APPENDIX F

Monitoring and Evaluation

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Monitoring and Evaluation

Introduction

The purpose of the monitoring and evaluation plan is to determine if planned activities have been implemented according to goals, objectives, standards and guidelines and determine if direction is achieving the goals and objectives. Evaluation of the information may lead to adaptations in management activities or changes in management direction to meet the desired conditions. This section briefly describes the various approaches toward monitoring and evaluation that would be implement by alternative.

Monitoring Strategies by Alternative

Alternative A

Monitoring and evaluation under Alternative A would be conducted and displayed through the annual *Forest Plan Monitoring and Evaluation Report.* This report provides an avenue in which management accomplishments, trends, and needs for the Forest including the HCNRA are reported and evaluated by the responsible managers.

Current *Forest Plan* monitoring includes:

- *Forest Plan Monitoring Implementation Plan*
- *Integrated Noxious Weed Management Plan* (Forest Plan Amendment #4)
- *Imnaha Wild and Scenic River Management Plan* (Forest Plan Amendment #6)
- *Prescribed Natural Fire Management Plan* (Forest Plan Amendment #9)
- *Wild and Scenic Snake River Recreation Management Plan* (Forest Plan Amendment #12)
- *Interim Strategies for Managing Anadromous Fish-producing Watersheds* (Regional Forester's Amendment #3)
- *Inland Native Fish Strategy* (Regional Forester's Amendment #4)
- Terms and Conditions of Biological Opinions for Threatened and Endangered Species

Refer to **Table 1-1** in **Chapter 1** for a complete list of current management direction and monitoring plans.

Alternative B

Because of the unique nature of the HCNRA and the more refined management direction that would be established as part of a selected alternative, Alternative B would implement a specific monitoring and evaluation plan for the HCNRA in addition to the *Forest Plan Monitoring Implementation Plan.*

Various activities would be monitored to provide an evaluation of the effect of management activities upon the HCNRA environment. Evaluations would measure compliance in achieving the goals and objectives of the Comprehensive Management Plan and meeting the intent of the enabling legislation. Based upon an evaluation of the monitoring results, the planning team would recommend to the Forest Supervisor such changes to the management direction for the HCNRA. Refer to the complete details of the plan later in this section.

Alternative E-modified

The monitoring and evaluation strategy under Alternative E-modified is designed to be consistent with the current *Forest Plan Monitoring Implementation Plan* and additional monitoring related to biological opinions, interagency implementation monitoring, or other ongoing monitoring efforts. This approach would rely on these efforts to the extent possible to evaluate whether management direction is achieving the HCNRA goals and objectives.

Alternative E-modified would be similar to **Alternatives A** and **B** except additional monitoring items for the HCNRA would only address those issues exclusively related to the *HCNRA Act*. The emphasis of monitoring items is focused on determining the effectiveness of the direction in **Appendix C** to ensure compatibility with the *HCNRA Act* for the new goals, objectives, standards and guidelines. The approach parallels current emphasis from national and regional inventory and monitoring direction which focuses on defined core variables, standardized protocols, and strategic data gathering to provide a more effective and cost-efficient plan given limited budgets. This approach allows for flexibility to change methods as better protocols are developed.

Other cooperative efforts and agreements with tribal, federal, state and other efforts would be utilized to evaluate the programmatic management direction. Evaluation of the information may lead to adaptations in management activities or changes in management direction to meet the desired conditions. Refer to the complete details of the monitoring and evaluation plan later in this section.

Mon-S1 states that project-level decisions would disclose applicable monitoring items and identify elements required before, during, and following project implementation. This would identify those needs and ensure a commitment by the deciding officer to adequately monitor and determine that the project meets the alternative's management direction, and is compatible with Section 7 of the *HCNRA Act*.

Alternative W

Alternative W would provide monitoring and evaluation the same as **Alternative A** except with the following additions;

- **Mon-S1:** Implement monitoring of dust and CO2 on upper Imnaha Road.
- **Mon-G1:** The Forest Service would actively pursue cooperative agreements for monitoring and inventory with HCNRA users, organizations, and the Nez Perce Tribe.

Alternative N

Alternative N provides a goal that describes the desired outcomes of a monitoring program, particularly to determine if activities are compatible with Section 7(1-6) and the management direction contained in the alternative. The intent of monitoring would be to emphasize measurement of preservation, recovery, and health of these elements in relation to stated goals of commercial and recreational human activities within the HCNRA. This is in distinct contrast to risk-based monitoring, which presumes human activities are compatible unless shown to be causing harm. Specifically, Alternative N states;

- This monitoring section is essential, in order to rectify the ongoing situation whereby recreational and commercial HCNRA human activities such as motorized recreation, livestock grazing, and logging (*HCNRA Act* Section 7(7)) are currently permitted, encouraged, undertaken, and continued in the absence of even minimal monitoring of the impacts of those activities on the native ecosystems and wildlife of the HCNRA. "We do what we get funded for" is neither a legally sufficient nor an ecologically responsible approach to the required, continuous, finding of compatibility of these activities with Section 7(1-6).

- The weakening and degradation of ecosystems, populations, species, genetic variability, wilderness values, Native American sites, and other values for which the HCNRA was designated is not easily detected. Therefore, "units of measure" based on "risk of impacts" to resources are often incapable of tracking ecosystem decline. Instead, it is essential to measure whether positive goals for native ecosystem recovery, conservation, and integrity are being attained.

- There is an obvious, admitted, ongoing, and institutional failure to adequately monitor, survey, and document the impacts of human activities on habitats, native vegetation, and native wildlife within the HCNRA. Good intentions and CMP monitoring plans have been insufficient to direct sufficient funding, staff, or attention to allotment management plans, rare wildlife management plans, soil conditions, non-game wildlife, the functioning of HCNRA native grassland ecosystems, or riparian conditions, to name a few elements of HCNRA. It is essential that both the continuation and initiation of recreational and commercial human activities be dependent upon prior adequate monitoring for compatibility with the *HCNRA Act* 7(1)-(6). This monitoring needs to be documented so that it can be independently reviewed by non-Agency scientists, the scientifically literate public, and others who are concerned about the ecological health of the HCNRA.

Refer to **Appendix C, Table C-1** and **Appendix J**, Native Ecosystem Alternative, for the complete details of the monitoring plan for Alternative N.

Alternative B

The following tables identify the key activities and outputs to be monitored during implementation of Alternative B to ensure compatibility with the intent of the *HCNRA Act* and the stated management goals.

The following tables present a risk assessment that is the combination of cost of not meeting the stated management goals and the likelihood of unacceptable impact based on not meeting the stated management goals. The cost of not meeting management goals is defined as:

	Risk Index
▪ Laws are not met - High	3
▪ Forest Plan standards are not met - Moderate	2
▪ Forest Plan guidelines are not met - Low	1

The likelihood of unacceptable impacts (threshold of variability), is defined as:

▪ High	3
▪ Moderate	2
▪ Low	1

Risk assessment is based on the following equation:

Cost of not meeting management goals	**X**	the likelihood of unacceptable impact	**=**	risk assessment

Risks could be assessed at a rating between 1 and 9, with 9 indicating the highest risk, e.g., if laws are not met (3), and the likelihood of unacceptable impact is high (3), the risk would be high (3 x 3 = 9).

Recreation Settings, Experiences, and Opportunities

Purpose of Monitoring	Risk Assess.	Unit of Measure	Threshold of Variability	Frequency	Estimated Cost	Management Responsibility
Objective: Provide for a range of education and resource interpretation opportunities for visitors to learn about HCNRA resources, protection, and management while maintaining its rustic and primitive character.						
Determine if the general public has an understanding of the historical and ecological values associated with the Hells Canyon area and if users understand the affects of their actions on the ecology and uses.	4	User Surveys	Downward trend in user understanding	Annually	$700	Recreation Staff
Goal: Manage outdoor recreation to ensure that recreational and ecological values and public enjoyment of the area are enhanced and compatible with the objectives of the *HCNRA Act*. Manage for a range of high quality recreation settings and opportunities in a manner compatible with the primary objectives set forth in the *HCNRA Act*.						
Determine if recreational activities and developments enhance the public experience while remaining compatible with other *HCNRA Act* objectives and the maintenance of ecological values. *Reporting will be conducted on an annual basis for the entire HCNRA. Monitoring specific to individual RAAs will be conducted on an as needed basis when established thresholds are met.	9	ROS and Section 7 setting indicators Other program monitoring and evaluation results	Any finding of incompatibility	*Annually	$1,500	Area Ranger

Access and Facilities

Purpose of Monitoring	Risk Assess.	Unit of Measure	Threshold of Variability	Frequency	Estimated Cost	Management Responsibility
Goal: Manage the transportation system (roads, trails, airstrips, and waterways) to meet the primary objectives for which the HCNRA was established and to provide a range of opportunities.						
Determine if a broad range of opportunities are available for public enjoyment with respect to access that meets the intended ROS.	4	ROS or Section 7 setting indicators	Any deviation from setting indicators	Annually	$1,000	Recreation Staff
Objective: Manage the transportation system to provide safe and efficient access (within specified ROS direction) for the movement of people and materials involved in the use and protection of the HCNRA. Right-of-way acquisition will continue to be actively pursued.						
Determine if proper protection and maintenance of capital investments is being applied.	6	Project Field Reviews	Protection or maintenance fail to meet goals.	Annually	$1,000	Forest Engineer
Determine if the transportation system is providing safe and efficient access.	4	Project Field Reviews	Any safety violations or increases in accident rates	Annually	$1,000	Forest Engineer
Objective: Manage recreation facilities so they are in compliance with health and safety regulations and meet Regional ROS standards.						
Determine if a variety of facilities are available to the recreating public and meet intended ROS designations.	6	ROS or Section 7 setting indicators	Any deviation from setting indicators	Annually - one third of sites and areas	$1,000	Recreation Staff
Determine if facilities meet health and safety requirements	6	Number of facilities	More than one health or safety violation	Annually	$1,500	Recreation Staff
Objective: Provide and manage facilities that permit access to a variety of HCNRA settings, opportunities, and experiences, regardless of visitor's physical abilities.						
Determine if there is a range of opportunities for visitors who are challenged physically that meets the intended ROS designation. Emphasis is on the more primitive and challenging end of the scale; however, some highly developed opportunities are available.	4	ROS or Section 7 setting indicators	Any deviation from setting indicators	Annually	$500	Recreation Staff
Objective: Manage water developments and water rights in compliance with applicable laws to meet resource objectives of the HCNRA.						
Determine if water rights are maintained for use now and in the future for the HCNRA and its users.	6	Number of water rights	More than one violation	Annually	$500	Watershed Staff
Determine if adequate accessibility and safety of water developments is provided for HCNRA users.	6	Number of water developments	Any reduction in accessibility and or safety violations	Annually	$1,500	Recreation Staff

Wild and Scenic Rivers

Purpose of Monitoring	Risk Assess.	Unit of Measure	Threshold of Variability	Frequency	Estimated Cost	Management Responsibility
Goal: Manage recreation and administrative facilities in a manner compatible with protecting and enhancing the values for which the river was designated.						
Determine if recreation and administrative facilities are managed to provide a high quality, stable opportunity for outdoor recreation.	6	ROS characteristics for each site	Failure to achieve the standards and guidelines for opportunities within each ROS setting	Annually	$1,200	Area Ranger
Objective: Manage use of motorized and nonmotorized rivercraft on the Wild and Scenic Snake River in a manner compatible with the protection and enhancement of the river's outstandingly remarkable values. Manage wild and scenic rivers within the HCNRA in a manner compatible with protecting and enhancing the values for which the river was designated. Manage use of motorized and mechanical equipment to be compatible with the outstandingly remarkable values of each river designated recreational, scenic, and wild. The *Imnaha Wild and Scenic River Management Plan* and *Wild and Scenic Snake River Recreation Management Plan* address monitoring specific to those rivers. Monitoring of these goals would be through those monitoring plans and the resource monitoring elements contained in this plan to ensure the protection and enhancement of the outstandingly remarkable values of the rivers.						
Objective: Perpetuate forested stands within wild and scenic rivers in "scenic" and "recreational" designations to protect and enhance the outstandingly remarkable values and to ensure compatibility with the primary objectives of the *HCNRA Act*. Forested areas within "wild" designations would only be treated to provide for recreational facilities (e.g., trails), to reduce the risk of hazard trees, or to provide for the desired ecosystem function as a result of natural events. The activity is consistent with the *Wild and Scenic Rivers Act.*						
Determine if vegetative treatments within wild and scenic river designations meet standards and guidelines.	6	Applicable standards and guidelines met/not met	If standards and guidelines are not implemented	Annually	$500	Area Ranger

Scenery

Purpose of Monitoring	Risk Assess.	Unit of Measure	Threshold of Variability	Frequency	Estimated Cost	Management Responsibility
Goal: Manage the scenery resources for which the HCNRA was created to ensure their conservation and preservation						
Determine if projects, activities, or modifications which alter landform, vegetation, water, color, or character of the viewsheds are consistent with scenic integrity and ecological landscape integrity identified as desired landscape character.	6	Percent area remaining inconsistent at end of the planning decade	Percent increase in management actions or developments (or proposed developments) not consistent with naturalness setting or the architectural design guides	2-3 RAAs/yr 2 watershed groups/year	$2,400	Area Ranger
Determine if corrective scenery management actions achieve the scenery management objectives and desired scenic integrity and ecological landscape integrity.		Type and timing of treatments				

Wilderness

Purpose of Monitoring	Risk Assess.	Unit of Measure	Threshold of Variability	Frequency	Estimated Cost	Management Responsibility
Goal: Preserve the Hells Canyon Wilderness for the use and enjoyment of the American people in a manner that will leave it unimpaired for future use as a wilderness, and that will provide for the protection and preservation of its natural conditions and unique character.						
Determine if wilderness values, opportunities, and resources are being protected and preserved within the intended Section 7 designations.	6	Section 7 setting indicators and other program monitoring and evaluation results	Any deviation from planned or anticipated setting indicators	Annually	$2,200	Recreation Staff

Heritage Resources

Purpose of Monitoring	Risk Assess.	Unit of Measure	Threshold of Variability	Frequency	Estimated Cost	Management Responsibility
Goal: Manage heritage resources on the HCNRA for their protection from damage or destruction. Manage heritage resources for scientific research, public education, and enjoyment to the extent consistent with protection.						
Determine if National Register of Historic Places characteristics of unevaluated and significant heritage resource properties are being protected as stated.	9	Surface Disturbance	Failure to adequately protect any significant heritage resource property or unevaluated site	Annually	$10,000	Heritage Resource Program Manager
Determine if appropriate stabilization, rehabilitation, or mitigation of damaged sites eligible for inclusion in the National Register of Historic Places is being done as stated.		Removal or alteration of structural elements				
Determine if survey methods are adequate to identify all locatable sites.		Removal or alteration of artifacts				
Determine if heritage resources are being interpreted for the public, where appropriate.		Modification or alteration of physical environment or setting				
Determine if consultation is occurring.	4	Number of projects requiring consultation	Failure to adequately comply with *American Indian Religious Freedoms Act, Archaeological Resources Protection Act, and Native American Graves Repatriation Act*	Annually	$250	Area Ranger
Objective: Consult with the Nez Perce Tribe of Idaho to ensure American Indian land and other appropriate tribal government concerns are addressed and treaty rights and cultural history are protected.						
Objective: Evaluate historic sites. Preserve and restore selected sites which typify the economic and social history of the region and the American West.						
Determine whether a complete structural inspection of National Register of Historic Places eligible and/or listed historic structures and repairs are being made. Assess whether appropriate stabilization or rehabilitation of damaged or deteriorated sites eligible for inclusion in the National Register of Historic Places is being accomplished. Determine what portion of work is being done in the HCNRA Wilderness compared to the entire HCNRA.	6	Compare conditions to National Register of Historic Places guidelines. Compare conditions to Secretary of Interior standards for historic preservation projects. Compare number and intensity of projects in wilderness to nonwilderness projects.	Failure to adequately protect any significant heritage resource property or unevaluated site	Annually	$5,000	Heritage Resources Program Manager

Scientific Research

Purpose of Monitoring	Risk Assess.	Unit of Measure	Threshold of Variability	Frequency	Estimated Cost	Management Responsibility
Objective: Provide research opportunities designed to optimize the discovery of useful information for management and for the advancement of scientific knowledge.						
Determine if research findings aid in the management of the HCNRA and in the advancement of scientific knowledge.	4	Number of projects that fulfill monitoring goal and purpose	Any project not meeting the monitoring goal	Annually	$250	Area Ranger
Determine if applicable standards and guidelines for research opportunities are implemented.	4	Applicable standards and guidelines met/not met	If standards and guidelines are not implemented	Annually	$250	Area Ranger

Vegetation

Purpose of Monitoring	Risk Assess.	Unit of Measure	Threshold of Variability	Frequency	Estimated Cost	Management Responsibility
Goal: The HCNRA functions as a healthy ecosystem that is an integral component of a larger biological region. Sustainability of ecological functions and processes is deemed important to maintaining ecosystem health and shall be attained by promoting vegetation within the HRV for seral stages (grassland vegetation) and structural stages (forested vegetation).						
Determine whether identified late/old structure replacement stands, in MA 7, 10, and 11, will maintain this structural component within HRV levels, and are progressing in development toward meeting desired conditions of functional old growth	6	Acres of seral and structural stage	Any drop below late/old structure HRV average based on management induced programs	Annual compilation of data with five year reporting	$1,000/5 yrs	Silviculture Staff
Determine whether identified existing late/old stands, in MAs 7, 10, and 11, are maintaining this structural component within HRV levels, and maintaining desired conditions of functional old growth.	6	Acres of seral and structural stage	Any drop below late/old structure HRV average based on management induced programs	Annual compilation of data with five year reporting	$1,000/5 yrs	Silviculture Staff
Ensure that HRV levels of late/old structure, identified for MAs 7, 10, and 11, are mapped and their extent tracked through time.	6	Project planning, GIS records, and maps	Any commercial harvest greater than 100 mbf without complete identification of late/old structure within the watershed	Monitor with each project. Report annually.	$500	District and Forest Wildlife Staff
Ensure that HRV levels of grassland seral stages are tracked through time by GIS database/mapping methodologies.	6	Project planning, GIS records, and maps	Significant changes to levels outside HRV	Annual compilation of data with five year reporting	$1,000	Range Staff
Determine whether existing functional wildlife corridors are being maintained	6	Number and habitat quality of identified corridors	Any significant, nonrestorative management induced impact on corridors	Annual compilation of data with five year reporting	$1,000	Wildlife Staff
Determine whether timber stand improvement projects are meeting treatment objectives and standards and guidelines implemented.	6	Project specific	Violation of meeting project specific objectives	Annually	$250/project	Silviculture Staff
Objective: Manage forest and grassland vegetation to maintain viable and healthy ecosystems that: ensure the protection and enhancement of fish and wildlife habitats; conservation of scenic, wilderness, and scientific values; preservation of biologically unique habitats and rare combinations of outstanding ecosystems; protection and enhancement of a wild and scenic river's outstandingly remarkable values; and compatible public outdoor recreation.						
Determine if implementation of annual programs is compatible with maintaining viable and healthy forest and grassland vegetation.	6	Other program monitoring and evaluation results	Any finding of incompatibility that is not resolved or no action has been taken to resolve	Annually	$1,000	Area Ranger

Purpose of Monitoring	Risk Assess.	Unit of Measure	Threshold of Variability	Frequency	Estimated Cost	Management Responsibility
Goal: Provide for restoration of ecosystem function in a manner compatible with the primary objectives of the *HCNRA Act*.						
Determine if ungulate grazing standards and guidelines are compatible with protecting the integrity and function of grassland, riparian, and coniferous understory vegetative resources.	6	Acres affected: range forage condition and trend, HRV analysis of ecological status	Management induced degradation of grassland, riparian and coniferous understory resources potentially leading to reductions in range forage conditions or ecological status outside HRV	Compile annually based on project specific sampling	$1,000	Range Staff
Determine if localized grazing patterns are compatible with social expectations.	6	User surveys	Persistent signs of dissatisfaction by users	Annually	$1,000	Recreation/ Range Staffs
Objective: Manage forested vegetation to control insect and disease levels consistent with the Section 7 objectives of the *HCNRA Act*.						
Determine if forested vegetative structures display resiliency to short and long term disturbance events exceeding those historically encountered.	6	Spatial distribution of structural classes by species composition, size class, and density	Epidemic levels of insect/disease	Annually	$250	Silviculture Staff
Determine if the distribution of structural stages for each biophysical environment reflect historical patterns within the watersheds	4	Spatial distribution of structural classes by species composition, size class and density.	Epidemic levels of insects/disease	Annually	$250	Silviculture Staff
Determine if existing forested vegetative structures predispose the forested vegetation to disturbance events exceeding those historically encountered.	6	Spatial distribution of structural classes by species composition, size class, and density	Epidemic levels of insect/disease	Annually	$250	Silviculture Staff

Noxious Weeds

Noxious weeds monitoring is covered by the *Forest Plan Monitoring Implementation Plan*, and the WWNF *Integrated Noxious Weed Management Plan*.

Soils

Purpose of Monitoring	Risk Assess.	Unit of Measure	Threshold of Variability	Frequency	Estimated Cost	Management Responsibility
Goal: Manage soil resources in a manner compatible with those values for which the HCNRA was established, recognizing that management objectives for particular areas and resources may vary between preservation, conservation, and protection.						
Determine if standards and guidelines relating to soil productivity are implemented. (In terms of maintaining soil biological, chemical, and physical processes.)	4	Post project field review	If standards and guidelines are not implemented	Annually	$250/project	Watershed Staff
		Soil stability rating	If soil stability ratings on key areas show downward trends or less than satisfactory condition	Annually compile project specific data	$1,000	Range Staff

Biologically Unique Resources

Purpose of Monitoring	Risk Assess.	Unit of Measure	Threshold of Variability	Frequency	Estimated Cost	Management Responsibility
Goal: Ensure the preservation of 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. Protect and manage habitat for the perpetuation and recovery of plants which are listed as threatened or endangered, and prevent sensitive species from reaching a point where they will become listed.						
Determine if biologically unique habitats are being identified, protected, maintained, and/or enhanced as required by standards and guidelines.	6	Habitat inventory; condition and trend	Management induced degradation of special habitats potentially leading to loss of habitat/population viability	5 years	$2,000	Forest Botanist
Determine if habitat and populations of rare and endemic plant species, threatened, endangered and/or sensitive plant species are being managed for their continued existence and enhancement in the HCNRA. Determine if the standards and guidelines are implemented and effective.	6	Number of acres surveyed, number of populations negatively impacted, number of populations discovered, number of populations monitored, number of conservation strategies implemented	Significant impacts to populations that cause loss of species viability	Annually	$2,000	HCNRA Botanist
Determine if standards and guidelines are being effectively implemented, and if the standards and guidelines are adequately protecting biologically unique plant communities and plant associations.	6	Number of acres of biologically unique communities and plant associations identified, number of sites used for key monitoring areas	Management induced degradation of biologically unique plant communities and plant associations potentially leading to loss of population viability	Annually	$1,000	HCNRA Range Staff/Botanist
Goal: Manage research natural areas (RNAs) to preserve the significant natural ecosystems for comparison with those influenced by man; for provision of ecological and environmental studies; and preservation of gene pools for threatened and endangered plants and animals.						
Determine if standards and guidelines preserve and protect the values of RNAs for which they were selected.	4	Acres impacted	If standards and guidelines are not implemented and effective	Annually compile site specific information	$500	Forest Botanist
Determine whether establishment reports and management plans for each RNA are complete and adequate to achieve management goals.	3	Number of reports	Completion of one report and one management plan/year	Annually	$500	Forest Botanist
Goal: Ensure the preservation of MacFarlane's four-o'clock *(Mirabilis macfarlanei)*						
Determine if standards and guidelines to manage habitat and populations of MacFarlane's four-o'clock are being implemented. See **Table F-1** for the survey plan and schedule for MacFarlane's four-o'clock (*Mirabilis macfarlanei*)	6	Acres surveyed for MacFarlane's four-o'clock, number of biological assessments completed, steps from recovery plan implemented, monitoring program followed.	No acres surveyed. Any decisions made for potential habitat areas without a biological assessment. No steps from recovery plan implemented. No annual monitoring performed	Annually	$1,000	HCNRA Botanist

Air Quality

Goal: Preserve the atmospheric habitat in a manner compatible with the preservation of rare combinations of outstanding and diverse ecosystems and parts of ecosystems associated within the HCNRA. Manage the Hells Canyon Wilderness class I airshed to meet the requirements of the *Clear Air Act*. Monitoring of air quality would continue through the existing *Forest Plan* monitoring plan, as amended by *Forest Plan* Amendment #9, *Prescribed Natural Fire Program*.

Fire

Purpose of Monitoring	Risk Assess.	Unit of Measure	Threshold of Variability	Frequency	Estimated Cost	Management Responsibility
Goal: Within the Hells Canyon Wilderness, as nearly as possible, ensure that fire plays its natural role. In other parts of the HCNRA, manage natural and prescribed fire to emulate historic function of fire, where compatible with the Section 7 objectives of the *HCNRA Act*. Provide basic protection to human life and property.						
Determine if prescribed fire is providing the desired spatial and temporal pattern of desired fuel profiles by vegetative community and watershed.	6	Project field review	Any deviation from stated project objectives	Annually	$250/project	Fire Staff
Determine if prescribed fire is emulating the natural role of fire.	4	Annual program review	Any reverse in desired developmental trends for seral and structural stages	Annually	$500	Fire Staff

Riparian/Aquatic Resources

Purpose of Monitoring	Risk Assess.	Unit of Measure	Threshold of Variability	Frequency	Estimated Cost	Management Responsibility
Monitoring fisheries and fish habitat goals would be through the existing Forest Plan monitoring plan and the monitoring requirements of PACFISH and INFISH Forest Plan amendments with the following exception: **Goal**: Ensure the protection and maintenance of aquatic habitat and maintain viable populations of native and desired non-native and invertebrate species.						
Determine if riparian aquatic resources are functioning properly or have a trend to desired conditions.	6 4	Proper functioning condition assessment methodology for riparian areas to determine current function and trend	Failure of riparian areas to be at proper functioning condition or functioning at risk with an improving trend	Annually	$400/mile @ 10 miles/year = $4,000/year	Area Ranger

Wildlife Habitat

Purpose of Monitoring	Risk Assess.	Unit of Measure	Threshold of Variability	Frequency	Estimated Cost	Management Responsibility
Monitoring and evaluation of this goal would continue to be conducted through the following *Forest Plan* monitoring direction: ▪ Threatened and endangered species ▪ Dead, defective habitat ▪ Management indicator species: pileated woodpecker, goshawk, pine marten, elk, **Goal**: Ensure the protection and maintenance of wildlife habitat.						
Determine if road closure mitigation is occurring as directed in the selected alternative	6	Compare alternative direction to implementation	Failure to meet road closure goals or timelines	Annual	$1,000	Wildlife Staff
Determine if springs, seeps, bogs, and wet meadows are being identified. PACFISH or INFISH standards and guidelines and goals and objectives met on those areas with allotment management planning and grazing implementation.	6	During project work, map and inventory all springs, etc. Evaluate random sample of 20% over decade using PFC or other method	More than 5% of springs, etc. have been identified as less than satisfactory or not recovering at greater than 70%	Data collected in conjunction with project planning; compile existing data annually	$1,000	HCNRA Range Staff/Hydrologist
Objective: Provide habitat for all existing native and desired nonnative vertebrate wildlife species and invertebrate organisms.						
Ensure existing functioning late and old forest structure is being retained at HRV levels. Identify and map old growth structure in MAs 7, 10, and 11 and track its existence through time.	6	Acres of functional late and old forest structure	Within 10% of HRV levels described in **Appendix C**	Monitor with each project. Report annually.	$1,000	District and Forest Wildlife Staff

Geologic Resources

Purpose of Monitoring	Risk Assess.	Unit of Measure	Threshold of Variability	Frequency	Estimated Cost	Management Responsibility
Goal: Provide for the protection of paleontological and unique geologic resources from damage or destruction. Manage paleontological resources for scientific research to the extent consistent with protection. Provide for interpretation and education of unique geologic events.						
Determine whether standards and guidelines are effective in protecting paleontological and unique geologic resources. Determine whether interpretation is contributing to the education of public about paleontologic and geologic resources and if it is consistent with protection.	5 2	Surface disturbance Removal on alteration of geologic elements Modification of alteration of physical environment	Cultural modification (human caused changes) which significantly alter sites, landforms, or special features such as caves, tables, rock shelters, cliffs, ravines, etc.	Annually		Area Ranger

Minerals

Purpose of Monitoring	Risk Assess.	Unit of Measure	Threshold of Variability	Frequency	Estimated Cost	Management Responsibility
Goal: Emphasize meeting the objectives for which the HCNRA was established while managing mining and its associated activities of valid existing mineral rights.						
Determine whether standards and guidelines for minerals operations are effective in meeting objectives for HCNRA.	3	Same as geologic	If standards and guidelines are not implemented	Annually	$250	Minerals Staff
Objective: Manage common mineral materials for the sole purpose of construction and maintenance of facilities, emphasizing common mineral material sources outside of the HCNRA.						
Determine if and where common varieties of gravel, sand, or stone were being used on the HCNRA, and for what purpose.	3	Same as geologic	A "No" to the question "were standards and guidelines implemented"	Annually	$250	Minerals Staff
Determine if surfaces are being reclaimed and rehabilitated in the manner and time frame specified.	3					

Landownership

Purpose of Monitoring	Risk Assess.	Unit of Measure	Threshold of Variability	Frequency	Estimated Cost	Management Responsibility
Goal: Manage landownership patterns to best meet the objectives for which the HCNRA was established and by implementing the standards established for the use and development of private lands within the HCNRA.						
Determine whether land acquisitions are meeting objectives for HCNRA.	3	Acquisition of priorities	Nonacquisition of priority properties that result in significant adverse effects	5 years	$1,000 every 5 years	Area Ranger
Determine whether *Private LURs* are being met	6	Private land use regulations	Any indication of significant adverse effects on HCNRA lands or adjacent lands.	Annually	$1,000	Area Ranger
Objective: Coordinate with affected county governments in the implementation of *Private LURs*.						
Determine effectiveness of coordination with affected county governments for implementation of *Private LURs*.	3	*Private LURs*	Any conflict with, or change in, county land use ordinances	Annually	$500	Area Ranger

Table F-1: Survey Plan and Schedule for MacFarlane's four-o'clock (*Mirabilis macfarlanei*)

Survey Description	Total Acres	Annual Acres	Years to Survey	Annual Cost	Survey Priority
Survey a 600-foot corridor along open roads that have slope angles less than 20% side slope, are located below 3,000 feet elevation, and are in nonforested plant communities (these are the areas most likely to be impacted by campers and other off-road driving activities).	Approximately 2,700	2,700	One Year	$5,400	1
Survey potential habitat areas under areas under 70% side slope that are currently grazed by domestic livestock (cattle and horses) during the period of active plant growth and reproduction (March 15 - July 31).	Approximately 18,000	2,000	Nine Years	$6,000 to $7,000	2
Survey existing trails, trailheads, and dispersed campsites occurring in potential habitat areas. The number of acres in this condition has not been calculated. These areas are lower priority and will be surveyed in the course of regular other work as time and funding permit.	Unknown	Unknown	Unknown	Unknown	3

Note: All surveys of MacFarlane's four-o'clock potential habitat is in addition to requirements of the *Forest Plan* that specifies monitoring of this threatened species.

Alternative E-modified

New monitoring items were developed specifically for the HCNRA to ensure compatibility with meeting the intent of the *HCNRA Act* and management goals. These elements would occur concurrently with the *Forest Plan* monitoring and other related monitoring, or as separate items. In some cases, data collected for one item may also be used to answer multiple questions. The monitoring and evaluation plan is based on the following monitoring definitions, management direction, and strategy:

Monitoring Definitions

Monitoring is repeated observations through time of selected objects and values in the ecosystem to determine the state of the system. There are several types of monitoring:

- **Implementation** – management activities, programs, projects implemented as intended and in compliance with standards and guidelines
- **Effectiveness** – management activities, programs, projects effective in meeting the goals and objectives
- **Validation** – goals and objectives appropriate, cause-effect relationships, predicted results, assumptions and models, etc. valid
- **Baseline Monitoring** – establishes a base for comparison to data collected in the future, used for determining trends
- **Programmatic** - addresses broad questions to identify need for change in programmatic direction
- **Site-specific** - monitoring identified for site-specific projects would occur at time of implementation.

Management Direction

The following objectives, standards, and guidelines would apply under Alternative E-modified as described in **Appendix C**.

- **Mon-O1:** Monitor and evaluate activities and outputs, to ensure activities conform to the goals, objectives, standards and guidelines of this plan.
- **Mon-S1:** Project planning decision documents would disclose applicable monitoring elements and identify those monitoring elements required before, during and following project implementation.
- **Mon-G1:** The Forest Service would actively pursue cooperative agreements for monitoring and inventory with HCNRA users, organizations, and the Nez Perce Tribe.

Monitoring Strategy

The monitoring items are focused on determining the effectiveness of the direction in **Appendix C** to ensure compatibility with the *HCNRA Act* for the new goals, objectives, standards and guidelines. The overall emphasis of the plan is a consistent approach to monitoring and evaluation of the programmatic direction for the HCNRA to define future needs for changes in direction. The monitoring items only address those issues exclusively related to the *HCNRA Act*. The following strategy would be applied to facilitate and guide implementation of the monitoring and evaluation plan and allow flexibility to adapt to new information and techniques:

Purpose of Monitoring

- Define clear monitoring questions directly related to goals, objectives, standards and guidelines defined in **Appendix C**
- Focus on significant issues needing further information or identify needs for change in direction
- Assess critical mitigation measures
- Evaluate new management techniques and key assumptions
- Review actions with high risks to environmental values and reduce uncertainty
- Determine if changes are needed to the CMP

Methods

- Use existing regional, national standardized protocols and data sets to provide consistency
- Develop new protocols with technical and scientific staff to provide systematic approaches
- Allow flexibility for changing to new methodologies and techniques with increased knowledge
- Collect data from a site-specific project activities, field inventories, surveys, or other assessments to avoid duplication and improve efficiency

Units of Measure

- Use quantitative or qualitative key indicators that can be measured or estimated to answer the question
- Use a systems framework of biological, physical, social and economic core data elements to provide early warning of need for change or further study
- Accommodate a variety of scales (subwatershed, watershed, subbasin, basin) to compile data

Threshold of Variability

- Focus on degree of change to provide indication of need for further evaluation

Frequency

- Allow flexibility in timing of monitoring efforts (ex. annually, every 3-5 years, etc.) to coincide with other data collection, assessments, and cooperative efforts

Estimated Costs

- Use small scale, inexpensive, and realistic methods to the extent possible
- Identify cost-effective measures within realistic budget expectations
- Collaborate with other agencies, partners and potential collaborators to share the workload and build credibility and trust
- Costs would vary based on the methods, units of measure, threshold of variability, and frequency

Monitoring Responsibility

- Monitoring items may be prioritized with other monitoring items as needed to focus on issues of concern

Table F-2 identifies the key items to be monitored during the implementation of Alternative E-modified to ensure compatibility with the intent of the *HCNRA Act* and the management goals.

Table F-2: Monitoring Items for Alternative E-modified

Purpose of Monitoring	Unit of Measure	Threshold of Variability	Frequency	Monitoring Responsibility
Recreation Settings, Experiences, and Opportunities				
Determine if social and biophysical setting indicators for ROS and WROS settings are adequate to enhance the public experience while remaining compatible with other *HCNRA Act* objectives and the maintenance of ecological values.	ROS and WRS setting indicators Other program monitoring and evaluation results	Any deviation from planned or anticipated setting indicators	2-3 RAAs per year	Recreation, Natural Resources, and Fire Program Managers
Scenery				
Determine if scenic integrity and ecological landscape character objectives are being met in each RAA.	Percent area remaining inconsistent at end of the planning decade	Percent increase in management actions or developments not consistent with naturalness setting or the architectural design guides and standards	2-3 RAAs per year; and 2 watershed groups/year	Landscape Architect
Heritage Resources				
Determine if representative archeological and historic sites (unevaluated or significant) are being protected. Determine if the heritage program is providing the oversight under Section 106 and the public benefit under Section 110 of the *National Historic Preservation Act*.	Surface disturbance, removal or alteration of structural elements, artifacts, or the physical environment or setting	Failure to adequately protect any significant heritage resource property or unevaluated site	Annual compilation of data	Heritage Resource Program Manager
Federal Trust Responsibilities				
Determine if trust responsibilities are being met and if treaty-reserved resources are being sustained for future generations.	Government-to-government consultation	Failure to adequately protect and provide for treaty rights	Annually	Area Ranger
Forested Vegetation				
Determine if forested vegetation within watersheds (5^{th} code hydrologic units) is within or moving towards historic range of variability for structural stages within associated biophysical environments.	Percentage of acres within HRV by watershed	Significant increases in percentages outside of HRV	5 years	Silviculture Staff
Grassland Vegetation				
Determine if grassland vegetation and soils is moving in an upward trend toward satisfactory conditions. Determine if grasslands are moving toward the potential natural community.	Number of benchmark condition and trend sites	Benchmark sites with downward trend or un-satisfactory condition	5 years	Range Program Manager
Biologically Unique Species, Habitats, and Ecosystems				
Determine if biologically unique species, habitats, and ecosystems are being identified, protected, and maintained or an upward trend.	Habitat inventory; condition and trend of habitats	Management induced change in inventory	5 years	Botany and Ecology Program Managers
Research Natural Areas				
Determine if values for which Research Natural Areas (existing and proposed) were selected are being maintained	Acres impacted	If standards and guidelines are not implemented and effective	5 years	Botany and Ecology Program Managers
Air Quality				
Determine if the Class I Airshed (Hells Canyon Wilderness) and rare atmospheric habitats and air quality related values are being protected.	Selected lichen community and chemical analysis	Failure to comply with *Clean Air Act* and Section 7 *HCNRA Act* objectives	Every other year	Air Resource Manager
Wildlife Habitat				
Determine if open road densities and seasonal road closures are protecting terrestrial species.	Compare alternative direction to implementation	Failure to meet road closure goals or timelines	Every other year	Wildlife Staff

Geologic Resources				
Determine if standards and guidelines are effective in protecting geologic and paleontological resources.	Surface disturbance	Cultural modification which significantly alters, sites, landforms, or special features such as caves, etc.	5 years	Minerals Program Manager
Landownership				
Determine if private land use regulations are effective in meeting objectives for the HCNRA through coordination with affected county governments.	Private land use regulations	Any indication of significant adverse effects on HCNRA lands or adjacent lands	Every other year	Area Ranger
Traditional and Valid Uses				
Determine if access and opportunities for traditional and valid uses are being maintained.	Traditional and valid uses	Long-term trend in traditional and valid use activities	Every other year	Area Ranger