

Forest Plan Annual Monitoring Report for Fiscal Year 1991

Kootenai National Forest February, 1992

INTRODUCTION

We have recently completed the monitoring of Forest Plan implementation for fiscal year 1991. This was the fourth year of operation under the Plan, and includes the period from October 1, 1990 to September 30, 1991.

Background: The Forest Plan for the Kootenai National Forest was approved on September 14, 1987. It established management direction on the Forest for a 10-year period that began on October 1, 1987 (fiscal year 1988). This direction was the result of a comprehensive analysis of land capabilities, public issues, environmental effects, and a balancing of intense public concerns as well as legal requirements.

Forest Plan Monitoring provides us an opportunity to periodically check and determine if we are proceeding on course with the Plan's direction. It includes checks for implementation, effectiveness, and validation. Implementation monitoring can be summarized as "did we do what we said we would do?" Effectiveness monitoring is summarized as "did the management practices do what we wanted them to do?" Validation monitoring is a process used to determine if the Plan's assumptions and data calculations are still correct.

Process: At this point in our Plan period, our concern is still mostly with implementation and effectiveness monitoring, although some validation concerns have also surfaced. The Plan's guidance for monitoring is found in Chapter IV of the Forest Plan. It lists specific items that we're tracking during implementation monitoring. It also provides guidance to help determine if implementation is within the stated variability limits. If an item is not within the stated limit, an evaluation is undertaken to find the reason for the deviation. The Forest can then take any needed steps to bring the implementation within the desired limits.

The information that we gain from this periodic monitoring will be used for our formal 5-year Plan review which is presently scheduled to begin after October 1, 1992. As indicated in the Forest Plan, there are 39 items to be measured on a yearly basis. Of the 39 items, 13 are to be reported on an annual basis and 4 need to be reported every other year. The remaining 22 items are reported on a 5-year basis. This 4th-year report will discuss both the annual and bi-annual items. In addition to these 17 items, another monitoring item was assigned in 1991 (Clearcut Acres Sold). It is also an annual reporting item and has been included in this report.

Procedure: For each of the 18 monitoring items, we first checked to see if it was within the desired limits of variability. If it was, then we concluded there was adequate compliance with the Plan. In some cases, we found that we could currently be within the required limits, but the 4-year trend indicates that the allowable variation will be exceeded by the time the 5-year review begins. For these items, we are working to get back into the allowable variation during the next year and will continue to monitor in

preparation for the formal 5-year review. Finally, there are monitoring items that we found are not currently within the desired variability limits, and the trend indicates that it will not be possible to feasibly reach those limits. For these items, the Forest is closely monitoring them so that adequate information will be available at the 5-year review to determine what changes may be needed.

SUMMARY

When we answer the question "Did we do what the Plan said we should do?", we find adequate information to say YES for seven (7) monitoring items because we're either within the Plan's stated limits or ON-TRACK and moving toward those limits. For another seven (7) items, we find adequate information to say NO because we're either outside the Plan's stated limits or OFF-TRACK and moving away from those limits. Three (3) other items have inadequate results to draw any supportable conclusions, and one (1) item doesn't fit into any of these three categories.

The monitoring items where we can say "YES we're in compliance with the Plan", or we're ON-TRACK and moving toward that compliance, include: Old-Growth Habitat, Threatened and Endangered (T & E) Species Habitat, Range Use, Harvest Area Size, Clearcut Acres Sold, Water Yield Increases, and Insect and Disease Status. Specifically, here is what we found for these items:

Old-Growth Habitat (C-5): The Forest Plan requires that 10% of the land area be protected to provide old-growth habitat. This is a commitment of 186,500 acres across the Forest. Old-growth habitat is necessary to support viable populations of dependent wildlife species. As we proceed with site-specific project planning, we're checking the quantity and quality of old-growth habitat before any projects are authorized. After four years, we've completed the necessary surveys on almost 582,000 acres, which is about 31% of the total Forest area to be validated. The results show we've protected almost 68,500 acres of old-growth habitat on the completed portion. For this validated portion, we are at 11.8% which is above the required 10% level.

T & E Species Habitat (C-7): Through this item we're monitoring the quantity and quality of habitat for the recovery of peregrine falcons, gray wolves, bald eagles and grizzly bears. We're also observing the animals to obtain population estimates and trends. We haven't observed any peregrine falcons in FY 1991, but we have numerous sightings for bald eagles, gray wolves and grizzly bears. Habitat and population information indicates that the bald eagle could be considered for downlisting in the near future. Our information also indicates that grizzly bear habitat effectiveness is now above the Forest Plan standard on an ecosystem average. Overall, the amount and quality of habitat for all these species is being improved or maintained, and we're progressing well toward meeting recovery plan goals.

Harvest Area Size (E-8): The Forest Plan provides standards for the maximum size of regeneration harvest units using the clearcut, seedtree, or the shelterwood cutting method. Monitoring indicates no deviations from the planned size limits except where catastrophic results of insect damage occurred. Where the catastrophic situations occurred, procedures to deviate from the prescribed cutting unit size-limits were followed, including interdisciplinary review and notification of the public.

Range Use (D-1): Range use, which is primarily cattle grazing, has been averaging less than the projected use but still remains within the variability limits stated in the Plan (90% versus 80%,

respectively). Monitoring has disclosed some declining trends in range condition on some riparian areas in the northeast corner of the Forest.

Clearcut Acres Sold (E-9): This is a new monitoring item which tracks the amount of clearcut acres sold for harvesting on the Forest. The results indicate that the amount of clearcut acres sold has decreased since FY 1989, the baseline year for comparison.

Water Yield Increases (F-3): The Forest water yield model is used to analyze the potential effect of vegetative disturbance in a watershed before any timber sales are sold. About 46% of all the land within the National Forest drainage boundary has now been analyzed, and many of these watersheds included significant amounts of intermingled private land. (The watershed analysis includes both National Forest and private land.) Our current projection is that the total Forestwide average for areas that will exceed the water yield guidelines will be about 12-15% after all the watersheds have been analyzed. Whenever the water yield guideline is exceeded in an area, planned activities on the National Forest lands have been deferred until watershed recovery occurs. This has been necessary to meet the Forest Plan standard and protect downstream beneficial uses as required by the Montana State water quality goals.

Insect and Disease Status as a Result of Activities (P-1): We've used aerial reconnaissance and individual timber stand analysis to determine the level of insect and disease organisms found in residual and surrounding timber. This analysis was done following management activities such as timber harvest, thinning, road construction, etc. Although a significant amount of acreage on the Forest is affected by insects and disease, no evidence suggests that any of the management activities are contributing to this situation. Rather, the activities have most often produced beneficial results in terms of managing forest health. The monitoring items where we answered "NO we're out of compliance with the Forest Plan", or we're OFF-TRACK and moving away from that compliance, include: Timber Sell Volume, Acres Sold for Timber Harvest, Suitable Timber Management Area Changes, Timber Harvest Deferrals, Soil and Water Conservation Practices, Forest Plan Costs, and Forest Plan Budget Levels. Specifically, here's what we found for these items:

Timber Sell Volume (E-1): The Forest's allowable sale quantity (or projected upper limit) for the full decade of the plan on suitable lands is 2,270 MMBF. To reach this total in a steady fashion, the Forest's average annual programmed sell volume on suitable lands would be 227 MMBF per year for a 10-year period. For the first four years of implementation, the average annual sell volume has been 154 MMBF per year or 32% below projected levels. This deviation has been the result of clarifications in the management of grizzly bear habitat in the Cabinet-Yaak Ecosystem, deferrals to meet watershed standards in intermingled lands, and other reasons such as a court injunction against road construction and timber harvest in the upper Yaak River valley. The cumulative difference resulting from these factors totals 294 MMBF for the first four years of implementation. Trends appear to be in place which will not allow for this difference to be made up in the near future. At the current rate of separation between the average actual sell and the annual programmed sell, the Forest will have a cumulative difference of 730 MMBF at the end of the 10-year Plan period on September 30, 1997. An evaluation of this cumulative difference will be made after next year's monitoring is completed.

Acres Sold for Timber Harvest (E-2): The total acres sold for regeneration harvest is 38% below the planned level. This difference results from the same factors affecting timber sell volume and confirms the downward trend (see above).

Suitable Timber Management Area (MA) Changes (E-3): The Forest Plan allows for changes in the boundaries of management areas based upon site-specific analysis and interdisciplinary review. However, large changes could effect the ability of the Forest to produce particular outputs. After four years, the net loss in MA 15 (Timber Production) is 8,968 acres and beyond the Plan's 5,000-acre limit. The total net change of suitable timberland since October, 1987 has been a loss of 12,817 acres. This is 81% of the 15,740 regeneration harvest acres projected for sale each year. If this loss-trend continues at its current rate, about 32,042 acres of change could result by the end of the 10-year Plan period in September, 1997. This would be the equivalent of 2.5 years of projected timber sell acres or 25% of the total projected sell acres for the Plan period.

Timber Harvest Deferrals (E-7): Acres of suitable timber can be deferred from timber sales due to economics, resource conflicts or other unforeseen reasons. During the 4-year monitoring period, many different events or situations caused deferrals and one management area has changes large enough to initiate further evaluation (10,000 acres net change). The FY 1991 events and situations that deferred suitable timber acreage from sale proposals include timber sale scheduling adjustments to meet open-road density standards, necessary old-growth habitat replacement, poor timber sale cost-benefit conditions, and significant timber harvest on intermingled private land. This monitoring item will require adjustment at the time of Plan evaluation.

Soil and Water Conservation Practices (F-1): Monitoring of soil and water quality conservation practices showed that we did not fully meet our objective of 100% compliance with the State water quality guidelines. The use of best management practices (BMP's) is still relatively new for the Forest, and we're still learning how to apply and evaluate them to meet the State standards. Continued familiarity with BMP's and a better understanding of how certain practices affect water quality should raise the level of implementation success. It also may be unreasonable to have a 100% compliance level for any monitoring item. This does not allow for any amount of human error in a system that relies almost 100% on human effort. This 100% compliance level may need to be re-analyzed at the 5-year review point next year.

Forest Plan Costs (H-3): Here we evaluated whether the costs of producing Forest Plan outputs continue to be valid. Of the items evaluated, timber sale preparation costs have increased significantly. This is the result of the increasing complexity in timber sale preparation, along with the concurrent reduction in timber sell volume in FY 1991.

Forest Plan Budget Levels (H-4): For the last four years, the average Forest budget was less than stated in the Forest Plan (69% of planned level), but the trend is now moving toward that level. The lower average in the first two fiscal years (65%) was the result of budget trends that were in place prior to the approval of the Plan. Since the Plan was initiated, we've been working to achieve budgets that are in line with projections and are now closer to that goal (78% of planned level).

The monitoring items where we have inadequate results to support reasonable conclusions include: Fisheries (C-10), Noxious Weed Infestations (D-2) and Stream Sedimentation (F-2). These items were

not monitored to a level sufficient to make firm determinations of whether or not they're within the Plan's variability limits, or moving toward or away from those limits.

The monitoring item that doesn't fit into any of the three previous categories was Emerging Issues (H-2). This item focuses on those issues that appear to be developing since the Plan was initiated, and also monitors the original Forest Plan issues that appear to be resisting a timely resolution. Emerging or potential issues identified include: air quality, biodiversity, impacts to Forest Service activities from adjacent private lands, noxious weeds, sensitive plants and animals, and wolf recovery. The Forest Plan issues that are resisting resolution are: grizzly bear management, state water quality standards, timber supply and volume, road management and access, snag habitat, and potential mineral development.

OBSERVATIONS OF SOME FORESTWIDE TRENDS

The results of the last four years of monitoring indicates that a definite trend is now in place. This trend is the cumulative reduced ability to provide the harvest opportunities that were estimated in the Forest Plan projections. We've quantified some components of this trend, and will continue to monitor them and others between now and the formal 5-year review. This 5-year review is scheduled to begin in October, 1992 when we'll make a determination of the significance of this changed situation. Below is a summary of the items which appear to be affecting the projected timber harvest levels.

Results of Formal Forest Plan Monitoring

To illustrate the trend of reduced outputs from the suitable timber management areas, please note the monitoring results for Water Yield Increases (F-3), Timber Harvest Deferrals (E-7), and Suitable Timber Management Area Changes (E-3).

Water Yield Increases: In watersheds containing both National Forest and private industrial forestland, accelerated private land timber harvest has brought many areas near or beyond threshold levels for water yield. This situation has resulted in reductions of harvests on Forest lands to avoid adverse watershed effects. The estimated total land involved is over 356,000 acres. About 180,000 acres of National Forest land are affected, which includes about 100,000 acres of suitable timber. During development of the Forest Plan no allowance was made for such reductions in timber harvest on National Forest land in intermingled ownership.

Timber Harvest Deferrals: When timber sales are being planned, a site-specific analysis is done to determine how to best meet Forest Plan objectives. On occasion, not all objectives can be met, and as a result adjustments can result in a deferral of formerly planned harvest acres to some future time beyond the Forest Plan 10-year period. In addition to harvest acres deferred beyond the current Plan period to provide for watershed recovery, a number of deferrals have been made for unexpected conditions such as appeals and litigation. Others have been made because of poor cost-benefit situations. To date, over 17,000 acres have been deferred from timber harvest for these and other reasons.

Suitable Timber Management Area Changes: During site-specific timber sale project analysis, mapping errors are occasionally found concerning the exact location and on-the-ground situation of management areas. Most of these errors concern minor boundary changes, and are made and reported promptly to correct the conditions inaccurately portrayed on the Forest Plan map. Examples of these needed changes are: non-productive forest land found within productive forest areas; locations discovered with regeneration problems; and newly found stands of old-growth habitat. The result of all these boundary and resource situation changes made over the last four years is a net decrease of 12,817 acres in management areas suitable for timber harvest.

Other Informal Monitoring Results

The Forest conducts informal functional monitoring in addition to the formal process the Forest Plan prescribed. This has also revealed conditions indicating reduced outputs from management areas suitable for timber harvest. The primary resource areas noted are: Grizzly Bear Habitat, Elk Security, Wildlife Snag Management, and Wildlife Hiding Cover. In addition to these functional monitoring items, recent experience in a large portion of the Forest (the Upper Yaak) has helped to illustrate some of these cumulative resource effects.

Grizzly Bear Habitat: The Forest Plan provides for 1,035,000 acres of grizzly bear habitat. During the analysis for the Upper Yaak EIS, clarifications for grizzly bear habitat management brought 24,000 acres within the standards and guides for grizzly bear management. Of this, 143,000 acres were in suitable management areas which had been programmed for timber harvest at levels higher than acceptable for grizzly bear management.

Elk Security: The Forest Plan provides for elk management on about 1,300,000 acres of summer range. About half of this acreage (645,000 acres) is located within the suitable timber management areas. The Forest Plan assumed that adequate opportunity for elk security could be provided in all summer range areas. This assumption is proving true in most cases, but some areas are being discovered where elk security appears to be below a level which would meet Forest Plan goals for elk. Estimates indicate that about 84,000 acres of suitable timber in elk summer range might be involved.

Wildlife Snag Management. Because of previous timber harvest practices in many areas (primarily clearcutting in lodgepole pine timber or seedtree cutting and prompt overstory removal in mixed conifer timber), increased numbers of live, green leaf trees are now required to meet standards for replacement snags for cavity nesters and small mammals. The increased number of leaf trees was not anticipated in the yield calculations used to project the Forest harvest schedule. Although it has some effect on maximizing timber harvest on suitable management areas, the exact implications have not yet been defined.

Wildlife Hiding Cover: Recent experience indicates that regeneration harvest areas require 15-20 years to effectively provide wildlife hiding cover rather than the 10 years used for Forest Plan projections. As a result, harvest of mature timber adjacent to regeneration areas must occasionally be delayed 5-10 years until the newly-established vegetation becomes dense enough to provide acceptable hiding cover. This longer waiting period could possibly result in a lower harvest level over the long-term.

The Scope of Effects in both Formal and Informal Forest Monitoring

In total, a significant acreage of suitable management areas have been affected in the ways described above. About 550,000 acres are involved in timber harvest reductions and deferrals for a variety of reasons, including deferring harvest on intermingled Forest ownership, clarification in grizzly bear habitat management, elk summer range security needs, and others. Since there is overlap between some of these, and effects are not yet well quantified, it is estimated that as much as 360,000 acres have been affected in some fashion. This amounts to over one-quarter (28%) of the total suitable management areas on the Forest. Clearly, this is affecting the ability of the Forest to provide timber sell levels to eventually reach the Plan's allowable sale quantity. This is reflected in formal monitoring results which show 62% of planned regeneration harvest acres (-38%), and a 68% timber sell volume level (-32%) with indications that a continued decline, or at least a significantly reduced level, can be expected in the future (see Acres Sold for Timber Harvest (E-2) and Timber Sell Volume (E-1), respectively). At the 5-year review point, further analysis with additional monitoring information will show more detailed effects in terms of how these factors interact with achievement of the goals and objectives of the Plan. Programmed harvest is only one of the goals of the Plan, and all will be considered interactively at that time.

Summary of the Last Four Years of Forestwide Trends

The similarities between the results described above for the formal and informal Forest Plan monitoring and the results experienced in on-the-ground project implementation all seem to point in the same direction. That direction indicates that the effectiveness of the Forest's suitable timber base is being increasingly constrained by a variety of resource factors that are cumulative in nature. The net effect appears to be a reduced ability of the suitable timber management areas to provide the harvest opportunities that were estimated in the Forest Plan projections. The magnitude of this reduced effectiveness appears to be as much as 25-30%. Given the size of this difference, the Forest will continue to closely monitor this declining trend, and give strong consideration to recommending some significant changes to the Regional Forester at, or possibly before, the 5-year review.