Forest Plan
Monitoring and Evaluation Report
SUMMARY
FISCAL YEAR 2001
September 2002

Kootenai National Forest

United States Department Of Agriculture

Forest Service
Kootenai National Forest

SUMMARY

INTRODUCTION

The Kootenai Forest Plan was approved on September 14, 1987. It established management direction for a 10-15 year period that began on October 1, 1987 (Fiscal Year (FY) 1988). This direction was the result of a comprehensive analysis of land capabilities, public issues, and environmental effects along with a balancing of legal requirements.

We have completed the monitoring of Forest Plan implementation for FY01. This report evaluates the field data collected by the end of September 30, 2000 that pertain to the 14 monitoring items reported annually and five additional items reported every two years. Our monitoring and evaluation process is shown in Chapter IV of the 1987 Kootenai National Forest Land and Resource Management Plan (Forest Plan).

We have completed fourteen years of implementing the Forest Plan. Information from our monitoring will help identify what we need to change during Forest Plan revision. We have found some methods work well, and some do not. We found that some of our projections were accomplished and some have not been. The summary explains the Forest Plan itself, describes the monitoring methods, and summarizes the results of the annual monitoring items.

FOREST PLAN DECISIONS

The Forest Plan is a set of decisions that guide management of the Forest. Taken broadly, it contains three types of decisions:

- **Goals, Objectives, and Desired Conditions** (pages II-1 through II-17 of the Forest Plan) provide general direction regarding where we should be headed as we put the Plan into practice.

- **Standards** (pages II-20 through II-33, Chapter III of the Forest Plan, and Forest Plan amendments) tell us how to put the Plan into practice, or give us conditions we must meet while we implement the Plan.

- **Land Allocation – Management Areas (MAs),** as described in the Forest Plan Chapter III and displayed on the Forest Plan Map, are those areas of the Forest that are allocated for different types of land management and resource production.

MONITORING

As we have found over the last fourteen years, land management occurs in complex and changing situations, and our results will not always be totally predictable, definitive, or certain. Many things, including natural events that cannot be predicted, affect management results.

The purpose of monitoring is to determine answers to the following questions: Are we doing what the Plan envisioned (implementation monitoring)? Are we seeing the effects and outputs predicted in the Plan (effectiveness monitoring)? Are the standards working (validation monitoring)? Do we need to adjust practices to meet the standards? Does the monitoring process need adjusting?

The Districts or responsible Forest Staff areas at the Supervisor's Office report monitoring data for most items annually. Monitoring forms are used to assist in collecting consistent data from the various sources. These work forms are on file in the Planning Section at the Kootenai Supervisors Office.

Monitoring and evaluation information will be used as we begin Forest Plan revision. Part of the reason we decided to issue a "Notice of Intent" to revise the Forest Plan, which was issued in November of 1996, was because of our findings in the monitoring program. A new "Notice of Intent" is scheduled to be filed towards the end of the calendar year. Work towards revision is proceeding under the old 1982 regulations while a new set of regulations are being prepared and approved.

SUMMARY OF MONITORING RESULTS

Old Growth Habitat (C-5): Approximately 1,291,900 acres below 5,500 feet have been evaluated for old growth on the Forest since 1988 (there are about 1,865,000 acres of Forest System Lands below 5,500 feet Forest-wide). A total of 145,086 acres (11.2 percent of the acres evaluated) has been designated as old growth. Of the designated acres, 8.9 percent are effective old growth and 2.3 percent are replacement old growth. The fires of 2000 burned in compartments that had previously been validated for old growth, and most of these areas have been re-validated, with some minor differences in total acres of old growth. The level of old growth designated for the compartments validated to date is above the 10 percent level required in the Plan.

After fourteen years of old growth validation work, 154 of the 255 compartments (60 percent) have been completely reviewed and an additional 44 compartments (17 percent) are partially done. Much of the unsurveyed areas are in wilderness, proposed wilderness, or areas with very little National Forest System lands. Accordingly, we are meeting Forest Plan direction for old growth, and validation will continue on the unsurveyed areas.

T & E Species Habitat (C-7):

- **Gray Wolf:** The Kootenai National Forest makes up a small portion of the Northwest Montana Wolf Recovery Area. The recovery goal for this recovery area is 10 wolf packs. In FY01, reports of wolf sightings continued at about the same level as recent years, but sightings were more localized near the areas of known packs. Sightings were reported on all districts except the Cabinet (Trout Creek). The following are the identified wolf packs on the Kootenai: Murphy Lake, Grave Creek, Little Wolf, and Wigwam. The US Fish and Wildlife Service confirmed another pack in 2001, the Fishtrap pack, in the McGinnis Meadows and East Fisher Creek area. The components of wolf habitat on the Kootenai did not change significantly in FY 2001 compared to previous years. Big game populations have rebounded from the severe winter of 1996-97, and they are providing adequate prey resources for continued growth in the wolf population.

- **Bald Eagle:** The Montana Bald Eagle Management Plan (MBEWG, 1994) and the Pacific States Bald Eagle Recovery Plan (USFWS, 1986) provide guidance for bald eagle recovery. Bald eagle habitat is generally within one mile of major lakes and rivers. Habitat quality and quantity on the Kootenai is stable, and may be increasing in the long term, as potential nest trees mature. The survey results for FY01 are slightly below the long-term (17 year) average since records have been kept. The USFWS believes the bald eagle has achieved recovery goals and they have proposed removing them from the threatened species list.

- **Grizzly Bear:** The Kootenai National Forest contains portions of two grizzly bear recovery zones: the Cabinet-Yaak Ecosystem (CYE) and the Northern Continental Divide Ecosystem (NCDE). About 72 percent of the CYE is located on the western portion of the Forest and about 4 percent of the NCDE is located in the extreme northeast corner. Each of these ecosystems is further subdivided into smaller areas for analysis and monitoring, known as bear management units (BMUs). Grizzly bear habitat effectiveness went down in 3 BMUs and up in 3 BMUs in FY01 compared to FY00. Overall, grizzly bear habitat effectiveness remained about the same as in FY00, and is above the desired level of 70 percent Forest-wide. Seventy-three percent of BMUs meet desired 70 percent habitat effectiveness level.

- **White Sturgeon** The USFWS Recovery Plan for the Kootenai River white sturgeon was signed September 30, 1999. The short-term goals of the Plan are to reestablish natural reproduction and prevent extinction of the species. Long-term goals include providing suitable habitat conditions and restoring a natural age-class structure and an effective population size. Delisting of this population is estimated to take at least 25 years following the approval of the Plan. The Recovery Plan for the white sturgeon outlines a comprehensive set of actions needed to begin the recovery process. The Plan does not identify actions or objectives that directly affect management of the Kootenai National Forest. However, under the Endangered Species Act (Section 7(a)(1)), the Forest is obligated to use its authorities to aid in the recovery process and to consult with the USFWS on all proposed or authorized activities. All proposed projects and activities evaluated by the forest in FY01 were found to have No Effect on the species.

- **Bull Trout:** The Kootenai National Forest continues to consult with the USFWS on all ongoing activities under Section 7(a)(1) of the Endangered Species Act. During FY01 the Forest consulted on all proposed activities. The Forest has worked closely with the five other western Montana National Forests, Bureau of Land Management and the USFWS to develop Programmatic Biological Assessments for stream surveys, road maintenance, timber stand improvement, trail maintenance, and recreational site maintenance. There were three new projects evaluated by the Forest that May Affect and are Likely to Adversely Affect bull trout. Consultation for the Whitepine Creek Project, the Spar Timber Sale, and the 2001 Wigwam Watershed Restoration Project were completed in FY01. There were five projects analyzed and determine to May Affect bull trout but not likely to adversely affect them. The remainder of new projects evaluated were determined to have No Effect on the species. The USFWS is continuing its work towards development of a recovery plan with input for the Forest as requested. The Forest continues to work closely with Montana Fish Wildlife and Parks as well as the USFWS to determine distribution and abundance of bull trout within the boundaries of the Kootenai National Forest. No new areas of bull trout habitat were identified in 2001.

Range Use (D-1): Livestock use on the Kootenai was anticipated to be about 12,600 Animal Unit Months (AUMs) per year. The FY01 level of grazing use was 7,017 AUMs or 56 percent of the projected level. Monitoring indicates that riparian protection measures identified in the new grazing permits are being implemented. During the last fourteen years, grazing use has averaged 83 percent of projected use, which is within the range anticipated in the Plan. Permittee requests for non-use and Forest requests to defer grazing to prevent stream bank deterioration and over grazing account for use levels being lower than the Plan projected. In review of this monitoring item, no changes are needed to the Forest Plan at this time. During Forest Plan revision, the status of allotments will be reviewed.

Noxious Weed Infestations (D-2): The Forest Plan states that noxious weed infestations will be monitored for increases in total acreage, increases in weed density and the introduction of new weed species on the Forest. Monitoring indicates that several noxious weeds have increased more than 10 percent in the number of acres affected and some have had a 10 percent or more increase in density of existing infestations since the Forest Plan was signed in 1987. In addition, with the discovery of several new invaders over the last several years, it is apparent that the diversity of noxious weed species has increased. Based on these observations, this monitoring item is outside the range prescribed in the Forest Plan. There are several "control" measures being implemented, which should help improve the noxious weed situation on the Forest. It is recommended that no changes be made in the Forest Plan, but that considerable attention be given to the problem during Forest Plan revision.

Allowable Sale Quantity (ASQ) (E-1): The Forest's projected total maximum timber sell volume for the decade from suitable management areas is 2,270 million board feet (MMBF), which is an average of 227 MMBF per year. In addition, 60 MMBF was estimated to be sold from unsuitable management areas, averaging 6 MMBF per year. Sell volumes have declined from 200 MMBF per year to about 50 MMBF per year between FY88 and FY01. The average annual amount sold has been 102 MMBF from suitable lands, and 1.7 MMBF from unsuitable lands. This actual sell volume is well below the ASQ limit as set in the Plan. Many factors have

influenced the timber sales program. Additional streamside protection measures as required by the Inland Native Fish (INFS) Decision of July, 1995. Also, the USFWS amended biological opinion for grizzly bear recovery was issued July, 1995 and changed how recovery processes would take place on the Forest. In general, it has become more difficult to plan and execute sales due to public controversy and scheduling requirements necessary to meet resource needs.

Acres of Timber Sold for Timber Harvest (E-2): The Forest Plan projected 15,740 acres of annual regeneration harvests to achieve the ASQ. During FY01, the acreage sold for regeneration harvest was highest for MA 15, while five other suitable timber MAs (11, 12, 14, 16, and 17) continued to be well below Forest Plan projected amounts. Additional harvest occurred in FY01, but was either salvage or intermediate harvest that did not result in a regenerated stand.

Many of the factors affecting this monitoring item are similar to those affecting item E-1, ASQ. As stated in the evaluation for that item, wildlife habitat management, watershed concerns, litigation, appeals, deferrals, and changes in management area designation based on field verification have all affected the potential to meet the Plan's projected regeneration harvest.

It is apparent that the acres sold for regeneration harvest will not meet the acreage projected in the Forest Plan. The upcoming revision of the Plan will provide the opportunity to assess appropriate levels of harvest volume and acreage.

Suitable Timber Management Area (MA) Changes (E-3): Management areas (MAs) are validated during site-specific project analysis. When inaccuracies are found, MA boundaries are corrected to keep the Forest Plan MA map current.

Acreage losses occurred in MA 11, 14, and 17, while MA 12, 15 and 16 gained acreage in FY01. Total net loss in the suitable land in FY01 was 18 acres. Most of these MA changes were made in the process of designating MA 13 and other old growth management areas. This monitoring item is outside the prescribed range for MAs 11 and 15 (more then 5,000 acres of cumulative change for any of these suitable MAs).

The degree to which changes have been made to management area designations indicates continuing validation in Forest Plan MAs. The change in the suitable management area category of more than 60,000 acres amounts to approximately 3 percent of the total suitable base. During revision of the Forest Plan, sustainability and ASQ calculations will be made using the validated management areas. An assessment of the effect of changed management area designations will also be done during the revision process.

Timber Harvest Deferrals (E-7): To determine the effect of harvest deferrals on the timber sale program, monitoring is done in two different categories. Category A deferrals are those that result from our project-specific conclusions. Category B deferrals are those that result from an externally imposed situation. In FY01, there were 1,772 acres deferred in Category A and 45 acres deferred in Category B.

Harvest Area Size (E-8 and Appendix B): The average size of units harvested between 1988-2001 is well below the objectives of 20 acres for MA 11 and 40 acres for MA 12. Average size for the other suitable MAs is also below 40 acres.

Appendix B lists the harvest areas resulting in larger than 40 acre openings approved during FY01 as well as an estimate of how long it will take for the vegetation to regrow to meet the management area objectives. There were no openings greater than 40 acres approved by the Forest Supervisor in FY00 and openings in two projecxts in FY01.

Clear Cut Acres Sold (E-9): The acres sold for clearcut harvest declined from FY90 to FY01, with the exception of FY96. In that FY, the amount of clear cutting increased primarily due to emphasis on salvaging fire-killed timber created by the 1994 fires and dead lodgepole pine killed by the mountain pine beetle epidemic. In FY01 the amount of clearcutting declined again resulting in a 98 percent decrease from the baseline year of 1988. The Forest will continue to monitor this item, but the Chief's goal for reducing clearcutting has been fully met.

Soil and Water Conservation Practices (F-1): FY01 BMP monitoring on the Forest involved BMP monitoring done by Kootenai Forest personnel during their normal work activities. During all of these efforts, BMP's were evaluated at particular sites on various projects across the Forest. Forty-nine projects had implementation monitoring evaluations, and 35 projects had effectiveness evaluations accomplished in FY01 by KNF personnel. Implementation evaluations were completed for 1,104 BMPs and implementation evaluations met the requirement of acceptable over 96 percent of the time. Effectiveness evaluations in FY01 met the requirement of acceptable almost 94 percent of the time.

Riparian Areas (C-9): Riparian zone management is one of the most important practices to maintain water quality and a large number of riparian-dependent resources. Riparian management involves implementing actions that maintain or improve riparian conditions, and identification and mapping so resource managers know the area of concern and application. Thus, one of the Plan objectives is to site-specifically identify and map all riparian areas before any projects such as timber sales are authorized (Forest Plan, page II-11).

- Miles of stream classes and/or stream categories identified and mapped: Almost 6,000 lineal miles of riparian habitat have been categorized and mapped since 1988. Over 3,500 of these miles are perennial streams (Stream Classes 1 and II, INFS Categories 1 and 2). The rest are intermittent and ephemeral streams (Stream Classes III, INFS Category 4).

- Determining whether INFS standards and guidelines were applied during projects: In FY01, default RHCA widths and default RMO's were applied on 30.6 miles of stream. A wider than required RHCA was applied on a little over one mile of stream on one project.

- RCHA activity tracking: A little over 80 miles of RHCA had some level of activity in 2001. Most of the work was for road re-construction, improvement of road crossings, road drainage improvement, and trail maintenance and improvement along streams.

- Riparian-related watershed restoration activities: In 2001, riparian-related watershed restoration activities were accomplished on over 105 miles of stream. Over 137 stream crossings were removed or improved, and almost 210 acres of riparian areas had some level of watershed improvements.

- Riparian Area BMP results: Implementation and effectiveness of applicable riparian Best Management Practices (BMPs) that were used during management activities in or near the riparian zone were evaluated in FY01. Forest BMP Audits evaluated 119 specific practices within riparian areas, and acceptable implementation was accomplished 90 percent of the time. Thirty-four effectiveness evaluations were completed for this same period, of which 88 percent of the BMPs were deemed to be effective. For eleven projects, a riparian-area specific BMP evaluation was made by at least one individual. For three additional projects, a riparian-area specific BMP evaluation was made by an Interdisciplinary TeamOn all these projects, BMP requirements related to riparian area protection were met.

- For the 2,730 practices evaluated over the twelve-year period (1990-2001), acceptable implementation was accomplished 92 percent of the time. Over 1,847 effectiveness evaluations were completed for this same time period, of which 92 percent were deemed to be effective.

Fisheries Habitat (C-10): The Forest Plan indicated that stream surveys, streambed coring, water temperature, woody debris counts, redd counts, and/or embeddedness sampling could be used as data sources to assess the effects of implementation on fish and habitat. After FY92 we added channel geometry, particle size distribution and riffle stability index (RSI) as data sources. We determined that data would be collected using these methods on a number of watersheds across the Forest including areas that had not been harvested or roaded.

This monitoring item is to be reported every two years, however, it will be reported annually because of the relationship to Monitoring Item F-2, Sedimentation.

At this point in time we cannot determine whether implementation of existing Forest Plan prescribed practices results in stream conditions that are outside the variability limits set in the Plan. It is difficult to distinguish among a variety of possible causes for change in streams. Our ability to detect changes in streams and habitat and identify the cause using the C-10 monitoring data is low, and the risk of a faulty conclusion continues to be high. Also, many of the monitoring variables are much more variable than assumed, and thus the accuracy and reliability of C-10 data may be moderate at best. The 1999 monitoring results reinforce the conclusions that were previously disclosed in the 1996-98 reports, and indicate the need to change the monitoring requirements.

We have established a team to develop a new monitoring program for fish and fish habitat. We are still exploring options to evaluate these elements. We have revised the C-9 monitoring requirement to better track implementation of Best Management Practices and INFS standards and guides as recommended by the C-10 interdisciplinary team. We have also issued a Kootenai National Forest policy statement on how to site-specifically designate INFS riparian buffer strips to ensure Forest-wide consistency in this critical habitat protection strategy and have completed a Best Management Practices training program for all field personnel to improve our performance in watershed and habitat protection.

Habitat restoration efforts continue to focus on mitigation of sediment and woody debris impacts. These efforts are focusing on known sediment sources and areas lacking woody debris. We will continue restoration efforts where project analyses indicate a need.

Stream Sedimentation (F-2): The Plan identified seven streams that would be monitored for this item. They are: Big, Sunday, Bristow, Red Top, Rock, Granite and Flower Creeks. The data to be collected includes bedload and suspended sediment concentrations and streamflow. Nearly all of the Forest's monitoring effort for this item has been dedicated to suspended sediment monitoring for timber harvest and road construction activities. This data is to be used to look for evidence of a change in streambed and water quality conditions, and thus probable effects on beneficial uses, related to present management direction. In addition, a parallel goal has been to gather enough data so that the Forest's sediment predictive tool (R1-WATSED) can be validated and refined for general use before activities are implemented.

The data from this monitoring requirement must be evaluated in the context of results from Monitoring Items C-9, C-10, F-1 and F-3. As with these other monitoring items, the goal of this item is to confirm whether beneficial uses are being protected and water quality laws are being met.

In 1992 we determined that this monitoring item and monitoring item C-10 as designed would not allow a meaningful evaluation of sedimentation from Forest Plan management such as timber harvest and road construction. Based on this we determined that we would accept the intent of this monitoring item but add some additional data sources to help understand the effects of our management. The FY96 Monitoring Report included a nine-year evaluation of the monitoring results for this element. The 1996 nine-year evaluation concluded that a need for change in C-10/F-2 monitoring was apparent, and that a team should be assembled to identify the best course of action. This report incorporates by reference, the nine-year evaluation of F-2 and updates that evaluation with any new information from 2001.

Information regarding streambeds, suspended solids and streamflow has been collected in several of the seven representative watersheds. This same data has also been collected in many more watersheds not specifically identified in the Plan. The monitoring results suggest the need for change in some areas, but the certainty of these findings is weakened by limitations in the data.

Water Yield Increases (F-3): In FY01, the water yield model was used to estimate the peak flow increase on 436,531 acres of both National Forest and private land. Most of these watersheds have been analyzed in previous years and include many acres of private land. Of the total area analyzed during the fiscal year, 11 percent of the acres exceed Forest water yield guidelines. Channel damage has not necessarily occurred in watersheds shown to be exceeding water yield guidelines since this monitoring item is based on computer modeling and not field observations and measurements.

Approximately 2,000,000 acres have been analyzed for water yield conditions on the Kootenai since 1988. Of this total, 1,564,706 acres (77 percent) were found to be at or below the guidelines and 477,611 acres (23 percent) were found to be over guidelines according to the most recent analysis in each area, which could be up to thirteen years ago.

This monitoring item continues to be off-track with the Forest Plan. It is important to note, however, that when projects are proposed in watersheds that are over the standard, they are designed to improve the long-term watershed condition, are rescheduled, or are dropped (See Monitoring Items E-1 and E-7). This monitoring item shows that water yield calculations and stream channel analysis are an important part of the analysis needed before projects can be implemented.

Emerging Issues (H-2): This item identifies those issues that appear to be developing since the Forest Plan was initiated, and also monitors the original Forest Plan issues that are still of concern. Emerging issues include: road maintenance, road closures and access; declining level of timber harvest; reducing the level of natural fuels on forest service lands; an increasing demand for use of national forest system lands; and rural community development.

These emerging issues will be reviewed during Forest Plan revision to determine if and how they should be resolved.

Forest Plan Costs (H-3): Timber sales unit costs for FY01 decreased from the average during the preceding years. However, costs are more than three times greater than projected, which is well outside the +/- 10 percent range prescribed in the Plan. This increase is due to the increasing complexity in timber sale preparation, along with a concurrent decrease in the amount of timber volume being sold. Timber road unit costs were down from the average of the preceding years and are actually lower than the cost predicted in the Forest Plan. The reduction in unit costs is reflective of a reduced amount of road construction and reconstruction. Reforestation unit costs were much higher than the average of preceding years and approximately 72 percent higher that the projected Forest Plan amount. As discussed in preceding monitoring reports, since reforestation is a relatively large component of the timber program, this additional cost is a significant change in the economic efficiency levels of the Forest. Precommercial thinning unit costs continue to stay well below projected costs. Since unit costs have increased significantly in timber sale preparation, timber roads, and reforestation, there will be a need to factor in such changes during Forest Plan revision. During the revision process, cost efficiency analysis will include these elements and others as appropriate.

Forest Plan Budget (H-4): As in prior years, there is a great deal of variation in the level of funding for various program areas in comparison to the projected amounts. Notable areas where funding has increased beyond expected are in fire, fuels management, tree improvement, timber salvage sales, and trail and recreation facility construction. Most other program areas remain below projected budget levels. However, given major trends now seen since 1988, it is apparent that many programs and costs have changed substantially, and the Forest Plan predictions are no longer valid. This analysis will be helpful in budget analysis for Forest Plan revision.

Insect and Disease Status (P-1): Commercial thinning (1,310 acres) and precommercial thinning (5,281 acres) treatments have occurred on the Forest over the last two fiscal years. Both treatments include reduction of stocking levels to reduce stress while improving species mixtures that are less susceptible to insect and disease problems. Insect and disease damaged trees are normally reduced during these operations. Mistletoe infected overstory trees on recently regenerated stands have been reduced on 100 acres. Pruning of white pine blister rust infected western white pine occurred on 237 acres. Prescribed burning following harvest and for wildlife

habitat improvement sometimes increases insect activityin residual trees, but at a low level. Due to a recent outbreak of Douglas-fir beetle, it has been observed that Douglas-fir left as seed trees in regeneration harvest units are at higher risk following prescribed burning. Also, Douglas-fir surrounding these areas and in wildfire areas are more susceptible to beetle attack. An insect and disease flight, activity reviews, service visits, stand exams, reforestation exams, permanent plot (growth plots) remeasurements, and benchmark exams indicate stands that have been regeneration harvested and those treated with some form of intermediate treatment are generally healthy, with only minor amounts of insect or disease that can cause significant problems.

Openings over 40 acres (Appendix B): The National Forest Management Act (NFMA) provides direction for development and implementation of land and resource management plans. Secretary of Agriculture regulations of 36 CFR 219 provide guidance for implementing NFMA provisions. Section 219.27 (d)(2)(iii) states that "...the established limit shall not apply to the size of areas harvested as a result of natural catastrophic conditions such as fire, insect and disease attack, or windstorm."

Furthermore, the Northern Regional Guide, 36 CFR 219.8, states, "Where natural catastrophic events such as fire, windstorm, or insect and disease attacks have occurred, 40 acres may be exceeded without 60-day public review and Regional Forester approval, provided that the public is notified in advance and the environmental analysis supports the decision" (Regional Guide, page 2-6). This same direction is repeated in the Regional Supplement to Forest Service Manual 2471.1.

The Forest Plan also provides direction regarding opening sizes: "...maintain a variety of unit sizes of generally 40 acres or less. Where catastrophic conditions such as insects, disease, or fire create a condition whereby larger unit sizes will have no additional effect on wildlife habitat, larger cutting units may be used" (Forest Plan, p II-23). The intent of this statement is to ensure that any activity hastens recovery for wildlife and there are no long-term detrimental effects by exceeding 40 acres.

There were no projects in FY00 with openings over 40 acres, and two projects in FY01.