SUMMARY

Final Environmental Impact Statement

Introduction

This document summarizes the *Final Environmental Impact Statement* (FEIS) for the *Comprehensive Management Plan* (CMP) for the Hells Canyon National Recreation Area (HCNRA). The FEIS provides the basis for the *Record of Decision* (ROD) to amend the management direction in the existing CMP and the *Wallowa-Whitman National Forest Land and Resource Management Plan* (*Forest Plan)*. For further information, refer to the full text of the ROD, FEIS, and other related documents available at http://www.fs.fed.us/hellscanyon/.

Background and History

When Congress established the Hells Canyon National Recreation Area (HCNRA) on December 31, 1975 by the *Hells Canyon National Recreation Area Act* (*HCNRA Act*) also referred to as PL 94-199 (Public Law), the development of a CMP was one of the requirements created. The Chief of the Forest Service (FS) approved the existing CMP on April 30, 1982, and it was amended by subsequent appeal decisions in 1983 and 1984 (United States Department of Agriculture [USDA] 1982 as amended).

In 1990, the existing CMP was incorporated without modification into the Wallowa-Whitman National Forest (WWNF) *Forest Plan* (USDA 1990). The *Forest Plan* has also been subsequently amended. The existing CMP is an integrated part of the *Forest Plan* (as amended) and subject to the procedures for modifying management direction found in the *National Forest Management Act of 1976* (NFMA) regulations (36 Code of Federal Regulations [CFR] 219).

More than 20 years have passed since the existing CMP was approved and over 10 years since the *Forest Plan* incorporated it. In December 1993, the Forest Supervisor of the WWNF initiated a process to assess the need for adjusting direction due to changes in conditions or demands from the public (36 CFR 219.10). A combination of factors including concerns raised through monitoring and evaluation reports, changes in regulations for public and private lands in the HCNRA, new scientific information, and public comments indicating changing social values, use patterns, and resource conditions led the Forest Supervisor to re-initiate the process in 1998.

Based upon the assessment of the need for adjustment, the Forest Supervisor proposed to amend the *Forest Plan* to change management direction for the HCNRA where necessary. Some management direction would not change. Any changes in management direction will reflect the intent of the *HCNRA Act*; *Public and Private Land Use Regulations* (*Public and Private LURs*) (36 CFR 292, USDA 1994); FS directives; changing social values; agency emphasis on ecosystem sustainability; new information and research findings; and results from monitoring and evaluation.

This amendment process follows the implementing regulations of the NFMA (36 CFR 219.10 (e) and (f)), FS Manual [FSM] 1922.51 and 1922.52, and FS Handbook [FSH] 1909.12, Chapter 5.32. This FEIS documents the planning process, as required by the *National Environmental Policy Act* (NEPA) in accordance with the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA (40 CFR, Parts 1500-1508).

Although the FS is in the process of developing changes to the 1982 federal planning rule to guide the forest planning process, this amendment process was initiated in 1993 under the 1982 regulations. The amendment process will continue to be managed pursuant to the 1982 planning regulations. A new CMP will be prepared to replace the existing CMP.

Area Location and Description

The HCNRA is located in west central Idaho and the northeast corner of Oregon on portions of the Wallowa-Whitman, Nez Perce, and Payette National Forests. The entire HCNRA is administered by the WWNF. There are 652,488 acres within the HCNRA boundary approximately 28 percent of the land under the administration of the WWNF, including approximately 33,000 acres of privately owned land. Approximately 117,073 acres of the Nez Perce and 24,000 acres of the Payette National Forests occur in the HCNRA.

It lies within Baker and Wallowa Counties in Oregon, and Adams, Idaho and Nez Perce Counties in Idaho and near the border of Asotin County in Washington. Baker County comprises four percent of the HCNRA, Wallowa County 74 percent, Adams four percent, Idaho County 18 percent, and Nez Perce County less than one percent. Principal nearby communities in Oregon include Imnaha, Joseph, Enterprise, Halfway and Richland. Baker City and La Grande are also nearby. In Idaho, principal nearby communities include Riggins, Grangeville and Lewiston. The Boise/Caldwell/Nampa area is also near the HCNRA. Asotin and Clarkston in Washington are also nearby. See **Figure 1** for a map of the vicinity.

The principal physical feature of the HCNRA is Hells Canyon. Measuring 7,993 feet deep from mountain peaks to the river and, at places, 10 miles from rim to rim, it forms the deepest river canyon in North America. The HCNRA comprises an exceptional richness, diversity, and productivity of vegetation that combines with unique geology (uplands, benchlands, canyonlands, and mountains) to support a diversity of fish and wildlife. Where developed areas exist, they are rustic in nature and are often associated with homesteads or old mining sites. The economy of the surrounding area has historically been based on wood products and ranching. However, in recent years tourism and recreation-related activities have grown and become increasingly important to the local economy.

Purpose and Need

The Wallowa-Whitman Forest Supervisor proposes to change the management direction of the HCNRA by amending the *Forest Plan* to provide programmatic management direction for the HCNRA. The need for change is derived from several actions and findings. Using the authority delegated to the Forest Supervisor through 36 CFR 219.10 and FSM 1950, Environmental Policy and Procedures, a CMP adjustment strategy was established. A monitoring and evaluation report was completed that consolidated information from 1984 through 1993 and identified several items needing change (USDA 1994). For example, results indicate that desired conditions for visitor management and recreation use need to be defined better to protect and maintain recreation experiences than provided for under the existing CMP and *Forest Plan* (as amended).

Based on these findings, the team responsible for conducting the planning recommended an adjustment to the existing CMP through an amendment to the *Forest Plan.* The team recommended adjustments in the management direction for the following 16 resource areas in terms of goals, objectives, standards, guidelines, monitoring and evaluation, and management area (MA) direction:

- recreation settings, experiences, and opportunities, including Wilderness and scenery;
- access and facilities;
- forested vegetation, grasslands, and forest understory;
- vacant allotments disposition and satisfactory range conditions;
- heritage resources;
- federal trust responsibilities;
- soils;
- Wild and Scenic Rivers;
- biologically unique species, habitats, and ecosystems;
- fire and air quality;
- riparian/aquatic habitat and water quality;
- wildlife habitat;
- scientific research;
- geologic resources;
- minerals; and
- land management and special uses.

In summary, the overall need for change is based on: 1) the results of WWNF monitoring and evaluation reports indicating areas needing change such as defining desired conditions for visitor management and recreation use (USDA 1994); 2) the standards set forth in the *Private and Public LURs* approved in 1994 (36 CFR 292) for the use of motorized and mechanical equipment; the protection and preservation of cultural and paleontological resources; mining; private land use; timber harvesting; and grazing activities; 3) the potential need to set clearly defined desired conditions for Wilderness settings; and 4) new scientific information from the Interior Columbia Basin Ecosystem Management Project (ICBEMP).

The underlying purpose of the action is to amend some elements of the programmatic direction for these 16 resource areas and also for monitoring and evaluation within the existing CMP and the *Forest Plan* (as amended). Management goals, objectives, standards, and guidelines; MA direction; and monitoring and evaluation would be aligned with the intent of better achieving the objectives of the *HCNRA Act* (PL 94-199), which established the HCNRA, the Hells Canyon Wilderness, and the Rapid and Snake Wild and Scenic Rivers; with the *Oregon Wilderness Act* (PL 98-328); the *Omnibus Oregon Wild and Scenic Rivers Act* (PL 100-552); *Private* and *Public LURs* (36 CFR 292); *Forest Plan* content regulations (36 CFR 219.11); and FSM 1920.

If action is not taken to amend the programmatic management direction in the existing *Forest Plan* and the existing CMP, objectives set forth in Section 7 of the *HCNRA Act* may not be met:

> Section 7. Except as otherwise provided in Sections 2 and 3 of this Act, and subject to the provisions of Section 10 of this Act, the Secretary shall administer the recreation area in accordance with the laws, rules, and regulations applicable to the national forests for public outdoor recreation in a manner compatible with the following objectives:
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> 1) the maintenance and protection of the free flowing nature of the rivers within the recreation area;
> 2) conservation of scenic, wilderness, cultural, scientific, and other values contributing to the public benefit;
> 3) preservation, especially in the area generally known as Hells Canyon, of all features and peculiarities believed to be biologically unique including, but not limited to, rare and endemic plant species, rare combinations of aquatic, terrestrial, and atmospheric habitats, and the rare combinations of outstanding and diverse ecosystems and parts of ecosystems associated therewith;
> 4) protection and maintenance of fish and wildlife habitat;
> 5) protection of archeological and paleontologic sites and interpretation of these sites for the public benefit and knowledge insofar as it is compatible with protection;
> 6) preservation and restoration of historic sites associated with and typifying the economic and social history of the region and the American West; and
> 7) such management, utilization, and disposal of natural resources on federally owned lands, including, but not limited to, timber harvesting by selective cutting, mining and grazing and the continuation of such existing uses and developments as are compatible with the provisions of the Act.

Recreation settings, experiences, and opportunities provide an example where existing management direction is inadequate and needs changed. The existing CMP provides direction to develop more facilities and move toward more developed recreation settings in response to increases in use. However, public surveys and scoping conducted as part of the planning process indicate people want the developed areas to remain the way they are and they do not want to provide for large increases in use or changes in the undeveloped settings. Desired conditions for acceptable levels of social encounters, thresholds for effects from visitor use, and appropriate strategies for managing visitor use are not clearly defined.

Amended management direction is needed to ensure acceptable levels of social encounters and visitor effects to meet the intent of Section 7 of the *HCNRA Act*. Recreation use now and in the future may exceed social encounter thresholds that are acceptable to the recreating public and create user conflicts. Lack of specific direction and strategies for managing use at defined thresholds may lead to resource effects such as wildlife displacement, increased number and size of dispersed recreation sites, soil compaction, and vegetative changes. Because these desired conditions and thresholds for acceptable recreation use are not clearly defined, a change in management direction is needed.

Figure 1: Vicinity Map
Hells Canyon National Recreation Area

Summary of Existing Management Direction for the HCNRA

Legislative Direction

The *HCNRA Act* provides the principal legislation that guides management of the HCNRA. Several sections clarify the intent for the HCNRA. Section 1(a) of the *HCNRA Act* explicitly states that the HCNRA was created to assure that this area would be preserved for this and future generations, and that the recreational and ecological values and public enjoyment of the area are thereby enhanced. Section 7 of the *HCNRA Act* states that the recreation area will be administered for public outdoor recreation in a manner compatible with seven objectives. Section 8 directs the development of a CMP to provide for a broad range of land uses and recreation opportunities. Section 10 directs that rules and regulations will be promulgated for public and private lands. Section 13 addresses the recognized traditional and valid uses of the recreation area. Other congressional acts, legislative acts, executive orders and policies such as the *Public and Private LURs,* the *Wilderness Act*, the *Wild and Scenic Rivers Act (WSR Act)*, and the *Treaty of 1855* with the Nez Perce Tribe also provide direction relevant to management of the HCNRA.

Forest Plan Direction for the HCNRA

When Congress established the HCNRA, the boundary included portions of the Nez Perce, Payette and Wallowa-Whitman National Forests in Regions 1, 4, and 6, respectively. The Chief of the FS decided that the HCNRA would be managed as one administrative unit in Region 6 by the Forest Supervisor of the WWNF. The WWNF is responsible for establishing programmatic direction for the management of the HCNRA and completing consultation in accordance with the *Endangered Species Act* (*ESA*) for programmatic decisions.

The *Forest Plan* for the WWNF, as amended, provides guidance through its established goals, objectives, desired future conditions, forest-wide standards and guidelines, and specific MA direction. The *Forest Plan* incorporates the existing CMP, subsequent *Forest Plan* amendments, and terms and conditions related to consultation in accordance with the *ESA* to provide existing management direction for the HCNRA. A number of resource specific changes in direction have occurred including the Regional Forester's amendment establishing riparian, ecosystem, and wildlife standards (Eastside Screens) (USDA 1994); *Public and Private LURs* (USDA 1994) for the HCNRA; *Wild and Scenic Snake River Recreation Management Plan* (USDA 1999); adoption of strategies for managing anadromous (PACFISH) and inland native fish (INFISH) (USDA and USDI 1995, USDA 1995); and termination of domestic sheep grazing in the HCNRA (USDA 1995). Several fish, wildlife, and plant species have been listed in the last ten years and changes in management activities have occurred to provide protection under the *ESA.* All activities in the HCNRA are managed in compliance with this direction. These previous decisions were not reconsidered in the FEIS unless specifically addressed in the proposed action or if scoping and/or the analysis process identified new issues not resolved. These decisions may be reconsidered during the *Forest Plan* revision scheduled to begin in October 2003.

Management Areas

Management areas have similar objectives and common management prescriptions. The *Forest Plan* provides multiple use direction for managing these specific areas. The following briefly describes each MA. See **Figure 2** below for a map of MAs.

Management Area 4 – Wilderness: The management intent of these areas is to preserve the wilderness qualities. These areas will be managed in accordance with the *Wilderness Act,* the *HCNRA Act* (establishing the Hells Canyon Wilderness), the *Oregon Wilderness Act*, and the FSM 2320. The intent of the *Wilderness Act* is to preserve and protect the natural condition and characteristics of designated lands and to provide for current and future public enjoyment of these areas and their wilderness character. These areas are to remain essentially unaltered and undisturbed by man, with natural ecological processes (including the natural role of fire) permitted to function with a minimum of human interference (**approximately 220,000 acres**).

Figure 2: Management Areas
Hells Canyon National Recreation Area

Management Area 7 – Imnaha and Rapid Wild and Scenic Rivers: Management in this area is intended to protect and enhance the special values of those rivers or river segments (meaning the river plus its associated corridor) which are part of the National Wild and Scenic River System. Management of lands will not diminish the rivers free flow, water quality, and outstandingly remarkable values (**approximately 35,474 acres**).

Management Area 8 – Wild and Scenic Snake River: This area includes the 67.5-mile Wild and Scenic River corridor along the Snake River. The primary management emphasis is to protect and enhance the values for which the river was designated Wild and Scenic under the *WSR Act* (**approximately 14,535 acres**).

Management Area 9 – Dispersed Recreation/Native Vegetation: In these areas, all activities will be managed to provide many opportunities for dispersed recreation and to enhance native vegetation. It is envisioned that these areas will eventually be almost entirely occupied by native plant species. Rangelands will be managed to maintain satisfactory range condition that will be achieved and maintained primarily by nonstructural means. These areas provide a mix of primitive, semi-primitive nonmotorized, and semi-primitive motorized recreation opportunities (**approximately 161,078 acres**).

Management Area 10 – Forage Emphasis: This management area lies within the grasslands interwoven with timbered stringers in the HCNRA. The grassland portions of these areas will be managed to provide maximum forage production with rangeland maintained in satisfactory condition (desired ecological status) and structural improvements being rustic in nature. Timbered portions will provide old-growth habitat at approximately current levels. These areas provide both semi-primitive motorized and semi-primitive nonmotorized opportunities (**approximately 123,029 acres**).

Management Area 11 – Dispersed Recreation/Timber Management: These areas combine dispersed recreation with timber management on the more productive sites within the HCNRA. The management objective is to provide a variety of tree species, a diversity of healthy timber stands, and ample dispersed recreation opportunities. These areas provide both semi-primitive motorized and semi-primitive nonmotorized opportunities (**approximately 70,706 acres**). Timber volume removal from the HCNRA is classified as unregulated and does not contribute to the WWNF allowable sale quantity (*Public LURS,* USDA 1994*)*.

Management Area 12 – Research Natural Areas: The objectives for establishing Research Natural Areas (RNAs) are to preserve examples of all significant natural ecosystems for comparison with those influenced by humans, to provide educational and research areas for ecological and environmental studies, and to preserve gene pools for typical and rare and endangered plants and animals (**approximately 11,640 acres**).

Management Area 16 – Administrative and Recreation Sites: These areas include sites such as fire lookouts, permitted ranch headquarters, campgrounds, and other areas which are occupied by facilities for administration, public recreation, or features of cultural significance.

Management Area 17 – Power Transportation Facility Retention: These areas are presently used for the transport of electricity. Through proper design and management, optimum use will be made of those lands allocated to power facilities. To the extent possible, use will be made compatible with other uses of the forest including consideration of scenery management objectives.

Inventoried Roadless Areas – This environmental impact statement covers all inventoried roadless areas in the HCNRA. Inventoried roadless areas were identified in the *Forest Plan* and are also listed in the set of inventoried roadless area maps, contained in the *Forest Service Roadless Area Conservation, FEIS, Volume 2*, (USDA 2000). These maps are located at the Washington Office in Washington, D.C. Thirteen areas occur wholly or partially within the HCNRA. They total 44 percent of the HCNRA. See **Figure 3** for a map of roadless areas (**approximately 290,158 acres**).

Figure 3: Inventoried Roadless Areas
Hells Canyon National Recreation Area

Decision Framework

The Wallowa-Whitman National Forest Supervisor will make changes in management direction needed for the 16 resource areas to best meet resource and recreation user needs. The decision falls into the following three categories:

- Broad management goals and objectives for the HCNRA
- Management direction that best meets resource and recreation user needs
- Monitoring and evaluation

Public Involvement

Public participation has been a major component of the process. Various news releases, mailings, and public meetings have occurred to provide information to the public since 1993. The Interdisciplinary Team met several times with the Nez Perce Tribe to understand their concerns to ensure the amended direction would protect treaty rights and tribal interests. Several meetings and ongoing communications have occurred between the Team, Wallowa County, the Hells Canyon CMP Tracking Group, and others to build understanding of their interests.

Two citizen-generated alternatives (Native Ecosystem) and (Wallowa County) were incorporated into the range of alternatives through the public involvement process. The Hells Canyon Subgroup to the John Day/Snake Resource Advisory Council (RAC) was formed in 1998. They actively reviewed the revised DEIS (RDEIS) to identify areas of consensus to submit to the RAC and to the Forest Supervisor. The RDEIS was released for a 120-day public comment period in March 2000. Eight public workshops were held in Oregon, Idaho, and Washington and almost 150 people attended. Over 2,000 comments were received.

Significant Issues

Based on concerns and comments, six issues were identified as significant in relation to the proposed action.

Compatibility with Section 7 of the HCNRA Act

Public interpretation has resulted in various stated positions about the intent of the *HCNRA Act*. At the heart of the issues is the use of the word ‘compatible’ in Section 7 of the *HCNRA Act* which states that public outdoor recreation, timber harvesting by selective cutting, mining, and grazing can continue as long as they are ‘compatible’ with resources objectives from Section 7(1-6). Some people question whether management activities meet the intent of Section 7(1-7) concerning compatibility and the *HCNRA Act's* discussion of traditional and valid uses in Sections 8 and 13. Many feel that Congress intended traditional and valid uses as specified in the *HCNRA Act* to continue into perpetuity at levels present with the establishment of the HCNRA in 1975. Many feel that traditional and valid uses contribute to the economic conditions and quality of lifestyles for residents and communities near the HCNRA, and are a significant factor in the sense of place that defines the HCNRA. They believe that traditional and valid uses are diminishing, and compromising the intent of the *HCNRA Act*.

Other people feel that these uses should either not occur at all within the HCNRA, or should only occur where it is clearly demonstrated that they are "compatible" with other objectives primarily from Section 7(1-6). These people feel that reducing or eliminating traditional and valid uses are justified when there are potential incompatibilities. The WWNF interprets Section 7 as the primary objectives for which the HCNRA should be managed.

Recreation Settings, Experiences, and Opportunities

There is a concern that existing management direction would allow for increases in recreation use, diminishing semi-primitive and primitive recreation opportunities. Users generally want existing recreation settings and opportunities to be maintained at their current levels. Some users suggest that use be reduced to provide for more semi-primitive and primitive recreation opportunities, while others suggest that the HCNRA should provide greater motorized opportunities.

Access and Facilities

There is a concern that existing management direction would allow for increases in motorized access and recreation developments. There are basically three groups of people who commented: those who want more and easier access and greater recreation opportunities; those who think present access and facilities is about right; and those who want less access, undeveloped routes, and fewer developed recreation opportunities. Some commentors would minimize human impacts by eliminating new and/or improved access and developments. Others want to see high standard roads opened to new Hells Canyon vistas that can easily be viewed from passenger cars. Existing direction identifies a number of recreational opportunities for future development. Some people are uncomfortable about what has happened, or may happen, regarding access to public lands across private lands. Many commentors indicated concern over lack of accessibility for physically challenged individuals at developed recreation sites.

Forested Vegetation, Grasslands, and Forest Understory

There is a concern that existing management direction does not adequately define desired vegetative conditions for forested and grassland areas. This issue is focused on the development and implementation of management direction that ensures vegetation within the HCNRA, achieves or moves toward the historic range of variability (HRV) for seral/structural classes, and is compatible with Section 7 of the *HCNRA Act*. Additionally, concerns were raised that future management direction should focus on restoring the resiliency of the ecosystem to disturbance. Management activities that can be used to manage vegetation include the level and type of timber harvesting or forest stand treatments within MAs 7, 10, and 11, fire use, and livestock/wild ungulate grazing.

There is a growing advocacy for using wildland fire use for resource benefits (WFU) and prescribed fire (PF) to reduce the extent of large, stand-replacing fires because of historic fire suppression activities. Use of WFU or PF can improve ecosystem function and sustainability, by allowing fire to play a more natural role and occurring more frequently. Some people favor using thinning to revitalize forested stands, where necessary and others think any tree removal is simply a way to get logs to local mills with little thought given to the environmental cost.

Vacant Allotments Disposition and Satisfactory Range Conditions

The disposition of grasslands within vacant livestock allotments is a major concern expressed by commentors. Commentors have concerns that the vacant allotments should be abolished to provide for long term, naturally functioning grassland ecosystems. Other commentors expressed concerns that these vacant allotments should be incorporated into existing allotments to provide a broader array of management options, to utilize the available forage resources, and to support the "traditional and valid uses" clause of the *HCNRA Act*. *An Assessment of Ecosystem Components in the Interior Columbia Basin* (Quigley and Arbelbide 1997) provides a focus of concern for the maintenance of the high quality grasslands within the HCNRA as one of the last remaining areas of significant size where healthy native grasslands occur in the Pacific Northwest. Concerns were expressed on how to define the minimum satisfactory range conditions in which livestock would be authorized as required by the *Public LURs*.

Heritage Resources

There is a concern that increased access and recreation use may lead to damage and destruction of prehistoric and historic sites. Comments expressed a need for protecting prehistoric sites, with some individuals feeling that limiting access and allowing for self-discovery should achieve protection. Others would like to see interpretation at selected sites. Most people who commented about historic resources favor preserving at least some part of the homestead/farm era, even in Wilderness: the question is where and how much. Although a few would allow the remnants of the past to return to a natural site over time, most people favor that at least some the sites be restored and maintained.

Alternative Development Process

The process of developing alternatives for the amended management direction for the HCNRA began as an initial proposal to the public. The proposed action (Alternative B) was developed from the *Monitoring and Evaluation Report for the Comprehensive Management Plan* (USDA 1994); public opinion surveys; the *Public LURs* and *Private LURs*; changes in FS directives; and new resource information and research.

The WWNF Interdisciplinary Team used opinions, comments, and suggestions gathered at internal and public scoping meetings to develop alternative themes to respond to the issues generated by the proposed action. Five alternatives were carried forward for detailed study in the RDEIS. Alternative A represented no action. Four other alternatives were designed to achieve the purpose and need for change and to resolve the significant issues surrounding the proposed action in comparison to Alternative A. No additional alternatives were developed for this FEIS. Alternative E from the RDEIS was modified based on public comment; the purpose and need for change; and the significant issues. It is described in detail as Alternative E-modified in the FEIS.

Detailed Descriptions of the Alternatives

Alternative A (no action) is a continuation of *Forest Plan* direction, including the direction in all amendments.

Alternative B (proposed action) is a continuation of *Forest Plan* direction, including all amendments, but modified to emphasize maintaining the existing recreation experience while maintaining and restoring vegetation conditions within the HRV. It builds on public values expressed in surveys for the HCNRA and focuses on maintaining existing recreation opportunities by managing for a slower rate of growth. The level of planned facilities development emphasizes replacing existing facilities. One new outfitter and guide permit is added for guided fishing/whitewater rafting on the Imnaha River (22 total, including 1 for aviation services). New or expanded uses are based on need. Prehistoric sites are protected by custodial maintenance of existing interpretation opportunities. Historic structures that have been maintained or could be self-maintained will continue to be maintained.

Alternative E-modified (preferred) is a continuation of *Forest Plan* direction, including all amendments. It maintains the rustic and primitive character of the area. Recreation use is managed through implementation of visitor management strategies. The development level of facilities is managed to meet Recreation Opportunity Spectrum (ROS) settings with an emphasis on replacing deteriorating facilities with new, low-maintenance rustic facilities. Outfitter and guide use is managed based on the need for new or expanded uses (1 new permit for guided fishing/whitewater rafting on the Imnaha River. Permits total 22 including one term permit and a pool of service days for aviation services with temporary permits. It emphasizes restoring the natural role of fire, maintaining forested structures within the HRV, and achieving the potential natural community (PNC) for grasslands. Prehistoric sites are protected through a combination of self-discovery and custodial maintenance of existing interpretation opportunities. The most significant historic structures will be maintained, stabilized, or restored, and other historic structures will be allowed to deteriorate following data collection.

Alternative W (Wallowa County) was developed by Wallowa County. It emphasizes maintaining the rustic character of the area while restoring vegetative conditions through natural and managed processes of thinning, replacement, and succession. Facilities development and maintenance emphasizes meeting ROS setting indicators. Some improvements to the trail and road systems will be implemented. Additional outfitter and guide permits will be allowed (32 total, including 2 for aviation services) to ensure competition among outfitters providing the same type of service to the public.

Alternative N (Native Ecosystem) was developed by the Hells Canyon CMP Tracking Group, a consortium of conservation groups, individuals, tribes, and organizations. It emphasizes a healthy native ecosystem and provides for least-impact human activities to allow native ecosystems and processes to function as naturally as possible. All human activities, including outfitter and guide operations that pose a potential for a negative impact on native ecosystems will not be allowed unless they are publicly monitored for compatibility with Section 7(1-6) of the *HCNRA Act*. Native American sites and resources will be protected in a manner and to the degree that religious meanings and uses are not compromised. Traditional uses of Native American sites will be accommodated. Historic sites will be managed for self-discovery; historic resources in Wilderness will be allowed to deteriorate.

Comparison of Alternatives – Significant Issues

This section contains a tabular and written comparison of the environmental consequences of implementing each alternative for the significant issues. A comparison of some of the other issues is also included. Reviewers can determine how well each of the alternatives meets the specific objectives of the *HCNRA Act* by comparing the units of measure across alternatives.

Compatibility with Section 7 of the HCNRA Act (Significant Issue)

The alternatives are compared in terms of the objectives (1-6) from Section 7 of the *HCNRA Act*.

Unit of Measure – The effects of alternatives on "the maintenance and protection of the free-flowing nature of the rivers within the recreation area," *HCNRA Act*, Section 7(1).

Free-flowing Rivers

Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Provides for the continued maintenance and protection of the free-flowing nature of rivers. Allows for new road construction, which could impede free flow of streams and rivers if not properly designed.	Same as Alternative A, except does not allow new road construction. Provides direction to achieve or maintain the PFC of riparian areas and focuses restoration work on human-caused disturbances to meet water quality objectives.	Same as Alternative B.	Same as Alternative A.	Same as Alternative A, except does not allow new road construction with emphasis on little to no vegetation management activities, provides higher protection to this resource.

Unit of Measure – The effects of alternatives on the "conservation of scenic, wilderness, cultural, scientific, and other values contributing to the public benefit," *HCNRA Act,* Section 7(2).

Scenic and Ecological Landscape Integrity

Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Conserves scenic and ecological landscape integrity with potential forested vegetation treatment levels, in conjunction with PF and WFU. Does not implement the Scenery Management System (SMS).	Conserves and improves scenic and ecological landscape integrity with potential forested vegetation treatment levels, in conjunction with PF and WFU. Implements the SMS and emphasizes integration of social values and biophysical conditions to maintain desired landscape character.	Same as Alternative B.	Same as Alternative B. Conserves and improves scenic and ecological landscape integrity in balance with other traditional and valid uses.	Conserves scenic integrity through emphasis on public input regarding impairments to natural scenery. Provides a greater risk to conserving ecological landscape integrity by not using forested vegetation treatment as a tool and allowing natural fires to burn uncontrolled. Does not implement SMS.

Wilderness

Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Use of PF and WFU in Alternative A allows fire to play a more natural role in the Wilderness to maintain ecological function and conserve wilderness values. Livestock grazing would continue, with existing and proposed management direction mitigating effects to Wilderness as far as possible under current law, which recognizes grazing as a special provisional use of Wilderness in places where it occurred before Wilderness designation. Recreation management may lead to use levels that result in an inability for managers to conserve wilderness values.	The role of fire in the Wilderness would be the same as described in Alternative A. Maintaining or restoring grassland vegetation within HRV and fall, winter, and spring forage utilization standards would conserve wilderness values. Recreation management using Wilderness setting indicators for social and biophysical thresholds and direct and indirect strategies for managing recreation use levels would conserve wilderness values.	The role of fire in the Wilderness would be the same as described in Alternative A. Alternative E-modified would maintain or restore grassland communities to their PNC (community that would result if succession were completed without interference by humans while allowing for natural disturbances) recognizing their HRV and that some communities may be altered beyond this point. Recreation management using Wilderness setting indicators for social and biophysical thresholds and direct and indirect strategies for managing recreation use levels would conserve wilderness values.	The role of fire in the Wilderness would be the same as described in Alternative A. Restoration of grassland vegetation within HRV would occur as described under Alternative B. Recreation management would be the same as Alternative A for Wilderness.	Same as Alternative A, except allows fire to burn primarily uncontrolled which could result in unnatural conditions created by fire exclusion. Scenario A (no livestock grazing) would best meet the goal for untrammeled Wilderness. Scenario B (reduction to 50 percent of current grazing levels) would also conserve wilderness values, although lack of fall, winter, and spring forage utilization standards may lead to unnatural forage conditions and reduce wilderness values. Recreation direction would conserve wilderness values with surrounding road closures increasing the primitive Wilderness ROS by 1 percent. User maintained trails may reduce use, but creation of new trails may cause damage to vegetation and soils.

Federal Trust Responsibilities

Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Provides direction for government-to-government consultation with American Indian tribes and protecting treaty-reserved rights. Does not contain specific direction identifying the Nez Perce Tribe as having ceded lands that encompass the HCNRA as part of the *Treaty of 1855*. Lack of emphasis may lead to potential inadequate protection of treaty-reserved rights and tribal interests.	Specifically addresses managing natural resources consistent with the federal trust responsibilities and the *Treaty of 1855* with the Nez Perce Tribe. Ensures treaty-reserved rights with respect to taking fish, erecting temporary buildings for curing, hunting, gathering roots and berries, and pasturing cattle and horses. Provides for protection of treaty resources such as aquatic habitat, wildlife habitat and grasslands. Manages resources to protect values important to the Nez Perce Tribe for hunting, gathering, cultural, spiritual and religious activities.	Same as Alternative B.	Provides for federal trust responsibilities and consultation with the Nez Perce Tribe in a similar manner with Alternative B. Implements a permit system to manage user conflicts for harvesting and gathering resources desired by tribal and nontribal users. Proposed activity levels for public outdoor recreation, timber harvesting, and grazing would provide the basis for consultation and federal trust responsibilities would be met through implementation of management direction.	Does not contain specific direction for federal trust responsibilities. Provides for consultation and contracting with the Nez Perce Tribe through the Heritage Resources and Fire management direction. Lack of specific emphasis on government-to-government consultation would lead to potential inadequate protection of treaty-reserved rights. Direction for managing resources such as heritage, fire, wildlife, fisheries, and access would provide guidance toward meeting federal trust responsibilities.

Customs and Beliefs of Landowners and Adjacent Communities

Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
This alternative would allow ranching, grazing, farming, timber harvesting, and the occupation of homes and lands, and associated lifestyles to continue as traditional and valid uses. Community character would be changed by increases in recreation which may cause tension between residents and visitors to the HCNRA. New people moving to the area may hold different attitudes, beliefs, and values from local majority views.	Same as Alternative A except with lower levels of management activities. Private property in close proximity to the HCNRA may be impacted by increases in recreation use, which may also increase property values. Solitude and remoteness associated with rural lifestyles would decrease depending on where displaced visitors chose to go when they experience crowding or reduced recreation opportunities.	Same as Alternative B.	Same as Alternative A with higher levels of timber harvesting and higher levels of associated employment to local communities surrounding the HCNRA.	Alternative N would not harvest timber and eliminate (Scenario A) or reduce by half (Scenario B) livestock grazing. These traditional and valid uses would no longer occur, thus affecting customs and beliefs of landowners and adjacent communities Impacts to private property would be the highest due to the highest level of displaced recreation users from reductions in recreation opportunities.

Scientific Research

Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Maintains existing management direction, which provides for the conservation of scientific values. Research needs, potential limitations, proposals, and recommendations would be made by committee of scientists and resource managers.	Provides direction for the conservation of scientific values. Approved study plans would be required before implementation of research activities. The Hells Canyon Subgroup would identify research needs, screen and recommend projects for approval to ensure compatibility with objectives in Section 7.	Same as Alternative B.	Same as Alternative A.	Focuses research on effects of restoration activities and techniques and least-impact human activities. Procedures would need be nondestructive and be established methods. Disclosure to the public of results would be required providing better information on scientific findings relevant to the HCNRA.

Unit of Measure – The effects of alternatives on "preservation, especially in the area generally known as Hells Canyon, of all features and peculiarities believed to be biologically unique including, but not limited to, rare and endemic plant species; rare combinations of aquatic, terrestrial, and atmospheric habitats; and the rare combinations of outstanding and diverse ecosystems, and parts of ecosystems," *HCNRA Act,* Section 7(3).

Biologically Unique Species, Habitats, and Ecosystems

Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Management activity levels, with current direction, may lead to adverse impacts to biologically unique features and peculiarities.	Management direction would ensure preservation of biologically unique features and peculiarities through defined species, habitats, and ecosystems for protection. Management activity levels, with proposed direction would result in low impacts to biologically unique features and peculiarities.	Same as Alternative B, except management direction to identify, protect and mitigate impacts to rare and endemic plants, rare combinations of aquatic, terrestrial, and atmospheric habitats; and rare combinations of outstanding and diverse ecosystems would ensure preservation of biologically unique features and peculiarities	Same as Alternative B, except higher management activity levels for recreation and timber harvest, with proposed direction may have a moderate potential to affect the biologically unique features and peculiarities.	Managing the entire HCNRA as biologically unique habitat would reduce or eliminate uses that adversely affect the environment and would indirectly lead to protection of biologically unique features and peculiarities. Low levels for recreation, timber harvest and grazing would result in low impacts biologically unique features.

Unit of Measure – The effects of the alternatives on the "protection and maintenance of fish and wildlife habitat," *HCNRA Act,* Section 7(4).

Riparian/Aquatic Habitat and Water Quality

Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Existing management direction (PACFISH/INFISH and related terms and conditions from the biological opinions [BO]) would continue to protect or recover riparian habitat from impacts of livestock grazing, roads and recreation, forested vegetation treatments and fire. Over the short-term, fire risk would be minimized by limiting the number of acres of fire burned. In the long-term, high fuel loadings would eventually lead to large high-intensity fires, and increase the probability of adverse effects to riparian/aquatic habitat.	Same as Alternative A, except effects from potential forested vegetation treatments would be slightly lower due to fewer treatments to achieve HRV.	Same as Alternative B, except additional evaluation of biological indicators from the *Coarse Screening Process* (Rhodes et al 1994) and *Wallowa County/Nez Perce Tribe Salmon Plan* (Wallowa County 1999), and determining total maximum daily loads (TMDLs) would lead to improved fish habitat and water quality conditions. Closing vacant allotments on nearly 50 percent of the HCNRA would improve toward the PNC resulting in improved water quality. Reductions in motorized access would limit potential impacts to Riparian Habitat Conservation Areas (RHCAs) and improve fish habitat. Effects from forested vegetation treatments would be similar to Alternative A except at lower risk due to fewer treated acres. Short-term impacts to riparian/aquatic habitat would increase due to more potential acres burning with fire. Some vegetation and canopy over stream may be lost.	Similar effects as Alternative A except reductions in roads would be similar to Alternative B and E-modified. Moving campsites 100 feet away from stream banks would reduce impacts from recreation use on RHCAs. Forested vegetation treatments would result in the highest risk due to the highest level of potential treatment areas, and lower long-term risk from fire effects as a result.	No livestock grazing (Scenario A) and constraints on human activities would provide the least risk of adverse impacts to riparian habitat. The greatest amount of reductions in road access would provide the least impact from recreation use associated with roads. Incompatible uses with protection and recovery of native ecosystems would be eliminated. Buffers on streams, springs, seeps, and wetlands would be greater than PACFISH and would expand the area of protection from vegetation treatments. Extensive areas would be burned as a result of the highest emphasis on restoring fire. The magnitude would be greater in terms of intensity and relative risk of resource damage due to larger, hotter fires. High magnitude and high probability of damage would lead to impacts detrimental to recovery of species.

Wildlife Habitat

Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Road System				
Risk = Moderate Maintains existing road system.	Risk = Low to Moderate Reduces road system.	Same as Alternative B.	Same as Alternative B.	Risk = Low Provides greatest reduction in road system.
Recreation Use and Development Levels				
Risk = Moderate	Risk = Low to Moderate	Same as Alternative B.	Same as Alternative B.	Risk = Low
Forested Vegetation Treatments				
Risk = Moderate	Risk = Low	Same as Alternative B.	Same as Alternative B.	Risk = Low No silvicultural treatments in this Alternative result in the lowest risk level, although there is a higher potential for loss of habitat due to insects, disease, and fire.

Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Satisfactory Range Conditions				
Risk = High Slower rate of grassland recovery. Lacks direction for satisfactory range condition,	Risk = Low Moderate rate of range forage recovery.	Risk = Low Rapid rate of grassland health recovery to mid-seral ecological status, restoration and noxious weed focus.	Same as Alternative B.	Risk = High No grazing in Scenario A.
Fire Activities				
Risk = Moderate Does not address HRV. There is no significant reduction of risk for large stand replacing fires.	Same as Alternative A.	Risk = Low Fire activity levels would move toward HRV and reduce the risk of large stand-replacement fires.	Same as Alternative E-modified.	Risk = Moderate to High Fire activity levels have a high potential to impact species requiring forest structure.

Unit of Measure – The effects of alternatives on the "protection of archeological and paleontologic sites and interpretation of these sites for the public benefit and knowledge insofar as it is compatible with protection," *HCNRA Act,* Section 7(5).

Archaeological and Paleontologic Sites

Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Lack of specific direction and management activity levels would have a moderate potential to adversely affect archaeological and paleontologic resources.	Proposed management direction and management activity levels would have a low to moderate potential to adversely affect archaeological resources. Direction for paleontological resources would provide long-term protection. Using fire as a tool may impact fragile heritage resources that would be susceptible to fire.	Same as Alternative B, except effects to heritage sites near open roads would be further reduced by closing sites that may be potentially damaged. Closing vacant allotments would provide for long-term protection of heritage resources.	Same as Alternative B.	Proposed management direction and low management activity levels would have a low potential to adversely affect archaeological resources. Lack of direction for paleontological resources may result in impacts not meeting protection needs.

Unit of Measure – The effects of alternatives on the "preservation and restoration of historic sites associated with and typifying the economic and social history of the region and the American West," *HCNRA Act,* Section 7(6).

Historic Sites

Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Lack of specific direction and management activity levels would have a moderate potential to adversely affect the preservation and restoration of historic sites.	Proposed management direction and management activity levels would have a low to moderate potential to adversely affect the preservation and restoration of historic sites.	Same as Alternative B.	Same as Alternative B.	Proposed management direction and low management activity levels would have a low potential to adversely affect the preservation and restoration of historic sites. There is a high risk of irreversible effects on historic sites from letting natural fires burn uncontrolled in this alternative.

Recreation Settings, Experiences, and Opportunities (Significant Issue)

The analysis of this issue uses the ROS system. The ROS system was developed to provide a diverse range of recreation settings and opportunities. Experiences and opportunities are influenced by many factors: settings, activities, other resources present, activities by managers, and the values, expectations, and other characteristics of the recreationists. The Wilderness ROS (WROS) was developed as part of the ROS system to describe a diverse range of recreational classes in Wilderness.

About two-thirds of the HCNRA provides nonmotorized opportunities (68%) with the Hells Canyon Wilderness providing 220,000 acres (35% of the HCNRA) and semi-primitive nonmotorized (SPNM) settings providing 211,877 acres (33% of the HCNRA). One-third (201,536 acres) of the HCNRA is classified as motorized (32%) in semi-primitive motorized (SPM), roaded natural (RN), and rural (R) settings. The mix of nonmotorized and motorized ROS settings provides a framework for recreation settings, experiences, and opportunities for the activities that occur in the HCNRA. The majority of these activities include sightseeing, fishing, primitive camping, interpretation, pleasure driving and day hiking. Other activities include developed camping, picnicking, horseback riding, observing wildlife, hunting, limited motorcycle or all-terrain vehicle riding, visiting historic sites, and snowmobiling.

Table 1 and **Figure 4** displays the description of the WROS and ROS settings in the HCNRA, the percentage of settings in Wilderness and nonwilderness portions, and the WROS and ROS settings as a percent of the total.

Table 1: ROS Settings, Percentage of Each Setting in Wilderness and Nonwilderness, and the HCNRA*

WROS Setting	Percent of WROS	Percent of HCNRA	Wilderness
Pristine	8%	3%	Visitation is very limited. Emphasis is placed on maintaining a natural and unmodified environment. Visitors seldom and only temporarily displace wildlife throughout the year. This is the best opportunity for isolation and solitude, requiring a maximum degree of primitive skills, challenge, and risk. Access is difficult, requiring travel without trails or the use of routes created by animals or previous human visitation.
Primitive	74%	26%	Visitation is limited. The environment is essentially unmodified and natural with no long-term changes to the landscape except for facilities or structures that are deemed historically important to the area or experience. Signs of human use are minimal. Visitation does not displace wildlife during critical periods. High opportunity exists for exploring and experiencing considerable isolation and solitude. Primitive recreation skills are required with a high degree of challenge and risk. Access is via trails maintained to a "most difficult" standard.
Semi-primitive	18%	6%	Visitation is low to moderate. The environment is essentially unmodified and natural, with no long-term changes to the landscape except for facilities or structures that are historically important to the area or experience. Visitation does not displace wildlife during critical periods. Moderate opportunity exists for exploring and experiencing isolation, independence, and closeness to nature. No-trace camping and primitive skills are required, with a moderate to high degree of challenge and risk. Access is via constructed and maintained trails managed to "more" and "most difficult" standards.
ROS Setting	**Percent of ROS**	**Percent of HCNRA**	**Nonwilderness**
SPNM (semi-primitive nonmotorized)	51%	33%	Provide visitors with a high probability of getting away from sights and sounds of other people, to be independent, enjoy nature and practice outdoor skills.
SPM (semi-primitive motorized)	13%	9%	Provide visitors with a moderate probability of getting away from sights and sounds of other people, to be independent, enjoy nature, and practice outdoor skills. There is also opportunity to use motorized equipment while in the area.
RN (roaded natural)	34%	22%	Provide visitors with an opportunity to meet and enjoy other visitors and be isolated from sights and sounds of other people. Visitors have the opportunity to interact with the natural environment, but the risk and challenge associated with the SPM is not present. Both motorized and nonmotorized forms of recreation take place. All overnight and day-use facilities occur in this setting.
R (rural)	<2%	<1%	Provide visitors with a high probability of meeting and enjoying others. Convenience in access to and use of sites is important. Challenge, risk, and testing of skills are relatively unimportant, except for some specific activities such as downhill skiing.

*All percentages are approximate based on acreages from WWNF geographic information system. Totals do not include acres associated with the Wild and Scenic Snake River.

However, not all acres within motorized ROS settings (SPM, RN, and R) are authorized for motorized use. Motorized use is managed through the standards and guidelines established with the *Forest Plan.* This use is primarily allowed within MA 9 (Dispersed Recreation/Native Vegetation), MA 10 (Forage Emphasis), and MA 11 (Dispersed Recreation/Timber Management) except for those areas and roads closed with the WWNF *Access and Travel Management Plan*. MA 7 (Wild and Scenic Rivers), MA 8 (Snake River Corridor), and MA 12 (Research Natural Areas) provide limited motorized use primarily for access along the Imnaha River and across the Rapid River corridor, motorized boat access on the Snake River, and access to developed sites.

The WWNF *Access and Travel Management Plan* closed the HCNRA yearlong to motorized vehicles except where specifically provided for on designated roads and in certain areas. All other areas in the HCNRA contain travel restrictions or are closed yearlong. Motorized driving in these areas is limited to a 300-foot corridor on each side of designated open routes for dispersed camping. Some of these areas further prohibit motorized access with seasonal road closures during the fall big-game hunting seasons to reduce wildlife disturbance, provide nonmotorized hunting, and protect fragile soils. Motorized use is also allowed in MA 10 (Forage Emphasis) and MA 11 (Dispersed Recreation/Timber Management) for cutting fuelwood as authorized by a permit under the WWNF *Fuelwood Program* (USDA 1982, USDA 1995).

The mix of ROS settings combined with restrictions for designated open routes, dispersed camping, and fuelwood cutting provides motorized experiences on less than three percent of the HCNRA (19,315 acres at most although dispersed camping and fuelwood cutting may occur in the same area. Over 97 percent of the HCNRA provides a high probability for nonmotorized experiences where visitation is low or very limited (633,173 acres).

Recreation Analysis Areas

Recreation Analysis Areas (RAAs) as shown in **Figure 5** have been mapped for the HCNRA to identify areas with similar use patterns and opportunities, and provide a logical system for creating the WROS and ROS settings. Each of the WROS and ROS settings is characterized by seven indicators (access, remoteness, naturalness/visual quality, social encounters, visitor management, visitor impacts, and facilities) that represent aspects of recreation that can be influenced by management or monitored for site-specific conditions (FSM 2310.3). These indicators provide a framework for monitoring and managing use to achieve the ROS settings. **Table 2** describes the indicators for Wilderness and nonwilderness settings for the HCNRA.

Table 2: Description of Indicators for Wilderness and Nonwilderness Settings for the HCNRA

Indicator	Description
Access	Access includes type and mode of travel. Highly developed access generally reduces opportunities for solitude, risk, and challenge. It tends to increase opportunities for socializing and feelings of comfort and safety. Access for challenged individuals would correspond with ROS classifications. Access to rural settings is easiest and to primitive settings the most challenging.
Remoteness	Remoteness is the extent to which individuals perceive themselves removed from the sights and sounds of human activity. In some cases, a lack of remoteness is important in some setting experiences. Generally, remote areas are perceived to be more primitive.
Naturalness/Visual Quality	This indicator refers to the scenic condition, landscape character, sense of place, and scenic-integrity levels that determine the sustainability of scenic quality and affect the positive psychological outcomes associated with enjoying nature.
Social Encounters	This factor refers to the number and type of other recreationists met along travel ways, or camped within sight or sound. This measures the ability of the area to provide experiences such as solitude or opportunity for social interaction. Increasing the number of visitors to an area changes the kind of recreation experience offered, attracting new users and causing others to leave or stop coming.
Visitor Management	This includes the degree to which visitors are regulated and controlled as well as the level of information and services provided for visitor enjoyment. Generally, on-site information is more appropriate at the developed end of the spectrum, while off-site sources and a sense of self-discovery are preferable at the primitive end.
Visitor Impacts	This factor refers to the impact of visitor use on the environment. The relevant question for managers is not "how can impacts be prevented," but rather, "how much change will be allowed and which actions are appropriate for control?" Controlling impacts according to the designated ROS is emphasized because impacts have an effect on visitor experiences. Maintaining air, water, and noise quality standards in the face of visitor impacts is important in all classifications.
Facilities	This indicator refers to the level of site development. A lack of facilities or site modification can enhance feelings of self-reliance and independence and can provide experiences with a high degree of naturalness. Highly developed facilities can add to the feelings of comfort and convenience and increase opportunities for socializing.

Figure 4: Recreation Opportunity Spectrum (WROS and ROS)
Hells Canyon National Recreation Area

Figure 5: Recreation Analysis Areas
Hells Canyon National Recreation Area

Unit of Measure – Remoteness

Remoteness is the extent to which individuals perceive themselves as removed from the sights and sounds of human activity. The perception of remoteness is more vivid the greater the distance from human activity. Remoteness is measured by alternative in terms of acres by ROS settings and nonmotorized and motorized experiences.

All alternatives would maintain the current level (**Alternative A**) of WROS settings in the Wilderness and would not change the degree of remoteness. **Alternative N** would increase the size of the primitive setting and decrease the acres in the semi-primitive setting (+/-1%), but changes would likely not be noticeable to most Wilderness visitors. The Wilderness provides the highest sense of remoteness on the HCNRA.

Outside of the Wilderness, the change in the number of open road miles and the location by alternative is the primary factor in providing a shift in the level of ROS settings by alternative. **Table 3** displays the percentage of acres in Wilderness, nonwilderness, nonmotorized, and motorized settings; and nonmotorized and motorized experiences for each alternative. See **Figure 6** for maps of the ROS settings by alternative.

Table 3: Percentage of Acres in Wilderness, Nonwilderness, Nonmotorized, and Motorized Settings; and Nonmotorized and Motorized Experiences*

ROS Setting	Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Wilderness Setting					
Pristine	8%	8%	8%	8%	8%
Primitive	74%	74%	74%	74%	75%
Semi-primitive	18%	18%	18%	18%	17%
Nonwilderness Setting					
SPNM (semi-primitive nonmotorized)	51%	54%	51%	51%	68%
SPM (semi-primitive motorized)	13%	11%	13%	13%	3%
RN (roaded natural	34%	34%	34%	34%	28%
R (rural)	<2%	<1%	<2%	<2%	<1%
Nonmotorized and Motorized Setting					
Nonmotorized Setting	68%	70%	68%	68%	79%
Motorized Setting	32%	30%	32%	32%	21%
Nonmotorized and Motorized Experiences					
Nonmotorized Experiences	97%	97%	97%	97%	97%
Motorized Experiences	3%	3%	3%	3%	3%

*All percentages are approximate based on acreages derived from WWNF geographic information system (GIS).

Alternative A would maintain the current classification of WROS and ROS settings with 68 percent as nonmotorized (Wilderness and SPNM) and 32 percent of the total HCNRA classified as SPM, RN, and R motorized settings.

Alternative B would increase the level of SPNM settings to 54 percent and reduce the level of RN (-2%) and SPM (-1%) compared to the current level causing a minor overall change (-3%) in the mix of motorized and nonmotorized ROS settings and the level of remoteness. **Alternative E-modified** would manage for high quality recreation settings and opportunities similar to Alternative B with an emphasis on maintenance of primitive settings, but would maintain the current classification of ROS settings between nonmotorized (68%) and motorized (32%).

Alternative W would emphasize the rustic and primitive characteristics of the HCNRA but development levels and commercial uses would be slightly higher than Alternative E-modified. The current classification of ROS settings for nonmotorized (68%) and motorized settings (32%) would be maintained.

Alternative N would move the settings toward more primitive settings by minimizing motorized recreation and emphasizing ecosystem, cultural, and Wilderness values. This alternative would allow recreation activities to continue as long as long-term goals for recovery and protection of the native ecosystem would not be compromised. This alternative would result in the largest change in the level of ROS settings by shifting RN (7%) and SPM (10%) acres (74,092 acres) to SPNM settings (68%) compared to Alternative A (51%). Alternative N would provide the highest level of SPNM settings because of the emphasis on the highest level of road closures and obliteration.

Figure 6: Recreation Opportunity Spectrum by Alternative
Hells Canyon National Recreation Area

Unit of Measure – Social Encounters

"Social encounter" refers to the number and type of other recreationists met, whether in a specific area, along travel areas, or camped within sight or sound. Some recreation experiences require few, if any, contacts with others to meet expectations, while in some situations encounters are sought as part of the experience. Social encounters measure the extent to which an area provides experiences such as solitude or the opportunity for social interaction. Users of roaded motorized areas would tolerate more frequent rates of sound encounters than users of nonmotorized areas or Wilderness. Social encounters are measured by alternative in terms of the number of displaced visits (no longer occurs at the site or area) once thresholds for practical maximum capacity (the upper limit of use of a developed site or dispensed area) are met.

Recreation use would increase (1.6% annually to 721,474 visits) in a similar pattern over the next decade. Projected use would exceed practical maximum capacity in some places at some point depending on the level of development and access by alternative, and some long-time HCNRA users would be displaced because of their intolerance to other users and the changes in experience opportunities. Currently, very few HCNRA visitors are displaced to other areas. **Figure 7** displays the supplied visits based on the practical maximum capacity and the displaced visits by alternative over the next decade.

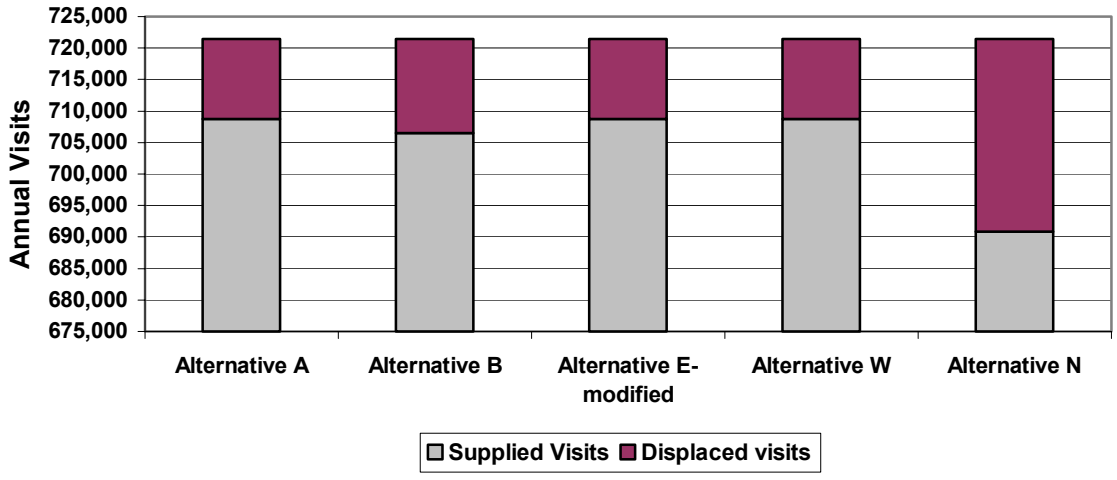
Alternative A would continue to develop capacity at sites and provide access to accommodate future recreation uses. Demand would continue to exceed supply in popular sites used seasonally in the summer near water (Black Lake, Seven Devils, and Cow Creek) over the next decade causing a minor (1.7%) displacement of use. Alternative A would also continue to provide opportunities for dispersed activities of an independent nature in SPNM and SPM settings, and away from popular, developed sites in RN settings.

Alternative B would reduce capacity compared to Alternative A (-15.1%) by maintaining existing facilities in their current condition and would not replace existing facilities to accommodate users. The overall displacement of use would be slightly more (2%) than Alternatives A, E-modified, or W.

Alternatives E-modified and **W** would develop less capacity than Alternative A (-6.4%), but would displace similar number of users (1.7%) as Alternative A due to the limited number of sites and areas where demand exceeds supply. New facilities would be developed or existing facilities would be upgraded to accommodate increases in use. Alternative E-modified would maintain some facilities to lower standards than A and W.

Alternative N would reduce capacity more (-24%) than the other alternatives through minimum maintenance of facilities and no new facility development. This alternative further emphasizes managing for more primitive nonmotorized experiences, closing roads, and relying on users to maintain trail access. Displaced users would more than double compared to Alternative A (4.3%) due to fewer roads that access popular sites.

Figure 7: Supplied Visits Based on Practical Maximum Capacity and Displaced Visits by Alternative Over the Next Decade (2013)



Unit of Measure – Visitor Management

Visitor management objectives include regulation of visitors, and providing information and services to aid their enjoyment. Management actions to control use are expected in developed areas, but would detract from the experience of more primitive, undeveloped settings. At the primitive end of the ROS scale, management action seeks to influence behavior indirectly with off-site information and education. In more developed settings, such as campgrounds and interpretive facilities, controls are more direct and implemented through on-site education. Visitor management is measured by alternative in terms of facilities and ROS settings at practical maximum capacity that would indicate the need for management actions to control use.

Based on a projected growth rate of 1.6 percent per year, specific areas within some areas would meet some threshold levels over the next decade under all alternatives, indicating a need for management action to maintain recreation opportunities and protect resources.

Three facilities (Black Lake Campground, Windy Saddle Campground, and Cow Creek Trailhead) have already reached the practical maximum capacity and are at high risk for overcrowding and impacts from recreation use. Four additional facilities (Heavens Gate, Seven Devils, Sawpit Trailhead, and Low Saddle Trailhead) would potentially reach the threshold in the next decade. Recreation demand in other areas of the HCNRA would not reach thresholds within the next decade, however they would be increasingly affected under higher growth scenarios (3-10%).

All Wilderness acres would remain below the practical maximum capacity under the 1.6 percent annual growth scenario. Some key areas, such as the Seven Devils part of Wilderness, would exceed encounter thresholds on high-use weekends such as Fourth of July or Labor Day and would need to be managed to mitigate social and resource effects. In **Alternatives A, B, E-modified, W** and **N**, visitor management actions would not be needed in the Idaho portion of the Wilderness until higher growth rates (3-5%) were realized. The need for visitor management actions would not be needed in the Oregon portion of the Wilderness until the highest growth in use occurred (10%).

Outside of Wilderness, **Alternative A** would develop more facilities and a higher level of road improvements than the other alternatives. Due to increased access and higher standard facilities, strategies for managing use levels would be initiated across the entire HCNRA first in Alternative A.

Alternative B represents the existing conditions of facilities and roads. Many of the facilities have outlived their usefulness. Strategies for managing use levels would not be required as soon as for Alternative A, and in some instances not as soon as Alternatives E-modified and W. However, due to the failing condition of facilities, strategies for managing use levels in some developed sites and in some dispersed areas would be required sooner than in Alternatives A, E-modified, or W to protect resources from damage.

Alternatives B and **E-modified** would implement specific indirect strategies before reaching the thresholds associated with social encounters and resource objectives. Educational programs and physical alterations of use patterns, numbers of visitors, and facilities would be managed to retain personal choices, freedom of movement, and visitation for longer periods. Direct strategies would be implemented if indirect strategies were not effective at managing use and would result in more control of visitor actions.

Alternatives E-modified and **W** would develop fewer locations than Alternative A and would maintain lower standards for access. Alternative E-modified has a slightly lower development standard than Alternative W. Strategies for managing use levels would not be required as soon as in Alternative A and would be more specific to certain sites. Areas needing management action in E-modified and W would be fewer than in A.

Alternative N would limit motorized access and custodial maintenance of facilities. Strategies for managing use levels would not be needed in nonmotorized areas for a long period. Because motorized access would be reduced compared to all other alternatives, areas that remain roaded would require strategies for managing use levels sooner than in all other alternatives. Failing facilities would also require management strategies sooner than in all other alternatives. Under Alternative N, impacts would be more severe where motorized users engage in recreation, due to concentrated use in the remaining facilities.

Unit of Measure – Visitor Impacts

Visitor impacts are the effect users have on the environment. Wildlife, people, and livestock have used Hells Canyon for decades. Use locations that are desirable today are often the same sites that have been desirable for hundreds of years. The relevant question today is not how to prevent effects, but what degree of effects can be allowed and what are appropriate actions for controlling or mitigating the effects.

Use of the land for recreational purposes inevitably results in effects. Even low levels of recreation use can produce significant effects. Once effects have occurred, continued use causes relatively little additional change. Recreationists generally expect settings that are natural at the primitive end of the ROS spectrum, with visitor impacts essentially unnoticeable. Toward the developed end of the spectrum, signs of human intervention on the landscape become more acceptable and evident. Visitor effects are measured by alternative in terms of maximum site disturbance allowed.

Threshold standards would maintain site conditions and limit the amount of allowable change. As a disturbance approaches the standard, management action would occur to prevent or reverse further site degradation. The maximum amount of area disturbed at the primitive end of the ROS settings would be smaller than in the more developed ROS settings. Other measures would be taken to prolong the timeframe before thresholds were met.

Table 4 displays the maximum site disturbance allowed that would be socially acceptable based on the ROS setting for the area. Tree loss, exposed roots, and general vegetation loss are included in the evaluation criteria. The overall impact of the visual integrity of the site on the surrounding area is also considered.

Table 4: Maximum Site Disturbance Allowed

ROS Setting	Maximum Area in Square Feet (sq. ft.)
Wilderness	
Pristine	225 sq. ft. - 15 ft. x 15 ft.
Primitive	400 sq. ft. - 20 ft. x 20 ft.
Semi-primitive	625 sq. ft. - 25 ft. x 25 ft.
Nonwilderness	
SPNM	625 sq. ft. - 25 ft. x 25 ft.
SPM	1,000 to 1,500 sq. ft. - 31-38 ft. x 33-39 ft.
RN	1,500 to 2,500 sq. ft. - 38-50 ft. x 39-50 ft.
R	3,000 sq. ft. - 54 ft. x 55 ft.

Maximum allowable use levels would be used to determine if disturbance levels are within levels of acceptable change and indicate a condition where visitor impacts would result in resource damage. Increased recreation use of the area would contribute to additional impacts in some locations. Areas with motorized use continually receive more impacts and would reach thresholds sooner than nonmotorized areas.

Each alternative represents a different level of roaded access, with **Alternatives A, W** and **E-modified** having the highest road densities and greatest opportunity for roaded recreation. Road closures or seasonal closures as proposed in E-modified would have beneficial effects for recovery of sites within closed areas, while locations adjoining the closed area would experience additional impacts. Fuelwood cutting, allowed in all alternatives, would be affected by further road closures and seasonal restrictions, increasing impacts to areas where roads remain open. Designated areas for fuelwood cutting would provide firewood opportunities while limiting short-term impacts to specified areas. **Alternatives B** and **N** would be the most restrictive in terms of reducing road access.

Thresholds would be reached the soonest and require management action under **Alternative A**, followed by **W, E-modified, B**, and **N**, respectively. However, thresholds would not be reached in any of the alternatives through 2013, with the exception of a few popular locations. Monitoring efforts in these areas would be intensified to validate the need for management actions. As use patterns and user types change, so would the rate, location, and extent of disturbance. Impacts would not be as great or as noticeable as in the past. **Alternatives A, E-modified**, and **W** would displace less two percent (1.7%) of projected recreation use by 2013, followed by **Alternatives B** (2%) and **N** (4.3%). As these users sought other areas in which to recreate, they would affect public lands adjacent to the HCNRA. This would require additional management actions on adjacent lands to manage impacts within desirable thresholds

Unit of Measure – Scenery

People value landscapes, and they make decisions that affect landscapes based on their values. Landscapes are valued for natural settings that are seemingly untouched by humanity, unique landforms, water systems, historic character, or other factors that create attractive views or enjoyable recreational experiences. Those impressions are the aesthetic value of a particular landscape. Scenery (naturalness/visual quality) is measured by alternative in terms of scenic integrity and ecological landscape integrity.

Scenic Integrity

Scenic integrity measures human-caused negative visual elements that dominate, deviate, and/or detract from the desired landscape character. Each RAA (**Figure 5**) has a broad/general sense of place or desired landscape character that has been identified as a scenic integrity rating based on deviations from the social values of the landscape. Scenic integrity is measured based on the removal of deviations or potential for additional deviations by RAA. Higher integrity ratings are preferred over the lower integrity ratings for primitive or natural experiences.

The proposed alternatives would not affect the aesthetic values attributed to Wilderness. Scenic integrity would remain high or very high under all alternatives. Outside Wilderness, all alternatives would propose minimal human-caused deviations or improvements to RAAs. The alternative that proposes the most improvements to scenic integrity is **Alternative E-modified**. This alternative improves two RAAs from one level to a greater level. **Table 5** displays the number of RAAs in each scenic integrity level by alternative.

Table 5: Number of RAAs in Each Scenic Integrity Level by Alternative

Scenic Integrity	Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Very High	17	17	17	17	16
High	9	10	12	10	10
Moderate	4	3	3	4	4
Low	3	3	1	1	3
Very Low	0	0	0	0	0
Unacceptably Low	0	0	0	0	0

Ecological Landscape Integrity

A landscape's ecological integrity may be compromised by practices that inhibit or minimize the sustainability of a valued landscape character. If a forested landscape is not sustainable, the long-term effects to landscape aesthetics can be severe. Ecological landscape integrity measures the percentage of forested acres outside of the HRV. The greater the percentage of acreages outside the HRV, the lower the integrity level, indicating low sustainability and a high risk of losing valued attributes of desired landscape character.

Alternatives A, B, E-modified and **W** would improve the ecological landscape integrity the most based on forested vegetation treatments to manage toward HRV. The proposed forested vegetation management would not keep up with the rate of degradation; therefore, the risk of losing desired landscape character would increase during the next decade. **Alternative N** would not improve the ecological landscape integrity because it would not use mechanical improvements. Over a 50-year period, risks may increase to an unmanageable level; thus, greater losses of landscape character attributes may occur, and deviations to the desired landscape character would be dominant across the HCNRA.

The cumulative effects of vegetation and fire management indicate that alternatives that manage ecological landscape integrity at the highest level would be **Alternatives E-modified** and **W**, followed by **Alternative A**. **Alternatives B** and **N** would produce the lowest ecological landscape integrity level. **Table 6** displays the cumulative effects of vegetation and fire management on ecological landscape integrity.

Table 6: Cumulative Effects of Vegetation and Fire Management on Ecological Landscape Integrity

Effects	Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Vegetation Management	High	Moderate	Moderate	High	Low
Fire Management	Low	Very Low	High	Moderate	Low
Cumulative Effects	Moderate	Low	Moderate - High	Moderate - High	Low

Access and Facilities (Significant Issue)

The alternatives are compared in terms of access (roads by maintenance levels, dispersed camping availability, open-road density, trail construction or reconstruction, backcountry airstrips, and over-snow vehicle travel) and by facilities and site management (facilities development and maintenance levels).

Unit of Measure – Roads by Maintenance Level

Almost 60 percent of the National Forest System (NFS) roads in the HCNRA are suitable only for high-clearance vehicles (Maintenance Level 2) and 28 percent are closed to motorized use. Less than 15 percent of the roads are suitable for passenger car travel. **Table 7** below displays miles of road by maintenance levels.

Table 7: Miles of NFS Roads by Maintenance Level

Maintenance Level	General Description	Miles	Percent of NFS Roads
Level 1	Closed roads	202 mi.	28%
Level 2	High-clearance vehicle only	422 mi.	57%
Level 3	Suitable for passenger vehicle	98 mi.	13%
Level 4	Passenger vehicle, high degree of comfort	10 mi.	1%
Level 5	Provides main access to the HCNRA	3 mi.	Less than 1%
Total			
Total		735 mi.	100%

As shown in **Table 8**, all of the alternatives would convert some miles of Maintenance Level 2 roads from high-clearance vehicle access to Level 1 (closed) roads to meet the road management and ROS objectives.

Table 8: Miles of NFS Roads by Maintenance Level by Alternative

Level	General Description	Alternative A		Alternative B		Alternative E- modified		Alternative W		Alternative N	
		Miles	%	Miles	%	Miles	%	Miles	%	Miles	%
Level 1	Closed roads	202	28%	403	54%	379	51%	364	49%	544	74%
Level 2	High-clearance vehicle only	422	57%	221	31%	245	34%	260	36%	80	11%
Level 3	Suitable for passenger vehicle	59	8%	88	12%	59	8%	59	8%	98	13%
Level 4	Passenger vehicle, high degree of comfort	49	6%	10	1%	0	0%	0	0%	0	0%
Level 5	Provides main access to the HCNRA	3	<1%	13	2%	52	7%	52	7%	13	2%
Total											
Total miles of open NFS roads		533		332		356		371		191	
Percent change in open NFS roads		0%		-38%		-33%		-30%		-64%	
Total miles of seasonally-closed roads		68.5		68.5		95.5		68.5		0	
Percent change in seasonally-closed roads		0%		0%		-39%		0%		0%	

Alternative A would close the least amount of roads and maintain the highest level of access for high-clearance vehicles followed by **Alternatives W** (-30%), **E-modified** (-33%), and **B** (-38%). **Alternative N** would reduce the total level of motorized road access the most (-64%).

Alternatives A, **B** and **W** would continue to close 68.5 miles of road seasonally. **Alternative E-modified** would increase the level of roads closed seasonally (27 miles) for a total of approximately 95.5 miles. Specific seasonal closure periods (**Table 9**) would be established in the spring for Kirkwood Road (Forest Road 2062-132), and in the fall for Teepee Butte Road (Forest Road 46-595), Wildhorse Road (Forest Road 46-596), Lord Flat Trail, (Trail #1774) and PO Saddle Road (Forest Road 3965-320) to protect fish or wildlife habitat. **Alternative N** would permanently close all seasonally closed roads including those listed for specific seasonal closure periods under **Alternative E-modified**. See **Figure 8** for a map of the five site-specific seasonal road closures.

Table 9: Road-specific Closures by Alternative by RAA

Road	Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
RAA 13 – Kirkwood					
Kirkwood Road (Forest Road 2062-132	Closes approximately 1,000 feet (0.2 miles) of the road immediately southeast of Kirkwood Historic Ranch during the spawning period for fish from April 1 through June 30 each year to motorized vehicles. Road is closed with a gate[1]. The season of use would continue to be approximately 8 months (April through November) depending on the snow level each year. The road would remain open for about 5 months all the way to the Ranch, and for 3 months access would be limited to within 1,000 feet of the Ranch. Nonmotorized use would be allowed on this portion of the road during the closure period.	Same as Alternative A	Same as A, except the road would be managed to allow future opportunities for improvements such as bridges across the stream to provide motorized vehicles access on the lower 1,000 feet of road from April 1 through June 30 each year while protecting and mitigating for fisheries concerns. Also closes the road to mechanical equipment.	Same as Alternative A	Year-round closure on approximately 5 miles of road at Cow Creek Saddle to Kirkwood Historic Ranch to motorized vehicles. Post road as closed with signs. Manage the road as a semi-primitive nonmotorized trail for foot and horseback travel. Allow administrative access as needed while protecting fisheries concerns.
RAA 27 – Buckhorn/Cold Springs					
Teepee Butte Road (Forest Road 46-595) Wildhorse Road (Forest Road 46-596)	Roads are currently authorized for year-round use. The season of use is approximately 6 months from June through November depending on the snow levels each year. The heaviest use period occurs during the fall hunting seasons.	Same as Alternative A	Seasonally close approximately 5 miles of Teepee Butte Road and 7 miles of Wildhorse Road at their junction (46-595 and 46-596) from 3 days prior to archery season to the end of antlerless elk season (late August through late November) to motorized vehicles. Post the roads closed with signs. The season of use would be reduced to approximately three months (June through August) depending on the snow level each year. Nonmotorized use would be allowed on this portion of the road during the closure period.	None	Year-round closure on approximately 5 ½ miles of Teepee Butte Road and 7 miles of Wildhorse Road at their junction (46-595 and 46-596). Post road closed with signs. Manage the road as a semi-primitive nonmotorized trail for foot or horseback travel.
RAA 32 – Lord Flat					
Lord Flat Trail (Trail #1774)	Depending on the snow levels, Lord Flat Trail is generally inaccessible due to snow for 6 months when the gate (T1S, R4W, Section 1) on Forest Road 4240 to Hat Point is closed (December/January) until the road drys out enough to drive on without rutting the road surface in the spring (April/May). The heaviest use period occurs during the fall hunting seasons.	None	Seasonally close approximately 15 miles of Lord Flat Trail at Warnock Corral Trailhead from 3 days prior to archery season to the end of antlerless elk season (late August to late November) to motorized vehicles. Post the trail closed with signs. The season of use would be reduced to approximately 3	None	Year-round closure on approximately 15 miles of trail year-round at Warnock Corral Trailhead. Post the trail closed with signs. Manage the trail for semi-primitive nonmotorized use for foot and horseback travel. The trail would be designated as the Hells Canyon

			months (June through August) depending on the snow level each year. Nonmotorized use would be allowed on this portion of the road during the closure period.		Wilderness Rim Trail.
RAA 40 - McGraw					
PO Saddle (Forest Road 3965-320)	Seasonally closes approximately 2 ½ miles of road from PO Saddle to the Hells Canyon Wilderness boundary to motorized vehicles from 3 days prior to rifle buck season and open in the spring after the roadbed is dry enough to drive on to minimize resource damage (late September to late May). Road is closed with an existing gate. The season of use is approximately 4 months (June through September) depending on the snow levels each year. The heaviest use period occurs during the fall hunting seasons. Nonmotorized use would continue to be allowed on this portion of the road during the closure period.	Same as Alternative A	Same as A, except the seasonal closure on Forest Road 3965-320 (2.5 miles) at the PO Saddle Trailhead to the Wilderness Boundary would be extended to 3 days prior to archery season (late August) and open in the spring after the roadbed is dry enough to drive on to minimize resource damage (June 15th). Road is closed with an existing gate. The season of use would be reduced to approximately 3 months (June through August) depending on the snow level each year. Nonmotorized use would continue to be allowed on this portion of the road during the closure period.	Same as Alternative A	Year-round closure on approximately 2 ½ miles of road at PO Saddle. Road would be closed with an existing gate. Manage the road for semi-primitive nonmotorized use for foot and horseback travel. The road would be designated as part of the Hells Canyon Wilderness Rim Trail.
Totals					
Road-specific seasonal closures	2.7 miles	2.7 miles	29.7 miles	2.7 miles	35.0 miles
Total seasonally-closed roads	68.5 miles	68.5 miles	95.5 miles	68.5 miles	0 miles
Total open roads without seasonal closures	464.5 miles	263.5 miles	258 miles	302.5 miles	191 miles
Total open roads	533 miles	332 miles	356 miles	371 miles	191 miles

Figure 8: Site-Specific Seasonal Road Closures – Alternative E-modified
Hells Canyon National Recreation Area

Unit of Measure – Dispersed Camping Availability

Motorized travel on designated open routes and access for dispersed camping, retrieval of fuelwood or other permitted activities would vary by alternative based on miles of road that would remain open. As shown in **Table 10**, **Alternative A** would maintain the existing level of dispersed camping opportunity (200 sites) followed by a minor change (-2%) in **Alternative W**. **Alternatives B** and **E-modified** would reduce accessibility to dispersed campsites by five and nine percent (190 and 182 sites remain accessible, respectively). **Alternative N** would reduce the availability of dispersed campsites (136 sites remain accessible) to motorized vehicles the most (-32%) due to the most road closures. All sites would be accessible to nonmotorized users in all alternatives.

Dispersed camping availability would be further reduced under all alternatives in the spring or fall of the year due to seasonal road closures. **Alternatives W** and **B** would reduce the number of campsites available to motorized users by two and five percent, respectively, compared to **Alternative A**. **Alternative E-modified** would reduce motorized access to dispersed campsites by 22 percent (149 sites remain accessible) due to an additional 27 miles of seasonal road closures (Kirkwood, Teepee Butte, Wildhorse, PO Saddle roads and Lord Flat Trail) to meet resource objectives. **Alternative N** would reduce dispersed camping opportunity the most (-29%) for motorized users due to the highest level of permanent road closures (136 sites would remain accessible).

Table 10: Number of Total and Seasonally-open Dispersed Campsites Available by Alternative

Dispersed Camping	Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Total dispersed campsites accessible by motorized vehicle	200	190	182	196	136
Percent change in total campsite availability due to road closures	0%	-5%	-9%	-2%	-32%
Dispersed campsites accessible by motorized vehicle during seasonal road closures	191	181	149	187	136
Percent change in campsite availability due to seasonal road closures	0%	-5%	-22%	-2%	-29%

Fuelwood cutting would continue under all alternatives as currently provided under the WWNF *Fuelwood Program* (USDA 1995) although availability would vary by alternative based on the level of designated open roads. **Alternatives A, B,** and **W** would continue to allow fuelwood cutting (approximately 18,000 acres) from designated open roads in MAs 10 and 11. **Alternative E-modified** would restrict access to designated roads and use designated Special Fuelwood Areas (SFAs) to aid the public in obtaining fuelwood. Motorized or mechanical equipment would be allowed off the road to retrieve fuelwood following a site-specific analysis. **Alternative N** would further reduce the level of designated open roads and would reduce the level of fuelwood availability. The difference between alternatives would be mitigated by the designation of SFAs to continue this opportunity.

Unit of Measure – Open-road Density

Total open-road density is one measure of the total effects of road closures (closures reduce road densities) on motorized and nonmotorized access. **Table 11** displays the total number of subwatersheds (61 in the HCNRA) by open-road density (NFS and other roads) in terms of mi./sq. mi. by alternative. See **Figures 9, 10** and **11** for maps of the open roads by alternative.

Table 11: Number of Subwatersheds by Open-road Density (NFS and other roads) by Alternative

Open-road density	Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
0	6	10	7	7	13
Less than ½ mile	7	17	11	11	20
Between ½ to 1 mile	24	23	25	23	22
Between 1-1.5 miles	15	10	17	19	6
Between 1.5-2.5 miles	4	1	1	1	0
Greater than 2.5 miles	5	0	0	0	0
Total					
Total Subwatersheds	61	61	61	61	61
Average Open-road Density	1.0 mi./sq. mi.	0.68 mi./sq. mi.	0.72 mi./sq. mi.	0.76 mi./sq. mi.	0.45 mi./sq. mi.

Figure 9: Current Open Roads – Alternative A
Hells Canyon National Recreation Area

Figure 10: Open-road Miles by Alternatives B and E-modified
Hells Canyon National Recreation Area

Figure 11: Open-road Miles by Alternatives W and N
Hells Canyon National Recreation Area

Unit of Measure – Trail Construction or Reconstruction Opportunities

About 88 percent of the HCNRA is accessible by approximately 925 miles of trails (40% Wilderness; 60% nonwilderness). The extensive trail system ranges in elevation from 800 to 8,500 feet, with most trails classified "more-to-most difficult." There are three trails within the HCNRA that allow motorized use:

- Lower Imnaha Trail (#1713) from Cow Creek to the Snake River, allows two-wheel motorized use only,
- Lord Flat Trail (#1774) also called the Western Rim National Recreation Trail from Warnock Corral Trailhead to Lord Flat, allows four-wheel drive vehicles and those 50 inches wide or less in compliance with all state and federal regulations on designated open routes,
- Big Canyon Trail (#1805) from Pittsburg Road and winding its way to the head of Jones Creek in Idaho, allows four-wheel drive vehicles and those 50 inches wide or less in compliance with all state and federal regulations on designated open routes,
- Two motorized trail crossings (#183/188 and #184/362) occur in the Rapid River corridor to provide motorized access through the area on the North Star Trail to Black Lake.

Alternatives A, E-modified, and **W** would enhance trail access to accommodate current needs while providing resource protection. Alternatives A, E-modified, and W would provide the opportunity for 1.25 miles of new trail construction to create a short loop in the vicinity of Temperance Bench (between #1778 and #1751) on the Oregon side of the HCNRA that would reduce overall use on two trail segments but would increase frequency of use. Additionally, 0.75 miles of new trail on the Idaho side of the HCNRA would provide access for viewing the canyon in the Stormy Point area under Alternatives E-modified and W. **Alternative B** would maintain current trail access and would not provide additional opportunities to accommodate use except along the Snake River. **Alternative N** would maintain trails in their current locations with no new construction or relocation proposed. **Table 12** summarizes the trail construction or reconstruction opportunities by alternative.

Table 12: Trail Construction or Reconstruction Opportunities by Alternative

Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Maintains 925 miles of existing trail system per the *HCNRA Trail Management Plan* to focus on user safety and resource protection.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A	Maintains existing trail system at minimum standards with an emphasis for user maintenance.
Allow for 1.25 miles of new construction in vicinity of Temperance Bench area (trails 1778 and 1751) to create a loop trail.	No new trail construction.	Allows 2 miles of new trail construction in vicinity of Temperance Bench in Oregon (1.25 miles); Stormy Point in Idaho (0.75 mi.)	Same as Alternative E-modified.	No new trail construction.
Allows opportunity to upgrade and reconstruct Brush Creek to Granite Creek Trail along the Wild and Scenic Snake River (4 miles).	Allows opportunity for minor reconstruction of Brush Creek to Granite Creek Trail along the Wild and Scenic Snake River (4 miles).	Same as Alternative B.	Same as Alternative B.	No trail reconstruction.

Unit of Measure – Backcountry Airstrips

Nine backcountry airstrips occur within the HCNRA. Memaloose and Lord Flat are located in the uplands near Hat Point and Lord Flat in Oregon (open for private, commercial and administrative use). Dug Bar, Pittsburg Landing, and Salmon Bar airstrips are open to private, commercial, and administrative use in the Scenic section of the Snake River. Cache Creek airstrip, also in the Scenic section, is open only to private and administrative use. Big Bar is open to private, commercial, and administrative use in the Wild section of the Snake River. Temperance Creek is open only to the special use permittee in conjunction with Temperance Creek Ranch. Sluice Creek airstrip is closed to all use. Use is low at airstrips and they are not regularly maintained.

All alternatives would maintain the two backcountry airstrips in the uplands (Memaloose and Lord Flat) open for private, commercial and administrative use. The backcountry airstrips in the Wild and Scenic River corridor would remain open or closed as described above and previously decided in the *Wild and Scenic Snake River Recreation Management Plan* (USDA 1999). **Alternative W** would open the Sluice and Temperance Creek backcountry

airstrips in the Wild section of the Snake River to public use. All backcountry airstrips would be available for emergency landings. **Table 13** describes backcountry airstrips by alternative and **Figure 12** provides a map.

Table 13: Backcountry Airstrips by Alternative

Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Maintains year-round access to the Memaloose, Lord Flat, Big Bar, Dug Bar, Pittsburg Landing, and Salmon Bar backcountry airstrips for private, commercial and administrative use.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Cache Creek airstrip is open for private and administrative use only.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A, except opens Cache Creek to commercial use.	Same as Alternative A.
Sluice Creek is closed. Temperance Creek backcountry airstrip is authorized for use by special use permit only.	Same as Alternative A.	Same as Alternative A.	Opens Sluice Creek and Temperance Creek backcountry airstrips in the Wild and Scenic Snake River for private, commercial and administrative use.	Same as Alternative A.
Allows emergency landings at all backcountry airstrips.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A	Same as Alternative A.
Allows commercial use under existing authorized outfitter and guide permits.	Same as Alternative A, except requires self-registration at all open landing strips by all users.	Same as Alternative B, except prohibits regularly scheduled commercial landings.	Same as Alternative A.	Same as Alternative E-modified.

Unit of Measure – Over-snow Vehicle Travel and Play Areas

Facilities and access for winter use in the HCNRA are limited (approximately 40,786 acres; 6.25% of the area) with about 132 miles (192 acres) of designated groomed trails. Use generally occurs from mid-to-late November through April. Elevations for riding range from 4,000-7,000 feet. Most areas within the HCNRA are not accessible to over-snow vehicles due to steep terrain, lack of access, Wilderness designation, lack of snow, and/or the lack of developed parking and staging areas. **Figure 13** shows over-snow vehicle travel and play areas**.**

As described in **Table 14**, all alternatives would manage snowmobile use on designated groomed trails that are a part of the NFS roads in the off-season. Impacts to watersheds are negligible or nonexistent, as compacted snow on designated trails amounts to only 160 acres out of the 652,488 acres of the HCNRA. **Alternatives A, B, E-modified**, and **W** would designate play areas totaling 40,626 acres. **Alternative N** would not provide play areas or allow any snowmobile activity off groomed routes. Use would be confined to paved routes only.

Table 14: Over-snow Vehicle Travel and Play Areas by Alternative

Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Manages motorized over-snow vehicle travel on designated routes and play areas in RAAs 36, 40, 41, and 42. (40,262 acres and 132 miles of existing roads in HCNRA). Allows access on designated routes and play areas with minimum of 12 inches snow depth.	Same as Alternative A	Same as Alternative A, except allows access on designated routes with minimum of 12 inches snow depth and on play areas with minimum of 24 inches snow depth. The minimum depth would alleviate potential resource damage until monitoring results or other scientific research indicates a different minimal depth.	Same as Alternative A	Manages motorized over-snow vehicle travel on designated, easily monitored, major paved routes only. Snowmobile use would be allowed only after public analysis and literature search that wildlife would not be displaced or stressed by routes, numbers, noise, and air pollution levels permitted.

Figure 12: Backcountry Airstrips
Hells Canyon National Recreation Area

Figure 13: Over-snow Vehicle Travel and Play Areas
Hells Canyon National Recreation Area

Unit of Measure – Facilities Development and Maintenance Levels

Approximately 90 developed facilities (including trailheads, viewpoints, campgrounds, lookouts, or cabins) occur in the HCNRA. These sites provide day and overnight use for recreationists, support to fire suppression or control efforts, administrative use by backcountry crews, or support associated with special use permits. Some sites are or may be classified as historic properties.

Development levels (DL) for facilities provide objectives for site modifications and the scale of development to meet the ROS setting (ranging from 1-5 for less to more developed). Maintenance levels provide standards for activities to maintain the level of development by alternative. In some cases, capital improvements or decommissioning may be necessary to meet the objectives for a site.

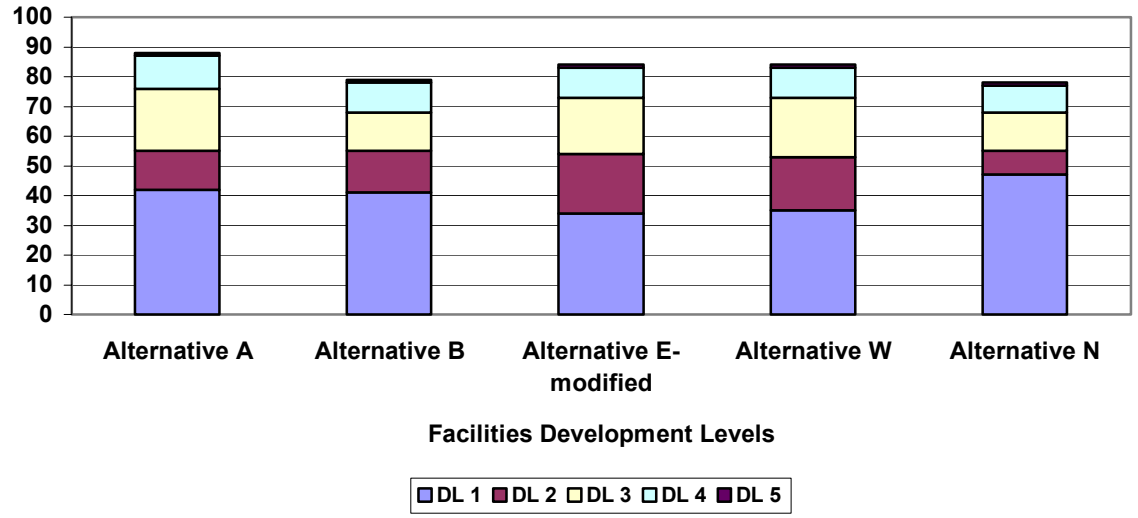
Alternative A would propose more development of sites than the other alternatives and would provide the greatest degree of comfort and convenience for the public. Two new campgrounds would be proposed to increase the development scale of facilities and to accommodate future use. Self-reliance and the rustic character of the HCNRA would be less than in other alternatives.

Alternatives B and **E-modified** would favor more rustic designs resulting in more primitive and challenging facilities on the development scale. **Alternative W** would be similar to A with respect to developed sites, but would have a lower standard of development. These alternatives would manage the number and type of facility development and maintenance levels to meet ROS setting indicators. Campgrounds would be maintained for their existing character. Aging structures would be replaced with new, low-maintenance, and rustic facilities. Development of sites would provide comfort, convenience, and accessibility but self-reliance and independence would be emphasized more in Alternatives B, E-modified, and W than in Alternative A. Alternatives B, E-modified, and W would provide a range of accessibility levels to accommodate physically challenged users.

Alternative N would manage to prevent crowding at sites by avoiding any expansion of facilities. Nonfunctional facilities would be replaced with the same type of materials that would not change the appearance. The rustic feeling of the area would be maintained, but it would least meet the needs of visitors who prefer facilities that provide comfort and convenience. Accessibility for physically-challenged users would be reduced.

Figure 14 summarizes the number of recreation sites at various development levels to meet the management objectives by alternative.

Figure 14: Facilities Development Levels by Alternative



Forested Vegetation, Grasslands, and Forest Understory (Significant Issue)

The alternatives are compared in terms of potential acres of forested vegetation treatment in the next decade to maintain or improve the HRV, potential acres of fire (PF, WFU, and unwanted wildfire) in a decade, and qualitative trends in ecological status for grasslands.

Unit of Measure – Potential Acres of Forested Vegetation Treatments

The *HCNRA Act* permits uneven-aged timber management that is compatible with provisions of the legislation. Selective harvest methods were specified in the *HCNRA Act* to prevent even-aged management, such as clearcutting or seed tree harvests. The existing CMP excluded all commercial forestland (a capability classification) with low capability and approximately 25 percent of the commercial forestland with moderate to high capability from harvest. Most of the HCNRA is not classified commercial timberland due to the nature of the plant communities and the steep, rocky terrain. The *Public LURs* classified timber removed from the HCNRA as unregulated and excluded it from contribution toward the WWNF allowable sale quantity (36 CFR 292.46).

The *Public LURs* state that timber may be harvested only to protect and enhance ecosystem health, wildlife habitat, or recreational and scenic uses; to reduce the risk of harm posed by hazard trees; or to respond to natural events such as wildfire, flood, earthquake, volcanic eruption, high winds, and disease and insect infestation. The predominance of fire as a primary force shaping the vegetative environment has changed the focus of potential forested vegetation treatments in the HCNRA. Potential treatments described in **Table 15** would be a first step in facilitating fire as a management tool by reducing ground and ladder fuels in forested areas.

Table 15: Potential Acres of Forested Vegetation Treatments by Alternative Over the Next Decade

Vegetation Treatment	Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Precommercial Thinning	2,400	2,275	5,400	7,100	0
Mechanical Treatment and Underburn	1,550	950	1,550	4,000	0
Single-tree Selection	21,000	7,450	8,200	19,900	0
Commercial Thinning	1,650	1,425	2,550	8,000	0
Total					
Total	26,600	12,100	17,700	39,000	0
Percentage of Forested Acres Treated*	10%	4%	6%	14%	0%
Percentage of HCNRA Acres Treated**	4%	2%	3%	6%	0%

*272,144 acres of forested stands
**652,488 acres in the HCNRA

As a result of fire exclusion, the absence of stand-density management, and prolonged drought, the pine-dominated stands have developed structures that are susceptible and vulnerable to epidemic insect and disease infestations, and fire events outside their HRV. Fire could be re-introduced into these fire-dependent ecosystems using PF to help stimulate fire-resistant plant species, thin stands, reduce fuel loads, and reduce the risk of large, extensive, stand-replacing fires.

The proposed treatments in **Alternatives A, E-modified**, and **W** would provide the greatest degree of ecosystem sustainability within the HCNRA and within the Interior Columbia Basin (Quigley and Arbelbide 1997). **Alternative B** would result in less than half the amount of treatment extended by **Alternatives A, E-modified**, and **W**. Although **Alternative N** has a similar amount of total cumulative treatment acres affecting tree density, its total acreage is from PF, which does not preserve large-diameter seral species at beneficial densities as well as the other alternatives with their mixes of forested vegetation and PF treatments. **Table 16** displays the proposed total treatment acres on forested areas by alternative over the next decade.

Table 16: Proposed Total Treatment Acres on Forested Area by Alternative over the Next Decade

	Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Forested Vegetation Treatment Acres	26,600	12,100	17,700	39,000	0
Prescribed Fire Acres	12,750	4,100	19,495	[1]	16,460
Proposed Total Acres	39,350	16,200	37,195	39,000	16,460
Percent Forested Acres Treated*	14%	6%	14%	14%	6%
Percent of HCNRA Acres Treated**	6%	2%	6%	6%	2%

*272,144 acres of forested stands; **652,488 acres in the HCNRA
[1] Although **Alternative W** has prescribed fire on 21,040 acres, it is not added to the forested vegetation treatment acres because it is prescribed to occur only on the same areas that have had pre-treatment by forested vegetation activity.

Unit of Measure – Potential Acres of Fire

Over the past 100-plus years, the percentage of higher-burn intensities in Blue Mountain forests has increased beyond historic conditions as a direct result of increased fuels loads, which have developed from fire exclusion (Johnson 1998). Fire suppression activities have lengthened the interval between fire return and allowed for development of multi-layered canopies dominated by shade-tolerant conifers. Stands historically maintained as Fuel Model (FM) 2 (grass and open timber types) and FM 8 (open mixed-conifer forested stands) have developed into FM 10 structures (complex structure mixed-conifer forested stands with a significant amount of dead and down material) with a decrease in the historic percentage of FM 8 structures (Maruoka 1994).

Table 17 displays the potential acres of fire by fuel models (FM 2, 8, and 10) by type of fire (WFU, PF, and unwanted wildland fire) that would potentially occur by alternative over the next decade to maintain or improve the representation of all structural stages within HRV.

Table 17: Potential Acres of Fire for All Fuel Models (FM 2, 8, 10) by Alternative Over the Next Decade

Fire Type	Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
All Fuels Models (FM 2, 8, and 10) Combined					
Wildland Fire Use for Resource Benefits (WFU)	7,500	14,500	115,720	64,700	263,420
Prescribed Fire (PF)	35,000	13,000	68,000	41,600	40,450
Unwanted Wildland Fire	44,780	58,440	18,680	21,660	9,130
Total					
Grand Total	87,280	85,940	202,400	127,960	313,000
Percentage of HCNRA	14%	14%	33%	21%	51%

*619,488 acres excluding private land

Alternative A proposes a moderate level of PF for FM 2 and would take nearly five decades to burn over these acres at a rate higher than what occurred following Euro-American settlement. Deviations from the reference-disturbance levels and fire regimes would continue to move stands outside of the reference period, and changes in fire frequency would result in changes in fire severity. The shift from nonlethal, mixed fire regimes in FM 8 to lethal fire regimes would continue and increase the percentage of stands highly susceptible to stand-replacing fires. FM 10 structures would be maintained until stand-replacement fire events occurred.

As a result, stands in the very early to early stage of development would increase beyond the level of structural stages within the HRV. Most of the unwanted wildland fire acres would burn under more severe conditions due to the fires occurring in complex fuel profiles. Aggressive suppression would be required. Approximately 14 percent of the HCNRA would be affected by fire under Alternative A over the next decade.

Alternative B proposes a low-to-moderate use of PF over time and would burn FM 2 acres over nearly five decades. The limited acreage permits only targeting selected areas as demonstration of historic fire influence. WFU would be more costly to implement and have a higher risk of failure due to the small acreage estimated potentially available for the decade. Large, intense wildland fire events would result in large patches of early seral communities and increases in risks to firefighters and costs would accrue to future decades.

Unprecedented and undesirable effects to wildlife habitat and resource values beyond the risk to human lives could occur (Morgan et al 1996). Existing FM 10 stands, burning under high intensity conditions, would convert to FM 2 or FM 5 (shrub) structures. Aggressive suppression would be necessary to achieve the potential acres. Approximately 14 percent of the HCNRA would be affected by fire under Alternative B over the next decade.

Alternative E-modified proposes a high level of PF in FM 2 over time and would approximate the upper end of the reference period disturbance level where the same acreage would have burned nearly every one to two decades within the true grassland communities. WFU or PF would not be a major concern for weed spread if fires occur in spring or fall when they can burn cool enough so as not to scorch the soil and create a weed-infestation condition (C. Johnson direct communication 1999).

Cumulative effects of potentially decreasing the percentage of FM 8 in unwanted wildland fire events would help meet vegetation management objectives of a sustained ecosystem function within the HRV. However, even under PF and WFU conditions, fuel models would burn with sufficient intensity to change seral conditions. This change would be within the anticipated cycling of landscape conditions due to natural processes across this

complex terrain. Approximately 33 percent of the HCNRA would be affected by fire under Alternative E-modified over the next decade.

Alternative W proposes a high level of PF in FM 2 over time beyond the reference-period disturbance level for fire frequency. Cumulative effects of potentially decreasing the percentage of FM 8 in unwanted wildland fire events would help meet vegetation management objectives for sustained ecosystem function within the HRV. Because not all areas would be suitable for forested vegetation treatments in the short term, and cannot be included in PF, stand structures and fuel profiles would advance toward late-seral (FM 10) conditions, but at a much reduced rate than **Alternative A**.

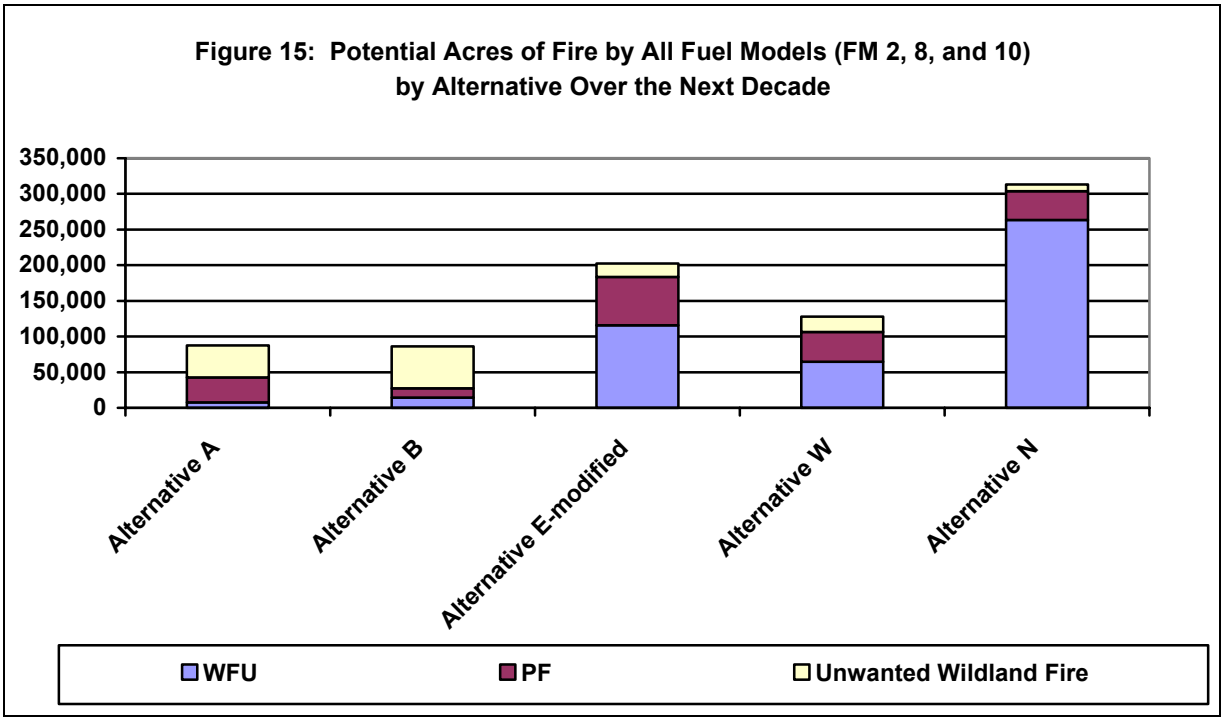
Long-term monitoring would be important to assess what types of forested conditions exist under this alternative with its greater reliance on management intervention through manipulation of fuels and stand structures. Significant costs would be required to access FM 10 areas in remote, unroaded portion of the HCNRA that would potentially limit the use of mechanical methods. Approximately 21 percent of the HCNRA would be affected by fire under Alternative W over the next decade.

Alternative N proposes a high use of WFU over time and would burn FM 2 acres in one and a half decades which comes closest to the reference-period disturbance level for fire frequency and would reestablish wildland fire as a dominant disturbance force within the HCNRA. The percentage of FM 8 unwanted wildland fire events would decrease compared to **Alternative A**. Different fire may influence the subsequent spread of wildfires depending on location and size of the wildland fires.

The cumulative effects of decreasing FM 10 stand-replacing unwanted wildland fires would greatly help meet vegetation management objectives of sustaining ecosystem function to provide forested structures within the HRV. More fire shaping future landscape conditions would increase adverse effects as well as the potential benefits by reestablishing fire as a primary ecological disturbance processes. Monitoring would evaluate the results and interactions and would serve to enhance future planning within the HCNRA as well as other fire dependant landscapes of the Intermountain West. Approximately 51 percent of the HCNRA would be affected by fire under Alternative N over the next decade.

Figure 15 displays the potential acres of fire by all fuel models by alternative over the next decade.

Figure 15: Potential Acres of Fire by All Fuel Models (FM 2, 8, and 10) by Alternative Over the Next Decade



Unit of Measure – Qualitative Trends in Ecological Status for Grasslands

Ecosystem attributes fluctuated historically within some range of variability. This HRV represents the natural fluctuation of ecological and physical processes and functions that would have occurred in an ecosystem during a specified previous period. For the HCNRA, HRV refers to the range of conditions that are likely to have occurred before the settlement of northeastern Oregon by Euro-Americans around 1850. The HRV within the grasslands provides a general approximation and comparison between current seral conditions and estimated historic conditions and allows scientists to evaluate relative trends and rates of change across the HCNRA landscape (Quigley and Arbelbide 1997).

The *Public LURs* require the definition and implementation of satisfactory condition. Ecological status (very early, early, mid, and late seral) is evaluated in terms of achieving satisfactory conditions (mid-seral status with an upward trend) within the context of HRV. The primary comparison of alternatives focuses on the definition of satisfactory conditions by alternative.

Alternative A has no provisions for striving toward grassland HRV. Alternative A requires that all grasslands be maintained in a "good" condition, which is relatively synonymous with a late-seral status. A contiguous late-seral status would not be possible or desirable, since most plant and animal species evolved in grasslands with disturbance regimes and a varied range of seral stages.

Alternatives B and **W** incorporate HRV as the goal for the grasslands, while Alternative E-modified uses HRV as a reference condition with the goal of achieving the PNC (community that would result if succession were completed without interference by humans while allowing for natural disturbances). Management would be designed to move landscapes toward defined ranges of seral stages or to maintain landscapes at a mix of given seral stages, in order to meet HRV objectives. This would lead to approximations of naturally occurring (before Euro-American) conditions.

Alternative E-modified would reconcile HRV objectives with the *Public LURs* definitions of satisfactory condition (i.e., fair range forage condition with an upward trend or better) by attaining a mid-seral ecological status with an upward trend or higher condition based on the PNC. Alternative E-modified would acknowledge that some sites have been altered to a very early seral stage where native species are essentially missing or in such low presence that they cannot out compete the invasive vegetation. Alternative E-modified further provides for restoration of degraded sites in early to mid-seral status to facilitate achieving HRV over time.

Alternative N does not specifically address HRV. It would allow fire to play its natural role to restore natural ecosystem processes that would dominate the landscape. Alternative N's emphasis on natural ecosystem processes would continue to provide a presence of early and mid-seral status areas across the landscape similar to that occurring under Alternatives B, E-modified, and W.

Vacant Allotments Disposition and Satisfactory Range Conditions (Significant Issue)

The alternatives are compared below in terms of the acres incorporated into active allotments, remaining vacant or closed; and the estimated capable and suitable acres for grazing. The alternatives are compared for satisfactory range conditions in terms of trends in grasslands meeting or moving toward *Public LURs* definition of satisfactory condition (mid-seral stage, or fair forage condition with an upward trend or better).

Unit of Measure – Acres of Allotments (Active, Vacant, Closed, Capable and Suitable)

About 566,411 acres (91%) of HCNRA lands are within 51 grazing allotments. Approximately 53 percent of grazing allotments are currently active (298,905 acres on 40 allotments) and 47 percent of grazing allotments are vacant (267,506 acres on 11 allotments). The 11 vacant allotments occur wholly or mostly within the HCNRA and have become vacant since 1980. The majority (83%) of the vacant acres are classified for sheep and goat grazing (221,206 acres) and the remainder are classified for cattle and horse grazing (46,300 acres).

Table 18 displays the status of allotments by alternative in terms of acres of active, incorporated into active, remaining vacant, closed, total potentially available for grazing, and capable/suitable. The estimated capable and suitable acres include only active allotments and administrative horse pastures based on the low probability of completing site-specific analysis for potentially available areas over the next decade.

Table 18: Acres of Active, Incorporated into Active, Retain as Vacant, Closed, Capable and Suitable for Livestock Grazing by Alternative

Status	Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N Scenarios A and B	
Cattle	292,521	292,521	292,521	292,521	0	146,261
Horse Pastures	[1]	18,590	18,083	18,590	0	0
Sheep	6,384	6,384	6,384	6,384	0	0
Total Active	**298,905**	**317,495**	**316,988**	**317,495**	**0**	**146,261**
Cattle	134,899	63,088	3,641	89,292	0	0
Sheep	0	0	0	0	0	0
Total Incorporated into Active	**134,899**	**63,088**	**3,641**	**89,292**	**0**	**0**
Cattle	0	0	0	27,017	0	0
Sheep[2]	132,607	132,607	0	132,607	0	0
Total Retain as Vacant	**132,607**	**132,607**	**0**	**159,624**	**0**	**0**
Current	54,900	54,900	54,900	54,900	54,900	54,900
Added	0	53,221	245,782	0	566,411	420,150
Total Closed	**54,900**	**108,121**	**300,682**	**54,900**	**621,311**	**475,050**
Potential Active[3]	433,804	380,583	320,629	406,787	0	146,261
Potential Active that is Capable and Suitable[4]	260,282	228,350	192,377	244,072	0	87,757
Percent Change from Alternative A	0%	-12%	-26%	-6%	-100%	-66%
Likely Active that is Capable and Suitable[5]	190,497	190,497	190,193	190,497	0	87,757
Percent Change from Alternative A	0%	0%	<1%	0%	-100%	-54%

[1]Included in vacant allotment acres (18,590 acres)
[2]Includes Curren Hill Allotment (sheep) administered by the Payette National Forest (2,116 acres)
[3]Includes all acres incorporated into active status following site-specific analysis, probability of restocking incorporated vacant acres is low over the next decade
[4]Based on 60 percent of potential active acres
[5]Includes only active and administrative horse pastures acres based on the low probability of site-specific analysis over the next decade. vacant parcels over the next decade.

Alternative A would incorporate 50 percent (134,899 acres) of the vacant allotments into active allotments, and would maintain 50 percent (132,607 acres) of the vacant allotments as vacant in four sheep allotments (Temperance-Snake, Mud-Duck, Sheep Creek, and Curren Hill). **Alternative B** would incorporate 23 percent (63,088 acres) and close 20 percent (53,221 acres) of vacant allotments, and would maintain the sheep allotments as vacant.

Alternative E-modified would incorporate one percent (3,641 acres) of the vacant allotments and close 92 percent (245,782 acres) of vacant allotments and classify them as unsuitable for permitted livestock. **Alternative W** would incorporate 33 percent (89,292 acres) into active allotments, maintain 50 percent (132,607 acres) of the vacant allotments as vacant in four sheep allotments, and maintain 10 percent (27,017 acres) as vacant for ungrazed control areas.

Alternative N includes two scenarios. Under **Scenario A**, there would be no livestock grazing in the HCNRA. Therefore, all active and vacant allotments would be closed. **Scenario B** would maintain active grazing on 146,261 acres and would close allotments that become vacant in the future. Alternative N would close all current vacant allotments including the vacant sheep allotments, all allotments that become vacant in the future, and all active sheep allotments.

Alternative A would not establish administrative horse pastures in the vacant allotments. **Alternatives B, E-modified,** and **W** would establish similar levels for administrative horse pastures. Alternative N would close administrative horse pastures.

Alternatives B, E-modified and **W** would have similar levels of capable and suitable areas for grazing based on actively grazed areas over the next decade followed by **Alternative A**. **Alternative N** would maintain about half the active acres that are capable and suitable for grazing (Scenario B) or would eliminate grazing (Scenario A).

All alternatives would reduce the total potential acres available for livestock grazing below **Alternative A**. **Alternative W** would incorporate the most vacant acres into active allotments followed by **Alternatives B** and **E-modified**. Allocated vacant allotments or portions thereof into active allotments would not be restocked pending completion of a site-specific NEPA decision. The probability of incorporating acres into active grazing

allotments over the next decade would be low due to other priorities to analyze currently grazed areas first, only very limited restocking would occur over the life of the plan.

Alternatives B, E-modified, and **W** would maintain the same level of active grazing as currently exists under Alternative A, and would establish administrative horse pastures as a separate use. The administrative horse pastures are currently used under Alternative A but have been accounted for as part of vacant allotment acres, so the net effect would be no change in the level of active grazing. Less than 50 percent of the HCNRA would be in active grazing status under these alternatives. **Alternative N** would however, eliminate active grazing altogether including administrative horse pastures and would allow approximately half of the current level of active grazing (146,261 acres) or 22 percent of the HCNRA. **Table 19** displays the disposition of individual vacant allotment acres by alternative. **Figures 16, 17,** and **18** display the differences in vacant allotments by alternative.

Table 19: Disposition of Individual Vacant Allotment Acres by Alternative

Allotment Name	Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N Scenarios A & B
071 - Jim Creek					
Vacant	12,490				
Closed			312		12,490
Administrative Horse		12,490	12,178	12,490	
082 - Cherry Creek					
Vacant	21,924			5,047	
Closed		5,047	20,204		21,924
Administrative Horse		1,915	1,720	1,915	
To Toomey		5,527			
To Chesnimnus		9,435		9,435	
To Rhodes				5,527	
084 - Temperance-Snake					
Vacant	42,825	42,825		42,825	
Closed			42,825		42,825
108 - Hope Creek					
Vacant	2,207		2,207		
Closed					2,207
To Blackmore		1,324			
To Saddle Creek		883			
To Dunn Creek				2,207	
118 - Turner Creek					
Vacant	1,434		1,434		
Closed					1,434
To Dunn Creek		1,434			
To Chalk Creek				1,434	
162 - Mud-Duck					
Vacant	47,020	47,020		47,020	
Closed			47,020		47,020
164 - Sheep Creek					
Vacant	40,646	40,646		40,646	
Closed			40,646		40,646
167 - Big Canyon					
Vacant	8,045				
Closed			8,045		8,045
To Pittsburg		8,045		8,045	
183 - Cache Creek					
Vacant	8,245			3,855	
Closed		3,855	6,048		8,245
Administrative Horse		2,197	2,197	2,197	
To Lost Cow		2,193		2,193	
191 - Canyon					
Vacant	80,554			18,115	
Closed		44,319	78,566		80,554
Administrative Horse		1,988	1,988	1,988	
To Cayuse		24,446		25,005	
To Cow Creek		3,952		3,952	
To Lone Pine		5,849		31,494	
Curren Hill					
Vacant	2,116	2,116		2,116	
Closed			2,116		2,116

Figure 16: Current Range Allotments (Alternative A)
Hells Canyon National Recreation Area

Figure 17: Vacant Allotments for Alternatives B and E-modified
Hells Canyon National Recreation Area

Figure 18: Vacant Allotments for Alternatives W and N
Hells Canyon National Recreation Area

Unit of Measure – Trends in Grasslands Meeting or Moving toward Public LURs Satisfactory Condition

The definition and implementation of satisfactory condition is required by the *Public LURs*. **Alternatives A, B** and **W** provide direction the use of range condition rating with evaluate health through analysis of forage conditions. **Alternative E-modified** evaluates ecological status of a site and is a comparison to the PNC. **Alternative N** does not establish a specific definition for satisfactory condition.

Alternative A would maintain a goal of having all grasslands within the HCNRA in "good" condition (late-seral status) and having all range conditions currently in less than satisfactory condition be at least in an upward trend, as stated in the CMP (USDA 1982, as amended, FEIS, p. 116). The goal was not clearly defined in the CMP, leading to a number of different interpretations. The CMP also does not define "satisfactory condition," as required by the *Public LURs*.

Alternatives B and **W** would provide minimum satisfactory conditions in which available grazing lands would be authorized for use under grazing permits. Established agency protocols for range forage condition, riparian hardwood-health parameters, and soil-condition parameters would apply. These provide the minimum acceptable factors for meeting satisfactory conditions. In many instances, the site-specific goal or objective would be higher than this minimum. This proposed standard would be measurable and would meet desirable goals.

Alternative E-modified would be similar to **Alternatives B** and **W** but would define satisfactory condition using ecological status to attain mid-seral status or higher for grasslands, soil surface conditions and riparian hardwoods. Alternative E-modified would provide a more rapid recovery than Alternative B and W by focusing restoration efforts on noxious weed and invasive species prevention and closing vacant allotments. This would result in a full condition class on sites in mid-seral status and a movement to late-seral status with a stable trend on sites currently in satisfactory condition. This response would be predicated on successful restoration of sites occupied by invasive species, and on big-game impacts remaining constant or decreasing.

Alternative N does not specifically define "satisfactory condition" as required by the *Public LURs*. Effects would be similar or better than **Alternative E-modified** due to exclusion of livestock. The exclusion of livestock under either **Scenario A** or **B** could enhance natural restoration processes and would likely result in some sites in mid-seral status or poorer moving up from one-quarter to one-half condition class over the next decade. There would continue to be areas of early and very-early status where natural recovery would not be possible due to altered site potentials. This alternative would allow for limited active management due to its emphasis on natural processes and its restrictions on the use of herbicides. Some sites would not improve without active restoration due to invasive species that have taken over areas and would remain at low levels of ecological health.

Table 20 describes the trends in moving toward or achieving satisfactory conditions by alternative.

Table 20: Trends of Moving Toward or Achieving Satisfactory Condition by Alternative

Trends	Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Moving toward at least mid-seral stage (fair forage condition) with an upward trend or better	Slowest	Moderate	Moderate to near natural	Moderate	Moderate to near natural

As shown in **Table 21, Alternatives A, B** and **W** would result in an estimated reduction (7%) of existing animal unit months (AUMs) over the next decade. **Alternative E-modified** direction would result in a slightly higher (10 %) reduction. There would be a continued decline (-52 to –100%) in active grazing under **Alternative N**.

Table 21: Annual Permitted Grazing Use (thousand AUMs) by Alternative over the Next Decade

Permitted Use	Current Levels	Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N Scenarios A & B	
Cattle in Oregon	34.99	32.53	32.53	31.49	32.53	0	18.9
Cattle in Idaho	4.59	4.36	4.36	4.13	4.36	0	0
Sheep in Idaho	0.17	0.16	0.16	0.16	0.16	0	0
Total							
Total	39.75	37.05	37.05	35.78	37.05	0	18.9
Percent Change from Current Levels	0%	-7%	-7%	-10%	-7%	-100%	-52%

Heritage Resources (Significant Issue)

Based on observation and experience, the primary causal agents for heritage disturbances for the HCNRA are fire, livestock grazing, recreation use and development, and forested vegetation management. The alternatives are compared in terms of the potential risk of impacts on heritage resources from these activities based on potential surface disturbance, removal or alteration of structural elements, removal or alteration of mapped artifacts, modification or alteration of physical environment or setting.

Unit of Measure – Potential Risk of Impacts on Heritage Resources

Risk to heritage resources from fire is far greater to historic than to prehistoric resources, and the loss of historic structures is irreversible. Most historic sites, from log and frame structures to can scatters, are located at or near the surface. **Alternatives A** and **B** do not differ significantly in terms of the total numbers of acres identified for potential wildfire. However, the combination of prescribed fire and wildfire under **Alternative E-modified** would potentially occur on more than twice the area of Alternative A. **Alternative W** would potentially affect 1.5 times more area than A. Alternatives E-modified and W thus have greater potential to affect heritage resources, particularly within Wilderness. Because **Alternative N** would affect the greatest number of acres with fire (approximately 51% of the HCNRA in 10 years), it presents the greatest risk to heritage resources from fire.

Livestock grazing would have a measurable effect on the protection and preservation of heritage resources based on the total number of acres available to livestock grazing. Livestock grazing has the potential to affect both prehistoric and historic heritage sites through trampling of artifacts and features. Under **Alternatives A, B, E-modified,** and **W**, currently vacant allotments, or portions thereof, would be incorporated into active allotments. The rate at which this occurs would depend on the site-specific analysis. **Alternative A** would potentially allow the greatest number of vacant allotments to be stocked with domestic livestock in the future, followed by **Alternatives B** and **W. Alternative E-modified** would allow a small amount of acres to potentially be restocked with domestic livestock in the future (3,641 acres) compared to Alternatives A, B, and W. Alternatives B and E-modified would use exclusionary practices to prevent degradation of heritage resources (Her-S9). **Alternatives E-modified** and **N**, which close all or most of existing vacant allotments, would have a significant, long-term reduction in livestock-related impacts to historic and prehistoric heritage resources.

Alternatives with the highest levels of recreation management and development would have the highest potential for affecting heritage resources because many of the developed recreational sites are also prehistoric and/or historic heritage sites. **Alternatives A, E-modified,** and **W**, respectively, contain the greatest number of changes in management direction, which if implemented, would be most likely to directly and indirectly affect heritage resources. Generally, these changes involve proposed opportunities that upgrade existing and/or construct new recreation developments and improve access. In doing so, they tend to make some areas more attractive to recreation visitors. This could, and probably would, result in increased recreation use over time. There would likely be a concurrent increase in recreation-user impacts to heritage resources. **Alternatives B** and **N** would construct no new facilities and would focus on maintenance of existing facilities. Thus, they would be less likely to affect heritage resources than **Alternatives A, E-modified,** or **W**. **Alternatives E-modified** would limit motorized use to designate routes, dispersed campsites or areas, and special fuelwood cutting areas and reduce potential impacts. **Alternative N** would reduce the miles of open road the most and limit off-road access to minimal incursions (60 feet) to access dispersed sites. These restrictions would reduce the impacts to heritage resources.

Alternatives with the highest levels of forested vegetation management (**Alternatives W, A, E-modified, B,** and **N** in descending order) would have the highest potential for affecting heritage resources. **Alternative N**, with no identified forested vegetation management activities, would have the least potential over the long term. All alternatives would require site surveys before implementation of forested vegetation management activities which would provide for the long-term protection of heritage resources.

Comparison of Alternatives – Other Issues

This section briefly describes some of the environmental consequences to some of the other issues. The issues are described here to provide the reader with further information about the potential environmental consequences beyond those associated with the significant issues.

Federal Trust Responsibilities

Some commentors questioned how the rights and privileges afforded members of the Nez Perce Tribe, by virtue of the *Treaty of 1855* would be protected. The potential impacts on cultural resources, sacred sites, and religious practices are closely related with the heritage resources management direction. The potential effects on resources or values protected by treaty or law such as the taking of fish, hunting, gathering roots and berries, and pasturing of horses and cattle is linked to protection and management measures for fish, wildlife, and vegetation. Many comments suggested allowing the Nez Perce Tribe to play a major role in managing the canyon's heritage resources. The Nez Perce Tribe has participated in the development of this EIS to address their tribal treaty rights and cultural interests.

All alternatives would minimally meet federal trust responsibilities, with the exception of **Alternatives B, E-modified**, and **W**, which would exceed them. **Alternative A** maintains existing management direction. The existing CMP does not contain direction on federal trust responsibilities.

Alternatives B and E-modified provide specific direction designed to foster achievement of the federal trust responsibilities of the *Treaty of 1855* through government-to-government relationships with the Nez Perce Tribe and other tribes. These alternatives provide the management direction and tools to monitor, evaluate, and adapt management activities that best meet tribal interests. Specific direction would apply to ensure treaty-reserved rights of the Nez Perce Tribe with respect to taking fish, erecting temporary buildings for curing, hunting, gathering roots and berries, and pasturing cattle and horses. Direction also provides for managing treaty resources such as aquatic habitat, wildlife habitat, and grasslands for protection of these rights. Direction is provided for managing resources and values important to the Nez Perce Tribe for hunting, gathering, cultural, spiritual and religious activities, and considering access to usual and accustomed fishing places, hunting locations, gathering sites, and other cultural sites.

This proposed direction complements the heritage, fire, wildlife, fisheries, and access direction and would provide additional guidance to ensure meeting federal trust responsibilities. Implementation of the proposed activity levels for public outdoor recreation, timber harvesting by selective cutting, and livestock grazing would conserve and protect federal trust responsibilities. Specific areas of concern would provide the basis for consultation. In conjunction with the specific management direction in Alternative E-modified and the strategies for managing recreation use would provide additional tools to meet federal trust responsibilities.

Alternative W provides management direction similar to **Alternatives B** and **E-modified** with similar effects. Proposed activity levels for public outdoor recreation, timber harvesting, and grazing would provide the basis for consultation and federal trust responsibilities would be met through implementation of the management direction.

Alternative N does not provide corresponding management direction specific to federal trust responsibilities. Alternative N does address tribal consultation through proposed standards for heritage and fire. As with Alternative A, the lack of specific emphasis on government-to-government consultation would lead to potential inadequate protection of treaty-reserved rights. Direction for managing resources such as heritage, fire, wildlife, fisheries, and access would provide guidance toward meeting federal trust responsibilities.

Although **Alternatives A** and **N** have existing management direction (and **Alternative N** has direction concerning contracting and consultation on specific resources), the lack of direction on meeting federal trust responsibilities of the *Treaty of 1855*, may compromise government-to-government consultation and protection of treaty rights over the long-term.

Socioeconomic Conditions

Changes in levels of resource use in the HCNRA may affect the major economic and social characteristics of the broader geographic area. Effects to social and economic conditions are compared in terms of outfitter and guide gross revenue; livestock grazing employment and income; and timber harvesting employment and income.

Unit of Measure – Outfitter Guide Use and Gross Revenue

Special use permits are authorized to provide recreation opportunities with outfitter and guides on the upland areas of the HCNRA for cougar/bear hunting; horse, mule, and llama pack trips; big-game hunting; mountain biking; fishing; photography; motorized ground transportation, and aviation service to backcountry airstrips. Demand for outfitter and guide services is 43 percent of the average permitted capacity (2,348 service days). Gross revenues average approximately $119,113 (in 2002 dollars). Use has been declining on average 1.4 percent annually.

Alternative A would maintain outfitter and guides (21 permits including one for aviation use) at current levels (2,348 service days) with one aviation special use permit (100 service days) which limits service to the public, especially on the Idaho side of the HCNRA.

Alternatives B would increase the number of outfitter and guide opportunities (22 permits), and reduce the service days for aviation use by 50 percent (to 50 service days). An additional permit would provide guided fishing/whitewater rafting (150 days depending on demonstrated need) on the Imnaha River. Alternative B would provide a net gain of 100 service days and four percent (4.3%) more gross revenues ($289,159) if capacity (2,448 service days) were fully utilized.

Alternative E-modified would increase the number of outfitter and guide opportunities (22 permits). The level of aviation use with one permit would be increased (150 service days total) and an additional pool of 150 service days (by temporary use permit) would provide additional services to surrounding communities from other aviation operators. Alternative E-modified would prohibit regularly scheduled landings at backcountry airstrips to eliminate the opportunity for future growth in scenic tours or other scheduled activities that would be incompatible with the remoteness of the HCNRA. Alternative E-modified would provide an increase of 350 service days and 15 percent more gross revenues if capacity (2,698 service days) were fully utilized due to the additional opportunity for guided fishing/whitewater rafting on the Imnaha River (150 service days) and aviation services (200 service days).

Alternative W would create opportunities for economic activity by adding 11 new permits with an increase of 1,431 service days. Permit numbers would initially be increased (total of 32 including two aviation permits) primarily in the permit types that are currently not filled or under utilized (guided fishing/whitewater rafting on Imnaha River, photography, mountain biking, snowmobiling, and motorized ground transportation). Two special use permits (150 service days each) for aviation services would provide enough service days to maintain viability for a business and enable operators to provide adequate service to Idaho and Oregon communities surrounding the HCNRA. Nontraditional uses would be considered if they did not affect other commercial users. Alternative W would provide an increase of 1,431 service days and 61 percent more gross revenues if capacity (3,779 service days) were fully utilized.

Alternative N would maintain existing outfitter and guide permits the same as Alternative A. Visitors that have traditionally relied on motorized access to areas that would be permanently closed under this alternative may hire a stock outfitter to pack them into the same area rather than forego their hunt altogether

Table 22 displays estimated annual outfitter and guide permits, service days, and gross revenue based on number of permits and service days by alternative over the next decade. The table also displays the percentage change by alternative compared to Alternative A.

Table 22: Outfitter and Guide Permits, Service Days, and Gross Revenues by Alternative

	Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Number of Permits	21	22	22	32	21
Service Days	2,348	2,448	2,698	3,779	2,348
Estimated Gross Revenues	$277,347	$289,159	$318,689	$446,377	$277,347
Percent Change from Alternative A	0%	4.3%	14.9%	60.9%	0%

Unit of Measure – Livestock Grazing Employment and Income

Livestock grazing permittee's dependence on forage (in terms of AUMs) from the HCNRA varies based on a variety of factors, including season of use, availability of federal and private forage, and the number of permits available. HCNRA permittees use an average of 82 percent of the forage available from the allotments based on

the percentage of AUMs supported by NFS land compared to the private portions of the permit. This reliance on forage may be as high as 90 percent for some permittees who also use HCNRA allotments for forage during the winter (B. Garnett, J. Williams, and L. Burton, direct communication with E. Kohrman 1996). This relationship is particularly evident along the middle and lower portions of the Imnaha River where several landowners rely on HCNRA allotments to sustain their operations.

Effects to livestock grazing employment and income were derived from inputs to the intermediate production process from final demand by the consumer (permittee) for NFS forage (AUMs). Estimates include employment and income effects from feedlots in the impact zone. Estimates may be underestimated due to the higher reliance on NFS forage in the HCNRA compared to the rest of the Interior Columbia Basin (Frewing-Runyon 1995).

Table 23 displays the estimated annual livestock grazing-related employment and income by alternative. Based on the level of grazing over the next decade, **Alternatives A**, **B and W** would support 14.1 jobs and $249,028 income annually due to livestock grazing. **Alternative E-modified** would support about four percent less annual employment (13.5 jobs) and income ($237,918) than Alternative A. **Alternative N** would support the least (-59 to –100%) amount of employment (0 to 5.7 jobs) and the least amount (-79 to –100%) of income ($0-51,453) compared to Alternative A due to eliminating grazing under Scenario A and reducing grazing by 50 percent under Scenario B.

Livestock grazing in **Alternatives A, B, E-modified** and **W** would continue to support jobs and income primarily attributed to the Oregon counties (70%). The remainder (30%) of the livestock grazing-related jobs and income would be attributed to the Idaho counties. Current operations would continue as traditional and valid uses in the HCNRA. **Alternative N** would reduce or eliminate livestock grazing-related employment and income. The loss of grazing permits and the associated grazing capacity would likely result in the loss of economic viability of some operators, and substantially reduce viability for others. With the loss of economic viability, some ranches would likely be sold to other ranching operators or for other development uses such as recreational or residential subdivisions. The net effect of Alternative N would vary between a rapid elimination and reduction in grazing over the next decade. Ultimately, grazing would be eliminated as a traditional and valid use of the HCNRA.

Table 23: Annual Livestock Grazing-related Employment and Income by Alternative

Portion of the HCNRA	Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N Scenarios A&B
Employment					
Oregon	9.9	9.9	9.6	9.9	0-5.7
Idaho	4.2	4.2	4	4.2	0
Total Employment					
Grazing-related Employment	14.1	14.1	13.5	14.1	0-5.7
Percent Change from Alternative A	0%	0%	-4%	0%	-59 to –100%
Income					
Oregon	$88,553	$88,553	$85,730	$88,553	$0-51,453
Idaho	$160,475	$160,475	$152,188	$160,475	$0
Total Income					
Grazing-related Income	$249,028	$249,028	$237,918	$249,028	$0-51,453
Percent Change from Alternative A	0%	0%	-4%	0%	-79 to –100%

Based on total employment by county, livestock grazing on the Oregon portion of the HCNRA would potentially support less than one percent of total jobs under all alternatives in Wallowa and Baker counties (5.7 to 9.9 jobs out of 13,447 total). Livestock grazing on the Idaho portion of the HCNRA would support less than one percent of total jobs under all alternatives in Asotin, Nez Perce, Idaho, and Adams counties (4.0 to 4.2 jobs out of 44,664 total). The estimated employment and income may be understated because other economic impacts occur from livestock grazing on nonfederal lands. Effects shown would be regional impacts to the larger economic region and not necessarily the expected impact on any one county.

Unit of Measure – Timber Harvesting Employment and Income

Timber harvesting is permitted in the HCNRA as long as it is compatible with Section 7 of the *HCNRA Act*. Selective harvest methods were specified in the *HCNRA Act* to prevent even-aged management, such as clear-cutting or seed tree harvests. The CMP excluded from harvest all commercial forestland (a capability classification) with low capability and approximately 25 percent of the commercial forestland with moderate to high capability. Most of the HCNRA is not classified as commercial timberland due to the nature of the plant communities and the steep, rocky terrain. The majority of land that would be commercially harvested is found in the upper Imnaha drainage, the North Pine Creek drainage, and along some of the plateaus and northerly slopes of the Imnaha and Snake canyons, and upper elevations of the Idaho side of the HCNRA. The *Public LURs* classified timber volume removed from the HCNRA as unregulated and excluded it from contribution toward the WWNF allowable sale quantity.

Based on the levels of timber harvest opportunities, **Alternative A** would support 42.4 jobs annually and $1.2 million income due to opportunities for timber harvest activities (4,695 MBF). **Alternative B** would support 59 percent less annual employment (17.3 jobs) and income ($483,018) compared to Alternative A due primarily to 65 percent fewer acres of uneven-age management. **Alternative E-modified** would support similar levels as Alternative B but with a 49 percent reduction in harvest levels and related employment and income compared to Alternative A. **Alternative W** would provide the highest overall level of employment (57.7 jobs) and personal income ($1.6 million), a 36 percent increase compared to Alternative A due to higher levels of commercial timber harvesting. Timber harvesting would continue as a traditional and valid use under **Alternative A, B, E-modified,** and **W**. **Alternative N** would not support any employment and income related directly or indirectly to timber harvest and associated activities. Timber harvesting would not continue as a traditional and valid use.

Timber harvesting in **Alternatives A, B, E-modified** and **W** would continue to support jobs and income primarily (92-98%) in Oregon counties due to the majority of potential forested vegetation treatment opportunities in the Oregon portion of the HCNRA. A small portion (2-8%) of the timber-related jobs and income would be attributed to Idaho counties from potential forested vegetation treatment opportunities in the Idaho portion of the HCNRA.

Based on total employment by county, timber harvesting on the Oregon portion of the HCNRA would potentially support less than one percent of total jobs under all alternatives in Wallowa and Baker counties (16.9 to 52.8 jobs out of 13,447 total). Timber harvesting on the Idaho portion of the HCNRA would potentially support less than one percent of total jobs under all alternatives in Asotin, Nez Perce, Idaho, and Adams counties (0.4 to 4.9 jobs out of 44,664 total). **Table 24** displays the estimated annual timber harvesting-related employment and income by alternative.

Table 24: Annual Timber Harvest-related Employment and Income by Alternative

Portion of the HCNRA	Alternative A	Alternative B	Alternative E-modified	Alternative W	Alternative N
Employment					
Oregon	40.0	16.9	20.8	52.8	0.0
Idaho	2.5	0.4	0.9	4.9	0.0
Total Employment					
Harvest-related Employment	42.4	17.3	21.7	57.7	0.0
Percent Change from Alternative A	0%	-59%	-49%	36%	-100%
Income					
Oregon	$ 1,113,398	$ 471,683	$ 579,370	$1,471,096	$ -
Idaho	$ 69,273	$ 11,336	$ 26,450	$ 136,026	$ -
Total Income					
Harvest-related Income	$ 1,182,671	$ 483,018	$ 605,820	$1,607,122	$ -
Percent Change from Alternative A	0%	-59%	-49%	36%	-100%

The estimated impact does not represent all impacts associated with timber harvesting because harvesting also occurs on nonfederal lands. The effects may be overstated because some opportunities may not be economically feasible due to inaccessibility or standards and guidelines that require methods such as helicopter logging that would overprice the supply of material (Quigley and Arbelbide 1997). Effects shown would be regional impacts to the larger economic region and not necessarily the expected impact on any one county.

Further Information

The ROD is available on the Hells Canyon National Recreation Area web site at http://www.fs.fed.us/hellscanyon/. Printed copies of the documents are available at public libraries in Enterprise, Halfway, La Grande, and Baker City in Oregon; and Lewiston, Riggins, and Council in Idaho. A compact disc containing the ROD, a summary of the FEIS, and the FEIS is also available to the public. Send requests for information via email to R6HellsCanyonNRA@fs.fed.us. Upon request, public workshops will also be offered during the next several months to facilitate public understanding of the final decision.

Contact: John Denne (541) 523-1246 or Elaine Kohrman (541) 523-1331
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Glossary

Allotment (grazing) – Area designated for the use of a certain number and kind of livestock grazing for a prescribed period.

Allotment management plan (AMP) – A document that specifies the actions to be taken to manage and protect the rangeland resources and reach a given set of objectives.

All-terrain vehicle (ATV) – Small two-, three-, and four-wheel recreation vehicles, less than 50 inches wide, and large four-wheel drive sport utility vehicles and pick-up trucks that are capable of traveling off public roads; interchangeable with 'off-highway vehicle' or 'off-road vehicle'.

Animal unit month (AUM) – The amount of forage required by one mature (1000 lb.) cow or its equivalent for one month (based upon average forage consumption of 26 lb. of dry matter per day).

Archaeological sites – Sites containing relics, artifacts, and other evidence of past human cultures including historic properties as defined by the *National Historic Preservation Act*.

Backcountry airstrips – Unimproved airstrips within national forest boundaries used by the FS for firefighter and project work and by the public for recreation. Use of these airstrips varies seasonally. Various methods of airstrip maintenance include public and/or military involvement. Airstrips in the HCNRA are classified as Category 4 – mountain/remote airstrips–and are restricted by the FS to daytime flight only using visual flight references.

Displacement – Recreation visits are considered "displaced" or no longer consumed at a site or area when practical maximum capacity thresholds of the site or area are exceeded. Visitors are assumed to completely leave the HCNRA rather than seek an alternative location for their activity.

Disturbance – Refers to events that alter the structure, composition, or function of terrestrial or aquatic habitats. Natural disturbances include, among others, drought, floods, wind, fires, wildlife grazing, and insects and diseases. Human–caused disturbances include, among others, actions such as timber harvest, livestock grazing, roads, and the introduction of exotic species.

Disturbance regime – Natural pattern of periodic disturbances, such as fire or flood, followed by a period of recovery from the disturbance such as growth of a forest after fire.

Ecological integrity – In general, ecological integrity refers to the degree to which all ecological components and their interactions are represented and functioning; the quality of being complete; a sense of wholeness. Absolute measures of integrity do not exist. Proxies provide useful measures to estimate the integrity of major ecosystem components (forestland, rangeland, aquatic, and hydrologic). Estimating these integrity components in a relative sense for an area helps to explain current conditions and to prioritize future management. Thus, areas of high integrity would represent areas where ecological functions and processes are better represented and functioning than areas rated as low integrity.

Facilities development levels – Specify the amount and scale of modification allowed at a site to meet the Facilities setting indicator for each RAA.

- **Development Level 1** – Minimal site modification is evident. Improvements mostly for protection of the site, but rustic or rudimentary improvements may be provided for the comfort of the users. Avoid use of synthetic materials. Minimum controls are subtle. No obvious regimentation, spacing is informal and extended to minimize contacts with others. Motorized access may or may not be provided or permitted.

- **Development Level 2** – Little site modification is evident. Improvement mostly for protection of the site, but rustic or rudimentary improvements may be provided for the comfort of the users. Avoid use of synthetic materials. Minimal controls are subtle. Little or no obvious regimentation. Spacing is informal and extended to minimize contacts with others. Motorized access provided or permitted over primitive roads.

- **Development Level 3** – Site modification is moderate. Facilities about equally developed for protection of site and comfort of users. Rustic design may use native or synthetic materials that approximate the look of native materials. Inconspicuous vehicular controls are usually provided. Roads may be hard surfaced and trails are clearly visible. Development density may approximate 3 family units per acre. Primary access to a site may be on a higher standard, more traveled road. Visitor information services, if available, are informal and incidental.

- **Development Level 4** – Site is heavily modified. Some facilities designed strictly for comfort and convenience of users, but luxury facilities are not provided. Facility designs are rustic but tend to incorporate more synthetic materials. Controls for vehicle traffic are present and usually obvious. Primary access is provided over more highly developed roads. Development density may be greater than 3 family units per acre. Visitor information services are frequently available

- **Development Level 5** – High degree of site modification is evident. Facilities, mostly designed for comfort and convenience of users, include flush toilets, may include showers, bathhouses, laundry facilities, and electrical hook–ups. Synthetic materials are commonly used. Formal walkways on surfaced trails may be provided. Regimentation of users is obvious. Access is usually by higher speed roads. Development densities are 8 or more family units per acre. Formal visitor information services are usually available. Architecture may be more contemporary and mowed lawns and landscaping is not unusual. This type of site is only provided in special situations or close to large cities where other lands for recreation are not available.

Federal trust responsibility – The USDA FS shares in the federal government's overall trust responsibility to Indian Tribes where treaty or other legally defined rights apply to NFS lands. In redeeming this shared responsibility, the agency assist in carrying out the intent of the treaty and any subsequent case law or amendments, by operating in a just and responsive way; making efforts to adjust the management of NFS lands in favor of the concerns of the respective Indian Tribes(s), as far as practicable, while still maintaining a responsibility to all the people – the general public. These actions and adjustments need to be carried out through consultations with other tribal officials or their designees, on a government–to–government basis.

Fire-dependent systems – Forests, grasslands, and other ecosystems historically composed of species of plants that evolved with and are maintained by fire regimes.

Fire regime – The characteristics of fire in a given ecosystem, such as the frequency, predictability, intensity, and seasonality of fire.

Forested vegetation treatment – Combination of uneven-aged management methods that may be used to achieve a desired forested structure including single-tree selection, group selection, precommercial thinning, commercial thinning, salvage, and sanitation cutting.

Fragmentation (habitat) – The break-up of a large land area (such as a forest) into smaller patches isolated by areas converted to a different land type. The opposite of connectivity.

Fuel model (FM) – Combination of vegetative fuel properties of grass, shrubs, timber, and slash designed to assist land managers in predicting fire behavior. The FS uses the thirteen mathematical models. Fuel Model 1 is typified by short grass, while Fuel Model 13 is heavy logging slash; the fuel models in between represent lower to higher fuel complexes, respectively (Anderson 1982).

Grassland seral stages – Represent the current departure for a specific site from the potential natural community (PNC) for that site. PNC is based on an evaluation of site characteristics including geology, soils, aspect, climate, elevation, etc., compared to similar site characteristics from areas evaluated and estimated by plant ecologists to be at or near their biotic potential. Seral stage determinations are based on the similarity between the existing vegetative community in terms of plant species composition and/or cover with that defined for the PNC from the appropriate plant association for the Wallowa-Snake Province (Johnson and Simon 1987).

Heritage resource – Remains of sites, structures, or objects used by humans in the past–historic or prehistoric. Consists of fragile and nonrenewable evidence of human activity, occupation, and or endeavor; as reflected in districts, sites, structures, artifacts, objects, ruins, works of art, architecture and natural features that were, or are, of importance in human events. Heritage resources are further categorized in terms of their prehistoric and

historic values; however, each of these aspects represents a part of the continuum of events representing the earliest evidence of man to the present day (36 CFR 800). Historic property means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places. This includes artifacts, records, and remains that are related to, and located within such properties.

Historic range of variability (HRV) – The natural fluctuation of ecological and physical processes and functions that would have occurred in an ecosystem during a specified previous period. In the context of the HCNRA HRV refers to the range of conditions that are likely to have occurred before the settlement of northeastern Oregon by Euro–Americans (approximately 1850). HRV is discussed in this document as a reference point to establish a baseline set of conditions for which sufficient scientific or historical information is available, and enables comparison to current conditions.

INFISH – Regional Forester's Amendment #4, *Inland Native Fish Strategy* (USDA 1995). Interim strategies for managing fish–producing watersheds in Eastern Oregon and Washington, Idaho, Western Montana and portions of Nevada.

Invasive plant species – Nonnative plant species that invade or are brought into an ecosystem where they have the ability to compete with, and at times overshadow, the existing native plant species. Noxious weeds are a specific type of invasive plants that carry a legal designation due to their potential for detrimental impacts to the environment.

Maintain – 1) To continue; or 2) for this FEIS, the term is intended to convey the idea of keeping ecosystem functions, processes, and/or components (such as soil, air, water, vegetation) in such a condition that the ecosystem's ability to accomplish current and future management objectives is not weakened. Management activities may be compatible with ecosystem maintenance if actions are designed to maintain or improve current ecosystem condition.

Mechanical equipment – Any contrivance which travels over ground, snow, or water on wheels, tracks, skids, or by flotation that is powered by a living source. This term does not include nonmotorized river craft, wheelchairs, or other similar devices used solely to assist persons with disabilities.

Mitigation – measures to: (a) avoiding the impact altogether by not taking a certain action or parts of an action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and, (e) compensation for the impact by replacing or providing substitute resources or environments (40 CFR 1508.20).

Monitoring – A process of collecting information to evaluate whether or not objectives of a project and its mitigation plan are being realized. Monitoring allows detection of undesirable and desirable changes so that management actions can be modified or designed to achieve desired goals and objectives while avoiding adverse effects to ecosystems.

Motorized equipment – Any machine powered by a nonliving source. This term does not include motorized river craft or small hand-held devices such as flashlights, shavers, wristwatches, and Geiger counters.

Native species – Species that normally live and thrive in a particular ecosystem.

Noxious weeds – Plant species designated by federal or state law as generally possessing one or more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insects or disease; or nonnative, new or not common to the United States. According to the *Federal Noxious Weed Act* (PL 93–639), a noxious weed is one that causes disease or has other adverse effects on the human environment and therefore is detrimental to the agriculture and commerce of the United States and to the public health.

Outstandingly remarkable values – Term used in the *Wild and Scenic Rivers Act of 1968*; to qualify as outstandingly remarkable, a resource value must be a unique, rare, or exemplary feature that is significant at a regional or national level.

Over-snow vehicle – A self-propelled vehicle intended for travel primarily on snow driven by a track or tracks in contact with the snow, and steered by a ski, ski's or tracks in contact with the snow.

PACFISH – Regional Forester's Amendment #3, *Interim strategies for managing anadromous fish–producing watersheds in Eastern Oregon and Washington, Idaho, and portions of California* (USDA and USDI 1995).

Paleontological resources – Any remains, trace, or imprint of a plant or animal that has been preserved in the Earth's crust before the Holocene epoch.

Potential natural community (PNC) – The biotic community that would become established if all successional sequences were completed without interference by humans under present environmental conditions. Natural disturbances are inherent in the development.

Practical maximum capacity – The upper limit of use of a developed site or dispersed area recognizing that other setting indicators would likely trigger management actions to control use before reaching this threshold. The practical maximum capacity provides a measure of the carrying capacity of an area.

Prescribed fire (PF) – Since early in the 20th century, the natural role of fire has been partially excluded from ecosystems on the HCNRA by effective fire suppression. This intervention has altered the natural function of ecosystems. Fuels accumulate and stand structures become more homogeneous in the absence of periodic fire, or other disturbances. The long–term effect of these conditions is to create conditions for wildfires to burn outside of the intensities and scales that the plant community has adapted. The continued exclusion of fire may produce effects counter to values for which the HCNRA was classified. Where applicable, reintroduction of fire into the ecosystem would protect and maintain diversified stand structures across the landscape. Prescribed fire is any fire ignited by management actions to meet specific objectives. Prescribed fire is intended to mimic natural fire regimes to: 1) reduce the risk of fires burning outside of historic intensities and severities that could substantially reduce long–term productivity; 2) maintain tree species compositions that occur under the natural disturbance regime; 3) reduce competition; 4) increase nutrients; 5) prepare sites for natural regeneration; 6) improve forage resources; 7) enhance/create wildlife habitat; and 8) protect private and public property values.

Recreation Opportunity Spectrum (ROS) — A framework for stratifying and defining classes of outdoor recreation environment, activities, and experience opportunities. The settings, activities, and opportunities for obtaining experiences have been arranged along a continuum or spectrum divided into seven classes: primitive, semi-primitive nonmotorized, semi-primitive motorized, roaded modified, roaded natural, rural, Urban. Primitive, roaded modified and urban do not occur in the HCNRA and are not included in this list.

Restoration – Holistic actions taken to modify an ecosystem to achieve desired, healthy, and functioning conditions and processes. Generally refers to the process of enabling the system to resume its resiliency to disturbances as if the disturbances were absent. Restoration management activities can be either active (such as control of noxious weeds, thinning of over–dense stands of trees, or redistributing roads) or more passive (more restrictive, hands–off management direction that is primarily conservation oriented).

Riparian Habitat Conservation Areas (RHCAs) – Portions of watershed where riparian–dependent resources receive primary emphasis and management activities are subject to specific standards and guidelines. RHCAs include traditional riparian corridors, wetlands, intermittent headwater streams, and other areas where proper ecological functioning is crucial to maintenance of the streams' water, sediment, woody debris, and nutrient delivery system.

Road – A motor vehicle travel way over 50 inches wide, unless designated and managed as a trail. A road may be classified, unclassified, or temporary (36 CFR 212.1).

Road management objectives – road management objectives define the level of service provided by a NFS road consistent with the surrounding Recreation Opportunity Spectrum (ROS) class.

Satisfactory condition – A condition in which the soil is adequately protected and the forage species composition and production meets *Forest Plan* objectives or the trend in forage species composition and production is acceptable.

Scenery Management System (SMS) – The SMS is the method that was adopted after the *Forest Plan* was completed in 1990. The SMS utilizes two indicators to determine desired landscape character: ecological landscape integrity and scenic integrity. Ecological landscape integrity evaluates whether the landscape is managed in a sustainable and ecologically sound manner. Scenic integrity evaluates whether the landscape character is being managed in a way that conserves constituent values in terms of the level of human-caused deviations that are acceptable to the public (USDA 1993*)*.

Selective cutting – Single-tree or group-selection cutting is the periodic removal of trees individually or in small groups from an uneven-aged forest in order to maintain diverse stands, with the sustainability and improvement of the forest using an ecosystem approach to management being a primary consideration.

Self-discovery – The act or process of achieving understanding or knowledge. On-site controls do not exist and directional signing is minimal or nonexistent. Prehistoric sites would not have formal interpretation; viewing them would be left to chance and learning about them would be left to the viewer.

Special Use Permit (SUP) – A special authorization which provides permission without conveying any interest in land, to occupy and use NFS land or facilities for specified purpose, and which is revocable, terminable and noncompensable.

Stand structure – The physical and temporal distribution of trees in a stand. The distribution can be described by species, by vertical or horizontal spatial patterns; by size of trees or tree parts, including crown volume, leaf area, stem, stem cross section, and others; by tree ages; or by combinations of the above (Oliver and Larson 1990).

Sustainability – 1) Meeting the needs of the present without compromising the abilities of future generations to meet their needs; emphasizing and maintaining the underlying ecological processes that ensure long-term productivity of goods, services, and values without impairing productivity of the land; or 2) in commodity production, refers to the yield of a natural resource that can be produced continually at a given intensity of management.

Thinning – An operation to remove stems from a forest for the purpose of reducing fuel, maintaining stand vigor, regulating stand density/composition, or for other resource benefits. Although thinning can result in commercial products, in this FEIS, thinning generally refers to noncommercial operations.

Traditional uses – 1) Ranching, grazing, farming, timber harvesting, and the occupation of homes and land associated therewith within the HCNRA, or other activities including outdoor recreational activities and facilities, which existed on or before December 31, 1975 as specified in Section 13 of the *HCNRA Act* and *Public LURs* (36 CFR 292.21) (16); 2) also defined as an outstandingly remarkable value for the Wild Rapid River as the importance of the river to the Nez Perce Tribe for religious activities, fishing, hunting, and gathering.

Treaty-reserved right – Tribal rights or interests reserved in treaties, by American Indian tribes for the use and benefit of their members. The uses include such activities as described in the respective treaty document. Only Congress may abolish or modify treaties or treaty rights. In the HCNRA, treaty-reserved rights are explicitly reserved for the Nez Perce Tribe by the *Treaty of 1855*. On lands ceded by the Nez Perce Tribe to the United States that later became NFS lands, these treaty-reserved rights and privileges include the right of taking fish at all usual and accustomed places in common with citizens of the Territory; and of erecting temporary buildings for curing; together with the privilege of hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed land.

Uneven-aged management – Method of forest management in which trees of different species in a given stand are maintained at many ages and sizes to permit continuous natural regeneration. Selective cutting is one example of an uneven-aged management method.

Unwanted wildland fire – A human or naturally-caused fire that does not meet land management objectives.

Wildland fire use for resource benefit (WFU) – Formerly referred to as “prescribed natural fire.” A fire ignited by lightning but allowed to burn within specified conditions of fuels, weather, and topography to achieve specific objectives. Naturally ignited wildland fires are managed to accomplish specific prestated resource management objectives in predefined geographic areas outlined in fire management plans.

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