FOREST PLAN MONITORING
and
10-YEAR EVALUATION REPORT
Fiscal Year 1997
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 FY 1997. This report evaluates the field data collected by the end of September 30, 1997 that pertain to the 39 reported monitoring items. In addition, the Regional Forester assigned an additional monitoring item in 1991 (E-9, Clear-cut Acres Sold), to bring the total monitoring items to 40. Our monitoring and evaluation process is shown in Chapter IV of the 1987 Kootenai National Forest Land and Resource Management Plan (Forest Plan). This year's report evaluates 40 monitoring items, including 14 annual items, four biannual items and 22 five year reporting items.

We have completed ten 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 ten years of monitoring practices, standards, and outputs under the Forest Plan.

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 which are allocated for different types of land management and resource production.

MONITORING

As we've found over the last ten years, land management occurs in complex and changing situations, and our results will not always be totally predictable, definitive, or certain. Management results are affected by many things, including natural events that cannot be predicted. 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?

Monitoring data for most items is reported yearly by the District or responsible Staff areas at the Supervisor's Office. Monitoring forms are used to assist in collecting consistent data from the various sources.

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, 1996, was because of our findings in the monitoring program.

SUMMARY OF NEED FOR CHANGE

In our evaluation we found that some areas need further review during Forest Plan revision. One of the main findings is that, in some cases, it is inappropriate for management direction to be applied equally over an entire Forest. We have learned that there are differences in goods and services an area will provide, that the land capabilities are different, and what we have to manage is different. For example, a watershed with checkerboard ownership versus one with entirely federal ownership provides a different set of opportunities. Streams in one portion of the Forest don't react to disturbance the same as streams in other parts of the Forest. These area-specific factors will be considered during revision. In addition, we have found many resource-specific areas which need consideration:

Recreation: Overall, the Forest is providing for the appropriate amounts of dispersed and developed recreation areas. Site specific effects have been noted in some areas and specific actions are being taken to address these issues. One area of continuing conflict is in regards to roadless areas. The Forest Plan predicted a certain level of development (primarily timber harvest and minerals activities) in roadless areas. This development has not occurred to the extent expected. This is due to many factors including consideration for wildlife and watershed needs. The revision process will provide an opportunity to assess the future levels of development in roadless areas. Until the Forest Plan revision is completed, any additional major projects in roadless areas will be deferred, except those noted in Monitoring Item A-6, Roadless Area Changes. Some minor projects, such as roadside salvage may still occur. This direction will remain in effect until the Forest Plan is revised or if circumstances change, such as a wildfire that would cause us to review this direction.

Wildlife: Generally, habitat conditions and big game wildlife populations are improving on the Kootenai. In addition, conditions and populations are improving for threatened and endangered species. Wildlife populations tend to fluctuate based on weather influences, predation, and other factors out of our control. We will review habitat needs and trends for all species, including needs for sensitive species and species proposed for listing as threatened or endangered. We will work closely with Montana Fish, Wildlife and Parks and the US Fish and Wildlife Service to integrate management plans and recovery plans with the revised Forest Plan.

One area we will review more closely is new scientific information concerning snags. The initial analysis indicates we may need to provide more snags than originally indicated in the Forest Plan. We have determined interim direction is not warranted at this time (see Monitoring Item C-4).

Range: Range use has decreased since approval of the Forest Plan and some allotments have not been active for many years. During revision, we will review the status of allotments and determine if any changes need to be made.

Noxious weeds have increased beyond the variability limits set in the Forest Plan. However, the Forest completed several actions in the past few years to provide more tools for control. We will continue to monitor this item to see if any new direction is needed in the revised Forest Plan.

Timber: As noted in previous years' monitoring reports, timber sale volumes and acres of timber sold for harvest have declined substantially. Revision of the Forest Plan will provide the opportunity to assess appropriate levels of harvest volume and acreage including review of the land base designated as suitable for timber management. It is also very likely that new yield tables will need to be established as silvicultural prescriptions and management activities are adapted to meet emerging direction. We have a backlog of approximately 8,000 acres of pre-commercial thinning that has not occurred due to a lack of budgets and workforce. This will also need to be factored into revision.

Watershed and Fisheries: Monitoring Item F-3 (Water Yield Increases) and E-7 (Timber Harvest Deferrals) identify that the model-predicted water yield is higher in many areas than is desired. In some cases, this higher water yield was created by harvest on private lands. During revision, harvest on private lands will be factored into the Forest Plan.

In addition, we have learned more about how to provide for water quality and fisheries habitat than originally was considered in the Forest Plan. The Inland Native Fish (INFS) Forest Plan amendment provided guidance based on this new information. We will revisit INFS to evaluate if and how it should apply to the Kootenai.

Human and Community Development: We noted in the monitoring report that small variations in the role of the Forest's economically important programs will have relatively larger effects on local people in comparison to the effects they had in the first ten years of Forest Plan implementation. Understanding of our Forest's role in the economics and well-being of our communities will be a key component of revision.

We have identified many emerging issues over the last ten years of implementation. We will review the issues that have been reported and assess them for their applicability. If they are still relevant, we will consider them during revision.

During the last ten years we have gained a better understanding of costs to implement the Forest Plan and budget levels received from Congress. During the revision process, we will factor in this understanding.

Facilities: Although we have met the Forest Plan projections for road closures, many of these closures have occurred on existing roads versus roads that the Forest Plan projected to be built. Access management is an important issue which will be evaluated during revision.

SUMMARY OF MONITORING RESULTS

Roadless Area Use (A-1): The Kootenai Forest had 32 Inventoried Roadless Areas (IRAs), one wilderness study area, and one designated wilderness area when the Forest Plan was approved in September, 1987. The primary non-motorized recreation use of these areas is hiking, fishing, hunting, and camping. The primary motorized use of these areas is snowmobiling (where allowed).

The Plan's estimate for total non-motorized recreation use is 65,000 Recreation Visitor Days (RVDs) per year. This includes 18,000 RVDs per year in the wilderness and 47,000 RVDs in the remaining non-wilderness roadless areas. Roadless Area use is within expected ranges. There has been much variation, with use levels greatest during 1994 and 1995 for total use, and wilderness greatest in 1990. Much of the variation has to do with weather conditions. Use level in the Cabinet Wilderness exceeds the average projected amount, while non-wilderness roadless use is less than projected levels. Overuse in certain popular areas in the Cabinet Wilderness have caused problems, and Action Plans are in place to manage these impacts. (See Monitoring A-2 for further information). Based on this evaluation it appears that an adequate amount of area has been designated for those people seeking an unroaded environment. As use-related problems are identified, we will develop management actions to reduce impacts.

Roadless Area Overuse (A-2): Instead of providing quantitative variability thresholds for evaluating this monitoring item, the Forest Plan calls for a qualitative evaluation. This qualitative review is based on whether site conditions are of such a nature that they damage soil and water resources, permanently affect the sites ability to recover, become a safety hazard, or detract from the recreational experience. The review of this item indicates that visitor use is currently managed at an acceptable level, with some exceptions. Action has been taken in areas where heavy use was reported in FY 96. Twenty-two out of twenty-four site's were found to be stable or improving since 1996. The two sites that showed some decline (Wolverine Cabin and Minor Lake) will take time to show improvement. Both have Action Plans that have been implemented, therefore, it is not anticipated that further resource effects will occur. We will continue to implement Action Plans associated with the various sites.

Visual Quality Objectives (VQO) Effectiveness (A-3): Each management area on the Forest has a prescribed VQO to be maintained whenever timber sales or other development projects are proposed. There are exceptions to this requirement when disturbances occur such as insect or disease epidemics, large fires, extensive blowdown from severe windstorms, etc.

In these instances, the prescribed VQO may not be achievable in the short-term, but an effort is made to obtain the closest compliance possible with the long-term goal of meeting VQOs.

A total of 218,507 acres of various projects were reported over the last ten years, most of which were timber sales. Of that total, 1,594 acres did not meet the prescribed VQO. The most common reason for not meeting the VQO was because of timber salvage in fire-killed stands and in mountain pine beetle-killed lodgepole pine stands. The monitoring information does not show any direct evidence of visual quality problems since the Forest Plan was approved in September, 1987, even though there is localized evidence where the visual quality has been diminished by the harvest of beetle-killed or fire-killed timber. This item is within the prescribed range stated in the Monitoring Plan (+/-10%) as currently defined.

Developed Site Use (A-4): The Forest Plan estimate for developed site use is 297,000 Recreation Visitor Days (RVDs) per year. A total of 2,583,000 RVDs was reported for the ten years since 1987, or an average of 258,300 per year. This is an average of 87% of the use projected in the Plan. We experienced low use in FY 1989-90 due to major reconstruction work occurring on US Highway 2 between Libby and Troy, Montana, and the poor fishing success experienced at Lake Koocanusa. This discouraged some incoming tourist travel because of the long delays, rough road surfaces, and the lack of "keeper-size" kokanee salmon. After a significant increase between 1990 and 1993, developed site use has leveled, with only slight increase in visits from 1993 to 1997. In spite of the increased use levels, capacity at developed recreation sites has been sufficient to accommodate all users, with the exception of a few major holiday periods, such as Labor Day. This item is within the prescribed range stated in the Monitoring Plan (+/-20%). No additional action is needed at this time. We will continue to monitor and evaluate whether additional sites may be necessary in the future.

Off Road Vehicle (ORV) Use Effects (A-5): This monitoring item was evaluated in the FY 96 Monitoring Report. Review in FY 96 found that the effects of ORV use on the Forest appeared to be minor; however, use of the Lake Koocanusa drawdown area, the adjacent non-motorized area, and the low-elevation lakes near Eureka appears to be increasing. It also found that because ORV use is limited in nature and effective actions have been taken to reduce effects, that ORV use was being managed at an acceptable level. Monitoring completed in FY 97 found similar results as in FY 96. The FY 96 Monitoring Report identified a need to update the monitoring form to provide consistency in collecting and recording data. The monitoring forms were updated and used in FY 97. As noted in FY 96, the ORV use is limited in nature and effective actions have been taken to reduce effects, therefore this monitoring item is currently being managed at an acceptable level. As use-related problems are identified we will implement management actions to reduce effects.

Roadless Area Changes (A-6) and Appendix G: The Forest Plan anticipated that 10,500 acres would be developed through timber harvest and road construction during the 10 year period in roadless areas. To date only 5,270 acres have been developed and this is much below acres that were estimated to be developed in the Plan. In addition, no roadless areas have been affected due to mineral activity. This is also outside the levels estimated by the Plan. It is apparent that the predicted level of development within the roadless areas has not occurred. This is due to many factors including consideration for wildlife, watershed and other needs. The Forest Plan revision process will provide the opportunity to assess the future levels of development in roadless areas.

Other factors relating to roadless areas: Between 1996 and 1997, the Kootenai National Forest and the Montana Fish, Wildlife and Parks (MFWP) met to discuss how the Forest could integrate the MFWP Elk Management Plan consistently with the Kootenai Forest Plan. Based on potential areas of conflict, the Forest agreed to: (1) No timber harvest or road construction in the Northwest Peak, Grizzly Peak, Roderick Mountain, Trout Creek, Cataract, Gold Hill West and Scotchman Peak (Pellick Ridge) inventoried roadless areas. This agreement may be reconsidered if catastrophic events occur or if an unforeseen legal mandate creates a need to enter these areas. No sales were planned in these areas at the time of agreement; (2) The Ranger Districts will complete assessments of Buckhorn Ridge (Pine Project), Gold Hill, and East & West Fork Elk Creek (Jacks Gulch) to determine if entries are needed at this time. If a need is identified, then the Districts will work with MFWP to develop a proposed action acceptable to both agencies. If a mutually acceptable action cannot be developed, the Forest Supervisor and MFWP director will consult before deciding how to proceed. This agreement resolved potential conflicts in roadless areas named in the MFWP Regional Elk Management Plan until the Forest Plan can be revised and both plans are more closely integrated.

In addition, because of the growing concern over proposing timber harvest and road construction in roadless areas, any additional major projects in roadless areas have been deferred, except those noted in Monitoring Item A6. Some minor

projects, such as roadside salvage, may still occur. This direction will remain in effect until the Forest Plan is revised, or if there are changed circumstances, such as a wildfire, that would cause us to review this direction.

Cultural Resource Management (A-7): The National Historic Preservation Act (NHPA) and the implementing regulation (36 CFR 800) direct the federal government to locate, inventory, and protect the historic and prehistoric properties (cultural resources) from activities occurring on all federal lands. Over the last ten years a total of 2,078 projects were proposed that required consideration under 36 CFR 800. Of this total, 1,914 projects successfully completed the required consultation before the project was implemented. The annual accomplishments for the first three years were below the desired level of 90 percent, but the steady upward trend that began in FY 88 reached and exceeded the desired level during the next seven years. The average annual accomplishment level for the last ten years is 92%, which meets the 90% level prescribed in the Forest Plan. This item is within the prescribed range stated in the Monitoring Plan (-10%).

Elk Habitat (C-1): The overall elk habitat capability has improved. Habitat effectiveness continues to improve Forest-wide. Although the open road densities in the primary summer range (MA 12) do not meet Forest Plan standards in some areas, the biological summer range is providing the overall desired habitat effectiveness throughout the Forest. Elk security is provided Forest-wide and generally planning unit wide. Based on these factors elk habitat is in an improving condition. We will continue to evaluate elk security and habitat effectiveness at both the Forest-wide and planning unit level. These will be evaluated every five years to determine trends in habitat condition.

Elk Populations (C-2): Three factors were used to assess elk populations over the past decade: number of elk observed in aerial surveys, number of elk harvested by hunters, and number of elk checked through check stations. All three factors show a similar trend. Elk populations increased through about 1990 or 1991 and have shown a gradual decrease since that time. The likely cause of the downward trend is a combination of weather conditions which have made elk more vulnerable to hunters in certain years and also directly impacted elk survival during the severe 1996-97 winter. Calf production has also been lower than desired in some years, possibly due to weather or predation. We will continue monitoring elk populations to determine future trends. In addition, we will coordinate with MFWP on changes in hunting regulations which may be needed to produce the desired trend in elk population and provide for a desired age structure in the bull populations.

Other Big Game Habitat and Populations (C-3a and b) and Management Indicator Species (C-8):

Whitetail Deer: This species is the most widespread and abundant big game animal on the Forest. Vegetative succession, which has worked against the mule deer, has been a long-term positive factor in whitetail deer habitat. Other positive influences include timber harvest, especially in small units, which increases habitat diversity and edge; and direct habitat improvements such as prescribed burning and slashing in overgrown browse areas. Negative influences include extensive timber harvest in large units on portions of the Forest to salvage insect-infested lodgepole pine stands, and several large wildfires which have occurred in the past decade. These events reduce cover and habitat diversity favored by whitetail deer.

The proportion of mature bucks in the harvest remained relatively constant over the last decade, indicating a healthy population structure. The population increased for most of the last ten years, which is reflective of a positive trend in habitat. This steadily increasing trend was reversed, however, during the severe winter of 1996-97 when a significant portion of the whitetail population died. In addition to this winter mortality, the poor physical condition of surviving does resulted in a below-average fawn crop in 1997. An up-and-down pattern in whitetail populations is typical of how the species responds to weather conditions in northern heavy-snow regions, and does not appear to be directly related to management actions of the Kootenai National Forest. Forest Plan standards for winter range, which emphasize small opening sizes and retention of cover, tend to buffer winter population fluctuations to some degree.

Mountain Goat: This species is limited primarily to rugged topography in the East and West Cabinet Mountain ranges. The habitat trend is static to possibly decreasing in the long term. Any decrease is due to continuing vegetative succession resulting from a lack of periodic wildfires or prescribed burning at higher elevations. Hunter harvest statistics and aerial survey data support a conclusion that goat populations have been relatively stable over the past decade with minor annual fluctuations. The hunter effort required to harvest a goat increased near the end of the decade. Further monitoring is needed to determine if this represents a recent downward trend or if it is due to other factors such as weather.

Other Big Game Habitat and Populations (C-3a and b) that are not Management Indicator Species:

Mule Deer: Mule deer are widespread across the Forest. There has been no measurable positive or negative trend in habitat capability in the past 10 years; however, the long term trend (several decades) may be downward. In the past decade, offsetting factors have served to maintain habitat in an essentially static condition. Factors positively affecting mule deer habitat include wildfires and timber harvest on summer range, prescribed burning and forage planting on winter range, and road closures. Negative factors include additional road construction (which reduces habitat security) and the continuing vegetative succession of grasses, forbs, and shrubs to trees. In the long term, forest succession may be resulting in a downward trend in mule deer habitat by providing more closed canopy forests which are favored by other big game species such as whitetail deer.

The long-term trend in mule deer populations has been up since the 1970s. Based on harvest statistics the population appeared stable over the first half of the past decade, reaching a maximum harvest in 1992. Harvest declined rapidly in the second half of the decade, however. The relationship of this harvest decline to actual population levels is unclear. It is likely that severe winter weather such as experienced in 1996-97 did reduce the mule deer population. However, the weather may have also curtailed hunter access to mule deer ranges, thus reducing harvest. Further monitoring of mule deer populations is warranted to determine population trend.

Bighorn Sheep: Four distinct populations exist on the Forest: the Berray Mountain herd, the Kootenai Falls herd, the Ural/Tweed herd, and a herd in the Ten Lakes Scenic Area. Population trend among these herds has been variable, with some herds remaining static over the past decade and other herds declining. Aerial surveys are annually performed on the Ural/Tweed, Kootenai Falls and Berray Mountain herds. These surveys indicate a stable population in the Berray Mountain herd and declines in the Ural/Tweed and Kootenai Falls herds. The reasons for the declines are unknown, but predation may be a factor. The Kootenai Falls decline seemed to follow the large wildfires in that area in 1994. Lamb production has also been low in this herd in recent years. Other possible contributing factors in the decline may include competition from other ungulates or disease.

The overall habitat trend on the Forest has been increasing during the past decade because of major accomplishments in habitat improvements (primarily prescribed burning) in the Kootenai Falls, Berray Mountain, and Ural/Tweed areas, and due to wildfires in the Kootenai Falls area. Slow decreases in habitat capability occurred in the Cabinet Wilderness and Ten Lakes areas due to continuing vegetative succession resulting from the absence of fire. The overall trend for sheep habitat on the Forest has been positive. Bighorn sheep populations are infamous for gradual population increases followed by marked declines. The sheep declines observed on the Kootenai in the second half of the past decade do not appear to be broadly associated with habitat problems or forest management activities.

Moose: Moose are a pioneer species, thriving where fires or other disturbance events such as timber harvest create early forest successional conditions. Timber harvest during the past several decades, and wildfires during the past 10 years, created large areas of habitat that are beneficial for moose. Although forest succession continues to advance, the overall habitat trend for moose has been positive during the past decade. Moose harvest increased during the first half of the past decade and then declined somewhat thereafter. Moose harvest is controlled by a permit system, and the harvest reflects the number of permits issued. However, the number of permits also relates to the observed population level. The number of days required to harvest a moose increased slightly near the end of the decade. These indicators point towards a minor decline in moose populations in the second half of the past 10 years.

Black Bear - Black bear are widespread across the Forest and their overall habitat trend for the past decade is positive. Timber harvest, wildfires, and prescribed burning have positively influenced habitat by encouraging the growth of desirable forage plants for bears. Conversely, new road construction has reduced habitat security in some areas, while continuing vegetative succession has served to reduce forage. The biggest factor in black bear habitat capability over the past decade, however, has been additional road access restrictions. While these restrictions have generally been applied for other reasons, they have had the effect of greatly increasing habitat security for black bears. The net effect of all these factors is a positive trend in black bear habitat.

The long term (20+ years) population trend for black bears in northwestern Montana has been downward (USFS 1993). This trend appears to have continued into the first half of the past decade on the Kootenai National Forest. In the past few years, however, the downward trend in the black bear population may have reversed. The number of bears observed per hour of aerial survey effort has increased. This agrees with a concurrent increase in reports of casual observations of bears.

Mountain Lion - The mountain lion is a predator and habitat generalist. Therefore, its existence depends largely on the abundance of prey animals, primarily ungulates such as deer and elk. Since the populations of whitetail deer and elk increased throughout most of the past decade to near-record levels, mountain lions have prospered. The decline of deer and elk populations due to severe weather conditions during winter 1996-97 reduced habitat capability (prey base) for mountain lions, at least temporarily, and warrants further monitoring.

Old Growth Dependent Species (C-4) and Management Indicator Species (C-8):
Pileated Woodpecker: Personal observation by Forest biologists indicate that pileated woodpeckers are observed frequently on the Kootenai, and these informal observations provide no indication of any major population change for the species. Additional information is being collected through the R-1 Landbird Monitoring Program and through sampling special paired monitoring sites to begin assessing the effects of intermediate timber harvest on pileated woodpeckers. The landbird monitoring results for the Northern Region, the preliminary population transects, and Forest staff observations all point to the same consistent interpretation that pileated woodpeckers are widespread and are relatively common on the Kootenai National Forest. In addition, monitoring items C-5 Old Growth Habitat, and C-6 Cavity Habitat indicate that we are on-track with providing the necessary habitat for this species.

Old Growth Habitat (C-5): Approximately 1,115,113 acres below 5,500 feet have been evaluated for old growth (there are about 1,865,000 acres below 5,500 feet Forest-wide). Of the designated old growth, 9.0 percent are effective old growth and 2.2 percent are replacement old growth, for a total of 124,757 acres (11.2 percent) now designated. One factor which affected old growth validation survey results for FY 88-97 is the Checkerboard Land Exchange, which resulted in a net loss of just over 400 acres of validated old growth. Two of the compartments that had lands disposed had been completely surveyed and validated. These will now need to be redone, and the acreage for those compartments has been removed from the total "Validated" acres. The level of old growth designated for the compartments validated to date is above the 10 percent level required in the Forest Plan.

After ten years of old growth validation, 136 of the 250 compartments (54 percent) have been completely reviewed and an additional 52 compartments (21 percent) are partially done. Much of the unsurveyed areas are in wilderness, proposed wilderness, or areas with very little Forest Service ownership. Accordingly we are confident that the Forest is meeting old growth direction. Based on review of this monitoring item, no changes are needed in the Forest Plan at this time. Good progress is being made in the validation effort and will continue.

Cavity Habitat (C-6): The available monitoring data indicates the Forest is providing sufficient cavity habitat at a drainage or compartment level. Exceptions are in areas where forest management predating the Plan or historic conditions such as the widespread turn-of-the-century fires make this impossible. Based on this information, the creation of numerous snags by the 1994 fires, and the existence of ample cavity habitat in the majority of the Forest that is outside the suitable timber base, this monitoring item is within acceptable limits of the Forest Plan.

New scientific information concerning snags (Bull et. al. 1997 and Harris unpub.) has become available and may apply to snag management on the Kootenai. The Forest Plan snag standards and guidelines are primarily based on Thomas (1979). Bull documents that the assumptions used by Thomas were in error and that additional snag habitat, more snags and replacement trees, may be needed to ensure there is adequate habitat for cavity nesting species. Analysis of snag levels in uncut stands on the Kootenai is ongoing.

We have reviewed whether new interim standards are needed at this time. We conclude that interim standards are not needed, but that a review of the snag requirements should be completed during Forest Plan revision. Our monitoring data indicates that snag habitat capability has only decreased 5% Forest-wide, since 1987 (89 to 85%), and the snag habitat has been locally improved by the 1994 fires. In addition, our monitoring of pileated woodpecker (Monitoring Item C-4) does not

indicate a significant downward trend toward 40% population level. Based on these items, immediate action is not warranted.

Threatened and Endangered Species (C-7) and Management Indicator Species (C-8):

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 (see Figure C-7-3). Grizzly bear habitat effectiveness improved over the last ten years and is above the desired level of 70 percent Forest-wide, although some BMUs remain below this level. Sightings of female grizzly bears have increased, as well as their distribution. There was one mortality in the last six years in the CYE and three in the NCDE. Based on this analysis grizzly bear habitat is improving in condition and the population appears to be on a slow trend towards recovery.

Gray Wolf: There is one recovery area within or adjacent to the Kootenai Forest (the Northwest Montana Recovery Area). The recovery goal for this area is 10 wolf packs. A small portion of this recovery area (about 10 percent) is located in the northeast corner of the Forest, east of US Highway 93.

Over the past decade, reports of wolf sightings have varied with a slight increase this fiscal year. Sightings were noted in areas on the Fortine Ranger District and portions of Libby and Cabinet Ranger Districts. Many of these were sightings of individuals from the Murphy Lake and Upper Thompson River packs. In addition, new pack activity was suspected on the Three Rivers Ranger District. Most of the components of wolf habitat on the Kootenai did not change significantly in 1997 compared to previous years. However, big game populations, which are the primary prey for wolves, declined during the severe winter of 1996-97 (see monitoring items C-2, C-3b and C-7). At this time, wolf populations are increasing and adequate habitat is provided for their primary prey base.

Bald Eagle: 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. Monitoring Item C-7 shows the results of mid-winter bald eagle surveys which occur mostly along major watercourses both on the Forest and on adjacent ownerships. Although the results vary somewhat from year to year due to varying weather conditions, the surveys indicate stable numbers of wintering bald eagles during the reporting period. Nesting surveys also show an increasing nesting eagle population during the first half of the reporting period, and a relatively stable population thereafter.

Peregrine Falcon: One or two peregrine falcons per year are observed on average on the Kootenai National Forest. Nesting activity has not been confirmed. Peregrine sightings on the Kootenai may be the result of a hacking (release) program further down the Clark Fork River on the Idaho Panhandle National Forest. Suitable nesting habitat on the Kootenai is localized and not abundant. Due to the steep, cliffy nature of peregrine nesting habitat, activities which could lead to adverse impacts are rare. Peregrine falcons appear to be maintaining their presence on the Kootenai.

White sturgeon: The US Fish and Wildlife Service released a draft Recovery Plan for the Kootenai River white sturgeon in FY 97. The short-term goal of the Recovery Plan is to prevent extinction and to begin restoring natural reproduction in this population. The status of the Kootenai River white sturgeon improved in FY 97. A new population estimate (based on better data) from the Idaho Department of Fish and Game indicates there are approximately 1,469 adult sturgeon in the population. This is a 589-fish increase in the estimated size of the population due (in part) to new data from Kootenay Lake in Canada. Also, 342 fertilized sturgeon eggs were recovered during the FY 97 spawning season; however, no larvae or juveniles from the FY 97 year-class have been found to date.

Range Use (D-1): Livestock use on the Kootenai was anticipated to be about 12,600 Animal Unit Months (AUMs) per year. The FY 97 level of grazing use was 9,415 AUMs or 75 percent of the projected level. The reason for this drop is because several of the allotments had later turnout dates than normal due to snow pack and the late spring. One allotment was not stocked in FY 97 because of flooding. Monitoring indicates that riparian protection measures identified in the new grazing permits are being implemented. During the last ten years, grazing use has averaged 92 percent of projected use which is within the range anticipated in the Plan. This lower level results from permittee requests for non-use and from Forest requests to defer grazing to prevent stream bank deterioration and overgrazing. 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 Weeds (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% in the numbers of acres affected and some have had a 10% or more increase in density of existing infestation 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 this, this monitoring item is outside the range prescribed in the Forest Plan. Prior to 1997 emphasis in weed control focused on the use of biological and cultural controls (cultural control uses plant competition to maintain or enhance desired plants) and the use of herbicides on the north end of the Forest. In 1996, a Noxious Weed Control Provision was added to the timber sale contracts. In 1997, the Herbicide Weed Control Decision Notice was issued giving the Forest another tool for control. These actions are occurring under the direction of the Forest Plan and should help improve the noxious weed situation on the Forest. Because of this, no changes are needed in the Forest Plan at this time.

Allowable Sale Quantity (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 six MMBF per year. Timber sale volumes have declined from approximately 200 MMBF/yr to less than 100 MMBF/yr between FY 88 and FY 97. The average yearly amount sold has been 120 MMBF from suitable lands, and 1.4 MMBF from unsuitable lands. This actual sell volume is well below the ASQ limit as set in the Forest Plan.

In the past 5 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 US Fish and Wildlife Service amended biological opinion for grizzly bear recovery was issued July, 1995, and changed how recovery processes would take place on the Forest. In general, in the past five years, it has become more difficult to plan and execute sales due to public controversy and scheduling requirements necessary to meet resource needs.

The Forest has not exceeded the ASQ in 10 years of implementation. However, large changes in the actual program levels versus the projections of the Forest Plan indicate that revision of the Plan will need to address the sustainability of the timber sale program. This will be a part of the initial issues for scoping during the revision of the Forest Plan.

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 FY 97, approximately 5,430 acres were cut which resumed the general downward trend that had been established during the period from FY 88 to FY 95. The acreage cut during FY 96 (approximately 7,000 acres) deviated from the longer term trend due to the salvage of areas affected by the 1994 wildfire events. The ten-year average for MA 15 is approximately at the Plan's projected level, while five other suitable timber MAs (11, 12, 14, 16, and 17) are significantly below Forest Plan projected amounts.

Many of the factors affecting this monitoring item are similar to those affecting item E-1, Allowable Sale Quantity. 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. Since harvest has focused on MA 15 lands during the last ten years, it indicates that there are efficiencies present for that MA that are not present for the other MAs. Assessment work for Forest Plan revision will need to determine both future opportunities for MA 15 and the problems which prevented greater utilization of the other management areas for timber harvest.

It is apparent that the acres sold for harvest will not meet the acreage projected in the Forest Plan. This is a result of many factors which are influencing the Forest's timber sales program (see E-1 for details). The upcoming revision of the Forest Plan will provide the opportunity to assess appropriate levels of harvest volume and acreage.

Suitable Timber Management Area Changes (E-3): Management areas are validated during site-specific project analysis. When inaccuracies are found, MA boundaries are corrected to keep the Forest Plan MA map and acreage current. In FY 97 the total net loss in the suitable timber land was 17, 055 acres. The largest change in FY 97 was a net loss of 13,735 acres of MA 15. The Checkerboard Land Exchange accounted for the most significant changes in FY 97. As a result of the exchange, there was a net change of 3,711 acres from public to private land, contributing in a net decrease in suitable lands

of 11,628 acres (mostly MA 15) and an increase of 7,917 acres in unsuitable land (mostly MA 2). Other than this large land exchange, the most significant changes were due to designation of MA 13 (old growth) in several large watersheds. Since 1988, approximately 58,000 acres have been changed from the suitable base to the unsuitable base or were affected by land exchanges. This monitoring item is outside the prescribed range for MAs 11 and 15 (more than 5,000 acres of change), and MA 16 is approaching this variability threshold. The remaining suitable timber MAs are within evaluation limits (MAs 12, 14, 17).

The degree to which changes have been made to management area designations indicate continuing validation of Forest Plan MAs. The large change in the suitable management area category (nearly 58,000 acres) amounts to approximately 3% of the total suitable base. At this time, it is not apparent that this is significant in terms of the calculation of the long term sustainability of the timber harvest program or ASQ. During revision of the Forest Plan, sustainability and ASQ calculations will be made using the validated management areas. This will allow for an assessment of the effect of changed management area designations.

Suitability Review: The National Forest Management Act, 36 CFR 219.14(d) requires that the designation of lands not suited for timber production be reviewed at least every ten years. We have completed this review and determined that no changes are necessary at this time. This is based on the fact that (1) corrections to management areas, based on site-specific conditions, have been made during the last 10 years, where appropriate; (2) changes in market conditions have not occurred enough to warrant a change in management direction; and (3) other changes in the decisions regarding proposed wilderness, roadless recreation, etc., are not warranted at this time. All of these factors will be further evaluated during Forest Plan revision.

Timber Growth Trends (E-4): The result of measurements taken in permanent growth plots and timber stand improvement (TSI) benchmark exams indicate that growth trends in stands managed as even-aged and single-storied are consistent with Forest Plan timber yield tables and parameters further defined in "KNF Target Stands", (USFS 1993). This monitoring item is within the range prescribed in the Plan. As silvicultural prescriptions and management activities are adapted to meet emerging direction and a host of new or different objectives, the need to revise yield tables is very likely.

Reforestation (E-5): The Forest Plan estimates that about 14,100 acres per year will require reforestation to achieve successful regeneration. An average of 10,494 acres have been planted over the last ten years. The total acreage reforested has decreased steadily since FY 93. This is a direct result of less acres being harvested, therefore less reforestation needs. It is apparent that the acres regenerated will not meet the acreage projected in the Forest Plan (See E-1, Allowable Sale Quantity, E-2, Acres of Timber Sold for Timber Harvest, and E-7, Timber Harvest Deferrals for further discussion). This is a result of many factors which are influencing the Forest's timber sale program . The Forest Plan revision will provide the opportunity to assess appropriate levels of harvest volume and acreage.

Service visits continue to show timely and effective reforestation activities for lands in a regeneration harvest phase. The 10 year average of satisfactorily restocked stands within 5 years of final harvest is 96 percent. Reforestation efforts are meeting the requirements of NFMA. This portion of the monitoring item is on-track and no changes are needed in this effort at this time.

Timber Stand Improvement (TSI) (E-6): The Forest Plan estimates 5,000 acres of TSI activities will be needed each year to achieve the future growth levels predicted. The amount of TSI work accomplished has been variable, depending on available workforce and budget. At the end of ten years, this monitoring item shows an average of 4,294 acres accomplished per year and 86 percent of predicted targets, but within the +/- 20 percent range prescribed in the Plan (from 2,820 to 5,890 acres). Approximately 8,400 acres of TSI opportunities over the last five years have not been accomplished due to lack of funding. If budget reductions continue, the amount of TSI work accomplished in the future will be reduced. Based on the information stated above, the monitoring item is on-track. We will continue to pursue budgets to accomplish the backlog of TSI that has not been accomplished.

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 FY 97, 1,359 acres in Category A were deferred, and none were deferred in Category B. For FY 97, less 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, and roadless resources, economically infeasible harvest units, or difficulty in finding an appropriate logging system to fit the situation.

Approximately 33,700 acres have been deferred for both A and B categories between 1988 and 1997. The largest amount for a single MA is 22,074 acres which were deferred in MA 12. This 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 brought forward in the revision process.

Harvest Area Size (E-8 and Appendix C): The average size of units harvested between 1988-1997 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. As discussed in the FY 96 Monitoring Report, there were occasional instances of a single year's average value extending beyond 40 acres. These instances occurred when there were relatively few harvest units in a given year, and the units had been approved to exceed 40 acres. 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.

Clearcut Acres Sold (E-9): Clearcut harvest acres sold steadily declined from FY 90 to FY 97, with the exception of FY 96. In FY 96, 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 FY 97, the amount of clearcutting declined again. When it was possible to do so, the Forest reduced the amount of clear cutting. As a result, 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 4,400 lineal miles of riparian habitat have been categorized and mapped since 1988. Over 2,500 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: Twenty-eight projects were evaluated in FY 97 to determine how INFS- Riparian Habitat Conservation Areas (RHCAs) and Riparian Management Objectives (RMOs) were applied. All 28 projects either meet or exceed the default RHCA width. The default INFS RHCA width was used along 53 miles of stream, and one project increased the width for one mile to better protect riparian values and functions. All 28 projects applied the default RMOs.

In 1997, a little over 70 miles of RHCA had some level of activity. Almost 95 percent of the work was for trail maintenance where blown-down trees were cut up and removed. Most of the remainder was for road reconstruction and improvement of road crossings. A total of 111 crossings were either constructed or replaced. The total area involved was 47 acres.

In 1997, watershed restoration activities were accomplished on over 122 miles of stream, totaling almost 205 acres. Ninety-nine stream crossings were removed, and a total of 85 other small sites had improvements such as ditch relief culverts, stream channel veins (near bridges), or large woody debris addition to reaches where woody debris is lacking. Since 1990, watershed restoration on the Forest has totaled almost 6,500 acres.

Evaluation of the implementation and effectiveness of applicable riparian Best Management Practices (BMPs) that were used during management activities in or near the riparian zone: In FY 97, 254 practices were evaluated. Acceptable implementation was accomplished 97 percent of the time. Approximately 225 effectiveness evaluations were completed for this same period, of which 95 percent of the BMPs were deemed to be effective. For the 2,293 practices evaluated over the eight-year period, acceptable implementation was accomplished 91 percent of the time. Approximately 1,567 effectiveness evaluations were completed for this same period, of which 92 percent were deemed to

be effective. An abnormal year was 1995 when only 83% of the implementation evaluations and 82 percent of the effectiveness evaluations were scored as acceptable.

We are effectively applying the Riparian Area Guidelines, INFS direction, and riparian BMPs on projects; therefore, we are on-track with the Forest Plan. This is a change from FY 92 (last reporting period) because of the increased effort to map riparian areas, apply INFS guidelines and effectively implement BMPs. Because of the new direction from INFS, no change to Forest Plan direction is needed at this time.

Fish Habitat and Populations (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 FY 92 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. The FY 96 Monitoring Report included a nine-year evaluation of the monitoring results for this element. The 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 C-10 and updates that evaluation with any new information from 1997.

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 Forest Plan. It is difficult to distinguish between a variety of possible causes for change in streams such as natural variation and management-induced change. As indicated in the FY 96 Monitoring Report, a Forest interdisciplinary team was convened in 1997. This group of fish and watershed experts recommended a complete update of the Forest Plan C-10 monitoring requirements because of the substantive changes in management direction (INFS) and the nine-year monitoring evaluation.

The team is in the process of developing a new monitoring program for fish and fish habitat. We are still exploring options for monitoring bull trout and water quality limited segments. In addition, we have been developing aquatic data bases which are providing a better insight on what type of data is useful and where it can be most effectively applied. Once we have evaluated what additional items we may need to monitor, what questions we are really trying to answer, and how we can best collect the data to answer those questions, then we will develop a proposal to amend the Forest Plan.

Soil and Water Conservation Practices (F-1): Approximately 90 separate projects were audited in FY 97 by KNF personnel. In FY 97, implementation evaluations were completed for 4,635 Best Management Practices (BMPs). Implementation evaluations met the requirement of acceptable 98 percent of the time in FY 97. Effectiveness evaluations were completed for 2,960 BMPs in FY 97 and were effective 99 percent of the time.

The results of the FY 97 BMP monitoring indicate consistent improvement in the BMP program relative to 1995 (see Table F-1-2). No BMPs were rated as "grossly unacceptable" in FY 97 and only nine individual practices were rated as "very unacceptable", five during implementation and four during effectiveness evaluations The scores of 98 percent for acceptable implementation and 99 percent for acceptable effectiveness point to the overall success of the Forest BMP Program. Only three practices seemed to be mis-applied or in-effective: 14.15, Erosion Control on Skid Trails; 15.2 (f), Drainage from Roads and Trails; and 15.7, Control of Permanent Road Drainage. These will be particularly emphasized in the 1998 Training Program.

In review of this item, we are generally meeting state standards and protecting beneficial uses. Additional emphasis is needed on "high risk BMPs," particularly bringing existing roads up to standards. With the continuing emphasis on BMPs, this item is on-track with the Forest Plan.

Sedimentation (F-2): The Forest 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 include 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. After FY 92 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. The FY 96 Monitoring Report included a nine-year evaluation of the monitoring results for this element. The 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 1997.

At this point in time we cannot determine whether implementation of Forest Plan prescribed practices has resulted in stream conditions that are outside the variability limits set in the Forest Plan. It is difficult to distinguish between natural variation and management-induced changes in streams. As noted in C-10, an interdisciplinary team was formed in 1997 to recommend a course of action to change the C-10 and F-2 monitoring programs. Once we have evaluated what additional items we may need to monitor, what questions we are trying to answer, and how we can best collect the data to answer those questions, then we will develop a proposal to amend the Forest Plan.

Water Yield Increases (F-3): Approximately 20 percent of the analyzed watershed acreage for FY 97 exceeds the peak flow water yield guidelines. Channel damage has not necessarily occurred in watershed shown to be exceeding water yield guidelines since this monitoring item is based on computer modeling and not field observations and measurements. As in prior years, the reasons for these current conditions are usually related to harvesting of timber in years prior to the implementation of the Plan, timber harvest on private lands, and relatively slow recovery of vegetation in certain watersheds. In addition, natural events such as wildfire have caused high mortality of trees in certain areas, resulting in conditions which cause increased runoff and peak flow increases. When such conditions are encountered in the project planning process, projects are designed so that peak flows still meet the Plan guidelines to protect water quality and beneficial uses.

For the period from FY 88 to FY 97, about 23 percent of the watershed acreage, including private land, is exceeding predicted water yield guidelines. 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, rescheduled, or dropped (See Monitoring Items E-1 and E-7). This element of monitoring is showing that water yield calculations and stream channel analysis is an important part of the analysis needed before projects can be implemented by Ranger Districts.

Soil Productivity (F-4): Region One has a policy that allows up to 15 percent detrimental disturbance (FSH 2509.18, 5/1/94). The Kootenai Forest uses the 15 percent detrimental disturbance as a measure to track the impact on site productivity. If 15 percent of an area is detrimentally disturbed, then we can say that it has probably incurred a decrease in long-term site productivity.

The total of 2,499 acres surveyed from 1987-1997 represents about 7 percent of the annual harvest acres. Of the 2,499 acres surveyed during the 10 year period, approximately 11 percent (266 acres) are beyond the variability limit, and 77 percent (1926 acres) resulted in less than 10 percent detrimental disturbance. Significant progress has been made since 1992, as only 1 percent (21 acres) has resulted in more than 15 percent detrimental disturbance. Because substantial improvement has occurred since 1992 and no unit has been greater than 10 percent in the last three monitoring seasons, this monitoring item is within the recommended range stated in the Forest Plan (no acres should measure more than 15 percent of detrimental disturbance).

Mineral Activity Effects (G-1): During the 10 year review period one major project, the Montanore Mine - has been approved. However, to date there have been no surface resource disturbances associated with the project. 1,540 acres of MA changes were associated with the decision. In addition, the Montanore Mine would affect approximately 25 acres of the Cabinet Face East Roadless area. After ten years, the total MA changes needed are less than the projections outlined in the Forest Plan. This monitoring item is within the range prescribed.

Effects to Local Economy (H-1): The result of 10 years of Forest Plan implementation has been a substantial positive economic influence to local counties. In Montana, Lincoln and Sanders counties have been the main beneficiaries, but there have been some effects in Boundary County, Idaho, and Flathead County, Montana. As discussed under item E-1 of this report, there is a very clear trend established of reduced volume sold from the Forest. Economic impacts of this change have been mitigated by harvesting volume under contract at higher than historic market rates. This, along with high national demand for lumber and pulp throughout much of the second 5 years of Forest Plan implementation, has been helpful in offsetting mill and mine closures which occurred in the early 1990s. Also, there has been an influx of people to the area who

depend on transfer payments rather than a job for their income, and property values and personal income levels have remained stable or increased as a result.

Since the volume under contract has been reduced to the level of about one year's capacity and current sell volumes are lower, the economic situation for local communities is not as resilient as in the first 10 years of the Forest Plan. The buffering capacity of the large timber sell and harvest programs of the 1980s and early 1990s is no longer present, so the role of the Forest to mitigate potential negative effects in the local economy (such as closings of privately owned mills and mines) will be much more limited in the near future. This implies that national and international influences (wood and pulp prices, recessions, and demographic shifts) will have continuing strong and increasing influence on local economies. In addition, it is expected that even small variations in the role of the Forest's economically important programs will have relatively larger effects on local people in comparison to the effects they had in the first 10 years of Forest Plan implementation. The only apparent offset to such an effect would be a continuing trend of immigration of retirees and other people not dependent on local economic traffic to generate personal income.

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: the increased awareness of fuel buildups as it pertains to the wildland/urban interface, management needs in ponderosa pine old growth, balancing road closures to meet Forest Plan standards while providing access to the National Forests for the public, monitoring needs related to the effects of wildfires, particularly tree mortality, vegetative succession, fuel accumulations, and access to private lands. Forest Plan issues that are still current issues: 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 lands 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 sale costs are about three times greater than projected, which is well outside the +/-10 percent range prescribed in the Forest Plan. These unit costs are now declining from a peak reached in FY 94. 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. 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 Levels (H-4 and Appendix D): 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 fire suppression, fuels management, law enforcement, tree improvement, and salvage sales. 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.

Road Access Management (L-1): Just prior to the time the Forest Plan was approved in September, 1987, about 27 percent of the Forest system roads were being restricted either yearlong or seasonally (Forest Plan FEIS, pave IV-51). The Forest Plan projected that in order to provide the issue resolution desired, about 57 percent of the roads, or 2,300 miles, would eventually need some form of restriction.

By FY 97, enough roads have been restricted to meet the goal of having closures on approximately 57 percent of the Forest's roads. The closed roads have been both yearlong and seasonal closures. During implementation of the Forest Plan, we have found that to comply with the standards, many of the existing roads need to be closed. Since 1987 we have restricted approximately 2,600 miles of road in order to comply with the Forest Plan. We also have approved five programmatic Forest Plan amendments which change the open road density requirements for certain drainages. These have been approved in situations where we would need to close the main access roads to meet the requirements for big game habitat.

Although the percentage of closures have been achieved as expected, the total amount of road access is less than expected. This is because road construction has been less than expected due to reductions in the timber sale program (see section E-1

for details). The road closures have been placed not only on new logging roads, but also on older roads, which were not anticipated for closure in the Forest Plan. The reasons for closures (including road obliteration) include: providing for wildlife habitat security, to save maintenance costs, to decrease erosion, and to improve hydrological conditions. We will continue to monitor the mileage of roads restricted and the reasons for the restrictions. During Forest Plan revision we will revisit access management considerations.

Road Density (L-2): The actual road density on suitable lands has been measured to be 3.53 miles per square mile, which is significantly less than the road density which would be necessary to fully access all the suitable lands on the Forest. Given the decreased harvest levels of the Forest's current program in comparison to its program of 10 years ago, it is unlikely that there will be any significant increase in road density in the near term. In addition, watershed restoration work is being done to obliterate unstable and unneeded roads, so road density may decrease in some areas.

Insect and Disease Status (P-1): Insect and disease survey flights, activity reviews, service visits, stand exams, reforestation exams, permanent plot (growth plots) remeasurements, and benchmark exams indicate that stands have been regeneration harvested and those treated with some form of intermediate treatment are generally healthy. Only minor amounts of insect or disease are expected to cause significant problems. Based on the information stated above, insect and disease levels are at low levels in managed stands. We will continue monitoring using the above surveys.

Project Specific Amendments (Appendix E): 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." Approximately 87 project decisions were issued in FY 97. Eleven project specific amendments were approved for five different projects in FY 97 for the following reasons: to allow higher open road densities during activities in MA 12 (big game summer range); to allow harvest within movement corridors (MA 12); and to allow harvest adjacent to existing openings that were not certified as restocked in MA 15 (timber).

Programmatic Forest Plan Amendments (Appendix F): Two Programmatic Forest Plan Amendments were approved in FY 97. One modified MA 24, Range Standard #1 to state that domestic livestock grazing is permitted, the other modified MA 21, Research Natural Areas. This amendment formally established Norman-Parmenter, Lower Ross Creek and LeBeau as Research Natural Areas and Hidden Lake as a Special Interest Area.