Humboldt-Toiyabe National Forest

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Humboldt National Forest Plan Monitoring Program

Introduction

The 2012 planning rule, which is found at 36 Code of Federal Regulations (CFR) 219, guides forest plan monitoring across the Forest Service. The Humboldt-Toiyabe National Forest conformance strategy focuses on addressing the purpose of the forest plan monitoring program as described in 36 CFR 219.12(a)(1), which includes the need for monitoring information that enables the responsible official to determine if a change in plan components or other plan content that guide management of resources in the plan area may be needed.

In addition, each forest plan monitoring program must contain one or more monitoring questions and associated indicators addressing each of the following eight requirements, which are noted at 36 CFR 219.12(a)(5):

1. The status of select watershed conditions.
2. The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems.
3. The status of focal species to assess the ecological conditions required at 36 CFR 219.9.
4. The status of a select set of the ecological conditions required under 36 CFR 219.9 to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern.
5. The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.
6. Measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area.
7. Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities.
8. The effects of each management system to determine that they do not substantially and permanently impair the productivity of the land (16 U.S.C. 1604(g)(3)(C)).

Types of Monitoring

The monitoring identified in this forest plan is not all of the monitoring conducted on a national forest. Other forms of monitoring, which address other laws, policies, and site-specific decisions are also ongoing. Three categories of monitoring (see Forest Service Manual 1925.21) comprise both forest plan and individual project monitoring:

- Implementation Monitoring – Used to determine if plans, prescriptions, projects, and activities were implemented as designed and in compliance with the forest plan;
- Effectiveness Monitoring – Used to determine if plans, prescriptions, projects, and activities are effective in accomplishing Plan goals, and objectives, and moving toward desired conditions; and
- Validation Monitoring – Used in cases of uncertainty to determine if initial data, assumptions, and coefficients used to predict outcomes in the development of the Plan are correct.

Most monitoring at the national forest level is in the first two categories.

Forest Plan Monitoring and Evaluation

The monitoring program for the Humboldt National Forest Land and Resource Management Plan (1986 as amended) is presented below, generally Monitoring questions and indicators grouped and in the order of the eight required items listed above. In table 1 each row represents a single monitoring question and associated indicators. Rows begin with selected desired conditions or objectives (with forest plan page references). Next, the monitoring question and associated indicators are listed. The desired conditions are generally complex statements that cannot be fully monitored. Therefore, the monitoring questions and indicators focus on some core aspect of the desired condition related to the required monitoring item that the forest is capable of monitoring.

Some monitoring questions and indictors may address more than one of the eight required topics from 36 CFR 219.12(a)(5). Questions and indicators are based on one or more desired conditions, objectives, or other components in the plan, but not every plan component has a corresponding monitoring question.

The monitoring questions and associated indicators are intended to inform the management of resources on the plan area, including by testing relevant assumptions, tracking relevant changes, and measuring management effectiveness and progress toward achieving or maintaining the plan's desired conditions or objectives. Both the questions and indicators use the best available science to provide relevant information regarding the conditions across the national forest and for individual resources. The entire monitoring program must be within the financial and technical capability of the forest, augmented by broader-scale monitoring by the Region and other monitoring with partners.

Over time there may be swings in relative emphasis tied to current issues but the forest expects to be able to monitor and evaluate some movement toward goals and objectives in each focus area. The forest also expects that partnerships can be developed to accomplish more in monitoring and evaluation. Details of the plan monitoring program, including monitoring and analysis protocols, will be part of a separate monitoring guide.

Proposed Administrative Change

The proposed administrative change will replace the monitoring program in chapter V of the Humboldt LRMP (pages V-2 to V-14.

[Replaces Monitoring and Evaluation section on pages V-2]

Monitoring and Evaluation

The purpose of forest plan monitoring and evaluation is to evaluate, document, and report how well the forest is implementing the forest plan, how well the forest plan is working, and if the forest plan purpose and direction remain appropriate. Monitoring determines actual conditions and circumstances and compares them with assumptions and expected or desired results. Monitoring information should enable the responsible official to determine if a change in plan components or other plan content that guide management of resources on the plan area may be needed.

In compliance with 36 CFR 219.12(d) the Forest will conduct biennial evaluations of the monitoring information gathered through the monitoring program. A report of the evaluation will be issued and made available to the public. The report will indicate whether or not a change to the plan, management activities, or monitoring program, or a new assessment, may be warranted based on the new information.

[Replaces all of pages V-3 to V-14]

After completion of this process the final monitoring questions and indicators will replace the Monitoring program in chapter V of the Humboldt LRMP (pages V-3 to V-14. The monitoring protocols will be developed after the changes to the monitoring program are adopted.

Table 1: Humboldt National Forest Monitoring Program

Plan Components	**Monitoring Question**	**Monitoring Indicator**
Water quality will improve at a moderate level, while soil productivity-and quality will improve at a high level (IV-85).	What water bodies are not meeting desired water quality conditions?	Miles of impaired 303d streams; aquatic macroinvertebrate metrics (where sampled)

Plan Components	Monitoring Question	Monitoring Indicator
Provide habitat for sensitive and federally listed T&E species (IV-29).		
Return degraded riparian ecosystems to their natural condition through completion of inventoried watershed restoration projects and implementation of grazing systems (IV-9).	How is watershed condition changing?	Watershed condition indicators (Class) from the Watershed Condition Framework. Essential projects completed.
Protect or improve riparian dependent resources (IV-48). Protect threatened, endangered and sensitive plant species (IV-6; 35). Perpetuate and protect bristlecone pine (IV-17).	What changes have occurred to landscape scale vegetative community types?	Invasive and noxious species, sagebrush, pinyon-juniper, white bark pine, bristlecone, wet-to-dry meadows and riparian zones, aspen, and fir encroachment. Fire risk assessment, fire regime condition class, and wildfire
Manage livestock to recognize the special needs relating to wet meadows and riparian areas, and fisheries habitat (IV-6). Manage all allotments to maintain suitable range presently in satisfactory ecological condition, and improve suitable range that is in less than satisfactory condition (IV-5).	How are current allotment management strategies effective in meeting or moving toward desired conditions?	Ground cover, invasive species, Aspen, species composition, water quality, soil productivity to determine satisfactory condition.
Prescribed fire from planned ignitions will be used for resource improvement (IV-87).	How is fire and fuels management being used for resource benefit?	Acres of hazardous fuels reduction in WUI and non-WUI.

Plan Components	Monitoring Question	Monitoring Indicator
		Change in seral state. Changes in FRCC
Improve or maintain the quality and quantity of terrestrial and riparian habitats (IV-30).	How are *Populus tremuloides (*aspen) communities changing over time?	Spatial extent (acres) regeneration, disease, age classes, and understory. (soil temperatures - climate change)
	What do aquatic macroinvertebrate communities indicate about stream ecosystem integrity?	Diversity; species composition; and other indices of macroinvertebrate response to current conditions (e.g., index of biotic integrity [IBI], Ephemeroptera, Plecoptera Trichoptera index [EPT]).
	How is the abundance and distribution of invasive annual grasses (e.g. *Bromus tectorum (*cheatgrass)) changing over time?	Spatial extent (acres) and cover (%).
Protect threatened, endangered and sensitive plant species (IV-6; 35). Provide habitat for sensitive and federally listed T&E species (IV-29).	Are forest management activities affecting recovery of T and E species?	Host plant (Spatial extent - acres) Proximity to disease vector. Watershed Restoration Action Plan and associated projects completed. Watershed condition indicators (Class) from the Watershed Condition Framework.

Plan Components	Monitoring Question	Monitoring Indicator
		Essential projects completed.
Developed sites, both public and special use, will be crowded or overcrowded during peak use periods (IV-82).	Is the Forests developed recreation program meeting visitor needs and providing for public health and safety at Forest facilities?	Percent Meets Expectations in Developed Sites for developed facilities, access, services and perception of safety Percent Participation in recreation activities in developed facilities or in developed sites/areas Number of passing and failing tests per water system. Number of public water systems (ex. campground, picnic site) decommissioned/removed Number of annual skier days Annual percent occupied sites in concessionaire campgrounds and picnic areas.
Trail conditions will be improved. Adequate trailhead facilities for dispersed recreation will be provided (IV-82). Trailhead parking and sanitation facilities for cross-country skiing and snow play will be provided at trailhead locations (IV-82). Supply for dispersed recreation will exceed demand through the planning period (IV-82).	Is the Forest's dispersed recreation program meeting visitor needs?	Percent Meets Expectations in Undeveloped Areas (GFAs) for developed facilities, access, services and perception of safety Percent Participation in recreation activities outside of developed facilities Trail miles maintained to standard Trail miles improved to standard Miles of new trail constructed

Plan Components	Monitoring Question	Monitoring Indicator
A system of 1,000 miles of summer trails will be maintained, all at Level 2 or better (IV-83). Areas not needed for timber harvest and mineral development will be maintained for primitive recreation: about 50 percent of these areas will be allocated to non-motorized recreation and 50 percent to motorized (IV-82).		Trail miles meeting standard
In the Jarbidge Wilderness and recommended wilderness areas, unplanned ignitions will be used to maintain natural ecosystems (IV-87).	Is wilderness character being preserved on wilderness areas across the Forest? Is fire being allowed to maintain its natural role as an ecosystem component within wilderness?	Percent Meets Expectations in Designated Wilderness for developed facilities, access, services and perception of safety scores on Wilderness Stewardship Performance per wilderness, per element Number of authorized (emergency vs. planned with MRDG) and known unauthorized motorized/mechanized incursions Number and acres of wildland fires in wilderness managed at less than full suppression to achieve land and resource management objectives (demonstrating an increasing trend over time of allowing wildland fires in wilderness to be managed as opposed to being fully suppressed) Number of acres treated by managing wildland fires in wilderness at less than full suppression to achieve land and resource management objectives (demonstrating an increasing trend over time of

Plan Components	Monitoring Question	Monitoring Indicator
		allowing wildland fires in wilderness to be managed as opposed to being fully suppressed).
Access to Forest land will be assured by acquisition of road and trail rights-of-way. Two road rights-of-way will be acquired annually until needs are met (IV-88). The emphasis on the road system will be to provide safe access to the Forest (IV-88). Close travel routes and areas to vehicle travel if there is resource damage (IV-48).	Do visitors have safe and sufficient access to recreational opportunities and other areas of interest around the Forest?	Percent Meets Expectations in Developed Sites, Undeveloped Areas (GFAs) and Designated Wilderness for access Miles of system or non-system roads decommissioned Miles of high clearance road maintained Miles of high clearance road improved, constructed or reconstructed. Miles of passenger car road maintained. Miles of passenger car road improved, constructed or reconstructed.
Identify, protect, interpret, and manage significant cultural resources (Recreation Goal IV-3).	Are cultural resources being evaluated for the National Register of Historic Places and protected and if required, are mitigation measures (avoidance, data recovery, etc.) appropriate and effective in the given situation?	Number of acres inventoried and number of significant cultural resources recorded. Number of significant properties evaluated to the National Register?

Plan Components	Monitoring Question	Monitoring Indicator
	Are significant cultural resources being interpreted?	Number of significant properties evaluated to the National Register? Number of significant cultural resources being interpreted (e.g. graphics, tours, etc.)
Provide a broad range of outdoor recreation opportunities for all segments of the public (IV-1).	How is climate change altering patterns of recreational activities and visitor use on the Forest?	Number of open/operational days at winter recreation sites and services (i.e Ruby Mountains Heli-Ski). NRCS Basin Index (Percent Median) monthly snowpack for each basin in Nevada for each winter season (October through May)
Wild horses will be managed to prevent expansion of the herd outside of the habitat's capabilities (IV-107, 141,187).	What are the actual or estimated numbers of wild horses and burros (compared to AML where set)?	Census or modeled data for population size.
Existing riparian habitat will be maintained in at least satisfactory ecological condition (IV-84).	How do recent temperature and precipitation trends (1-5 years) compare to long term averages (30+ years)?	Monthly/ annual precipitation totals, max snow water equivalent, number of days with snow cover, meltout date, monthly/ annual temperature statistics.
Quantify soil loss tolerance levels on major soil types for different management activities (IV-9).	How are characteristics of soil health and productivity changing?	Change in surface organic matter (litter). Soil temperature trends at select locations.

Plan Components	Monitoring Question	Monitoring Indicator
		Depth to water at select locations. Soil stability: Erosion and sedimentation. BMP implementation and effectiveness monitoring. Burn severity (any management activity that uses fire as a tool).
Design and implement practices on-the-ground that will re-establish acceptable soil, hydrologic, and vegetative conditions which are sufficient to secure and maintain favorable water flow (IV-9).	How do recent stream discharge trends (1-5 years) compare to long term averages (30+ years)?	Total annual discharge data from USGS gaging stations.
The supply of firewood created by this alternative when added to existing dead timber will meet the demand through 2030 (IV-84).	Is the supply of firewood adequate to meet the demand?	Number of cords (ccf) sold.
Access to Forest land will be assured by acquisition of road and trail rights-of-way. Two road or trail rights-of-way will be acquired annually until needs are met (IV-88).	How many road and trail rights of way are acquired annually?	Miles of ROW or acres accessible.
Property boundaries will be identified sufficiently to manage resource activities and prevent inadvertent trespass (IV-88).	Are property boundaries sufficiently marked and identified to prevent trespass?	Number of boundary miles posted and number of trespass cases identified.

Plan Components	Monitoring Question	Monitoring Indicator
Appropriate suppression response will be taken on all wildfires as provided in the "Initial Attack Strategies" for each management area (IV-87).	Is the management of wildland fires accomplishing protection objectives for important Values at Risk (VAR)? Is the response to wildland fires trending more towards using fire as a management tool to achieve land and resource management objectives?	The trend in loss or damage to important VARs is remaining stable or is decreasing. The trend in allowing wildland fires to be managed as opposed to fires being fully suppressed is increasing (both the number of fires being managed and the amount of acres treated).
Manage aspen and other hardwoods to provide for a limited supply of fire wood, other Forest products, wildlife benefits, and stand rejuvenation (IV-8).	Are Aspen/Hardwood stands being managed for multiple benefits?	Acres of aspen stands treated.
Produce a sustained yield of forage on all lands available and suitable for livestock grazing while maintaining or enhancing the productivity of the land (IV-6).	How are management activities affecting soil health and productivity?	Change in surface organic matter (litter). Soil stability: Erosion and sedimentation. BMP implementation and effectiveness monitoring. Burn severity (any management activity that uses fire as a tool).