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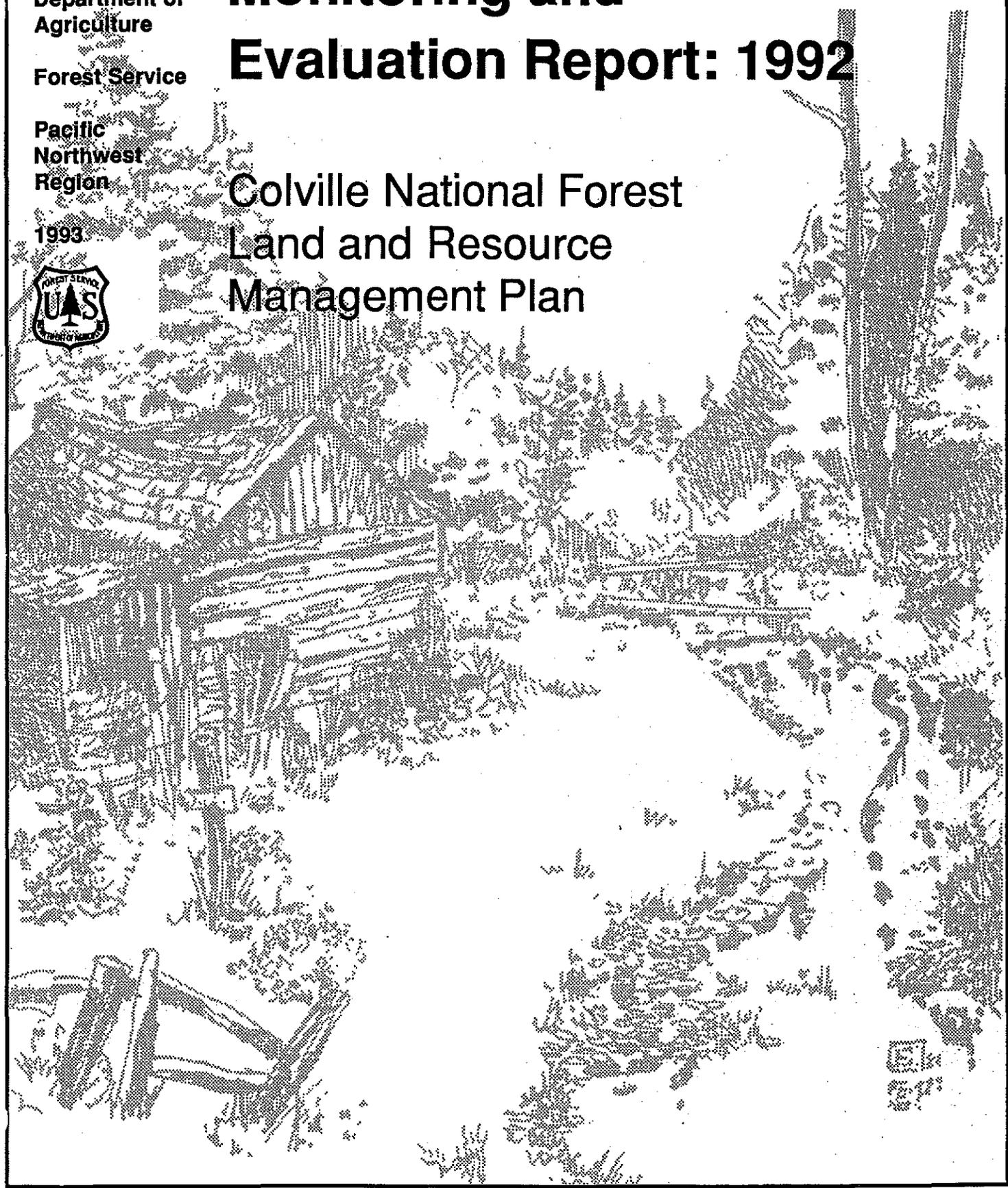
Pacific
Northwest
Region

1993



Monitoring and Evaluation Report: 1992

Colville National Forest Land and Resource Management Plan





United States
Department of
Agriculture

Forest
Service

Colville
National
Forest

765 South Main
Federal Building
Colville, WA 99114

Reply To: 1920

Date: November 30, 1993

Dear Colville Forest Planning Participant:

Enclosed is the Colville National Forest's Fiscal Year 1992 Monitoring and Evaluation Report. I apologize for the delay in getting this report to you and am hopeful that our next Monitoring Report for 1993 will be out next spring after results are reviewed.

This Report describes monitoring of programs that have been carried out since 1989 on the 1.1 million acres of the Colville National Forest, following the Land and Resource Management Plan, or Forest Plan. You will notice that the format of this monitoring report is slightly different from past years' reports.

Chapter 1 presents the Forest's accomplishments in 1992. Highlights include:

- A Forest Health Task Force was established. This Task Force coordinated information with other Forests, agencies and the public on spruce budworm and other forest bugs and diseases. A Forest Plan implementation strategy was developed.
- A noxious weed environmental assessment was signed and a control program was instituted on 625 acres in cooperation with county weed boards.
- Surveys for historic sites located 188 new sites.
- Wolf howling surveys covered 400,000 acres in 1992. Wildlife surveys for grizzly habitat, caribou habitat, deer and elk habitat, goshawk habitat, and songbird surveys continued over thousands of acres. Several miles of lynx and furbearer transects were done. (Exact acres and miles of surveys are given in Report.)
- A forty-one percent increase in the number of known sensitive plant populations resulted from surveys in 1992. There were 91 new sensitive plant sites located in 1992.
- The amount of timber offered for sale dropped to 29 MMBF (including firewood). All Forest Supervisor timber sale decisions were appealed and later upheld in higher level review. Costs of offering timber sales have risen 150 percent since 1989.





Chapter 2 is a summary of monitoring recommendations. Chapter 3 presents the results of 38 monitoring items, in some newly organized categories. Monitoring is done on a sample basis to determine if the projects of the Forest Plan are being implemented according to the Forest Plan guidelines.

The monitoring results are presented in one of four ways with recommendations for the future:

- 1) results are within acceptable parameters, continue to monitor;
- 2) monitoring results show a need to change or clarify management practices to better meet Forest Plan standards and guides;
- 3) further evaluation necessary, more information is needed before a recommendation can be made; and,
- 4) a Forest Plan amendment is recommended because results of monitoring are inconsistent with Forest Plan standards and guides.

Chapter 4 is a financial report. Chapter 5 lists the amendments made to the Forest Plan to date.

We welcome your comments regarding the information presented in this year's Monitoring and Evaluation Report and thank you for your interest in the Colville National Forest.

Sincerely,

EDWARD L. SCHULTZ
Forest Supervisor

Enclosure



**Colville National Forest
Forest Plan Monitoring and Evaluation Report: 1992**

Contents

1. Accomplishments

Biologic and Forest Health:

Soil and Water	1-1
Air Quality and Fire Protection and Use	1-1
Forest Health	1-2
Vegetation Management	1-3

Resources and Services to People:

Recreation	1-3
Wilderness	1-3
Visual Resources	1-3
Heritage Resources	1-4
Transportation and Facilities	1-4
Lands	1-5
Minerals	1-5
Range	1-5
Wildlife and Botany	1-6
Fisheries	1-8
Timber	1-8

Economic:

Payments and Revenues	1-9
-----------------------	-----

Outputs, Effects, Activities, and Costs	1-10
---	------

2. Summary of Monitoring Findings and Recommendations 2-1

3. Forest Plan Monitoring

Biologic and Forest Health:

Soil Productivity	3-1
Water Quality	3-2
Watershed Best Management Practices	3-2
Riparian Areas	3-3
Insect and Disease Populations	3-4

Resources and Services to People:

Recreation User Experience and Physical Setting	3-5
Trail Use	3-6
Semiprimitive Undeveloped Recreation Setting	3-6
Off Road Vehicle Use	3-7
Wilderness	3-7
Potential Wild and Scenic Rivers	3-8

Colville National Forest Forest Plan Monitoring and Evaluation Report: 1992

Contents

3. Forest Plan Monitoring continued

Visual Quality Objectives	3-8
Heritage Resource Protection	3-9
Heritage Resource Compliance	3-9
Transportation System Management	3-10
Minerals	3-10
Range Improvements	3-11
Livestock Permitted	3-13
Utilization of Forage	3-13
Riparian and Range Conditions	3-14
Deer and Elk Winter Range	3-15
Primary Cavity Nesters	3-16
Old Growth Dependent Species	3-17
Management Indicator Species	3-18
Threatened, Endangered, and Sensitive Species	3-20
Fisheries	3-22
Restocking of Lands	3-23
Timber Yields	3-24
Land Suitability	3-24
Size and Dispersal of Harvest Units	3-24
Silvicultural Practices	3-25

Social and Economic:

Compliance with the National Environmental Policy Act	3-26
Standards and Guidelines	3-26
Coordination with Adjacent Landowners	3-27
Actual and Planned Costs	3-28
Economic Effects of Plan Implementation	3-29
Modelling Assumptions	3-30
Community Effects	3-30

4. Financial Report 4-1

5. Amendments 5-1

1. ACCOMPLISHMENTS

Soil and Water Programs

Continued Updated Analysis

Interdisciplinary teams were used during project planning to ensure soil and water protection objectives were met. The teams identified Best Management Practices (BMPs) in environmental assessments for projects planned this year. The BMPs are the primary mechanism used to achieve water quality standards. They were modified to be specific for each project and the ability to implement and the degree of effectiveness was estimated for each BMP. The BMP implementation and effectiveness were monitored on a sample of projects, as were impacts on riparian areas.

For use in project level environmental analysis, the cumulative effects model Equivalent Clearcut Acres (ECA), including a hydrologic recovery curve, and sediment prediction model (SEDCOMP) were updated and used for all timber sale assessments to estimate cumulative effects and to compare alternative treatments.

No water rights activity occurred this year.

Coordination

The Forest coordinated with the Washington State Department of Ecology, the Washington State Department of Natural Resources and Plum Creek Lumber Company on various watershed protection and management issues during 1992.

Improvement/Restoration Projects

Twenty acres of watershed improvement (erosion control seeding, culvert maintenance, increased drainage structures etc.) work were accomplished along with the road maintenance program this year.

The South Fork Boulder road on the Kettle Falls Ranger District and Slate Creek road on the Sullivan Lake Ranger District both had road improvement projects. Parts of South Fork Boulder Creek and Trout Creek received streambank restoration and stabilization work.

Monitoring

District and Supervisor's Office specialists monitored watershed conditions and practices on at least one project per ranger district this year.

Water quality was monitored on 6 grazing allotments and at 79 baseline locations on the Forest. A flow meter was installed on South Fork Boulder Creek in late September.

Staffing

The Forest's hydrology program was expanded with the addition of a second professional hydrologist, bringing the staff to two professional hydrologists and one hydrologic technician in the Supervisor's Office.

Air Quality and Fire Protection and Use Programs

Fire Protection

In 1992, there were 30 wildland fires on the Forest which burned 15 acres. The largest fire was a 6 acre human caused fire. Minimal resource damage occurred on all fires due to small fire sizes and low fire intensities. Of the 30 fires, 17 were caused by lightning and the remaining 13 were human caused, 8 of which were abandoned campfires. Significant rain accompanying thunderstorms contributed to the low number of fire starts and acreage burned.

Air Quality

Smoke sensitive areas, as defined in the Washington State Implementation Plan, including the Spokane County non-attainment area, are the principal air quality concerns for the Forest. Concern is for PM₁₀ (particulate matter 10 microns or smaller) emissions from prescribed fire activity to intrude into local communities. Intrusion of PM₁₀ into Spokane County is possible from the southern end of Colville and Newport Districts under north wind conditions.

Equipment to monitor PM₁₀ compliance with National Ambient Air Quality Standards (NAAQS) is not available on forest. At this time our best monitoring technique is to estimate PM₁₀ quantities,

Accomplishments

together with transport wind speeds and direction, to calculate PM₁₀ concentration for a given volume of air.

There were no known PM₁₀ intrusions into the Spokane County non-attainment area from Forest activities. PM₁₀ intrusions into smoke sensitive areas, as defined by the Washington State SIP, were negligible. The Forest did receive several complaints from residents in the community of Chewelah following one day of prescribed fire activity. The complaints addressed visibility concerns with smoke in the upper transport winds versus health concerns of PM₁₀ concentrations within Chewelah.

PM₁₀ production from non prescribed fire activities was low with much of the production coming from two rock crushing operations. Approximately 26,000 cubic yards of 3/4 inch minus material was crushed. The two operations were separated from each other by 45 air miles and in addition much of the crushing occurred in the fall during rainy weather.

No reported or known visibility impairment of Class 1 airsheds occurred due to suspended particulate (TSP) intrusion from prescribed fire activities or rock crushing on the Forest. The Forest's distance from Class 1 areas, mostly over 60 miles, provided good dispersion of suspended particulates prior to entering Class 1 visibility airsheds.

Late in the calendar year the Forest implemented a process to improve air quality analysis in NEPA documentation. Specifically, a quantitative analysis of NAAQSs compliance for PM₁₀ production was initiated in addition to increased qualitative discussions for PSD increment and visibility impairment for Class 1 areas.

Fuels and Prescribed Burning

A total of 5,286 acres were burned by prescribed fire for hazard reduction, site preparation and wildlife enhancement. Prior to ignition, smoke approval was obtained in accordance with Washington State's Implementation Plan for visibility protection program. Smoke approval was generally accomplished through the Smoke Management System (SMS). A small number of burns, each

consuming less than 100 tons, received smoke approval through 1-800-BURN as allowed in Washington State's Smoke Management Plan.

There was an increase in prescribed burning over 1991 because units planned for burning in 1993 were actually burned in the fall of 1992, due to favorable weather conditions. The Forest should have a significant decrease in acres burned for 1993. Even though acres burned increased, tons of fuels consumed and consequently PM₁₀ production was down. Prescribed fires on the Forest consumed 52,835 tons, the fourth consecutive year a reduction in total tons consumed has been experienced. Burning under spring-like conditions, mass ignitions and leaving higher fuel loadings all contributed to a reduction in emission production.

Several prescribed fires on each ranger district were monitored for appropriateness of burn plans to meet Forest Service manual direction, Forest Plan standards and guidelines and overall effectiveness in achieving burn objectives. Results showed prescribed fires met burn objectives and followed Forest Plan direction in the preponderance of cases. Some improvement could be made in documentation of post burn results and record keeping requirements of the Mediated Agreement for Vegetation Management.

Alternative treatment options included grapple piling and selection of harvest techniques to reduce reliance on broadcast burning.

Forest Health

Insect and Disease Activity

The western spruce budworm infestation increased from 130,000 acres in 1991 to 146,000 acres in 1992. Budworm populations were surveyed in 1992 to assess the feasibility of suppression. The analysis indicated that insect populations were not high enough to justify the cost of spraying. Budworm populations will continue to be monitored.

Other insect activity on the Forest is at endemic levels. Ranger districts have been monitoring tree mortality and programming treatments where access and management allocations allow rapid entry. 192 acres were salvaged harvested in 1992.

In response to growing concerns about forest health, primarily due to the western spruce budworm infestation, the Forest established a Forest Health Task Force and accomplished the following in 1992:

- Conducted public meetings to provide information about spruce budworm and other agents;
- Worked with other northeastern Washington national forests and agencies to provide information and coordinate forest health activities;
- Assessed the risks of insects/diseases and fire on the Forest, and
- Worked on a Forest Plan implementation strategy focused on forest health.

The Forest is also reviewing timber sales and other vegetation management activities to ensure they promote long term forest health.

Vegetation Management

Noxious Weed Management

The year initiated a new era for the Forest in the control of noxious weeds. A decision implementing an Integrated Noxious Weed Management Program on the Forest was made resulting in the treatment of 625 acres of noxious weed infestations through the use of biological control, hand pulling and chemical treatment. Included also in the total is 165 acres of prevention seeding on lands with a high potential for infestation. Partnerships were continued with both the Ferry and Pend Oreille County Weed Boards in the above efforts, with excellent accomplishments resulting. Even as this work continues new outbreaks of weeds are occurring, which point to the need for a continued effort. In 1992 the Forest began collecting funds from timber sale purchasers to treat noxious weed infestations on haul roads outside the timber sale area. This is a start in improving the financial base for the prevention and treatment of noxious weed outbreaks.

Recreation

An evaluation of major developed recreation sites was completed. This will aid in setting priorities,

funding and identifying needs to bring these facilities up to standard.

Work began on the Sherman Pass Scenic Byway including Growden Heritage Site and plans for the Sherman Pass Visitor Center.

Trail construction/reconstruction for 1992 consisted of the completion of the Gillette Ridge Trail, a 15.8 mile multi-purpose trail; 2 miles completed of segment 5 of the Little Pend Oreille ORV Trail, completion of Hoodoo Canyon and Emerald trails, and improvements at the Clinton Creek Forest Camp.

The Colville Ranger District, used a off road vehicle (ORV) trail ranger for the second year to promote "Tread Lightly" and to provide public education. This seemed to have been a very successful tool in educating the public, as well as decreasing unacceptable uses of ORVs.

Wilderness

Two wilderness guards monitored the Salmo Priest Wilderness. All trailed portions of the Wilderness were monitored and the more frequently visited areas without trails were also monitored. The condition of approximately two-thirds of all known campsites was monitored for amount of bare soil; all were determined to be within acceptable levels. Approximately 15 new fire rings were naturalized to maintain campsite density at acceptable levels.

Visual Resources

A Forestwide evaluation was completed for all roads, trails and use areas to determine for visual sensitivity levels A rating of importance related to activities on a landscape basis was completed.

Visual resource training was conducted on the Forest. This consisted of an awareness level for those with little background in visual resource analysis and as a refresher for those with previous training.

All four timber sales monitored met retention/partial retention objectives. Concern was noted for areas along trails and modification visual objectives.

Accomplishments

Heritage Resources

Surveys

Approximately five full-time and nine part-time personnel conducted archeological surveys in 1992. The number of projects surveyed was 26, and about 10 percent of the project area was covered, for a total of 8,300 survey acres. This inventory gained a total of 188 new sites of historic value.

Evaluation and Mitigation

There is an on-going contract with a professional historian to develop a homestead history of the Pend Oreille River valley. This information will be used to evaluate the significance of homestead properties on Newport and Sullivan Lake ranger districts.

Data recovery excavations at Pioneer Park Campground in Newport are recording archeological data and mitigating adverse effects to site features due to the construction of an interpretive trail.

Public Education and Partnerships

Public volunteers assisted our excavations at the Pioneer Park archaeological site.

Heritage Site Interpretation was on-going on five projects: Stage Road, Pioneer Park, Log Flume, Growden, and Sherman Pass. Work included developing interpretive plans for sign design and layout.

Native American consultation addressed a number of proposed land use projects. The Kalispel Tribe is our partner for the Pioneer Park Heritage Trail. The Colville Tribe has been involved in the Sherman Pass Heritage Site. Both tribes have been consulted concerning possible traditional cultural properties on a number of timber sale projects.

Monitoring

Monitoring work was performed for two monitoring items: site protection and compliance.

Transportation and Facilities

Roads

In FY 92, the Forest had 716 miles of road open to passenger vehicles and 2,350 miles of road

open to high clearance vehicles, for a total of 3,066 miles of open road. In FY 92, 0.4 miles of arterial and collector roads were reconstructed, and 26 miles of timber purchaser roads were constructed or reconstructed.

Facilities

A new 8,000 square foot office was constructed at Sullivan Lake Ranger District Administrative Site. Its Civilian Conservation Corps-era theme fits well with other structures on this historical site.

Safety and health inspections were accomplished on all administrative site facilities and communications sites. Deficiencies have been prioritized for correction.

A new water well and hand pump was installed at the East Portal Interpretive Site on Kettle Falls Ranger District. New vault toilets were also constructed.

A residence was remodeled into a day care facility at the Republic Ranger District Administrative Site.

The office/warehouse building (1,500 square feet) at Newport Ranger District was remodeled into modern office space.

A trailer pad with full service was constructed at the Kettle Falls Ranger District Administrative Site.

A 1,000 square foot bunkhouse addition was constructed at Republic Ranger District Administrative Site. It will house six seasonal employees.

A wayside parking area along State Highway 20 at the Growden Site on Kettle Falls Ranger District was constructed, with parking for ten vehicles and vault toilet facilities.

A snowpark was constructed near Kings Lake along County Road 3389 on the Newport Ranger District. It provides off-road parking facilities for forty vehicles.

Surfacing and erosion control structures were installed on 1.3 miles of Nordman-Metaline Road (Road No. 2200000), on Sullivan Lake Ranger District.

A 15 foot arch was constructed on the South Fork of Tacoma Creek on Road No. 3116050, and a 41 foot, precast concrete bridge was constructed across Ruby Creek, on Road No. 2700050. The above projects were built in conjunction with timber sales on the Newport Ranger District.

Lands

In FY 92, the Forest completed four cost share agreements for roads and obtained 3.6 miles of road rights-of-way.

Minerals

A total of 50 "operating plans" were administered in 1992. These included 25 Plans of Operation and 8 Notices of Intent for locatable minerals, about the same level as 1991. Much of this activity occurred in the western part of the Forest on the Kettle Falls and Republic ranger districts.

The Final Environmental Impact Statement and Record of Decision for Echo Bay's Key West extension gold mine project, located near their existing Overlook mine, was issued in August 1992. A small portion of one of two small open pits proposed in the project is on the National Forest. The remainder is on private property. Colville National Forest and the Washington Department of Ecology were the joint lead agencies in the preparation of the environmental analysis. Gold recovered from the Forest Service portion of Echo Bay's existing Overlook mine amounted to some 11,240 ounces in FY 92, about 40 percent of the 1991 production.

Eleven mineral material sales and free use permits involving 13,450 cubic yards, and 6 in-house disposals involving 17,650 cubic yards, of crushed rock and sand and gravel were administered. Total estimated value of salable minerals produced was \$12,730.

No leasable mineral activity occurred on the Forest in 1992.

Range

Allotments

There are 58 established grazing allotments on the Colville National Forest. Fifty-one of these allotments are allocated through the grazing permit system and provided 33,300 AUMs of forage in the 1992 grazing season. Vacant grazing allotments account for an unallocated 1,442 AUMs of grazing capacity. The current use represents less than a 10 percent departure in grazing use from the Forest Plan objective of 35,000 AUMs.

Historically, the Forest has been near the 35,000 AUM level for the last 20 years. Some livestock operators can lease private grazing land at less cost than the combined fees and cost of management of their Forest permit, however the amount of private land available is limited. There is continuing rancher interest in obtaining unallocated forage but the capacity of the unallocated vacant allotments is low.

In general, livestock permittees see the National Forest as a valuable source of forage during the summer months and are active partners in the proper management of the grazing resource. During the 1992 grazing season, adverse permit action had to be taken on one permit by suspending 10 percent of the permit for 2 years. This was the result of failing to comply with the conditions of the grazing permit. Two other possible permit violations were under review at the end of the fiscal year.

Range Improvements

Several allotments are receiving improvements to the grazing resource and also to mitigate resource conflicts on timber sales through the Knutson-Vandenberg Act (KV). Range KV improvement may occur as structural improvements such as fences, water developments, cattleguards and non-structural improvements on vegetation through seeding areas and controlling noxious weeds. Major KV improvements occurred on the Tonata allotment where 5 miles of fence and 3 cattleguards have been installed to improve the management system through establishing pasture boundaries.

The fencing project on the Quartz allotment, in the vicinity of Empire and Swan Lakes is being

Accomplishments

done in a partnership with the permittee to reduce the conflicts between recreationists and livestock.

The Colville Ranger District received funding for a ecosystem demonstration project to monitor the influence of grazing on riparian areas. One mile of fence was built in the South Fork of Mill Creek Allotment to exclude cattle from the riparian area. The purpose of this project was to compare the effects of grazing versus non-grazing on the vegetative condition of riparian areas in that allotment.

Wildlife and Botany

Wildlife Habitat Improvements

Habitat improvements are categorized as either "structural" (physical structures such as gates, nest boxes, spring developments, etc.) or "non-structural" (vegetative treatments such as burning and seeding). Most wildlife habitat improvement projects are designed and implemented to benefit a particular "target" species or group of species. For example, road closures may be installed to reduce disturbances to deer or elk during the winter, a critical time period for these species. In actual practice, these habitat improvements will also benefit other wildlife species with similar habitat needs.

Habitat Improvements for Deer and Elk

Non-structural treatments to improve the quantity and quality of available forage and browse for deer (mule and white-tailed) and elk were conducted on 2,575 acres during 1992, including 333 acres of prescribed burning done with funding provided by the Rocky Mountain Elk Foundation through the Challenge Cost Share program. Initial monitoring of these habitat improvement projects indicated fair to good results with regard to re-sprouting of shrub species following prescribed burning and the direct seeding of forage grasses. Monitoring will continue to evaluate the long-term results of these projects. Structural habitat improvements for 1992 consisted of four road closures designed to provide better winter range security for deer and elk.

Habitat Improvements for Riparian/Aquatic Wildlife

Non-structural habitat treatments included pot-hole blasting to improve surface water availability and

nesting opportunities for waterfowl over approximately 25 acres, and hardwood planting to improve habitat conditions for beaver on 26 acres. Structural improvements installed in 1992 included 6 goose nesting baskets, 30 wood duck boxes, 2 waterfowl nesting platforms, and 2 osprey nesting platforms.

Habitat Improvements for Cavity Dependent Wildlife

In 1992, the Forest created 670 structures (164 nest boxes and 506 snags) to provide habitat for cavity dependent wildlife such as woodpeckers, nuthatches, bluebirds, and pine marten.

Habitat Improvements for Threatened, Endangered, and Sensitive (TES) Species

Habitat improvements for TES species completed in 1992 included 151 acres of non-structural improvements to improve forage availability for grizzly bears, and 13 structures which were: 10 road closures to improve seclusion opportunities for grizzly bear and caribou, and 3 "bear-proof" trash collection containers. These containers are in the Noisy Creek Campground, which is located in suitable grizzly bear habitat and are designed to reduce the potential for bear-human conflicts. The Sullivan Lake Ranger District is the only Forest Service unit in the Selkirk Grizzly Bear Ecosystem to take this pro-active approach to grizzly bear management in recreation areas. Direct management of sensitive plant habitat included the transplant of several individual moonwarts (*Botrychium minganense*) to other suitable habitat to prevent their loss during a road construction project.

Inventories and Surveys

In addition to the specific monitoring activities described in Chapter 3, the Colville National Forest maintained an active inventory and survey program during 1992.

During 1992, the Colville National Forest conducted inventories of 3,300 acres of deer and elk habitat, and cooperated with the Washington Department of Wildlife on two spring deer surveys.

Approximately 1,200 acres of suitable habitat were surveyed to determine use by northern goshawk, and 6,415 acres were surveyed to assess breeding songbird populations.

Ten MA-1 (Old growth dependent species habitat) areas were surveyed for presence of barred owls. Positive responses (response to recorded calls or other evidence of use by barred owls) were obtained from four areas. This is similar to the response rate received during the previous 2 years of monitoring.

One ranger district, Kettle Falls, cooperated with the State of Washington in completing 26.5 miles of track transects to survey for pine marten and other furbearers. The transects were run twice, with marten tracks encountered both times (13 sets the first session, 6 sets during the second session). No estimates of population size were reported.

Kettle Falls and Republic ranger districts both conducted snow track surveys for lynx as well as other furbearers. Approximately 47 miles of routes were conducted. No lynx tracks were encountered.

Two ranger districts, Kettle Falls and Republic, participated in the annual mid-winter bald eagle count, a joint State and Federal survey. Survey routes covering approximately 119 linear miles were run. No eagles were located on the National Forest.

Although all ranger districts evaluate potential grizzly bear habitat as part of the biological evaluation process, only the Sullivan Lake Ranger District has habitat known to be occupied. Several sightings of grizzly bears were reported. During 1992, the ranger district inventoried 25,000 acres of land to evaluate grizzly bear habitat conditions.

Sullivan Lake is also the only ranger district with occupied woodland caribou habitat. During 1992, the District continued to evaluate impacts of proposed projects on caribou habitat, conducting inventory on 12,000 acres of land in the process.

Wolf howling surveys continued on all districts during 1992. Approximately 400,000 acres of land were covered in these surveys. Only one possible response from a wolf was obtained. Although responses to howling surveys were all but absent, eight wolf sightings were reported to the Forest, and one possible wolf track was located. A plaster cast was made of this track for further evaluation, but the results are inconclusive. All wolf sightings

were investigated, but no further evidence of wolves was ever found.

Sightings from 42 sensitive plant surveys covering 380,000 acres on all 5 ranger districts resulted in a 41 percent increase in the number of known sensitive plant populations. The Forest expanded its knowledge of sensitive plant occurrences and distribution with the discovery of 91 previously unknown sites during 1992, and now maintains records on sensitive plant occurrences at 198 different sites. These sites contain 318 populations of 34 different species of sensitive plants, including several new additions to the known flora of the Colville National Forest. Mingan's moonwort (*Botrychium minganense*), once thought to be limited in distribution, has been found frequently enough that it is recommended for removal from the Pacific Northwest Region Sensitive Species List. All sensitive plant records were shared with the Washington Natural Heritage Program, as part of a continuing cooperative partnership.

Coordination Efforts

The addition of a full-time Forest botanist greatly enhanced the botany program on the Colville National Forest during 1992, resulting in improved survey methodologies and better record keeping for sensitive plant information. A draft Conservation Strategy for the northern twayblade orchid (*Listera borealis*) was also begun in cooperation with the Washington Natural Heritage Program.

Biological Evaluations

During 1992, Biological Evaluations to assess effects of proposed projects on threatened, endangered and sensitive species were completed for 53 different projects. This effort required over 7.5 person years of effort spread between the five ranger districts and the Supervisor's Office.

This analysis of effects has now become a major component of the wildlife and botany program on the Colville National Forest. One reason for this change is in the way potential impacts to the endangered gray wolf are assessed. Although there is no established Recovery Area for gray wolves within the State of Washington, it is now conceded that the Colville National Forest is probably inhabited by wolves, most likely single, transient animals moving within large land areas. There have been no reports of pack activity or

Accomplishments

evidence of a breeding population of wolves on the Forest. In September 1992, the Colville National Forest changed the way potential impacts to wolf habitat are assessed in biological evaluations. This change will involve closer coordination and consultation with the U.S. Fish and Wildlife Service.

Ongoing coordination efforts with the U.S. Fish and Wildlife Service and other agencies and organizations continued during 1992. The Sullivan Lake Ranger District's wildlife biologist served as the chairperson for the International Mountain Caribou Technical Committee. The Colville National Forest also continued its work with interagency grizzly bear recovery efforts, including consultation and coordination with the U.S. Fish and Wildlife Service and the Idaho Panhandle National Forests, which manages the eastern portion of the Selkirk Mountains Recovery Area.

Fish, Wildlife, and Botany Workshop

In spring of 1992, the Colville National Forest hosted the annual Fish, Wildlife, and Botany workshop for the Pacific Northwest Region. Approximately 300 resource specialists attended the week-long workshop.

Fisheries

Improvement Projects

The habitat improvement schedule called for 84 fisheries habitat structures to be created in FY 92 and 11 acres of habitat improvements. The Forest exceeded schedule by completing a total of 124 habitat structures and 39 acres of habitat improvements from both KV and project funds. Most of these projects will need monitoring to continue for several years in order to determine their level of success.

Three types of fisheries habitat improvement projects were implemented during 1992 were: log structures to increase pool habitat, cover, and spawning gravel; fish barriers to keep native populations of cutthroat trout isolated from non-native species, such as brook trout; and riparian plantings to diversify riparian zone vegetation by adding hardwoods, such as aspen and willow. These hardwoods help insect production in a stream and also improve beaver habitat. Beaver

ponds provide some of the best fisheries habitat on the Colville National Forest.

Timber

Sale Program

IN FY 92, 18.3 million board feet (MMBF) of sawtimber (referred to as ASQ, or Allowable Sale Quantity), was offered for sale. This includes 3 MMBF offered for sale in 1991 that was actually sold in 1992.

Due to the increased focus on products other than sawlogs, the Forest is now being funded to offer total or gross volume, rather than ASQ volume. In 1992, 29 MMBF of gross volume was offered for sale. This includes the 7,800 cords of fuelwood displayed in Table 2.2

Where even-age management is prescribed, large live trees are being permanently retained to provide future snag habitat. In all harvest types, snags, hardwood trees and shrub vegetation remain for visual and wildlife objectives. Down woody debris is also left on the site both for habitat and long term site productivity.

The Colville Ranger District designed a self-guided auto tour which highlights various kinds of harvesting methods, as well as wildlife and fisheries enhancements.

Regeneration

Approximately 4,300 acres of planting and 1,700 acres of natural regeneration occurred in 1992. Over one million seedlings were planted. The seedlings planted include Douglas fir, western larch, ponderosa pine, western white pine, Engelmann spruce, and lodgepole pine. Planting was accomplished during the months of April and May. Natural regeneration occurred with and without site preparation to prepare a seedbed, and site preparation methods include prescribed burning and machine piling.

Tree Improvement

There are five seed orchards on the Forest. The species planted in these seed orchards are Douglas fir, ponderosa pine, western larch, lodgepole pine, and Engelmann spruce. These trees will provide seed for future reforestation efforts. In an

effort to provide for anticipated seed needs, an additional ponderosa pine seed orchard site was identified in 1992. The Forest's current seed needs are being met with general collections from select trees (mature trees with good growth and form) located around the Forest and collections from seed production areas. There are two seed production areas on the Forest which currently provide western larch and blister-rust resistant western white pine seed. Ranger districts collected 18 bushels of western white pine seed from the pine seed production area and approximately 130 bushels from select trees.

Small Diameter Stands

The "CReating OPportunities" or CROP program, created in 1991, addresses the management issues associated with small diameter stands. In 1992, CROP completed the field inventory portion of the analysis. Work continues in mapping and assigning stand attributes to the stands of trees generally smaller than 7 inches in diameter. Forest

wide analysis of the 150,000 acres of CROP stands where the Forest Plan allows timber harvest is scheduled for completion in FY 93.

In 1992, analysis was begun on several planning areas throughout the Forest. Acreage and volume of small diameter stands harvested in FY 92 is not tracked separately but is included in gross volume reported in Table 2.2

Payments and Revenues

Payments to states and returns to government for fiscal year 1992 was \$2.4 and \$9.5 million, respectively (1992 dollars). The Forest Plan projected that under full implementation (ASQ timber harvest of 123.4 MMBF), payments and returns would be \$4.7 and \$18.6 million, respectively (1992 dollars).

Accomplishments

Table 1.2 Resource Outputs, Environmental Effects, Activities and Costs. Comparison of Actual and Planned.

Outputs, Effects, Activities and Costs	Unit of Measure	Plan Ann Avg	FY 89	FY 90	FY 91	FY 92
Developed Recreation Use	MRVD	365	357	341	398	406
Non-Wild Disp Rec (Inc WFUDs)						
Roaded	MRVD	725	782	282	609	910
Unroaded	MRVD	119	194	68	169	196
Wilderness Use	MRVD	2.4	5.9	2.8	2.9	1.2
Trail Const/Reconst	MILES	26	23	22	25	7
Developed Site Const/Reconst	PAOT	354	240	220	270	60
Wildlife Habitat Improvement						
Acres	ACRES	1,925	496	1,147	2,707	3,110
Structures	QUANT	1,140	38	703	520	727
Fish Habitat Improvement						
Acres	ACRES	11	7	125	39	39
Structures	QUANT	84	30	170	116	124
Range-Permitted Grazing	AUMs	35	35.1	34.8	33.9	33.3
Range-Struct Imprvmnt/Fences	MILES	5	10	6	9	10
Range-Struct Imprvmnt/Water	QUANT	10	5	12	10	14
Range-Nonstruct Improvements	ACRES	1,127	300	235	556	160
Timber-ASQ (offered for sale) 1/	MMBF	123.4	121	127	96	26
Timber-ASQ (offered for sale)	MMCF	28.7	28.1	29.5	22.3	6.0
Timber Harv (excludes fuelwood)	MMBF	na	133.0	95.0	114.0	82.0
Fuelwood 1/	M CORDs	17.9	12.8	12.6	6.9	7.8
Reforestation: 2/						
Planted	M ACRES	4.2	4.0	5.2	5.0	4.3
Natural	M ACRES	2.8	0.1	0.7	0.3	1.7
Timber Stand Improvement	M ACRES	2.7	1.4	1.7	2.2	3.3

na..not available

RVDs denotes Recreation Visitor Days; WFUDs denotes Wildlife and Fish Users Days; AUMs denotes Animal Unit Months; BTUs denotes British Thermal Unit.

Note: Recreation use for FY 90 was estimated using new sampling and recording system. For FY 91, the new system produced usage data that was known to be invalid. Therefore, recreation use for FY 91 was estimated based on past trends. This produced RVD and WFUD counts and subsequent employment and income impact estimates which can not be compared to previous years.

FOOTNOTES:

1/ Figures for the Plan represent estimates of supply available. Does not represent amount demanded or collected.

2/ Acres of reforestation also includes natural regeneration that occurs after sites are scarified by timber sale operators during logging and subsequent slash disposal.

Table 1.2 (Continued)

OUTPUTS, EFFECTS, ACTIVITIES and COSTS	Unit of Measure	Plan Ann Avg	FY 1989	FY 1990	FY 1991	FY 1992
Water Yield	M AC FT	981	853	810	835	800
Sediment	TONS/YR	10,279	10,279	8,533	8,000	10,000
Improved Watershed Condition	ACRES	12	23	30	15	20
Minerals (operating plans) 3/	QUANT	150	74	76	69	50
Energy Minerals 4/	MMM BTUs	0	0.013	0	0	0
Non-Energy Min (92 \$) 4/	MM\$	6.91	0.02	4.80	11.37	3.93
Arterial & Collector Rd Reconst	MILES	10	5	4.3	5	3
Bridges	QUANT	1	0	1	0	0
Tmbr Purch Const/Reconst	MILES	98	94	119	79	22
Public Use Suitable Roads 5/						
Passenger Car	MILES	849	899	866	789	716
HI Clearance Vehicle Only	MILES	2,500	2,528	2,671	2,407	2,350
Roads Closed to Public Use	MILES	1,126	339	360	736	930
Total Forest Road 10/	MILES	3,745	3,938	3,898	3,941	3,996
Tot Forest Budget (82 \$) 6/	MM\$	17.5	11.3	11.6	13.3	13.6
Tot Forest Revenue (82 \$)	MM\$	12.4	9.2	6.3	7.4	6.3
Human Resource Program	M PER YRS	225	na	237.8	249.44	256
Change in Jobs 7/	QUANT	598	734	(73)	378	na
Change in Income (82 \$) 7/	MM\$	9.0	10.7	(0.2)	5.9	na
Payments to States (82 \$) 8/	MM\$	3.1	1.9	1.4	1.7	1.6
Acres Harv by Prescription 9/						
Clearcut	M ACRES	4.6	3.6	2.7	3.0	2.6
Shelterwood	M ACRES	2.3	2.6	1.6	1.8	1.0
Uneven-age Management	M ACRES	1.7	0	0.1	0.8	0.6

na..not available

RVDs denotes Recreation Visitor Days; WFUDs denotes Wildlife and Fish Users Days; AUMs denotes Animal Unit Months; BTUs denotes British Thermal Unit.

FOOTNOTES:

3/ Includes operating plans, Notice of intent, prospecting permits, material sales, free-use permits, and leases involving locatable, leasable, and salable minerals.

4/ The figures are relative values based upon minerals accessibility and are not intended to be accurate estimates of mineral production.

5/ The days available for public use would vary even though the miles do not.

6/ Does not include budget for Job Corps Center.

7/ Changes in number of jobs and income are presented as change from BASE scenario to the first decade of PLAN implementation or to the current fiscal year.

8/ Does NOT include portion of Kaniksu N.F. administered by Idaho Panhandle N.F. that is in Washington State.

9/ Does not include the final removal cut of shelterwood prescriptions or the overstory removal on remove now and remove next condition classes.

10/ The figure of 3,745 miles is correction of a typing error in the Forest Plan. The mileage stated in the Plan was 4,745.

2. SUMMARY OF MONITORING FINDINGS AND RECOMMENDATIONS

This chapter summarizes the key monitoring findings and recommendations, described in detail in Chapter 3.

Soil and Watershed

On the timber sales monitored, the specified Best Management Practices (BMPs) reviewed were all implemented and considered to be at least 90 percent effective. Road BMPs were considered to be about 70 percent effective.

No observable detriment due to timber harvest or livestock grazing activities was noted in riparian areas which were monitored. However, it was difficult to determine if livestock grazing standards were being met in riparian areas.

Further evaluation of the soil disturbance monitoring procedure is recommended to determine the effect of unit size on calculations and to determine considerations for proposing restoration treatments. A change in management practices is recommended to increase the detail of site specific BMPS included in project environmental analysis.

Forest Health

The western spruce budworm outbreak increased by 16,000 acres, although population counts appear to be lower in FY 92 than in recent years. Budworm populations were not considered high enough to warrant suppression costs. All other insect activity were down across the Forest.

Continuing evaluation of insect and disease activity is recommended; western spruce budworm is of particular concern.

Recreation, Wilderness, Visual

User satisfaction surveys at trail heads and developed sites indicated that recreation use has not exceeded user expectations. Monitoring of 15 different trails on the Forest indicated that trail

usage was within ROS class criteria. Clarification of management practices is recommended to aid in consistency in determining future additions to the Forest trail system.

At developed recreation sites, the number of deteriorating recreation structures, water lines, and vault toilets was noted as increasing.

The physical, social and managerial settings for the roaded natural Recreation Opportunity Spectrum (ROS) class appeared to have exceeded standards and guidelines and site conditions in five areas on the Forest, primarily attributed to off road vehicle use. Further evaluation is recommended to assess the extent of resource damage in areas identified as not meeting standards and to determine how to analyze effects from ORVs on other resources, evaluate user needs, and to develop a management strategy to address ORV issues.

Other ROS class settings remain within Forest Plan standards.

The Salmo-Priest Wilderness Implementation Schedule and Limits of Acceptable Change was prepared and distributed for public comment. Monitoring indicated that desired levels of solitude were met in the Wilderness.

In general, visual quality objectives were met. In most cases, foreground and middleground areas met or exceeded Forest Plan visual quality objectives. Monitoring indicated more attention needs to be given to modification areas, some are not meeting visual quality objectives. Clarification of management practices is recommended to aid in application of modification visual objectives.

Heritage Resources

Heritage resource compliance resulted in the identification and documentation of 188 new cultural sites. Compliance fieldwork and reporting varied in quality, with some work being initially substandard.

Summary of Monitoring Findings and Recommendations

Monitoring results show some sites within areas that receive high levels of public use (campsites, trails, roads, recent harvest activity) exhibited adverse change due to erosion, natural decay, and some vandalism.

Further evaluation is considered necessary to develop thematic context studies, to help in the determination of the historic significance of properties. A change in management practices is recommended to bring professional archaeological expertise to the ranger district level.

Transportation

Forest Plan standards and guidelines for open road densities were met.

Minerals

Of the sites monitored, 100 percent of the land disturbed by mineral operations was reclaimed within 2 years, as prescribed. Review of district mineral files shows that 36 CFR 228(A) timeframes were met 91 percent of the time. Mitigation measures were generally accepted by mineral proponents. One appeal of a mineral project was filed; the District Ranger's decision was affirmed by the Forest Supervisor. Monitoring results indicated criteria were met.

Range

Further evaluation and a change in management practices is recommended in monitoring utilization of forage. A more standard method of collecting utilization information should be used. Ranger district staff should follow the Forestwide utilization monitoring schedule to ensure all allotments are monitored on a 4 year basis.

Wildlife and Sensitive Plants

Monitoring results indicate that the Forest Plan standards and guidelines regarding wildlife and sensitive plant habitat are being followed and applied during project design and implementation. Firewood collecting may be creating problems with retaining the desired snag and downed log densities in some areas, and the Forest needs to

increase monitoring and enforcement efforts where this problem is occurring. There are also indications that the current snag and downed log guidelines may not be providing the desired level of habitat for cavity nesting wildlife. Research results and other information will need to be reviewed as it becomes available, and incorporated into the Forest Plan as necessary. The Forest also needs to collect and report better information regarding the condition of old growth management areas, pileated woodpecker and marten habitat areas, and sensitive plant sites. Monitoring instructions in these areas should be reviewed and changed as needed to ensure that the proper information is available for analysis.

Fisheries

Timber sales and road construction projects monitored met Forest Plan standards and guidelines for maintaining fish habitat. Many of these projects have included fish habitat improvement projects funded through the use of KV dollars. These KV projects, in addition to other fish habitat improvement projects, resulted in a net improvement in the condition of fish habitat on the Forest during the past year. The quantity of habitat improved is small when looking at the entire Forest; however, the general trend appears to be upward.

Timber

Approximately 4,300 acres of planting and 1,700 acres of natural regeneration occurred during FY 92. Monitoring indicated 95 percent of plantations met the National Forest Management Act restocking standard the third year after planting and 54 percent of the plantations have sufficient stocking to meet Forest Plan stocking objectives by the third year. Natural regeneration or planting is expected to increase stocking to Forest Plan objectives on the remaining units. Further evaluation of plantations is recommended to determine if Forest Plan yield objectives are being met over time.

Acres of timber sold during FY 92, by management area, and by silvicultural treatment, are below Forest Plan projections. The Forest Plan estimated an annual total harvest of 10,900 acres. Only 1,900 acres of timber were sold during FY 92.

National Environmental Policy Act

Five Forest Supervisor authority decisions were signed in FY 92. All decisions were appealed and all were upheld by the reviewing officer. Thirty-five District Ranger authority decisions were signed in 1992. Five of those decisions were appealed and later upheld by the reviewing officers.

Standards and Guidelines

Over 20 projects were monitored in the field by either the Forest Leadership Team and Forest Plan Interdisciplinary Team or Ranger District Management Teams to review compliance with Forest Plan standards and guidelines. Monitoring indicated standards and guidelines were met; some recommendations for consideration in future project planning were made.

Financial

The comparison of actual unit costs to FORPLAN unit costs shows that costs related to offering timber for sale have risen 150 percent since 1989. Costs of offering timber for sale are currently 11 times greater than those used by FORPLAN, the Forest Planning computer model. The increase in costs of offering timber for sale reflects the increase in timber sale appeals during the last 2 years.

The greatest implication of this result is the effect on the budget proposed by the Forest Plan. Full implementation of the Forest Plan could require as much as \$32 million (92 dollars). Given full implementation of the Forest Plan, (harvest of

123.4 MMBF), actual stumpage values must increase by approximately 60 percent before payments to states and total Forest revenue reach levels anticipated by the Forest Plan.

Recommended Actions Summary

Recommended actions are summarized in Table 2.1 with respect to one of four possible categories:

Results Acceptable, Continue to Monitor

The results for these monitoring items were within the threshold of variability.

Change or Clarify Management Practices

Items where monitoring results have identified the need to change management practices to more completely meet Forest Plan standards and guidelines or monitoring directions, or where clarification of direction is needed.

Further Evaluation Necessary

Results may or may not have exceeded the threshold of variability, but additional information is needed to better identify the cause of concern and to determine future actions.

Propose Forest Plan Amendment

Areas where results were inconsistent with the Forest Plan or the Forest Plan direction was not clear. The follow-up action is either changing or clarifying the Forest Plan through the amendment or revision process. Nonsignificant amendments may be made by the Forest Supervisor. Significant amendments require Regional Forester approval.

Forest Plan Monitoring

Recommended Action

Further evaluation of the monitoring procedure is recommended to determine compliance with Regional guidelines. The effect of unit size on the percent disturbance calculations and site specific considerations for determining the need for restoration treatments need evaluation.

Water Quality, Including Cumulative Effects

Forestwide Goal

To assure that current Forest water quality meets established Washington State water quality goals.

Purpose of Monitoring

To determine if implementation of the Forest Plan results in maintaining or improving water quality within established standards and guidelines.

Standard

Water quality sample information will meet Washington State Water Quality Criteria (Class AA or Lake class).

Results and Evaluation

Water quality data was collected on 79 monitoring sites across the Forest an average of 9 times a year. In addition, 6 sites were selected for weekly fecal coliform analysis to determine if State criteria were being met. Water quality data collected included fecal coliform levels; dissolved oxygen; water temperature; pH; turbidity and aesthetic values.

While elevated fecal coliform levels were noted at South Fork Chewelah, Smackout, East Fork Crown, Flat, South Fork Lost, South Fork Lone Ranch and North Fork San Poil creeks, the criteria were only exceeded on South Fork Chewelah and Flat creeks. The South Fork Lost Creek monitoring site was located one mile downstream of the Forest boundary. The source of the elevated coliform levels was determined to be from the area between the monitoring site and the Forest boundary. The source of the elevated levels on the Forest was assumed to be livestock grazing or beaver dams, and recommendations for the use of BMPs and other mitigation measures were made in each case.

Elevated stream temperatures were also recorded in 1992 at the Forest boundary on 12 creeks. These readings occurred in June, July, and August with air temperatures ranging from 21 to 34 centigrade and water temperatures ranging from 16 to 19 centigrade. Sherman Creek measured 24 and 20 centigrade in June and August. Air temperatures and time of day affect stream temperature along with the many non-weather conditions of the stream. Air temperatures were somewhat higher in 1992 than 1991, but also temperature readings were taken more frequently. No significant change in riparian vegetation occurred in any of the drainages monitored and it appeared that the stream temperatures were a result of natural conditions. Additional monitoring will take place in those drainages in 1993.

Except for that noted above, the data collected indicated that water quality met Washington State Water Quality Criteria for Class AA waters.

Recommended Action

Results OK, continue to monitor.

Watershed Best Management Practices

Forestwide Goal

To ensure watersheds will continue their natural functions of catching, absorbing, and releasing water in a clean controlled manner, while supporting the current level of beneficial uses.

Purpose of Monitoring

To ensure Forest Plan standards and guidelines are met in project implementation through application of appropriate best management practices (BMPs) which are the primary mechanism used to achieve water quality standards set by the State of Washington and the Environmental Protection Agency.

Standard

Best management practices should be used and applied properly to protect water quality.

Results and Evaluation

In 1992, timber sale and road construction projects were monitored to track the development of site

3. FOREST PLAN MONITORING

The Forest Plan for the Colville National Forest became effective February 13, 1989. Implementation of the Forest Plan occurs through identification, selection, scheduling, and implementation of activities to meet direction provided in the Forest Plan.

An important part of implementing the Forest Plan is monitoring. Monitoring consists of gathering information about various activities, costs, outputs and effects of management. That information provides a basis for evaluating Forest Plan implementation and achievement of Forest Plan goals and objectives. The information and data collected during the monitoring process is evaluated to determine if the procedures used to implement the Forest Plan should be changed or if revisions or amendments to the Forest Plan itself are necessary.

The regulations for implementing the National Forest Management Act describe the purposes for periodic evaluation of a forest plan:

- to determine if conditions or demands in the area covered by the Forest Plan have changed significantly enough to require any revision to the Forest Plan, 36 CFR 219.10(g);
- to determine if budgets have significantly changed the long-term relationship between levels of multiple-use goods and services enough to create a need for a significant amendment, 36 CFR 219.10(e);
- to determine how well the stated objectives of the Forest Plan are being met, 36 CFR 219.12(k);
- to determine how closely forestwide management standards and guidelines in the Forest Plan have been followed, 36 CFR 219.12(k); and
- to determine how the Forest is satisfying the requirements for monitoring and evaluation, 36 CFR 219.12(k).

This chapter summarizes the results of monitoring and evaluation conducted during fiscal year 1992, which ran from October 1, 1991 to September 30, 1992. In 1990, the Forest developed a detailed *Forest Plan Monitoring Guide* consisting of monitoring instructions and a monitoring schedule. Not all monitoring items identified in the Forest Plan are scheduled to be monitored every year.

Biologic and Forest Health

Changes in Soil Productivity

Forestwide Goal

The total acreage of all detrimental soil conditions should not exceed 20 percent of the total acreage within the activity area including landings and system roads.

Purpose of Monitoring

To determine if the soil productivity standards and guidelines are being met and to assess the effectiveness of soil management and conservation practices.

Standard

A minimum of 80 percent of an activity area will be left in a non-detrimentally impacted soil condition.

Results and Evaluation

Harvest units across the Forest were monitored to determine the percent detrimental disturbance.

On the Republic Ranger District, of the 21 harvest units monitored, 4 units exceeded the standard, ranging from 22 to 56 percent detrimentally disturbed.

In each of those four units, the area in system roads and landings made up a large percentage of the activity area. In most cases, the detrimental disturbance was compaction, but the units also had a complete layer of organic matter. In those units, ranger district staff determined that restoration treatment by a winged ripper could potentially cause increased soil displacement and loss of site productivity.

specific BMPs through the environmental analysis process, to inclusion of provisions in the contract, to implementation on the ground, and finally to estimate the effectiveness at achieving the intended purpose. Examples of BMPs that were tracked include: erosion control on skid trails, streamcourse protection; revegetation of areas disturbed by harvest activities; protection of unstable lands; and limiting the operating period of timber sale activities. Of the sales monitored, the specified BMPs tracked were all implemented and considered to be at least 90 percent effective. Road BMPs such as revegetation of fill slopes and adequacy of surface drainage structures were considered to be about 70 percent effective.

Monitoring by ranger district staff indicated that while the environmental assessment for the Boris Timber Sale on the Colville Ranger District did not include site specific BMPs, the timber sale contract did include specific clauses and provisions necessary to protect the soil and water resource. Onsite monitoring showed that the provisions were implemented as required and were effective.

Several road BMPs were monitored on the Trimble Timber Sale on the Newport Ranger District. Disposal of right-of-way and roadside debris by windrowing was found to be economical and effective in preventing soil displacement from the roadway. It was used appropriately and was an effective soil trap in sandy granitic soils. Control of surface road drainage techniques were also monitored on this sale and found to meet the standards and guidelines. Some alternative measures such as outslowing and reduced crossdrain spacing were discussed and these will be tried on some future projects.

Recommended Action

Change management practices. There is a need to improve the environmental analysis process by increasing the detail of the site specific BMPs. Site specific BMPs need to be reviewed and discussed by the project planning team.

Riparian Areas

Forestwide Goal

To provide and manage riparian plant communities which maintain maintain a high level of riparian dependent resources.

Purpose of Monitoring

To determine if Forest Plan standards and guidelines are being followed to ensure riparian area characteristics are maintained or improved through the implementation of projects, thereby protecting the riparian ecosystem.

Standard

Fisheries and riparian Forestwide standards and guidelines should be met and favorable riparian characteristics should be maintained.

Results and Evaluation

Riparian areas were monitored at the same time as the Best Management Practices. Where harvest has occurred, there was no observable impact on the riparian ecosystem. In several cases, timber sales have intentionally avoided harvesting in riparian areas to protect the riparian ecosystem.

Several road crossings were observed under construction with minor sedimentation occurring due to the low flows.

Livestock impacts were monitored and it was difficult to determine if the riparian standards and guidelines were being met. Grazing utilization is dependent on points of access (key areas) and without utilization cages located in these areas, the percent utilization was difficult to estimate. Also, the percent of livestock related bare soil was difficult to determine since the impacts were concentrated in those key areas. The livestock related riparian standards and guidelines in the Forest Plan appear to be difficult to use to determine riparian resources are protected.

In general, no detrimental effects of management activities on riparian areas were observed during 1992.

Forest Plan Monitoring

Recommended Action

Further evaluation is needed of the way riparian areas are monitored and what thresholds are needed for acceptable impacts to beneficial uses.

Monitoring indicates the need to focus future analysis on watershed screening and the potential for management activities in riparian areas (road crossings, grazing and timber harvest) to affect the accelerated sedimentation of streams.

Insect and Disease Populations

Forestwide Goal

To prevent major losses of resources, including timber volume, wildlife habitat, recreational opportunities, and visual quality objectives to insect and disease.

Purpose of Monitoring

To prevent catastrophic resource losses from insects and diseases.

Standard

Three successive years of increased populations should trigger additional analysis.

Results and Evaluation

Insect activity is at endemic levels across the Forest for all agents except western spruce budworm. The budworm outbreak increased in 1992 by about 16,000 acres. Budworm surveys indicated that populations were not high enough to justify the cost of suppression. Insect populations will continue to be monitored.

Forest Insect Infestation (acres)

Insect	FY 90	FY 91	FY 92
Douglas fir beetle	3,200	3,000	1,300
Fir engraver	9,800	1,100	600
Mountain pine beetle:			
Lodgepole pine	13,900	3,400	3,800
White pine	600	600	400
Ponderosa pine	300	300	100
Western pine beetle	700	100	30
Spruce budworm	3,800	129,800	146,600

Insect activity, except for spruce budworm, is down across the Forest. Insect activity is highly correlated with drought conditions; rainfall across

the Forest was significantly higher than normal for the early portions of the FY 92 growing season. However, due to early warm temperatures in March, western pine beetle was able to successfully complete two life cycles. Tree mortality associated with the second life cycle will not be evident until early summer of 1993.

While the spruce budworm infestation increased in size again, population counts appeared to be lower in 1992 than in recent years. That situation was again attributed to an early spring, in which budworm emerged prior to budbreak of host trees. According to the area entomologist, the insects were forced to feed on older foliage, and the result was a general budworm population decline throughout the summer. A budworm suppression project for 1993 was considered but rejected due to declining insect population levels noted above.

The ranger districts have been monitoring insect and disease mortality, and programming salvage or other treatments, where access and management area guidelines allow rapid entry. In FY 92, 192 acres were salvage harvested.

In response to growing concerns about forest health, primarily with respect to the increase in western spruce budworm infestation, the Forest created a forest health task force. The primary objectives of task force was to:

- Provide information to the public about spruce budworm and other agents;
- Work with other northeastern Washington forests and agencies to coordinate information. A joint brochure was prepared explaining the forest health situation, and what individual agencies were doing in response;
- Prepare a risk assessment quantifying the number of acres at risk to insect/disease agents and fire; and
- Prepare a forest health strategy to guide actions across the Forest.

The Forest has also been reviewing timber sales and other vegetation management activities to

ensure they are not in conflict with long term health objectives.

Recommended Action

Further evaluation is necessary. Insect and disease activity, especially western spruce budworm, is of increasing concern to forest health; however, it is not clear whether a change in management direction is warranted at this time. Larval surveys to monitor budworm populations are scheduled for 1993. In addition, this monitoring item will be expanded to more adequately cover forest health in 1993.

Resources and Services to People

Recreation User Experience and Physical Setting

Forestwide Goal

To ensure a spectrum of dispersed and developed recreation opportunities, from primitive to developed, exist on the Forest.

Purpose of Monitoring

To determine if the Forest is meeting recreation opportunity spectrum (ROS) guidelines regarding site conditions and user satisfaction.

Standard

Desired physical, social, and managerial settings for each ROS class should be met.

Results and Evaluation

The Forest identified specific days for districts to collect visitor use information for developed and dispersed recreation. Monitoring results have varied across the Forest.

Results of site specific monitoring and recreation reports indicate further evaluation is needed for some ROS classes. The physical, social, and managerial settings for the roaded natural recreation opportunity spectrum class appear to have exceeded guidelines and site conditions. Inventories, evaluations, and management strategies need to be developed to address numbers and types of users, resource damage, and user conflicts. Specific areas identified as of concern

include Middle Fork Calispel, Tacoma Creek, North Fork Chewelah Creek, and No Name Lake.

The physical, social, and managerial settings for other ROS classes appear to meet guidelines and site conditions to provide a broad spectrum of ROS settings.

The Recreation Resource Inventory System reporting system is in its second year and is still being updated, with some problems with the use of the computer program being reported. Updated facility condition assessments and use counts were completed for the 1992 use season.

Forestwide, the objective of bringing developed recreation sites up to standard is moving slowly, still attributed to lack of funding. Reports of deteriorating structures, water lines and vault toilets are on the increase. Week-end capacity of many developed sites is being exceeded. Heavy maintenance items are being improved on some districts as budgets allow. Major replacement and reconstruction of recreation sites is falling behind due to the lack of capital investment project funding. Improvements to signing, host sites, accessibility, and interpretation have been made when opportunities and funding are available.

User satisfaction surveys through registration cards and personal contacts were completed for most developed sites and trailheads on the Forest. Most comments were positive and indicated that use did not exceed the expectations of the user.

A telephone system for campground site reservations is still being used at Gillette Campground and nine additional sites in the Sullivan Lake and Noisy Creek campgrounds have been added to the system. This has resolved some use problems in these facilities.

Recommended Action

Results of site specific monitoring and recreation reports indicate further evaluation is needed. Monitoring has shown that dispersed use in areas such as Middle Fork Calispel, Tacoma Creek, North Fork Chewelah Creek, No Name Lake, and Mystic Lake has reached a point where it is perceived that user conflicts and resource damage are occurring and Forest Plan ROS standards

Forest Plan Monitoring

and guidelines are being exceeded. Much of this is attributed to off road vehicle use.

It is recommended that these specific areas be assessed to determine the extent of resource damage, evaluate user needs and develop a desired future condition and management strategy to address these issues.

Recreation Trail Use

Forestwide Goal

To provide for a spectrum of recreational experiences and trail development levels within each recreation opportunity spectrum (ROS) class.

Purpose of Monitoring

To determine if Forest Plan standards and guidelines are being met and to assess the effects of trail use.

Standard

Capacity of each ROS class should be within 90 percent of the physical, social, and management settings criteria.

Results and Evaluation

Monitoring consisted of visual inspections, trail counters, and visitor contacts. It was found that actual trail use was within the ROS class criteria. Trail counters were located on 15 individual trails on Colville, Newport, and Kettle Falls districts. All districts reported comments from trail registration cards indicted a positive experience. Only a small percentage contained comments such as "ugly clearcuts, good trail maintenance, great view".

Non-system trails, such as Divide and Mystic, as well as others, are receiving use. Effects on those non system trails are being assessed through the timber sale environmental analysis process.

Monitoring indicates system and non-system trails are being managed at different levels across the Forest. Timber sale mitigation measures vary and trail importance seems to vary from district to district. No consistency of how non-system trails are added to the system and assessed in project analysis is evident at this time.

Recommended Action

Monitoring indicates that clarification of management direction is needed. A Forestwide process should be developed to aid in consistency in determining future additions to the trail system. That process should include criteria for determination of trail importance and additions and deletions to the trail system. It should also develop ROS setting criteria and difficulty levels for each trail type and set minimum requirements for additions to the trail system.

More attention needs to be given to winter recreation trails, both cross-country and snowmobile. Planning to determine current and future needs, type, amount and special needs, such as huts and snow parks, should be carried out as soon as adequate funding is available.

Semiprimitive, Undeveloped Recreation Setting

Forestwide Goal

To manage these areas to protect the existing character and provide opportunities for dispersed, nonmotorized and motorized recreation experiences.

Purpose Of Monitoring

To ensure the desired physical, social and managerial setting for the Recreation Opportunity Spectrum (ROS) class is achieved and these areas remain in an unroaded condition.

Standard

The desired physical, social and managerial setting for the ROS class should be achieved.

Results and Evaluation

Random use samples were taken on the ranger districts that include management areas 10 and 11. Samples included a combination of both weekend and weekday use. Observations and trail counts indicate that ROS class criteria are being met. Several trail counters were installed along various trails. Trail registration cards indicated visitor satisfaction with the recreation experience.

Recommended Action

Results OK, continue to monitor.

Off Road Vehicle Use

Forestwide Goal

To ensure off road vehicles (ORV) are used in an appropriate manner, compatible with other Forest uses, as prescribed in the management area objectives.

Purpose of Monitoring

To determine if Forest Plan standards and guidelines are being met and to assess the effects of ORV use.

Standard

Off road vehicle use should not be creating conditions where noxious weed infestations are increased; accelerated stream sedimentation occurs from soil disturbance; impacts on wetlands, riparian areas, or known sensitive plant populations occur; use takes place outside approved ORV travel ways; or when use is prohibited by specific management area direction.

Results and Evaluation

Monitoring results indicate that an increasing problem on some multipurpose trails is the use of four wheel vehicles on trails designed for single track vehicles.

Monitoring has shown that dispersed use in areas such as Middle Fork Calispel, Tacoma Creek, North Fork Chewelah Creek, No Name Lake, and Mystic Lake has reached a point where it is perceived that user conflicts and resource impacts are occurring and Forest Plan ROS standards and guidelines are being exceeded. Much of the impacts are attributed to ORV use.

Over 150 motorcycles and all terrain vehicles were observed in Middle Fork Calispel and Tacoma Creek drainages on holiday weekends. Almost all of the users checked were not in compliance with State and Federal laws, including spark arrestors and required permits. There are no facilities for these users in this area, and use is occurring in dispersed sites, riparian areas, and on roads,

which results in some unsafe conditions and varying degrees of resource damage.

Recommended Action

Further evaluation is necessary to determine standards for the use of ORVs and determining effects from ORV use on other resources. It is recommended that these areas be assessed to determine the extent of resource damage, to evaluate user needs, and to develop a desired future condition and management strategy to address these issues.

Wilderness

Forestwide Goal

To preserve wilderness characteristics of the Salmo-Priest Wilderness, in conformance with the Wilderness Act of 1964 and Washington Wilderness Act of 1984.

Purpose of Monitoring

To ensure the Salmo Priest Wilderness is protected or enhanced.

Standard

Minimum limits of acceptable change in the Wilderness should be met.

Results and Evaluation

The Salmo-Priest Wilderness Implementation Schedule (WIS) including Limits of Acceptable Change standards was prepared and distributed for public comment. Wilderness boundaries were surveyed and posted in coordination with proposed timber sale activities in adjacent areas.

Campsite density and condition, as well as solitude at campsites and solitude while travelling, were monitored by two wilderness guards. Approximately 15 new fire rings were naturalized to maintain campsite density at acceptable levels. Approximately two-thirds of known campsites within the Wilderness were monitored and it was determined all met acceptable condition levels for the amount of bare soil. It was determined that desired levels of campsite solitude were being met; however, it was noted that the monitoring methodology needs to be refined to include additional information based on visitor contacts.

Forest Plan Monitoring

Evaluation of trailhead register cards indicated it was likely in the semiprimitive portions of the Wilderness there were three weekends when there was less than a 80 percent chance of encountering three or fewer groups per day; it was considered unlikely that level was exceeded at any other time in the season. Those three weekends comprise only 5 percent of the total use season and therefore; were below the threshold level of 20 percent of the total use season. In the primitive portions of the Wilderness, it was considered unlikely that there were any days during which more than one other group was encountered by visitors.

Recommended Action

Results OK, continue to monitor. More intensive interviewing of visitors on high use weekends will be used in the future to gather accurate user information.

Potential Wild and Scenic Rivers

Forestwide Goal

To protect the outstanding remarkable values of the Kettle River that contribute to its eligibility as a potential Wild and Scenic River.

Purpose of Monitoring

To determine if Forest Plan standards and guidelines for protection of the Kettle River are being met.

Standard

Resource condition or level of activities should not lower the potential for Wild and Scenic River designation or not meet Forest Plan standards and guidelines.

Results and Evaluation

No management activities occurred or were planned during FY 92 within the Kettle River corridor.

Recommended Action

Results OK, continue to monitor.

Visual Quality Objectives

Forestwide Goal

To maintain or enhance scenic qualities on the Forest, with emphasis within scenic viewsheds and foreground and middleground seen areas from sensitive viewing areas, as prescribed by the Forest Plan.

Purpose of Monitoring

To ensure Forest Plan visual quality objectives are being met.

Standard

When activities or uses conflict with the goals for the management area.

Results and Evaluation

Observations on current timber sales found that visual quality objectives are, in general, being met. In most cases, foreground and middleground areas are meeting or exceeding Forest Plan visual quality objectives. Monitoring indicates more attention needs to be given to modification areas; in some of those areas, visual quality objectives are not being met.

In FY 92, approved sensitivity levels were developed for the Forest visual quality objective map, which will be used in project planning.

Monitoring indicates mitigation measures for trails affected by timber sales are not being applied consistently across the Forest. A process is being developed to be applied over the Forest to rate sensitivity-level 3 trails for appropriate mitigation.

Recommended Action

A clarification of management direction is needed to aid in the application of modification visual objectives. The previous recreation trail monitoring item addresses trail issues related to visual conditions along trails.

Heritage Resource Protection

Forestwide Goal

To protect significant archaeological and historic sites.

Purpose of Monitoring

To ensure management prescriptions for these sites are being accomplished. To document instances of property destruction due to human-caused or natural deterioration.

Standard

Protect significant archaeological and historical properties by annually monitoring 5 percent of documented sites on the Forest.

Results and Evaluation

Approximately 50 previously documented properties were visited to ascertain changing site conditions due to vandalism, natural forces, and project effects, and to determine the need for protection. The number of properties monitored represents about 5 percent of the total number of sites recorded on the Forest, which meets the monitoring goal. Site documentation records were updated with the resulting data. All monitoring actions were performed by cultural resource management specialists or technicians on the ranger districts and compiled by the Forest archaeologist.

Monitoring results confirm trends established by past monitoring efforts. Heritage properties located within or adjacent to recent timber harvest areas are being vandalized in spite of being protected from direct impacts from harvest activities. Also, significant sites are being compromised by natural deterioration that is not mitigated.

Other heritage properties monitored included those within areas receiving a fairly high level of public use, such as developed and dispersed campsites, and along trails and roads. Sites within those areas generally were found to have had noticeable levels of adverse change due to erosion, natural deterioration of historic structures, along with a certain amount of vandalism.

The varying quality of monitoring activities and reports indicates the need for more training and education of Forest staff to standardize results.

Recommended Action

Further evaluation is needed. Current monitoring results indicate a need for increased funding of monitoring and increased Forest emphasis on this monitoring item. The Forest archaeologist will conduct training to all Forest heritage resource personnel on techniques and documentation of monitoring for site protection. Also, the possibility of having volunteers perform some monitoring activities will be investigated.

Most importantly, reducing the number of sites needing monitoring through the use of historic theme context studies is recommended. All heritage properties evaluated as being significant are required to be protected, and according to regulations, unevaluated properties are to be treated as significant. Evaluation is dependent on having a thematic context in which to ascertain the historic significance of a property. Over the years, a backlog of unevaluated properties has been built up due to the lack of sufficient thematic context studies.

Since 1990, the Forest has funded through timber support funds, two context studies directed toward the eastside of the Forest (*Logging History of the Pend Oreille Valley* and *Homestead History of the Pend Oreille Valley*). Additional studies are needed on a forestwide scale for the major heritage themes represented by all recorded properties.

Heritage Resource Compliance

Forestwide Goal

Cultural resources are protected through compliance with established management guidelines. Monitor all project documents for completion of heritage resource management compliance requirement.

Purpose of Monitoring

To ensure all federal, state, agency, and Forest heritage resource program compliance mandates are being met in a consistent and timely manner,

Forest Plan Monitoring

and to ensure appropriate mitigation is incorporated into management action plans.

Standard

Monitor all projects to ensure compliance activities are conducted at prescribed times for protection of heritage resource values.

Results and Evaluation

Monitoring was performed by tracking of all Forest project compliance activities through the use of established program procedures, documented on standardized forms. All monitoring actions were performed by the Forest archaeologist. Archaeological surveys were conducted on over 83,000 acres; 188 new properties were documented.

Established compliance timelines allow for the timely completion of all National Environmental Policy Act and National Historic Preservation Act mandates for planned projects. Monitoring indicates the Forest did better than FY 91 in providing sufficient lead time to complete compliance activities. More trained personnel are needed to perform the work, preferably archaeologists who perform heritage resource program duties only.

Compliance fieldwork and reporting varied in quality, with some work being initially substandard. Much time and effort was spent bringing a number of projects up to standards.

Various mitigation measures are being used in the protection of heritage properties. Ranger district heritage resource specialists will be necessary if districts want some control over the formulation and scheduling of such measures.

Recommended Action

Change of management practices; monitoring indicates management direction improperly applied due to a lack of clarity. One method of potentially resolving the problem would be to have professional archaeologists on a ranger district or zone level to manage increasingly complex compliance programs, including evaluation studies and mitigation.

Transportation System Management

Forestwide Goal

Do not exceed the open road mileages listed on page 4-30 of the Forest Plan.

Purpose of Monitoring

To determine if open road densities meet objectives established in the Forest Plan.

Standard

The total miles of roads open to public travel should not exceed the miles displayed in the Forest Plan.

Results and Evaluation

The Forest Plan directs that 849 miles of road will be open to passenger cars and 2500 miles of road open to high clearance vehicles, for a total of 3349 miles open. In FY 92, the Forest had 716 miles of road open to passenger cars and 2350 miles of road open to high clearance vehicles, for a total of 3066 open miles. Standards for open road densities within winter range management areas (management areas 6 and 8) were met in FY 92.

Recommended Action

Results OK, continue to monitor.

Minerals

Forestwide Goal

Provide opportunities for minerals exploration and development, while integrating those activities with the planning and management of other forest resources, protecting surface resource values and meeting management area objectives.

Purpose of Monitoring

To determine if the Forest is meeting standards and guidelines as provided in the Forest Plan.

Standards

1. At least 80 percent of the disturbed land (that is available for reclamation) is treated as prescribed in the reclamation plan within 2 years;
2. Time frames for Forest Service responses to minerals proposals are being met 90 percent of the time; and

3. Mitigation measures for resource protection are accepted and substantially complied with. Fewer than 10 percent of mineral proposal decisions (operating plans, lease and permit applications) are appealed.

Results and Evaluation

Reclamation Compliance

In addition to ranger district field reviews, the Forest mining geologist visited four sites on the Forest. Those reviews and ranger district reports indicated that 100 percent of the land disturbed by mineral operations has been reclaimed as prescribed within 2 years.

Timeframes

A complete review of district mineral files shows that 36 CFR 228(A) timeframes were met 91 percent of the time.

Mitigation Measures

Mitigation measures were generally accepted by mineral proponents. Although most measures were met voluntarily, a few requirements needed administrative presence to assure compliance. One appeal was received on a small exploration project approved by the Kettle Falls District Ranger. The Ranger's decision was affirmed by the Forest Supervisor.

Recommended Action

Results OK, continue to monitor. The results of minerals monitoring for the 1992 show that the threshold criteria have been successfully met.

Range Improvements

Forestwide Goal

All range improvements planned and financed shall be constructed to Forest Service standards and maintained as described in the annual Permittee Plan instructions.

Purpose of Monitoring

To ensure that safety and aesthetic values are protected in construction of improvements and that economic requirements are met and maintained throughout the system.

Standard

All construction is expected to meet the established standards. All prescribed maintenance is to be performed.

Results and Evaluation

Colville Ranger District

The Forest range program manager inspected a fence built as part of the New Perspective demonstration area at the South Fork of Mill Creek Guard Station Site. This fence was constructed of treated wood posts and rails and was of high quality. However, it was noted that the rails were attached to the posts by spikes, which may create maintenance problems during severe snow years if the rails split during weathering. Although the use of treated wood may prevent this problem, the ranger district was informed of this concern and given suggestions for correcting the problem if it should occur.

Based on information in the ranger district monitoring report, all improvements on two of eleven active allotments were inspected. The allotments selected for inspection were Smackout and the South Fork of Mill Creek. The ranger district reported compliance by the permittees but provided insufficient inspection information to determine the actual conditions of the improvements or any future maintenance needs. It appeared the ranger district met the 10 percent standard for inspecting District range improvements.

Kettle Falls Ranger District

The Forest range program manager conducted an inspection of Davis Spring on the Boyds allotment. The construction quality of this improvement was reported to be very good and a significant improvement over the work that was inspected the previous year. It was noted that the site, located in a riparian area, was a difficult one to develop properly. The ranger district was commended for the careful consideration and high level of sensitivity they showed in developing this site, which included looking at alternative sites before a selection was made, and fencing a larger than normal area, which will provide an excellent escape area for upland birds. To protect the fence from livestock damage, it was recommended that an additional panel of pole fence be installed below the tank.

Forest Plan Monitoring

It was also reported that ranger district personnel conducted improvement maintenance inspections on three allotments. Although this indicates the standard for inspection of 10 percent of the improvements was met, the documentation provided did not reflect if there were any repair needs.

Newport Ranger District

The inspection of a cattleguard/fence installation on a new road in the Ruby Creek Allotment was completed by the Forest range program manager. The cattleguard was reported to be an excellent structure, meeting Forest Service design standards. The report on the fence however, indicated that it was not of good quality and that a standard design had not be followed. The eastern end of the fence was terminated just short of an existing cattle trail, in a location that would not provide the desired livestock control. Ranger district staff were notified of these problems following the inspection and available information indicates that corrective actions are in progress. Followup action will be discussed below.

Available information indicates that ranger district staff did not conduct any other improvement inspections this year.

Republic Ranger District

The Forest range program manager performed a spot check on a pasture management fence and conducted an inspection on the development of Day Spring on the South Fork of Saint Peters Creek Allotment. This inspection indicated that the fence was constructed to Forest Service standards, but the water development, although functional, needed further improvement of the water source and a more secure tank installation. This information was provided to the ranger district.

The ranger district reported maintenance on nearly all of the improvements in five allotments, indicating that the 10 percent standard was met. Allotment inspection notes provided to the Forest range program manager contained detailed information for obtaining permit compliance and for post season determination of maintenance and reconstruction needs.

Sullivan Lake District

The inspection of range improvements and determination of maintenance needs was done

on three of four active allotments. This work exceeded the monitoring standards and reduced the ranger district's backlog of range inspections needs.

Summary

Four of the five ranger districts were able to meet the monitoring standard, including the two districts (Kettle Falls and Republic) with the largest grazing workload (based on animal unit months of grazing provided and the number of permittees) even though they were actually financed at a lower level than the other districts. The Sullivan Lake Ranger District appeared to exceed the standard, using the available funding to reduce an existing backlog of work.

Recommended Action

Further evaluation of the current monitoring and reporting instructions is needed. Administrative units should be directed to report their total number of existing improvements as well as the number of these improvements that they plan to monitor at the beginning of the year. Having this information in advance of the field season will provide a quick way to determine monitoring accomplishment at the end of the year. An improved standard or method for documenting maintenance inspections should also be developed. This would result in better information for the permit administrators to use in determining if standards and guidelines are being met and in obtaining compliance with permit maintenance requirements.

In addition to improved monitoring and reporting instructions, the Forest should continue its efforts to develop a more comprehensive range improvement database. Each ranger district currently uses a local database for tracking their budgets and accomplishments, but these local databases do not provide the information necessary to track the monitoring and maintenance needs of range improvements, especially at the Forest Level.

Because there are no Forest Plan standards and guidelines that directly apply to monitoring and maintenance of range improvements, the Forest needs to be especially diligent in ensuring that this monitoring item is accomplished. The effort put forth in monitoring the installation and maintenance of range improvements reflects overall management of the forage resource. Poor installa-

tion and maintenance of these range improvements could contribute to undesirable livestock use patterns and/or resource damage.

Livestock Permitted

Forestwide Goal

The Forest will permit 35,000 animal unit months (AUMs) annually, plus or minus 10 percent.

Purpose of Monitoring

To determine the ability of the Forest and the permit system to meet the output level projected by the Forest Plan.

Standards

Permitted AUMs should not fall more than 10 percent below the desired level.

Results and Evaluation

Permitted livestock use during FY 92 was 33,000 AUMs. This is within the desired range, therefore the Forest met its goal of maintaining the level of livestock use projected by the Forest Plan. However, the Forest encountered considerable difficulty in determining this information because the data submitted by several of the ranger districts was improperly computed and required corrections.

Recommended Action

A change in management practices, in particular the way this information is reported, is recommended. This current monitoring instructions direct this information to be reported on Forest Service form FS-2200-134. It should be collected on form FS-2200-22 and recorded in the data file for DG FSRAMIS. Summary reports can then be run for use in both the annual use report and the monitoring report.

Utilization of Forage

Forestwide Goal

The Forest's forage resource will be used according to Forest Plan standards and guidelines.

Purpose of Monitoring

Proper utilization of the forage resource is the key to proper range allotment stocking. Monitoring will provide information for maintaining or improving the forage resource while providing for proper use.

Standard

Forage utilization should not exceed what is prescribed in the Forest Plan standards and guidelines. The Colville National Forest Monitoring Guide contains a schedule determining when a specific allotment should be monitored.

Results and Evaluation

All ranger districts participated to some degree in the measurement of forage utilization on the Forest. A one day forage utilization field training session was conducted by the Forest to help develop skills in taking utilization measurements. In addition, the Forest range program manager spent 2 days with staff from four ranger districts developing height/weight utilization tables.

Colville Ranger District

Utilization measurements were made on one allotment, which was not one of the four allotments scheduled for this year in the Monitoring Guide. All measurements, including those taken within a riparian area, fell within the Forest Plan standards and guidelines.

Kettle Falls Ranger District

Utilization measurements were taken on the four scheduled allotments, and all measurements were within Forest Plan standards and guidelines. The ranger district completed height/weight curves for three species of grasses.

Newport Ranger District

No utilization information was reported.

Republic Ranger District

Utilization measurements were taken on the five scheduled allotments. Two allotments had areas where utilization exceeded the Forest Plan standards and guidelines in one or more locations due to inadequate livestock control. At the time this report was being prepared, the ranger district had already scheduled a meeting with the permittee on one of the allotments to initiate corrective action. On the South Fork Saint Peters Creek Allotment,

Forest Plan Monitoring

the need for a additional mile of fence was recognized and scheduled for installation in 1994. In addition, permittee meetings will be scheduled prior to next grazing season and solutions will be developed to correct the overuse problems.

Sullivan Lake Ranger District

The Monitoring Guide scheduled only one allotment for monitoring this year, but the District was able to complete utilization measurements on three of four active allotments. Utilization within riparian areas on all three allotments exceeded proper use in one or more locations. The ranger district will verify this information with another year of monitoring before taking any corrective action. The range district also developed height/weight curves for two species of grass.

Recommended Action

Further evaluation and a change in management practices are necessary. Although four of the five ranger districts reported monitoring forage utilization, only two districts followed the established schedule. It is important that the Forest either adhere to or adjust the current monitoring schedule. By independently changing the established schedule, ranger districts are making it difficult to track when the standard for monitoring on a 4 year rotation is being met. A firm schedule, and clear instructions that following the schedule is a priority, are necessary to properly monitor compliance and distribute limited range funding across the Forest. If deviation from the monitoring schedule is necessary, it should be negotiated between the Forest and the District at the time monitoring goals are confirmed. Changes in the monitoring schedule may be desirable where potential exists for resource damage through permit changes or new information indicates such a need.

Two ranger districts reported locations where Forest Plan standards and guidelines were not being followed, but corrective actions were not always identified. Any deviation from Forest Plan standards and guidelines needs to be discussed with the permittees involved, and a plan for correcting the problem agreed to, before livestock are allowed to graze in the next grazing season. If permittee compliance is a problem, additional monitoring and corrective actions need to be

prescribed. The top priority for FY 93 range program is permit administration. Forage utilization is a key item in that activity and where utilization standards were not met in FY 92, remonitoring should be scheduled, with permittee participation, for the 1993 grazing season.

There is a need for additional utilization training and establishment of Forest standards for utilization measurement. A review of the information submitted by the ranger districts indicates that a wide range of methods for collecting utilization information are being used. Although the Forest Service Handbook includes instructions for determining utilization by several methods, the Forest has not clearly defined standards for locating utilization measurement areas or determined which of the several methods is most appropriate for collecting and reporting this information. Without standardization, it is difficult to compare results between areas or over time. All persons responsible for permit administration should participate in a utilization standards and measurement workshop to be held in 1993.

To help the Districts better determine compliance, more samples for developing height/weight curves for forage grasses are needed. Unless a high degree of variation is encountered, these samples should be used to develop a set of Forest curves for use in utilization monitoring. The height/weight method of determining utilization on Kentucky Bluegrass is not reliable.

Conditions of Riparian and Range Resources

Forestwide Goal

To ensure all range ecosystem types, within all range allotments, are in satisfactory condition. Satisfactory condition is defined as being at least fair condition with an upward trend based upon the site's potential.

Purpose of Monitoring

To provide evidence that management activities are effective and the resource is capable of producing forage on a sustained yield basis without deterioration of the resource.

Standards

No range type within an allotment or unit may be in less than satisfactory condition.

Results and Evaluation

Colville Ranger District

Condition and trend transects were established on one allotment. Preliminary information indicates there may be a problem of overuse on a pasture within the allotment. It was found that installing condition and trend transects in riparian areas is extremely time consuming, due to unfamiliarity with many of the riparian plants.

Sullivan Lake Ranger District

Production information was taken in conjunction with utilization studies and other administrative work. This will add to information that is needed to complete the Le Clerc Creek Analysis.

Recommended Action

Results OK, continue to monitor. Further evaluation may be necessary, as more financing becomes available for this monitoring item, there will be an increased need for plant identification refresher courses for personnel conducting the monitoring. To facilitate monitoring in more locations, more emphasis on photo point monitoring may be necessary.

There is also a need for establishing standards for streambank condition and interpreting water quality standards, as they apply to livestock and game use. Measurement techniques for determining and monitoring streambank condition must be identified and taught to allotment administrators.

Deer and Elk Winter Range

Forestwide Goal

To manage winter range habitat in management areas 6 and 8 to meet big game management objectives as described in Forest Plan standards and guidelines and desired future conditions for winter range.

Purpose of Monitoring

To determine if cover objectives in these areas are being met and if open road densities are

below the prescribed levels. This monitoring item responds to the following Forest Plan issue questions (Final EIS, I-12-25): How much timber should the Forest harvest; How should the Forest maintain wildlife and fish populations; and How will the road system be managed?

Standard

Habitat condition and trend will not be allowed to deteriorate for more than 3 years, or more than 5 percent in any one Wildlife Management Unit.

Results and Evaluation

To provide for deer and elk habitat needs, project areas containing big game winter range are assessed prior to implementation of any timber sales or other treatments. The existing condition of these areas is evaluated with respect to the standards and guidelines for Management Areas 6 and 8 regarding cover/forage ratios, size and quality of cover areas, the distribution of that cover across the analysis area, and open road densities. Analysis methods include the use of aerial photographs and field surveys, as well as GIS (geographic information system) programs to create computer-generated maps and analyses based on field data. Where deficiencies or problems are noted, project alternatives are developed to incorporate the necessary corrective actions. Following completion of the timber harvest or other prescribed treatments, follow-up monitoring is conducted to assure that treatments were carried out as designed.

During 1992, seven timber sale proposals on the Colville National Forest involved big game winter range. All seven of these areas were evaluated as described above. Timber harvest alternatives proposed for all of these project areas incorporated treatments designed to improve big game winter range conditions and comply with Forest Plan standards and guidelines. No timber harvests involving winter range were completed in 1992, therefore, no follow-up monitoring was called for this year.

Recommended Action

Results OK, continue to monitor. The assessment of big game winter range habitat conditions appears to be progressing as intended and this type of monitoring should continue.

Forest Plan Monitoring

To facilitate better monitoring in this area, the Forest should increase efforts to improve geographic information systems (GIS) computer mapping capability and develop more complete vegetative inventories on all ranger districts. There are currently large differences in the quality and quantity of data available for district biologists to use in this effort, as well as large differences in the analysis capabilities, especially with regard to GIS, between districts. Improvements in these areas will provide greater consistency in analysis between districts, as well as provide for quicker and higher quality assessments over time. Improved data and GIS capability will also enable the Forest to take better advantage of new and developing computer software that incorporates analysis of spatial, as well as structural vegetative data and road locations.

Primary Cavity Excavators

Forestwide Goals

To maintain standing dead and defective trees and down trees for habitat for primary cavity excavators as provided in the Forest Plan.

Purpose of Monitoring

To determine if snags or defective trees are being maintained during project implementation in compliance with the Forest Plan. This monitoring item responds to the following Forest Plan issue questions (Final EIS, I-12-25): How much timber should the Forest harvest and How should the Forest maintain wildlife and fish populations?

Standard

Sufficient standing dead and defective and down dead trees to support at least 60 percent of potential populations of primary cavity excavators within management areas with scheduled timber harvest.

Results and Evaluation

To monitor compliance with Forest Plan direction, timber sale areas are assessed both prior to and after harvest. In some cases, timber sales are only available for post-sale monitoring because they were planned and sold prior to the completion of the Forest Plan. In these cases, pre-sale snag inventories were not required, and the current snag and green tree retention guidelines

were not incorporated into the harvest prescriptions.

Forestwide, a total of 58 timber harvest units were monitored during 1992. Three of these units were assessed for pre-sale snag densities. Over half of the total number of units monitored were in timber sales that were planned and sold prior to the Forest Plan.

In most cases, when pre-sale snag densities permit, timber sales planned and sold under the Forest Plan are retaining the required two snags per acre specified in the Forest Plan. Residual snag densities in sales sold prior to the Forest Plan are generally deficient and do not meet the current retention objectives. Exceptions may occur if the pre-sale condition contained higher than average snag densities. When residual snag numbers in harvested units are deficient, Districts attempt to create snags by topping green trees and/or marking trees to prevent their removal during post-sale firewood collections. Nest boxes are also used to supplement natural cavity availability in some areas. Forestwide, over 500 snags were created, and 164 nest boxes were installed.

Recommended Action

Further evaluation is needed regarding the Forest Plan standards for dead and downed trees. Recent research, as well as efforts currently underway in the Region, indicate the assumptions incorporated into the Forest Plan regarding minimum snag requirements may not be correct and therefore the standards may not be providing the level of habitat quality expected. As this new research information becomes available, it should be evaluated with respect to the existing Forest Plan direction. If this new information indicates that the desired population objectives cannot be met with the existing snag standards and guidelines, the Forest may need to amend the Plan. Improvements in snag monitoring protocol are also being developed which should be incorporated into future monitoring efforts in this area.

The Forest needs to continue and strengthen its efforts to monitor compliance with the snag retention requirements, and improve the reporting procedures for this monitoring item so individual snags or snag clumps can be tracked over time. With regard to implementation monitoring, there is

little value in monitoring timber sales designed prior to the Forest Plan. While post-treatment surveys in these areas do provide useful information about background snag densities for use in estimating future needs, they tell us nothing about the primary reason for monitoring: to determine compliance with the Forest Plan. As the number of pre-Forest Plan timber sales diminishes to zero, this problem, as well as overall compliance with the current snag retention standards and guidelines should improve. In the interim, ranger districts need to be more selective in the sales chosen to determine Forest Plan compliance.

Proper implementation of snag and downed log retention guidelines during timber harvest activities is of little value if post-sale activities reduce these densities below the minimum levels specified by the Forest Plan. In many areas of the Forest, especially near population centers, demand for firewood is creating problems with maintaining desired snag densities. The Districts recognize this as a potential problem, and in many cases have attempted to locate reserved snags and downed logs away from roads to prevent their removal by fuelwood collectors. Although the current firewood policy provides for closure or restrictions if insufficient cavity nester habitat is available within a harvest unit, there seems to be a reluctance to actually close units to fuelwood collecting due to the high public demand. This situation requires continued monitoring and the implementation and enforcement of road closures and/or firewood cutting restrictions when warranted. If these provisions do not allow the Forest to fully meet the snag and downed log retention guidelines, changes in the minimum snag and downed log guidelines and/or changes in the firewood policy may be needed.

Old-Growth Dependent Species

Forestwide Goal

To ensure essential habitat is being provided for wildlife species that require old-growth components, and diversity of such wildlife habitats and plant communities is maintained.

Purpose of Monitoring

To determine if old-growth habitat is being managed in sufficient quantity and quality to maintain viable populations of old-growth dependent species and to meet management objectives for the barred owl indicator species. This monitoring item responds to the following Forest Plan issue questions (Final EIS, I-12-25): How much timber should the Forest harvest and How should the Forest maintain wildlife and fish populations?

Standard

Management Area 1 and associated forage areas are maintained as described in the management area prescription.

Results and Evaluation

To ensure adequate amounts and distribution of habitat for old growth dependent species, the Forest Plan provides for a network of Management Areas (MA-1) containing mature and/or old growth stands. The intent is to provide areas of sufficient size and structural characteristics to meet the nesting and feeding needs of one pair of barred owls, the Management Indicator Species representing species that use lower elevation mature and old-growth forest habitats. To determine if these areas are located correctly and providing the desired habitat conditions, 10 percent of the areas are to be reviewed annually.

During 1992, 11 MA-1 areas (approximately 6,880 acres) were field checked. This represents 17 percent of the total number of these areas designated on the Forest, which exceeds the Monitoring Guide objective of annually monitoring 10 percent of the total. Adjustments were made in the boundaries of four of these areas to meet Forest Plan standards and guidelines and provide the best old growth habitat within that specific network location.

Information on the quality of the MA-1 areas examined during 1992 was not universally reported by the ranger districts, therefore no conclusions regarding the suitability of these areas could be developed for this report. Districts did report making boundary adjustments, and in some cases, adding additional acreages to make the MA-1 areas best fit the desired conditions described in the Forest Plan, but the overall success of these efforts was not reported. More complete information regarding

Forest Plan Monitoring

the on-the-ground conditions within these areas needs to be reported if Forest-level tracking is to be accomplished.

Effectiveness monitoring, consisting of surveys for presence of barred owls was conducted in 10 MA-1 areas (see Chapter 1), with positive results determined in 4 of the areas. Although this is similar to the response rate reported over the previous 2 years, which is reassuring, it does not provide us with the desired level of information. The objective of effectiveness monitoring, as described in the current monitoring instructions, is to determine populations of barred owls, and whether or not these areas are providing effective nesting habitat. Information on numbers of nesting pairs of owls and their nest success rates is what is currently called for. Simply determining presence of barred owls does not provide that information. There is also some indication that the established survey protocol is not being followed completely by all ranger districts. Without strict adherence to survey protocols, it is difficult to compare information collected between districts, and/or over time. Not following established protocols also leaves much doubt over the way negative survey results should be interpreted: were the owls not present, or just not detected because of abbreviated survey techniques?

Recommended Action

Further evaluation is needed. Monitoring to determine condition of MA-1 areas, and their use by barred owls and other species, should continue, but better and more complete reporting of results and greater adherence to established procedures is needed. The Forest should review the monitoring instructions to clarify direction and conduct additional training if determined necessary.

Management Indicator Species

Forestwide Goal

To manage habitat in compliance with Forest Plan standards and guidelines for pileated woodpecker, northern three-toed woodpecker, Franklin's grouse, blue grouse, raptors and great-blue heron, beaver, furbearers, waterfowl, northern bog-lemming, marten, and unique habitat components.

Purpose of Monitoring

To monitor the amount and quality of management indicator species habitat and to evaluate the effectiveness of these habitats through utilization and population trends. This monitoring item responds to the following Forest Plan issue questions: How much timber should the Forest harvest? and How should the Forest maintain wildlife and fish populations?

Standard

Defined management objectives and standards and guidelines must be met.

Results and Evaluation

Habitat for all management indicator species (MIS) is evaluated during project planning. Existing habitat conditions for each MIS is evaluated and projected changes to that habitat are evaluated with respect to Forest Plan requirements. Activities specific to particular Management Indicator Species, such as the designation of special habitat areas or inventories and surveys, conducted during 1992 are summarized below.

Marten

Forest Plan standards and guidelines provide for a network of mature and old-growth stands with sufficient size and structural characteristics to meet the needs of a breeding female pine marten. These areas are to be distributed every 2-2.5 miles across the forest. Although approximate locations were determined during development of the Forest Plan, the exact location, size, and management needs of each of these areas is determined during site-specific project planning.

A total of 68 pine marten units were located, inventoried, and mapped during the past year. This represents approximately 22 percent of the areas designated in the Forest Plan to provide the desired habitat network for this Management Indicator Species. Although habitat conditions vary across the Forest, the individual ranger districts continued to try and place these units within the best available habitat. Republic Ranger District, with its drier Douglas fir vegetative communities, reported the greatest difficulty with placing pine marten areas on sites that currently meet the desired habitat conditions.

Pileated Woodpecker

Pileated woodpecker habitat is provided in the Forest Plan through a network of mature and old-growth timber stands to be distributed every 5 miles across the Forest. Approximate locations determined during Forest Plan development are "fine-tuned" to locate the designated site on the best available habitat during project planning.

During 1992, a total of eight pileated woodpecker habitat units were located, inventoried, and mapped. This represents 16 percent of the areas envisioned under the Forest Plan. Districts continued to locate these areas in the best available habitat within the designated network constraints.

Republic Ranger District was selected as one of five ranger districts east of the Cascade Mountains to participate in a Regional survey of pileated woodpecker habitat. This effectiveness monitoring study was coordinated through the Pacific Northwest Research Station, LaGrande, Oregon. Approximately 5,900 acres, encompassing all of the designated pileated woodpecker habitat units and many MA-1 areas on the District, were surveyed. Pileated woodpeckers were found in all units except one, which is located within the White Mountain fire area. The Republic Ranger District also evaluated a pileated woodpecker Habitat Suitability Index model for application on the Forest. Preliminary results indicate the model has applicability in this area.

Franklin's Grouse and Lynx

Areas with extensive lodgepole pine suitable for Franklin's grouse and lynx are not well distributed on the Forest. During project planning, ranger district wildlife biologists evaluate all potential habitat areas and assess their suitability for these Management Indicator Species. Two planning areas on the Kettle Falls Ranger District contained sufficient acreage of lodgepole pine dominated habitat to warrant further evaluation. In these areas, the lodgepole was too old to be considered good habitat for Franklin's grouse or as lynx foraging areas, and the areas had existing road densities higher than desired. Although regeneration harvests were considered, they were determined not to be economical, and no harvest recommendations were made for this planning period.

Increased interest in lynx was shown statewide during this past year, and the Colville National Forest cooperated in a habitat mapping project conducted by the Washington Department of Wildlife. Results of this mapping effort will become available in 1993.

Raptors/Great Blue Heron Nests

The Forest Plan objective is to provide protection of existing nesting habitat (the nest tree and surrounding area) to ensure its continued productivity.

Protection of known nest sites continued on all ranger districts during project planning efforts. Protection was provided by either moving the planned location of a timber harvest unit to avoid impacting known nests, or by designating a buffer zone and other harvest restrictions in the nest stand to mitigate adverse impacts.

During 1992, the districts also continued to maintain and update information on known nest sites and any new sites encountered. Approximately 1,200 acres were inventoried for goshawk nests.

Recommended Action

Results OK, continue to monitor. Based upon the reported monitoring results, and an on-going review of environmental assessments submitted by ranger districts, there is a strong level of compliance with Forest Plan direction regarding habitat requirements for Management Indicator Species. Few, if any, alternatives proposing vegetative change during 1992 contained provisions that did not meet, or at least work toward achieving, Forest Plan direction.

Although planned activities are in compliance with Forest Plan direction, there appear to be opportunities to create habitat improvements, especially for Franklin's grouse and lynx, that are not being fully realized due to economic considerations and/or the limitations of traditional management approaches to vegetative manipulation. Many important wildlife habitats are found in non-commercial timber types. The Forest needs to take a more aggressive and imaginative approach to managing these habitats if the full potential of these areas is to be realized.

Forest Plan Monitoring

Although ranger districts are assessing designated marten and pileated woodpecker habitat areas as prescribed, the results of those assessments are not being fully disclosed as part of their annual monitoring reports. As with the MA-1 areas, districts report that these areas are checked, and adjusted as necessary to best meet Forest Plan direction, but the actual condition of these areas is not always reported. There is currently no mechanism for tracking or assessing the suitability of these areas on a Forestwide basis. Although the monitoring instructions seem clear, they are not being followed. Different reporting forms clearly identifying the desired information may help.

Protection of raptor nest sites needs to continue, and the Forest should begin an expanded program of effectiveness monitoring to see if the protection measures being prescribed are actually working. Once buffer zones are established in a harvest prescription, further monitoring is necessary to see if this mitigation is actually implemented as planned. There is some indication that these zones are not always retained as designed, indicating a need for better coordination between sale planning and sale administration. Continued monitoring of these nest sites is also needed if the Forest is to evaluate the effectiveness of these buffers. Known nests should be monitored annually to determine if they are occupied, and if occupied, the nesting success (number of fledglings produced).

Threatened, Endangered, and Sensitive Species

Forestwide Goal

Habitats of threatened, endangered and sensitive species will be protected and managed as provided for Forest Plan standards and guideline.

Purpose of Monitoring

To determine whether habitat for threatened and endangered species is being managed as directed under their respective recovery plans, interagency guidelines, and Forest Plan standards and guidelines, and if agency procedures related to sensitive species are being followed. This monitoring item responds to the following Forest Plan issue questions (Final EIS, I-12-25): How should the

Forest manage threatened and endangered wildlife habitat?

Standard

No reduction in populations is acceptable. No more than 2 percent reduction in modeled habitat suitability.

Results and Evaluation

Biological Evaluations

Biological Evaluations are prepared as part of the overall analysis procedure for projects. If effects to threatened or endangered species are predicted, consultation and coordination with the U.S. Fish and Wildlife Service is required. During 1992, Biological Evaluations were developed for 53 different projects to analyze and disclose the effects of proposed projects on threatened, endangered, and sensitive species.

Bald Eagle: Threatened Species

Known bald eagle nests are monitored to determine nest occupancy and success. During 1992, a bald eagle nest on the Pend Oreille River was monitored by the Newport Ranger District. Although the nest and location are still intact, the nest was not used during 1992. The reason this nest was not used is unknown.

Grizzly Bear: Threatened Species

Direction for grizzly bear habitat management is located in the Forest Plan which incorporates the Interagency Grizzly Bear guidelines and Grizzly Bear Recovery Plan objectives. Effects to grizzly bear habitat were addressed in Biological Evaluations prepared during 1992 and the Forest submitted comments on draft Recovery Plan revisions. Only the Sullivan Lake Ranger District has habitat known to be occupied by grizzly bears. Several sightings of grizzly bears were reported during 1992. The ranger district inventoried 25,000 acres of habitat and conducted traffic monitoring behind gates to determine road closure effectiveness. Traffic monitoring indicates that the closures are not as effective as desired.

Woodland Caribou: Endangered Species

Management direction for woodland caribou is included in the Forest Plan. Sullivan Lake is also the only ranger district with occupied woodland caribou habitat. During 1992, the district continued

to evaluate impacts of proposed projects on caribou habitat, conducting inventory on 12,000 acres of caribou habitat in the process. Standards and guidelines regarding management activities in caribou habitat are being met. Coordination efforts with the U.S. Fish and Wildlife Service and the International Mountain Caribou Technical Committee also continued, and comments on proposed Recovery Plan revisions were submitted

Gray Wolf: Endangered Species

Gray wolf monitoring consists primarily of documenting occurrences and reported sightings. In addition to investigating reported sightings, howling surveys are also conducted in an attempt to confirm wolf presence on the Forest. Wolf howling surveys continued on all ranger districts during 1992. Approximately 400,000 acres of land were covered in these surveys. Only one possible response from a wolf was obtained. Although responses to howling surveys were all but absent, eight wolf sightings were reported to the Forest, and one possible wolf track was located. A plaster cast was made of this track for further evaluation, but the results are inconclusive. All wolf sightings were investigated, but no further evidence of wolves was ever found.

Sensitive Plants

Sensitive plants locations are determined primarily through surveys conducted as part of the Biological Evaluation process. During 1992, the Forest expanded its knowledge of sensitive plant occurrences and distribution with the discovery of 91 previously unknown sites. These sites contain populations of 34 different species of sensitive plants, including several new additions to the known flora of the Forest. Records on sensitive plant occurrences at 198 different sites are now maintained. All sensitive plant records were shared with the Washington Natural Heritage Program, as part of a continuing cooperative partnership the Forest and that program.

In addition to plant surveys incorporated into the 53 biological evaluations discussed above, the Forest conducted re-visits on 43 different plant sites to monitor population levels and status of the sites. This represents 40 percent of the sites known on the Forest at the beginning of 1992. Baseline population counts were made for many of the sites, which had no prior count. Sighting

forms for the revisited sites were submitted to the Washington Natural Heritage Program. Population trends cannot be determined at this time, as many of the counts for populations were only the first or second ever recorded.

Recommended Action

Results OK, continue to monitor. Management direction regarding habitat for threatened, endangered, and sensitive species is being implemented as required. Biological Evaluations are being completed as part of the overall NEPA analysis, and submitted to the U.S. Fish and Wildlife Service for concurrence as required. The Forest made significant improvements in the overall Biological Evaluation process and quality of these documents during 1992. These improvements and refinements are continuing into 1993.

The results of road closure monitoring within grizzly bear habitat indicate there are still some problems getting compliance with the closures. Sporadic violations, heavy in some areas, indicate the need to continue monitoring and increase educational and enforcement efforts if grizzly bear seclusion is to be maintained.

Although plant surveys are being conducted, ranger districts need to be more diligent in reporting the desired information. Many sighting forms are returned to the Forest botanist in an incomplete condition, often without the necessary population counts required to monitor the site over time. The Forest also needs to implement an expanded program of sensitive plant monitoring. Current direction to monitor 25 percent of known sites annually was based on a relatively small number of known sites. Surveys conducted over the past few years have greatly expanded the number of known sites, now totaling 198, and without more aggressive monitoring, the required number of sites will not be visited each year. Revisits are necessary to determine population trends and assess if mitigation measures (such as buffer zones or other protective measures) are providing the desired level of plant protection. Site revisits should be scheduled and assigned to Districts based on the number of years since last visit, the need to determine base-line population numbers, and the degree of impact or change at that site since the last visit.

Fisheries

Forestwide Goal

To manage fish habitat in compliance with Forest Plan standards and guidelines for fisheries.

Purpose of Monitoring

To determine if fish habitat and populations are being managed as directed under Forest Plan standards and guidelines to meet desired future condition for fisheries.

Standard

If the habitat condition varies more than 50 percent from what was expected in the project environmental analysis.

Results and Evaluation

Timber sales were monitored on four ranger districts to determine if:

- Fisheries improvement opportunities are being taken advantage of in timber sale areas;
- Fisheries standards and guidelines in the Forest Plan are being implemented as required;
- Stream crossings on fish bearing streams affected by a sale are passable; and
- Key components of the riparian zone in a timber sale area have been identified for maintenance or improvement.

The four ranger districts reported that fisheries improvement projects are being identified and funded when possible. They also indicated that fisheries standards and guidelines were being implemented. All stream crossings in the sale areas monitored were passable to fish and any riparian management that occurred was shown to be improving the quality of the riparian zone. One example of riparian improvement was an increase in hardwoods along the stream in an area where hardwoods were lacking. One ranger district expected some increase in sediment due to proposed timber sales. Effectiveness monitoring should be initiated in the future to determine if there are any negative effects from any increase in sediment that might occur.

The ranger districts report that the desired future condition of improving native fish populations is not being achieved by timber sales. The desired future condition in the individual projects to improve the amount of large woody material, pool:riffle ratio, and instream cover are being met in the timber sales monitored.

The habitat improvement schedule called for 84 fisheries habitat structures to be created during the year and 11 acres of habitat improvements. The Forest exceeded that objective by completing a total of 124 habitat structures and 39 acres of habitat improvements.

Three general types of fisheries habitat improvement projects were implemented during the year. Log structures used to increase pool habitat, cover, and spawning gravel. Fish barriers were used to keep native populations of cutthroat trout isolated from non-native species such as brook trout. Riparian plantings were used to diversify the riparian zone by adding hardwoods such as aspen and willow. Those hardwoods help insect production in a stream which then provide a source of food for fish and also improve beaver habitat. Beaver ponds provide some of the best fisheries habitat on the Colville National Forest.

Most of these projects will need monitoring to continue for several years in order to determine their level of success.

Monitoring indicates Forest Plan standards and guidelines are being implemented as planned. Timber sale projects are meeting desired future condition's for fish habitat as identified in individual project environmental assessments. The Forest Plan desired future condition for fisheries does not contain enough information pertaining to management of riparian areas to provide adequate direction to the ranger districts.

Fish habitat improvement projects are being identified and implemented in numbers that are two to three times higher than identified in the Forest Plan.

Monitoring of fish habitat projects implemented in the past indicates they are functioning as planned to improve pool habitat, instream cover, and increase spawning gravel. Monitoring of these

projects needs to be continued to determine the longevity of these projects and their total contribution to the improvement of fish habitat in the streams.

Timber sales and road construction projects which were monitored during the past year have been shown to be meeting the Forest Plan standards and guidelines for maintaining fish habitat. Many of these projects have included fish habitat improvement projects funded through the use of KV dollars. These KV projects in addition to other fish habitat improvement projects have resulted in a net improvement in the condition of fish habitat on the Forest during the past year. The quantity of habitat improved is small when looking at the entire Forest, however the general trend appears to be upward.

Recommended Action

Results OK, continue to monitor. Further evaluation is needed to determine how the Forest Plan description of the desired future condition for fisheries habitat could be updated to give better direction on how riparian areas should be managed to improve fish habitat. The evaluation should include determining if Forest Plan standards and guidelines should be changed to allow small group selection in the riparian zone, when it is needed to meet the desired future condition for fisheries habitat.

Restocking of Lands

Forestwide Goal

The National Forest Management Act requires regeneration of harvested units must occur within 5 years. Stocking should be sufficient to meet Forest Plan yield projections.

Purpose of Monitoring

To determine if harvested lands are being restocked in a timely manner with the proper number, type, and species of trees to meet National Forest Management Act restocking of lands requirements and Forest Plan projections of future yields.

Standard

Harvested stands should be regenerated in 5 years and stocked to meet 90 percent of potential yields.

Results and Evaluation

Plantation Survival and Growth

First Year	Acres	Percent
Total area planted	4,300	100
Average survival		90
Survival by species:		
Ponderosa pine		89
Western larch		83
Douglas fir		96
Englemann spruce		84
Lodgepole pine		96
Western white pine		90

Third Year	Acres	Percent
Total area planted	5,186	100
Average survival		79
Survival by species:		
Ponderosa pine		80
Western larch		68
Douglas fir		87
Englemann spruce		77
Western white pine		87
Certified as restocked	4,927	95

Approximately 4,300 acres of planting and 1,700 acres of natural regeneration occurred in 1992. Over one million seedlings were planted. The seedlings planted include Douglas fir, western larch, ponderosa pine, western white pine, englemann spruce, and lodgepole pine. Planting took place in April and May. Natural regeneration occurred with and without site preparation, and site preparation methods included prescribed burning and machine piling.

Monitoring indicates compliance with National Forest Management Act stocking standards is achieved at year three on 95 percent of the planted acres, with one treatment. Fifty four percent of plantations, at year three, have stocking levels sufficient to meet Forest Plan yield objectives. On some of the remaining units, it is anticipated that natural regeneration, through seed-in, will bring stocking levels up to meet Forest Plan yield objectives. Other remaining units will need to be

Forest Plan Monitoring

replanted to bring them up to Forest Plan objectives.

Recommended Action

Further evaluation is necessary. The plantation survival and growth report indicates that 95 percent of plantations are being adequately stocked in 3 years after planting. To aid in determining if harvest units are adequately restocked 5 years after harvest, as called for under the National Forest Management Act, all National Forests in the Pacific Northwest Region will be required to report in FY 94 the status of harvest units 5 years after harvest.

Further evaluation of plantations is needed to ensure Forest Plan stocking level objectives are met over time. Forest staff will be reviewing both in the office and in the field Forest Plan stocking levels.

Timber Yields

Forestwide Goal

To ensure yields from harvested lands are sufficient to meet Forest Plan projections.

Purpose of Monitoring

To validate whether actual yields resulting from harvest are meeting Forest Plan projections.

Standard

Actual yields should be within 5 percent of projected yields.

Results and Evaluation

This item is scheduled to be monitored in FY 93 on harvest units implemented under the Forest Plan.

Land Suitability

Forestwide Goal

To ensure harvest is only scheduled on lands meeting timberland suitability criteria displayed in Appendix B of the Forest Plan Final EIS.

Purpose of Monitoring

To ensure programmed harvest is only taking place on lands suitable for commercial harvest.

Standard

No unsuitable lands should have harvest programmed on them.

Results and Evaluation

During the timber sale planning process, all proposed harvest units are evaluated for suitability. In FY 92, one ranger district reported dropping proposed harvest units because the land did not meet suitability requirements due to regeneration difficulties. The remaining districts found no unsuitable areas in proposed harvest units.

The timber sale planning process is the proper vehicle for evaluating suitability of proposed harvest units. Lands are being identified and withdrawn from timber harvest when appropriate. It is not determined yet how these subtractions have affected the overall timber base.

Recommended Action

Results OK, continue to monitor. A Geographic Information Systems computer map layer is being created to track changes in suitability.

Size and Dispersal of Harvest Units

Forestwide Goal

Harvest unit layout, with respect to size and dispersal of openings, will adhere to Forest Plan standards and guidelines.

Purpose of Monitoring

To ensure projects are meeting Forest Plan standards and guidelines and that any proposals for exceptions to unit size limits follow the notice and review requirements for the National Forest Management Act regulations.

Standard

All harvest units will meet size and dispersal guidelines.

Results and Evaluation

No requests were made to exceed the 40 acre size limitation for regeneration harvests this year. Forest and ranger district reviews of planned activities indicate that the districts are adhering to

Forest Plan standards and guidelines related to size and dispersal of openings.

Recommended Actions

Results OK, continue to monitor. Harvest unit layout has been consistent with Forest Plan guidelines.

Acres of Silvicultural Practices by Management Area

Forestwide Goal

Silvicultural practices are consistent with Forest Plan projections displayed on Table 4.10 of the Forest Plan.

Purpose of Monitoring

To determine if silvicultural practices are occurring within the range of Forest plan projections.

Standards

Decade achievements should be within 10 percent of Forest Plan projections.

Results and Evaluation

Silvicultural practices are below Forest Plan projections for all methods.

This is the first year that this item was evaluated by monitoring the timber sales that have been sold. In previous years, this item was evaluated by acres harvested. Acres harvested in FY 92 contain timber sales sold both before and after the Forest Plan was in effect. Sales sold prior to Forest Plan implementation were not designed under the current standards and guidelines and therefore were not considered appropriate for inclusion in the monitoring results.

FY 92 Acres Sold by Silvicultural Practices

Management Area	Even-age Mgmt	Uneven-age Mgmt	Total Sold
2	0	0	0
3A	0	10	10
5	180	240	420
6	130	80	210
7	950	250	1200
8	60	0	60
Total	1320	580	1900

Forest Plan Estimated Average Annual Acres of Silvicultural Practices

Management Area	Even-age Mgmt	Uneven-age Mgmt	Total
2	200	100	300
3A	0	100	100
5	1700	1100	2800
6	500	400	900
7	5200	0	5200
8	1600	0	1600
Total	9200	1700	10900

Timber production and harvesting was a major issue in the development of the Forest Plan. As a response to this issue, standards and guidelines were developed for harvest methods in the different management areas.

To meet visual and wildlife objectives, uneven-age management practices are emphasized in management areas 2, 3A, 5, and 6. Of the major timber sales sold in 1992 within management areas 3A, 5, and 6, 50 percent of the harvest is uneven-age management.

In Management Area 7, where all harvest methods are permitted to meet the timber and forage objectives, 21 percent of the harvest is uneven-age management and 79 percent is even-age management. In Management Area 8, where even-aged management is preferred to meet big game objectives, all harvest is even-age management.

Of the acres of even-age management, 143 acres are to be clearcut, or 11 percent of the total even-age acres sold in FY 92. Where even-age management is prescribed on the Forest, large live trees are being permanently retained to provide future snag habitat for wildlife objectives. All regeneration harvest prescriptions specify that some mature green trees will be left in harvest units.

One ranger district specifies that all seed tree, shelterwood, and clearcut harvest units will have a minimum of six trees left per acre, either snags, green cull, or green live trees to meet wildlife objectives. Another ranger district specifies that in all seed tree, shelterwood, and clearcut harvest

Forest Plan Monitoring

units at least four live, green trees per acre will remain to meet wildlife objectives. On some seed tree and shelterwood harvests, the seed and/or shelter trees are to remain indefinitely; no final removal is planned.

In all harvest types, snags, hardwood trees, and shrub vegetation remain for visual and wildlife objectives. Down woody debris is also left on the site both for wildlife and long term site productivity objectives.

Recommended Action

Further evaluation is necessary. If sell levels continue to be below Forest Plan projections, impacts will need to be assessed.

Social and Economic

Compliance with the National Environmental Policy Act

Forestwide Goal

The analysis and documentation developed for all projects will meet the requirements of the National Environmental Policy Act (NEPA).

Purpose of Monitoring

To ensure the conditions of NEPA are being met.

Standards

All project environmental analysis and documentation must meet Federal, agency, and Forest standards for National Environmental Policy Act compliance.

Results and Evaluation

Five Forest Supervisor authority project decisions were signed in 1992. This includes one timber sale decision counted twice since it was signed, withdrawn, and reissued. All decisions were appealed. All decisions were affirmed by the reviewing office. Total volume of the two timber sale decisions signed is 15.3 MMBF.

Thirty-five district ranger authority decisions were signed in 1992. Of these, four timber sale decisions and one mining exploration decision were ap-

pealed. The Wolf Pup Salvage Sale decision was reversed by the Supervisor's office and then affirmed when more information was supplied. All other ranger district appealed decisions were affirmed by the Supervisor's office. Cooked, Indian Creek Fuelwood, and Albion Hill Post and Pole timber sale decisions were upheld by the Regional Office under discretionary review.

Since 1991, 90 percent of the Forest Supervisor's decisions have been appealed. Most district ranger decision appeals were filed by the Kettle Range Conservation Group. There is increased appellant interest in mining exploration projects and more appeals. Regional Office review of Forest NEPA documents in 1992 has affirmed the documents.

Informal consultation with the U.S. Fish and Wildlife Service on the effects of activities on gray wolf was begun in 1992 for areas outside the wolf recovery plan. There is a need to keep working on the designing site specific best management practices in mitigation measures. This was originally noted in the 1989-90 monitoring report.

Recommended Action

Change management practices in prescribing Best Management Practices for projects to be more site specific. Otherwise, results ok, continue to monitor.

Standards and Guidelines

Forestwide Goal

Forest Plan standards and guidelines are implemented where appropriate and result in the desired future condition described in the Forest Plan.

Purpose of Monitoring

To determine if Forest Plan standards and guidelines are implemented and meet the objective of protecting the resource values identified in the Forest Plan.

Standards

Forest Plan standards and guidelines and management area prescriptions should be implemented and the actual on-the-ground results should approximate predicted results in the Forest Plan.

Results and Evaluation

The Forest Leadership Team and members of the Forest Plan Interdisciplinary Team monitored 11 projects in the field to review how Forest Plan standards and guidelines and prescriptions were applied.

The items monitored included: adjustment of Management Area 1 boundaries; uneven-age management, including visual quality and fuel treatment costs; location of pine marten units; effectiveness of road best management practices to protect water quality; recreation planning and desired future condition; heritage resources and homestead management plan; riparian area management; developed recreation areas and range management; road construction and timber harvest best management practices to protect water quality; fish habitat improvement structures; creation of snags for primary cavity excavators; streamside management within Class IV stream channels; riparian area harvest and stream crossings.

Ranger district staff monitored an additional 11 projects for application of Forest Plan standards and guidelines. Standards and guidelines and prescriptions monitored included: following silvicultural prescriptions in marking of harvest units; treatment of nonsystem recreation trails within harvest areas; skid trail spacing; erosion control structures as best management practices; wildlife trees for primary cavity excavators; transportation management; down and woody material; uneven-age management and visual quality; streamside management units; culverts and fish passage; amount of soil in detrimental condition within harvest units; and range water sources.

Monitoring indicated that standards and guidelines were met.

Recommended Action

The Forestwide monitoring effort indicates for most standards and guidelines, results OK, continue to monitor. Further evaluation was considered necessary to examine possible strategies for meeting long term snag requirements.

District monitoring results included recommendations for future project planning and implementa-

tion. Those recommendations included: may be necessary to restrict the use of tree length logging on steeper ground to protect the remaining understory trees; in some areas, especially on steeper ground, more retention of clumps of trees to meet current and future snag needs could be tried; exceeding visual quality objectives by leaving additional trees in uneven-age management units may create the need to reenter the unit fairly soon to meet stocking and forest health objectives; in some areas, need to develop adequate water sources for cattle outside of the riparian area.

In addition to monitoring completed projects, the Republic Ranger District monitored a proposed timber sale during the planning stages. Field monitoring of the proposed Canyon Bamber timber sale identified the need for an additional alternative, to meet Forest Plan standards and guidelines. Recommendations for the new alternative included: helicopter logging of some harvest units to protect water quality; smaller patch seed tree harvest units to meet visual objectives; eliminate one harvest unit to minimize impacts on a nearby goshawk nest; eliminate one harvest unit because of suitability and reforestation concerns; change shape of one harvest unit to mimic shape of natural opening to meet visual objectives; and move one harvest unit away from stream to minimize impacts on riparian area and water quality.

Coordination with Adjacent Landowners

Forestwide Goal

Determine if effects of Forest activities are affecting adjacent landowners.

Purpose of Monitoring

Meet the requirements of the National Forest Management Act by ensuring the effects of National Forest management on land, resources, and communities adjacent to the National Forest are considered.

Standard

The analysis of proposed Forest activities should include consideration of effects on adjacent landowners.

Forest Plan Monitoring

Results and Evaluation

To aid in the notification and communication with adjacent landowners, mailing lists were updated and consolidated. A copy of the proposed NEPA appeal regulations was sent to the public in April 1992. Sixteen EAs and analysis files were made available to the public for review and comment prior to decision making in the summer of 1992. A forestwide schedule for proposed projects was mailed and in the fall of 1992, this yearly mailing was changed into a quarterly mailing.

Recommended Action

Results OK, continue to monitor.

Comparison of Actual and Planned Implementation Costs

Forestwide Goal

To produce Forest goods and services in the most cost efficient way consistent with providing net public benefits.

Purpose of Monitoring

To determine if Forest Plan activity/unit costs and actual activity/unit costs differ.

Standards

Actual implementation costs should not vary from Forest Plan projections by more than 5 percent.

Results and Evaluation

Unit costs were developed only for the FORPLAN model. Other Forest Plan costs that were developed, but not used in FORPLAN, are annual totals. The FORPLAN model for the Forest uses costs which were aggregated into the following activities: road construction; logging; precommercial thinning; release treatments; reforestation; and sale preparation.

Support to timber (activity code ET113), sale prep (ET114), harvest administration (ET12+), fuels treatment (PF2+), silvicultural exams and prescriptions (ET1112), and landline location (JL24) were aggregated within the FORPLAN model to become timber sale preparation. Throughout this monitoring item, the use of the term "sale prep" includes all of the above activities. With the use of information provided by the *Unit Cost Analysis for FY 92*, prepared by the Forest budget and finance staff, closeout expenditure statements, and outyear budget projections, a comparison of actual reforestation, precommercial thinning, release treatment, and sale preparation unit costs to those used by the FORPLAN model was performed.

Table 3.3 Comparison of Actual Unit Costs and FORPLAN Costs (1992 dollars)

Activity	FY 89	FY 90	FY 91	FY 92	4 Yr Avg	FORPLAN
Reforestation	432	440	462	375	427	623
Sale Preparation	40	45	65	288	110	33
Precomm. Thinning	316	292	280	213	275	270
Release	316	292	280	213	275	74

Note: Sale preparation costs are per MBF, all other costs are per acre. Support to timber (ET113), sale prep (ET114), harvest administration (ET12), fuels treatment (PF2+), and landline location (JL24) were aggregated and labeled as Timber Sale Prep within the FORPLAN model.

Table 3.3 displays the results of the comparison of actual and FORPLAN unit costs. Reforestation costs used by FORPLAN are roughly 46 percent higher than the 4-year average of actual costs. Sale preparation costs used by FORPLAN are roughly 85 percent lower than the 4-year average. FORPLAN and actual precommercial thinning costs are almost the same. FORPLAN release costs are 73 percent lower than the 4-year average of actual release costs.

Differences in actual costs and FORPLAN projected unit costs may impact the Forest budget necessary to produce the level of outputs proposed by the Forest Plan. The impact on Plan implementation of unit costs different from those projected can only be estimated readily with respect to timber harvesting activities (unit costs were developed only for the FORPLAN model). Given the 4-year averages of actual unit costs shown in Table 3.3, the budget to fully implement timber harvesting activities, as stated in the Forest Plan, may have to be increased from \$12.4 million (see Table 4.2) to approximately \$18 million, requiring the total Forest budget to be approximately \$32 million (1992 dollars). For comparison, the actual FY 92 Forest budget was \$21.5 million.

Recommended Action

Further evaluation is necessary. The recommended course of action is to incorporate a thorough activity/unit costs analysis and an evaluation of the impacts of budget shortfalls on Plan implementation into the 5 year review of the Forest Plan called for in the National Forest Management Act. A thorough activity/unit costs analysis should incorporate more than just costs associated with timber activities modeled within FORPLAN. Unit costs for range, recreation, soil/water/air, and other resources should be developed as well. Then the determination could be made whether other resource management activities, as proposed by the Forest Plan, are implementable, given the related unit costs and budgets. A recommended approach for a unit cost analysis would be to focus on those activities which are major contributors to the budget for each resource or program. There would be little value in determining unit costs for every activity conducted on the Forest.

Economic Effects of Plan Implementation

Forestwide Goal

To produce Forest goods and services in the most cost efficient way consistent with providing net public benefits.

Purpose of Monitoring

To note significant changes in payments to counties and returns to the U.S. Treasury from Forest Plan projections.

Standards

Variations will be explained and/or reconciled.

Results and Evaluation

Returns to Government

The Forest Plan estimated that under full implementation of the Plan (including the harvest of 123.4 MMBF of allowable sale quantity), total revenue or total returns to government would be \$12.4 million (1982 dollars). Actual returns to government for FY 92 was \$6.3 million (1982 dollars).

Payments to States

The Forest Plan also estimated that full implementation of the Plan would produce \$3.1 million in payments to states (1982 dollars). In FY 92, the less than full Plan implementation, including a lower harvest level of 82 MMBF, produced payments to states of \$1.6 million (1982 dollars). Payments to states is approximately 25 percent of the revenues received from timber, recreation, minerals, range, and land stewardship programs.

Forest Plan estimates of revenues and payments to states will not be realized until average stumpage values from timber harvested are \$98.25 per MBF (1982 dollars). Stumpage values used in the Forest Planning model, FORPLAN, were developed using 1977 to 1982 average values for the Forest, and following Regional Office guidelines and formulas. The estimated returns to government related to timber would be roughly \$12.4 million (1982 dollars), which reflected an average stumpage value of \$98.25.

Forest Plan Monitoring

However, the actual average stumpage value from timber harvested on the Forest from 1977 to 1982 was \$81.81 per MBF (1982 dollars). The expectation during the Forest Planning process that timber stumpage values would continue to increase at 1977 to 1982 rates has not yet developed. The average stumpage value from timber harvested on the Forest from 1983 to 1992 was \$44.86 per MBF (1982 dollars). In FY 92, the actual average stumpage value from timber harvested was \$62.49 per MBF in 1982 dollars, or \$93.86 in 1992 dollars.

Recommended Action

Further evaluation is necessary. A possible increase in demand for eastern Washington timber could cause stumpage values to increase. The recommendation is to monitor for another year to see if values increase. If, at the end of FY 93 average stumpage values from timber harvested are still lower than those used in the FORPLAN model, then Plan estimates of returns to government, and estimates of payments to states should be adjusted to lower and more appropriate levels.

Planning Modelling Assumptions Primarily FORPLAN

Forestwide Goal

To produce Forest goods and services in the most cost efficient way consistent with providing net public benefits.

Purpose of Monitoring

To determine if FORPLAN modeling assumptions reflect actual Forest conditions.

Results and Evaluation

In FY 92, efforts on converting the Colville FORPLAN model from version 1 to a microcomputer version 2 format continued. Besides the usual typographical errors, other modeling problems were subsequently discovered and corrected during the conversion process. These included:

- For visual quality objectives to be met, the requirements for specific acreages to be harvested with uneven-age management prescriptions during the first three decades were changed from less-than-or-equal-to constraints to greater-than-or-equal;

- For pine marten and pileated woodpecker management requirements to be met, the 3-unit rotation prescription allocations and subsequent acreage requirements for specific analysis areas were changed from less-than-or-equal-to constraints to greater-than-or-equal-to; and

- To ensure visual integrity as intended by the Forest Plan, dispersion constraints were placed on clearcut and shelterwood harvests taking place on visual management emphasis lands allocated to even-age management.

The purpose for developing a FORPLAN model is to have an analytical tool that can be used to aid policy and program development. If a FORPLAN model is to remain useful, then any assumptions and inputs must remain valid over time. The assumptions regarding costs, timber values, timber program budgets, silvicultural treatments, and yields may or may not be valid.

Recommended Action

Further evaluation is necessary. The upcoming 5 year review of the Forest Plan requires a determination of whether conditions on the ground or demands by the public have changed significantly to warrant a Plan revision. The recommended course of action is to validate and/or update FORPLAN model assumptions and inputs pertaining to costs, timber values, silvicultural treatments, and yields during the five year plan review.

Community Effects

This item was not monitored for FY 92 due to the high priority placed on converting the FORPLAN model from a version 1 to a version 2 format. Community effects will be reported for FY 1993.

4. FINANCIAL REPORT

This section of the Monitoring and Evaluation report describes financial characteristics for the Colville National Forest for fiscal year 1992. This section includes a description of the sources and uses of Forest's funds and a comparison of the proposed Forest Plan budget (described in the Environmental Impact Statement) to actual fiscal year expenditures.

Table 4.1a presents the sources and uses of funds, for each program, fiscal year 1992. An annual summary (FY 89-92) of the same information is provided in Table 4.1b.

Operations/maintenance costs, capital improvements, general administration, and payments to states are subtracted from the revenue to give the net cash flow. The net cash flow for the Forest for FY 1992 was a negative 5.5 million dollars; an accumulation of a negative net cash flow for programs administered by the Forest.

Total Forest revenue decreased by 15 percent from FY 1991 to FY 1992. The decrease in Forest revenue was mostly due to the decrease in timber harvested during FY 1992. Total timber volume

harvested during FY 1992 was down 32 MMBF, or 28 percent, from the previous year (see Table 1.2 in Chapter 1).

Timber revenues reflect current commercial market prices. Revenues from the recreation, wildlife and fish, and range programs are collected from user and permit fees which are determined by policy and not by the market. User and permit fees such as these do not cover the full costs of program management. The revenues collected from the water and soil, minerals, and land stewardship programs are also not intended to cover costs. Therefore, the timber program is the only program that is expected to produce a positive net cash flow.

However, FY 89 was the last year that timber did produce a positive net cash flow. The timber program produced a positive net cash flow of over 2 million dollars in FY 89. During FY 90 and FY 91, the net cash flows for the timber program were approximately negative 200,000 dollars each year. The net cash flow for FY 92 was a negative 2.4 million dollars, a deficit increase of 700 percent.

Table 4.1a Sources and Uses of Funds for Fiscal Year 1992 (1992 Dollars), Colville National Forest.

	Timber 3/	Recreation	Wildlife	Water & Soil	Minerals	Range	Land	Total
A. REVENUE 1/ Regular Program Reimb./Co-op Work	9,357,588	88,855			145	48,003	4,454	9,495,023 0
B. OPERATIONS/ MAINTENANCE COSTS	7,113,647	658,838	217,777	48,047	91,885	251,811	620,414	9,003,197
C. ALLOCATION OF CAPITAL IMPROVEMENTS.								
Structural Improvements		82,498	101,100	27,002		50,307		260,908
Nonstructural Improvements			100,876			2,430		103,405
Roads	612,227	233,429					75,797	921,453
Trails		118,240						118,240
Buildings & Facilities	22,585	881	133	477	99	4,118	114	28,185
Other Improvements								
TOTAL IMPROVEMENTS	634,822	432,828	202,208	27,479	99	56,853	75,911	1,430,201
TOTAL OPER, MAINT, IMP	7,748,469	1,091,665	419,985	76,528	91,784	308,664	696,325	10,433,398
D. GENERAL ADMINISTRATION 2/ CASH FLOW	1,686,488 (77,389)	220,855 (1,225,885)	82,022 (482,007)	6,550 (83,078)	9,888 (101,287)	40,151 (302,812)	48,338 (740,209)	2,202,145 (3,140,520)
E. PAYMENT TO STATES NET CASH FLOW	2,320,018 (2,397,387)	21,714 (1,247,378)	(482,007)	(83,078)	38 (101,323)	11,501 (314,313)	1,114 (741,323)	2,354,382 (5,494,902)

1/ Revenues also include monies from special-use permits.

2/ Total Forest general administration and cash flows are greater than the sum of the individual program general administration costs and cash flows. General administration costs which could not be allocated to the various resource programs were added to the Forest Total.

3/ All timber data is from TSPIRS.

NOTE:

a) TSPIRS doesn't include the cost of Law Enforcement or Land Management Planning, so it is not included above.

b) 25% fund is based on regular collection.

Financial Report

Table 4.1b Annual Summary of Sources and Uses of Funds (1992 dollars).

	TIMBER	RECREATION	WILDLIFE	WATER & SOIL	MINERALS	RANGE	LANDS	TOTAL
REVENUE								
1989	13,636,665	93,357	13,865	0	2,106	45,722	5,853	13,787,568
1990	9,314,817	75,424	3,893	0	127	48,641	7,225	9,449,927
1991	11,039,935	79,228	0	0	127	51,321	8,965	11,179,577
1992	9,357,566	86,855	0	0	145	46,003	4,454	9,485,023
OPERATIONS/MAINTENANCE COSTS								
1989	6,482,704	674,145	241,991	76,574	71,377	189,227	683,513	8,427,340
1990	5,283,939	678,699	282,106	25,836	87,193	200,215	479,024	7,036,830
1991	6,436,812	677,150	247,574	108,776	98,057	209,293	488,208	8,265,870
1992	7,113,647	656,836	217,777	49,047	91,965	251,811	620,414	9,003,197
CAPITAL IMPROVEMENTS								
1989	613,708	406,970	244,670	38,309	2,083	124,636	1,500	1,431,878
1990	405,337	452,252	390,981	49,251	907	50,836	1,136	1,320,501
1991	746,739	510,458	298,194	44,475	383	43,062	85,048	1,728,357
1992	634,622	432,829	202,206	27,478	99	56,853	75,911	1,430,201
GENERAL ADMINISTRATION								
1989	1,320,792	164,697	76,584	18,753	11,188	48,154	102,257	2,149,900
1990	1,513,201	190,556	88,673	10,571	12,815	36,722	68,387	2,260,258
1991	1,542,782	330,728	76,486	3,293	12,234	34,524	51,410	2,277,773
1992	1,686,466	220,855	62,022	6,550	9,668	40,151	48,338	2,202,145
PAYMENTS TO STATES								
1989	3,064,898	23,340	0	0	614	11,430	1,484	3,101,748
1990	2,292,238	18,856	0	0	0	12,160	1,709	2,324,864
1991	2,602,265	19,807	0	0	32	12,830	2,241	2,637,176
1992	2,320,018	21,714	0	0	36	11,501	1,114	2,354,382
NET CASH FLOW								
1989	2,154,564	(1,175,794)	(563,244)	(141,336)	(83,155)	(327,725)	(782,681)	(1,327,158)
1990	(180,096)	(1,234,936)	(731,761)	(85,459)	(100,589)	(251,082)	(543,435)	(3,496,904)
1991	(288,662)	(1,458,915)	(620,253)	(156,544)	(110,579)	(249,389)	(617,942)	(3,727,599)
1992	(2,397,387)	(1,247,379)	(482,007)	(83,078)	(101,323)	(314,313)	(741,323)	(5,494,902)

During FY 90, the decrease in the cash flow for the timber program was mostly due to the drop in demand for timber which produced a drop in timber harvest volumes and thereby reducing revenues. To determine what produced the decrease in cash flows for the timber program for FY 91, and more specifically FY 92, an evaluation of operations and maintenance (O&M) expenses is helpful. O&M costs of timber, includes, among other things, the costs of timber harvest administration, reforestation, silvicultural and stand exams, prescription development, timber sale planning, coordination with other resource specialist and timber sale preparation costs. Some of these cost components vary directly with the level of harvest while some vary with the amount of timber being offered for sale.

When compared to FY 89, O&M timber sale offering expenses per volume of timber being offered for sale increased only slightly in FY 90. However, comparing FY 91 and FY 92 to FY 89, O&M timber sale offering expenses rose by approximately 125 and 200 percent respectively. It is costing more money, on a per unit basis, to prepare and offer timber for sale. The increase costs of offering timber for sale reflects the increase in timber sale appeals during the last two years. The increase in timber sale appeals has caused the costs of offering timber for sale to increase in two ways: 1) the Forest has expanded the procedures used to analyze and disclose the potential effects of timber sales and related activities; and 2) the Forest has experienced a significant increase in work load to resolve current or outstanding appeals.

Table 4.2 Comparison of Forest Expenditures: Forest Plan, actual Fiscal Years 89-92. Expenditures are summarized by Program level (1992 Dollars).

Program Level	FOREST PLAN	ACTUAL FY 1989	ACTUAL FY 1990	ACTUAL FY 1991	ACTUAL FY 1992
Timber	12,409,524	7,232,563	8,210,397	10,539,826	11,696,301
Facilities	4,847,855	2,591,881	2,381,657	2,751,397	2,344,958
General Administration	2,541,384	2,214,594	2,296,394	2,252,357	2,186,354
Fire Protection	1,713,181	1,333,277	1,383,228	1,245,471	1,241,833
Wildlife & Fish	1,587,013	490,409	641,290	552,857	437,761
Recreation	1,128,453	1,035,33	1,010,590	998,194	840,404
Lands	761,664	791,127	586,887	579,752	696,914
Range	574,515	309,953	252,534	256,237	308,419
Water/Soils/Air	432,426	328,107	82,508	153,799	109,867
Minerals	243,775	73,461	89,175	98,138	91,477
Wilderness	26,585	13,874	19,961	17,232	23,382
Other 1/ Human Resources 2/	19,526	520,928	503,839	484,339	463,930
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Forest Total 1992 \$	26,285,901	16,935,506	17,458,461	19,929,600	20,441,600
Forest Total 1982 \$	17,500,600	11,275,304	11,623,476	13,268,708	13,609,587

1/ For Actual 89-92, Other includes law enforcement and planning activities. For PLAN, Other includes only law enforcement. Planning expenditures are included with all other programs.

2/ Human resources programs have been excluded from this data base because funding is provided through agencies other than US Department of Agriculture.

Table 4.2

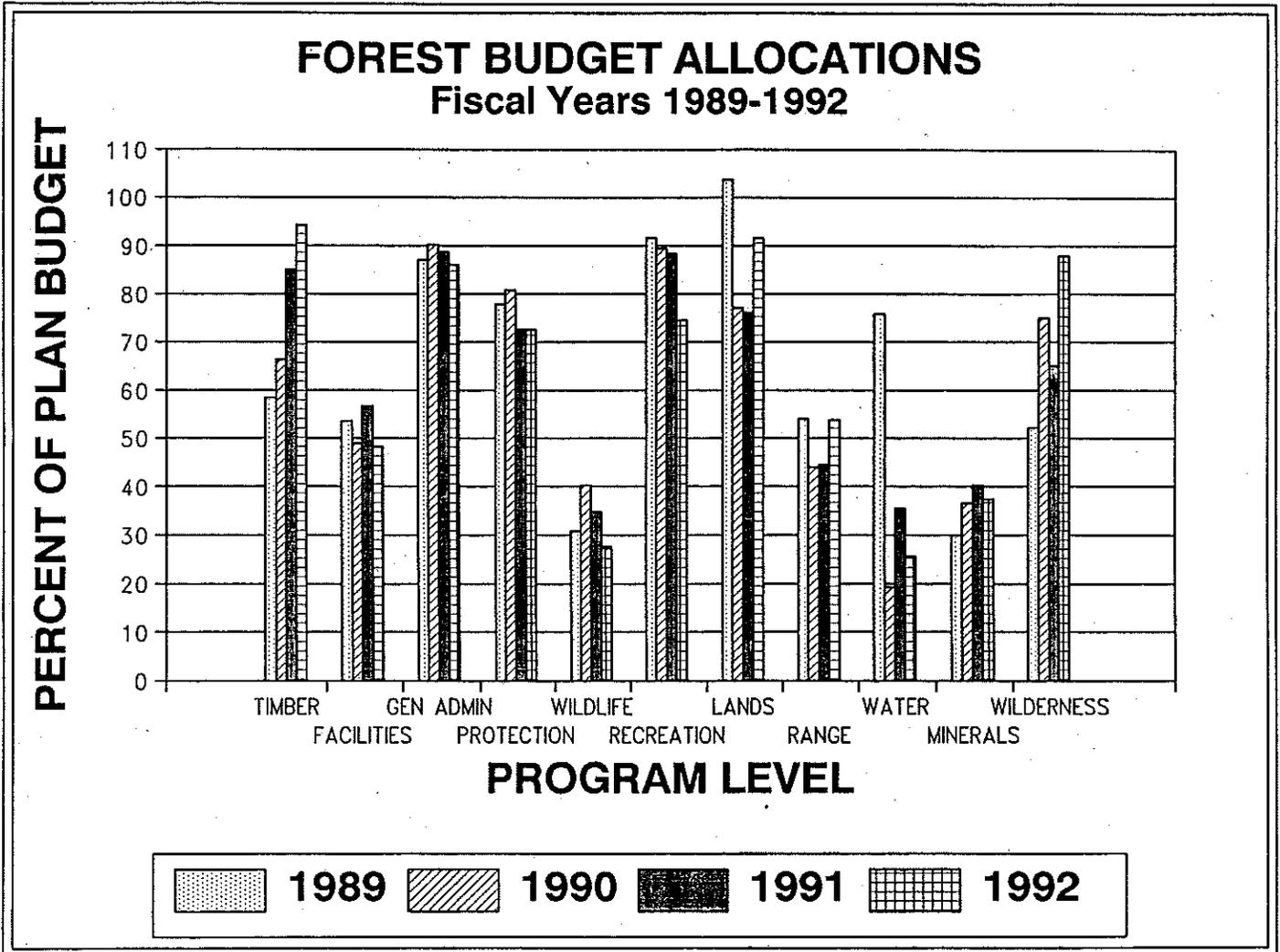
A comparison of total expenditures by the Colville National Forest, FY 89-92, in constant 1982 and 1992 dollars, is presented in Table 4.2. The total budget for FY 92 was \$20,441,600. The proposed budget as stated in the Forest Plan is \$26,285,901 in 1992 dollars. This budget represents a shortfall of \$5.8 million, 22 percent. However, the FY 92 budget was 2.3 percent higher than that of the previous year.

The above comparison can only truly be valid if unit or activity costs (cost per unit of output, e.g., harvest administration cost per MBF harvested) in the Forest Plan were estimated accurately. If the actual cost of doing business on the Colville National Forest were much different than those assumed by the Forest Plan, then it would not be possible to make any strong conclusions regarding Plan implementation based solely on funding levels. Please refer to monitoring item 31, Chapter

3, for results and discussion of the unit costs analysis and comparison.

Figure 4.1 displays actual funding levels for the individual programs in terms of percent of Plan budget. Figure 4.1 shows, during the past 4 years there was only one instance where a program was funded above the proposed Plan budget while all other programs were funded below the Plan level. Trends of funding levels for the individual programs are also shown in Figure 4.1. The recreation, wildlife/fisheries and general administration programs exhibit downward trends in funding while the timber program, and possibly the wilderness program, exhibit the upward trends in funding. The facilities, wildlife/fisheries, water/soil/air, and minerals programs were all funded below 50 percent of the Plan level during FY 92. The wildlife/fisheries and minerals programs have been funded below the 50 percentile since Plan implementation.

Figure 4.1 Percent of Forest Plan Budget by Resource Program



5. AMENDMENTS

The following amendments have been issued for the Colville Forest Plan since implementation began in February 1989:

<i>Amendment</i>	<i>Date</i>	<i>Nature of Amendment</i>
1	11/30/90	Clarifies Forestwide standards and guidelines for wild and scenic rivers, including the Kettle River or any other streams found to be eligible for inclusion in the wild and scenic river system.
2	1/8/92	A site-specific modification to open road densities in the Golden Harvest Creek area on the Republic Ranger District, developed in response to concerns raised by recreationists.
3	9/24/92	A site-specific adjustment of the Management Area 1 boundaries in the Gatorson Planning Area on the Kettle Falls Ranger District, designed to locate the MA-1 in more suitable habitat that better meets the needs of old growth dependent species.
4	12/7/92	A site-specific adjustment of the Management Area 1 boundaries in the Lost Tiger/Granite Planning Area on the Sullivan Lake Ranger District, designed to locate the MA-1 in more suitable habitat that better meets the needs of old growth dependent species.
5	1/28/93	A site-specific adjustment of the Management Area 1 boundaries in the Kelard Planning Area on the Republic Ranger District, designed to locate the MA-1 in more suitable habitat that better meets the needs of old growth dependent species.