

**FOREST PLAN MONITORING**  
**and**  
**EVALUATION REPORT**  
**Fiscal Year 1999**  
**Kootenai National Forest**

<b>SUMMARY</b>
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**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 FY99. This report evaluates the field data collected by the end of September 30, 1999 that pertain to the 17 monitoring items reported annually and 3 items that are 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 twelve 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 twelve 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 yearly. 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.

### **SUMMARY OF MONITORING RESULTS**

**Elk Habitat (C-1b):** Monitoring item C-1 has been a five-year monitoring item. However, the Forestwide Blowdown Salvage decision modified C-1 to add a component (C1-b) for monitoring the effects of the Blowdown Salvage on elk habitat. This monitoring item (C-1b) was established to help ensure that elk summer range habitat capability is maintained during projects implemented under the Forestwide Blowdown Salvage decision.

Across the Forest there was only one project occurring in MA 12 that was implemented under the Forestwide Blowdown Salvage Decision during FY99. Two closed roads were opened for this project, one of these was opened for 14 days and the other was opened for 27 days. The longer open time did not meet the required mitigation of the Forestwide Blowdown decision. The monitoring plan required that after two years, a determination whether to continue monitoring this item would be made. No need for continued monitoring has been determined, however, the entire monitoring item (C-1 and C-1b) will be reported in the 2002 monitoring report.

**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 below 5,500 feet Forest-wide). A total of 145,194 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 level of old growth designated for the compartments validated to date is above the 10 percent level required in the Plan.

After twelve 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):**

- **Peregrine Falcon:** In FY99 there were no peregrine falcons observed on the Kootenai National Forest, but one was observed on nearby private land near Eureka. Suitable nesting habitat on the Kootenai is localized and not abundant. Due to the steep, cliffy nature of peregrine nesting habitat, activities that could lead to adverse impacts are rare. The peregrine falcon population met national recovery goals in 1999 and was subsequently removed for the endangered species list. Monitoring of the falcon under item C-7, T & E Species, will therefore be discontinued in the future. The peregrine will continue to be treated as a Management Indicator Species on the Kootenai, as well as a Region 1 sensitive species.
- **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 FY99, reports of wolf sightings continued at about the same level as recent years. Sightings were noted on the Rexford, Fortine, Libby and Cabinet Ranger Districts. The followings wolf packs exist on the Kootenai: Murphy Lake, Graves Creek, Little Wolf, and Wigwam. The Pleasant Valley pack, which spent most of its time on private land but occasionally visited the Forest, was removed during 1999 by US Fish and Wildlife Service (USFWS) personnel due to depredations on livestock. The components of wolf habitat on the Kootenai did not change significantly in FY99 compared to previous years. Big game populations are beginning to rebound after the severe winter of 1996-97, and this should provide 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 FY99 are slightly higher than the long-term (15 year) average since records have been kept. Nesting surveys show the

FY99 nesting eagle population continuing at about the same level as the past few years. The USFWS believes the bald eagle has achieved recovery goals and has 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 7 BMUs and up in 8 BMUs in FY99 compared to FY98. Some changes were due to more accurate reporting rather than actual changes. Most changes were due to timber harvest and other management activities starting or ending in the various BMUs. Fourteen of the 18 BMUs were at or above the desired 70 percent level (one more than in FY98), and the Forest-wide average for all BMUs was 73 percent, a 2 percent increase from FY98, and slightly above average for the past 10 years.

The Environmental Assessment Decision Notice and FONSI for the Forestwide Blowdown Salvage project was approved on March 24, 1998. This decision established a special monitoring item to assure that the cumulative effects of projects implemented under this decision would meet management direction for grizzly bears. The focus of monitoring is on opening of closed roads and the number of projects active at any one time in each BMU. The decision requires that this item be reported for two year after the decision (starting in 1998 report). There were no projects implemented within the recovery areas under the decision in FY99. This is the final year for monitoring under that decision.

- **White Sturgeon** The USFWS Recovery Plan for the Kootenai River white sturgeon was signed 30 September, 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. This stock of fish will be considered for downlisting to threatened status after 10 years only if natural reproduction occurs in three different years; the estimated population is stable or increasing; enough captive-reared juveniles are added to the population for 10 consecutive years that 24 to 120 juveniles survive to maturity; and a long-term Kootenai River Flow strategy is implemented that ensures natural reproduction. 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. The Roderick Ecosystem Burns Project May Affect but is Not Likely to

Adversely Affect the white sturgeon. All other projects and activities evaluated by the Forest in FY99 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 FY99 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. The Kootenai is also preparing watershed baselines for the four sub-populations supported on national forest lands for submission to the USFWS.

There were four new projects that were evaluated by the Forest that May Affect but are Not Likely to Adversely Affect bull trout. The Sterling Rock Creek Mine Proposal was resubmitted for formal consultation after the Forest changed its effects determination to May Affect, Likely to Adversely Affect bull trout. The remainder of new projects evaluated was determined to have No Effect on the species. As consultation progresses, so will the recovery process.

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. From this data the USFWS will determine present status of the four affected subpopulations on the Forest.

**Range Use (D-1):** Livestock use on the Kootenai was anticipated to be about 12,600 Animal Unit Months (AUMs) per year. The FY99 level of grazing use was 7,796 AUMs or 62 percent of the projected level. Monitoring indicates that riparian protection measures identified in the new grazing permits are being implemented. During the last twelve years, grazing use has averaged 86 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. There continues to be an expansion of new species, specifically tansy ragwort, in spite of concerted efforts to keep populations in check. There are a number of new species just becoming established on the Forest, and these will continue to spread. 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 and Appendix B):** 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 80 MMBF per year between FY88 and FY99. The average yearly amount sold has been 111.4 MMBF from suitable lands, and 1.5 MMBF from unsuitable lands. In total, this amounts to 1.4 billion board feet for the past twelve years. This actual sell volume is well below the ASQ limit as set in the Plan. In the past six years, additional factors have influenced the timber sales program. The most significant was 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, scheduling requirements necessary to meet resource needs, and a shift to a higher level of ecosystem management and forest health issues.

The Forest has not exceeded the ASQ in 12 years of implementation. Large changes in the actual program levels versus projections of the Forest Plan indicate that revision of the Plan will need to address the sustainability of the timber sale program in addition to the sustainability of ecosystems. This has been identified as a critical issue in scoping for Forest Plan revision.

**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 FY99, the general trend, which had been apparent in most years, remained in place. The acreage sold for regeneration harvest is 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 FY99, 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 ground 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 in line with sustainable ecosystem management principles and new planning regulations.

**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 14, 15 and 16, while MA 11 and 12 gained acreage in FY99. Total net loss in the suitable land in FY99 was 3,148 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, 15 and 16 (more than 5,000 acres of change).

The degree to which changes have been made to management area designations indicates continuing validation in Forest Plan MAs. The large change in the suitable management area category of over 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 FY98, 2,622 acres in Category A were deferred, and 973 acres were deferred in Category B. For FY99, more acres were deferred in Category A in comparison to several preceding years. Deferrals took place due to a variety of reasons, including potential impact to watershed, fisheries, roadless resources, economically unfeasible harvest units, or difficulty in finding an appropriate logging system to fit the situation.

For the entire period from FY88-99, 38,578 acres were deferred for both A and B categories. The largest amount for a single MA is 22,778 acres that were deferred in MA 12. This is the largest amount of all the MAs and is beyond the prescribed evaluation range of 10,000 acres. MA 14 and 15 also had large amounts of harvest deferred, although they did not exceed the 10,000 acre evaluation range. This item indicates that many more factors affect harvest than was accounted for during the preparation of the Forest Plan. Since the Forest now has detailed records of such factors, it will be more able to assess those effects during Forest Plan revision. These factors will continue to be monitored, and will be brought forward in the revision process.

**Harvest Area Size (E-8 and Appendix C):** The average size of units harvested between 1988-1999 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 C lists the harvest areas resulting in larger than 40 acre openings approved during FY99 as well as an estimate of how long it will take for the vegetation to regrow to meet the management area objectives. There were 16 resultant openings greater than 40 acres approved by the Forest Supervisor in FY98 and 29 openings in FY99. All were in response to either root disease, Douglas-fir bark beetle, windstorm, or dead lodgepole

pine situations. Based on review of the monitoring information, no changes are needed to the Forest Plan. Projects approved to exceed 40 acres were done with the appropriate documentation and analysis and, therefore, are consistent with the Plan.

**Clear Cut Acres Sold (E-9):** The acres sold for clearcut harvest declined from FY90 to FY99, 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 FY99 the amount of clearcutting declined again resulting in a 95 percent decrease. The Forest will continue to monitor this item, but the Chief's goal for reducing clearcutting has been fully met.

**Riparian Areas (C-9):** Miles of stream classes and/or stream categories identified and mapped: Almost 5,800 lineal miles of riparian habitat have been categorized and mapped since 1988. Over 3,300 of these miles are perennial streams (Stream Classes 1 and 2, 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 FY99, default RHCA widths were applied on all but three projects. These three were modified based on sight-specific analyses that determined that the RHCA function could still be met with a slightly narrower RHCA width. Default RHCA width were applied on almost 32 miles of stream, reduced widths on 0.4 miles.

RCHA activity tracking: In 1999, a little over 95 miles of RHCA had some level of activity. Most of the work was for road re-construction, improvement of road crossings, road drainage improvement, trail maintenance and improvements along streams.

Watershed and stream restoration activities: In 1999, riparian-related watershed restoration activities were accomplished on over 70 miles of stream. Over 56 stream crossings were removed or improved, and over 120 sites had improvements such as ditch relief culverts, stream channel veins (near bridges), or large woody debris (LWD) addition to reaches where woody debris was lacking. Since 1990, watershed restoration on the Forest has totaled over 6,700 acres.

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 FY99. Seventy-four practices were evaluated and acceptable implementation was accomplished 100 percent of the time. Fifteen effectiveness evaluations were completed for this same period, of which 87 percent of the BMPs were deemed to be effective. For eleven projects, a riparian-area specific BMP evaluation was made. On all these projects, BMP requirements related to riparian area protection were met.

For the 2,410 practices evaluated over the ten-year period (1990-1999), acceptable implementation was accomplished 93 percent of the time. Almost seventeen hundred effectiveness evaluations were completed for this same time period, of which 93 percent were deemed to be effective.

We are effectively applying the Riparian Area Guidelines, INFS direction, and riparian BMPs on projects; therefore, we are on-track with the Forest Plan. Because of the new direction from INFS, no change to Forest Plan direction is needed at this time.

**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.

**Soil and Water Conservation Practices (F-1):** FY99 BMP monitoring on the Forest involved three different efforts: 1) BMP monitoring done by Kootenai Forest personnel during their normal work activities; 2) BMP Reviews conducted on selected activities by District and Engineering Zones; and 3) Supervisors Office-level BMP Reviews on three Districts. KNF personnel audited about 27 separate projects in FY99. Implementation evaluations were completed for 149 BMPs and implementation evaluations met the requirement of acceptable over 98 percent of the time. Effectiveness evaluations in FY99

met the requirements of acceptable almost 95 percent of the time. As a result of these monitoring efforts, there were key findings identified that will strengthen on-the-ground practices.

No changes to the Forest Plan are needed at this time. The Forest will continue to improve the BMP process and program which emphasizes monitoring, implementation, evaluation, documentation, tracking and completion of the feedback loop to improve resource protection. Another key item is the implementation of the Regional Forester's memo of March 11, 1999 to bring existing roads up to BMP Standards.

**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 1999.

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 FY99, the water yield model was used to estimate the peak flow increase on 172,538 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, 7 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, 1,560,420 acres (77 percent) were found to be at or below the guidelines and 477,448 acres (23 percent) were found to be over guidelines according to the most recent analysis in each area, which could be up to ten years old.

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: listing of the lynx, road obliteration, road closures, providing access to private land, noxious weeds, the amount and type of timber being offered, opening sizes and disturbance patterns, downsizing of budgets and workforce, firewood availability, prescribed burning (smoke), use of fire and timber harvest in old growth stands, OHV management with special emphasis on snowmobiles. Forest Plan issues that are still current concerns include: grizzly bear management, timber supply (local economic impact), road management and public access, potential mineral development, visual (scenic) quality, and community stability (in the broader sense of using the natural resources of National forest System land to provide jobs related to recreation, tourism, and forest products other than timber). 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 FY99 decreased from the average in the preceding six years. However, costs are 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 six 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 slightly lower than the last six years, but approximately 24 percent higher than the projected Forest Plan amount. 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. The Forest's accounting systems are continuing to effectively track these trends. 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 suppression, fuels management, range, co-op law enforcement, tree improvement, salvage sales and trail construction and reconstruction. Most other program areas are remaining at budget levels below those projected. 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 fully valid. This analysis will be helpful in budget analysis for Forest Plan revision.

**Insect and Disease Status (P-1):** Commercial thinning (2,978 acres) and precommercial thinning (7,418 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 over 7,000 acres. Pruning of white pine blister rust infected western white pine occurred on 28 acres. Prescribed burning following harvest and for wildlife habitat improvement sometimes increases insect activity, but at a low level. The Forest surveyed about 16,500 acres for dwarf mistletoe infection in FY98 and FY99. We found few infections in the seedling and sapling size class but did find infection in mature trees of western larch, lodgepole pine, and Douglas fir in or adjacent to many plantations that pose a threat to spreading this disease. Follow-up treatments are proposed in stands that may cause subsequent problems in regenerated stands. 479 acres of mistletoe-infected overstory trees were treated in FY98 and FY99. Western gall rust continues to infect many lodgepole pine stands recently precommercial thinned. Root diseases continue to infect regenerated species with low resistance primarily in the western districts. The vast majority of stocking in these plantations is composed of intolerant species not highly susceptible to root disease.

**Project Specific Amendments (Appendix C):** Project specific amendments are changes in a standard that only apply to that project. They do not change the standard for the long term. The Forest Plan states, "If it is determined during project design that the best way to meet the goals of the Forest Plan conflicts with a Forest Plan standard the Forest Supervisor may approve an exception to that standard for the project". There were four timber sale projects with 29 openings greater than 40 acres that were approved by the Forest supervisor. The rationale was associated with harvesting dead and dying timber stands to improve long-term forest health.

**Programmatic Forest Plan Amendments (Appendix D):** Two Programmatic Forest Plan Amendments were approved in FY99. One modified MA 12 open road densities for the duration of Compartment 592 in Chief, Marl, Deer and Tensaw Creeks on Libby District, and the other modified open road densities in Compartment 18 and 21, Pinkham Planning Area on Rexford Ranger District.

