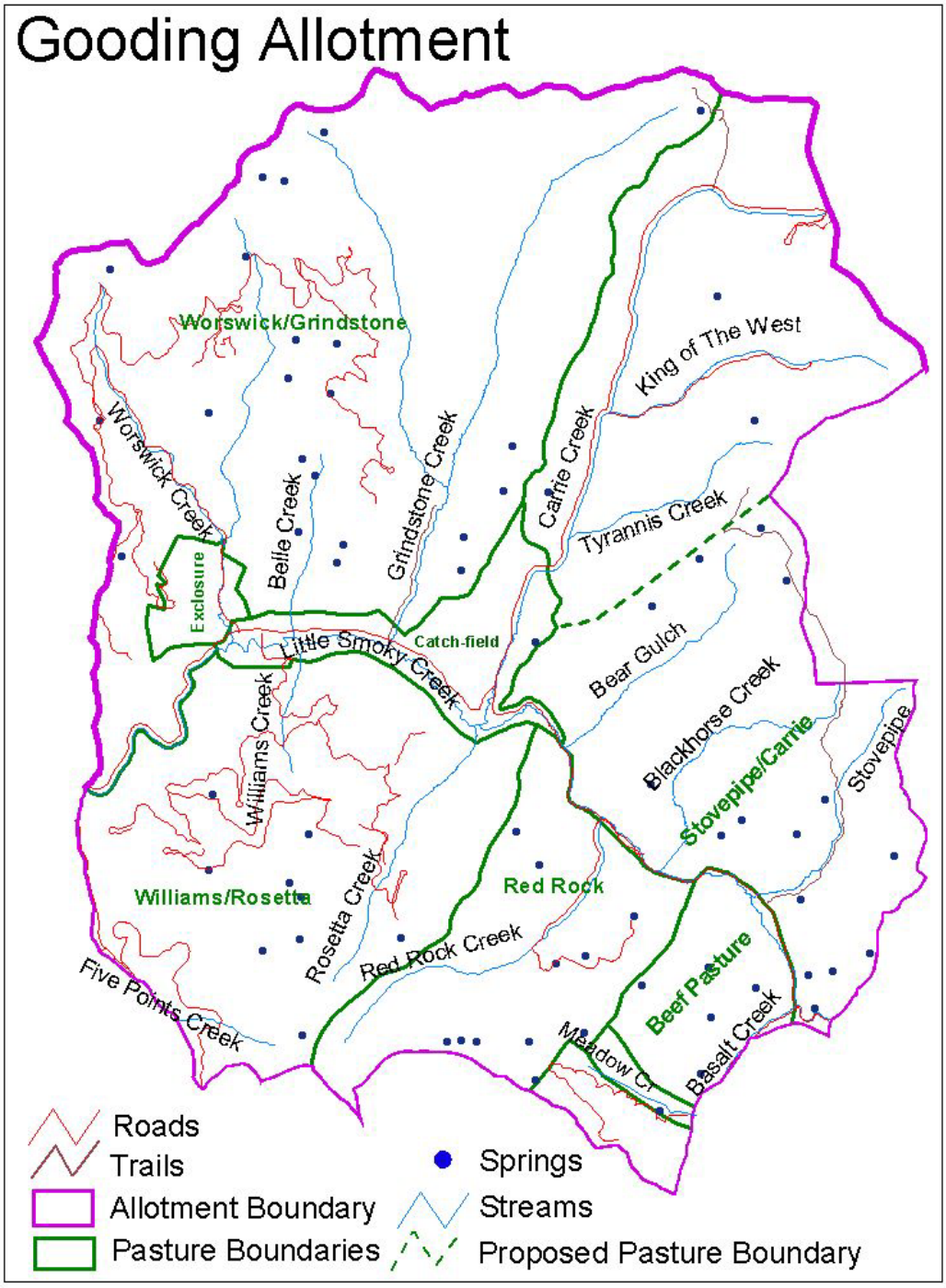


Preface

Public input about the future management of the Gooding Cattle & Horse allotment was originally solicited on February 11, 2004. On April 5, 2005, a legal notice was published providing a formal 30-day comment period (April 6 - May 6, 2005) on the Proposed Action for the Gooding C&H Allotment Management Plan. On September 30, 2005, the Fairfield Ranger made a decision for continued authorization of livestock grazing on the Gooding Allotment. This decision was made through the issuance of a Decision Notice and Finding of No Significant Impact based on an Environmental Assessment.

On February 7, 2006, the U.S. District for the District of Idaho held that the Forest Service had completed a deficient environmental impact statement for the North Sheep grazing allotments on the Sawtooth National Forest. The Court directed the Forest Service to prepare a supplement to the Sawtooth Forest Land & Resource Management Plan (Forest Plan) Final Environmental Impact Statement (FEIS) to address management indicator species (MIS). The Court also directed the Forest Service to prepare a supplement to the North Sheep FEIS to address capable and suitable grazing lands, grazing management prescriptions, monitoring plans, and specific adaptive management strategies.

The Fairfield Ranger issued his decision prior to the February 7, 2006 court ruling. However, the Court Order directing that the Forest Plan FEIS supplement be completed affects the September 30, 2005 decision on livestock grazing on the Gooding C&H Allotment. Thus, the decision on the Gooding Allotment was rescinded.

Since that time, staff has completed additional analysis for the Gooding allotment, including preparation of the Allotment Management Plan (AMP), analysis addressing capable and suitable grazing lands, as well as a Management Indicator Species capability analysis. An MIS supplement was also completed for the Sawtooth Forest Plan FEIS.

With that work completed, the analysis process for the Gooding Allotment re-started. A second formal 30-day notice and comment period was held from July 25 – August 25, 2008. Those individuals and organizations who commented during the first 30-day notice for this project (April 6 – May 6, 2005) do not need to re-submit their comments in order to retain their eligibility to appeal.

The Proposed Action for the project has not changed. We are proposing to continue to authorize livestock grazing on the Gooding Cattle & Horse Allotment through an adaptive management strategy.

Chapter 1 - Purpose and Need for Action

Background

The Fairfield Ranger District of the Sawtooth National Forest proposes to continue to authorize cattle grazing through a term grazing permit on the Gooding C&H Allotment. The Gooding Allotment is located about 15 miles north of Fairfield, Idaho along the southern edge of the Smoky Mountains within the Sawtooth National Forest (Refer to the preceding vicinity and allotment maps). The Fairfield Ranger District administers a Term Grazing Permit for 620 cow-calf pairs. Table 1 below provides permit and allotment statistics. (HMs = head months)

Table 1 - Gooding Allotment Permit Statistics

Allotment	Grazing Season	Cattle Grazed	Total Acres	Total HMs
Gooding	06/20 – 10/09	620 C/C pairs	24,000	2294

Records of grazing impacts on the allotment are very sketchy or nonexistent prior to 1920. Prior to 1961 the Rosetta Allotment was grazed in conjunction with Little Smoky Allotment by 1500 ewe-lamb pairs for a number of years. At some point it was incorporated into the Gooding Allotment for several years but in the early 1950s' it was pulled out and returned to sheep use as before. In 1961 it was again combined with the Gooding C&H Allotment and has been called the Rosetta/Williams pasture since then. Combining the two allotments resulted in an increase in HMs. In 1966, a change from a season-long grazing system to a four-pasture rest rotation grazing system was implemented. This resulted in an apparent upward trend in allotment conditions. As a result, in 1973 – 1978, temporary permits were issued with an increase of HMs on the Gooding Allotment. In 1978 monitoring of some sites showed there was improvement in the range condition and trend. After this five-year trial period, and with the results of the monitoring, the increased numbers were made permanent. In a May 1, 1969 Allotment Plan of Use – Gary Smithey, District Ranger noted: "You will note this is an increase of 13 days over time used during the first year of the rest rotation system in 1965. This is due to the increase in forage production as a result of the grazing system itself and the sagebrush spray project completed in 1966."

This system was changed in 1998 to deferred-rotation, which is the current management action. The rationale for this conversion was to help riparian areas recover from the effects associated with condensing grazing use into fewer pastures under rest-rotation.

A brief summary of grazing history for the Gooding Allotment is provided in Table 2 below. It displays adjustments in numbers of livestock and seasons of use.

Cattle are trailed or trucked to the allotment and are placed into a confined area of the Beef Pasture unit so mother cows can easily locate their calves. After cows and calves have joined they are

moved to the first unit in the rotational sequence. To best provide for the physiological needs of riparian forage plants, compliance with a 4-inch stubble height standard has been required. Late season grazing has been rotated between the pastures to best provide for the physiological needs of upland forage species. After all pastures have been grazed, cattle are again placed into the Beef Pasture for sorting, shipping, and weaning calves. After weaning calves, mother cows are allowed to stay a few days more before they too are removed from the allotment.

Table 2 - Gooding Allotment Grazing History

Gooding C&H Allotment			
Years	**Permitted Numbers**	**Season of Use**	**Head Months**
pre-1900[a]	N/A	N/A	N/A
1920[b]	1700 cattle	6/16 – 10/20	?
1930[c]	700 cattle	6/16 – 10/20	2923
1957[d]	550 cattle	7/15 – 10/20	1754
1960	490 cattle	7/15 – 10/20	1563
1961[e]	530 cattle	7/15 – 10/20	1690
1976	620 cattle	7/01 – 10/20	2283
1998-present	620 cattle	6/20 – 10/09	2283

[a] Sheep grazing occurred, but the extent is not recorded.

[b] Some common use with sheep, but the amount is not recorded.

[c] Sheep common use area along the western and northern borders.

[d] The allotment was converted to cattle only.

[e] Rosetta allotment combined with Gooding Allotment in 1961.

Seasonal adjustments in management and/or permitted HMs have been needed in the past to comply with direction identified in the Term Grazing Permit and in the Sawtooth Forest Land & Resource Management Plan (Forest Plan).

In the spring of 2000, a review of available range resource information was made. It was determined that the range analysis information gathered in the late 1960s was the best information available. Condition guidelines were subsequently developed for grazing management on Idaho Batholith soils that prevail across the Gooding C&H Allotment landscape. In December of 2000, guidelines for identifying available acres for forage production were developed. These guidelines were reviewed and accepted in April of 2001. A tentative grazing capacity was calculated for allotments on the Fairfield Ranger District, and it was decided to use these allotment capacities as an indicator of need to adjust permitted stocking. The capacity analysis of the Gooding Allotment indicates a wide spread between permitted grazing use and modeled capacity. Allotment administration and annual grazing use monitoring support the need to adjust permitted stocking.

In 2004, twenty-six Range Allotment Analysis (RAA) transects originally completed in the 1960's and 1970's were repeated in the vicinity of the previous RAA transects. Only sites determined suitable for grazing were chosen, and all of these sites occurred on the uplands. A representative number of non-riparian vegetative types were sampled to allow for extrapolation across the entire allotment. Thus, a trend in condition involving the uplands could be displayed by comparing old and new data. Examination of the data collected indicated a stable to slight increase in ground cover and a positive change in the resource value rating. (Note: RAA data were used both in the capacity model and as reference information for trend evaluation as described above.)

Purpose and Need for Action

The current Allotment Management Plan (AMP) for the Gooding Allotment was approved in 1983. Since that time, a number of conditions affecting the allotment have changed and the AMP needs to be updated to address these changes. The purpose of revising the AMP is to ensure allotment management achieves or trends towards the desired condition as outlined in the Forest Plan. AMP revision would include:

- The 2003 Forest Plan includes revised guidance relevant to grazing (e.g., desired conditions, goals, objectives, standards, and guidelines). It also adopts an adaptive management approach in recognition of the dynamic nature of Forest resources and their use. This is an iterative approach, incorporating regular resource monitoring and subsequent adjustment of management activities to ensure progress is made toward achieving Forest Plan desired conditions. The Gooding AMP needs to be updated to be consistent with the revised Forest Plan.

- The number of special status plant and animal species (i.e., federally listed threatened, endangered, proposed, and candidate species, Forest Service sensitive species, and Forest Service management indicator species) has changed since the last AMP update. The Gooding AMP needs to be updated to consider the changes in management requirements associated with these species.

- Routine management actions that have been prescribed in annual operating instructions need to be incorporated into the Gooding AMP rather than being carried forward in the AOI from one year to the next.

- This action is also needed to comply with Public Law 104-19, Section 504(a): Establish and adhere to a schedule for the completion of NEPA, Act of 1969 (42 U.S.C. 4321 et seq.) analysis and decisions on all allotments within the National Forest System unit for which NEPA is needed (PL 104-19 section, General Provision 1995).

Decision Framework

The decision to be made based on this analysis is:

- Whether or not to continue to authorize grazing as proposed on the Gooding C&H Allotment.
- If grazing is authorized, what mitigation should apply to the decision?

The Fairfield District Ranger is the Responsible Official for this decision.

Public Involvement

Scoping

Public input about the future management of this allotment was solicited by mailing scoping requests to interested persons or organizations on February 11, 2004. This mailing list and a response review of scoping have been filed in the Project Record at the Fairfield District Office.

Nine responses were received during scoping. The Interdisciplinary Team (IDT) of specialists identified key issues to carry forward in an environmental analysis. The majority of public comments were concerned with fish and wildlife habitat or vegetative condition within riparian areas. Internal scoping was also conducted by the Forest Service to identify other resource related issues.

On April 5, 2005, a legal notice was published providing a formal 30-day comment period (April 6 - May 6, 2005) on the Proposed Action for the Gooding C&H Allotment Management Plan. A total of six responses were received during this period.

A second formal 30-day notice and comment period was held from July 25 – August 25, 2008 with one organization commenting. Those individuals and organizations who commented during the first 30-day notice for this project (April 6 – May 6, 2005) do not need to re-submit their comments to retain their eligibility for appeal.

This project has also been listed in the Sawtooth Forest Schedule of Proposed Actions (SOPA) from January of 2003 through the present.

Issues

The Forest Service IDT analyzed comments and separated significant from non-significant issues. Potential issues were screened to ascertain which were significant to the proposed action. (40 CFR 1501(b)). NEPA documents much concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail. An issue is a point of discussion, debate, or dispute (about environmental effects) regarding the proposed action. Significant issues are defined as: those within the scope of the analysis; those not decided by law, regulation, or policy;

those related to the decision; are amenable to scientific analysis rather than conjecture; and are not limited in extent, duration, or intensity.

Similar issues were combined into one statement where appropriate. The following issues were determined to be significant and within the scope of the project decision.

SIGNIFICANT ISSUES

ISSUE 1 – Vegetation
Current livestock use may be affecting health, vigor, and diversity of upland and riparian vegetation, as well as Threatened, Endangered, Proposed, Candidate, or Sensitive plant species.

Vegetation – Riparian
Riparian vegetation is susceptible to grazing impacts. Livestock grazing may be affecting riparian (streams and springs) vegetative health, vigor, and diversity. Livestock grazing and the development of livestock watering facilities have affected many springs, seeps, and wet meadow areas within the Gooding Allotment. Cattle tend to congregate at these wet sites, consequently the immediately surrounding area often receives heavy impacts to the soil and vegetation.

Vegetation – Uplands
Livestock grazing may have an effect on upland vegetative condition. The 2004 Gooding C&H Range Analysis Results indicates that upland vegetation is stable or improving. Past allotment inspections have revealed some localized grazing impacts are occurring adjacent to fences, in favorite livestock loafing areas, and along preferred trailing routes.

ISSUE 2- Wildlife
Livestock grazing may be affecting terrestrial Management Indicator Species (MIS) habitat, Threatened, Endangered, and Sensitive (TES) species habitat, elk winter range, migratory bird species habitat, and pollinators.

ISSUE 3- Fish and Aquatic Habitat
Livestock grazing may be affecting fisheries and aquatic habitat. Aquatic organisms, in particular, have a higher potential to be affected by grazing because cattle are continuously seeking water, lush forage, and shade associated with streamside riparian areas.

ISSUE 4- Recreation / Livestock Conflicts
Cattle grazing and trailing may affect trails causing trail damage. Livestock grazing may also displace recreationists from some dispersed camping sites.

ISSUE 5- Soils & Water Quality
Livestock grazing may be contributing to increased soil disturbance and decreased soil productivity potentially affecting water quality and riparian vegetation.

Issues Considered But Not Analyzed in Detail

The Council on Environmental Quality (CEQ) NEPA regulations explain this delineation in Sec. 1501.7, "…identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)…" Rationale for determining issue significance may be found in the Project Record. Non-Significant Issues were grouped by the following categories:

Category 1 - Issues beyond the scope of the proposed action, conjecture, position statement or not supported by scientific or factual evidence.
Category 2 - Issues already addressed by the Sawtooth Forest Plan or another higher-level decision (law, regulation, policy).
Category 3 – Issues addressed with mitigation measures or design features.
Category 4 - Issues that result in no measurable effect between alternatives.

Travel Management

Existing roads and vehicle use or travel issues are beyond the scope of this analysis. The grazing permit holder is required to abide by the same travel restrictions as the general public. Travel Management (i.e. changes in roads and trails status) is beyond the scope of this analysis. (Category 1)

Heritage

Field survey and site monitoring found that there are currently no known sites being affected by grazing activities. No new facilities are being proposed as part of either alternative. If at some time in the future it is determined that new facilities are needed, Section 106 compliance will be conducted prior to any ground-disturbing activities such as construction of new facilities (such as fences, troughs, or corrals) and maintenance or removal of existing facilities. If significant cultural resources are located during the Section 106 field review, avoidance and or mitigation of potential impacts would be developed in consultation with appropriate Tribes and the Idaho State Historic Preservation Office. (Category 4)

Relationship to the Sawtooth NF Land & Resource Management Plan

National Forest planning takes place at several levels: National, regional, forest, and district or project level. This EA is a project-level analysis; its scope is confined to addressing the significant issues and possible environmental consequences of the project or activity. It does not attempt to re-address decisions made at higher levels. It does, however, implement direction or decisions made at higher levels.

The Sawtooth Forest Plan and its Record of Decision, revised in 2003, provide direction for this analysis. All proposed actions must be in compliance with management direction in the Forest Plan including standards and guidelines.

Besides Forest-wide direction, more specific management is identified as Forest Plan Management Area (MA) direction. Each MA provides for a unique combination of activities, practices, and uses. The project area is entirely within the Little Smoky Creek Management Area 07 (Forest Plan, pg.187). Goals, objectives, standards, guidelines, and the desired condition for the Gooding C&H Allotment are identified in the Forest-wide and Management Area sections of the Forest Plan.

Applicable Regulatory Requirements and Required Coordination

Federal & State Permits Required - No State or Federal (other than Forest Service) permits are required to implement the Proposed Action or any other alternative.

If the decision allows the continuation of livestock grazing, the Forest Service would continue to authorize this use through a term grazing permit. Currently, there is a 10-year term grazing permit that authorizes grazing on the Gooding Allotment. Grazing permits include both "Terms & Conditions" and Forest Plan Standards & Guidelines. (36 CFR 222.3)

Endangered Species Act – This Act (ESA) provides for the protection and conservation of threatened and endangered plant and animal species. A biological assessment/evaluation consistent with the requirements of this act was prepared based on the preferred alternative. Concurrence on the determination of effects for ESA listed species was received from the USDI Fish and Wildlife Service (F&WS) on June 10, 2005, for the Allotment Management Plan for the Gooding Allotment.

National Historic Preservation Act – This Act provides for the protection of prehistoric and historic resources. Archeological site investigation did not reveal known sites that would be jeopardized by the activity of grazing. If further investigation reveals additional sites and the activity of grazing is suspected to have a detrimental effect, then site protection would be implemented. Concurrence from the Idaho State Historic Preservation Office has been obtained. There will be no effect to heritage resources.

Migratory Bird Treaty Act - This Act and subsequent Executive Order and Memorandum of Understanding (MOU) between the USDI Fish &Wildlife Service and USDA Forest Service provide for the protection of migratory birds. Based on the analysis, the Proposed Action is consistent with this Act.

Environmental Justice - In accordance with Executive Order 12898, all action alternatives were assessed to determine whether they would have disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority or low-income human populations. This assessment considered such programs, policies, and activities. No effects were identified during scoping or the formal 30-day comment period on the Proposed Action.

Inventoried Roadless Areas - The project area includes inventoried roadless areas (IRAs). There are no new roads or trails proposed, nor are there any improvements to existing roads or trails proposed. Under the Proposed Action, the Livestock Permittee is required to follow the Sawtooth Forest Travel Plan. Therefore, the Proposed Action and alternatives to the Proposed Action would not affect the status of IRAs.

Research Natural Areas / Recommended Wilderness
There are no Research Natural Areas or Recommended Wilderness within the project area.

Chapter 2 – Alternatives

This section is intended to present the alternatives in comparative form, sharply defining the issues and providing a clear basis for choosing among options by the decision maker and the public (40 CFR 1502.14). It includes a discussion of alternative development, a detailed description of each alternative, and specific monitoring and features of each alternative. Alternative 2 is identified as the Current Management/Proposed Action.

The Interdisciplinary Team (IDT) used information from public scoping, including the significant issues previously identified for the project, in conjunction with the field-related resource information, to formulate a reasonable range of alternatives. The objective was to meet the purpose and need for the project, progress toward achieving the desired Forest Plan conditions, and to consider a reasonable range of solutions to solve significant issues.

In developing alternatives, the decision-maker also considered the following direction found in Forest Service Handbook (FSH) 2209.13 - Chapter 90:

> "In cases where the design and configuration of the proposed action can mitigate resource concerns to acceptable levels, the proposed action may be the only viable action alternative. When there is a significant issue with the proposed action, an alternative to the proposed action shall be developed and analyzed in detail (FSH 1909.15, sec. 14)."
>
> "Current management should be analyzed in detail as an alternative if current management meets the stated purpose and need for action. The current management alternative may also be the proposed action. This would be appropriate when current management is determined to be consistent with the land and resource management plan and has been shown to be effective in meeting resource objectives through monitoring."
>
> "In addition to the proposed action, the "no action" alternative shall always be fully developed and analyzed in detail. No action is synonymous with no grazing and means livestock grazing would not be authorized within the project area."

ALTERNATIVE DESCRIPTIONS

Alternative 1: No Grazing Alternative.

Grazing would be eliminated on the Gooding Allotment and livestock grazing permits would be cancelled. In accordance with agency regulations (36 CFR 222.4), grazing would cease two years after notice of cancellation. Allotment management would not change during this two-year interval. The Forest Service, as determined by funding allocations, would remove structural range improvements. The permittee would be compensated for the current value of investments in these improvements.

Alternative 2: Proposed Action - Current Management with Adaptive Management

Alternative 2 is the "Proposed Action". The current deferred rotation management system will be continued with mitigation and use of an adaptive management strategy as described below. This system is designed to help maintain and establish plant species desirable for supporting healthy upland and riparian ecosystems and provide for a sustainable livestock forage base. One grazing cycle (4-5 years) would allow the Forest Service time to gather data to set the grazing capacity of the allotment. During this period stocking would be reduced to 65% (1500 HMs), of the current grazing permit. Reduced grazing would be accomplished by either decreasing livestock (head) turned out or by shortening the period of use at the beginning or the end of the grazing season. During the firming-up period 35% of the permitted HMs would be placed in a status of non-use for resource protection. The 35% reduction is based on actual use monitoring relative to compliance with Forest Plan direction and past tentative capacity analyses.

Both the stocking rate and grazing strategy are only tools to implement the decision. The livestock numbers and seasons of use described in the proposed action are only approximations. Due to annual climatic variability, the length of time livestock are allowed on the allotment varies from year to year. If adjustments in the management system, livestock numbers and/or season of use are necessary to meet Forest Plan objectives or other laws or regulations, the Forest Service will make these changes through the adaptive management process. If management objectives are meeting desired conditions or are approaching desired conditions and objectives, then livestock stocking will be adjusted consistent with monitoring results.

There would be no changes to the allotment boundary. Livestock grazing would continue to be managed through an adaptive management strategy. Adaptive management is a strategy based on three principles: (1) achievement of realistic, clearly defined objectives, (2) ongoing monitoring to assess progress toward meeting those objectives, and (3) the flexibility to alter management when monitoring suggests there is a need for change. This management strategy is most appropriate in dynamic situations, where change is the norm. Permittee flexibility during the implementation period will be needed due to changing conditions or unexpected results.

Different management techniques would be considered under the adaptive management strategy, such as changing the pasture rotation, season of use, timing of entry and departure, stocking levels and duration of use. Other livestock and resource management practices such as closing areas, adjusting herding, changing salt locations, supplementing with nutrients, and adding rangeland developments may also be considered. Monitoring indicators and protocols can be adjusted if warranted.

This management system would provide flexibility to adjust livestock grazing practices in response to unpredictable management situations caused by weather fluctuations, livestock behavior, or acts of nature such as wildfires. Adaptations would be constrained by Forest Plan direction and Term Grazing Permit terms & conditions. Based on monitoring results of the previous season, permitted numbers and length of stay would be predicted for the next grazing

season. Seasonal adjustments would be dictated by permittee success or failure to meet grazing standards.

As noted above, monitoring is a key aspect of adaptive management. The decision will include monitoring guidance intended to gauge progress toward obtaining (long term) desired conditions stipulated in the Forest Plan. The specifics of monitoring, including protocols, etc, will be included in the evaluation section of the AMP. See the monitoring discussion on page 17. If monitoring indicates the need for management changes (e.g., Forest Plan standards and guidelines aren't being met; resource conditions are deteriorating or are not making adequate progress towards Forest Plan desired conditions and objectives; unacceptable use conflicts persist or are increasing, etc.), management will be adapted as appropriate and may result in modifications to the term grazing permit. Likewise, if management objectives are met and resource improvement is confirmed, increased grazing use would be considered as long as a positive trend can be maintained.

Mitigation Measures: The following mitigation measures were formulated to address resource concerns within the allotment:

Riparian
Limit grazing in King of the West, Tyrannis Creek, and lower Carrie Creek drainages to a period of no more than 10 days and avoid grazing Carrie Creek drainage above Trail #016 – Big Peak Connector.

This mitigation measure was designed to meet Forest Plan desired rangeland resource conditions on page III - 44: "Improve or maintain forage quality where range management actions occur; provide for properly functioning riparian areas that have stable or improving trends in vegetative composition, age class structure, and vigor; provide for upland vegetation that contributes to proper hydrologic function; provide for a variable and dynamic composition of shrubs, grasses, and forbs across the landscape". Further, Forest Plan guideline RAGU02 on page III – 46 gives direction for cattle allotments where riparian area restoration is an objective. Appropriate grazing systems should be designed to reduce the duration of riparian area grazing and incorporate sufficient growing season rest to provide good vigor, physiological needs, and regeneration of all riparian plants. Limiting grazing in these areas will help achieve the intent of this direction.

Noxious Weeds
The ongoing Sawtooth National Forest Noxious Weed Strategy (USDA, 1995) would be utilized. This strategy provides a systematic approach to noxious weed treatment using chemical, biological, and mechanical means of weed control within the project area. Early detection and treatment with an eradication objective is the current weed control strategy for the Gooding Allotment. That means all known and newly discovered noxious weed infestations will be treated on an annual basis.

Best Management Practices (BMPs)
Standard BMPs such as prescribed grazing systems, noxious weed treatment, fence and spring development maintenance, and livestock use exclusion are currently being practiced on the Gooding Allotment. Implementation of BMPs helps meet State water quality standards and the

water quality objectives identified in the Forest Plan. They are derived from the R1-R4 Soil and Water Conservation Practices Handbook (FSH 2509.22) to minimize the effects of activities on soil and water resources. Applicable BMPs can be referenced in the "Guide to the Use of BMPs on Grazing Lands". (Idaho Rangeland Commission)

Monitoring
Existing key area monitoring would continue and additional key areas for monitoring will be established as needed. Monitoring occurs in most pastures in the form of nested frequency transects on uplands, stubble height measuring stations within key riparian areas, and re-reading of range analysis transects originally established in the late 1960s.

Most key riparian areas have been identified and annual grazing use indicators are currently being monitored. Monitoring related to these areas will be expanded to determine condition and trend information. New key areas, especially within King of the West and Tyrannis Creek drainages will be established as appropriate. Implementation monitoring will be used to determine if the grazing system has been implemented as designed. This includes monitoring annual grazing use indicators such as residual vegetation measurement, woody species use, streambank alteration, ocular forage use estimates (professional judgment), and unit inspections. Effectiveness monitoring will be used to determine if grazing management is effective in meeting the intent of the Forest Plan goals, objectives, standards, and guidelines. This includes condition/trend monitoring of uplands (e.g. nested frequency) and monitoring of streambanks and riparian vegetation (combination of greenline vegetation composition, greenline to greenline width, streambank stability, woody species regeneration, and photo-points). The monitoring results will be used to determine appropriate adaptive management practices.

Alternatives Considered but Eliminated from Detailed Study

One additional alternative was considered during the planning process, but was not studied in detail. Below is the description and rationale for not analyzing it further.

2002 Tentative Grazing Capacity Alternative
This alternative is based on a model that used production data collected in the late 1960's. This model indicated a potential reduction of up to 74% of the permitted head months (2002 Tentative Grazing Capacity Report). This alternative was initially considered, but was dismissed because it is based on modeled information and old data. Some of the data parameters used in the model were intended for broad scale approximations (e.g. land type associations, soil productivity, etc.). The forage productivity data collected in the 1960s, in addition to being dated, was based on a single year productivity estimate. Forage productivity varies significantly from year to year based on annual weather variations. Thus, tentative capacity analysis, at best is a broad approximation of carrying capacity. While this model indicates a need for change, it must be used in conjunction with actual use monitoring related to achieving Forest Plan direction. This is the process used to define the initial use level for the Proposed Action.

Comparison of Alternatives

Table 3 provides a summary of the effects of implementing each alternative.

Table 3 - Comparison of Alternatives

Vegetation

Element	Alternative 1 – No Grazing	Alternative 2 Proposed Action
Aspen	Increased regeneration in stands where livestock has limited regeneration - Forest Plan direction would be met	Reduced regeneration will continue in stands where livestock browsing has limited regeneration - Forest Plan direction would be met
Sagebrush Shrublands	Canopy cover will remain outside of desired conditions without introduction of disturbance, natural progression from lower to higher canopy cover will continue	Canopy cover will remain outside of desired conditions without introduction of disturbance, natural progression from lower to higher canopy cover will continue
Riparian	Rate of riparian recovery would be accelerated in areas not meeting desired conditions – Forest Plan direction would be met	Rate of recovery would be accelerated but would take longer than no grazing - Forest Plan direction would be met
Noxious Weeds	Ability to detect and monitor weed populations in remote areas will be reduced , weed populations would tend to be discovered after they become larger and more difficult to control, potential for livestock introduction of weeds into more remote areas will be eliminated after the phase out period	Disturbance from livestock may result in portions of allotment becoming susceptible to noxious weeds, livestock use may facilitate a higher risk of non-native plants becoming established in remote areas, there would be a greater ability to detect and monitor weed populations
TEPC Plants	Potential for impacts associated with livestock grazing in slender moonwort and Ute's Ladies Tresses habitat would be eliminated – Forest Plan direction would be met	May allow for impacts associated with livestock grazing in slender moonwort habitat; potential for impacts to Ute's Ladies tresses habitat would be reduced – Forest Plan direction would be met
Sensitive Plants	Removal of livestock may have beneficial and detrimental effects to bugleg goldenweed	Potential for trampling, introduction of noxious weeds would continue, livestock

	populations and habitat	grazing may create habitat for this species through soil disturbance and removal of competition.

Wildlife

Element	Alternative 1 – No Grazing	Alternative 2 Proposed Action
Pileated Woodpecker (MIS)	Pileated woodpecker and their habitat would continue to be present within the allotment	Pileated woodpecker and their habitat would continue to be present within the allotment
Sage Grouse (MIS) – habitat improvement	Elimination of grazing would result in improvement of riparian habitat used by sage grouse	Improvements in riparian habitat used by sage grouse would occur as Forest Plan standards are met but to a lesser degree than no grazing
Gray Wolf –predator control	Potential for lethal control reduced	Potential for lethal control would not change from current
Lynx – consistency with LCAS	Consistent with LCAS	Consistent with LCAS if Forest Plan direction met
Spotted Bat and Townsend's Big Eared Bat – foraging habitat	Foraging conditions may improve due to increased insect diversity in riparian areas	Foraging conditions may improve in riparian areas where livestock grazing is limited
Wolverine – forage competition	Potential for forage competition between livestock and prey species would be eliminated potentially increasing food availability	Potential for forage competition would continue to occur
Northern Goshawk, Boreal Owl and Flammulated Owl – forage competition	Potential for forage competition between livestock and prey species would be eliminated potentially increasing food availability	Potential for forage competition would continue to occur
Spotted Frog –predation potential	Increased cover in riparian areas would reduce potential for predation on frogs	Potential for predation in riparian areas where cattle congregate would remain high, potential for predation would be reduced in areas where grazing is limited and as Forest Plan standard are met
Elk – winter range	Elk winter range would be unaffected by cattle	Elk winter range would be maintained
Migratory Bird Species Habitat – consistency with E.O. 13186	Intent of E.O. 13186 met	Intent of E.O. 13186 met except in isolated areas

Pollinator Diversity	Provides for long-term benefits and habitat recovery for pollinator diversity	As Forest Plan direction is met, there would be a reduced potential for decline in pollinator diversity and abundance.

Fish and Aquatic

Element	Alternative 1 – No Grazing	Alternative 2 Proposed Action
Bull Trout (MIS)	Little to no change in bull trout occurrence or spawning is likely to occur	Little to no change in bull trout occurrence or spawning is likely to occur
Aquatic Habitat	Little or no change in fish populations expected to occur, overall habitat and water quality would be improved as negative effects from grazing are eliminated	Little or no change in fish populations expected to occur, overall habitat and water quality would be improved as negative effects from grazing are reduced through reduction of grazing intensity and meeting Forest Plan direction

Recreation

Element	Alternative 1 – No Grazing	Alternative 2 Proposed Action
Recreation/Livestock conflicts	Potential for livestock/recreation conflicts will be eliminated	Potential for livestock/recreation conflicts would be reduced through adaptive management

Soils

Element	Alternative 1 – No Grazing	Alternative 2 Proposed Action
Detrimental Soil Disturbance (DD)	Long term DD estimated to stabilize at 2%	Condition and trend for DD would be about 4%
Total Soil Resource Commitment (TSRC)	Would result in < 1% decrease in TSRC	Existing TSRC would continue at <1%
Effective Ground Cover (EGC)	EGC would remain stable or improve	EGC would remain stable or improve

Chapter 3 - Affected Environment

This section describes the physical, biological, social, and economic environments of the affected project area. Despite the word "affected" in the title, this chapter does not present the "effects" of the alternatives. This chapter addresses the resources that could be affected through alternative implementation. It also includes a discussion about potential concerns that were dismissed as significant issues but influenced the development of alternatives and associated mitigation measures.

Overview of Affected Area

The affected environment is limited to the Gooding C&H Allotment analysis area. Approximate elevations on the allotment vary from about 6,000 feet up to 9,000 feet above sea level. Slopes on the lower elevation areas are mostly gentle and typically vary from 0 to 30 percent. The higher elevation areas are steeper with slopes varying from 30 to 65 percent. Slopes up to 40 percent are usually considered available for cattle grazing. Precipitation for this area averages 16 to 25 inches and 60 to 70 percent of this occurs as snow. The nearest community to the allotment is the town of Fairfield, about 10 air miles to the south.

The project area provides year-round dispersed recreation opportunities, primarily big game hunting, horseback riding, dispersed camping, and snowmobiling. Most of the recreating public originate from the Wood River and Magic Valleys and to a lesser degree from the Treasure Valley area. Most of the trails are open to motorized use. Corridors along main roads are considered visually sensitive.

Air quality is usually excellent, however, smoke can accumulate from seasonal agricultural burning and periodic wildland fires.

The Gooding Allotment is situated within the Little Smoky Creek watershed. Little Smoky Creek flows in an east to west direction and bisects the allotment. The main tributary streams that flow north or south into Little Smoky Creek are Worswick, Grindstone, Carrie, Blackhorse, Stovepipe, Basalt, Red Rock, and Rosetta Creeks. Meadow Creek is the only perennial stream that flows easterly emptying into Basalt Creek near the southeast corner of the allotment. Water quality is generally good, but is at low to moderate risk primarily from disturbance activities related to roads, livestock grazing, and dispersed recreation; and secondarily due to past mining and logging activities.

The surface geology is predominantly granitic, with minor intrusions of basalt. Soils generally have moderate to high erosion potential and moderate productivity. Shallow soils are most common at the highest elevations and do not seem to be impacted much by livestock grazing. Geomorphic integrity is at moderate to high risk due to the inherent erosion potential combined with spring runoff or high intensity storm events.

Overview - Livestock Management & Distribution

The allotment area covers approximately 24,000 acres of National Forest land. Of this total area, livestock use substantially less acreage. Field inventories and observations since the original range analysis was conducted in the late 1960s indicate a need to reduce permitted numbers or the period of use to allow recovery of forage or soil resources in less than satisfactory condition.

Currently, 620 cow/calf pairs are permitted to graze the allotment from June 20th to October 9th for 2,283 HMs following a deferred rotation grazing system. Naturally occurring and developed water for livestock and wildlife is readily available over most of the allotment. Numerous springs have been developed to promote livestock distribution, however; there is a need for better distribution on some higher elevation ranges due to limited livestock access or steepness of slope. In the Worswick/Grindstone pasture, Williams/Rosetta pasture, and to a lesser degree Red Rock pasture, livestock access has been augmented by the construction of a network of logging roads. These roads are used extensively by cattle to reach some otherwise inaccessible grazing areas.

Historically, there has been a crossing band of sheep allowed to trail through the allotment in the fall via the Little Smoky road to access BLM permitted range. Another band is allowed to cross in the spring via the Little Smoky road one out of every four years to access an adjacent National Forest allotment. The average time each band spends for crossing has been two days with a limit of one overnight stay. Crossing impacts are confined to the road corridor and have not created adverse effects.

Previous tentative capacity analyses indicated a need for change in livestock use levels. Actual use monitoring related to achieving Forest Plan direction has also shown the need for change in livestock use levels.

Prior to the 2003 rest season, permittees stocked their full permitted numbers and were unable to meet Forest Plan direction. Grazing impacts and resulting permit actions were occurring on a frequent basis. During the 2004 season of use, livestock use levels were lowered 35% and Forest Plan direction was met.

Currently there is only one permittee authorized to graze on the allotment. The last Term Grazing Permit was reissued in 2001. At the time of re-issuance there was no adjustment in the authorized number of cattle or period of use.

There are numerous springs developed to provide livestock drinking water on the Gooding Allotment. Water rights granted on these springs and seeps by the State of Idaho recognize livestock watering as an appropriate beneficial use. The distance water is piped from each spring ranges from 15 to 150 feet. The majority of livestock water developments do not capture the total available water from springs and seeps. Available water at the source is reduced by the amount consumed by livestock and the amount displaced via the trough overflow. Overflow water is returned to the site or drainage within 150 feet of the source. Riparian vegetation and associated

wildlife habitat may be affected at some sights due to the displacement of water from the source to where it is retuned. The average distance water is displaced is less than 50 feet.

In addition to the numerous springs developments, over 14 miles of barbed wire let-down fences to help control cattle. The Gooding cattle shipping corral, located in the southeast portion of the allotment, is used annually to unload cattle at the beginning of season and to load cattle at the end of the grazing season. No additional range improvements are planned as part of the proposed action. If in the future it is determined that additional improvements are needed, these improvements will be analyzed at that time following appropriate agency procedures.

Issue 1 - VEGETATION (Affected Environment)

Range types on the allotments are comprised of wet and dry meadows, mountain big sagebrush on south and west slopes, mountain shrublands dominated by chokecherry and snowberry in higher elevation areas and east slopes. Forested vegetation types include scattered stands of deciduous trees dominated by aspen, and coniferous forest dominated by north slope Douglas-fir, high elevation subalpine fir, lodgepole pine, and localized Engelmann spruce.

Forest Plan direction that apply to all vegetation types include:

- VEGU01: "During site/project-scale analysis, tradeoffs in the achievement of one or more of the vegetative components described in Appendix A may need to be considered. Current conditions of the vegetation may necessitate the need to move one component away from the desired condition in order to move another one toward the desired condition. In these situations, decisions should be based not only on which vegetative component is important to emphasize at any point in time to meet resource objectives, but also how to effectively move all components toward their desired condition over the long term."

Conifer

Conifer types are generally not available for grazing due to physical barriers created by windfall and are not generally considered in evaluating grazing capacity due to sparse understory forage production. For consideration in carrying capacity determinations, these timber types should produce over 200 lbs (dry weight) forage per acre (Forest Plan Guideline RAGU01).

Based on this criterion, about one third or 3,000 acres of the coniferous forest produces more than an estimated 200 pounds per acre of livestock forage and are considered available for grazing.

The Gooding Allotment contains one general timber potential vegetation group (PVG), PVG 4 – Cool Dry Douglas-Fir, that could potentially exhibit effects from livestock grazing on stand structure and composition as discussed in Belsky and Blumenthal (1995). A fire regime condition class assessment was conducted for the Forest in 2005 at the 5th Field Hydrologic Unit (HUC) scale. PVG 4 stands in the Little Smokey 5th Field HUC are described as being in

National Fire Plan Condition Class 2. Condition class 2 is defined as having moderate departure from historic structure. The analysis further defines this departure from the expected conditions within the 5th field HUC:

- Early seral stands are more common than expected under the historic fire regime.
- Mid-seral closed canopy stands are rare and less common than expected.
- Mid-seral open canopy stands are similar to expectations.
- Late-seral open canopy stands are more common than expected.
- Late-seral closed canopy stands are rare and less common than expected.

The cool dry Douglas-fir stands in the 5th field HUC are more dense and less open than would be expected under the historic fire regime. This would not be expected if the stand conditions were related primarily to the results of past livestock grazing.

Table 4: Forest-wide Range of Desired Tree Size Classes Expressed as Percentage of Forested Vegetation Within Each PVG (Forest Plan – Appendix A – page A2)

Tree Size	PVG 4 Cool Dry Douglas-fir
Seedling Grass/Forb/Shrub/Seedling < 4.5' tall	
Saplings 0.1" – 4.9" DBH	7 – 9
Small 5.0" – 11.9" DBH	19 – 22
Medium 12.0" – 19.9" DBH	24 – 36
Large >20" DBH	20 – 34

Table 5: Current Percentages of Tree Size Classes in Little Smoky Creek Watershed

Tree Size	PVG 4 Cool Dry Douglas-fir
Grass/Forb/Shrub/Seedling <4.5 feet tall	20.5%
Saplings 0.1" – 4.9" DBH	24.9%
Small 5.0" – 11.9" DBH	19.2%
Medium 12.0" – 19.9" DBH	19%
Large >20" DBH	16.5%

Aspen

Aspen stands are scattered throughout the allotment and are not extensive in size (generally 1 – 3 acres or less of contiguous aspen). These stands cover approximately 200 acres or .8% of the allotment (LANDSAT data). These aspen stands are considered to be a common early seral component within the conifer stands on the allotment (mostly cool dry Douglas-fir Potential Vegetation Group PVG 4 and cool dry Sub-alpine fir PVG 7).

The desired condition for species composition in PVG 4 is 4% to 13 % aspen forest-wide and 6% to 11% in PVG 7. (Forest Plan – Appendix A) Approximately 3% of conifer stands in the allotment have an aspen component. The Forest Plan direction applicable to Aspen includes Objective #0718: "Restore the early seral aspen component to desired conditions, as described in Appendix A, to improve visual quality and wildlife habitat."

Some effects to aspen regeneration occur from livestock browsing of young aspen suckers. These effects are localized and limited to areas where cattle tend to congregate, such as riparian areas and along roads. Several species of migratory birds rely heavily on aspen including sapsuckers and woodpeckers.

Where aspen is seral it is maintained on the landscape by disturbance. Historically fire is considered a primary disturbance agent (Forest Plan). It appears that the primary causal factor for aspen not meeting the desired condition on the allotment is lack of fire. While livestock grazing has impacted aspen regeneration in some stands and does potentially reduce the chances of fire by reducing fine fuels, elimination of livestock grazing, in and of itself, will not allow conditions to move towards DFC.

Sagebrush Shrublands

Sagebrush shrubland types cover about 10,500 acres of the allotment. Table 6 displays desired conditions for mountain big sagebrush as described in Appendix A of the Forest Plan.

Table 6: Desired Condition for Mt. Big Sagebrush

Mt. Big Sagebrush Canopy Cover Classes	**Desired Amounts of canopy cover classes by percent of area**
0-10% canopy cover (LOW)	30-40% of the area
11-20% canopy cover (MOD)	30-40% of the area
21-30%, >31% canopy cover (HIGH)	20-30% of the total area, with <= 5% in the >31% canopy cover class

Using LANDSAT data, the following current conditions were documented for mountain big sagebrush. These data were collected through remote sensing and have not been verified for canopy closure on the ground. This does however provide a general view of current condition of the allotment.

Within the Gooding Allotment, 79% of the non-forested acres are within the mountain sage brush community with the remaining 21% in mountain shrub communities. Table 7 displays the percentage of area by canopy cover classes.

Table 7: Comparison of Existing versus Desired Canopy Cover

Mt. Big Sagebrush Canopy Cover Classes	**Canopy cover classes by percent of area**	**As compared with DFC**
0-10% canopy cover (LOW)	12.73%	Lower than DFC
11-20% canopy cover (MOD)	58.15%	Higher than DFC
21-30%, >31% canopy cover (HIGH)	29.12%	Within DFC range

For the mountain shrub community, 99% of the area is within the moderate (11-20%) canopy cover range. The remaining 1% of the area is within the high (21-30%) range.

Specific areas not meeting or approaching DFC in the MODERATE (11-20%) category are:

1) lower portion of Grindstone Creek
2) Carrie Creek
3) Tyrannis Creek
4) Upper portions of East Fork Worswick
5) West Fork Grindstone Creek
6) Bear Gulch
7) Portions of Little Smoky Creek
8) Upper portions Rosetta Creek
9) Upper portions of Red Rock Creek
10) Basalt Creek

Given the large portion of the area within the 11-20% canopy cover class, it appears that the primary causal factor is lack of fire. While livestock grazing has contributed to this condition, elimination of livestock grazing, in and of itself, will not allow conditions to move towards DFC. Forest monitoring data indicates that sagebrush shrublands on the allotment have generally stable trends. The Forest Plan direction applicable the Sagebrush Shrublands also includes Objective #0720 "Restore the herbaceous component of the Mountain Big Sagebrush communities adjacent to riparian areas in narrow drainages."

Riparian

Riparian vegetation plant communities cover about 600 acres or 2.5% of the allotment. While this is a small portion of the allotment, it is probably the most important area of resource concern related to livestock grazing management. Forest Plan direction specific to areas within the allotment are described in Little Smoky Creek Forest Plan Objective 0721. This objective identifies direction to: "Restore hydric and woody shrub species composition and density in bottom riparian areas within the Grindstone Creek, Carrie Creek, Worswick Creek, Red Rock Creek, and Rosetta Creek drainages, where vegetation has been altered by livestock grazing."

The desired future condition for riparian vegetation plant communities within the Gooding C&H allotment is a greenline successional status rating of 51 (upper to mid-seral) or greater and a greenline bank stability rating of 6 (upper-mid) or greater for riparian systems.

Agency personnel reviewed most of the streams in the allotment to better understand baseline conditions and riparian management issues. Notes on conditions and cattle impacts are contained in write-ups for each stream visited (RCA Delineation - Project Record). Overall, many streams and riparian areas appear to be recovering from past grazing. Some problem areas, however, still remain. Streams where cattle impacts were most evident include: Bear Gulch, Belle Draw, E.F. Worswick Creek, Little Smoky Creek in the Beef Pasture, Upper Stovepipe Creek, W.F. Grindstone, Grindstone, Carrie Creek, and Tyrannis Creek.

Staff have noted many problem areas compounded by wood cutting, poorly designed or located roads and dispersed camping. These uses are causing localized soil compaction, loss of riparian vegetation, reduced large woody debris recruitment into stream channels, waste issues, and bank erosion. Streams with these issues include: mainstem Little Smoky Creek between Worswick and Carrie Creeks, Worswick Creek, E.F. Worswick Creek, lower Blackhorse Creek, Carrie Creek, lower Rosetta Creek, Grindstone Creek, Tyrannis Creek, and King of the West Creek.

Older or pioneered roads are also capturing and diverting channels in several areas causing increased sedimentation.

Riparian conditions on the allotment are generally satisfactory or are improving as shown by the surveys conducted in 1987 (see Table 8). Some less than satisfactory riparian conditions persist such as those identified in Forest Plan Objective 0721.

Table 8 - 1988 and 1991 Level II Riparian Inventory

Stream Name	Reach	Estimated Ecological Status	Apparent Vegetation Trend	Management Implications
Main Fork Grindstone	GS01	mid-seral	stable	GZ,RD
Main Fork Grindstone	GS02	mid-seral	stable	GZ,RD
West Fork Grindstone	WGS1	mid-seral	stable	GZ,RD,TH
Red Rock Creek	RR01	late-seral	none	GZ,RD
Red Rock Creek	RR02	mid-seral	stable	GZ,RD
Red Rock Creek	RR03	mid-seral	stable	GZ,RD
Little Smokey Creek	LS04	late-seral	stable	RC,RD,GZ
Little Smokey Creek	LS05	late-seral	stable	RC,RD,GZ
Little Smokey Creek	LS06	late-seral	upward	RC,RD,GZ

* GZ = Grazing, RD = Roads, RC = Recreation, TH = Timber Harvest listed in order of impact significance

In 2006 and 2007, additional monitoring to describe riparian conditions on streams grazed by cattle was established on the allotment. These monitoring sites were established and read following Multiple Indictor Monitoring protocol (Burton, Cowley & Smith, 2006) which evaluates effects of livestock grazing on riparian condition and also evaluates annual grazing use on riparian vegetation and streambank structure. This data shows that riparian conditions at these locations either meet or are very close to meeting established desired conditions for the Gooding Allotment.

Table 9. Riparian Multiple Indicator Monitoring Results

Year	Study Name (DMA)	Bank Stability Desired Condition = 76%	Bank Cover	Woody Vegetation				Ecological Status Desired Condition >50	Wetland Rating	Hydric Woody	Hydric Herbaceous
				Saplings	Mature	Dead	Hydric				
2007	Stovepipe 2	94	100	63	36	1	88	101 - PNC	90 - Very Good	43	57
2007	Blackhorse	97	100	54	44	1	89	97 - PNC	90 - Very Good	59	51
2006	Carrie Cr.	77	89	20	80	1	64	69 - Late	79 - Good	71	22
2006	Tyraniss	88	92	0	100	0	54	69 - Late	69 - Good	18	48
2006	Grindstone 1	90	92	41	53	6	52	62 - Late	72 - Good	49	37
2007	Grindstone 2	90	90	91	9	0	65	70 - Late	85 - Good	43	46
2006	Worsick	96	84	52	42	6	72	99 - PNC	71 - Good	56	50
2006	Worsick 2	96	84	not measured			63	59 - Mid	71 - Good	55	41
2006	Rosetta	82	80	34	61	5	47	58 - Mid	66 - Good	60	25
2006	Red Rock	91	96	31	69	0	88	93 - PNC	87 - Very Good	75	51
2006	Little Smoky Beef A	81	89	59	41	0	73	83 - Late	69 - Good	69	34

Localized riparian concerns exist in the lower portions of King of the West and Tyrannis Creeks due to impacts caused by the combined influence of historic mining, grazing, and roads. Observations indicate a slight movement towards meeting desired riparian condition, however improvement will be greatly accelerated by limiting both period of grazing and numbers of cattle.

Allotment inspections indicate unsatisfactory riparian conditions exists in the lower half of King of the West and Tyrannis Creeks. The determination of unsatisfactory riparian conditions is based on annual inspections, photo points, Cowley & Burton Multiple Indicator Monitoring studies, Riparian Conservation Area delineation, and/or field reviews and observations by Forest specialists. Past roadwork, mining, and livestock use, both cattle and sheep, have contributed to problems including unstable stream banks, head cutting, alluvial deposition, and a gradual decline in overall riparian condition.

The Forest Plan direction applicable to Riparian Vegetation includes:

- Objective #0721: "Restore hydric and woody shrub species composition and density in bottom riparian areas within the Grindstone Creek, Carrie Creek, Worswick Creek, Red Rock Creek, Rosetta Creek, Wood Gulch, Camp Creek, Sawmill Creek, and Cannonball Creek drainages, where vegetation has been altered by livestock grazing.."

- Objective #0743: "Forage utilization by cattle in riparian areas will not exceed 30 percent use of most palatable forage species, or must retain a minimum 6 inch stubble height of native hydric greenline species, whichever occurs first, when riparian goals and objectives are not being met."

- VEGU06 "When sagebrush cover types are determined to need rest from livestock grazing following a wildfire, areas should be rested for a minimum of two growing seasons. Evaluate whether additional rest is needed after two growing seasons. Base this determination on the following factors:
    - The ecological status of the sagebrush community prior to the wildfire,
    - How long the sagebrush community had a density or canopy closure greater than 15 percent prior to the wildfire,
    - The severity and intensity of the fire,
    - The amount, diversity, and recovery of forbs, grasses and palatable shrubs that are present after 2 years of rest in relation to desired conditions.

  In areas other than sagebrush cover types, an appropriate rest period should be determined. Base this determination on the following factors: soil conditions, the amount, diversity and recovery of forbs, grasses, and palatable shrubs in relation to the desired condition that are present after the 2 years of rest."

Forest Plan direction was met for riparian during the 2003 rest year and the 2004 grazing season when permitted stocking was voluntarily decreased by 35%. The stocking levels for 2004 and Alternative 2 are the same.

Noxious weeds

Less than two acres of localized infestations of noxious or invasive plant species have been identified within the allotment. Current infestations appear to be associated primarily with roads and dispersed camping on the allotment. Worswick Creek and Grindstone Creek subwatersheds have an inherently high risk of weed establishment and spread due to the amount of drainage area susceptible to weed invasion and the relatively high level of exposure from recreation and trail use in these areas (Chapter III, Sawtooth Forest Plan, 2003). The threats for new infestation and establishment are however lowered given the ongoing weed treatment effort of the Fairfield Ranger District weed management crew and weed management cooperation with the Camas Creek CWMA.

Spotted knapweed, along with some invasive annual grass species and introduced sunflowers, grows along the Little Smoky road between Worswick and Grindstone Creeks. The current infestation occurs in small isolated and sparse patches. Spotted knapweed treatment occurs annually and eradication is expected within the next ten years. Roadside diffuse knapweed infestations were eradicated between Worswick and Five-Points Creeks in the early 1990s. To date, no other infestations of noxious weeds have been discovered on the Gooding C&H Allotment.

The Forest Plan direction applicable to Noxious Weeds includes:

- Objective 0725: "Prevent and control the establishment of noxious weeds, with emphasis on rush skeleton weed, spotted knapweed, and diffuse knapweed."

This objective is being met as described above.

Threatened(T), Endangered(E), Proposed(P), Candidate(C), and Sensitive(S) Plant Species:

Forested vegetation, riparian communities, and sagebrush and mountain shrub communities characterize the Gooding Allotment. This area also provides habitat for TSC plant species. These species are discussed below. For TEPC species, the USDA Forest Service is responsible for implementing the ESA within their authorities. These responsibilities include, but are not limited to, efforts to promote the conservation and recovery of listed species, and provisions to conserve the ecosystems upon which listed species depend. Sensitive species require special management efforts and conservation needs under Forest Service Handbook guidelines (FSH 2609.25, 1988) and Forest Service Manual directives (FSM 2670), and they are examined separately from the TEPC species. The U.S. Fish and Wildlife Service (USFWS) monitors and prescribes management for federally listed threatened and endangered plant species. The National Forest Management Act and Forest Service policy require that National Forest System lands be managed to maintain populations of all existing native animal and plant species at or above minimum viable population levels. A viable population is the maintenance of enough individuals throughout their range to perpetuate the existence of the species in natural, self-sustaining populations.

Table 10 provides a list of plants that have federal status as threatened or candidate species or Region 4 Sensitive status. There are no plants currently listed as federally endangered or proposed within the Sawtooth National Forest.

Table 10. Threatened, Proposed, Candidate, Sensitive Species in the Gooding Allotment

Scientific Name	Common Name	Status	Habitat Description
Botrychium lineare	Slender Moonwort	**Candidate**	Alpine, grassland, meadow, forest, cliff
Spiranthes diluvialis	Ute ladies'-tresses Orchid	**Threatened**	Riparian, streamside, lakeside
Haplopappus insecticruris	Bugleg goldenweed	**Sensitive**	Shrubland openings

While past allotment inspections and botanical inventories (9/2004) have not revealed any occupied habitat for TEPC plants, potential habitat for Ute ladies'-tresses orchid does exist within the Gooding Allotment.

Threatened, Endangered, Proposed, and Candidate Plant Species

Slender Moonwort – *Botrychium lineare*

In July 1999, the USFWS was petitioned to add the slender moonwort, *Botrychium lineare,* to the List of Threatened and Endangered Plant Species. The Service published the 90-day petition finding and initiated a 12-month status review in May 2000. On June 6, 2001, the FWS found that a petition to list *B. lineare* as threatened was warranted, but preparation of a proposed rule was precluded by other higher priority listing actions. FWS, therefore, placed the slender moonwort on the candidate species list (Federal Register Vol. 66, No. 109, 2001).

Slender moonwort, *Botrychium lineare,* was discovered on SNRA in 2002 but has not been located on the Fairfield Ranger District at this time. Potential habitat exists for this species throughout the allotment. The habitat for slender moonwort has been described as "deep grass/forb meadows, under trees in woodlands, and on shelves of limestone cliffs at higher elevations" (Wagner and Wagner 1994), but they also state that to describe a typical habitat for this species would be problematic since the known sites are so different. Its' current and historically disjunct distribution ranges from sea level in Quebec to nearly 3,000 meters (9,840 ft) in Boulder County, Colorado. *Botrychium* spores are small and lightweight enough to be carried by air currents. This dispersal mechanism may explain the broad and often disjunct distribution patterns exhibited by moonworts (Vanderhorst 1997).

There are many threats that have been documented for the slender moonwort. They include impacts associated with recreational activities (trampling by hikers, off-road vehicle use, or pack animals), roads (construction, maintenance, use, and decommissioning), habitat succession, fire suppression, livestock grazing (primarily trampling and soil compaction), and non-native plant invasion. There are no documented occurrences of these threats within potential habitat in the Gooding Allotment.

Ute ladies'-tresses Orchid – *Spiranthes diluvialis*
The Gooding allotment is within the potential habitat region of Ute ladies' tresses orchid. In 1984, Ute ladies'-tresses orchid was named as a new species and was federally listed as threatened on January 17, 1992 under the ESA. *Spiranthes diluvialis* generally occurs in relatively low-elevation riparian, spring, and lakeside wetland meadows of the interior western United States: near the base of the eastern slope of the Rocky Mountains in southeast Wyoming and north-central and central Colorado; in the upper Colorado River Basin; along the Wasatch Front and westward in the eastern Great Basin, in north-central and western Utah, and extreme eastern Nevada. In 1994, the range was expanded north by discoveries in central Wyoming and western Montana, and in 1996, *S. diluvialis* was discovered in southeast Idaho, along the Snake River. However, no populations have been found closer to the Fairfield Ranger District than Heise, Idaho.

Ute's ladies-tresses orchid is endemic to moist soils in mesic or wet meadows near springs, lakes, and perennial streams. The elevation range of known habitat is 1500 to 7000 feet. Most of the occurrences are along riparian edges, gravel bars, old oxbows, and moist-to-wet meadows along perennial streams and rivers, although some localities are near freshwater lakes or springs. Ute ladies'-tresses orchid appears to be well adapted to disturbances caused by water movement through flood plains over time. It often grows on point bars and other recently created riparian habitat. The orchid appears to require permanent sub-irrigation, with the water table holding steady throughout the growing season and into late summer and early autumn. *S. diluvialis* occurs primarily in areas where the vegetation is relatively open and not very dense.

Populations appear to fluctuate dramatically from year to year, making it difficult to assess population status and distribution. This has held true during studies conducted on the Idaho population since its discovery. The genus *Spiranthes* also undergoes a dormant period that may last 7-10 years, apparently with no evidence of above ground structures. Nothing is known about the dormancy-triggering mechanisms. Reproduction is strictly sexual, with ground- and log-nesting bumblebees as the primary pollinators (Pierson and Tepedino 2000). Successful conservation of this orchid will require protecting suitable habitat and pollinator habitat in and around orchid populations.

Ute ladies'-tresses orchid is found infrequently and in scattered locations. Threats in known locations include livestock grazing, exotic weed invasion, controlled flooding, dewatering of streams, loss of pollinators, and development. There is no documentation of these threats occurring in potential habitat within the allotment. Because it prefers open, early seral riparian areas, its management may be in direct conflict with rare fish habitat management that emphasizes undisturbed climax conditions. Potential habitat exists along Little Smoky Creek, although no occupied habitat has been located to date.

<u>Sensitive Plant Species</u>
Bugleg goldenweed (*Haplopappus insecticruris)* - Bugleg goldenweed is a local endemic species to south central Idaho, specific to Blaine, Camas, and Elmore Counties. Bugleg goldenweed is a perennial sunflower 8 to 24 inches tall. It flowers in July and August with two to

several yellow daisy-like flowers per stem. It is found on dry ground with sagebrush and vernally wet grasslands and meadows underlain by shallow basalt soils between 5,000 and 6,500 feet.

There are several known populations on the Fairfield Ranger District and SNRA. Two large populations of bugleg goldenweed are located within the Gooding Allotment Boundary. In 2001, forest service volunteers completed an extensive survey of the Fairfield Ranger District and population extensions were mapped within the allotment (McGee and McGee, 2001). Heavy trampling was noted in a few populations in isolated areas of the allotment. This plant is apparently fairly resistant to disturbance and is likely an early seral species (Shelly, Pierson personal observation). Although it does not appear to be consumed by wildlife and livestock, impacts to the species and its associated pollinators could occur due to intense trampling.

The Forest Plan direction applicable to plant diversity and TEPCS Plant protection include:

- Management actions that have adverse effects on Proposed or Candidate species or their habitats, shall not be allowed if the effects of those actions would contribute to listing of the species as Threatened or Endangered under the ESA (TEST04).

- Management actions shall be designed to avoid or minimize adverse effects to listed species and their habitats. (TEST06).

- Avoid management actions within occupied TEPC plant species habitat that would adversely affect the long-term persistence of those species (TEST08).

- Management actions that occur within occupied sensitive plant species habitat must incorporate measures to ensure habitat is maintained where it is within desired conditions, or restored where degraded (BTST01).

- Projects that may contribute to the spread or establishment of noxious weeds shall include measures to reduce the potential for spread and establishment of noxious weed infestations. (NPST10)

Management Area 7 – Little Smoky Creek

- Maintain or restore populations and occupied habitats of TEPCS species, including bugleg goldenweed, to contribute to their long-term viability of these species (Objective 0722).

- Emphasize reducing spotted knapweed and non-native species within TEPCS species actual and potential habitat (Objective 0723).

- Coordinate forested restoration, riparian restoration (including road and trail reconstruction, relocation, and obliteration activities), prescribed fire, and non-native plant eradication efforts with a Forest botanist to minimize impacts to TEPCS plant species, actual or potential habitat, and pollinators of these plants (Guideline 0724).

Current management on the allotment is meeting the above listed Forest Plan direction.

Issue 2 - WILDLIFE (Affected Environment)

The Gooding Allotment provides habitat for a number of terrestrial wildlife species including Threatened, Endangered and Region 4 Sensitive Species; Forest Management Indicator Species (MIS); elk; pollinators; and migratory bird species. All listed Threatened and Endangered species with potential habitat in the Gooding Allotment analysis area are evaluated in this environmental assessment (FWS Semi-annual Species List Update #14420-2008-SL-0528, dated August 18, 2008). Only sensitive species with a high or moderate probability of occurrence within the allotment are evaluated in this environmental assessment (see Table 11). Probability of occurrence is determined by the presence of suitable habitat in the area and/or confirmation of the presence of the species in the area. Several species were identified through public scoping that are not specifically listed here. Habitat conditions for and alternative effects to these species were determined to be closely related to habitat/effects for specific sensitive species found within the allotment. Therefore habitat conditions and potential effects for these species are covered through the analysis for sensitive species. For example, effects to amphibians are covered by spotted frog analysis (sensitive species), burrowing animals covered by pygmy rabbit analysis (sensitive species), bats covered by Townsend's big-eared bat and spotted bat analysis (sensitive species), etc. For ease of discussion, the wildlife section is divided into six subsections: Terrestrial Management Indicator Species; Threatened and Endangered Species; Sensitive Species; Migratory Birds; Elk; and Pollinators.

Table 11. Probability of Occurrence of TES Wildlife Species in the Gooding Allotment

Species	Status	Probability of Occurrence
Gray Wolf (*Canis lupus*)	ESA Endangered (nonessential experimental)	High, observed in area
Lynx (*Lynx canadensis*)	ESA Threatened	Low
Spotted Bat (*Euderma maculatum)*	USFS Sensitive	Moderate
Townsend's Big-eared Bat (*Corynorhinus townsendii)*	USFS Sensitive	Moderate-Low
Wolverine *(Gulo gulo)*	USFS Sensitive	High-Moderate
Fisher (*Martes pennanti)*	USFS Sensitive	Low
Northern Goshawk (*Accipter gentiles)*	USFS Sensitive	High, observed in area
Boreal Owl (*Aegolius funereus)*	USFS Sensitive	High-Moderate

Flammulated Owl (*Otus flammeolus)*	USFS Sensitive	High, observed in area
Three-toed Woodpecker (*Picoides tridactylus)*	USFS Sensitive	Low
Spotted Frog (*Rana luteiventris)*	USFS Sensitive	Moderate, suitable habitat
White-headed Woodpecker *(Picoides albolarvatus)*	USFS Sensitive	Low
Mountain Quail *(Oreortyx pictus)*	USFS Sensitive	Low
Greater Sage-Grouse *(Centrocercus urophasianus)*	USFS Sensitive	High, observed in area
Pygmy Rabbit *(Brachylagus idahoensis)*	USFS Sensitive	Moderate
Peregrine Falcon *(Falco peregrinus)*	USFS Sensitive	Low
Bald Eagle (*Haliaeetus leucocephalus*)	USFS Sensitive	Moderate

Terrestrial Management Indicator Species (MIS)

MIS are used to assess effects of management activities on groups of species with similar habitat requirements. The following wildlife species are Sawtooth National Forest MIS species (Forest Plan 2003) with potential habitat within the Gooding Allotment Analysis Area: Pileated woodpecker (*Dryocopus pileatus*) and Greater Sage-grouse (*Centrocercus urophasianus*). Pileated woodpeckers represent species requiring older forest habitat with large diameter trees, and sage grouse represent species requiring sagebrush-steppe habitat. Direct, indirect, and cumulative effects of implementing alternatives addressed in this EA will be analyzed on these MIS species.

Pileated Woodpecker

The Gooding Allotment Analysis Area contains approximately 1,900 acres of potential habitat for pileated woodpecker nesting, foraging, and roosting (approximately the same as mapped lynx denning habitat see Figure 4). Pileated woodpeckers have been observed in the Worswick Creek and Williams Creek drainages, and foraging evidence has also been recorded within Red Rock Creek, Rosetta Creek, and Upper Carrie Creek drainages. Within the Gooding Allotment, coniferous forest makes up the majority of the pileated woodpecker habitat. Some potential habitat for the species (<10 acres) occurs within aspen stands.

Pileated woodpeckers need large diameter snags (>20") in relatively closed-canopied (>50%) forests for nesting (Bull et al. 1986) and dense canopy cover for roosting (>60%) (Bull et al. 1992). They also require large diameter (>20") trees for foraging and will forage frequently on insects found in downed logs greater than 10" in diameter. The Little Smoky Creek 5th level HUC is below desired conditions (see tables 4A and 4B, page 22) for trees in the large

tree category, the primary size class used by pileated woodpeckers. Currently, Little Smoky has only 16.5% of the area in the large tree category (below the 20% threshold).

In 2004, monitoring efforts to determine long-term population trends for pileated woodpeckers on the Sawtooth National Forest was initiated. Two of the ten survey routes on the Fairfield Ranger District are located within the Gooding Allotment (Worswick and Rosetta Creeks). Results of the surveys are displayed in Table 12. Population trends cannot yet be determined from the study.

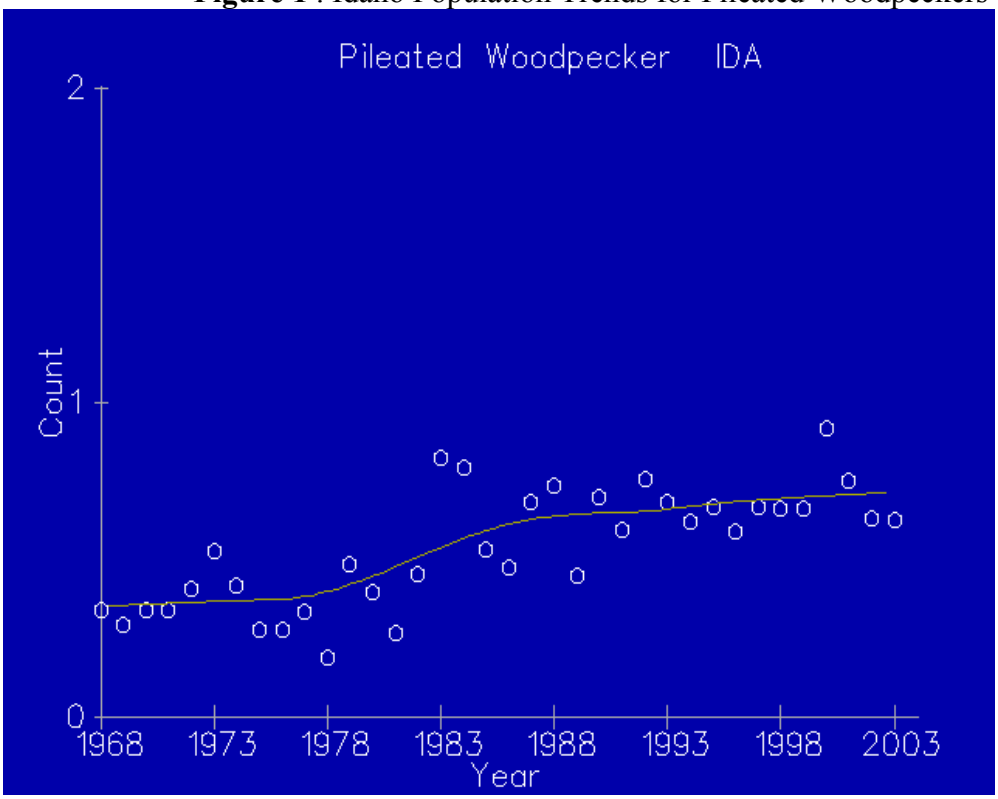
The population trend for pileated woodpeckers across the entire state of Idaho, 1966 to 2003, can be found in Figure 1. This information comes from the US Geological Survey, Patuxent Wildlife Research Center, North American Breeding Bird Survey (Sauer et al. 2004). As noted on the website, there are important deficiencies in data, likely due to low sample size. It appears that the overall statewide population trend is upward.

Pileated woodpeckers using coniferous forest are relatively unaffected by cattle grazing, and the majority of the pileated woodpecker habitat on the Gooding Allotment is in coniferous forest. As previously stated, some potential habitat for the species occurs within aspen stands. Current grazing in the Gooding Allotment has likely affected some aspen regeneration, thus affecting pileated woodpecker habitat. However, aspen makes up <1% of the allotment area and therefore is a minor component of pileated habitat on the allotment.

Table 12. Results of Pileated Woodpecker Transects on the Fairfield Ranger District

Survey Route	2004	2005	2006	2007	2008	Total
Barker Gulch	0	4	0	0	0	4
Shake Creek	0	0	0	1	0	1
Willow Creek	0	0	0	0	2	2
Presidents Trail	0	0	1	2	1	4
Boardman Creek	0	0	0	0	0	0
Skunk Creek	0	0	0	1	1	2
Axolotl Mine	0	0	0	0	0	0
S. Fork Soldier	0	1	1	0	0	2
Worswick Creek	0	1	0	1	1	3
Williams/Rosetta	0	3	0	5	0	8
Total	0	9	2	10	5	26

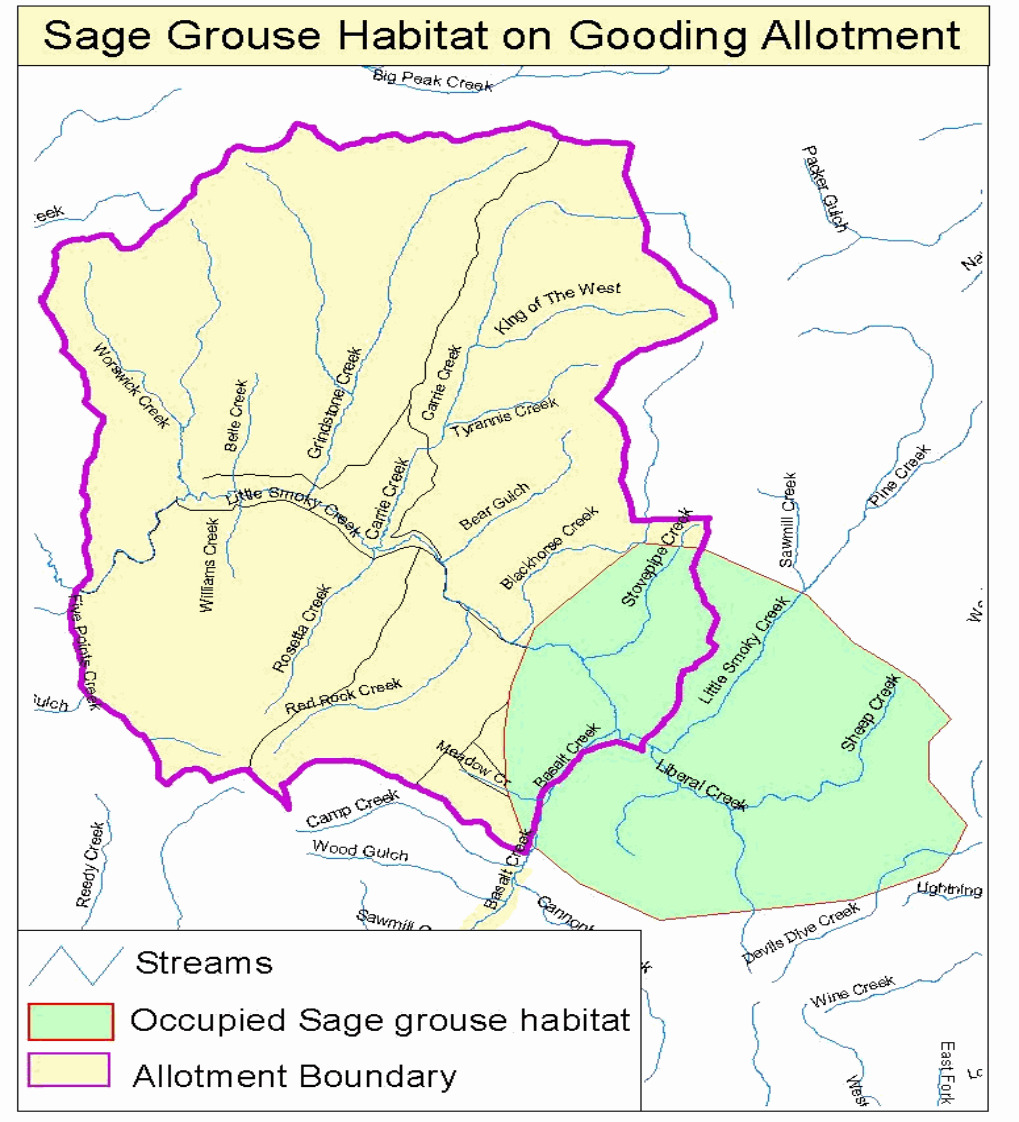
Figure 1 . Idaho Population Trends for Pileated Woodpeckers



Greater Sage-grouse

Greater Sage-grouse habitat and presence of individuals has been documented within the Gooding Allotment. Sage grouse have been sporadically observed within the southeast portion of the Gooding Allotment analysis area during the summer and fall months/late brood-rearing period. Currently, 2,288 acres of sage grouse habitat occurs with the analysis area (see Figure 2). Other sagebrush and riparian areas within the allotment also have the potential to support sage grouse in the summer/fall (9,620 acres of sagebrush and 502 acres of riparian). Sage grouse have been observed in sagebrush uplands within the allotment near water. Other observations of sage grouse have been made within riparian meadows to the southeast of the allotment (Liberal Creek). No sage grouse booming grounds or nesting occurs on the allotment. The known nearest lek is approximately 7 miles to the south of the allotment on private land.

Figure 2. Sage Grouse Habitat within the Gooding Allotment



Sage grouse are known to nest and winter in sagebrush habitats to the south of the Fairfield Ranger District on BLM and private lands. The amount of snow remaining in the Gooding Allotment from April to early May, limits the use of the allotment for sage grouse breeding purposes. Sage grouse breed to the south on the Camas Prairie and move up in elevation into the allotment when conditions start to dry out during the summer.

The importance of sagebrush (Artemisia spp.) as habitat for sage grouse is well documented (Patterson 1952, Connelly et al. 2000, etc.). Nesting success, early-brood rearing, and wintering are all tied to sagebrush. During late brood-rearing (July-October) sage grouse can be found in grasslands, agricultural fields, and even along alpine ridges, but are generally within a mile of

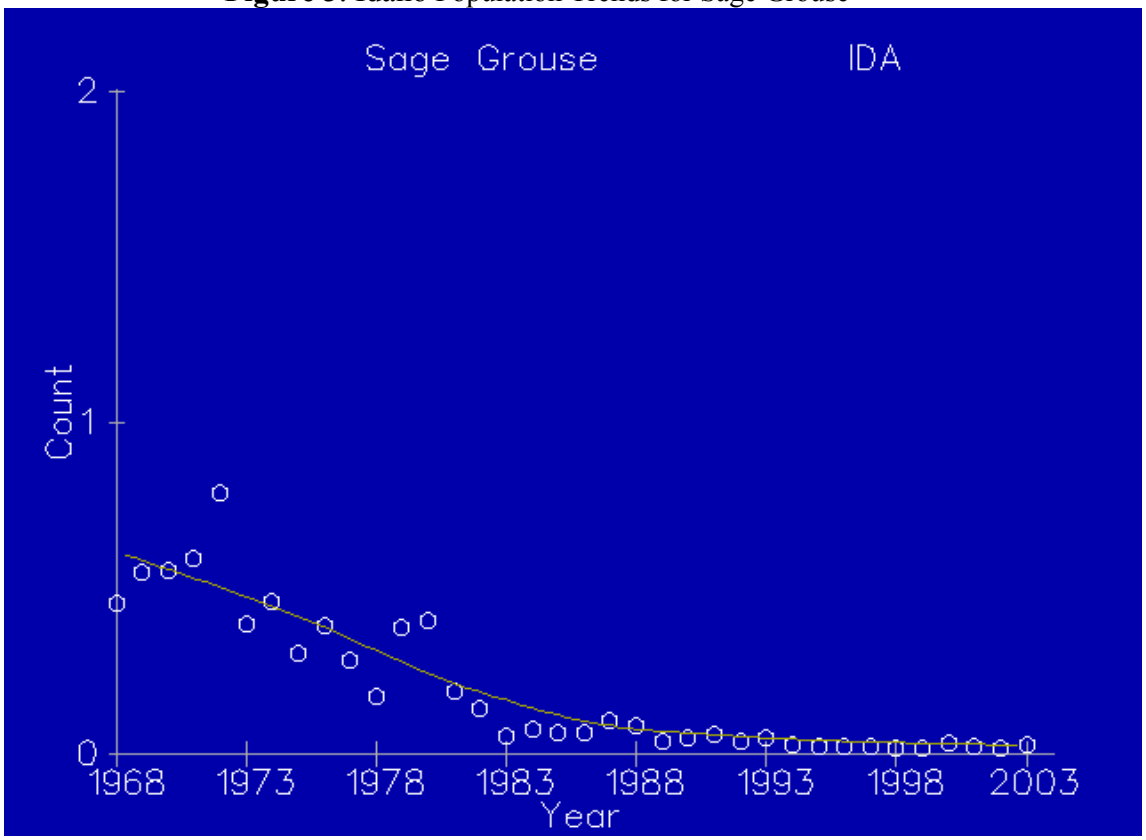
sagebrush habitat. Sage grouse can be migratory or non-migratory (Connelly et al. 2000). Individuals on the Fairfield and Ketchum Ranger Districts, including those that use the Gooding Allotment, are considered migratory and likely nest, raise young broods (ages 0-6 weeks old), and winter to the south of the District on BLM and private lands. Forb abundance is an important habitat factor for nesting and brood rearing habitat. Insect availability is also a key component for brood rearing habitat. Wet meadows and riparian areas provide critical brood rearing habitat due to the presence of forbs and insects (Wambolt et al. 2002, Connelly et al. 2000).

Declines in sage grouse populations have been documented range-wide, as high as 45-80% since the 1950's (Braun 1998). Reasons for this decline is thought to be from cumulative factors, particularly the reduction of sagebrush habitat due to wildfire, changes in natural fire frequencies related to annual exotic grass invasions, agricultural and urban development, and mining. Other factors include habitat degradation from overgrazing, hydrological alterations affecting brood rearing habitat, fences, powerlines, wind turbines, etc. (Wambolt et al. 2002, Connelly et al. 2000, Braun 1998).

Populations of sage grouse in the North Magic Valley Area (immediately south of the analysis area) stabilized since the 1980's and increases in numbers were observed 2002-2006. However, in between 2006 and 2007 a population decline occurred, likely due to West Nile Virus outbreak in late summer of 2006. Counts conducted at the largest known lek on the Camas Prairie recorded 25 strutting males in 1999, 25 in 2000, 24 in 2001, 50 in 2004, 73 in 2006, 26 in 2007, and 16 in 2008. Other leks in the area also showed similar increases in 2004 and 2005 and declines in 2007 and 2008. Idaho Fish and Game has conducted lek count routes since the 1950's. The population trend for sage grouse in Idaho 1966 to 2003 can be found in Figure 3. This information comes from the US Geological Survey, Patuxent Wildlife Research Center, North American Breeding Bird Survey (Sauer et al 2004). As noted on the website, there are important deficiencies in data, likely due to low sample size.

Grazing of the Gooding Allotment has had similar effects to sage grouse as observed in other late brood-rearing areas. The primary effect is a reduction in riparian habitat quality. Riparian areas (including streams, springs, ponds, and seeps) are important for sage grouse in the summer-late fall. Grouse require water for drinking and forbs and insects, often found in riparian areas, for food. Excessive grazing (both historic and current) has impacted vegetation in some riparian areas of the Gooding Allotment by altering herbaceous species composition to less desirable species (for sage grouse) and reducing vegetation density (hiding cover). One of the obvious changes in riparian herbaceous species composition is the conversion to blue grass in some riparian areas (East Fork Worswick Creek and Grindstone Creek). The value of these areas relative to providing habitat for MIS viability has been compromised under past grazing management. Insect diversity and quantity has likely also been affected as well, but this has not been documented. Species diversity of forbs and insect availability within upland, sagebrush habitat has also likely been affected by grazing to some degree.

Figure 3. Idaho Population Trends for Sage Grouse



As described in the vegetation section, sagebrush communities within the allotment are currently not meeting Forest Plan desired conditions for canopy closure, primarily due to a lack of fire. However, in the areas where sage grouse have been observed in the Gooding Allotment (see Figure 2), sagebrush canopies may actually be somewhat low for optimal sage grouse habitat due to a fire that occurred in 1992 in that area. While sagebrush communities are providing adequate habitat for current sage grouse populations in the Gooding Allotment, without fire or some other vegetative treatment, these communities will not meet current Forest Plan desired conditions.

Threatened, Endangered, and Sensitive Terrestrial Wildlife Species (TES)

Gray Wolf

Gray wolves were officially delisted from ESA on March 28, 2008. However, due to a court injunction on July 18, 2008, the protection of wolves under ESA were reinstated. The Fairfield Ranger District is within the Central Idaho Experimental Population Area where wolves are listed as "experimental, non-essential."

Confirmed breeding of wolves (Soldier Mountain Pack) occurred on the District in 2000 and 2003-2006. The den site of the Soldier Mountain Pack was within one mile of the northwest

boundary of the Gooding Allotment during this time. In 2006, the alpha female of the pack was illegally killed and reproduction of the pack has not been confirmed since. However, based on sightings in 2008 in the upper Big Smoky drainage, reproduction has likely occurred and the den is likely somewhere further north than the previous den site (pers. com. Garwood 2008).

Two other wolf packs have occurred on the Fairfield Ranger District outside the Gooding Allotment. Confirmed reproduction occurred by the Big Water Pack in 2006 and the Moore's Flat Pack in 2007. Both packs were essentially eliminated by Wildlife Services in response to sheep depredation.

From 2000-2006, the Soldier Mountain Pack wintered in the vicinity of the Big Smoky Elk Feed site (approximately 2 miles north of the Gooding Cattle Allotment) primarily feeding on elk. Wolves were commonly observed within the Gooding Allotment during these years. Since that time, most elk that were fed in this area (approximately 400) have stopped feeding at the site and have begun to migrate to lower elevations to winter, apparently in response to wolf predation. In 2008, only around 75 elk were fed at the Big Smoky Elk Feed Site and approximately 40-50 elk at the Lightfoot Bar Elk Feed Site (7 miles northwest of the Gooding Allotment). Wolf predation at the elk feed sites has not been observed in 2008, and only a few wolf tracks were noticed (Skinner pers. obs. 2008).

Wolf activity has been observed all over the Fairfield Ranger District since 2000, including within the Gooding Allotment. In July of 2004, wolves maimed a calf on the adjacent Willow Creek Allotment and killed a calf on the Gooding Allotment. This was the first confirmed depredation of cattle on the Fairfield Ranger District by wolves.

Habitat for wolves has been defined as any place with an adequate supply of ungulate prey and freedom from excessive human persecution (Fritts et al. 1993). Wolves prey mainly on ungulates year-round (Mech 1970). The basis of a wolf population is the pack, which Mech defined as a cohesive group of two or more individual wolves traveling, hunting, and resting together throughout the year. Packs generally consist of two breeding adults, pups, yearlings, and/or extra adults. Wolf packs generally require large home ranges. Actual size of a pack's home range depends mainly on pack size, weather, and prey abundance and distribution. Territories of 80 square miles have been reported in Minnesota to over 660 square miles in Alberta (U.S. Fish and Wildlife Service 1994).

Livestock grazing on the Gooding Allotment likely has some effect on big game, the primary food source of wolves. Some dietary overlap between elk and cattle occurs; therefore it is likely cattle grazing has reduced forage potentially available to elk within the allotment. At this point, prey species numbers does not appear to be limiting wolf numbers.

Livestock grazing in the Gooding Allotment also contributes to the potential for wolves to be killed by lethal control methods if the wolves kill livestock or pose a threat to the permittee's cattle. Given the fact that past legal (Wildlife Services) and illegal killing of wolves has occurred on the District, there is a strong likelihood of lethal control taking place in the Gooding Allotment area. Cattle grazing on the allotment increases the likelihood of wolves being killed.

However, current grazing is consistent with the Gray Wolf Recovery Plan and the Nonessential Experimental Population Rule (50 CFR 17 Nov. 22, 1994), which permits lethal control of wolves that depredate on livestock when six or more breeding pairs exist in central Idaho.

Lynx

The Canada Lynx Conservation Assessment and Strategy (LCAS, Ruediger et al. 2000) provides direction for management of lynx habitat on federal lands. The conservation measures discussed in the LCAS are the basis for analysis of effects on Canada lynx. This document also directed Forests to develop Lynx Analysis Units (LAUs) and define foraging and denning habitat within each LAU. On the Sawtooth National Forest, LAUs were derived by aggregating 6th level Hydrologic Units and lynx habitat was derived using vegetation layers from satellite imagery and GIS mapping techniques (for specific criteria used in developing lynx habitat maps, see the project file). Additionally, watershed biological assessments on the effects of ongoing projects (including cattle grazing of the Gooding Allotment) on Canada lynx were completed in February 2003. As part of these analyses, baseline conditions for each LAU were described and evaluated as to their ability to conserve lynx. The baseline matrices describing existing conditions of lynx habitat within the LAUs on the Fairfield Ranger District can be found in the *Biological Assessment of Effects of Ongoing Federal Actions on the Threatened Canada Lynx on the Fairfield Ranger District.* This BA is on file at the Boise Field Office of the FWS or the Fairfield Ranger District.

There have been no recent confirmed observations of lynx on the Fairfield Ranger District though suitable habitat is present. An unconfirmed observation of a lynx was reported in the Emma Creek drainage in 1990. There was a confirmed sighting of lynx tracks in the Sawtooth National Recreation Area during the winter of 1997 near the Fishhook Creek drainage and also at Eureka Gulch, near Alturas Lake in 1998, approximately 22 miles from the allotment and three miles north of the Fairfield Ranger District, respectively. Hair snare surveys and snow tracking surveys conducted in three locations on the Fairfield Ranger District through the winter of 1999-2000 did not reveal any lynx observations. Due to the limited number of bait stations placed at each location, these presence/absence surveys were statistically invalid. No lynx or tracks have been observed within the Gooding Allotment during sporadic wildlife surveys conducted 1996-2008.

Lynx are found in northern boreal forests and are closely associated with the snowshoe hare, their primary prey. Lynx also eat rodents, other rabbit species, and grouse. Denning areas and travel corridors are usually located in mature forest stands. Snowshoe hare prefer diverse, early successional forests with stands of conifers for cover and shrubby understories (Monthey 1986; Koehler and Aubry 1994). Lynx usually concentrate their foraging in areas where hare numbers are high, but they also require late successional forests with downed logs and windfalls to provide cover for denning sites, escape, and protection from severe weather (McCord and Cardoza 1982).

The Gooding Allotment is within the Little Smoky-Soldier-Willow Lynx Analysis Unit (LAU). This LAU contains 24,600 acres of mapped, potentially suitable, foraging habitat for lynx. Of those acres, 7,473 acres are potentially suitable denning habitat. Thus the LAU has a 30%

denning ratio. The Gooding Allotment itself contains 1,891 acres of mapped, potentially suitable, denning habitat and 5,402 acres of mapped, potentially suitable, foraging habitat (see Figure 4). Prey species for lynx, including red squirrels, snowshoe hare, small mammals, ruffed grouse, and blue grouse, have been observed within the Gooding Allotment. Current grazing practices in the allotment likely affect habitat quality for all these species, except red squirrels. Snowshoe hares rely heavily on woody browse for winter forage. Their habitat use is highly correlated with high horizontal cover from 1-3 meters above ground (Hodges 2000) and hare abundance has been shown to be positively correlated with density of understory vegetation (Livaitis et al. 1985). Both high elevation willow riparian areas and aspen forests provide winter forage and cover for hares, and livestock grazing has had some effect to this habitat. Livestock grazing in aspen forests has been shown to be negatively correlated with snowshoe hare abundance (Weatherill and Keith 1969).

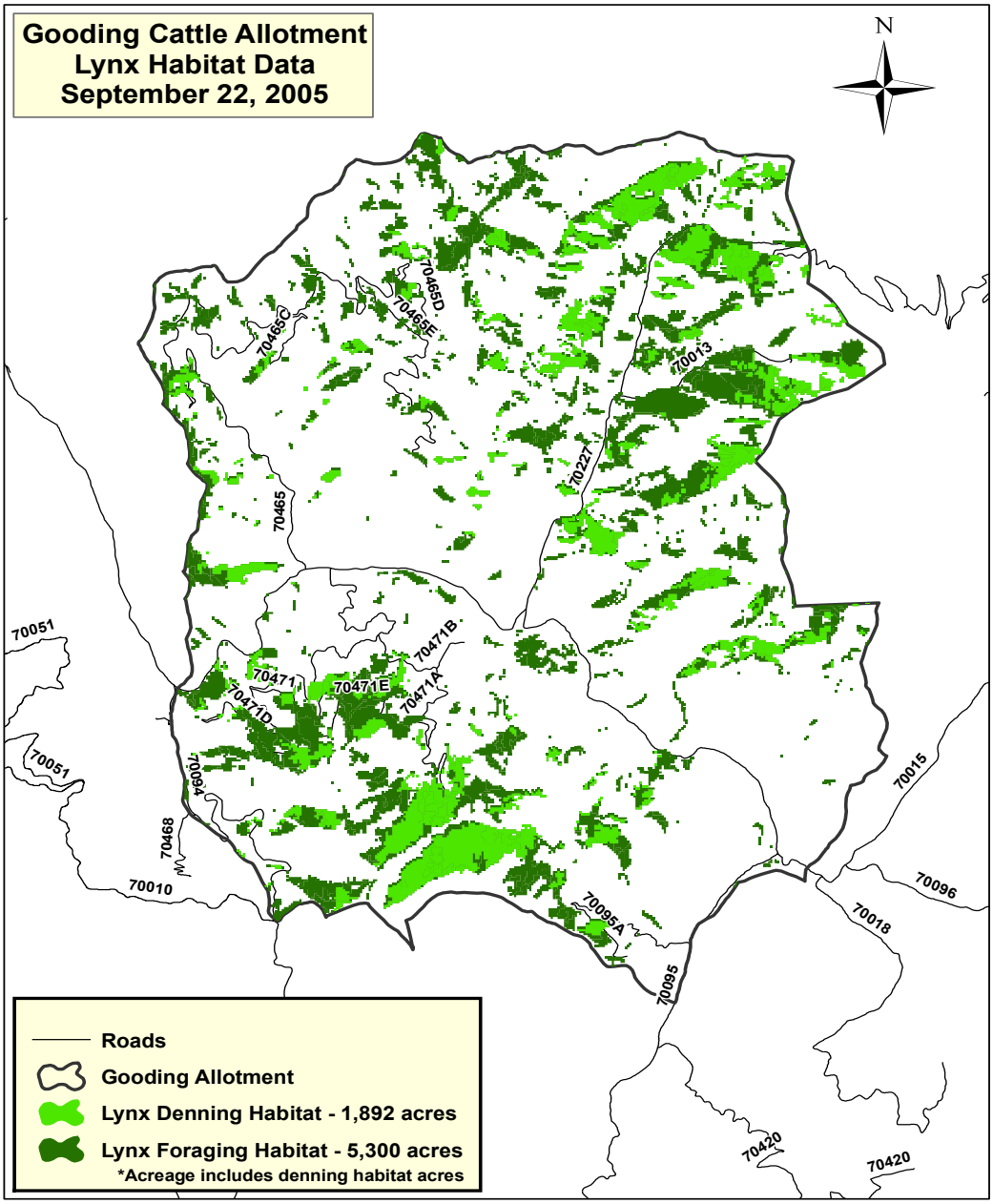
Much of the riparian areas used by prey species of the lynx are generally in mid-high seral condition. Some locations where cattle impact willows (i.e., Grindstone Creek), habitat is not adequate for snowshoe hares. Many aspen stands that are used by snowshoe hare have poor regeneration and livestock grazing hampers the understory vigor. Other prey species such as voles and other litter-dwelling small mammal prey species require litter and residual vegetation for food and cover which provides protection from predators allowing for more activity during the day, maintenance of favorable microclimate, and more hospitable subnivean space where residual vegetation prevents hard packing of snow (Birney et al. 1976). Livestock grazing has reduced residual vegetation where grazing has occurred on the allotment. It is unknown if these effects to prey species habitat have affected the probability of lynx occurring within the allotment. The 2003 Biological Assessment of ongoing activities determined that livestock grazing on the Gooding Allotment *may affect, but not likely to adversely affect* lynx.

The Lynx Conservation Assessment and Strategy (LCAS) outline objectives and standards for livestock grazing on federal lands to minimize effects to lynx habitat (pages 7-10 and 7-11, LCAS 1999). These objectives and standards apply to lynx habitat on the Gooding Allotment:

LCAS Project planning – objectives

1. Manage livestock grazing within riparian areas and willow carrs in lynx habitat to provide conditions for lynx and lynx prey.
2. Maintain or move towards native composition and structure of herbaceous and shrub plant communities.
3. Ensure that ungulate grazing does not impede the development of snowshoe hare habitat in natural or created openings within lynx habitat.

Figure 4. Lynx Foraging and Denning Habitat within the Gooding Cattle Allotment



LCAS Project planning – standards.

1. Do not allow livestock use in openings created by fire or timber harvest that would delay successful regeneration of the shrub and tree components. Delay livestock use in post-

fire and post-harvest created openings until successful regeneration of the shrub and tree components occurs.
2. Manage grazing in aspen stands to ensure sprouting and sprout survival sufficient to perpetuate the long-term viability of the clones.
3. Within elevational ranges that encompass forested lynx habitat, shrub-steppe habitats should be considered as integral to the lynx habitat matrix and should be managed to achieve mid seral or higher condition.
4. Within lynx habitat, manage livestock grazing in riparian areas and willow carrs to maintain or achieve mid seral or higher condition to provide cover and forage for prey species.

With the exception of standard 2 and objective 2, these standards and objectives are being met within the Gooding Allotment. As previously described, aspen stands are not meeting or trending towards desired conditions, in part due to impacts associated with livestock grazing. However, aspen stands comprise less than 2% of lynx habitat within the allotment. Similarly, riparian conditions have been compromised in the East Fork of Worswick , Grindstone , Carrie, King of the West and Tyrannus Creeks. Kentucky bluegrass dominates a few sites and past grazing practices has not helped these areas move toward a native herbaceous structure. It is likely high levels of competition with coyotes, bobcats, mountain lions, and gray wolves limit the potential for lynx to occur in the Gooding Allotment. Each of these competing predators has been observed in the allotment.

Sensitive Species

Spotted Bat and Townsend's Big-eared Bat

There are no documented sightings of spotted bats or Townsend's big-eared bats on the Fairfield Ranger District, but no detailed surveys have been conducted. Townend's big-eared bats have been found on the Ketchum Ranger District approximately 10 miles from the Fairfield District. Potential foraging habitat for both species is present in the Gooding Allotment.

Spotted bats forage nocturnally, and feed mainly on moths in open ponderosa pine stands, marshy areas and open pastures. They roost in rock crevices on steep cliff faces (Watkins 1977, Wai-Ping and Fenton 1989). Spotted bats hibernate during the winter and emerge in spring, generally March or April depending on daytime temperatures during those months.

Townsend's big-eared bats are nocturnal insectivores feeding primarily on moths along forest edges. They roost in crevices of rocky outcrops, caves, old mines or buildings. Unlike many species, which seek refuge in crevices, Townsend's big-eared bats form highly visible clusters on open surfaces making them extremely vulnerable to disturbance (Christy and West 1993). Townsend's big-eared bats hibernate during the winter and emerge in spring, generally March or April depending on daytime temperatures during those months.

Current livestock grazing within the Gooding Allotment has altered foraging habitat for both bat species in portions of riparian, wetland, and spring areas where cattle tend to congregate. While

livestock have reduced vegetation in many spring/seep areas from grazing and trampling, the allotment is providing habitat for bats.

Wolverine

Wolverines are primarily scavengers and forage on carcasses of ungulates such as elk, deer, mountain goats, and bighorn sheep. They also may hunt for snowshoe hares, marmots, mice, voles, ground squirrels, and grouse but will also eat fruits, berries, and insects when other prey is unavailable (Hash 1987).

Home range sizes of wolverines are highly influenced by prey remains and other food sources. Individual animals generally have very large ranges and can cover large distances in very little time. In central Idaho home ranges average 384 square kilometers (148 square miles) for females and 1,582 square km (582 square miles) for males and may have overlapping ranges. They use several habitats and have been located in low-elevation, forested drainage bottoms to high-elevation, sparsely-timbered cirque basins. Two natal den sites were located in subalpine cirque areas on north-facing slopes suggesting that this type of habitat is critical to wolverines in central Idaho (Copeland 1996).

Female wolverines are very sensitive to disturbance during mid-February through May while they are searching for, establishing, and occupying their natal dens. Copeland 1996 observed that seeing people and their tracks near an existing den was enough disturbance to cause a female wolverine to move her kits to a different site. During this time females are lactating, and disturbance that leads to increased energy expenditure can be very detrimental. It is a critical time for females. They are trying to maintain energy levels in order to properly nourish their kits during a time when food is scarce (Copeland 1996). To date, no natal dens have been located on the Fairfield Ranger District, but it is highly likely one or more dens exist. In 2008, a natal den was discovered within ¼ mile of the western boundary of the Fairfield Ranger District.

A study of wolverines in central Idaho was conducted from 1992-1995. The Fairfield Ranger District was part of the study area for this project, and wolverine locations were detected in many locations on the District including 2.5 miles north of the Gooding Allotment in Big Smoky Creek. Another wolverine was observed approximately one mile west of the Gooding Allotment in May of 2001 near Preis Hotspring. There are some very small patches of mapped, potential wolverine denning habitat in the allotment; less than one acre near Dollarhide Summit, 1.5 acres near the head of Lick Creek, and 1.5 acres at the head of an unnamed tributary to Big Peak Creek (just outside the allotment). Due to the steep, rocky nature of this habitat, cattle do not tend to utilize it.

Livestock within the Gooding Allotment do use areas that wolverines forage within, and livestock grazing likely has some effect on habitat of animals that wolverines prey or scavenge upon. It is likely one or more wolverines use the allotment for foraging during the winter. Because of its reclusive habits, it is unknown whether livestock grazing is having an effect on wolverine populations using the allotment.

Northern Goshawk
Goshawk home ranges in mixed conifers forests have been described as 6,000 acres in size and comprised of a nest area (approximately 30 acres), a post fledging-family area or PFA (approximately 420 acres), and a foraging area (approximately 5,400 acres) (Reynolds et al. 1992). Nest areas generally have high tree canopy cover (50-60%) and a high density of large trees (average 20" dbh). The PFA provides cover and prey for the fledglings while developing their flying and hunting skills. These areas should have canopy cover of greater than 50% with well-developed understories. Goshawks prey on a wide variety of forest-dwelling birds and mammals such as grouse, woodpeckers, squirrels, and rabbits. Goshawks tend to use mature forests (and forest edges) for foraging, but also need other habitat elements which provide the necessary requirements for their prey such as snags, downed logs, small openings, herbaceous and shrubby understories (Reynolds et al. 1992). Goshawks do not necessarily migrate long distances, but may move off their breeding territories during winter to find food. They tend to move to lower elevations with less snow cover during the winter, and return to breeding territories in March or April.

Goshawk nests have been located in several areas on the Fairfield Ranger District, one of which is within the Gooding Allotment. The District provides abundant habitat and several breeding pairs are likely on the District. It is possible that more than one nest territory occurs within the Gooding Allotment, but this has not been verified. Current grazing practices do not appear to be affecting goshawk nesting habitat within the Gooding Allotment.

Riparian habitat for species preyed on by goshawks (blue grouse, snowshoe hares, other ground nesting birds, etc.) has been affected by current grazing in the King of the West, Tyrannis Creek and lower Carrie Creek drainages (reduction of cover and forage within riparian areas). Riparian areas on the remainder of the allotment appear to be meeting or trending toward desired condition and are providing habitat for goshawk and goshawk prey species.

Boreal Owl
Boreal owls are known to occur in spruce-fir, Douglas-fir, and mixed conifer forests above 5,000 feet elevation. They are cavity-dependent and generally use old woodpecker cavities in dead trees for their nest sites. They feed on forest dwelling small mammals such as voles and shrews (Johnsgard 1988). Males arrive at potential breeding territories in late winter (mid-February) and begin calling to attract females by late February or early March.

No boreal owls have been recorded within the Gooding Allotment, but surveys have not been conducted. A single boreal owl was heard in 1998 on the Fairfield Ranger District approximately 4 air miles to the west of the west boundary of the allotment. Based on surveys for the species in 1998 and 1999, boreal owls are not common on the Fairfield Ranger District, but extensive surveys have not been conducted. Boreal owls have been observed in other locations on the north end of the Sawtooth National Forest in open, mature Douglas-fir forests above 6,000 feet. Current grazing practices do not appear to be affecting boreal owl nesting habitat in coniferous forest within the Gooding Allotment.

Livestock grazing in the Gooding Allotment has affected foraging habitat for some prey species of boreal owls such as voles and shrews by reducing residual vegetative cover within riparian areas and understory vegetation in aspen stands. Boreal owls may use aspen for nesting (Hayward et al. 1993). Regeneration and understory vegetation has been affected within aspen stands in the Gooding Allotment where cattle congregate. However, given the limited amount of aspen habitat in the allotment, this is most likely not producing a measurable effect on boreal owl use within the allotment.

Flammulated Owl

Observations of flammulated owls have been recorded in several areas on the Fairfield Ranger District including several areas within the Gooding Allotment. Flammulated owls occur in mature ponderosa pine and mature Douglas-fir forests with an abundance of snags or live trees with cavities for nesting. Flammulated owls eat mainly invertebrates such as various insects, beetles, grasshoppers, and moths. Prey is more abundant and accessible in open forest stands with grass and shrub understories (Johnsgard 1988). This species is truly migratory and does not arrive on its breeding territories until May in Central Idaho. Current livestock grazing practices do not appear to be affecting nesting habitat for flammulated owls in coniferous forest within the allotment.

Flammulated owls have been observed in aspen stands on the Fairfield Ranger District. Regeneration and understory vegetation has been affected within aspen stands in the Gooding Allotment where cattle congregate. As with boreal owl, given the limited amount of aspen habitat in the allotment, it is unlikely that livestock use is having a measurable effect on flammulated owl use in aspen stands.

Spotted Frog

Spotted frogs are found in areas where permanent water is present such as marshes, ponds, or riparian areas. They may move considerable distances from water following the breeding season, often frequenting mixed conifer and subalpine forests, grasslands, and brushlands of sage and rabbit brush if puddles, seeps or other water is available. Adult spotted frogs feed on invertebrates, generally within one-half meter of water on dry days. During and after rains, they may move away from permanent water to feed in wet vegetation or ephemeral puddles (Licht 1986). Spotted frogs hibernate during winter and emerge when open water becomes available, generally during spring thaw. Spotted frogs breed from late February to early July. A water temperature of 40 degrees Fahrenheit seems to be the critical temperature for emergence from hibernation (Morris and Tanner 1969), which may occur as early as the first part of April in the Gooding Allotment.

Potential habitat for spotted frogs exists throughout the Fairfield Ranger District and in the Gooding Allotment. Frog surveys have been conducted within the allotment. No spotted frogs have been recorded to date within the Allotment, but it is likely they occur. Herbaceous cover in riparian areas has been affected by livestock grazing, which increases the potential for predation on frogs over ungrazed areas. Bank stability has been affected in localized areas where cattle tend to congregate and corresponds to poorer water quality and habitat conditions for frogs than ungrazed areas. Frog survival and reproduction could be negatively affected in these areas.

Greater Sage-grouse
See analysis under MIS species

Pygmy Rabbit
It is unknown if any pygmy rabbits exist in the Gooding Allotment or on the Fairfield Ranger District in general. Some potentially suitable habitat for the species exists within the allotment and on the District. Known populations of pygmy rabbits exist 15 miles to the south of the Fairfield Ranger District on private and BLM lands.

Pygmy rabbits are considered a sagebrush obligate species. They tend to utilize areas with taller and denser sagebrush and since they excavate burrows, they have specificity for certain soil depth and texture that allows for easier excavation. Populations and distribution of pygmy rabbits declined in the 1900's due to loss and fragmentation of suitable habitat for this species (Rachlow and Svancara 2003). Sagebrush communities within the allotment are providing potential habitat for pygmy rabbits.

Bald Eagle
The Fairfield Ranger District provides breeding and wintering habitat for bald eagles. Bald eagles have been observed along the South Fork of the Boise River, Big Smoky Creek, and Little Smoky Creek during the late fall and winter. Nesting requirements of bald eagles include suitable nest substrate (mainly tall, large diameter trees) with access to water nearby. Winter habitat is variable, but generally requires open water for foraging or a reliable source of carrion with adequate perch trees nearby. Eagles need freedom from human disturbances year round (Stalmaster 1987).

There is one known bald eagle nest on the District approximately 15 air miles to the west of the Gooding Allotment. Bald eagles are rarely seen along Little Smoky Creek past the confluence with Five Points Creek, in the vicinity of the Gooding Allotment. Current grazing of the allotment does not likely have any effect on bald eagles.

Elk Winter Range
Elk are known to winter in the South Fork of the Boise River watershed on the Fairfield Ranger District. Whether or not the Fairfield Ranger District supported wintering elk prior to a reintroduction effort initiated in 1915 is unknown. It is suspected that historically, elk migrated out of the mountains and onto lower elevation winter ranges similar to mule deer. Due to supplemental elk winter-feeding efforts that have occurred since 1943 between Featherville and Little Smoky Creek, elk have continued to winter in the South Fork of the Boise River on the Fairfield Ranger District. From 1997-2000, an average of 715 elk were fed on the District at the Idaho Fish and Game feed sites.

Away from elk feed sites, elk winter on exposed south-facing slopes. During more severe winters, these slopes are not exposed and elk will winter along riparian bottoms utilizing willows as their primary food source. The Gooding Allotment has both south-facing slopes that elk will

utilize during mild winters and riparian bottoms that elk will use during severe winters. In the Gooding Allotment, wintering elk have been primarily observed around Worswick Hotsprings and along Little Smoky Creek from 5-Points Creek to Carrie Creek (within the area closed to snowmobile traffic).

Current grazing practices within the Gooding Allotment do not appear to be affecting elk winter range. Healthy willow communities exist along Little Smoky Creek and upland ranges are in good condition. Areas where some impacts to willow communities has been observed have not been known to support wintering elk (Grindstone Creek, Tyrannis Creek, King of the West Creek). Tyrannis and King of the West Creeks are likely too high in elevation to support wintering elk. The Worswick Hotsprings area is fenced to exclude cattle and to maintain or improve watershed condition. Occasionally cows find their way around or through fences and need to be removed from this exclosure. The Little Smoky catchfield is partially fenced to help alleviate impacts caused by cattle. If cattle find their way into this field they are suppose to be removed as soon as possible. Current grazing practices appear to meet the Sawtooth National Forest Plan standards related to big game winter range.

Migratory Bird Species Habitat

This section analyzes the current condition of high priority migratory bird species habitat with potential of existing in the Gooding Allotment (Partners in Flight, Idaho Bird Conservation Plan, January 2000). This analysis complies with Executive Order 13186 and the subsequent January 17, 2001, Memorandum of Understanding between the Forest Service and Fish and Wildlife Service.

Executive Order (EO) 13186, signed January 10, 2001, lists several responsibilities of federal agencies to protect migratory birds, among them:

> (1) support the conservation intent of the migratory bird conventions by integrating bird conservation principles, measures, and practices into agency activities and by avoiding or minimizing, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions;
>
> (9) identify where unintentional take reasonably attributable to agency actions is having, or is likely to have, a measurable negative effect on migratory bird populations, focusing first on species of concern, priority habitats, and key risk factors. With respect to those actions so identified, the agency shall develop and use principles, standards, and practices that will lessen the amount of unintentional take, developing any such conservation efforts in cooperation with the Service. These principles, standards, and practices shall be regularly evaluated and revised to ensure that they are effective in lessening the detrimental effect of agency actions on migratory bird populations. The agency also shall inventory and monitor bird habitat and populations within the agency's capabilities and authorities to the extent feasible to facilitate decisions about the need for, and effectiveness of, conservation efforts;

Additional direction comes from the Memorandum of Understanding (MOU) between USDA Forest Service and USDI Fish and Wildlife Service, signed January 17, 2001. The purpose of this MOU is to strengthen migratory bird conservation through enhanced collaboration between the FS and FWS, in

coordination with state, tribal and local governments. The MOU identifies specific activities for bird conservation, pursuant to EO 13186 including:

1. Strive to protect, restore, enhance, and manage habitat of migratory birds, and prevent the further loss or degradation of remaining habitats on National Forest System lands. This includes: Identifying management practices that impact populations of high priority migratory bird species, including nesting, migration, or over-wintering habitats, on National Forest System lands, and developing management objectives or recommendations that avoid or minimize these impacts. This will help inform future specific protocols called for in an MOU implementing the Executive Order.

High priority migratory bird species with potential breeding habitat in the Gooding Allotment are listed in Table 13. Current condition, direct, indirect, and cumulative effects of Alternatives 1 and 2 will be analyzed on migratory bird habitats, including riparian, low-elevation mixed conifer forest, sagebrush, and aspen.

Table 13. High Priority Migratory Bird Species with Potential Breeding Habitat in the Planning Area and Breeding Bird Survey Trend Information
From Idaho Bird Conservation Plan (Idaho Partners in Flight 2000)

Habitat	**Species**	**Idaho BBS Trend 1966-2003 %/yr**	**Western Region BBS Tre 1966-2003 %/yr**
Riparian	Blue gr Blue grouse	5.2	**-2.3**
	Calliop Black-chinned hummingbir	NA	1.7
	Rufous Calliope hummingbird	7.1	0.2
	Rufous hummingbird	3.9	**-2.6**
	Dusky flycatcher	1.6	**-1.4**
	Black-billed magpie	-0.3	-0.4
	American dipper	8.2	-0.6
	Yellow warbler	-1.1	0.2
	MacGillivray's warbler	1.5	-0.5
Low-elevation mixed conifer	Sharp-shinned hawk	12.8	**13.2**
	Northern goshawk	NA	1.9
	Lewis' woodpecker	-5.0	-1.4
	Williamson's sapsucker	29.2	0.8
	Black-backed woodpecker	23.7	0.9
	Brown creeper	-13.9	-0.4
	Townsend's warbler	4.4	0.6
	Western tanager	1.5	**0.9**
Sagebrush	Greater sage grouse	-14.2	0.5
	Short-eared owl	-3.1	**-0.5**
Aspen	Ruffed grouse	12.1	-3.1

Numbers in bold indicates the % change is significantly different from zero at P < 0.05 (P of less than 0.05 means there is 5% chance or less that the % change is not different from zero).

Riparian Migratory Bird Habitat

The Gooding Allotment contains both broad valley bottom and narrow valley bottom riparian habitats as defined by the Idaho Bird Conservation Plan (Idaho Partners in Flight 2000). Little Smoky Creek is the major drainage stream for the allotment and represents a broad valley bottom riparian area in much of the allotment, but is also confined by topography in portions of the allotment, particularly from Worswick Creek downstream. Willows and sedges dominate most riparian areas in the allotment. Some of the riparian habitats are dominated by coniferous forest (Douglas-fir and lodgepole pine). These riparian areas also commonly have alder, willows, and aspen interspersed within (Worswick, Grindstone, Carrie, Red Rock, Williams, and Rosetta Creeks). Beaver ponds exist throughout the broad valley bottom areas of Little Smoky and also exist in a few streams with narrow valley bottoms such as Carrie Creek.

Overall riparian habitat conditions within the Gooding Allotment are fair to good for migratory birds. Willows are vigorous and plentiful throughout the allotment, particularly in the Little Smoky livestock exclosure/ catch field. Little streambank erosion attributed to livestock can be found on Little Smoky Creek within the Allotment. The existence of beaver dams throughout Little Smoky Creek is an indicator of better riparian condition for migratory birds. Several of the tributaries to Little Smoky have had obvious habitat degradation attributed to livestock grazing, however, such as East Fork of Worswick Creek, Grindstone Creek, Carrie Creek, Tyrannis Creek, and King of the West Creek. Willow reproduction has been affected along these creeks. Roads within the riparian areas have compounded the problem in Carrie, King of the West, and Tyrannis Creeks. Kentucky bluegrass has become established within some of these areas, an indicator of poorer riparian condition. Hiding cover for ground nesting birds has been reduced in the riparian areas with grazing. Within the Little Smoky Creek exclosure/catch field area a sufficient stubble height of grasses exists after the grazing season to function as adequate hiding cover for ground nesting birds the following spring. This is not true for those portions of riparian areas where cattle tend to congregate such as in localized areas of East Fork of Worswick and Grindstone Creeks.

Springs, seeps, and wet meadow areas are also important riparian migratory bird habitats. Livestock grazing and the development of livestock watering facilities have affected many of these areas within the Gooding Allotment. Cattle tend to congregate at these wet sites, and consequently the immediately surrounding area often receives heavy impacts to the soil and vegetation. Several springs have been dug out by heavy equipment to create livestock water ponds. These areas are usually more prone to livestock trampling. It should be noted that elk also use many of these springs as well and will also contribute to their denuded condition.

Water troughs located throughout the Gooding Allotment can potentially cause mortality to some species of birds by drowning. The Sawtooth Forest Plan requires all new, reconstructed, or replaced livestock water developments to provide access and escape to and from water for all types of wildlife. The grazing permit requires the permittee to maintain functional escape ramps in all water troughs. All existing water troughs will continue to be monitored and bird escape ramps will be placed in any troughs where they do not exist.

Low-Elevation Mixed Conifer Migratory Bird Habitat

Current levels of livestock grazing within the Gooding Allotment has not had much effect on the condition of low elevation, mixed-conifer habitat. Current percentages of size classes of trees within PVG 4 (Cool Dr Douglas-fir) may be more influenced by past timber harvest in the allotment than grazing-related effects or lack of fire.

Sagebrush Migratory Bird Habitat

Habitat conditions within sagebrush uplands in the Gooding Allotment are fair to good for migratory birds. Cattle tend to congregate in riparian areas and tend to only lightly utilize the uplands. Residual nesting cover appears to be adequate in most areas.

Aspen Migratory Bird Habitat

Several species of migratory birds rely heavily on aspen including sapsuckers and woodpeckers. Aspen stands exist within the Gooding Allotment and support migratory birds. These stands are scattered throughout the allotment and are not extensive in size (generally 5 acres or less of contiguous aspen). Some effects to aspen regeneration has occurred from livestock browsing of young aspen suckers. These effects are localized and limited to areas where cattle tend to congregate, such as riparian areas and along roads. In conifer habitat cattle grazing has likely contributed to lowered fire frequencies on the allotment. This has contributed to conifer encroachment into aspen stands and has contributed to the decline of aspen within the allotment.

Pollinators

The reliance of flowering plant species on insects for pollination has been well documented (Darwin, 1859; Kearns and Inouye, 1997; Tepedino et al., 1997; Cane and Tepedino, 2001). Various species of bees, flies, butterflies, beetles, and moths are needed by these flowering plants to reproduce viable offspring. Many plant species have evolved self-incompatibility mechanisms making it a requirement that a pollinator be involved for a for seed production and population expansion. Ute ladies'-tresses orchid (described above), for example, requires a pollinator for seed production because this species is not capable of self-fertilization. In turn, flowering plants provide much needed nectar and pollen for insect survival. Patterns of plant diversification are strongly associated with pollinator diversity (Heithaus, 1974; Tepedino, 1979). Most flowering plants depend upon pollinators for survival.

Recent evidence suggests that many species of insect pollinators may be in decline (Cane and Tepedino, 2001). Many factors have been identified, including habitat alteration and fragmentation, pesticides, and competition from nonnative species (Buchmann and Nabhan 1996, Kearns and Inouye, 1997). Livestock grazing can also alter habitat conditions in ways that negatively affect insect pollinators. Direct and indirect effects of livestock grazing can include altering plant composition and/or reducing plant species (pollen or nectar sources) needed by certain pollinators, trampling of vegetation, and nest destruction of ground-nesting species through conversion of seeps and springs to livestock troughs. Grazing and associated activities may also affect pollinators by decreasing water availability. Most pollinators species cannot collect water needed for nest construction or survival from livestock troughs where escape ramps have not been installed due to steep sides and water depth (Kearns and Inouye, 1997). Within

the allotment, it is required that wildlife escape ramps be provided in all water troughs. In addition, overflow is piped away from the troughs were it is generally available.

Factors that may affect pollinator decline have been documented within the Gooding Allotment. Vegetation composition in some upland and riparian areas has been altered. In some areas, a conversion from a diversity of native sedges and forbs to mainly bluegrass and weedy species has occurred (Chapter III, Sawtooth Forest Plan, 2003). Plant species can benefit by a phenomenon know as facilitation. In facilitation, early flowering species support pollinators throughout the growing season so that they will be available for later flowering species. The conversion of flowering forbs to graminoid species has likely resulted in a negative affect to diversity and/or abundance of insect pollinators.

Söderström et al. (2001) documented that species richness of butterflies and bumblebees were negatively associated with grazing intensity. Loss of nectar sources due to species conversion in heavily grazed pastures was the likely cause. Additionally, bumblebees due to their high metabolic demands for nectar are known to spend more time at perennial plants than with less robust pioneer species such as annual forbs (Fussell and Corbet 1992). Concentrations of cattle increase the likelihood of nest trampling and the potential for disruption of reproduction.

Additional indirect effects to pollinators from livestock grazing include habitat fragmentation and reduced plant attractiveness. Larger populations of flowering plants tend to attract a higher diversity of insect pollinators than smaller populations (Mustäjarvi et al. 2001; Steffan-Dewenter and Tscharntke 2002). It has been documented that small plant populations can be limited further due to poor seed set caused by insufficient pollination because pollinators are less likely to visit small patches of flowering plants (Agren 1996, Goverde et al. 2002). Leaf damage and loss from herbivory can both decrease pollen production and negatively influence flower size making a plant less attractive to pollinators and limiting the collective lure within an upland area (Delph et al. 1997, Strauss 1997).

Very little information on insect pollinator species occurrence on the Fairfield Ranger District is available and population trends are unknown. No insect surveys have been conducted within the allotment to date. However, given that vegetation conditions for uplands are meeting or trending towards desired condition, it can be assumed that adequate habitat for pollinators dependant on upland types is being provided. Similarly, habitat for riparian dependant pollinators is most likely being provided for in those riparian areas where desired conditions are being met or trended towards.

The Forest Plan direction applicable to Wildlife includes:

- WIST01: "Maintain at least 20 percent of the acres within each forested PVG found in a watershed (5th field HU) in large tree size class (medium tree size class for PVG 10, persistent lodgepole pine). Where analysis of available datasets indicates that the large tree size class (medium tree size class in PVG 10) for a potential vegetation group in a watershed (5th field HU), is less than 20 percent of the total PVG acres, management

actions shall not decrease the current area occupied by the large tree size class, except when:

a. Fine or site/project scale analysis indicates the quality or quantity of large tree size class for a PVG within the 5th field HU would not contribute to habitat distribution or connective corridors for TEPCS and MIS species in short or long-term, *and*
b. Management actions that cause a reduction in the area occupied by the large tree size class would not degrade or retard attainment of desired vegetation conditions in the short or long-term as described in Appendix A, including snags and coarse woody debris.

- WIST02: "Design and implement projects within occupied habitats of Sensitive species to help prevent them from becoming listed. Use Forest Service-approved portions of Conservation Strategies and Agreements, as appropriate, in the management of Sensitive species habitat to keep management actions from contributing to a trend toward listing for these species."

- WIST03: "Mitigate management actions within known nesting or denning sites of MIS or Sensitive species if those actions would disrupt the reproductive success of those sites during the nesting or denning period. Sites, periods, and mitigation measures shall be determined during project planning."

- WIST04: "Mitigate management actions within known winter roosting sites or hibernacula (bats) of Sensitive species if those actions would measurably reduce the survival of wintering or roosting populations. Sites, periods, and mitigation measures will be determined during project planning."

- WIST05: "In goshawk territories with known active nest stands, identify alternate and replacement nest stands during project-level planning when it is determined that the proposed activity is likely to degrade nest stand habitat."

- Objective 0727: "Management actions in sage grouse habitat should be designed to meet the desired conditions for sagebrush described in Appendix A. Where greater than 40 percent of the sage grouse habitat in the management area has less than 10 percent canopy cover, actions should be designed to maintain or restore canopy cover conditions."

Current management on the allotment is meeting the above listed Forest Plan direction.

Issue 3 - FISH & AQUATIC HABITAT (Affected Environment)

The boundary of the Gooding C&H allotment occurs entirely within the Little Smoky Creek watershed. Table 14 displays the major perennial streams within the allotment and the pasture(s) or

exclosure(s) through which they flow, as well as the subwatershed(s) that each pasture/exclosure falls within.

General Fish Discussion

Regarding specific stream reaches within the allotment, Little Smoky, Five Points, Worswick, East Fork Worswick, Grindstone, West Fork Grindstone, Rosetta, Carrie, King of the West, Red Rock, Blackhorse, Stovepipe, and Basalt Creeks have each been sampled by electrofishing at least once within the last decade or so (Kenney 2002). Wild redband trout were sampled in each of these streams, while sculpin were also present at many sites; redband trout appear to be ubiquitous in the Little Smoky watershed and sculpin only slightly less so. Sculpin distribution is naturally restricted from smaller and steeper streams where redband trout thrive. Bridgelip sucker, redside shiner, mountain whitefish, and hatchery rainbow/redband trout were common at most mainstem Little Smoky Creek sites and at a few tributary sites, while longnose dace and northern pikeminnow were only captured at a few sites on Little Smoky Creek. Non-native brook trout have been sampled in Five Points Creek and in lower Little Smoky Creek, while non-native kokanee salmon migrate from Anderson Ranch Reservoir into Little Smoky Creek and possibly some tributaries during some years. Most of the named and unnamed perennial streams within the allotment which have not been sampled (including tributaries of named streams) likely also support native redband trout. A discussion of the presence of bull trout (listed as Threatened under the Endangered Species Act and a Sawtooth NF aquatic Management Indicator Species) in the Little Smoky Creek watershed follows.

Table 14: Perennial Streams Within the Gooding Allotment

Stream Name	Subwatershed	Pasture/Exclosure
Five Points Creek	Lick-Five Points	Williams/Rosetta
Little Smoky Creek	Worswick-Grindstone	Catch field
Worswick Creek	Worswick-Grindstone	Worswick/Grindstone, Hot Springs exclosure, Catch field
Belle Creek	Worswick-Grindstone	Worswick/Grindstone, catch field
Williams Creek	Worswick-Grindstone	Williams/Rosetta, catch field
Grindstone Creek	Worswick-Grindstone	Worswick/Grindstone, catch field
Rosetta Creek	Worswick-Grindstone	Williams/Rosetta, catch field
Carrie Creek	Red Rock-Carrie	Stovepipe/Carrie, catch field
King of the West Ck	Red Rock-Carrie	Stovepipe/Carrie
Tyrannis Creek	Red Rock-Carrie	Stovepipe/Carrie
Bear Gulch	Red Rock-Carrie	Stovepipe/Carrie
Little Smoky Creek	Red Rock-Carrie	Stovepipe/Carrie, catch field
Red Rock Creek	Red Rock-Carrie	Stovepipe/Carrie
Blackhorse Creek	Red Rock-Carrie	Stovepipe/Carrie
Stovepipe Creek	Red Rock-Carrie	Stovepipe/Carrie, Beef Pasture
Basalt Creek	Basalt	Beef Pasture

Aquatic Management Indicator Species (MIS)

MIS are used to assess effects of management activities on groups of species with similar habitat requirements. Bull trout is the Forest aquatic MIS species (Forest Plan 2003) and the Gooding Allotment Analysis Area is within the South Fork Boise River subbasin, which supports several bull trout populations. Bull trout require very cold water and relatively low levels of fine sediment, especially in spawning, incubation, and early rearing areas.

Bull Trout

Resident, fluvial and adfluvial populations of bull trout were historically distributed throughout the Pacific Northwest in the United Sates and western Canada. Resident and fluvial populations occurred throughout the Snake River basin including the Boise River and its tributaries. Bull trout co-evolved with redband trout (*Oncorhynchus mykiss gairdneri*), westslope cutthroat trout (*O. clarki lewisi*), chinook salmon (*O. tshawytscha*), and/or mountain whitefish (*Prosopium williamsoni*). Recent surveys in the known range of bull trout in Idaho have shown metapopulations in widely scattered segments of river basins (Rieman and McIntyre 1993), as well as in isolated catchments.

In relationship to the Gooding Allotment, bull trout presently occur in the South Fork Boise River (SFBR) subbasin on the Fairfield Ranger District. The South Fork Boise River subbasin is among the most southerly in the Columbia River Distinct Population Segment for bull trout, and therefore is restricted in spawning habitat to relatively high elevation (and, therefore, coldest) streams. These fish spawn and rear young in many of the tributaries in 13 sub watersheds in the SFBR (Kenney 2002), but the mainstem of the river and the lower reaches of many of the tributaries are not considered to be spawning or early (i.e., first year) rearing habitat. The mainstem of the SFBR and of Big Smoky Creek are thought to harbor adult and advanced juvenile fluvial (i.e., large-river dwelling) bull trout year-around and are known to serve as a migratory corridor for adult and advanced juvenile fluvial and adfluvial (lake-dwelling) bull trout during the spring and fall. In addition, some subadult fluvial and adfluvial bull trout (typically 175-300 mm in length) are known to "wander" into habitat which may not be suitable for spawning or early rearing (as opposed to migration to or from spawning and/or early rearing habitat) and may exist for short or long periods in streams reaches that otherwise would be unoccupied or used only as a migratory corridor (Personal communication, Bruce Rieman, Fisheries Research Biologist, RMRS). Full-time residents of the tributary streams where fluvial and adfluvial fish spawn and conduct early rearing are the third bull trout life history type known to occur in the SFBR drainage.

Despite substantial electrofishing effort in 1999, 2000, and 2001, and a weir run from early June through November in 2001, only three individual bull trout have been recorded as sampled in the Little Smoky Creek watershed (Kenney 2002). One individual of 240 mm was sampled traveling upstream in Little Smoky Creek in June 2001 at a weir about 150 meters below the Five Points Creek confluence (i.e., just downstream of the Gooding allotment boundary). Another bull trout of 231 mm was sampled with electrofishing gear in Little Smoky Creek near the mouth of Stovepipe Creek in August 1999. The only other official record of a bull trout sampled in the Little Smoky watershed was a individual electrofished twice during the summer of 2001 (206 mm in length on the second occasion) in the lower few

hundred meters of Carrie Creek. Anecdotal accounts of angler-caught bull trout in the watershed have also been made and it seems likely that bull trout would have been established in Little Smoky Creek or its tributaries in historic times, although this is not a certainty.

The mainstem of Little Smoky Creek and at least the lower reaches of one Little Smoky Creek tributary occasionally serve as rearing habitat for subadult migratory bull trout that are likely "wanderers" from Big Smoky Creek tributaries. However, there does not appear to be any evidence that a reproducing bull trout population exists in the Gooding Allotment or in the Little Smoky watershed. In that no upstream passage barriers exist between Little Smoky Creek and downstream bull trout populations, the lack of a reproducing bull trout population in this watershed is almost certainly a function of inadequate habitat conditions for the species. The primary habitat conditions which inhibit bull trout reproduction are probably the relatively high water temperatures and relatively high levels of fine sediment which the mainstem of Little Smoky Creek and most of its larger tributaries exhibit.

As discussed below, the riparian and aquatic habitat conditions in the Little Smoky Creek watershed are the result of natural and anthropogenic conditions. The watershed apparently has natural characteristics which are not ideal for bull trout, and human activities (especially road construction, mining, and historic grazing) have contributed substantially to the current condition of fish habitat. For example, base flow volume in Little Smoky Creek seems to be substantially lower (in proportion to watershed area) than in Big Smoky Creek, and floodplain road density is much higher in the Little Smoky watershed than in Fairfield Ranger District streams that support bull trout reproduction. In fact, none of the extant Fairfield R.D. bull trout subpopulations have more than minimal floodplain road density, and most are roadless in proximity to spawning habitat (Kenney 2002). Active grazing allotments, however, exist in nearly all of Fairfield R.D. subwatersheds which support bull trout subpopulations, although these are sheep allotments.

Aquatic Habitat Conditions

Instream and riparian habitat conditions in some of the streams within the proposed action area have been formally sampled since 1997, including 72 sites where R1/R4 Fish Habitat Inventory Surveys were performed in 1998-2000. The Forest also established five permanent stream morphology monitoring sites (using a Forest-specific protocol) and three permanent riparian vegetation and bank stability monitoring sites in 2002 (the latter sites were deliberately established in proximity to existing range monitoring sites). Thermographs have also been deployed in several of the streams of the Gooding Allotment since 1999. Riparian habitat surveys were performed at several sites within the allotment in 1988 through 1993. In an analysis of water quality in the South Fork Boise River drainage by the Idaho Department of Environmental Quality (Steed 2000), Little Smoky Creek was determined to not be water quality limited and to fully support its designated beneficial uses.

In general, instream habitat within the allotment is in a "functioning at risk" condition (see BA/BE for baseline subwatershed habitat condition indicators). While many streams have some or many habitat indicators that are properly functioning, other streams, especially those paralleled or

frequently crossed by roads, have habitat indicators that are degraded to a greater or lesser degree from that considered optimal.

Those instream habitat indicators within the allotment that are generally divergent from a properly functioning condition are fine sediment, water temperature, width to depth ratio, pool quality, and peak/base flow volume. These are all indicators that can be affected by cattle grazing. Because the allotment is located within the Idaho Batholith which is highly erodible, geologic and hydrologic processes and intense historic use of the watershed for mining and grazing has had lingering impacts. Further, the average elevation of the Little Smoky watershed appears to be somewhat less than many other subwatersheds in the South Fork Boise River subbasin portion of the Fairfield Ranger District, likely affecting stream discharge (especially base flow) and water temperature. Hot springs also contribute to relatively high water temperatures, especially in the lower mainstem of Little Smoky Creek. Consequently, many instream habitat indicators in the Little Smoky Creek watershed are less than ideal for bull trout, although, as noted above, redband trout and other fish species are abundant and well-distributed.

The watershed's proximity to the City of Fairfield and populated areas to the south combine with a relatively high road density to distribute substantial recreational use in riparian areas. Although cattle grazing in the watershed is much more closely managed and has substantially less influence on aquatic and riparian conditions than historically, localized detrimental impacts on aquatic and riparian habitat due to cattle grazing still occur. Because so many factors other than cattle grazing affect the action area, however, it is not possible to attribute a specific proportion of adverse habitat condition to current grazing. (See Vegetation-Riparian section for more details.)

Water Quality

Little Smoky Creek from its headwaters downstream to Carrie Creek was listed as a (303[d]) stream in 1998 because data indicated that "unknown pollutants" were affecting water quality standards to the extent of noncompliance with the Clean Water Act. (When a stream is 303(d)-listed because of "unknown pollutants," it is typically because macroinvertebrate sampling indicates less-than desired community structure). Since 2000 (Steed 2000), the Idaho Department of Water Quality has recommended this stream segment be de-listed from the 303(d) category and has submitted this recommendation to EPA for their consideration. No other streams within the allotment have been identified as potentially water quality limited through the 303(d) process.

The Forest Plan direction applicable to Fish and Aquatic Habitat includes:

- Objective 0742: "Adjust livestock grazing capacities and management to restore ground cover and streambank vegetation, and reduce sediment contributions, in drainages with native fish habitat."

- Objective 0741: "Restore ground cover, reduce sediment contributions, and restore streambank vegetative composition in drainages with bull trout habitat and 303d listed streams (headwaters Little Smoky to Carrie Creek) through adjustments to livestock grazing capacities and management."

- SWST01: "Management actions shall be designed in a manner that maintains or restores water quality to fully support beneficial uses and native and desired non-native fish species and their habitat, except as allowed under SWRA Standard 4 below. Use the MATRIX located in Appendix B to assist in determining compliance with this standard.

- SWST07: "Within legal authorities, ensure that new proposed management activities within watersheds containing 303(d) listed water bodies improve or maintain overall progress toward beneficial use attainment for pollutants that led to the listing."

Current management on the allotment is meeting the above listed Forest Plan direction except in the Carrie Creek, Worswick, and Grindstone Drainages. The District has made adjustments to grazing in the allotment to address fish and aquatic habitat concerns and at least slow progress has been made towards meeting Forest Plan direction.

Issue 4 – Recreation / Livestock Conflicts (Affected Environment)

The Forest Service maintains one small, developed campground, Five Points, and manages the Little Smoky Winter Recreation Area used mostly by snowmobilers. The rest of the project area provides dispersed recreation opportunities year-round, including hunting, horseback riding, mountain biking, Off Highway Vehicles (OHV) riding, and snowmobiling. Most use is road-related and there are relatively few backcountry trails. Overall use is increasing, particularly ATV and snowmobile use. Most of the area is in Idaho Fish and Game Units 43 and 44. Many of the recreation users come from the Magic Valley, including the cities of Twin Falls, Jerome, and Gooding. Recreation special uses include two outfitter and guide operations.

Cattle trailing does occur on and near #016 Big Peak Connector Trail and #082 Stovepipe Trail, occasionally causing trail damage. Stovepipe trail has not been maintained in recent years, however, it is going to be re-opened and will be re-routed to address erosion concerns. Recently, a drift fence (approximately 150 yards long) and gate were installed on the Stovepipe trail to prevent cows being trailed on the higher elevations. The lower end of the trail (approximately 2 miles) is still used within the allotment. Maintenance of the trails is ongoing, regardless of livestock

There are very few reported conflicts with the recreationists and livestock. The mouth of Carrie Creek has a satellite cow camp (trailer, portable corral, and horses). This removes a desirable dispersed campsite for the summer. However, this cow camp has been in use for many years.

Travel Planning is underway for the south half of the Sawtooth National Forest, which includes the project area.

The Forest Plan direction applicable to Recreation includes:

- Objective 0734: "Adjust Achieve or maintain the following ROS strategy:

ROS Class	Percent of Mgt. Area	
	Summer	Winter
Primitive	0%	0%
Semi-Primitive Non-Motorized	0%	16%
Semi-Primitive Motorized	35%	84%
Roaded Natural	39%	0%
Roaded Modified	26%	0%

The above numbers reflect current travel regulations. These numbers may change as a result of future travel regulation planning."

The project area is currently meeting the Forest Plan Objective 0734- Recreation Opportunity Spectrum (ROS) classifications, which reflect existing travel regulations. However, the ROS classifications may change as a result of future travel regulation planning.

Issue 5 – Soils (Affected Environment)

The project area – the Gooding C&H Allotment – is the activity area for identifying the affected environment, and also for estimating the effects of the proposed action on soils (Map 2). For more detail on "activity area" see Soils Technical Report (2005) in the project file.

The issues identified through public scoping and direction in the Sawtooth National Forest Land and Resource Management Plan (Forest Plan) define the level of analysis needed to address the soils resource within the defined activity area. The primary issue related to soils is the effect cattle have on soils, specifically the detrimental soil conditions that may occur from grazing and other uses that limit, or reduce soil productivity. An additional issue linked to detrimental soil erosion is the potential for sediment delivery that may impact water quality in nearby streams. The Forest Plan management direction is used to evaluate the effects of the alternatives on soil productivity. For this analysis, the most applicable management direction is detrimental soil disturbance (DD) less than 15 percent (SWST02), total soil resource commitment (TSRC) less than 5 percent (SWST03), and minimum effective ground cover (EGC) (SWGU05) (Soils Technical Report 2005). Chapter III of the Forest Plan contains the Forest-wide management direction, including definitions for desired conditions, goals, objectives, standards, and guidelines.

The information used in this analysis was derived from inherent characteristics of the soils resources, field survey data, and current literature. Initial soils characterization was completed using stratified ecological groupings that consist of the landtype association, landtype, and soil evaluation (Sawtooth National Forest 1970 and Gilman 2001). Soil Health Assessment (SHA) and updated Range Allotment Analysis (RAA) data collected in 2004 from areas within the allotments was also used to characterize existing conditions and identify how recent/current grazing activities are contributing to existing resource conditions.

"Indicators" are used to evaluate if the effects of the proposed action on soils resources are consistent with the applicable standards and guidelines. The indicators selected to evaluate

compliance with SWST02 are estimates for soil displacement and soil compaction (Forest Plan GL-10). The indicator for evaluating compliance with SWST03 is the estimated TSRC (Forest Plan GL-37). Effective ground cover is measured as a percent of vegetation, litter, and rock (greater than three-quarter inch) and is used to evaluate consistency with SWGU05. These soil properties can be used to qualitatively and quantitatively estimate the impacts of management activities on soils and provide information to determine if soil management goals and objectives are being met.

The landtype map unit allows for the classification and identification of soils having similar interpretive properties – physical characteristics that determine productivity capabilities and limitations. The spatial distribution and acreages of the landtypes within the activity area were derived using Geographic Information Systems (GIS) data. A sampling strategy to ensure adequate coverage of the representative landtypes was developed by displaying the locations and extent for each landtype. A sensitivity assessment using the landtype/soil capabilities and limitations was used to prioritize data collection efforts and focus the analysis on landtypes with inherent limitations. Interpretations on the stratified soil properties allow extrapolation of conditions and impacts across landtypes having inherently similar limitations and capabilities. The existing landtype/soils information and field survey data is used to identify and describe impacts from historic and current land use activities causing soil disturbance. This approach defines the baseline conditions for DD, TSRC, and EGC (Soils Technical Report 2005).

Past and current land use activities within the Gooding Allotment that can impact soil resources include: mining, logging, road construction and maintenance, sheep and cattle grazing, and dispersed recreation. Estimates of the areas impacted by these activities are used to derive quantitative estimates for detrimental soil disturbance (DD) and total soil resource commitment (TSRC). Values for effective ground cover are obtained by comparing current conditions against the representative values for the landtypes or soils where SHA or RAA data was collected.

Gooding Allotment is located within the middle portion of the Little Smoky Creek watershed. Stovepipe, Blackhorse, Carrie, Grindstone, Worswick, Rosetta, Red Rock, and Meadow Creeks are the only perennial streams on the Gooding Allotment. Except Meadow Creek, all of these streams are tributary to Little Smoky Creek.

The Little Smoky Creek watershed is situated in the geologic area known as the Idaho batholith, an uplifted granitic formation covering many square miles of south and central Idaho. Landtypes are predominantly (75 percent) moderately dissected mountain slopes, and approximately one-third of the landtypes have moderate to high production potential for sagebrush-grass habitat types. The parent material is composed of decomposed granite, which evolves to a soil with a high percentage of coarse sand. The resulting soil texture class is usually single grain, non-cohesive loamy sand or sandy loam having high water infiltration properties. Over the entire allotment, the landtypes/soils average 70 to 80 percent ground cover consisting of varying amounts of vegetation-litter (55 to 65 percent) and rock (15 to 25 percent). The inherent surface erosion hazard is moderate to high (Soil Technical Report 2005).

Detrimental Soil Disturbance (DD) - Existing conditions for DD are estimated to be 4 percent. This represents soil displacement and compaction primarily from past and current, annual livestock grazing. Soil displacement occurs in small isolated upland areas as cattle graze across the landscape. These impacts are due to loss of ground cover and are considered seasonal or short term if the shrubs, forbs, and grasses are allowed to recover or re-seed to provide root stability and establish a vegetative surface buffer. Soil compaction occurs, generally each grazing season, in isolated areas and mostly in the depositional valley bottoms adjacent to streams or riparian areas. These locations are where cattle bed, loaf under trees, or drink water from springs and streams. Compaction in these areas is generally short term as the effects are ameliorated by root action, frost heave/freeze-thaw, ground dwelling rodents, and shrink-swell from drying and wetting (Alexander and Gilman 1994).

Total Soil Resource Commitment (TSRC) - Existing conditions for TSRC is estimated to be less than 2 percent. The existing roads, grazing allotment range facilities (salting areas, water developments, shipping locations, etc.), and dispersed recreation sites account for the long term loss of soil productivity.

Effective Ground Cover (EGC). Ground cover conditions reflect the livestock grazing use patterns and inherent landtype limitations. At 15 of the RAA sites, EGC is within the desired range and, with the exception of two studies, on a positive trend. EGC is marginally below the range for the representative landtype/soil at 12 of the RAA sites. Of the RAA sites with EGC below the expected range, data indicates 9 sites are stable or show an improving trend and 3 sites have a declining trend.

Soil displacement and compaction vary in amount and intensity over the area as a result of naturally occurring and management related events. Many areas within the allotment exhibit these "disturbances," but in most cases these areas are not "detrimental" impairment to soil productivity. It is concluded that the existing conditions are within the Forest Plan parameters of 15 percent detrimental soil disturbance, less than 5 percent total soil resource commitment, and effective ground cover is at or near conditions representative of the landtypes/soils within the activity area.

Chapter 4 - Environmental Consequences

This chapter provides information concerning potential consequences to the environment. It also presents the scientific and analytical basis for the comparison of alternatives presented in Chapter 2. In Chapter 3, each resource potentially affected by the proposed action or other alternative is described by its current condition and uses. Each significant issue is discussed to relate potential effects (environmental consequences) to the resource associated with the implementation of each alternative. All known significant or potentially significant effects, including direct, indirect and cumulative effects, are disclosed.

EFFECTS COMMON TO ALTERNATIVES 1 & 2

Coniferous Rangelands.

Changes in stand structure and condition will not be different between alternatives. The cool dry Douglas-fir stands in the 5th field HUC are more dense and less open than would be expected under the historic fire regime. This would not be expected if the stand conditions were related primarily to the results of past livestock grazing. (Project Record).

ISSUE 1 - VEGETATION (Effects)

ASPEN

Alternative 1 – No Grazing :

The elimination of livestock grazing will result in increased regeneration within those aspen stands where livestock browsing of young aspen suckers has limited regeneration. However, elimination of livestock grazing, in and of itself, will not result in an increase in the aspen component towards desired conditions. Without fire or some other vegetative treatment, the aspen component within the allotment will continue to decline as a result of conifer encroachment, insects and aspen blight. Under this alternative, Forest Plan direction is met for aspen vegetation.

Alternative 2 - Current Management with Adaptive Management:

Under the Proposed Action, effects to aspen stands will be similar to Alternative 1 with the exception that reduced regeneration will continue to occur in those stands where livestock browsing on young suckers occurs. As under Alternative 1, the aspen component will continue to decline without fire or some other vegetative treatment. While livestock grazing has contributed to declining aspen conditions, elimination of livestock grazing, in and of itself, will not allow conditions to move towards DFC. Under this alternative, Forest Plan direction is met for aspen vegetation.

Cumulative Effects. No projects or management actions are planned within the Gooding Allotment in the foreseable future that would have an effect on canopy cover of aspen within the allotment. Potential future projects near the allotment include continued treatment of conifer encorachment with Rocky Mountain Elk Foundation dollars (2007-2008) and a potential fuels reduction project/prescribed fire in the Liberal Creek Area. Past fire suppression efforts have reduced the amount of fire on the landscape resulting in more decadent stands with reduced regeneration and increased conifer encroachment. Relative to meeting the desired condition for aspen under either alternative, movement towards desired conditions would only be achieved if wildland fire, prescribed fire treatments or other vegetative treatments occur.

Sagebrush Shrublands

Alternative 1 – No Grazing:

Conditions on the allotment for the moderate category (11-20% canopy cover) are outside of the desired conditions. It appears that, given the large portion of the area within the 11-20% canopy cover class, the primary causal factor is lack of fire. Given that the trend for the sagebrush community appears to be relatively stable, elimination of livestock grazing will not necessarily result in a trend towards desired condition. There will continue to be a natural progression from the lower to higher canopy cover classes for sagebrush without introduction of disturbance from fire or other treatments. Under this alternative, Forest Plan direction is met for sagebrush shrublands vegetation.

Alternative 2 - Current Management with Adaptive Management:

As under Alternative 1, there will continue to be a natural progression from the lower to higher canopy cover classes for sagebrush without introduction of disturbance from fire or other treatments over the entire allotment. Isolated and localized impacts on competing vegetation from grazing may increase the rate of this progression. In general, limitations on allowable grazing use in riparian areas will result in a low likelihood that this will occur (use limits are usually reached in riparian areas before upland sagebrush communities are impacted to this degree). It is unlikely that differences in the rate of progression between canopy closure classes will be measurable outside of effects from fire or other treatments. Under this alternative, Forest Plan direction is met for sagebrush shrublands vegetation.

Cumulative Effects. No projects or management actions are planned within the foreseable future that would have an effect canopy cover of sagebrush within the allotment. As with aspen, past fire suppression efforts have reduced the amount of fire on the landscape resulting in higher percentages of moderate canopy cover classes in sagebrush communities within the allotment. In very localized areas, noxious weed treatments with herbicides could reduce canopy cover. Based on the limited current infestations, this would be expected to occur only on a few acres within the allotment and would not affect achievement of desired conditions. Achievement of desired conditions would only be achieved if wildland fire, prescribed fire treatments or other vegetative treatments of sagebrush occur.

Riparian Vegetation

Alternative 1 – No Grazing:

This alternative would accelerate the rate of riparian recovery in those areas previously identified as not meeting the desired condition. Forest Plan direction for the Little Smoky Creek Management Area (MA-7) Objective 0721 - Restore hydric and woody shrub species composition and density in bottom riparian areas within the Grindstone Creek, Carrie Creek, Worswick Creek, Red Rock Creek, and Rosetta Creek drainages, where vegetation has been altered by livestock grazing would be achieved. The only hindrance to meeting this objective would be from influences outside of the scope of this analysis.

Given the present condition of riparian vegetation and other uses that will continue to affect its recovery, the rate of recovery in King of the West and Tyrannis Creek drainages will move towards the desired condition, but at a slow rate. Under this alternative, Forest Plan direction is met for riparian vegetation.

Alternative 2 - Current Management with Adaptive Management:

This alternative would also accelerate the rate of riparian recovery in those areas previously identified as not meeting the desired condition. Meeting Forest Plan direction for the Little Smoky Creek Management Area (MA-7) Objective 0721 would take longer than it would for Alternative 1, but progress is expected to be in a positive direction. Overall improvement in riparian vegetation composition would help decrease streambank instability and erosion, improve water quality, and improve aquatic habitat for native fish. If monitoring results suggest progress is not happening fast enough or not at all, then adjustments in livestock numbers or duration of grazing (adaptive management) use would be initiated to help reach the desired riparian condition.

Under Alternative 2, the rate of riparian recovery in King of the West and Tyrannis Creek drainages would be slower than it would be for Alternative 1. It is expected that the 10-day use period mitigation for Alternative 2 would be sufficient to achieve a positive trend towards reaching the Forest Plan desired riparian condition in both King of the West and Tyrannis Creek drainages. Under this alternative, Forest Plan direction is met for riparian vegetation.

Cumulative Effects. Past road building, recreation use and historic sheep grazing have affected riparian habitat within the allotment. Historic sheep grazing on the District degraded upland and riparian habitats due to sheer numbers of sheep. Erosion, topsoil loss, and vegetation species composition changes all resulted. Similar impacts to riparian vegetation are occurring from wood cutting, roads, and dispersed camping. These uses are causing localized soil compaction, loss of riparian vegetation, reduced large woody debris recruitment into stream channels, waste issues, and bank erosion.

Recreational and other use of riparian areas is likely to increase in the future, resulting in further damage to riparian vegetation unless and until effective steps are taken to manage recreational impacts. Travel Planning on the Fairfield Ranger District was initiated in 2004 and implementation began in 2008. This effort addresses unmanaged OHV use in this area. The

area now has a designated road and trail system; designed, constructed and managed for appropriate OHV use and cross-country travel has been eliminated.. Implementation of the travel plan is expected to reduce the impacts on riparian areas, and eliminate user developed trails. With better control of recreation related impacts through travel planning and the reduction of cattle related impacts on riparian and aquatic habitat under Alt. 2, cumulative effects to riparian and aquatic habitat should be reduced from current in the reasonably foreseeable future. Under Alternative 1, the reduction of cumulative effects should be even greater given the contribution of impacts to riparian and aquatic habitat from current grazing would be eliminated entirely. However, given the current and expected level of recreation use, wood cutting and impacts from existing roads, localized riparian impacts will continue to occur to some degree under either alternative.

Noxious Weeds

Alternative 1 – No Grazing:

Alternative 1 would provide for long-term benefits and habitat recovery of upland vegetation found within the boundaries of the Gooding Allotment. The main distinction between the No-Action Alternative and the Proposed Action in regard to weed establishment and spread would stem from area and timing restrictions and the increased level of monitoring associated with the Proposed Action. Under the No-Action Alternative, range conditions would be monitored less frequently and weed populations would tend to be discovered after they become larger and more costly and difficult to control. Successful control would therefore be less likely.

The main weed of concern for this area is spotted knapweed, a highly invasive species, which is currently found in small, scattered populations. Under Alternative 1, this species will likely remain in isolated, small populations adjacent to roads and trails given the ability for range mangers to detect new infestations under the weed treatment program currently implemented by the Fairfield Ranger District. The potential for livestock to introduce this species in to more remote areas of the allotment will be eliminated after all livestock grazing has been eliminated. Current weed management plans will be used to direct treatment and containment strategies. The ability to detect and monitor weed populations will influence the size and density of new weed populations. Range management under this alternative will likely allow for continued tracking of non-native plant populations and treatment of these isolated populations along roads and trails but may be less in remote areas. Under this alternative, Forest Plan direction is met for noxious weeds management.

Alternative 2 - Current Management with Adaptive Management:

This alternative would allow for livestock grazing to continue to serve as a vector for spread of noxious weeds. However, as described in the Affected Environment section, noxious weed infestations in the allotment are primarily associated with travel corridors. Disturbance from livestock grazing may result in portions of the allotment becoming susceptible to noxious weed and non-native plant invasions and establishment.

Under Alternative 2, spotted knapweed will likely remain in isolated, small populations adjacent to roads and trails given the ability for range mangers to detect new infestation in conjunction with range monitoring. However, risk of spread and establishment for this species may be higher

in remote areas as a result of livestock use and it could become established and spread rapidly without detection.

Range management under this alternative will allow for continued tracking of non-native plant populations and containment and treatment of these isolated populations along roads and trails will be emphasized. Current weed management plans will be used to direct treatment and containment strategies. The ability to detect and monitor weed populations will influence the size and density of new weed populations. Under Alternative 2, livestock may serve as wide ranging vectors, given the allotment boundaries, for the invasive species and non-native plants. Livestock use and associated impacts (soil disturbance, changed vegetation compositions) may facilitate a higher risk of non-native plant species becoming established in remote areas, rare plant populations or unique communities. Under this alternative, Forest Plan direction is met for noxious weed management.

Cumulative Effects

A current contained infestation of spotted knapweed can be found along the Little Smoky road. Recreational, livestock, dispersed camping, and other land uses may allow for infestations and establishment of invasive species. While the potential for establishment of noxious weed infestations in more remote areas would be somewhat higher under Alt. 2 than Alt. 1 given the continuation of grazing, the primary vector for noxious weed establishment and spread would continue to be travel corridors.

Recreational impacts and uses will likely increase given current recreational use trends. ORVs and ATVs may also increase the incidence of non-native plant introduction and establishment. Such vehicles may encounter infestations within the allotments or along adjacent trails or roads and may serve as vectors to more remote locations. Additionally, these vehicles could introduce new highly invasive species from other sources such as private land, BLM land, other National Forest lands, or State lands. Introductions of such species in remote locations could lead to new invasive species establishing within the allotments and may make treatment and containment difficult. Elimination of cross country travel as proposed in the District travel planning effort should reduce the potential for noxious weed introduction in more remote areas away from designated travel routes.

No foreseeable mining activities have been identified at this time. The risk of exotic plant infestations occurring within wildfire areas is a concern under all the alternatives. No foreseeable prescribed fire activities have been identified. Wildland fire is always a risk and could contribute to the spread of established populations.

Threatened, Endangered, Proposed, Candidate and Sensitive Plant Species:

Slender Moonwort - *Botrychium lineare*

Alternative 1 – No Grazing:

This alternative would most benefit the potential habitat for slender moonwort, given the removal of impacts associated with livestock grazing and trampling. As grazing is phased out, direct impacts such as trampling, herbivory, and disruption of spore stability and indirect impacts associated with livestock use and associated activities in potential habitat would no longer occur.

Implementation of this alternative may affect, but would not likely adversely affect slender moonwort. Under this alternative, Forest Plan direction is met for the slender moonwort.

Alternative 2 - Current Management with Adaptive Management:
Livestock use under Alternative 2 may allow for direct and indirect impacts from livestock grazing in slender moonwort habitat. Potential impacts may include: herbivory (although effects are likely low to none due to diminutive size), trampling, loss of plants, destruction of mycorrhizal fungi (essential for slender moonwort survival), and disrupted spore establishment conditions. Indirect impacts from livestock use and associated impacts could include soil compaction, introduction of noxious weeds, decreased gene flow, decreased soil moisture, community composition alteration, invasion of woody or tree-species, and increased competition for resources from invasive species. The specific effects of grazing on the species are unknown, although if grazing by livestock or wildlife species occurs prior to the maturation and release of spores, the capacity for sexual reproduction of affected plants may be compromised. Slender moonworts have not been observed in areas with obvious disturbance by livestock (E. Rey-Vizgirdas, personal communication, 2002). Implementation of this alternative may affect, but would not likely adversely affect slender moonwort. Under this alternative, Forest Plan direction is met for the slender moonwort.

Cumulative Effects
Currently, no noxious weeds have been documented in slender moonwort potential habitat but infestations found along roads and trails in lower elevations could serve a source for introduction. In the Carrie drainage, including King of the West and Tyrannis Creeks, the risk of livestock as vectors or their ability to create disturbance sufficient for weed establishment would be reduced under Alt. 2 and eliminated under Alt. 1. Recreational impacts and uses will likely remain the same or increase given current recreational use trends. ORVs and ATVs may increase the incidence of non-native plant introduction and establishment. Such vehicles may encounter infestations within the allotments or along adjacent trails or roads and may serve as vectors to more remote locations. Additionally, these vehicles could introduce new highly invasive species from other sources such as private land, BLM land, other National Forest lands, or State lands. Elimination of cross country travel as proposed in the District travel planning effort should reduce the potential for noxious weed introduction in more remote areas away from designated travel routes.

Ute ladies'-tresses Orchid – *Spiranthes diluvialis*
Alternative 1 – No Grazing:
Under Alternative 1, livestock grazing within Ute ladies'-tresses orchid potential habitat mainly along riparian areas, wetlands, and springs would be eliminated within the allotment and habitat conditions would improve over time. Potential impacts associated with livestock grazing in potential habitat would be eliminated. Riparian areas that are not moving toward Forest Plan vegetation management objectives as a result of livestock grazing impacts would begin to meet vegetation management objectives

Implementation of this alternative may affect, but would not likely adversely affect Ute ladies-tresses' orchid. Indeed, implementation of this alternative may benefit the potential habitat for this species in the long-term. Under this alternative, Forest Plan direction is met for the Ute ladies'-tresses orchid.

Alternative 2 - Current Management with Adaptive Management:
Under Alternative 2, livestock grazing within Ute ladies'-tresses orchid habitat (mainly along riparian areas, wetlands, and springs) would be reduced and habitat conditions would begin to improve as standards are being met. The amount of riparian areas that are not moving toward Forest Plan vegetation management objectives would also be reduced and areas that continue to be grazed by livestock would begin to meet vegetation management objectives.

Direct impacts from livestock use including trampling, uprooting plants, loss of seed set, herbivory, ORV trampling (associated with structural improvements), reduced seed production due to loss of pollinators, and disrupted seed bank will likely be reduced given allowable use standards under Alternative 2. As a result, indirect impacts from livestock use including soil compaction, introduction of noxious weeds, changed upland vegetation, pollinator impacts (ground nesting bees could be killed or their nests destroyed), alteration of vegetation community, and decreased soil moisture will be reduced (Arft 1995; Pierson and Tepedino, 2000). Allowable use standards will also contribute to the reduction of changed floodplain conditions (from above direct and indirect impacts) and changed flow velocity. Implementation of this alternative may affect, but would not likely adversely affect Ute ladies-tresses' orchid. Indeed, implementation of this alternative may benefit the potential habitat in the long-term. Under this alternative, Forest Plan direction is met for the Ute ladies'-tresses orchid.

Cumulative Effects
Currently, no noxious weeds have been documented in Ute ladies-tresses' potential habitat but infestations found along roads and trails in lower elevations could serve a source for introduction. In the Carrie Creek including King of the West and Tyrannis Creeks, drainage the risk of livestock as vectors or their ability to create disturbance sufficient for weed establishment would be reduced under Alt. 2 and eliminated under Alt. 1. Recreational impacts and uses will likely remain the same or increase given current recreational use trends. ORVs and ATVs may increase the incidence of non-native plant introduction and establishment. Such vehicles may encounter infestations within the allotments or along adjacent trails or roads and may serve as vectors to more remote locations. Additionally, these vehicles could introduce new highly invasive species from other sources such as private land, BLM land, other National Forest lands, or State lands. Elimination of cross country travel as proposed in the District travel planning effort should reduce the potential for noxious weed introduction in more remote areas away from designated travel routes.

Bugleg Goldenweed – *Haplopappus insecticruris* –
Alternative 1 – No Grazing:
The removal of livestock grazing under this alternative may be both beneficial and potentially detrimental to bugleg goldenweed populations and habitat. Direct impacts from trampling,

introduction of noxious weeds, and pollinator impacts may be reduced by livestock removal. However, given the disturbance response of this species, livestock grazing and associated activities may be creating habitat for this species through removal of competition and soil disturbance. Implementation of this alternative may impact bugleg goldenweed individuals but would not tend towards federal listing. Under this alternative, Forest Plan direction is met for the bugleg goldenweed.

Alternative 2 - Current Management with Adaptive Management:
As with Alternative 1, livestock grazing under this alternative may be both beneficial and potentially detrimental to bugleg goldenweed populations and habitat. Direct impacts from trampling, introduction of noxious weeds, and pollinator impacts would be reduced by meeting Forest Plan standards. Given the disturbance response of this species, livestock grazing and associated activities may be creating habitat for this species through removal of competition and soil disturbance. Adaptive management practices would allow for monitoring within these populations and changes to offset these effects would be made if negative impacts were detected. Implementation of this alternative may impact bugleg goldenweed individuals but would not tend towards federal listing. Under this alternative, Forest Plan direction is met for the bugleg goldenweed.

Cumulative Effects
One of the primary threats to bugleg goldenweed populations is the establishment of non-native plants, including noxious weeds. Currently, no noxious weeds have been documented in bugleg goldenweed populations but infestations found along roads and trails in lower elevations could serve a source for introduction. Recreational impacts and uses will likely remain the same or increase given current recreational use trends. ORVs and ATVs may increase the incidence of non-native plant introduction and establishment. Such vehicles may encounter infestations within the allotments or along adjacent trails or roads and may serve as vectors to more remote locations. Additionally, these vehicles could introduce new highly invasive species from other sources such as private land, BLM land, other National Forest lands, or State lands. However, elimination of cross country travel as proposed in the District travel planning effort should reduce the potential for introduction of noxious weed from ORV/ATV use in more remote areas away from designated travel routes. Continuation of grazing under Alt. 2 may increase the potential for noxious weed introduction in more remote areas. Given the disturbance response of this species, implementation of Alt. 1 may result in the reduction of overall bugleg goldenweed habitat, because of the lack of disturbance provided by grazing. If the amount of available habitat is reduced, the impact of noxious weed infestation in existing populations would be heightened.

ISSUE 2 - WILDLIFE (Effects)

Terrestrial Management Indicator Species

Alternative 1 – No Grazing:
Pileated Woodpecker

Under the no grazing alternative, pileated woodpeckers and their habitat would continue to be present within the analysis area. Pileated woodpeckers using coniferous forest are relatively unaffected by cattle grazing. Increased aspen regeneration in aspen habitat would likely occur if grazing were discontinued, potentially improving conditions for pileated woodpeckers. However, given the very limited amount of aspen in pileated habitat, the change in habitat conditions would be very minor. Without fire or some other vegetative treatment, the aspen habitat within the allotment will continue to decline as a result of conifer encroachment. The long-term change to fire regimes, and the subsequent effects to pileated woodpeckers if grazing would be discontinued, is unknown. Due to the likely continuance of fire suppression, it is unlikely much change to the fire regime/frequency would result from removal of cattle grazing from the allotment.

Greater Sage-grouse

Implementation of the no grazing alternative would likely result in some improvement to the 2,300 acres of occupied sage grouse habitat and the additional 8,200 acres of sagebrush within the Gooding Allotment. Given that the current trend for the sagebrush communities in the allotment appears to be stable it is unlikely that elimination of grazing in and of itself will result in a marked improvement in sagebrush community condition. Elimination of grazing would result in improvements in about 600 acres of riparian habitat within the allotment. Riparian areas would provide greater hiding cover and likely greater insect availability without cattle grazing pressure, especially over time. The effect of no grazing on the availability of forbs is unknown. It is possible some forbs would be choked out with the increase in grass in the riparian areas. It is also possible forb abundance would flourish without livestock pressure.

Without grazing on the Gooding Allotment, there would be no need for the many range improvements in the area, including 14 miles of fences and 65+ water developments. Sage grouse have been known to hit fences and kill or injure themselves. Livestock water developments can reduce the amount of water available in springs, seeps, or streams, thus affecting brood-rearing habitat quality for sage grouse.

Alternative 2 - Current Management with Adaptive Management:

Pileated Woodpecker

Under Alternative 2, little change to pileated woodpeckers or their habitat, on the Gooding Allotment, would occur. Pileated woodpeckers and their habitat would continue to be present within the analysis area. As stated above, pileated woodpeckers using coniferous forest are relatively unaffected by cattle grazing. Some amount of aspen regeneration would continue to be impacted by livestock, thus continuing to have some impact on pileated woodpecker habitat. Given the amount of pileated aspen habitat in the allotment (4 acres), this impact would be minimal. Aspen regeneration along Carrie Creek, King of the West Creek, and Tyrannis Creek would improve with reduced grazing pressure in those areas (ten days or less of grazing). Other areas of aspen regeneration may improve with adaptive management. However, without the introduction of fire or some other vegetative treatment, the overall the percentage of aspen within the allotment will likely continue to decline.

Greater Sage-grouse
Under Alternative 2, sage grouse and their habitat would not change much from existing conditions. Sagebrush communities would continue to provide habitat for current sage grouse populations. Improvements in riparian habitat may occur over current as grazing pressure is adjusted under the adaptive management strategy and Forest Plan standards are met.

Cumulative Effects
Past timber harvest, road building, fire suppression, mining, and livestock grazing have affected MIS species habitat on the Fairfield Ranger District. Historic sheep grazing on the District degraded upland and riparian habitats due to sheer numbers of sheep. Erosion, topsoil loss, and vegetation species composition changes all resulted, affecting sage grouse habitat. Timber harvest has reduced large trees available to pileated woodpeckers in many areas on the District. Timber sales including the North Fork Lime Creek and South Fork Boise River Salvage Timber Sales were implemented in the early 1990's several miles west of the Gooding Allotment analysis area. These projects focused on salvaging dead and dying trees, primarily of larger diameter, from ridgetops.

Fire suppression over the past 100 years is thought to have contributed to conifer encroachment of aspen stands and higher percentages of sagebrush communities in moderate canopy cover classes. Fire suppression, in combination with grazing, has had negative effects on aspen regeneration. Old forest habitat (large trees of open spacing) has also been reduced by fire suppression in combination with past logging. Due to the suppression of fire on the District, many ponderosa pine and Douglas-fir stands are heavily stocked with younger trees. Older, large trees have been selectively logged in the past and many existing large trees are being choked out by the young trees due to competition for sunlight, water, and nutrients. Risk of stand-replacing fire has also resulted which could burn down large, old trees that might otherwise be able to withstand frequent ground fires. Given that pileated woodpeckers are relatively unaffected by livestock grazing, implementation of either alternative would not cumulatively impact pileated woodpecker habitat. While elimination of grazing under alternative 1 would result in some improvement in sage grouse habitat, grazing as authorized under Alternative 2 would continue to provide suitable habitat for sage grouse.

Threatened and Endangered, & Sensitive Species

Alternative 1 – No Grazing:
Gray Wolf
Under the no grazing alternative, conditions for wolves would likely improve. Competition between livestock and prey species of wolves (deer, elk, snowshoe hares, etc.) would be eliminated on the Gooding Allotment, potentially increasing prey availability for wolves. The potential for lethal control of wolves related to livestock depredation on the Gooding Allotment would be reduced under the no grazing alternative. Grazing of adjacent allotments would still make lethal control of wolves possible. Regardless, lethal control is consistent with the Gray Wolf Recovery Plan and the Nonessential Experimental Population Rule (50 CFR 17 Nov. 22, 1994).

Lynx
Under the no grazing Alternative 1, conditions for lynx would likely improve on the Gooding Allotment. Improvements in habitat (cover and forage) for prey species, such as snowshoe hares and grouse, would occur, potentially increasing prey availability for lynx. Regeneration of aspen and herbaceous cover under aspen stands would also likely increase, thus potentially benefiting lynx. However, given the amount of aspen within lynx habitat, the effect to overall lynx habitat would be very minimal. Objectives and standards for livestock management outlined in the LCAS would be fully met.

Spotted Bat and Townsend's Big-eared Bat
Under the no grazing Alternative 1, foraging conditions for bats such as spotted bats and Townsend's big-eared bats, would likely improve with a corresponding increase in insect diversity in riparian areas that have been affected by grazing. This increase in insect diversity would be associated with increased vegetative diversity in riparian areas resulting from removal of grazing pressure.

Wolverine
Under the no grazing Alternative 1, conditions for wolverines would likely improve. Potential for forage competition between livestock and food species of wolverines (deer, elk, snowshoe hares, etc.) would be eliminated on the Gooding Allotment, potentially increasing food availability for wolverines.

Northern Goshawk
Under the no grazing alternative, conditions for goshawks would likely improve on the Gooding Allotment. Improvements in habitat (cover and forage) for prey species such as snowshoe hares, grouse, and other ground-nesting birds would occur, potentially increasing prey availability for goshawks. Some regeneration of aspen and herbaceous cover under aspen stands would likely occur, thus potentially benefiting goshawks and prey species. However, given the limited amount of aspen within the allotment this would not constitute a significant improvement.

Boreal Owl
Under the no grazing alternative, conditions for boreal owls may improve on the Gooding Allotment. Improvements in habitat (cover and forage) for prey species (small mammals) would occur. This could potentially increase prey availability for boreal owls. Regeneration of aspen and herbaceous cover under aspen stands would also likely increase to some degree, thus potentially benefiting boreal owls and prey species. However, this benefit would be limited given the amount of aspen within the allotment.

Flammulated Owl
Under the no grazing alternative, conditions for flammulated owls would likely improve on the Gooding Allotment. Improvements in habitat (cover and forage) for prey species (small mammals and insects) would occur. This could potentially increase prey availability for flammulated owls. Regeneration of aspen and herbaceous cover under aspen stands would also likely increase to some degree, thus potentially benefiting flammulated owls and prey species. However, this benefit would be limited given the amount of aspen within the allotment.

Spotted Frog
Under the no grazing alternative, conditions for spotted frogs would likely improve on the Gooding Allotment. Increased cover in riparian areas would reduce potential for predation on frogs.

Improvements to bank stability due to removal of livestock would also correspond to improved water quality and conditions beneficial to frog survival and reproduction.

Pygmy Rabbit
Under the no grazing alternative, conditions for pygmy rabbits may improve on the Gooding Allotment. Improvements in habitat (forage and cover) would occur, potentially increasing food availability and security for rabbits.

Bald Eagle
Conditions for bald eagles on the Gooding Allotment would remain relatively unchanged under the no grazing alternative. Bald eagles are not known to frequent the allotment. Some potential increases in food availability might occur under the no grazing alternative with corresponding increases in prey species. Potential roost and/or nest trees would be unaffected.

Alternative 2 - Current Management with Adaptive Management:
Gray Wolf
Implementation of the adaptive management-grazing alternative would not change conditions for gray wolves much from current conditions. Forage competition between prey species (elk, deer, snowshoe hares, etc.) and livestock would continue, thus limiting prey availability compared to the no grazing alternative. This prey competition with livestock does not appear to be limiting wolf populations. Some minor improvements in habitat for prey species would occur in the Carrie Creek, King of the West, and Tyrannis Creek drainages over current conditions.

The likelihood of lethal control of wolves related to livestock depredation on the allotment would continue. Continued livestock grazing on the Gooding Allotment adds to the likelihood that gray wolves would encounter livestock and be subsequently killed. However, this alternative is consistent with the Gray Wolf Recovery Plan and the Nonessential Experimental Population Rule (50 CFR 17 Nov. 22, 1994), which permits lethal control of wolves that depredate on livestock when six or more breeding pairs exist in central Idaho.

Lynx
Implementation of the adaptive management-grazing alternative would not change conditions for lynx much from current conditions. Habitat (cover and forage) for prey species such as snowshoe hares and grouse would continue to be impacted to some degree. Some habitats within the Carrie Creek, King of the West, and Tyrannis Creek drainages would be expected to improve somewhat with the new adaptive management strategy. LCAS objectives and standards may be met with adoption of the adaptive management strategy. Regeneration of aspen and herbaceous cover under aspen stands would also continue to be impacted by livestock grazing affecting habitat for lynx prey. Given the limited amount of aspen in lynx habitat, this impact would be minimal.

Spotted Bat and Townsend's Big-eared Bat
Implementation of the adaptive management-grazing alternative would not change conditions for bats much from current conditions. Insect diversity and availability would continue to be impacted to some degree by grazing pressure. Habitat within the Carrie Creek, King of the West, and Tyrannis Creek

drainages would be expected to improve as a result of limited grazing in those areas. Other riparian areas would also likely improve due to the new adaptive management strategy.

Wolverine

Implementation of the adaptive management-grazing alternative would not change conditions for wolverines much from current conditions. Forage competition between livestock and prey species of wolverines (deer, elk, snowshoe hares, etc.) would continue to occur, potentially affecting food availability for wolverines. Regeneration of aspen and herbaceous cover under aspen stands would also continue to be impacted by livestock grazing affecting habitat for wolverine prey. However, given the limited amount of aspen in the allotment, this impact would be minimal. Habitat for prey species within the Carrie Creek, King of the West, and Tyrannis Creek drainages would be expected to improve due to reduced grazing in those areas, and other riparian areas would also be expected to improve somewhat with the new adaptive management strategy (meeting Forest Plan direction).

Northern Goshawk

Implementation of the adaptive management-grazing alternative would not change conditions for goshawks much from current conditions. Habitat (cover and forage) for prey species such as snowshoe hares, grouse, and other ground-nesting birds would continue to be impacted to some degree. Regeneration of aspen and herbaceous cover under aspen stands would also continue to be impacted by livestock grazing affecting habitat for goshawk prey. However, given the limited amount of aspen in the allotment, this impact would be minimal. Habitat for prey species within the Carrie Creek, King of the West, and Tyrannis Creek drainages would be expected to improve due to reduced grazing in those areas, and other riparian areas would also be expected to improve somewhat with the new adaptive management strategy (meeting Forest Plan direction).

Boreal Owl

Implementation of the adaptive management-grazing alternative would not change conditions for boreal owls much from current conditions. Habitat (cover and forage) for prey species such as small mammals would continue to be impacted to some degree. Regeneration of aspen and herbaceous cover under aspen stands would also continue to be impacted by livestock grazing affecting habitat for boreal owls and their prey. However, given the limited amount of aspen in the allotment, this impact would be minimal. Habitat for prey species within the Carrie Creek, King of the West, and Tyrannis Creek drainages would be expected to improve due to reduced grazing in those areas, and other riparian areas would also be expected to improve somewhat by meeting Forest Plan direction through the new adaptive management strategy.

Flammulated Owl

Implementation of the adaptive management-grazing alternative would not change conditions for flammulated owls much from current conditions. Habitat (cover and forage) for prey species (small mammals and insects) would continue to be impacted to some degree. Regeneration of aspen and herbaceous cover under aspen stands would also continue to be impacted by livestock grazing affecting habitat for flammulated owl prey. However, given the limited amount of aspen in the allotment, this impact would be minimal. Habitat for prey species within the Carrie Creek, King of the West, and Tyrannis Creek drainages would be expected to improve due to reduced grazing in those areas, and other

riparian areas would also be expected to improve somewhat by meeting Forest Plan direction through the new adaptive management strategy.

Spotted Frog

Implementation of the adaptive management-grazing alternative would not change conditions for spotted frogs much from current conditions. Herbaceous cover in riparian areas where cattle tend to congregate would continue to be impacted, keeping the potential for predation on frogs high. Bank stability, where compromised by past use, may recover slowly if Forest Plan standards are met. Grazing in general results in poorer water quality and conditions not as beneficial to frog survival and reproduction as ungrazed areas. Habitat within the Carrie Creek, King of the West, and Tyrannis Creek drainages would be expected to improve due to reduced grazing in those areas, and other riparian areas would also be expected to improve somewhat with the new adaptive management strategy.

Pygmy Rabbit

Implementation of the adaptive management-grazing alternative would not change conditions for pygmy rabbits much from current conditions. Habitat (cover and forage) would continue to be impacted by cattle grazing, maintaining lower levels of food availability and security for rabbits than without grazing. Habitat within the Carrie Creek, King of the West, and Tyrannis Creek drainages would be expected to improve due to reduced grazing in those areas, and other riparian areas would also be expected to improve somewhat with the new adaptive management strategy.

Bald Eagle

Implementation of the adaptive management-grazing alternative would not change conditions for bald eagles from current conditions

Cumulative Effects

As with MIS, past timber harvest, road building, fire suppression, mining, and livestock grazing have affected threatened, endangered and sensitive species habitat on the Fairfield Ranger District. Historic sheep grazing on the District degraded upland and riparian habitats due to sheer numbers of sheep. Erosion, topsoil loss, and vegetative composition changes all resulted, affecting habitat for sage grouse and pygmy rabbit.

Timber harvest has reduced large trees available to goshawk, boreal and flammulated owls in many areas on the District. Timber sales including the North Fork Lime Creek and South Fork Boise River Salvage Timber Sales were implemented in the early 1990's several miles west of the Gooding Allotment analysis area. These projects focused on salvaging dead and dying trees, primarily of larger diameter, from ridgetops.

Fire suppression over the past 100 years is thought to have contributed to conifer encroachment of aspen stands and higher percentages of sagebrush communities in moderate canopy cover classes. Fire suppression, in combination with grazing, has had negative effects on aspen regeneration. Old forest habitat (large trees of open spacing) has also been reduced by fire suppression in combination with past logging, affecting lynx, goshawk, and flammulated owl habitat. Due to the suppression of fire on the District, many ponderosa pine and Douglas-fir stands are heavily stocked with younger trees. Older, large trees have been selectively logged in the past and many existing large trees are

being choked out by the young trees due to competition for sunlight, water, and nutrients. Risk of stand-replacing fire has also resulted which could burn down large, old trees that might otherwise be able to withstand frequent ground fires.

In addition to livestock grazing, impacts to riparian vegetation are occurring from wood cutting, poorly designed or located roads, and dispersed camping. These uses are causing localized soil compaction, loss of riparian vegetation, reduced large woody debris recruitment into stream channels, waste issues, and bank erosion affecting spotted frog habitat. Under alternative 1, the contribution of current livestock grazing to degraded riparian vegetation will cease. Under Alternative 2, current grazing impacts to riparian vegetation will be reduced significantly through the adaptive management process, and it is expected that Forest Plan direction relative to livestock grazing in riparian areas will be met. Similarly, going to designated routes for roads and trails as proposed for this area in the current Travel Planning effort on the District should reduce the level of recreation related impacts to riparian vegetation. However, given the level of recreation use, wood cutting and impacts from existing roads, localized riparian impacts will continue to occur under either alternative.

Implementing either alternative would not add any new cumulative effects from existing conditions on the Fairfield Ranger District. Neither Alternative 1 nor 2 would likely result in a trend towards federal listing of any of the sensitive species addressed. Forest Plan direction for TES species relative to livestock grazing would be met under both alternatives.

Elk Winter Range

Alternative 1 – No Grazing:
Under the no grazing alternative, elk winter range would be unaffected by cattle grazing. This alternative would provide the greatest quality and quantity of elk winter range.

Alternative 2 - Current Management with Adaptive Management:
Under the adaptive management-grazing alternative, elk winter range would be maintained. Fences that exclude cattle (exclosures) that currently exist around Worswick Hotsprings and Little Smoky Creek would be maintained. Although winter forage and browse may be somewhat less than under the no grazing alternative, grazing practices and management would not impact or limit elk winter range. Implementation of Alternative 2 would meet Forest Plan standard WIST07.

Cumulative Effects

Past and current livestock grazing, past mining, invasive weeds, and current winter recreation has affected elk winter range on the Fairfield Ranger District. Since it is likely elk did not winter on the District historically, elk feed sites have created “artificial” winter ranges. Past sheep grazing and driveways and hydraulic mining of south-facing slopes have affected vegetation capable of supporting wintering elk. Invasive weeds, primarily leafy spurge, have further impacted potential elk winter ranges in certain areas on the South Fork of the Boise River. Snowmobile use has tremendously increased on the District limiting areas where elk can winter. The District has winter travel restrictions from Couch Summit to Featherville and

in part of Willow Creek (in the Camas Creek watershed) to reduce disturbance to wintering wildlife, including elk. Due to the legal requirement of allowing private landowners through the closure, non-compliance of the travel plan, and lack of enforcement, the efficacy of the closure has been marginal.

Under the adaptive management-grazing alternative, cumulative effects on elk winter range would be relatively the same as existing conditions. Cattle grazing on the Gooding Allotment would continue to affect riparian habitat, but to a lesser degree than existing, particularly in the Carrie Creek, King of the West Creek, and Tyrannis Creek drainages. Implementing this alternative would not add any new cumulative effects to elk winter range. The primary potential effect to wintering elk on the Fairfield Ranger District currently is disturbance from snowmobiles and reduced habitat from potential wildfire.

Migratory Bird Species Habitat

Alternative 1 – No Grazing:

Riparian Migratory Bird Habitat

Under the no grazing alternative, improvements to riparian bird habitat condition would occur. Improvements would be greatest at springs, seeps, and streams that are currently degraded by cattle grazing (including East Fork of Worswick, Grindstone, Carrie, Tyrannis, and King of the West Creeks). Stubble height of riparian grasses would be able to support ground-nesting birds along all streams. The need for livestock water developments would cease, and therefore the potential for accidental drowning deaths of birds would cease after the developments are removed.

Low-elevation mixed conifer Migratory Bird Habitat

Under the no grazing alternative, there would be little change to this type of habitat from existing conditions, except a slight increase in the potential for fires to ignite due to increased amounts of fine fuels.

Sagebrush Migratory Bird Habitat

Under the no grazing alternative, some improvement over current conditions would likely occur to sagebrush migratory bird habitat. This habitat is currently in relatively good condition, but some grazing effects would be eliminated under this alternative.

Aspen Migratory Bird Habitat

Under Alternative 1, any effects to aspen regeneration related to cattle grazing on the Gooding Allotment would be eliminated. Due to the importance of aspen as habitat for migratory birds, this would be an improvement. However, this benefit would be limited given the amount of aspen within the allotment. The increased potential for fire due to the removal of cattle grazing on the Gooding Allotment could potentially benefit aspen by burning conifer encroachment into aspen stands.

This alternative meets the intent of the Executive Order.

Alternative 2 - Current Management with Adaptive Management:

Riparian Migratory Bird Habitat

Under the grazing Alternative 2, riparian habitat on the Gooding Allotment would continue to be affected by livestock grazing. Residual stubble heights of grasses in areas where cattle tend to congregate outside of fenced exclosures/catch fields would generally continue to be too short to support nesting of ground nesting birds. This would continue to be variable based on where cattle congregated in the previous year. Some slight improvements over current conditions would be expected in Carrie Creek, King of the West Creek, and Tyrannis Creek with the proposed changes in management in those areas (10 days or less of cattle use in that pasture). By meeting Forest Plan direction for riparian through the new adaptive management strategy, the intent of the Executive Order point 1 should be met on the allotment except in those localized areas where cattle tend to congregate outside of fenced exclosures/catch fields. This condition would be temporary and affected areas change annually depending on cattle movement.

Low-elevation mixed conifer Migratory Bird Habitat
Under the grazing Alternative 2, low-elevation mixed conifer habitat on the Gooding Allotment would be unchanged from current conditions.

Sagebrush Migratory Bird Habitat
Under the grazing Alternative 2, sagebrush habitat on the Gooding Allotment would be unchanged from current conditions.

Aspen Migratory Bird Habitat
Under the grazing Alternative 2, aspen migratory bird habitat on the Gooding Allotment would be relatively unchanged from current conditions, except a slight improvement in aspen regeneration along Carrie Creek due to reduced grazing pressure there.

Cumulative Effects
Past timber harvest, road building, fire suppression, mining, and livestock grazing have affected migratory bird habitat on the Fairfield Ranger District. Historic sheep grazing on the District degraded upland and riparian habitats due to sheer numbers of sheep. Erosion, topsoil loss, and vegetation species composition changes all resulted. Timber harvest has reduced large trees in many areas on the District. Timber sales including the North Fork Lime Creek and South Fork Boise River Salvage Timber Sales were implemented in the early 1990's several miles west of the Gooding Allotment analysis area. These projects focused on salvaging dead and dying trees, primarily of larger diameter, from ridgetops.

Fire suppression over the past 100 years is thought to have contributed to conifer encroachment of aspen stands. Fire suppression, in combination with grazing, has had negative effects on aspen regeneration. Old forest habitat (large trees of open spacing) has also been reduced by fire suppression in combination with past logging. Due to the suppression of fire on the District, many ponderosa pine and Douglas-fir stands are heavily stocked with younger trees. Older, large trees have been selectively logged in the past and many existing large trees are being choked out by the young trees due to competition for sunlight, water, and nutrients. Risk of stand-replacing fire has also resulted which could burn down large, old trees that might otherwise be able to withstand frequent ground fires.

Under the no grazing alternative, there would be a reduction in the current cumulative effects to migratory birds occurring on the Fairfield Ranger District. Removal of cattle grazing from the Gooding Allotment would improve habitat conditions for migratory birds, especially ground nesting birds that use riparian areas. Under the adaptive management-grazing alternative, habitat conditions for riparian dependant migratory birds would also improve but not to the same degree as under Alternative 1. However, given the level of recreation use, wood cutting and impacts from existing roads, localized riparian impacts will continue to occur under either alternative.

Pollinators

Alternative 1 – No Grazing:

Alternative 1 will provide for long-term benefits and habitat recovery for the upland vegetation and pollinator diversity that is found within the boundaries of the Gooding allotment. Current livestock management has resulted in the alteration of vegetation composition in some upland and riparian areas. Alternative 1 would allow for the gradual recovery of native vegetation composition and pollinators would benefit. Larger populations of flowering plants would be available for insect pollinators, particularly in riparian areas, aspen understories, and upland vegetation communities. Exclusion of livestock would also result in higher vigor of flowering plants maintaining suitability for pollinators. Additionally, the risk of nest trampling effects from livestock would be eliminated.

Alternative 2 - Current Management with Adaptive Management:

Under Alternative 2, the potential for conversion of vegetation conditions to less attractive species or poor pollen sources and the decline in diversity and abundance of pollinators would be reduced as Forest Plan standards are met. Direct and indirect effects of livestock grazing could include: reducing plant species (pollen or nectar sources) needed by certain pollinators, decreased plant vigor, trampling of vegetation, nest destruction of ground-nesting species, and decreased water availability for pollinators. However, by meeting Forest Plan standards through the adaptive management process, requirements for pollinators should be met.

Cumulative Effects

Many pollinators are extremely vulnerable to insecticides and pesticides that may be used on private and public lands (Tepedino1979). Applications of insecticides during foraging and mating periods of pollinators could prevent formation of entire colonies. By reducing the number of worker bees through chemical treatments, fewer queens are produced for the following year. Additionally, remaining workers can become vectors bringing contaminated nectar or pollen back to the nest, thus reducing the chance of progeny survival for future years (Pierson and Tepedino, 2000).

Trampling by ORVs, ATVs, pack animals, and dispersed camping could directly and indirectly impact pollinators through soil compaction, vegetation alteration, and introduced non-native plants. Designated routes for roads and trails as proposed in the current Travel Planning effort on the District should reduce the potential for these types impacts associated with ORV/ATV use. Herbicide drift from agricultural communities and chemical-spraying efforts for non-native species and exotic weed species can also impact pollinators and their progeny. Many of the TEPCS species are dependent upon pollinators for sexual reproduction

and seed set. The application of insecticides to reduce non-native pests can jeopardize important native pollinator populations, thus negatively impact the seed production and viability of TEPCS species. Under Alternative 1, livestock grazing's contribution to these cumulative effects would be eliminated after the phase out period. Under Alternative 2, livestock grazing will continue to contribute to the cumulative effects on pollinators.

ISSUE 3 - Fish and Aquatic Habitat (Effects)

The Biological Assessment/Biological Evaluation prepared for the proposed action includes a more detailed description of the general types of resource impacts that may occur as a result of livestock grazing. The description is not specific to this allotment but rather is a description of potential effects of livestock grazing in general to provide context for the description of effects within this allotment.

MIS Bull Trout

Alternative 1 – No Grazing:
Bull trout likely do not reproduce anywhere within the Little Smoky Creek watershed. It does not seem likely that bull trout would re-establish themselves on the allotment if Alternative 1 is adopted, in that most or all of the even slightly potentially suitable habitat for the species is either outside of the allotment (upper Little Smoky Creek) or highly impacted by a road (upper Carrie Creek) or both.

The effects of historic grazing, mining, etc. and of current non-grazing impacts likely overwhelm current grazing effects on riparian and instream habitat in many locations within the allotment. The overall impact of implementation of Alternative 1 compared to the Proposed Action, except perhaps at specific sites, is therefore likely to be relatively modest.

Alternative 2 - Current Management with Adaptive Management:
Direct effects to bull trout are unlikely to occur with the proposed action because bull trout are rare in the Little Smoky watershed and it is likely that no bull trout spawning or early rearing currently occurs. Because no bull trout spawning is likely to occur, direct injury to immobile or marginally mobile individuals (through, for example, redd trampling) should also not occur. A few subadult bull trout may occur in the Gooding Allotment, but these fish (typically 150 or more millimeters in length) should be both alert and agile, and therefore should not be vulnerable to trampling by cattle.

Indirect effects to individual bull trout because of the proposed action should also be unlikely, primarily because of the small number of bull trout likely to occur within the allotment and because of the small incremental effect of the proposed grazing on habitat factors such a water temperature, fine sediment transmission, etc. over the baseline condition. That is, in-stream and riparian conditions within the allotment are often at risk or not properly functioning, but the degree to which conditions are unsuitable for bull trout are primarily due to activites/actions unrelated to the proposed action. Effects on habitat indicators such as water temperature, fine sediment, and water quality have the potential to be transmitted downstream to Big Smoky Creek

(where migratory and/or, likely, fluvial bull trout occur year-round), but the incremental effects of the proposed action over the baseline in Big Smoky Creek would be substantially attenuated by conditions within this stream to the point where it is doubtful that biologically significant effects would occur or be detected. Appendix 2 of the BA/BE for the proposed action describes the potential effects of Alternative 2 on the various habitat indicators in the allotment.

In conclusion, few bull trout and no bull trout spawning or early rearing habitat should occur within the Gooding Allotment and habitat conditions should improve (to the extent that the grazing affects these conditions) in the subject streams, so the effects of the proposed action on bull trout should be essentially indistinguishable from that of the No Action alternative.

Cumulative Effects

Given the proximity of the allotment to the City of Fairfield and populated areas to the south in combination with a relatively high road density, substantial recreational use occurs in riparian areas within the allotment. Streams and riparian areas have been and continue to be affected by the use and new establishment of dispersed camp sites and user-developed ghost roads accessing these sites; legal and illegal ATV use; firewood cutting; and general foot, horse, and vehicle traffic. Where these activities have occurred in proximity to streams sediment, bank instability, and vegetation disturbance has occurred. In localized areas, where grazing overlaps with high-use dispersed camping sites, this cumulative impact could be substantial. Although cattle grazing in the watershed is much more closely managed and has substantially less influence on aquatic and riparian conditions than historically, localized detrimental impacts on aquatic and riparian habitat due to cattle grazing still occur and would continue to some degree under Alternative 2.

Recreational and other use of riparian areas is likely to increase in the future, so the cumulative effects of such use along with the proposed grazing action could worsen unless and until effective steps are taken to manage recreational impacts. Travel Planning on the Fairfield Ranger District is addressing unmanaged OHV use in this area. It is proposed that this area will have a designated road and trail system; designed, constructed and managed for appropriate OHV use. This is expected to lesson the impacts on riparian areas, and eliminate user developed trails. With better control of recreation related impacts through travel planning and the reduction of cattle related impacts on riparian and aquatic habitat under Alt. 2, cumulative effects to riparian and aquatic habitat should be reduced from current in the reasonably foreseeable future. Under Alternative 1, the reduction of cumulative effects should be even greater given the contribution of impacts to riparian and aquatic habitat from current grazing would be eliminated entirely.

Aquatic Habitat and Water Quality

Alternative 1 – No Grazing:

Under Alternative 1, impacts associated with recent and current grazing management would cease, but impacts similar to those from grazing would continue as a result of other uses within the allotment. Although there would be improved riparian and water quality (fish habitat) conditions leading to overall improved habitat conditions for aquatic species, little or no change in fish

populations would likely occur within the project area. This is because all expected fish species are already present and relatively abundant on the allotment (with redband trout and sculpin very well distributed and abundant).

The degree of change from baseline riparian and instream habitat quality conditions that could be anticipated with the closure of the cattle grazing allotment would vary depending upon the type and severity of current impact. Sedges, grasses, and some other riparian plants tend to rebound quickly to non cattle-grazed density and vigor. Grazing effects to willows and other riparian shrubs are more variable—growth of an existing shrub would more quickly respond to implementation of Alternative 1 than would density of a group of plants or potential recolonization of areas from which willows had been extirpated. Substantial effects on streambanks (e.g., amount of undercut) caused by current grazing practices and improvement on various aspects of channel morphology (e.g., channel narrowing and flushing of excessive fine sediment accumulations) depend more on the proximity and intensity of the future high streamflow events.

For the most part, substantial recovery to vegetation under the Alternative 1 should be noticeable by the middle of the following growing season, while impacts to hydrology, soils and streambanks may require several to many years and/or high streamflow events to heal. Any water quality degradation associated with cattle waste products would cease with Alternative 1, but there is no evidence that this is currently a substantial problem. Depending upon the specific causes of any water temperature increases associated with current grazing (riparian vegetation vs. stream channel alterations) water temperatures may moderate within a year or over many decades. Aquatic invertebrate diversity and abundance should respond quickly to relevant changes in habitat quality and quantity, as would fish species currently established in the allotment. Cattle undoubtedly cause some direct mortality to fish through trampling of individuals or immobile life stages, but there is no reason to believe that community health is affected by cattle-caused direct mortality and so implementation of Alternative 1 should not have any direct effect on fish populations.

Alternative 2 - Current Management with Adaptive Management:
The effect of grazing on aquatic and riparian habitat and on fish and other aquatic organisms is greatly dependent upon the intensity of grazing and other aspects of grazing management. When cattle congregate in riparian areas due to lack of water, succulent forage, or level ground in the uplands, substantial damage to riparian vegetation and streambanks often occurs with relative rapidity. When cattle are encouraged to leave riparian areas by management practices such as salting, off-stream water development, and active herding measures, little more than isolated and temporary impacts may result.

Under the proposed action cattle grazing would occur to a lesser extent than currently across the allotment, and so the effects of grazing on fish and aquatic habitat should also be reduced, although to a lesser extent than in Alternative 1. Further, negative effects from cattle grazing to native fish or their habitat would be minimized because this alternative requires proper use of streamside riparian vegetation and minimal use in those areas identified as needing improvement. Effects to habitat would not jeopardize aquatic vertebrates at the population scale and effects to individuals are not likely to be negative because effects to habitat will be limited and generally localized.

The proposed action would improve degraded habitat, contribute to the maintenance of appropriately functioning aquatic and riparian habitat, and restore habitat functioning at risk because the intensity of grazing will be somewhat lessened and because adaptive management techniques would be used to modify grazing practices where necessary to achieve Forest Plan goals, objectives, and standards. Site-level habitat impacts will likely continue to occur annually because the actions of individual cattle cannot be totally controlled, but where adverse effects on habitat indicators occur, within season and long term habitat monitoring of vegetation, bank condition, and in-stream conditions should ensure that steps are taken to improve adverse effects. So, even though site-level impacts are anticipated to occur under the Proposed Action, riparian and in-stream habitat conditions should improve on the subwatershed level and over time, albeit more slowly than under Alternative 1. As with Alternative 1, improved riparian and water quality (fish habitat) conditions leading to overall improved habitat conditions for aquatic species would result in little or no change in fish populations within the project area. This is because all expected fish species are already present and relatively abundant on the allotment (with redband trout and sculpin very well distributed and abundant).

Individual aquatic organisms, including fish, would likely continue to occasionally suffer injury or mortality through trampling, but as noted above, direct impacts are not expected to have any population or community level effects.

Assuming that adequate monitoring is performed so that it is possible to know whether FLRMP standards are met and that adequate compliance measures are taken when FLRMP standards are not met, the proposed action should improve degraded habitat, contribute to the maintenance of appropriately functioning aquatic and riparian habitat, and restore habitat functioning at risk over the long term. This is because the intensity of grazing will be somewhat lessened and because adaptive management techniques would be used to modify grazing practices where necessary to achieve FLRMP goals, objectives, and standards. It is anticipated that this improvement will occur slowly where riparian areas need to heal. Where adverse effects on habitat indicators are occurring, long term habitat monitoring should also indicate how the Forest needs to adapt grazing management. Aquatic organisms are affected by a myriad of factors besides the proposed cattle grazing, so direct monitoring of the abundance, trends, etc. of, for example, redband trout, would not be useful in determining the effects of the proposed action on these organisms.

ISSUE 4 – Recreation / Livestock Conflicts (Effects)

Recreation and Aesthetic Effects Common to All Alternatives:

The desired amount of acres per ROS Class is maintained under both alternatives. The effect of the Travel Planning Analysis would be the same on the ROS class acres for both alternatives.

Alternative 1 – No Grazing:

Commencing after two years, all livestock grazing effects on recreation use in the Gooding Allotment would be eliminated. Direct conflicts with recreation users would be eliminated

immediately, including encounters with livestock, and their more transitory physical impacts to the landscape. Livestock effects would be eliminated on approximately 2 miles of National Forest system trails. The potential for grazing to conflict with recreation use would be eliminated on the allotment. Visitors who believe viewing the presence of cows enhances their recreation experience would not have that opportunity on the Little Smoky portion of the Fairfield Ranger District. Grazing on private and adjacent public lands would continue, so that opportunity would still be available in other areas. Forest Plan standards for recreation, including ROS classifications in the project area are met.

Alternative 2 - Current Management with Adaptive Management:
Under Alternative 2, adaptive management would adjust grazing management to reduce recreation conflicts. Specific required changes would be identified and adapted to address specific concerns as they arose. Complaints from recreationists who think livestock negatively affect their experience could be expected to continue, however there would be an adaptive management response to correct the concerns. Trails would continue to be open to grazing and possibly affected by trailing cattle and manure. For visitors who think livestock enhance their experience, the opportunity to view livestock in rural and backcountry settings would continue to be available. Forest Plan standards for recreation, including ROS classifications would be met, though conflicts with recreational values might persist in some localized areas.

Cumulative Effects:
Recreation use is increasing, regardless of livestock grazing, thus increased recreation use on the allotment can be expected. Such an increase could lead to more impacts on trails and campsites. Activities concurrent with the grazing season include, but are not limited to, OHV use, hiking, mountain biking, horseback riding, camping, wildlife viewing, and fishing. Current Travel Planning efforts should result in reductions in resource impacts associated with dispersed recreation use, including OHV and ATV use.

ISSUE 5 – Soils / Water Quality (Effects)

The direct, indirect, and cumulative effects of the alternatives were estimated using the data sources, indicators, and analysis methods described in Chapter 3. The following effects analysis is a comparison of the potential conditions resulting from implementing an alternative to the existing conditions described in Chapter 3. For detailed information on the effects analysis, refer to the Soils Technical Report (2005).

Alternative 1 - No Grazing:
Detrimental Soil Disturbance (DD). The annual, isolated soil disturbances (displacement and compaction) that result from livestock grazing would continue, but only for two years. In the short term, eliminating livestock grazing would effect the cyclic pattern of direct disturbance and recovery to where the recovery period would change from 2 to 3 growing seasons to 1 or 2 seasons after grazing ceases. Based on the data used to estimate existing conditions, the initial trend for DD would be slow improvement but then resemble more natural recovery rates 3 to 5 years after cattle are removed. Until cattle are removed, DD would continue to range between 3 and 5

percent. After livestock grazing is eliminated, long term DD is estimated to stabilize at about 2 percent as a result of naturally occurring disturbances and recovery over time of TSRC areas attributable to grazing. This alternative would be consistent with Forest Plan management direction for SWST02.

Total Soil Resource Commitment (TSRC). TSRC resulting from grazing impacts would be expected to decrease. Because of the limited amount of area the range improvements (fence line trailing, water developments, salting areas, shipping areas, etc.) occupy within the allotment, the decrease in TSRC would be less than one percent when compared to existing conditions. Range improvements and facilities that are currently classified as TSRC areas would recover from TSRC to DD, and eventually to a "disturbed" condition. Active (rehabilitation) or passive restoration would influence the recovery time for TSRC areas. This alternative would be consistent with Forest Plan management direction for SWST03.

Effective Ground Cover (EGC). Overall conditions for EGC would be expected to remain stable and/or improve because the primary impact – vegetation utilization through grazing – would be eliminated. Where currently within the desired range, EGC would continue to maintain a stable or improving trend. At locations where EGC is below the desired range, conditions would be expected to improve at varying rates. Upward trends in EGC would vary because of the ranges in production potential for the different landtypes/soils within the activity area. This alternative would be consistent with Forest Plan management direction for SWGU05.

Alternative 2 - Current Management with Adaptive Management:
Detrimental Soil Disturbance (DD). The annual, isolated soil disturbances (displacement and compaction) that result from livestock grazing would continue. Livestock grazing would continue to effect the cyclic pattern of direct disturbance and recovery. The recovery period would remain to be 2 to 3 growing seasons beyond the time of initial disturbance. The mitigation to limit grazing in King of the West, Tyrannis, and lower Carrie Creeks may improve conditions in those locations, but could potentially redirect impacts into other nearby susceptible areas. Implementing the initial reduction in stocking of 35 percent and modified grazing strategies can reduce this potential. Overall, the condition and trend for DD would be similar to current conditions (about 4 percent). This alternative would be consistent with Forest Plan management direction for SWST02.

Total Soil Resource Commitment (TSRC). The existing TSRC due to grazing impacts (less than one percent) would be expected under this alternative. The range improvements and facilities currently in place would be needed to continue management of the allotment.

Effective Ground Cover (EGC). Conditions for EGC throughout the allotment are estimated to remain stable and/or improve with this alternative. The mitigation to limit grazing in King of the West, Tyrannis, and lower Carrie Creeks, combined with the initial reduction in stocking of 35 percent and modified grazing strategies would be expected to reduce grazing pressure and allow impaired sites that are not producing vegetation/ground cover to improve. Further, establishing an objective to improve EGC conditions as part of the Adaptive Management system, especially in

locations with declining trends, should result in an improving trend. This alternative would be consistent with Forest Plan management direction for SWGU05.

Cumulative Effects:

The past, present, and foreseeable land use activities - mining, logging, livestock grazing, road construction and maintenance, and dispersed recreation – would account for the DD, TSRC, and EGC impacts affecting soil productivity. With expected increases in recreational uses, the values for each of the soil quality indicators would have a corresponding negative change. Due to the lack of site specificity (landtypes/soils) for where additional impacts would likely occur, the potential increases in DD and TSRC, and decreases in EGC cannot be accurately quantified. With anticipated improvements due to no livestock grazing under Alternative 1, it is possible the negative impacts will result in no net change to existing condition indicator values described in Chapter 3.

Continued livestock grazing under Alternative 2, combined with past, present, and future mining, logging, road construction and maintenance, and dispersed recreation, would account for the DD, TSRC, and EGC impacts affecting soil productivity. While recreation use is increasing and expected to have corresponding negative effects on soil quality indicators, implementing an Adaptive Management system to achieve improving trend or desired condition objectives, in addition to implementing proposed changes as a result of Travel Planning efforts, would provide resource protection necessary to manage land use activities for maintaining soil productivity conditions that are consistent with the Forest Plan.

Chapter 5 - Coordination & Consultation

The following individuals participated in the formulation and analysis of the alternatives and the subsequent preparation of this document.

Interdisciplinary Team:

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Carol Brown	Forest NEPA Coordinator
Sharon LaBrecque	Forest Staff Officer – Planning & Vegetation

Consultation with Others:
The following is a list of agencies, organizations, permittees, and individuals who were contacted or who commented during the analysis process.

Idaho Department of Fish and Game
Idaho Department of Agriculture
Idaho Department of Parks and Recreation
Idaho Department of Water Resources
Idaho Department of Lands
US Fish and Wildlife Service
Shoshone-Bannock Nation
University of Idaho - Cooperative Extension System
Cove Mallard Coalition
Idaho Conservation League
Alliance for the Wild Rockies
The Ecology Center
Western WatershedsProject
Machael Kauffman
Michael Rust

Comments were solicited by mailing project scoping documents to known interested parties on the NEPA notification list for the Sawtooth National Forest.

APPENDIX A – REFERENCES

Literature & Inventories Referenced

Literature:
Forest Land and Resource Management Plan, Sawtooth National Forest

Inventories:
2002 Tentative Capacity Determination for the Fairfield Ranger District
1967-69 Gooding Range Allotment Analysis Write-ups
Fairfield Ranger District Visual Quality Inventory
Vicinity Cultural Resource Inventories

Grazing References

Blackburn, W. H.; Thurow, T. L.; Taylor, C. A. Jr. 1986. Soil erosion on rangelands. In: proceedings, Range Monitoring Symposium, Society of Range Manage. Denver, CO. 31-39.

Burton, Timothy A.; Cowley, Ervin R.: & Smith, Steven J. 2006. Monitoring Stream Channels and Riparian Vegetation-Multiple Indicators. Version 2.0. Interagency Technical Bulletin USDI-BLM Idaho State Office, Boise, Idaho. (Version updated to 5.0 BLM/ID/GI-08/001+1150, April 2008).

Clary, Warren P. and Bert F. Webster. 1989. Managing grazing of riparian areas in the Intermountain Region. USDA-Forest Service, Intermountain Research Station General Technical Report INT-263. pp. 7-9

Khan, M. J.; Monke, E. J.; Foster, G. R. 1988. Mulch cover and canopy effects on soil loss. Trans. of the Amer. Soc. Agr. Engr. 31:706-711.

Mosley, Jeffrey C., Philip S. Cook, Amber J. Griffis, and Jay O'Laughlin. 1997. Guidelines for managing cattle grazing in riparian areas to protect water quality: review of research and best management practices policy. Idaho Forest, Wildlife and Range Experimental Station. University of Idaho. Report No. 15. pp. 17-20.

Rosgen, D. L. 1994. A classification of natural rivers. Catena 22:169-199.

Smith, Bruce and Don Prichard. 1992. Riparian Area Management: Management Techniques in Riparian Areas. Technical Reference 1737-6, USDI-Bureau of Land Management Service Center, Denver, CO. pp. 4, 8, 9, 11.

U.S. Department of Agriculture, Forest Service. 1993. Rangeland ecosystem analysis and management handbook. FSH 2209-21. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Region. 4 ch.

Winward, A H. 1991. A renewed commitment to management of sagebrush grasslands. In: Miller R. F., editor. Management in the sagebrush steppe. Special Report 880. Corvallis, OR: Oregon State University, Agricultural Experiment Station. 2-7.

Winward, A. H. 1992. Stream bank stability ratings. In: Technical Riparian Work Group. Integrated riparian evaluation guide. Ogden, UT: U.S. Department of Agriculture, Forest Service, Region Four. Appendix 1.

Winward, A H. 2000. Monitoring the vegetation resources in riparian areas. Gen. Tech. Rep. RMRS-GTR-47. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 49 p.

Wildlife and Fisheries Refeerences

Alexander, Earl B. and David R. Gilman. 1994. Compaction and recovery of rangeland soils in the owyhee upland, Idaho. Journal of the Idaho Academy of Science. Volume 30, No. 1. 49-54.

Birney, E.C., W.E. Grant, and D.D. Baird. 1976. Importance of vegetative cover to cycles of Microtus populations. Ecology 57:1043-1051.

Braun, C.E. 1998. Sage grouse declines in Western North America: what are the problems? Proc. Western Assoc. State Fish and Wild. Agencies 78:000-000.

Bull, E.L., S.R. Peterson, and J.W. Thomas. 1986. Resource partitioning among woodpeckers in northeastern Oregon. USDA Forest Service Research Note PNW-444. 19 pp.

Bull, E.L., R.S. Holthausen, and M.G. Henjum. 1992. Roost Trees used by pileated woodpeckers in northeastern Oregon. Journal of Wildlife Management 56: 786-793.

Christy, R.E. and S.D. West. 1993. Biology of bats in Douglas-fir forests. Gen. Tech. Rep. PNW-GTR-308. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 28 pp.

Connelly, J.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines to manage sage grouse populations and their habitats. Wildlife Society Bulletin 2000, 28(4):967-985.

Copeland, J. 1996. Biology of the wolverine in central Idaho. M.S. Thesis, University of Idaho, Moscow. 138 pp.

Fritts, S.H., E.E. Bangs, and J.F. Gore. 1993. The relationship of wolf recovery to habitat conservation and biodiversity in the northwestern United States. Landscape and urban planning C: 1-11, Elsevier Science Publishers B.V., Amsterdam.

Garwood, R. 2008. Personal communication between Robin Garwood and David Skinner regarding wolf observations. USDA Forest Service Wildlife Biologists

Gilman, David R. 2001. Land systems inventory. Unpublished report, U.S. Forest Service, Sawtooth National Forest, Fairfield Ranger District. 11 pp.

Hash, H.S. 1987. Wolverine. Pages 575-585 in Wild furbearer management and conservation in North America. M. Novak, J.A. Baker, M.E. Obbard, and B. Malloch, eds. Ministry of Nat. Resour., Ontario.

Hayward, G.D., P.H. Hayward, and E.O. Garton. 1993. Ecology of boreal owls in the Northern Rocky Mountains, USA. Wildlife Monographs. 124: 1-59.

Hodges, K.E. 2000a. The ecology of snowshoe hares in northern boreal forests. Chapter 6 in Ruggiero, L.F., K.B. Aubry, S. W. Buskirk, et al., tech. eds. Ecology and conservation of lynx in the United States. University Press of Colorado, Boulder. 480pp. (as cited in LCAS, pp1-6).

Hodges, K.E. 2000b. Ecology of snowshoe hares in southern boreal and montane forests. Chapter 7 in Ruggiero, L.F., K.B. Aubry, S. W. Buskirk, et al., tech. eds. Ecology and conservation of lynx in the United States. University Press of Colorado, Boulder. 480pp. (as cited in LCAS, pp 1-7).

Idaho Partners in Flight. 2000. Idaho Bird Conservation Plan Version 1.0. 156 pp.

Johnsgard, P.A. 1988. North American owls, biology and natural history. Smithsonian Institution Press, Washington and London. 295 pp.

Kenney, D.R. 2002. Bull Trout Sampling Summary, South Fork Boise River 4th Field Hydrologic Unit Code. January 31, 2002 Version. Sawtooth National Forest, Fairfield Ranger District, Fairfield, Idaho.

Koehler, G.M. and K.B. Aubrey. 1994. Chapter 4: Lynx. Pages 74-98 in American Marten, Fisher, Lynx, and Wolverine in the Western United States, L.F. Ruggiero, K.B. Aubrey, S.W. Buskirk, L.J. Lyon, W.J. Zielinski, eds. U.S. Forest Service, Gen. Tech. Rpt. RM-251.

Licht, L. 1986. Food and feeding behavior of sympatric red-legged frogs, Rana aurora, and spotted frogs, Rana pretiosa, in southwestern British Columbia. Can. Field-Nat. 100:22-31.

Litvaitis, J.A., J.A. Sherbourne, and J.A. Bissonette. 1985. Influence of understory characteristics on snowshoe hare habitat use and density. Journal of Wildlife Management. 49: 866-873. as cited in LCAS, pp 1-7).

McCord, C.M. and J.E. Cardoza. 1982. Bobcat and lynx. in J.A. Chapman and G. A. Feldhamer (eds.). Wild mammals of North America biology, management and economics. Johns Hopkins University Press, Baltimore, MD.

Mech, D.L. 1970. The wolf, ecology of an endangered species. University of Minnesota Press, Minneapolis. 384 pp.

Monthey, R.W. 1986. Responses of snowshoe hares, Lepus americanus, to timber harvesting in northern Maine. Can. Field-Nat. 100:568-570.

Patterson, R.L. 1952. The sage grouse in Wyoming. Sage books, Inc., Denver, 341 pp.

Rieman, B.E. and J.D. McIntyre. 1993. Demographic and habitat requirements for conservation of bull trout. Gen. Tech. Rep. INT-302. Ogden, UT: U.S. Dep. of Agriculture, Forest Service, Intermountain Research Station. 38 pp.

Rachlow J. and L. Svancara. 2003. Pygmy rabbit habitat in Idaho. University of Idaho. Moscow, Idaho. 29pp.

Reynolds, R.T., R.T. Grahm, M.H. Reiser, R.L. Basselt, P.L. Kennedy, D.A. Boyce Jr., G. Goodwin, R. Smith, and E.L. Fisher. 1992. Management recommendations for the northern goshawk in the southwestern United States. Rocky Mountain Forest and Range Experiment Station, Southwest Region Forest Service. USDA Forest Service, Gen. Tech. Rep. 90. pp.

Sauer, J. R., J. E. Hines, and J. Fallon. 2004. The North American Breeding Bird Survey, Results and Analysis 1966 - 2003. Version 2004.1. USGS Patuxent Wildlife Research Center, Laurel, MD

Stalmaster, M.V. 1897. The bald eagle. Universe Books, New York. 227 pp.

Steed, R. 2000. Subbasin Assessment for Upper Boise River Watersheds. Idaho Department of Enviromental Quality, Boise Regional Office.

U.S. Fish and Wildlife Service. 1994. The reintroduction of gray wolves to Yellowstone National Park and Central Idaho, Final Environmental Impact Statement. Helena, Montana.

U.S. Forest Service, Bureau of Land Management, and U.S. Fish and Wildlife Service. 1999. Canada Lynx Conservation Assessment and Strategy. Lynx Biological Team, 111 pp.

U.S. Forest Service. 1970. Soil-hyrologic reconnaissance. Fairfield Ranger District, Sawtooth National Forest. 181 pp.

Wai-Ping, V., and M.B. Fenton. 1989. Ecology of spotted bat (Euderma maculatum) roosting and foraging behavior. J. Mamm. 70:617-622.

Wambolt, C.L., A.J. Harp, B.L. Welch, N. Shaw, J.W. Connelly, K.P. Reese, C.E. Braun, D.A. Klebenow, E.D. McArtur, J.G. Thompson, L.A. Torell, and J.A. Tanaka. 2002. Conservation of greater sage-grouse on public lands in the Western U.S.: implications of recovery and management policies. Policy Analysis Center for Western Public Lands (PACWPL) Policy Paper SG-02-02. 41pp.

Watkins, L.C. 1977. Euderma maculataum. Mammalian Species No. 77. Am. Soc. of Mammalogists. 4 pp.

Weatherill, R.G. and L.B. Keith. 1969. The effect of livestock grazing on an aspen forest community. Canada, Departmentof Lands and Forests, Fish and Wildlife Division, Ottawa, Ontario, Tech. Bull. 1. 31 pp.

APPENDIX B – Allotment Management Plan