

# **Gifford Pinchot National Forest Forest Plan Monitoring Program**

**January 2016**



**Gifford Pinchot National Forest  
Vancouver, Washington**

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## **INTRODUCTION**

### **Transition to 2012 Planning Rule**

The 2012 Planning Rule (36 CFR 219.12(c)(1)) requires that all land management plan monitoring programs meet the requirements of the new rule for transition of the plan monitoring programs by May 9, 2016. The Regional approach is to encourage the use of existing relevant monitoring questions and indicators that are consistent with the new rule requirements and that required changes to unit monitoring plans will tie to on-going broad-scale monitoring to the extent practical.

### **What is a Plan Monitoring Program?**

The Forest Plan monitoring program sets out the plan monitoring questions and associated indicators. Monitoring questions and associated indicators must be designed to inform 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. Questions and indicators should be based on one or more desired conditions, objectives, or other plan components in the plan, but not every plan component needs to have a corresponding monitoring question. The Gifford Pinchot National Forest's monitoring program is detailed in Chapter 5 of the Forest Plan (1990). The original monitoring program in the Forest Plan does not ask monitoring questions, but instead focuses on "actions/effects to be monitored" and is categorized by resource area.

### **Monitoring Questions**

Monitoring questions focus on providing the information necessary to evaluate whether plan components are effective and appropriate and whether management is being effective in maintaining or achieving progress toward the desired conditions and objectives for the plan area. A monitoring question is not necessary for every desired condition, objective, or other plan component.

### **Monitoring Indicators**

Indicators are performance measures used in answering the selected monitoring questions (see Forest Service Manual 1905 for the definition for "indicator"). The plan monitoring program must include at least one indicator for each monitoring question. The Forest chose indicators whose associated data it can afford to collect alone or together with partners. The indicators should be practical, measurable, and relevant to answering the monitoring questions for the plan area. They should also be responsive to management activities, or should be chosen to help test relevant assumptions or track relevant changes.

### **Content of the Plan Monitoring Program**

Each plan monitoring program must contain one or more monitoring questions and associated indicators addressing each of the following:

- (i) The status of select watershed conditions.
- (ii) The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems.
- (iii) The status of focal species to assess the ecological conditions required under § 219.9.
- (iv) The status of a select set of the ecological conditions required under § 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.
- (v) The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.
- (vi) Measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area.
- (vii) Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities.
- (viii) 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)). (36 CFR 219.12(a))

Monitoring questions and associated indicators may be designed to apply to more than one of the required items, where appropriate. The plan monitoring program may include additional monitoring questions and associated indicators for other topics not listed in the rule, as the responsible official deems appropriate.

### **Changes from 1990 Monitoring Plan**

Although organized differently, many of the original 1990 monitoring indicators remain in this updated version. Appendix A shows the crosswalk between monitoring elements in the 1990 plan and this updated version. The 2012 National Best Management Practices monitoring has been incorporated into the plan. Several other national and regional monitoring efforts to address questions that are more appropriately answered at scales beyond the Forest boundary are incorporated as well.

### **Monitoring Reports**

The 2012 Forest Planning requires a biennial evaluation of new information gathered through the plan monitoring program and relevant information from the broader-scale strategy, and a written report of the evaluation made available to the public. The first monitoring report with the updated indicators must be completed no later than 2 years from the date of the new monitoring plan. The monitoring report should indicate whether or not a change to the plan, management activities, or the monitoring program, or a new assessment, may be warranted based on the new information. The monitoring evaluation report must be used to inform adaptive management of the plan area.



**Monitoring Category (i) — The status of select watershed conditions.**





## **Monitoring Issue: Conservation of Wild and Scenic River Status**

### **Forest Plan Goals/ Desired Condition:**

*Forest Plan Goal:* Maintain the Wild, Scenic, or Recreation River character of streams recommended for Wild and Scenic Rivers designation (Forest Plan, IV-3). Ensure management actions are consistent with the W&SR Act in relation to the Congressionally-designated White Salmon River (designated after the Forest Plan was written).

*Forest Plan Objective:* Four river segments (113 miles) are recommended to Congress for designation as part of the National Wild and Scenic Rivers System. Until Congress has taken action, values which make them eligible and suitable for Wild and Scenic Rivers designation will be protected on NFS lands (Forest Plan, IV-19). Standards/Guidelines listed in the Forest Plan on page IV-108 through IV-112.

### **Evaluation Question:**

Are we protecting the future eligibility/ suitability and potential classification of our study rivers?

### **Type of Monitoring:**

Implementation/Effectiveness

### **Monitoring Indicators:**

- Change to the three characteristics affecting eligibility: free flow, water quality, and outstanding remarkable values.
- Changes to characteristics affecting recommended classification.

### **Sampling Methods and Data Collection:**

- 20% of study rivers monitored every year (segments of each river visited at least every 5 years). Review percentage of past planned and implemented projects and permits in analysis area that involve potential changes to eligibility/suitability or potential classification.
- Field monitoring for implementation of mitigation to protect eligible/suitable rivers and effectiveness of those mitigations in that protection.
- Water Quality, in terms of temperature, is collected annually at nine of the 15 Wild and Scenic eligible rivers. Two of the 15 have limited (one of two years) baseline data collected by the FS while two others have limited baseline data collected by others. Baseline data were not available for two eligible rivers, the mainstem Cowlitz and the Toutle River. The FS temperature monitoring sites will continue at their current frequency and a long term trend analysis conducted every decade starting in 2020.
- Sediment will be monitored by assessing disturbances including road activities within the riparian areas of the eligible or suitable Wild and Scenic River itself, along with contributing streams. Best Management Practices Monitoring Protocols will be used to evaluate the implementation and effectiveness of project activities that could contribute to sediment in the eligible and suitable Wild and Scenic Rivers.

### **Responsibility:**

Forest Recreation Program Manager

## **Monitoring Issue: Management of Riparian Reserves**

### **Forest Plan Goals/ Desired Condition:**

*Forestwide Standards/Guidelines:* Riparian areas will be managed to maintain or enhance wildlife and fish habitat, protect water quality and other aquatic and riparian resource values (IV-69).

*Northwest Forest Plan Aquatic Conservation Strategy Objectives:* The main purpose of the riparian reserves is to protect the health of the aquatic system and its dependent species (NWFP ROD, p. 7). The 9 ACS Objectives, specifically objective #4 Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems” (NWFP ROD, p. B-11).

### **Evaluation Question:**

Has vegetation management negatively affected riparian reserve stand conditions?

### **Type of Monitoring:**

Effectiveness

### **Monitoring Indicators:**

Riparian reserve stand maturity within 90 meter buffer (~300 feet) on either side of a stream.

### **Sampling Methods and Data Collection:**

The vegetation evaluation by AREMP was based on attributes for average tree size and canopy cover derived from Landsat satellite imagery and plot inventory data by the group called Landscape Ecology, Modeling, Mapping (<http://lemma.forestry.oregonstate.edu/>) using a Gradient Nearest Neighbor approach (GNN). AREMP developed a reference distribution for mean tree diameter and canopy cover from areas with less than 10 percent disturbance based on historical data (Landsat 1985 to 2012) (Cohen et al. 2010; Kennedy et al. 2010). The departure from the mean of the reference distribution was assessed, with a less than -5 percent departure receiving an undisturbed score of 100, a greater than -45 percent departure receiving a score of 0, and intermediate departures receiving a linear interpolation between these two thresholds. Using this approach, a departure from the baseline riparian stand condition can be estimated through time within 90 m buffer (~300 ft) of a stream on a 5 year frequency. AREMPs analysis of GNN data is also being used in the Watershed Condition Framework (5-10 years) to evaluate riparian stand condition. For the WCF, AREMP scores on the 0-100 scale were transformed to the 1 to 3 scale [ $2*((100-ArempScore)/100)+1$ ].

### **References**

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Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. <http://www.reo.gov/monitoring/reports/20yr-report/>  
Kennedy, R.E.; Yang, Z.; Cohen, W.B. 2010. Detecting trends in forest disturbance and recovery using yearly Landsat time series: 1. LandTrendr-temporal segmentation algorithms. Remote Sensing of Environment. 114(12): 2897-2910.

**Responsibility:**

Forest Soil and Water Program Manager

**Monitoring Category (ii) — The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems**



## **Monitoring Issue: Providing for Fish Habitat**

### **Forest Plan Goals/ Desired Condition:**

*Northwest Forest Plan Aquatic Conservation Strategy Objectives:* The 9 ACS Objectives, specifically objectives #1-4 for Evaluation Questions 1 and 2; and objectives #2 and #4-6 for Evaluation Question 3 (NWFP ROD, p. B-11). Riparian Reserves: The main purpose of the riparian reserves is to protect the health of the aquatic system and its dependent species (NWFP ROD, p. 7).

### **Evaluation Question 1:**

Are we improving fish habitat?

### **Evaluation Question 2:**

What is the status of aquatic habitat, specifically in terms of habitat fragmentation?

### **Evaluation Question 3:**

Are we decreasing the effects of our road system on the aquatic ecosystem?

### **Type of Monitoring:**

Implementation

### **Monitoring Indicators:**

- Miles of improved fish habitat.
- Aquatic Habitat Indicators from watershed condition framework (in terms of large wood and channel shape and function).
- Miles made available to fish (i.e. barriers removed).
- Miles of road that a) have been decommissioned, b) have changed maintenance level from a 2 to a 1 (with culverts removed), and c) have been treated to decrease ecological risk (i.e. culvert removal, etc) specific to Level 1 roads.

### **Sampling Methods and Data Collection:**

- The forest currently reports miles of enhanced habitat annually as a funded target.
- WCF would be data source for aquatic habitat, specifically the large wood and channel shape and function attributes) every 5 years. The Watershed Condition Framework Large Wood and Channel Shape and Function Attribute criteria are:
  - Large Wood (reach ratings were weighted by percentage of miles in subwatershed)
    - GOOD- Observed and/or modeled large wood conditions were in top 25% of all of the reaches of similar size and potential.
    - FAIR – Observed/modeled large wood conditions were between and had adequate pools.
    - POOR – observed/modeled conditions were less than 50% of all reaches of similar size and potential OR were 25% - 50 % of all reaches of similar size but did not have adequate pools.

--Channel Shape and Function

- GOOD – Most mainstems and mainstem tributaries channel width-to-depths ratios and bank stability are within the range expected in the absence of human influence.
  - FAIR – A few reaches have width to depth ratios wider than the expected range and/or localized reaches where excessive bank instability or downcutting or vertical instability is evident.
  - POOR – Several mainstems and mainstem tributaries have width to depth ratios greater than expected under near natural conditions. Gullied reaches are extensive, stream banks show excessive signs of erosion, unstable stream banks are causing aggradation or degradation, reaches are disconnected from their floodplain or are braided due to excessive sediment loads.
- WIT would be the data source for miles made available to fish.
  - INFRA will be used for improvement, close and stabilize or decommission road data, annually.

**Responsibility:**

Forest Fish Biologist



## **Monitoring Issue: Visual Condition of Viewshed Corridors**

### **Forest Plan Goals/ Desired Condition:**

*Visual Emphasis Forest Plan Goal:* Provide a visually natural or near-natural landscape as viewed from the designated travel route or use area (Forest Plan, IV-98).

*Forest Plan Standards/Guidelines:* A management prescription VL has a Visual Quality Objective of Retention and a Recreation Opportunity Spectrum of Roaded Natural; VM has a Visual Quality Objective of Partial Retention and a Recreation Opportunity Spectrum of Roaded Natural. Other Standards/Guidelines are in the Forest Plan on pages IV-98 through IV-100 and IV-75 through IV-82.

### **Evaluation Question 1:**

Is there a change in visual travelways and developed sites?

### **Evaluation Question 2:**

Are we meeting the Visual Quality Objectives established in the Forest Plan?

### **Type of Monitoring:**

Effectiveness

### **Monitoring Indicators:**

Change to character, intactness, integrity and stability as measured from travel ways (major roads and major trails), administrative and developed recreation sites.

### **Sampling Methods and Data Collection:**

- 10% of viewshed corridors monitored every year.
- Photo monitoring, simulation or use of Google earth for change detection.

### **Responsibility:**

Forest Recreation Program Manager

## **Monitoring Issue: Preservation of Wilderness Character**

### **Forest Plan Goals/ Desired Condition:**

*Goal:* Preserve the Wilderness character. Allow for natural processes and provide opportunities for solitude, challenge, and inspiration (Forest Plan, IV-116).

*Desired Future Condition:* The area retains its primeval character without permanent alterations or human habitation. It appears to have been affected primarily by forces of nature; evidence of human intrusion is substantially unnoticeable. The area provides outstanding opportunities for solitude and primitive-type recreation without motorized activities (Forest Plan, IV-116).

### **Evaluation Question:**

Are we protecting the wilderness character over time?

### **Type of Monitoring:**

Effectiveness

### **Monitoring Indicators:**

- Change in elements selected as part of the Wilderness Stewardship Performance measure.
- Amount of visitor use in each Wilderness area.
- Visible presence of visitation – evidence of campfire, trampling, garbage, etc.

### **Sampling Methods and Data Collection:**

- Data to be drawn from NRM (INFRA-Wild) annually for each of the Wilderness Stewardship Performance elements that may have experienced change.
- Visitor use figures derived from mandatory Wilderness permit data.
- Physical monitoring by on-site data collection of selected stewardship elements in randomly selected locations.

### **Responsibility:**

Forest Recreation Program Manager

**Monitoring Category (iii)— The status of focal species to assess the ecological conditions required under § 219.9**



## **Monitoring Issue: Habitat Function/ Forest Structure**

### **Forest Plan Goals/ Desired Condition:**

*Forest Management Goals:* Maintain habitat for about the current (1990) population level for elk, and an increase of about 10 percent for deer, by providing a good mix of required habitats and enhancing forage production over the biological winter range. Manage big-game habitat to avoid fluctuations in habitat capability of greater than 10 percent between decades.

*Northwest Forest Plan Desired Condition:* In Late-Successional Reserves, standards and guidelines are designed to maintain late-successional forest ecosystems and protect them from loss due to large-scale fire, insect and disease epidemics, and major human impacts. Forests in the matrix function as connectivity between Late-Successional Reserves and provide habitat for a variety of organisms associated with both late-successional and younger forests (NWFP ROD, p. B-2).

### **Evaluation Question 1:**

Is there sufficient size and distribution of seral stages across the landscape? Is there sufficient quantity and quality early seral habitat to support key early seral species?

### **Evaluation Question 2:**

Will we have a resilient late-successional type over time?

### **Evaluation Question 3:**

Are we maintaining a ponderosa pine/ mixed conifer forest type or broader eastside conditions? Will we have a resilient late-successional east-side ponderosa pine/ mixed conifer forest type over time?

### **Type of Monitoring:**

Effectiveness

### **Monitoring Indicators:**

- Changing structural components of seral stages. Early seral/ age class distribution across landscape. Evaluation of early seral and adequate habitat for early seral species: coarse woody debris (size and length), snag density and height; plant/shrub richness
- Percent of trees and acres meeting late-successional type: a) Distribution and spatial extent; b) Presence, abundance, and spatial distribution of older trees; c) Amount and distribution of vegetation seral/structural stages; d) Availability of suitable nesting /roosting Northern spotted owl.

### **Sampling Methods and Data Collection:**

- Evaluation question 1: Regional database query for seral stage questions, every 5-10 years.
- Evaluation question 2: Regional database and GNN/Lidar will cover fire and insect and disease as disturbance indicators, every 5-10 years.
- Evaluation question 3: The Terrestrial Regional Assessment (TRACS): has some dry site data; will also rely on Regional NSO GNN or Lidar analysis, every 5 years.

### **Responsibility:**

Forest Wildlife Program Manager



**Monitoring Category (iv)— The status of a select set of the ecological conditions required under § 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**



## **Monitoring Issue: Sensitive Species**

### **Forest Plan Goals/ Desired Condition:**

*Forestwide Standards and Guidelines:* All project areas affected by management activities will be reviewed for sensitive, threatened, or endangered plant and animal species (IV-51).

*Forestwide Standards and Guidelines:* All project areas affected by management activities will be reviewed for sensitive, threatened, or endangered plant and animal species (IV-51).

### **Evaluation Question 1:**

Are *Sisyrinchium sarmentosum* (pale blue-eyed grass) populations persisting within the meadow systems?

### **Evaluation Question 2:**

What is the quality and quantity of nectaring forbs and grasses within meadows with known Mardon skipper populations? What is the population trend for Mardon skipper over a 3-year average?

### **Type of Monitoring:**

Effectiveness

### **Monitoring Indicators:**

- Change in distribution and population numbers of *Sisyrinchium sarmentosum*.
- Change in quality or quantity of nectaring forbs and grasses during the Mardon skipper cycle. Change or reduction of the grasses on the landscape.

### **Sampling Methods and Data Collection:**

- Evaluation question 1: NRIS—TESP database, collected annually, reported on every 5 years.
- Evaluation question 2: Existing transect in Peterson Prairie that is read on a regular basis.
- We will also do annual population counts for a percentage of known Mardon skipper sites.

### **Responsibility:**

Forest Wildlife/ Botany Program Manager



**Monitoring Category (v)— The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives**



## **Monitoring Issue: Primitive and Semi-Primitive Recreation Opportunity (Non-Wilderness)**

### **Forest Plan Goals/ Desired Condition:**

*Forest Management Goals:* Provide a diverse range of dispersed recreational, interpretive, and educational opportunities (IV-2).

*Forestwide and Management Area Category Standards/Guidelines:* The Recreation Opportunity Spectrum (ROS) class assigned in each Management Area (except Wilderness) is the minimum level acceptable and should be met by all activities (IV-48). See also specific ROS direction on pages IV-75 through 78.

### **Evaluation Question 1:**

Are we providing the opportunity or social condition that aligns with visitor demand and expectation?

### **Evaluation Question 2:**

Is dispersed recreation use causing significant modification to forest setting?

### **Evaluation Question 3:**

Are Recreation Opportunity Spectrum classes still valid?

### **Type of Monitoring:**

Implementation/Effectiveness

### **Monitoring Indicators:**

Change from one classification to another classification considering natural setting, level of use, and access

### **Sampling Methods and Data Collection:**

- 20% of Forest monitored every year (sections of forest monitored at least every 5 years).
- Aerial photo monitoring for change detection, with spot field monitoring if needed to calibrate/complete analysis.
- Review percentage of past projects in analysis area that involve potentially changing ROS classification. Random review of hot spot areas, known for heavy dispersed use.

### **Responsibility:**

Recreation Program Manager

## **Monitoring Issue: Condition and Management of Trail Inventory and Recreation Facilities**

### **Forest Plan Goals/ Desired Condition:**

*Forest Management Goals:* Provide a full range of trail experiences and difficulty levels, for a variety of users. Provide safe, well-maintained facilities for developed recreation within a range of development levels. Provide a diverse range of dispersed recreational, interpretive, and educational opportunities (IV-2).

*Forestwide and Management Area Category Standards/Guidelines:* Trails are assigned one of three Management Levels and should be managed according to the Standards/Guidelines applicable to that level, unless the Standards/Guidelines for the underlying Management Area are more restrictive (IV-48). See pages IV-81 and IV-82 for specific trail management direction.

### **Evaluation Questions Group 1:**

Are we focusing managerial resources on the highest quality of recreation opportunity? Are we providing safe conditions at developed facilities? Is there any evidence of resource degradation? Is management activity addressing resource degradation? Are we providing trail experience in alignment with visitor demands (i.e. mountain biking, OHV, pack/saddle)?

### **Evaluation Questions Group 2:**

Are we providing the type of opportunities, facilities and trails the public wants consistent with our niche (front country, backcountry, and Wilderness)? Are we aligning the developed recreation program delivery with our niche and emerging public expectations? Do the majority, >50% of trails meet minimum condition standards for safety and maintenance?

### **Type of Monitoring:**

Implementation/Effectiveness

### **Monitoring Indicators:**

- Evaluation questions group 1:
  - Opportunities align with visitor demands and emerging trends.
  - Miles of trail designated for mixed use with mountain bikes, motor cycles and all-terrain vehicles.
  - The number of accessible facilities.
  - The number of safety hazards at developed facilities are identified and mitigated.
- Evaluation questions group 2: Changes to existing uses that are not consistent with planned use or our niche (ex: non-equestrian use of equestrian camps; percentage of occupancy and displaced use).

### **Sampling Methods and Data Collection:**

- Evaluation questions group 1: NVUM and possibly INFRA will provide data related to whether or not opportunities align with visitor demands. Data on miles and types of trails will come from INFRA, every 5 years.
- Evaluation question group 2: Condition monitored through INFRA. NVUM and demand research can partially get at how forest is meeting visitor demand and satisfaction.

### **Responsibility:**

Forest Recreation Program Manager



**Monitoring Category (vi)— Measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area**



## **Monitoring Issue: Stream Temperature**

### **Forest Plan Goals/ Desired Condition:**

*Northwest Forest Plan Aquatic Conservation Strategy Objectives:* The 9 ACS Objectives, specifically objectives #4-7.

### **Evaluation Question:**

How have changes to air temperature (including type of precipitation and timing) affected summer stream temperatures?

### **Type of Monitoring:**

Effectiveness

### **Monitoring Indicators:**

Trend/ Change to maximum 7-day average stream temperature.

### **Sampling Methods and Data Collection:**

Relevant – Ten Year trend summary in biennial monitoring report.

### **Responsibility:**

Forest Soil and Water Program Manager



**Monitoring Category (vii)— Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities**





## **Monitoring Issue: Protection of Heritage Resources and Tribal Consultation**

### **Forest Plan Goals/ Desired Condition:**

*Forest Management Goals:* Protect and manage archaeological and historic sites, peeled cedar, historic travel routes (roads/trails), caves, and cultural landscapes for research, interpretation, or adaptive reuse as applicable (IV-3). Maintain a diversity of cultural resource sites by in-place preservation (IV-3). Provide for the integration of native American activities authorized by treaties, the American Indian Religious Freedom Act, and the Sawtooth Berryfield Handshake Agreement of 1932 (IV-3).

### **Evaluation Question 1:**

Are sufficient cultural resource inventories being conducted where required?

### **Evaluation Question 2:**

Are known heritage sites being protected/preserved?

### **Evaluation Question 3:**

Are Native American tribes being consulted as appropriate?

### **Type of Monitoring:**

Implementation

### **Monitoring Indicators:**

- Cultural resource inventory of the ground-disturbing and other appropriate projects.
- Protection or mitigation of project effects for cultural resource sites.
- Native American Coordination during implementation of the Forest Plan.

### **Sampling Methods and Data Collection:**

- Review project plans and NEPA documents for sufficiency and conduct activity reviews.
- Review project plans and NEPA documents and cultural resource documents to determine if mitigations are adequate to protect heritage resources.
- Review project plans and NEPA/NHPA documents for sufficiency.

### **Responsibility:**

Forest Heritage Program Manager and Tribal Liaison

## **Monitoring Issue: Silvicultural Practices**

### **Forest Plan Goals/ Desired Condition:**

*Forestwide Standards and Guidelines:* The total area of created openings contiguous to 30-acre or larger natural openings should normally not exceed one-third the size of the natural opening and not occupy more than one-third of the natural opening perimeter. Openings should not be created adjacent to any natural openings (regardless of size), unless adequate vegetation along the edge can be developed or retained in sufficient density to protect wildlife and visual management objectives. (Plan IV – 57).

*Forestwide Standards and Guidelines:* Trees harvested to achieve timber production objectives must be cut using Forest management methods which reasonably assure that the land can be adequately restocked within 5 years after final harvest (felling), unless management of other resources dictates a longer regeneration period (IV-88). See Figure IV-26 on page IV – 89 for reforestation stocking standards. Conversion of forested to non-forest conditions is not allowed in the LMRP.

### **Evaluation Question 1:**

Have all sites where the tree cover has been reduced below 10% through management practices or a regeneration cut has been performed, been adequately reforested within 5 years of the removal cut?

### **Evaluation Question 2:**

Have any final harvest unit sizes exceeded approved limits as identified in the LMRP or other decision documents?

### **Type of Monitoring:**

Implementation

### **Monitoring Indicators:**

- All such sites have been certified as reforested to LMRP minimum standards within 5 years of the removal cut.
- Sites where this has not occurred have decision documents authorizing the extended timelines, and they identify when and how the stands will meet the reforestation requirement.
- Any regeneration harvest is reported in FACTS (acres).

### **Sampling Methods and Data Collection:**

- Certification of reforestation has been documented in the FACTS database
- Compare reported harvest units sizes in FACTS to maximum size limits listed in the LMRP.

### **Responsibility:**

Forest Silviculturist

## **Monitoring Issue: Dispersed Recreation and Unmanaged Recreation**

### **Forest Plan Goals/ Desired Condition:**

*Forest Management Goals:* Provide a diverse range of dispersed recreational, interpretive, and educational opportunities (IV-2).

*Forestwide Standards and Guidelines:* Developed and dispersed recreation sites should be located at least 100 feet from the edges of lakes, streams, ponds, wet meadows, marshes, and springs. Dispersed recreational activities which degrade the quality of riparian areas should be regulated or eliminated (IV-70). See also IV-49-55, 59-61 for the protection of physical and biological resources.

### **Evaluation Question 1:**

Are we managing dispersed recreation adequately enough to protect resource conditions?

### **Evaluation Question 2:**

What is the impact of dispersed occupancy on the physical resources?

### **Type of Monitoring:**

Implementation/Effectiveness

### **Monitoring Indicator:**

Degree of change from a natural setting that results from these uses.

### **Sampling Methods and Data Collection:**

- Evaluation question 1:
  - Monitor 1 heavy use corridor per year.
  - Use GIS, aerial photo monitoring and field monitoring.
- Evaluation question 2:
  - Use monitoring from Travel Management (MVUM) required monitoring: effectiveness of MVUM implementation.
  - Use monitoring indicators from the SPF program. SFP FPO mapping of user-created wheel tracks and dispersed camping sites as a way to monitor change.

### **Responsibility:**

Forest Recreation Program Manager

## **Monitoring Issue: Research Natural Areas**

### **Forest Plan Goals/ Desired Condition:**

*Forest Plan Goal:* Manage the Research Natural Area in a natural state for research and education, and/or to maintain biological diversity (IV-5 and IV-138).

*Desired Future Condition:* Except for development which may have occurred prior to classification, human activities are not evident (IV-138).

### **Evaluation Question:**

Is there a change to the natural area? Has human presence altered the natural area or what percentage of change has resulted from human activity?

### **Type of Monitoring:**

Effectiveness

### **Monitoring Indicators:**

- Increased miles of user-created trail in RNAs.
- Introduction of or increase of non-native invasive plants.

### **Sampling Methods and Data Collection:**

Evaluation of each RNA at least every 3 years.

### **Responsibility:**

Forest Wildlife Program Manager

## **Monitoring Issue: Invasive Plants**

### **Forest Plan Goals/ Desired Condition:**

*Forest Plan Amendment #18*, the Pacific Northwest Invasive Plant Program Final EIS ROD (2005) added the following Desired Future Condition Statement to the Gifford Pinchot National Forest Plan: "...Healthy native plant communities remain diverse and resilient, and damaged ecosystems are being restored. High quality habitat is provided for native organisms throughout the [Forest]. Invasive plants do not jeopardize the ability of [the Gifford Pinchot] National Forest to provide goods and services communities expect. The need for invasive plant treatment is reduced due to the effectiveness and habitual nature of preventative actions, and the success of restoration efforts" (ROD, Appendix 1-1).

### **Evaluation Question:**

Are non-native plant species increasing? Are new non-native plant species being introduced?

### **Type of Monitoring:**

Effectiveness

### **Monitoring Indicators:**

- Acres of spread of existing invasive species a) terrestrial and b) aquatic.
- New species introduction.
- Acres treated.

### **Sampling Methods and Data Collection:**

Information from FACTS Invasives database included in annual reporting

### **Responsibility:**

Forest Wildlife Program Manager

## **Monitoring Issue: Deer and Elk Habitat**

### **Forest Plan Goals/ Desired Condition:**

*Forest Management Goals:* Maintain habitat for about the current (1990) population level for elk, and an increase of about 10 percent for deer, by providing a good mix of required habitats and enhancing forage production over the biological winter range. Manage big-game habitat to avoid fluctuations in habitat capability of greater than 10 percent between decades.

### **Evaluation Question 1:**

Are management actions maintaining habitat for deer and elk at levels expected in the Plan?

### **Evaluation Question 2:**

Are we maintaining adequate forage to maintain deer and elk populations? What is the utilization or change in plant composition (shrub or browse species) across the landscape? Is the plant composition in the high-value meadows changing?

### **Type of Monitoring:**

Effectiveness

### **Monitoring Indicators:**

- Population trends for deer and elk
- Forage production for deer and elk
- Amount of non-native invasive treatments and herbicide applied in high-value areas

### **Sampling Methods and Data Collection:**

- Rely on WDFW data for deer and elk population numbers. Every 5 years.
- Consider using Westside elk model at a Forest scale and vegetation management projects.
- Read existing transect at Peterson Prairie every 5 years. Consider additional transects at high value areas if needed. Utilize clip and weigh methodology for site-specific meadow as appropriate.

### **Responsibility:**

Forest Wildlife Program Manager



## **Monitoring Issue: Mountain Goat Habitat**

### **Forest Plan Goals/ Desired Condition:**

*Desired Future Condition:* Mountain goat habitats have improved because of limitations on timber harvesting and restricted access in goat winter range (IV-9).

*Goal of Mountain Goat Management Area Category:* Manage habitat to provide forage and cover that maintains the present (1990) carrying capacity of 230 animals.

*Forest Objective:* Activities in...kidding areas should be timed to minimize disturbance and displacement of...mountain goats. Access and operations should be restricted between...April 15 and July 1 in kidding areas (IV-54).

### **Evaluation Question 1:**

Is there a conflict between recreational users and mountain goat habitat?

### **Evaluation Question 2:**

Are we managing mountain goat habitat for forage and cover?

### **Type of Monitoring:**

Implementation/Effectiveness

### **Monitoring Indicators:**

- An increase in recreation use of area.
- Population trends for mountain goats. Distribution of mountain goats across the forest.

### **Sampling Methods and Data Collection:**

- Observation from Forest wildlife or recreation staff
- WDFW data, populations trends, every 5 years.
- Maintain citizen science volunteer surveys on mountain goat distribution.

### **Responsibility:**

Forest Wildlife Program Manager

## **Monitoring Issue: Habitat for Late-Successional Species**

### **Forest Plan Goals/ Desired Condition:**

*NWFP-Objective of Late-Successional Reserves:* To protect and enhance conditions of late-successional and old-growth forest ecosystems, which serve as habitat for late-successional and old-growth related species including the northern spotted owl. Reserves are designed to maintain a functional, interacting, late-successional and old-growth forest ecosystem (NWFP ROD, C-11).

*Desired Future Condition:* Habitat capability for cavity excavators has been maintained at a minimum of 40% of their potential population levels on timber harvest areas. Snags, scattered or in groups, green wildlife trees, and down logs within timber harvest areas provide habitat for these species (IV-6).

*Forest Management Goals:* Provide, over time, at least the minimum management level of snag and down log habitat (IV-3).

*Forestwide Standards/Guidelines:* Cavity Excavators standards and guidelines 1-10 listed on page IV-51.

### **Evaluation Question 1:**

Has the LSR system (acres) on the Forest stayed intact?

### **Evaluation Question 2:**

Are we providing minimum management level large snags and downed logs?

### **Type of Monitoring:**

Effectiveness

### **Monitoring Indicators:**

- Changes in LSR habitat.
- Retention of large snags and downed logs (>20" dbh).

### **Sampling Methods and Data Collection:**

- GNN vegetation layer data set comes about every 5 years from the Region; and insect/disease effects evaluated annually.
- Project surveys for vegetation management and watershed analysis utilize the DecAID tool.
- Lidar may also be used.

### **Responsibility:**

Forest Wildlife Program Manager

## **Monitoring Issue: Resource Outputs**

### **Forest Plan Goals/ Desired Condition:**

*Forestwide Standards and Guidelines:* A Ten-Year Timber Sale Action Plan for proposed timber sales, based upon the harvest schedule identified in the Forest Plan, should be updated annually (IV-56). [Note: The Forest Plan limits the Forest's timber annual output to at or below the Decadal output. This is now based on PSQ calculation from NWFP - at 65 MMF/yr or 650 mmbf per decade.]

*Forest Management Goals:* Provide for stability in resource outputs and services over time. Radical changes from one decade to the next should be avoided. Resolve as many issues as possible. To achieve the highest net public benefit, no single issue can be resolved to everyone's satisfaction. This is because resources are highly interrelated and emphasis on one is often at the expense of others. The goal is to provide balanced management. Incorporate necessary changes to existing Forest programs in such a manner as to cause the least amount of disruption to the current social and economic situation (jobs, income).

*Forest Management Objectives:* Figure IV-1 displays projected resource outputs, effects, activities, and costs that are expected with full implementation of the Forest Plan (IV-10).

### **Evaluation Question 1:**

Does the forests decadal award exceed the current decadal PSQ?

### **Evaluation Question 2:**

Are resource outputs specified by the Forest Plan being met? Are there changes in the projected supply or demand of Forest goods and services used in economic evaluation or in sensitive issues response?

### **Evaluation Question 3:**

How is employment in Skamania, Lewis, Yakima and Cowlitz affected by actions implementing the Gifford Pinchot Land and Resource Management Plan?

### **Type of Monitoring:**

Implementation/Effectiveness

### **Monitoring Indicators:**

- Calculate the decadal average volume awarded (sum of ten most current years) and compare to current decadal PSQ.
- Actual outputs for each resource should be within +/- 10% annually or +/- 5% for the Plan period (10-15 years)
- Timber offered but not sold or timber sold but not harvested. Recreation capacity not used.
- Community effects – Changes in employment patterns; payments to counties; and lifestyles, attitudes, beliefs, or values.

### **Sampling Methods and Data Collection:**

- TIMS report for volume sold; annual cut and sold reports
- Outputs for each resource should be compared with those predicted in Figure IV-1 annually. NVUM data for determining recreation use.
- Review annual employment reports by county from the Economic Profile System through Headwaters Economics.

### **Responsibility:**

Forest Vegetation Lead

## **Monitoring Issue: Transportation and Road Maintenance**

### **Forest Plan Goals/ Desired Condition:**

*Forest Management Goals:* Manage roads to reduce maintenance costs, protect soil and water resources, avoid wildlife harassment, and provide quality hunting and dispersed recreation opportunities (IV-4).

*Forestwide Standards and Guidelines:* The assigned traffic service level should be consistent with the road management objectives for the area. Local roads not required for resource use, protection, or some other demonstrated access need should be closed. (IV-66).

*Forestwide Standards and Guidelines:* the Flood Emergency Road Maintenance Plan (FERM) should be updated annually (IV-66).

### **Evaluation Question 1:**

Are the Road Management Objectives (RMO) for particular forest roads still valid (future maintenance level)? Are there opportunities to close roads not required for resource use, protection or other demonstrated need?

### **Evaluation Question 2:**

Are road closures being implemented as planned and are the closures effective?

### **Evaluation Question 3:**

Is the FERM and/or ERFO plan updated?

### **Type of Monitoring:**

Implementation/ Effectiveness

### **Monitoring Indicators:**

- RMOs match existing use and maintenance level.
- Project planning includes evaluation of RMOs.
- The Forest has capacity to implement closures and existing closures are effective.
- FERM and/or ERFO on annual road maintenance updated annually.

### **Sampling Methods and Data Collection:**

- RMOs will be reviewed for roads in the subwatersheds identified for vegetation planning projects. This will include 4-7 subwatersheds every year. Changes to RMOs will be recorded in the database of record. Engineering staff will review large vegetation project documents.
- Field review of both new road closures and existing closures (as part of annual MVUM monitoring)
- Annual reviews of FERM and/or ERFO plan by forest-level engineering staff.

### **Responsibility:**

Forest Engineer

## **Monitoring Issue: Minerals**

### **Forest Plan Goals/ Desired Condition:**

*Forest Management Goals:* Encourage and facilitate the orderly exploration, development, and production of mineral and energy resources within the National Forest system in order to maintain a viable, healthy minerals industry and to promote self-sufficiency in those mineral and energy resources necessary for economic growth and the national defense (IV-4).

### **Evaluation Question 1:**

Are Federal regulations (36 CFR 228) covering surface resource protection during mineral exploration, development and production implemented and are they effective in reducing impacts?

### **Evaluation Question 2:**

Are minerals exploration, development, and production operations in compliance with the notice of intents/operating plans/permits/contracts/concurrence letters?

### **Type of Monitoring:**

Implementation/ Effectiveness

### **Monitoring Indicators:**

- Mineral exploration, development and production proposals are processed and/or administered in a timely manner.
- Mineral exploration, development and production proposals are evaluated for potential impacts and appropriate mitigation measures are required for approval.
- Mitigation measures and reclamation requirements are implemented in the field.

### **Sampling Methods and Data Collection:**

- Annual office review of one mineral proposal from each district to verify processing according to regulations.
- Annual field review of one mineral operation on each district to verify administration according to regulation and monitor implementation and effectiveness of mitigation measures and/or reclamation.

### **Responsibility:**

Forest Geologist



**Monitoring Category (viii )— 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)). (36 CFR 219.12(a))**



## **Monitoring Issue: Long-term soil productivity**

### **Forest Plan Goals/ Desired Condition:**

*Forest Management Goals:* Maintain or enhance existing soil productivity and water quality, quantity, and timing of runoff.

*Forestwide Standards and Guidelines:* Use Best Management Practices in accordance with the Clean Water Act (IV-60). No more than a total of 20% of an activity area may be compacted, puddled, displaced, or subjected to a severe burn as a result of the activity (IV-61).

### **Evaluation Question 1:**

Is long-term soil productivity of forest land being maintained?

### **Evaluation Question 2:**

Are BMPs employed and effective to protect water, aquatic, and riparian resources applied to ground-based skidding, cable or aerial yarding and harvesting?

### **Type of Monitoring:**

Implementation/Effectiveness

### **Monitoring Indicators:**

- Soil disturbance is within Forest Plan Standards for detrimental soil conditions. Ensure that BMPs are correctly applied or meeting design expectations.

### **Sampling Methods and Data Collection:**

- Monitor implementation of one project annually and enter results in database of record.
- Document field observations of effectiveness by Forest Soil Scientist or R&S staff.

### **Responsibility:**

Forest Soils Scientist

## Appendix A: Crosswalk with Monitoring Indicators from 1990 Forest Plan

Item to be Monitored	Indicator still relevant (Yes/No)	How will it be carried into new monitoring program?	Rationale & Notes
<b>Recreation</b> 1. Wild and Scenic River Protection	Yes	<u>Monitoring Category:</u> (i) <i>The status of select watershed conditions</i> <u>Monitoring Question:</u> Are we protecting the future eligibility/ suitability and potential classification of our study rivers?	
2. Primitive and Semi-Primitive Recreation Opportunity (Non-Wilderness)	Yes	<u>Monitoring Category:</u> (v) <i>The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives</i> <u>Monitoring Questions:</u> Are we maintaining Recreation Opportunity Spectrum settings according to the FP S&G? Are Recreation Opportunity Spectrum classes still valid? Are there changed conditions that we need to account for?	Administrative change to include all ROS/WROS.
3. Visual Condition of viewshed corridors	Yes	<u>Monitoring Category:</u> (ii) <i>The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems</i> <u>Monitoring Question:</u> Is there a change in visual travelways and developed sites?	Administrative change to include more than viewsheds.
4. Preservation of Wilderness Character	Yes	<u>Monitoring Category:</u> (ii) <i>The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems</i> <u>Monitoring Question:</u> Are we protecting the wilderness character over time?	
5. Preservation of Research Natural Area attributes	No?	<u>Monitoring Category:</u> (vii) <i>Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities</i> <u>Monitoring Questions:</u> Is there a change to the natural area? Has human presence altered the natural area or what percentage of change has resulted from human activity?	
6. Management of Trail Setting	Yes, modified	<u>Monitoring Category:</u> (v) <i>The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives</i> <u>Monitoring Questions:</u> Are we providing the opportunity or social condition that aligns with visitor demand and expectation? Are we focusing managerial resources on the highest quality of recreation opportunity? Are we providing safe conditions at developed facilities? Is there any evidence of resource degradation? Is management activity addressing resource degradation?	Administrative change to include the condition and management of trail inventory and recreation facilities (#6 and #7).
7. Condition of recreation facilities	Yes, modified	<u>Monitoring Category:</u> (v) <i>The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives</i> <u>Monitoring Questions:</u> Are we providing the opportunity or social condition that aligns with visitor demand and expectation? Are we focusing managerial resources on the highest quality of recreation opportunity? Are we providing safe conditions at developed facilities? Is there any evidence of resource degradation? Is management	Administrative change to include the condition and management of trail inventory and recreation facilities (#6 and #7).

		activity addressing resource degradation?	
<b>Cultural</b> 10. Cultural resource inventory of the ground-disturbing and other appropriate projects	Yes	<u>Monitoring Category:</u> (vii) Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities <u>Monitoring Question:</u> Are sufficient cultural resource inventories being conducted where required?	
11. Protection or mitigation of project effects for cultural resource sites	Yes	<u>Monitoring Category:</u> (vii) Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities <u>Monitoring Question:</u> Are known heritage sites being protected/preserved?	
<b>Native Americans</b> 20. Native American Coordination	Yes	<u>Monitoring Category:</u> (vii) Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities <u>Monitoring Question:</u> Are Native American tribes being consulted as appropriate?	
<b>Wildlife and Fish</b> 30. Population trends for deer and elk	Yes	<u>Monitoring Category:</u> (vii) Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities <u>Monitoring Question:</u> Are management actions maintaining habitat for deer and elk at levels expected in the Plan?	Combined with #31 in new monitoring program.
31. Forage Production	Yes	<u>Monitoring Category:</u> (vii) Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities <u>Monitoring Questions:</u> Are we maintaining adequate forage to maintain deer and elk populations? What is the utilization or change in plant composition (shrub or browse species) across the landscape? Is the plant composition in the high-value meadows changing?	Combined with #30 in new monitoring program.
32. Ensure the minimum amount of deer and elk optimal cover is maintained	No	Not Applicable	Optimal thermal cover is not as important as forage production. There is currently plenty of optimal thermal cover across the forest.
33. Completion of Wildlife and Fish Habitat Improvements	Yes, modified	<u>Monitoring Category:</u> (ii) The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems <u>Monitoring Questions:</u> Are we improving fish habitat? What is the status of aquatic habitat, specifically in terms of habitat fragmentation?	Administrative change to include: <ul style="list-style-type: none"> <li>• miles of improved fish habitat (in terms of large wood and channel shape and function)</li> <li>• habitat fragmentation from watershed condition framework</li> <li>• miles made available to fish (i.e. barriers removed)</li> </ul>
34. Population trends for Mountain Goats	Yes	<u>Monitoring Category:</u> (vii) Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities <u>Monitoring Questions:</u> Is there a conflict between recreational users and mountain goat habitat? Are we managing mountain goat habitat for forage and cover?	
35. Sensitive Species (Plant and Animal)	No	New monitoring questions were developed around habitat for <i>Sisyrinchium sarmentosum</i> and <i>Mardon skipper</i> and categorized under—(iii) The status of focal species to	This indicator is covered in project analysis of special habitats or as part of ESA compliance and

		<i>assess the ecological conditions required under § 219.9</i>	monitoring of the actual species is not necessary.
36. Determine if SOHAs are occupied by owls and populations are being maintained	No	Monitoring questions related to LSRs are in categories— <i>(iii) The status of focal species to assess the ecological conditions required under § 219.9 (vii) and Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities</i>	When the NWFP amended the GP Forest Plan, SOHAs were replaced in concept by LSR.
37. Determine that the SOHA network is intact	Yes, modified	<u>Monitoring Category:</u> <i>(vii)Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities</i> <u>Monitoring Question:</u> Has the LSR system on the Forest stayed intact?	When the NWFP amended the GP Forest Plan, SOHAs were replaced in concept by LSR.
38. Population trends and habitat capability for pine marten and pileated woodpecker	No	Not Applicable	Monitoring questions developed around retention of snags and downed logs (#40) will serve as a proxy for this indicator. This is an administrative change.
39. Primary excavator population trends	No	Not Applicable	Monitoring questions developed around retention of snags and downed logs (#40) will serve as a proxy for this indicator. This is an administrative change.
40. Retention of snags and downed logs	Yes	<u>Monitoring Category:</u> <i>(vii)Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities</i> <u>Monitoring Question:</u> Are we providing sufficient large snags and downed logs?	
41. Determine if populations and habitats for the bald eagle are being maintained or enhanced	No	Not Applicable	The bald eagle was listed at the time of the plan. Environmental analyses will still discuss effects to the bald eagle.
42. Retention of large woody debris associated with fish-bearing streams	Yes, modified	Combined with 33 above, modified and categorized under— <i>(ii) The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems</i> in the new monitoring program.	New monitoring indicators include: <ul style="list-style-type: none"> <li>• miles of improved fish habitat (in terms of large wood and channel shape and function)</li> <li>• habitat fragmentation from watershed condition framework</li> <li>• miles made available to fish (i.e. barriers removed)</li> </ul>
43. Management indicator resident and anadromous fish population trends	No	Not Applicable	The effects to and population viability of management indicator species (MIS) are disclosed in project environmental analysis. The Forest has never monitored actual MIS populations.
<b>Timber</b> 50. Adequate Reforestation	Yes	<u>Monitoring Category:</u> <i>(vii)Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities</i> <u>Monitoring Question:</u> Have all sites where the tree cover	



		has been reduced below 10% through management practices or a regeneration cut has been performed, been adequately reforested within 5 years of the removal cut?	
51. Silvicultural Methods	No	Not Applicable	This indicator ties to the 1982 planning rule 36 CR 219.27 which has been replaced by the 2012 planning rule. The new planning rule does not have this same requirement.
52. Regeneration harvest unit size	Yes	<u>Monitoring Category:</u> (vii)Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities <u>Monitoring Question:</u> Have any final harvest unit sizes exceeded approved limits as identified in the LMRP or other decision documents?	
53. Insects or disease increases following management activities	No	Not Applicable	While this is listed in the original Forest Plan monitoring program, there is no other mention of it in the forest plan or FEIS as an issue item.
54. Volume sold	Yes	<u>Monitoring Category:</u> (vii)Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities <u>Monitoring Question:</u> Does the forests decadal award exceed the current decadal PSQ?	This was combined with #58.
55. Actual acres and volumes harvested, compared with scheduled outputs	No	Not Applicable	This indicator is just used for program management to determine rate of sale cut-outs, are tracking whether or not there could be a default situation which is a measure of market health. It can also be a measure of success for estimating output levels from acres treated, but it doesn't tell us how well our plan is being implemented.
56. Execution of the silvicultural prescriptions and timber management practices	No	Not Applicable	Informal review of silvicultural prescriptions for vegetation projects is occurring.
57. Earned harvest work	No	Not Applicable	Not a meaningful indicator. The monitoring program still includes #84 which will evaluate the effect of plan implementation on local employment.
58. ASQ	Yes	<u>Monitoring Category:</u> (vii)Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities <u>Monitoring Question:</u> Does the forests decadal award exceed the current decadal PSQ?	This was modified and combined with #54.
59. Standing timber inventory	No	Not Applicable	This is required under 16 USC 1642 for the agency as a whole, basis of the FIA program. There is no requirement for this to be done at the forest level or as a requirement of the Forest Plan.

Reevaluate the land suitability classes (LSC) resulting from implementation of the LMRP	No	Not Applicable	The Forest is required to review the land classification of our forest every 10 years. This happens outside of the Forest Plan monitoring program.
<b>Soils and Watershed</b> 60. Soil Productivity	Yes	<u>Monitoring Category:</u> (viii) <i>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)). (36 CFR 219.12(a))</i> <u>Monitoring Questions:</u> Is long-term soil productivity of forest land being maintained? Are BMPs employed and effective to protect water, aquatic, and riparian resources applied to ground-based skidding, cable or aerial yarding and harvesting?	
61. Watershed and Fisheries habitat	Yes, modified	<u>Monitoring Category:</u> (i) <i>The status of select watershed conditions</i> <u>Monitoring Question:</u> How has vegetation management affected the primary shade zone (tree height to the extent that temperature is affected)?	Wildlife and fisheries habitat is covered through other indicators above. This indicator was changed to address the primary shade zone.
<b>Transportation</b> 70. Ensure that proposed road closures are implemented and effective as per the Road Management Objectives (RMOs).	Yes, modified	<u>Monitoring Category:</u> (vii) <i>Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities</i> <u>Monitoring Questions:</u> Are the Road Management Objectives (RMO) for particular forest roads still valid (future maintenance level)? Are there opportunities to close roads not required for resource use, protection or other demonstrated need? Are road closures being implemented as planned and are the closures effective?	A monitoring question on validating RMOs was added to this indicator.
<b>Other</b> 80. Application of Regional and Forest Standards and Guidelines. (In addition to those specifically defined in other sections of the monitoring plan.)	No	Not Applicable	Each project implementing the plan is expected to meet all Regional and Forest Standards and Guidelines, but it is not meaningful to include a discussion of every S/G into the biennial monitoring reports. The monitoring program attempts to highlight those components of the plan most needing monitoring.
81. Program costs projected in the Plan	No	Not Applicable	As the Forest Plan is 15 years old, the projected program costs are not meaningful and do not need to be monitored.
82. Supply and Demand: Determine if there are changes in the projected supply or demand of Forest goods and services used in economic evaluation or in sensitive issues response	Yes	<u>Monitoring Category:</u> (vii) <i>Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities</i> <u>Monitoring Questions:</u> Are resource outputs specified by the Forest Plan being met? Are there changes in the projected supply or demand of Forest goods and services used in economic evaluation or in sensitive issues response?	Combined with #83.
<b>Resource Outputs</b> 83. Ensure that resource outputs specified by The	Yes	<u>Monitoring Category:</u> (vii) <i>Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities</i> <u>Monitoring Questions:</u> Are resource outputs specified by	Combined with #82.

Forest Plan are met		the Forest Plan being met?Are there changes in the projected supply or demand of Forest goods and services used in economic evaluation or in sensitive issues response?	
84. Community effects – Changes in employment patterns; payments to counties; and lifestyles, attitudes, beliefs, or values	Yes	<p><u>Monitoring Category:</u> <i>(vii) Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities</i></p> <p><u>Monitoring Question:</u> How is employment in Skamania, Lewis, Yakima and Cowlitz affected by actions implementing the Gifford Pinchot Land and Resource Management Plan?</p>	