

United States Department of Agriculture

Forest Service

Kootenai National Forest

June 2016



Monitoring Program

for 2015 Forest Plan (V2)

Kootenai National Forest



Cover Art: Frank Kujawa

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On June 23, 2016 an administrative change was made to the monitoring program to transition to the 2012 Planning Rule requirements (Administrative Change #1 to the 2015 Forest Plan). This version (V2) of the monitoring program reflects that change.

Monitoring provides the feedback for the forest planning cycle by testing assumptions, tracking relevant conditions over time, measuring management effectiveness, and evaluating effects of management practices. Monitoring information should enable the Forest to determine if a change in plan components or other plan management guidance may be needed, forming a basis for continual improvement and adaptive management. Direction for the monitoring and evaluation of forest plans is found under the 1982 Planning Rule at 36 CFR 219.12(k) and under the 2012 Planning Rule at 36 CFR 219.12.

The plan monitoring program addresses the most critical components for informed management of the Forest's resources within the financial and technical capability of the agency. Every monitoring question links to one or more goals, desired conditions, objectives, standards, or guidelines. However, not every plan component has a corresponding monitoring question.

This monitoring program is not intended to depict all monitoring, inventorying, and data gathering activities undertaken on the Forest; nor is it intended to limit monitoring to just the questions and indicators listed in table 1. Consideration and coordination with broad-scale monitoring strategies, multi-party monitoring collaboration, and cooperation with state agencies where practicable will increase efficiencies and help track changing conditions beyond the Forest boundaries to improve the effectiveness of the plan monitoring program. In addition, project and activity monitoring may be used to gather information for the plan monitoring program if it will provide relevant information to inform adaptive management.

The monitoring program sets out the plan monitoring questions and associated indicators. It is comprised of a monitoring guide and a biennial evaluation report.

- The monitoring guide provides detailed information on the monitoring questions, indicators, frequency and reliability, priority, data sources and storage, and cost.
- An interdisciplinary team will develop a biennial Monitoring Evaluation Report which will summarize the results of completed monitoring, evaluate the data, consider relevant information from broad-scale or other monitoring efforts, and make recommendations to the responsible official. The monitoring evaluation report will indicate whether or not a change to the Forest Plan, management activities, or the monitoring program, or a new assessment, may be warranted based on the new information. The monitoring evaluation report is used to inform adaptive management of the Plan area. The Monitoring Evaluation Report will be made available to the public.

Some kinds of monitoring indicators will require longer time frames for thorough evaluation of results, but a biennial review of what information has been collected will ensure timely evaluation to inform planning. The biennial monitoring evaluation does not need to evaluate all questions or indicators on a biennial basis but must focus on new data and results that provide new information regarding management effectiveness, progress towards meeting desired conditions or objectives, changing conditions, or validation (or invalidation) of assumptions.

Table 1 is the monitoring program. This table displays the monitoring questions, the reference to Forest Plan direction, the indicator(s) for answering the monitoring question, the frequency of measure, and the precision. Monitoring questions are used to evaluate whether management is moving toward, moving away from, or maintaining desired conditions. The references to forest plan direction provide a link between the monitoring question and the Forest Plan. The forest plan references may not include all relevant direction, but rather the primary direction that is addressed by the monitoring question. Indicators

are the specific resource measures used in answering the monitoring questions. Frequency of measure is the timeframe for collecting data on each indicator. Precision is defined as Class A or B. For Class A, mostly quantitative methods are widely accepted with repeatable results and statistical validity. Reliability, precision, and accuracy are very good. For Class B, mostly qualitative methods include project records, communications, or less formal measurements like walk-thru exams or informal visitor surveys. Reliability, accuracy, and precision are good, but usually less than Class A. The associated evaluation process determines if the observed changes are consistent with the Forest Plan and the effectiveness of implementation. Evaluation reports will be produced biennially (as per 2012 Rule, 36 CFR 219.12(d)). Not all questions or indicators will be reported in the biennial Monitoring Evaluation Report.

Table 1. Monitoring Program

Resource	Monitoring Question	Reference to Forest Plan Direction	Indicator	Frequency of Measure/Precision
Physical and Biological				
Vegetation	MON-VEG-01: To what extent are management activities and natural disturbance processes trending toward desired conditions for vegetation composition, structure, and pattern, increasing resistance and resiliency to disturbance factors including climate change? This includes vegetation dominance type and size, old growth, down wood, snags, fire-killed forest, and insect and disease infested forest.	GOAL-01 – ECO INTEGRITY and RESILIENCY, FW-DC-Veg-01, FW- DC-VEG-02, FW-DC-VEG-03, FW- DC-VEG-05, FW-DC-VEG-07, FW- DC-VEG-08, FW-OBJ-VEG-01, FW-STD-VEG-01, FW-GDL-VEG- 01, FW-GDL-VEG-03, FW-GDL- VEG-04, FW-GDL-VEG-05, FW- GLD-VEG-06, FW-DC-WL-14, FW- DC-WL-13	MON-VEG-01-01: Acres treated to meet FW-OBJ-VEG-01 MON-VEG-01-02: Acres burned MON-VEG-01-03: Acres of forest by dominance type and size class compared to the desired condition MON-VEG-01-04: Acres meeting the old growth definition (see glossary) as determined by the FIA program MON-VEG-01-05: Acres of old growth and acres of recruitment potential old growth, as determined by the Forests' stand inventory and mapping procedures MON-VEG-01-06: Acres of old growth treated MON-VEG-01-07: Snags per acre forestwide MON-VEG-01-08: Number of acres influenced by insects and disease	Annual/Class A Annual/Class A Every 5 Years/Class A Every 5 Years/Class A Annual/Class A Every 5 Years/Class A Every 5 Years/Class A
Vegetation	MON-VEG-02: Have management activities met Plan objectives and trended towards desired conditions for invasive terrestrial plant species?	FW-DC-VEG-10, FW-OBJ-VEG-02	MON-VEG-02-01: Acres of non-native invasive plants treated MON-VEG-02-02: Number of sites of new non-native invasive plant species and number of acres treated	Annual/Class A Annual/Class A
Fire	MON-FIRE-01: To what extent are management activities moving hazardous fuels towards desired conditions?	FW-DC-FIRE-02, FW-OBJ-FIRE-01, FW-DC-SES-04, GA-DC-FIRE- BUL-01, GA-DC-FIRE-CLK-01, GA-DC-FIRE-FSH-01, GA-DC- FIRE-KOO-01, GA-DC-FIRE-LIB- 01, GA-DC-FIRE-TOB-01, GA-DC- FIRE-YAK-01	MON-FIRE-01-01: Acres of hazardous fuel treatments within the WUI, and in areas outside of the WUI	Annual/Class A

Resource	Monitoring Question	Reference to Forest Plan Direction	Indicator	Frequency of Measure/Precision
Fire	MON-FIRE-02: To what extent is unplanned fire used to trend vegetation towards desired conditions?	FW-DC-FIRE-03, FW-OBJ-FIRE-02	MON-FIRE-02-01: Number of unplanned natural fire ignitions managed for the maintenance and/or restoration of fire- adapted ecosystems, and the number of unplanned natural ignition managed with the primary goal of suppression	Annual/Class A
Watershed	MON-WTR-01: Are soil, water quality, and riparian and aquatic habitats protected and moving towards desired conditions?	FW-DC-WTR-02, FW-DC-WTR-04, FW-GDL-WTR-01, FW-GDL-WTR- 03, FW-GDL-SOIL-05, FW-DC-RIP- 03, and FW-DC-AQH-01	MON-WTR-01-01: Number of Best Management Practices (BMP) evaluations conducted and the percent of BMPS that were implemented correctly and the percent that were effective.	Annual/Class A
Watershed	MON-WTR-02: To what extent are management activities moving watersheds towards desired conditions?	FW-DC-WTR-01, FW-DC-WTR-02, FW-DC-WTR-03, FW-DC-WTR-04, FW-OBJ-WTR-01, FW-OBJ-WTR- 02, FW-STD-WTR-01, FW-GDL- WTR-01	MON-WTR-02-01: Acres (or miles) of restoration activities accomplished by 6th code watershed and acres (or miles) accomplished in 303d/TMDL watersheds MON-WTR-02-02: Percent of subwatersheds trended towards an improved condition	Annual/Class A Every 5 Years/Class A
Aquatic Habitat	MON-AQH-01: To what extent is the Forest meeting Forest Plan objectives and trending towards desired condition to reconnect fragmented stream habitat to increase population resilience to disturbance including climate change?	FW-DC-AQH-02, FW-DC-AQS-01, FW-DC-AQS-04, FW-DC-AQS-05, FW-OBJ-AQH-03	MON-AQH-01-01: Miles of reconnected stream habitat	Annual/Class A
Soils	MON-SOIL-01: To what extent has coarse woody debris been retained for long-term soil productivity and other ecosystem functions?	FW-DC-SOIL-01, FW-DC-SOIL-03, FW-DC-SOIL-04, FW-GDL-SOIL- 02, FW-GDL-SOIL-03, FW-DC- VEG-08	MON-SOIL-01-01: Number of regeneration harvest units surveyed and percent meeting coarse woody debris criteria post- harvest	Annual/Class A

Resource	Monitoring Question	Reference to Forest Plan Direction	Indicator	Frequency of Measure/Precision
Soils	MON-SOIL-02: To what extent have vegetation management activities prevented irreversible damage to soil conditions?	FW-DC-SOIL-02, FW-DC-SOIL-03, FW-DC-SOIL-04; FW-DC-SOIL-05, FW-GDL-SOIL-01, FW-GDL-SOIL- 04	MON-SOIL-02-01: Number of harvest units surveyed and percent that meet the Regional Soil Quality Standard, post- harvest (FSM, R1 Supplement No. 2500- 99-1)	Annual/Class A
Riparian	MON-RIP-01: Have riparian and wetland areas been maintained or improved to provide for healthy streams and aquatic environments to increase resiliency to disturbance including climate change?	FW-OBJ-RIP-01	MON-RIP-01-01: Acres (or miles) of riparian habitat maintained or improved	Annual/Class A
Federally Listed Species	MON-FLS-01: To what extent is forest management contributing to the conservation of federally listed species and moving toward habitat objectives?	FW-DC-WL-03, FW-DC-WL-05, FW-STD-WL-01, FW-STD-WL-02, FW-STD-WL-03, FW-DC-VEG-01, FW-DC-VEG-02, FW-DC-VEG-05, FW-DC-VEG-08, FW-DC-VEG-11, FW-OBJ-VEG-01, FW-GDL-VEG- 03, FW-DC-FIRE-03	MON-FLS-01-01: Grizzly Bear: progress towards achieving and maintaining standards for percent core area, OMRD, and TMRD within the Recovery Zones (see monitoring requirements for the Grizzly Bear Access Amendment in appendix B) MON-FLS-01-02: Canada lynx: changes in lynx habitat as a result of moving towards the desired conditions for vegetation through vegetation management, prescribed fire, or natural disturbance (see monitoring requirements for the NRLMD in appendix B)	Annual/Class A Annual/Class A
			MON-FLS-01-03: Bull Trout population trends based on redd counts in known spawning reaches	Annual/Class A

Resource	Monitoring Question	Reference to Forest Plan Direction	Indicator	Frequency of Measure/Precision
Focal Species	MON-FOC-01: Are habitat trends for the landbird assemblage and macroinvertebrate assemblage consistent with the objectives?	FW-OBJ-WL-03, FW-DC-VEG-01, FW-DC-VEG-02, FW-DC-VEG-03, FW-DC-VEG-04, FW-DC-VEG-05, FW-DC-VEG-07, FW-DC-VEG-11, FW-OBJ-VEG-01, FW-STD-VEG- 01, FW-GDL-VEG-01, FW-GDL- VEG-04, FW-GDL-VEG-05, FW- GDL-VEG-06, FW-DC-FIRE-03, FW-OBJ-AQH-02	MON-FOC-01-01: Landbird assemblage (insectivores): a) number of acres where planned ignitions were used to maintain/improve habitat; b) percentage of natural, unplanned ignitions managed for the maintenance or restoration or fire adapted ecosystems MON-FOC-01-02: Changes in KNF River Invertebrate Prediction and Classification System (Observed/Effect model) score	Annual/Class A Every 5 Years/Class A
Wildlife	MON-WDL-01: Have management activities met Plan objectives and maintained or improved habitat to achieve desired terrestrial habitat conditions?	FW-OBJ-WL-01, FW-DC-VEG-01, FW-DC-VEG-02, FW-DC-VEG-03, FW-DC-VEG-04, FW-DC-VEG-05, FW-DC-VEG-07, FW-DC-VEG-08, FW-DC-VEG-11, FW-OBJ-VEG-01, FW-STD-VEG-01, FW-GDL-VEG- 01, FW-GDL-VEG-03, FW-GDL- VEG-04, FW-GDL-VEG-05, FW- GDL-VEG-06, FW-DC-FIRE-03	MON-WDL-01-01: Acres of terrestrial habitat restored or enhanced Also see results for MON-VEG-01-01 through MON-VEG-01-05, MON-VEG- 02-02, MON-VEG-02-03, and MON- FIRE-02-02	Annual/Class A
Wildlife	MON-WDL-02: Are habitat trends for elk consistent with the objectives?	FW-OBJ-WL-02, FW-GDL-WL-10	MON-WDL-02-01: Elk: number of planning subunits providing >30% security and >50% security on NFS lands during the hunting season	Annual/Class A
Human Uses an	nd Designations of the Forest			
Access and Recreation	MON-AR-01: Have appropriate management actions been taken on recreation sites where opportunities have been identified, use is at or near capacity, or where there are resource concerns?	FW-DC-AR-01, FW-OBJ-AR-01, FW-OBJ-AR-02, MA6-DC-AR-01, MA7-DC-AR-01, MA7-DC-AR-5, GA-DC-AR-BULL-01, GA-DC-AR- CLK-01, GA-DC-AR-KOO-01, GA- DC-AR-LIB-01, GA-DC-AR-TOB- 01, GA-DC-AR-YAK-01	 MON-AR-01-01: Number and type of recreation sites MON-AR-01-02: Number of Persons at One Time (PAOT – capacity) MON-AR-01-03: Amount of deferred maintenance for developed recreation sites MON-AR-01-04: Number of recreation partnerships MON-AR-01-05: Changes in percent of Forest in each ROS setting 	Every 5 Years/Class A Every 5 Years/Class A Every 5 Years/Class A Every 5 Years/Class A Every 5 Years/Class A

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Resource	Monitoring Question	Reference to Forest Plan Direction	Indicator	Frequency of Measure/Precision
Access and Recreation	MON-AR-02: Have management activities trended towards desired conditions for a minimum transportation system that provides recreation opportunities, safe and efficient public and agency access, and are environmentally compatible?	FW-DC-AR-03, FW-DC-AR-04, FW-DC-AR-05, FW-DC-AR-07, FW-OBJ-AR-03, MA6-DC-AR-03, GA-DC-AR-BUL-01, GA-DC-AR- TOB-03	MON-AR-02-01: Miles of road open year- long MON-AR-02-02: Miles of road open seasonally MON-AR-02-03: Miles of roads maintained by maintenance level MON-AR-02-04: Miles of roads decommissioned MON-AR-02-05: Miles of roads put into intermittent storage	Annual/Class A Annual/Class A Annual/Class B Annual/Class A Annual/Class A
Access and Recreation	MON-AR-03: To what extent are motorized and non-motorized winter and summer trail recreation opportunities available for a variety of users?	FW-DC-AR-03, FW-DC-AR-04, FW-DC-AR-05, FW-OBJ-AR-04, FW-OBJ-AR-05, MA5a/b/c-DC-AR- 03, MA6-DC-AR-03, MA7-DC-AR- 03, GA-DC-AR-BUL-01, GA-DC- AR-CLK-01, GA-DC-AR-KOO-04, GA-DC-AR-LIB-01, GA-DC-AR- LIB-03, GA-DC-AR-LIB-04	 MON-AR-03-01: Acres open to over-snow vehicle use MON-AR-03-02: Miles of managed oversnow vehicle trails MON-AR-03-03: Miles of managed cross-country ski trails MON-AR-03-04: Miles of trail designated for motor vehicle use year-long or seasonally MON-AR-03-05: Miles of trails maintained for varied managed uses (e.g., hiker, equestrian, mountain biking, OHV, motorcycle) 	Annual/Class A Annual/Class A Annual/Class A Annual/Class A Annual/Class B
Access and Recreation	MON-AR-04: What are the trends in visitation forestwide, and are visitors satisfied with the facilities, access, services, and perception of their safety?	FW-DC-AR-01, FW-DC-AR-04, MA6-DC-AR-01, MA7-DC-AR-01, MA7-DC-AR-05	MON-AR-04-01: Visitor use and trends in use forestwide MON-AR-04-012: Percent Satisfaction Index (National Visitor Use Monitoring) for developed facilities, access, services and perception of safety	Every 5 Years/Class A

Resource	Monitoring Question	Reference to Forest Plan Direction	Indicator	Frequency of Measure/Precision
Wilderness	MON-WLDN-01: Have management activities met Forest Plan desired conditions and standards, and trended towards management area desired conditions for designated wilderness and Wilderness Study Areas?	MA1a-DC-AR-01, MA1a-DC-AR- 04; FW-DC-AR-06	MON-WLDN-01-01: Designated Wilderness managed to standard MON-WLDN-01-02: Montana Wilderness Study Area wilderness character is not diminished beyond what existed in 1977	Annual/Class A
Cultural Resources	MON-CR-01: To what extent is the Forest meeting Forest Plan objectives and trending towards desired condition to identify, evaluate, and nominate cultural resources for listing on the National Register of Historic Places?	FW-DC-CR-01, FW-OBJ-CR-01, FW-OBJ-CR-02	MON-CR-01-01: Number of properties identified MON-CR-01-02: Number of properties evaluated MON-CR-01-03: Number of properties nominated	Annual/Class A Annual/Class A Annual/Class A
Cultural Resources	MON-CR-02: To what extent are historic properties protected and public education and interpretation provided to move towards desired conditions?	FW-DC-CR-02	MON-CR-02-01: Number of properties protected/preserved MON-CR-02-02: Number of newly interpreted or updated historic properties	Annual/Class A Every 5 Years/Class A
American Indian Rights and Interests	MON-AI-01: To what extent is the Forest meeting Forest Plan objectives and trending towards desired conditions for consultation with each Tribe?	FW-DC-AI-02, FW-OBJ-AI-03	MON-AI-01-01: Number of approved consultation protocols	Annual/Class A
American Indian Rights and Interests	MON-AI-02: To what extent has the agreement for access and acquisition of forest products for traditional cultural uses progressed in consultation with each Tribe?	FW-DC-A1-01, FW-OBJ-AI-01	MON-AI-02-01: Number of approved product use agreements	Annual/Class A

Resource	Monitoring Question	Reference to Forest Plan Direction	Indicator	Frequency of Measure/Precision
American Indian Rights and Interests	MON-AI-03: To what extent is the Forest meeting Forest Plan objectives and trending towards desired conditions for protecting traditional cultural areas?	FW-DC-AI-03, FW-OBJ-AI-02	MON-AI-03-01: Number of approved management plans for traditional cultural areas	Annual/Class A
Production of N	Natural Resources			
Timber	MON-TBR-01: To what extent is the Forest meeting Forest Plan objectives and trending towards desired conditions to provide a mix of timber products in response to market demands?	FW-DC-TBR-01, FW-OBJ-TBR-01	MON-TBR-01-01: MMBF offered and MMBF sold annually	Annual/Class A
Timber	MON-TBR-02: To what extent is the Forest meeting NFMA requirements and desired conditions on size of harvest openings?	FW-DC-VEG-05, FW-STD-TBR-02 (Also 1982 Rule requirement [219.12(k)(5)(iii)])	MON-TBR-02-01: Number of even-aged regeneration harvest units exceeding 40 acres in size and category for exceeding	Annual/Class A
Timber	MON-TBR- 03: To what extent are regeneration units restocked to trend towards vegetation desired conditions?	FW-DC-VEG-04, FW-DC-VEG-11, FW-DC-TBR-02, FW-DC-TBR-03, FW-STD-TBR-03 (Rule requirement [219.12(k)(5)(i)])	MON-TBR- 03-01: On lands suitable for timber production, percent of acres with regeneration harvest that are adequately restocked within 5 years of harvest	Annual/Class A
Minerals	MON-MIN-01: Are reclamation activities improving ecological and human health conditions?	FW-DC-MIN-01, FW-OBJ-MIN-01	MON-MIN-01-01: Number of reclaimed abandoned mine sites over a five-year period. Number reclaimed to reduce the risk to human health	Every 5 Years/Class A
Economic and	Social Environment			
Social and Economic Systems	MON-SOC-01: To what extent is forest management contributing towards desired conditions for a stable and functioning local economy?	FW-DC-SES-02	MON-SOC-01-01: Number of jobs and thousands of dollars in labor income from KNF management and percent of total planning area1 jobs and income	Every 5 Years/Class A

Resource	Monitoring Question	Reference to Forest Plan Direction	Indicator	Frequency of Measure/Precision
Social and Economic Systems	MON-SOC-02 : Is the cost of implementing the Forest Plan consistent with that predicted in the FEIS?	Rule requirement (219.12(k)(3))	MON-SOC-02-01: Forest annual budget	Annual/Class A