

**Forest Plan
Monitoring & Evaluation Report
Shoshone National Forest**

Fiscal Year 1999



Prepared by
Shoshone National Forest Planning Staff
March 2000

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**United States
Department of
Agriculture**

**Forest
Service**

**Shoshone
National
Forest**

**808 Meadow Lane
Cody, WY 82414-4516**

File Code: 1920-2-3

Date: March 31, 2000

Subject: Monitoring And Evaluation Report Certification

To: Regional Forester

I have reviewed the Shoshone National Forest annual Monitoring and Evaluation Report for fiscal year 1999. Analysis associated with project implementation under the Forest Plan indicates that the Shoshone National Forest Land and Resource Management Plan, as currently amended, is still valid and sufficient to guide implementation throughout the coming year.

The Shoshone National Forest is participating in an interagency assessment of winter use in the Greater Yellowstone Area. The assessment addresses conflicts and issues associated with winter use. Once the assessment becomes final, the Greater Yellowstone Coordinating Committee will respond with additional direction. The Shoshone plan may need to be updated to incorporate explanatory information, additional programmatic direction dealing specifically with winter use, management standards and guidelines and monitoring. Any necessary changes will be handled through the revision process.

The Chief of the Forest Service has issued an interim policy placing an 18 month moratorium on road construction or reconstruction in selected areas of the Forest. This interim policy and the resulting final regulation changes to road management direction may need to be incorporated into the Forest Plan. This and other more substantial changes to the Forest Plan will be addressed at the time of revision.

/s/Rebecca Aus

REBECCA AUS
Forest Supervisor

attachment: 1999 Monitoring Report



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INTRODUCTION

Monitoring is the preliminary step in the process of deciding whether or not to amend or revise the Shoshone's 1986 Forest Plan. The statutory purpose for monitoring stated in the National Forest Management Act is to ensure that the management system selected in the Forest Plan "will not produce substantial and permanent impairment of the productivity of the land" [16 U.S.C. 1604(g)(3)(C)]. In order to avoid this result, Forest personnel monitor and evaluate the data collected to determine how well Forest Plan objectives are being met and how closely Forest Plan Standards and Guidelines have been applied. The regulations also allow evaluation on a sample basis rather than a comprehensive basis.

Once the report is completed there are two additional steps in the process of deciding whether to amend the Forest Plan. First, an interdisciplinary team evaluates the data collected through monitoring and recommends to the Forest Supervisor whatever changes the team deems necessary. Second, at some point the Forest Supervisor reviews the team recommendations and makes a decision whether or not change is warranted in the way the Forest Plan is implemented.

The following report evaluates Forest Plan implementation during fiscal year 1999. Additional multi-year data is presented in some cases in order to provide perspective on the current state of Forest Plan implementation.

Lower than anticipated budget levels have caused monitoring and evaluation to be less comprehensive than originally envisioned in many cases. However, monitoring efforts have been sufficient to allow the interdisciplinary team to evaluate implementation of the Forest Plan and make recommendations for the Forest Supervisor's consideration. Shoshone National Forest employees have become increasingly creative at implementing the Forest Plan and monitoring under existing budget levels. Some of the approaches noted in this report such as working with volunteers, permittees, special interest organizations, educational institutions, other agencies and National Forests, will become increasingly common as the Forest becomes more adept at developing alternative ways of getting work accomplished.

This report evaluates Forest Plan implementation under criteria from the 1986 Shoshone National Forest Plan as amended. The report concludes with the interdisciplinary team recommendations to the Forest Supervisor. Some of the recommended changes may be implemented through Forest Plan amendment or revision.

AIR RESOURCE

Effects of Other Resources on Air Quality and Air Quality Related Values

Precipitation samples and weighing rain gauge charts were collected every Tuesday at the National Atmospheric Deposition (NADP) site near South Pass City, Wyoming. Some sample analysis (e.g. - pH and conductivity tests) was performed in the Lander office laboratory. Consistent with NADP sampling protocol, samples were then sent to the Central Analytical Laboratory in Illinois for further chemical analyses. Data has been collected at this site since 1985 and is available at the NADP website (<http://nadp.sws.uiuc.edu>).

Air quality related values (AQRV's) were monitored at two lakes in Class I and Class II wilderness areas: Ross Lake in the Fitzpatrick Wilderness and Lower Saddlebag Lake in the Popo Agie Wilderness. This monitoring is being conducted to assess the effects of acid deposition on water quality. Water samples, as well as zooplankton and macroinvertebrate samples, were collected at both lakes. Each lake is sampled three times between early summer and late fall.

The Bridger-Teton National Forest also collects bulk deposition (precipitation) samples at Hobbs and Black Joe lakes in the Wind River Mountains. These data have been collected since 1986. Data from all the lake sampling is displayed in annual summary reports submitted to the Wyoming Department of Environmental Quality (DEQ).

The National Outdoor Leadership School (NOLS) performed additional AQRV wilderness lake sampling for the Forest Service at 6 lakes in the Wind River Mountains. This work consists of one-time sampling to determine baseline chemistry in an effort to identify low alkalinity lakes. Sampling follows Environmental Protection Agency (EPA) protocol.

The Forest Service reviewed NEPA work being conducted by the BLM for proposed large-scale oil and gas developments in southwest Wyoming; developments that may have a direct impact on Class I areas in the Wind River Mountains. Two large projects are being proposed: the Continental Divide/Greater Wamsutter II natural gas development and the Pinedale Anticline oil and gas development. The Forest Service was a cooperating agency during the completion of the air quality analysis for the Pinedale Anticline project.

The Forest Service is also involved with the Greater Yellowstone Area Clean Air Partnership (GYA-CAP), established to identify and address key issues relating to air quality in the Greater Yellowstone Area. The partnership allows for an exchange of information and improved dialog between State and Federal agencies working in the GYA.

Evaluation

The South Pass NADP site is funded primarily by SF Phosphates as part of their Wyoming DEQ Prevention of Significant Deterioration (PSD) permit. Summaries and trend analysis for this and other NADP sites are available on the Internet at <http://nadp.sws.uiuc.edu>. DEQ and other agencies continually analyze these data. cursory analysis shows a trend toward increasing levels of NO₃ and inorganic nitrogen in recent years. SWWYTAF has incorporated NADP data into the CALPUFF model, which is used to track emissions and acid deposition across southwestern Wyoming. The Forest will continue monitoring this important site.

Based on current data, there does not appear to be a trend in the chemical composition of the lakes being sampled. However, because these lakes are sensitive and susceptible to change from acid deposition, the Forest will continue monitoring both lakes. Continued monitoring of these lakes will allow for development of a sufficient database to allow for quality statistical analysis where general trends might indicate increased nitrate, sulfate, and phosphate acidification. A need to monitor additional sensitive lakes in future years may be necessary as additional data from the existing lakes is collected and analyzed.

Data from the Bridger-Teton lake sampling indicates a general trend of increasing total nitrate deposition (in kg/ha/yr).

The synoptic lake sampling being conducted by NOLS has identified several very sensitive lakes with acid neutralizing capacities (ANC's) of less than 25, which makes these lakes some of the most sensitive in the nation.

Bridger-Teton Forest personnel are entering AQRV lake monitoring data in the Natural Resource Information System (NRIS) air module. This information will be available in the future on an Internet site. These data continue to be evaluated by personnel at the National Biological Survey at Colorado State University in Fort Collins, Colorado.

The lake data has been used in the Southwest Wyoming Technical Air Forum (SWWYTAF) CALPUFF modeling efforts to provide calibration points for the model. Future SWWYTAF efforts may involve the incorporation of the MAGIC model (Model of Acidification of Groundwater in Catchments), which predicts the effects of acid deposition on sensitive high elevation lakes.

The Continental Divide/Greater Wamsutter II natural gas development is located between Rock Springs and Rawlins, Wyoming. The development of 3000 wells and associated ancillary facilities has been proposed. Air quality modeling suggests no impact would occur from this project alone. However, the cumulative impact of this project and other development which is either occurring or will occur in the reasonably foreseeable future could potentially impact visibility in the Rawah and Savage Run Class I wilderness areas one to two days per year at the 0.5 deciview level.

The Pinedale Anticline oil and gas development is located on the west side of the Wind River Mountains near Pinedale, Wyoming. The development of 700 wells over the next ten to fifteen years has been proposed. Air quality modeling, conducted to assess the effects of this development on adjacent Class I and Class II wilderness areas, suggests no impacts would occur from this project alone. However, modeling suggests the cumulative effects of this project, coupled with existing emissions and potential emissions from reasonably foreseeable future projects, could potentially impact the adjacent wilderness areas. For the scenario with the highest development and emission rates, modeling indicates visibility impairment could occur from 11 to 15 days per year at the 0.5 deciview level, affecting the Bridger and Fitzpatrick Class I wilderness areas, the Wind River Indian Reservation Roadless Area and Popo Agie Class II wilderness area. However, because project proponents financed the installation of low No_x burners at the Naughton power plant near Kemmerer, Wyoming, and reduced their permitted levels of No_x emissions by 1,000 tons per year, the Forest Service believes this off-site mitigation is sufficient to offset the modeled impacts.

CULTURAL RESOURCES

Introduction

The role of the cultural resources program is to provide stewardship for the prehistoric and historic sites located on the Forest. Site protection, investigation, interpretation, and public archeology are some of the services provided by the cultural resources program.

Another component of the program is to provide support to the other resource programs on the Forest. This assistance consists of completing the Section 106 process prior to project implementation, as required by the National Historic Preservation Act, and providing input to National Environmental Policy Act (NEPA) documents.

As indicated in the 1998 Forest Plan Monitoring & Evaluation Report, the 1999 report will update monitoring for this resource for both fiscal years (FY) 1998, and 1999.

1. Inventory Completion

Approximately 1,570 acres of the Forest were inventoried and 27 sites were recorded, as a result of Section 106 surveys in fiscal year 1998.

Approximately 1,103 acres of the Forest were inventoried and 22 sites were recorded, as a result of Section 106 surveys in fiscal year 1999.

Evaluation

The Forest Plan cites 1990 as the target date for completion of cultural resource inventories. Given the fact that much of the Forest was not inventoried at the time the Forest Plan was being written, this was not a realistic target. Consequently, a change in management direction was identified in the Forest Plan. The Forest was to develop a program to complete cultural inventories in the next ten years. As a result of relying solely on Section 106 inventories, the second target was missed and four years later much of the Forest remains uninventoried. It is recommended that during Forest Plan revision either the goal of inventorying the entire Forest for cultural resources be dropped, or a completion date be set that is commensurate with the resources expected to be available to do the job.

2. National Register Evaluation and Interpretation of Sites

Thirty-two sites were evaluated for National Register eligibility, and one site was interpreted in fiscal year 1998.

Twenty-five sites were evaluated for National Register eligibility, and one site was interpreted in fiscal year 1999.

Evaluation

The Forest Plan goal of evaluating sites for National Register eligibility was met in fiscal years 1998 and 1999.

A need for change in management direction was identified in the 1986 Forest Plan concerning site interpretation. According to the Forest Plan, a program was to be completed for developing significant sites for visitor information and interpretation. Despite the fact that a Forestwide program was not developed, visitor information and interpretation of significant sites is being provided. During Forest Plan revision, the feasibility of implementing a Forestwide program should be reconsidered.

3. National Register Nominations

No National Register nominations were completed in fiscal years 1998 or 1999.

Evaluation

The Forest Plan cites 1990 as the target date for nominating properties to the National Register. This did not get accomplished and the Forest has a backlog of eligible sites that have not been nominated to the National Register.

It is recommended that during Forest Plan revision either the goal of nominating sites

to the National Register be dropped, or a completion date be set that is commensurate with the resources expected to be available to do the job.

4. Public Archeology

Forest personnel gave two archeological presentations and a site tour in fiscal year 1998.

Forest personnel gave four archeological presentations and two site tours in fiscal year 1999. The Forest, in cooperation with the Wyoming State Historic Preservation Office (SHPO), also conducted a structural stabilization project at a historic site using public volunteers.

Evaluation

The management direction in the Forest Plan concerning public archeology was met in fiscal years 1998 and 1999.

5. Compliance with Cultural Resource Regulations

The Forest received one letter of noncompliance with cultural resource regulations in fiscal year 1998.

The Forest received two letters of noncompliance with cultural resource regulations in fiscal year 1999.

Evaluation

Two of the letters of noncompliance were issued for failure to comply with a programmatic agreement and memorandum of understanding (MOU) concerning range activities. The other letter was received for failure to comply with cultural resource regulations when communication lines were rerouted during the North Fork Highway reconstruction project.

As a result of receiving the letters of noncompliance the Forest, in cooperation with the SHPO, drafted and implemented a remedial plan in fiscal year 1999 in an attempt to resolve the problem. Since implementing the remedial plan, the Forest has met twice with personnel from the SHPO to monitor the Forest's progress on correcting the situation. At both meetings the Forest was found to be complying with the remedial plan and cultural resource regulations.

6. Monitoring

As indicated in the fiscal year 1998 Forest Plan Monitoring and Evaluation Report, no monitoring occurred in fiscal year 1998. Table 1 lists sites monitored in fiscal year 1999 and their status.

Table 1. Cultural Sites Monitored in fiscal year 1999

Site Number	Site Name	National Register Eligibility
48PA201	Mummy Cave	Listed
48PA551	Dead Indian Campsite	Listed
48FR308	Lookingbill	Concurred Eligible
48PA659	Kerwin Town Site	Concurred Eligible
48PA853	Pagoda Creek	Concurred Eligible
48FR402	Thunder Rockshelter	Unevaluated
48FR2886	None	Unevaluated

Evaluation

Three monitoring requirements for Cultural Resources are listed in Appendix A of the fiscal year 1998 Forest Plan Monitoring and Evaluation Report. The monitoring requirements and results of the fiscal year 1999 monitoring program are discussed below.

Monitoring Requirement: Visual assessment of site conditions at 10 sites listed on the National Register.

Monitoring Results: The north wall of the block excavation conducted at Mummy Cave, 48PA201, in the early 1960s is experiencing rill erosion. The southern extent of the block excavation is pock marked from visitors gouging into the wall. No artifacts or features were observed at the site. The site should continue to be monitored to see if additional artifacts or features are being exposed by these disturbances of the unexcavated portions of the rock shelter.

No change in the condition of Dead Indian Campsite, 48PA551, was observed.

Monitoring Requirement: Visual examination of 20-25 sites which have been determined eligible to the National Register. Also update of site forms and reevaluation in case of some early designated sites.

Monitoring Results: No change in the condition of the Lookingbill site, 48FR308, was observed. It was noted that the site is being used by dispersed campers. The District Ranger was notified that this activity has the potential to impact the site.

No change in the condition of the Kerwin Town Site, 48PA659, was observed.

No change in the condition of the Pagoda Creek site, 48PA853, was observed.

No change in the condition of the Thunder Rockshelter, 48FR402, was observed.

No change in the condition of site 48FR2886 was observed.

Monitoring Requirement: Visual examination of areas identified as having high potential for heritage resources and high probability of impacts associated with livestock grazing. (MOU with the SHPO.)

Monitoring Results: Due to the Forest's lack of an adequate cultural resource atlas and database the SHPO waived the Forest's fiscal year 1999 inventory requirement that was agreed to in the MOU.

FACILITIES

1. Road Construction/Reconstruction (Local, Arterial, Collector)

This monitoring requirement allows a 25% deviation from the planned accomplishment for road construction and reconstruction. Table 2 lists the Forest Plan projections for collector and local road construction and reconstruction:

Table 2. Projected Road Construction/Reconstruction 1991-2000

Activity	Collector (Miles)	Local (Miles)
Road Construction	2.0	5.6
Road Reconstruction	1.7	1.9

In fiscal year 1999, one mile of new local road was constructed. A total of 11.7 miles were reconstructed of which 3.8 miles were local roads and 7.9 miles were collector roads. Of the reconstructed miles 0.8 miles were part of the Forest program to correct water quality and fisheries-related problems associated with the Forest transportation system. The 0.8 miles of road were relocated out of a stream bottom. Two culverts blocking fish passage were eliminated and a third was replaced. The work performed in fiscal year 1999 represents 18% of the average annual for new local road construction, 200% of the average annual local road reconstruction, and 464% of the average annual for collector road reconstruction.

Evaluation

Deviations from Forest Plan projections continue to occur. The road construction and reconstruction programs on the Forest have been almost totally dependent on the timber sale program. Roading for support of the timber program is kept to an absolute minimum necessary to harvest the timber and protect the surrounding resources. For various reasons, timber sales with proposed road work have not sold. The trend away from new construction and into reconstruction also reflects the results of the "no net increase" in new roads policy of the Forest.

In the next few years, local and national emphasis on correcting erosion-related problems from Forest Service roads will continue. Both the interagency Clean Water Action Plan and several national Forest Service initiatives emphasize heavy road

maintenance and reconstruction to meet Clean Water Act objectives. It is anticipated that heavy maintenance and road reconstruction on local and collector roads will increase and continue at levels above Forest Plan predicted averages.

As mentioned in monitoring and evaluation reports over the last few years, it is recommended that the number of miles of new and reconstructed roads be evaluated with respect to the timber program and the proposed national road policy. This should occur during plan revision.

2. Roads Closed (System Miles Closed by Project Activities)

In fiscal year 1999, 0.8 miles of new local road were closed after completion of timber sale activities. At the end of fiscal year 1999, there was an inventoried total of 269.5 miles of closed road on the Forest.

Evaluation

Table III-1 in the Forest Plan shows that there should be 99 miles of closed road on the Shoshone National Forest each year. The inventoried number of closed miles indicate that the Forest is at 272% of its average annual accomplishment. As indicated in the fiscal year 1998 report, this probably indicates that the Forest needs to continue to look at its closed roads and evaluate them for decommissioning as roads. This should be done at the time of plan revision.

3. Roads Obliterated (Road Miles Obliterated by Project Activities)

The number of miles of new Forest Development Road (FDR) constructed are measured against road miles obliterated (decommissioned). For each running five-year period, beginning October 1, 1994, the cumulative number of new miles of FDR constructed should not exceed the cumulative number of miles of road obliterated (decommissioned) in the same five-year period of time.

In fiscal year 1999, 39 miles of road were decommissioned. The Forest Plan projects an average annual of 7.6 miles per year for decommissioning (obliteration). In fiscal year 1999, the Forest met 513% of that projection. The five-year average for decommissioning is 15.2 miles and the average since 1988 has been 8.0 miles per year.

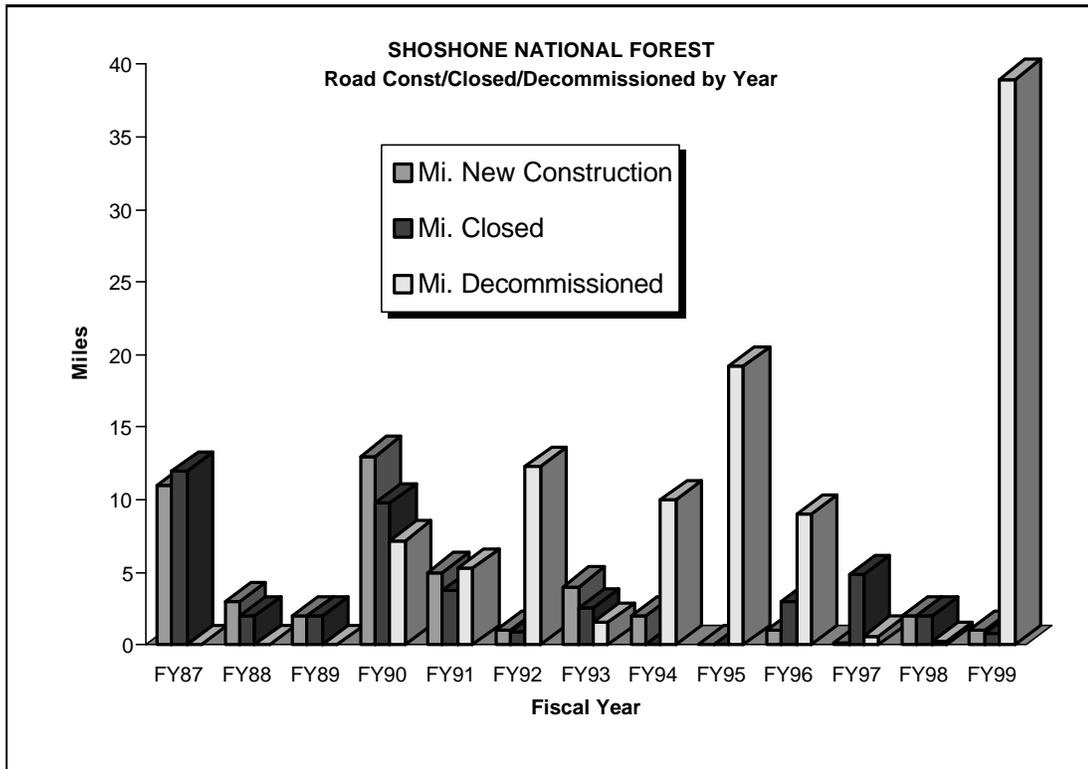
At the end of fiscal year 1999, the five-year total of roads constructed minus roads decommissioned equalled a negative 63.9 miles. This means that over the past 5 years, 63.9 more miles of road have been decommissioned than new miles of road constructed.

Evaluation

The Shoshone National Forest is not within the allowable variability for this item of $\pm 15\%$ of the average annual. However, this is not a cause for concern. The Forest is committed to an orderly process of road decommissioning. New national road policies expected in the next one to two years will emphasize decommissioning of existing roads no longer needed for the use or administration of National Forest lands. The interagency National Clean Water Action Plan also emphasizes road decommissioning for watershed protection. In addition, national Forest Service initiatives emphasize road decommissioning. It is anticipated that the Forest will continue an aggressive program of road decommissioning.

The following chart summarizes road construction/obliteration and closing for the Forest.

Figure 1. Road Construction/Decommissioning by Year



4. Level 1 Road Maintenance (Miles of Level 1 Maintenance Accomplished)

Level 1 (closed roads) maintenance was performed on 57 miles of Forest Development Roads in fiscal year 1999. No deficiencies in the closures of these roads were reported. The Forest Plan predicted an average annual output for Level 1 maintenance of 332 miles. Actual miles maintained were 17% of this total.

Evaluation

Because priority is given to the Level 3, 4, and 5 roads where public health and safety are a significant concern, Level 1 roads are the lowest priority for maintenance. Current budgets do not allow for road maintenance activities at levels estimated in the Forest Plan. The Forest has adopted a policy of doing at least 25% of the Level 1 road maintenance each year. This goal is more attainable than full maintenance on all Level 1 miles each year.

National policy for deferred maintenance requires that each mile of road receive a condition survey once every 5 years (20% per year). This policy will be implemented in fiscal year 2000 for the Forest's Level 1 roads.

During Plan revision, the average annual output for Level 1 road maintenance should be changed to 20% of the total mileage every year to meet national requirements.

FOREST PLAN BUDGET

Actual Costs of Applying Management Direction from the Forest Plan

This monitoring item was intended to track the actual costs of implementing the Forest Plan and to verify assumptions made in the plan. The budget level necessary for implementation of the mix of goods and services projected in the 1986 Forest Plan was an estimate. Since 1986 changes have occurred in the budgeting process including changes in the fund codes used to track dollars allocated to a particular resource area.

Actual costs of applying management direction from the Forest Plan are monitored by simply comparing actual expenditures each year with Forest Plan projections.

Evaluation

The total 1999 expenditures for the Shoshone National Forest represent approximately 73% of Forest Plan projections (Table 3). Although fluctuations in funding occur on an annual basis within particular resource areas, the overall trend in the last decade has been downward. The Forest's ability to implement Forest Plan management direction depends on the budget allocated by Congress.

In fiscal year 2000, the Forest Service converted to a completely new accounting tool. The Foundation Financial Information System (FFIS) replaces all previous accounting systems. In addition, a change to how project funds are expended has been implemented through the Primary Purpose Principle. Several budget line items will require significant adjustment as a result of Primary Purpose. These changes will make it difficult, if not impossible, to compare current expenditures with Forest Plan

projections. In the future, this monitoring item will have to be addressed qualitatively.

Table 3. Comparison of fiscal year 1999 Expenditures to Forest Plan Full Implementation Budget (Thousands of 1999 Dollars)

Cost Center and Cost Center Components	Fund Codes	fiscal year 1999 Expenditure	Forest Plan
Ecosystem Planning			
Inventory and Assessment	NFIM	592	976
Planning and Monitoring	NFEM NFLP	33	0 103
Recreation and Wilderness			
Recreation Management <i>Includes Facility and Trails Construction and Maintenance</i>	NFRM/NFRN NFTR CNTR (non-CIP)** CNRD CNRF (non-CIP)**	996 211 180 74 11	952 352 421 19 154
Heritage Resource Mgt.	NFHR	13	106
Wilderness Management	NFWM	491	390
Cooperative Work	CWFS, CWKV *	2	0
Wildlife and Fisheries			
Wildlife Habitat Mgt.	NFWL	156	455
Inland Fisheries Mgt.	NFIF	68	167
TE&S Species Mgt.	NFTE	224	396
Cooperative Work	CWFS, CWKV *	6	0
Rangeland Management			
Grazing Management	NFRG	199	385
Rangeland Vegetation Mgt.	NFRV	224	154
Cooperative Work	CWFS, CWKV *, RBRB	30	83
Timber			
Timber Sales	NFTM SSSS CNRD PCPT	573 42 112 0	508 115 77 0
Reforestation & Timber Stand Improv.	NFFV/RTRT ¹	569	257
Cooperative Work	CWFS, CWKV *, BDBD	39	25
Water, Soil and Air			
Soil, Water, & Air Mgt.	NFSO	109	201
Watershed Improvement	NFSI	216	210
Cooperative Work	CWFS, CWKV *	13	0
Minerals Management			
Minerals Management	NFMG	52	228
Infrastructure Management			
Real Estate & Special Use Management	NFLA NFLL	131 84	166 27

* CWKV,CWFS – activity codes were checked to properly apply to the correct cost center.

¹ \$303,000 are RTRT funds. These are special reforestation funds from sources other than regular appropriations and were not included in last year's figure nor in Forest Plan projections.

Cost Center and Cost Center Components	Fund Codes	fiscal year 1999 Expenditure	Forest Plan
	LALW	10	32
Road Management and Maintenance	CNRM	310	713
	CNGP (non-CIP) ²	0	257
Facility Maintenance	NFFA	118	304
Cooperative Work	CWFS, CWKV *	4	0
Protection Of Basic Resources			
Fire Protection Mgt.	WFHF	324	359
	WFPR	578	964
Cooperative Law Enforcement	NFLE	37	27
Cooperative Work	CWFS, CWKV *	0	0
General Administration			
General Administration	NFGA	1,143	1377
GRAND TOTAL		7,974	10,960

² CNGP, road maintenance, is no longer budgetted.

MINERALS

Compliance with Terms of Operating Plans and Consistency with Forest Plan

1. Leasable Minerals

In 1987 Congress passed new laws regulating oil and gas leasing. Both the USFS and BLM then promulgated new regulations governing oil and gas leasing. As a result of the new laws and regulations the Shoshone National Forest prepared an Environmental Impact Statement (EIS) to amend the 1986 Forest Plan to include provisions of the 1987 law. The EIS was completed in 1992 and a Record of Decision (ROD) approved in December of 1995. From April of 1990 until the approval of the ROD no leasing was taking place on the Forest.

The Record of Decision for the Oil and Gas Environmental Impact Statement was administratively appealed and the decision upheld. A lawsuit was subsequently filed in Washington D.C. District Court by eight local conservation groups. The Earth Justice Defense Fund argued the appellant's case in the lawsuit. The courts ruled in favor of the Forest Service in the suit, upholding the ROD and Oil and Gas EIS. This ruling was appealed and on January 15, 1999 the United States District Court of Appeals for the District of Columbia issued a decision on the *Wyoming Outdoor Council., v. United States Forest Service*. The courts concluded that the Forest Service's interpretation of its regulations was not erroneous and affirmed the judgement of the district court upholding the Forest Service's leasing decision.

The upholding of the ROD and Oil and Gas EIS is a significant decision for the Forest Service and the Forest's leasable minerals program. The validation and verification process was a key appeal issue and it was determined that the Forest was interpreting and implementing the process correctly and effectively.

One Application for Permit to Drill (APD) was received in 1999, the Scott Well #2 exploratory well. The proponent for the APD requested that the Forest perform the necessary NEPA analysis. The proposed action was initially incorporated into the Ramshorn Vegetation Management Analysis but is now a separate NEPA project due to a delay in the remainder of the Ramshorn project. Analysis was begun in 1999 and will continue into fiscal year 2000. It is expected that a decision will be issued in 2000.

Evaluation

Based on available information there were 10,889 acres under lease on the Shoshone National Forest at the end of the fiscal year. This represents approximately one percent of the acres made available for lease (954,300) by the Oil and Gas EIS, Record of Decision.

Monitoring of reclamation efforts on the Lava Mountain well pad in 1999 indicated those efforts were only partially successful. Therefore, the lease holder, in cooperation with the Forest, will be performing additional work in the area in fiscal year 2000. Work will include planting additional trees and potentially reseeding some of the pad where planted vegetation did not germinate this past year.

2. Common Variety Minerals

Seven free use permits were processed and/or utilized in 1999 comprising over 452,000 tons of material. These permits are issued primarily to state, local, and federal governmental agencies or municipalities such as Wyoming Department of Transportation or Fremont County. The majority of the material was used in the reconstruction of the North Fork Highway between Cody, Wyoming and the east gate of Yellowstone National Park. In addition, some of the material was also used to repair and resurface the Beartooth Highway.

Evaluation

Commercial interest in rock material, especially decorative rock, is increasing on the Wind River Ranger District. The residential development in Teton County and the Jackson Hole area is generating the demand. As the cost of building materials increases it is expected that there will be a growing demand for the use of the Forest as a source of rock and gravel material.

PROTECTION

1. Fuels Treatment Target

The fuel treatment program on the Shoshone National Forest involves reduction of both management activity-generated fuels and natural fuels. Activity fuel reduction focuses on activities which generate wood debris such as logging, tree thinning and road right-of-way clearing. Natural fuel reduction focuses on vegetation exceeding natural volumes based on the assumption of natural disturbances and agreed-to thresholds. Forest Plan Standards and Guidelines for activity-generated fuel provide direction to reduce or treat fuels so the potential fireline intensity will not exceed 400 BTU's/sec/ft (4 ft flame length) on 90% of the normal fire season. There is also direction to isolate continuous fuel concentrations or provide additional protection. The measurement frequency for natural and activity fuel treatment is the annual planned target +/- 25%.

The use of prescribed fire as a vegetation management tool has increased on the Forest in the last couple of years along with emphasis on watershed, soil and air protection and management of noxious weeds. It is critical that the use of prescribed fire and wildland fire be coordinated with soil, water and air protection and control of noxious weeds.

In fiscal year 1999 the Forest had a target of 3,500 acres of natural fuel treatment. One hundred percent of the natural fuel target was completed. All activity fuel treatments satisfied the Forest Plan Standards and Guidelines.

Evaluation

A review of the Forest Plan is suggested to ensure the appropriate level of soil, water, and air protection is being afforded. It is recommended that this review occur as part of Forest Plan revision.

2. Fire Management Effectiveness Index

Monitoring fire management effectiveness involves measuring the relative effectiveness of fire protection by comparing funds spent on suppression to resource loss. The model used to determine the best combination of firefighting resources to achieve the least resource loss is the National Fire Management Analysis System. A six year old analysis had been used to evaluate fire management effectiveness. A new analysis was completed in 1999 and will take effect in fiscal year 2002.

Absaroka Beartooth Wilderness Fire Management Plan, 1993, allows for prescribed natural fires on the Shoshone National Forest portion of the wilderness. The wilderness fire plan is not addressed in the Forest Plan so it is unclear whether the wilderness fire management guidelines are incorporated into the LRMP.

In the Fitzpatrick Wilderness and Popo Agie Wilderness the Forest Plan allows natural occurring fires to burn 1,000 acres from June 20 through September 30 and 2,000 acres from October 1 through June 19 within a “confine” wildfire suppression strategy. Confine is no longer a recognized suppression strategy and has been replaced with wildland fire managed used for resource benefits (Fire Use). The burned acres established in the plan do not recognize Forest Plan standards and guidelines III 96-97 “wildfire suppression is based on least-cost plus damage with consideration for policy concerns”, “Take suppression action on all escaped fires considering natural barriers, and fuel breaks”, or III-6 “Allow natural succession to proceed without human intervention in designated wilderness”. Current policy and technology establishes the appropriate acres burned (Maximum Manageable Acres) for wildland fire being managed for resource benefit. This analysis process documented in the Wildland Fire Implementation Plan, determines the area to be managed using a host of decision criteria. The process is interdisciplinary in nature giving a comprehensive look at the planned burn acres verses a non-site specific pre-determined fixed acre.

Evaluation

As mentioned in the 1998 Monitoring and Evaluation Report, terminology in Forest Plan Standards and Guidelines, Fire Protection and Appendix F of the Forest Plan may not be consistent with current terminology adopted after the Federal Wildland

Fire Management Policy & Program Review (1995) and the Wildland and Prescribed Interagency Fire Management Policy (1998). As an example, “prescribed natural fire” has been replaced with “wildland fire use” and “control/contain/confine” strategies no longer represent types of management strategies. A review of the Forest Plan is recommended for consistency with the newly adopted fire policy. Outdated terminology should be replaced with new terminology.

A review of the Forest Plan is also recommended to ensure the appropriate guidelines from the Absaroka Beartooth Wilderness Fire Management Plan are incorporated.

In addition, it is recommended that direction in the Forest Plan for the number of acres (limits) that can be wildland fire managed for resource benefit (Fire Use) within the Fitzpatrick and Popo Agie Wilderness be reevaluated. Through Forest Plan amendment or revision the Forest should adopt a dynamic procedure to determine the appropriate acres to be managed as “Fire Use” within these wilderness areas.

The most efficient level of fire protection capabilities for the Forest based on the 1999 analysis is \$907,314 (1999 dollars). The Forest received \$518,700 or 60% of the most efficient level of fire protection.

RANGE

1. Grazing Use

Grazing use is defined as the amount of forage used by permitted commercial livestock on the forest. The amount of forage consumed by recreation visitor livestock is not included in this category.

Commercial Livestock: Table III-1 in the Forest Plan contains a list of management practices and the proposed outputs for those practices (see Chapter III, pages III-13 to III-14 for range projections). In terms of grazing, the Forest Plan predicted an average annual output of 78 thousand animal unit months (AUM) for cattle and horse grazing and 25.4 thousand AUM for sheep and goats for the period of time between 1985 and 2000. Commercial livestock grazing for the Forest was predicted to be 103.4 thousand AUM per year. Since several allotments are no longer allocated for commercial livestock, the allocation for cattle and horses is now 77.4 thousand AUM and that for sheep is 20.3 thousand AUM, for a total of 97.7 thousand AUM.

Table 4 displays annual authorized commercial livestock use on the Forest between 1986 and 1999. "Authorized non-use" refers to grazing use offered but not taken by the permittee for personal or for resource protection reasons. Although vacant allotments are available for grazing, they are not being grazed currently either due to lack of demand or because grazing permits have been waived back to the Forest Service and new permits have not yet been issued.

Table 4: Actual Available Commercial Livestock Grazing Use (1,000 AUM)

Year	Cattle/Horse	% Plan	Sheep*	% Plan	Total	% Plan
Forest Plan	77.4		20.3		97.7	
1986	54.6	71	3.5	17	58.1	60
1987	76	58.6	2.0	10	60.6	62
1988	56.4	73	2.3	11	58.7	60
1989	57.9	75	2.3	11	60.2	62
1990	64.3	83	2.3	11	66.6	68
1991	57.7	76	1.6	8	59.3	61
1992	49.1	63	.9	5	50.0	51
1993	56.0	72	1.4	7	57.4	59
1994	53.6	69	.4	2	54.0	55
1995	56.8	73	.2	1	57.0	58
1996	56.8	73	1.3	7	58.1	59
1997	54.2	70	1.6	8	55.8	57
1998	58.2	75	1.4	7	59.6	61
1999	56.5	73	1.3	7	57.8	60

*No commercial goat grazing is occurring on the Shoshone.

Evaluation

Grazing use since 1986 for cattle and horses has been below what the Forest Plan projected. Sheep grazing use has fluctuated since 1986 beginning with approximately 37,000 AUM in 1986 to a low of 13,000 AUM in 1995. Demand for sheep grazing has been down due to depressed markets, predation problems and potential conflicts with threatened and endangered wildlife species.

2. Forage Utilization

In 1999 forage utilization was measured on 119,324 acres, which include all or parts of 26 allotments. This represents 32% of a total of 82 allotments grazed (see table 5). Most of the allotments on the Shoshone are managed under a modified deferred-rotation grazing system. Under this system, grazing is delayed or not scheduled on a given area or unit of the allotment during the active growing season to allow for plant reproduction, recovery or establishment of new plants.

The Forest has an ongoing utilization and range condition trend monitoring program for permittees, established with assistance from the University of Wyoming and the Agricultural Extension Service. As a result, permittees monitored 12 of the allotments listed in table 5 denoted with an asterisk.

Evaluation

In general forage utilization by commercial livestock did not exceed acceptable standards in any one allotment during the 1999 grazing season. In some instances, utilization for specific areas within allotments did exceed acceptable standards. The level of utilization within these areas was not representative of the average utilization within the entire allotment and did not exceed acceptable standards by more than 10% on the allotment.

Table 5. Acres of Forage Utilization Monitored

Allotment Name	Acres Reported
Bald Ridge	5,000
Basin *	9,900
Bayer Mountain *	2,511
Bear Creek	10,612
Belknap *	6,700
Crandall	5,700
Dick Creek *	3,200
DuNoir	8,000

Allotment Name	Acres Reported
Ed Young Basin *	3,629
Face of the Mt. *	5,100
Fish Lake *	4,181
Frye Lake	3,000
Ghost Creek	6,000
Greybull *	12,350
Hays Park	1,280
Horse Creek	2,020
Lake Creek	4,200
Little Rock Creek *	3,000
Maxson Basin	975
Middle Fork	960
Salt Creek *	6,130
South Pass	1,920
Total for Forest	141,574
Union Pass	8,362
Warm Springs	5,444
Wiggins Fork *	12,540
Wind River *	8,860

3. Range Condition and Trend

Range analysis field exams are conducted according to a process described in the Region 2 ***Rangeland Analysis and Management Training Guide***. Due to funding and personnel constraints resulting from the congressionally mandated inventory of structural range improvements, range analysis data was not collected in 1999.

4. Allotment Management and Permittee Plans

The Shoshone National Forest released the Environmental Assessment for 31 livestock grazing allotments in mid December 1999 for public review and input. The comments received will be addressed and a decision notice will be issued later this year. Allotments analyzed in this document are:

Bald Ridge, Bench, Crandall I, Crandall II, Face of the Mountain, Ghost Creek, Table Mountain, Bennett Creek Allotment Complex (including: Deep Creek, Little Rock, Stockade, Deep Lake and Line Creek East), Burnt Mountain, Peat Beds, Big Creek, Dunn Creek, Trout Creek, Green Creek, Robbers Roost Allotment complex (including: Logan Mountain, Pearson, Rattlesnake, Jim Mountain), DuNoir, Union Pass, Warm Springs, Wind River, Bayer Mountain, Ed Young Basin, Frye Lake, and Middle Fork.

Annually, short-term grazing instructions are developed and reviewed by the agency and permittee. These annual instructions specify the rotation schedule, number of livestock, the season of use and any other instructions or permit conditions that will assist in the management of the resource and in implementation of Forest Plan standards.

Evaluation

Upon completion of the NEPA process for the remaining 31 livestock grazing allotments, the Forest will be well ahead of its 15-year schedule for analysis of all 82 allotments. In addition to the on-going analysis, annual grazing instructions were issued to all permittees authorized to graze livestock on National Forest Lands.

5. Forage Development (Range Readiness)

Sufficient plant development helps insure the long-term health and vigor of the forage resource. The Forest Plan requires that 10% of active grazing allotments annually be checked to verify adequate forage development prior to livestock use. Plant development on the following allotments was field checked in 1999 to confirm the on-date:

Basin, Dick Creek, Hays Park, Fish Lake, Salt Creek, Wiggins Fork, Sunshine, Table Mt., Little Rock Creek, Bald Ridge, Piney Creek and Timber Creek.

Evaluation

Data collected confirmed that plant development was at or beyond the desired stage prior to the livestock on-date of all allotments checked.

6. Noxious Weeds

In 1999, the Wapiti and Clarks Fork Ranger Districts were inventoried for noxious weeds and undesirable plants. Data was entered digitally into a Forest database and will be shared with other Forests in the Greater Yellowstone Area for use in the development of an area map of weed infestations. All the adjacent Forests and

Yellowstone National Park will use this map to help prioritize treatment areas and provide valuable information to adjacent land managers.

Forest personnel, contractors and adjacent County Weed and Pest Districts performed treatment on approximately 1200 acres of National Forest land infested with noxious weeds. Treatments included the use of chemical, mechanical and biological control agents.

Evaluation

Since this was the first comprehensive inventory of these two districts, the information gathered will be used on the Forest to establish a baseline for comparison with future data collection, to monitor the increase or decrease of weed infestations and as a way to measure the success of this year's, as well as future, weed control treatments.

RECREATION

In 1999, the emphasis for the front country recreation program on the Forest continued to be "having a strong field presence of highly qualified rangers" providing for health and safety of the Forest visitor, stewardship and protection of forest resources, and clean well-maintained facilities in addition to high quality services. A daily log for compliance and monitoring purposes was required of each ranger during the field season.

Priorities were:

- To initiate deferred maintenance condition surveys for all facilities, and continue inputting all inventory and condition data into a Forest database.
- To protect the health and safety of Forest visitors and prevent human/bear conflicts. To protect the grizzly bear by providing high levels of information, education, interpretation, monitoring, and compliance relative to the bear.
- To keep all administrative sites and public recreation facilities safe, clean, and well maintained.
- To perform adequate levels of monitoring, clean up, and site rehabilitation in dispersed areas so that Forest visitors have a high quality experience.
- To provide adequate levels of compliance/enforcement patrols to assure users and resources are protected, and user conflicts minimized.
- To educate visitors on proper land ethics and multiple use, focusing on no-trace techniques and avoiding human/grizzly conflicts.

- To work as partners with resorts and outfitter naturalists to provide public safety, land stewardship, and high quality value-added visitor services (including education and interpretation).

Monitoring was integrated in all aspects of fieldwork. In addition the Shoshone National Forest continued work on several nationwide Forest Service initiatives designed to help recreation managers better implement and monitor quality recreation experiences and facilities. Generally these initiatives involve establishing a database to record all developed and dispersed recreation sites, their conditions, visitor occupancy rates, and their costs of operation. The Meaningful Measures and Infrastructure databases are currently in place on the Forest and baseline data is being entered. An inventory of the recreation facilities' deferred maintenance backlog was undertaken during the 1999 season and will continue in the future.

1. Off Road Vehicle Use of Designated Travelways

Off-road vehicle (ORV) use on the Shoshone National Forest is restricted to travel on designated roads, signed with white arrows and/or Forest road numbers, and snowmobiles traveling on snow where permitted. Off-highway vehicle (OHV) use both nationally and on the Shoshone National Forest, is increasing. As a result of this use problems and user conflicts continue. A good share (50% on the Forest's south zone) of violation notices issued in fiscal year 99 related to off-road violations. Off-road use is monitored by Forest personnel whenever possible through observation and inspection while on patrol. Generally, Forest personnel monitor high use areas on a weekly basis throughout the summer and fall. Law enforcement patrols were routine for Law Enforcement Officers with assistance from Wyoming Game & Fish Department personnel and local law enforcement personnel.

Snowmobile trails (especially on the south zone) have been attracting summer and fall motorized use and are being monitored during the during 1999 and 2000 in conjunction with the State of Wyoming. Closure gates installations are planned by the State of Wyoming where necessary.

As noted in the 1997 Monitoring Report, several areas on the Forest are of particular concern. The areas of concern, which were identified in the winter of 1997/98, were incorporated into the 1999 monitoring plan. Areas of concentrated monitoring for the 1999 use season are listed below, by district.

Evaluation

Washakie District: District personnel are having difficulty responding to the overall level of OHV use on the district, and increasing public pressure for more ORV trails.

Wind River District: Monitoring by Forest Service law enforcement personnel indicates that the increasing use trend in the Union Pass area continues.

Wapiti District: Forest personnel on the Wapiti District monitored OHV use

through visual observation, photography, violation notices, and incident reports. Information gathered in the field was entered into a daily journal and new roads were mapped.

Clarks Forks District: The following are problem areas: Morrison Jeep Trail, Fantan, and the Lily Lake trails. Due to changes in Forest priorities, these areas were patrolled only once a month via all terrain vehicles (ATV). Focus was on off-road violations, resource damage (primarily from camping), and violation of the bear orders. During the months of July and August there was an increase in complaints by the public reporting ORVs in the upper Sunlight Basin area, not complying with the Forest travel management plan. Extra patrols were sent out and violation notices were issued to operators when violations were found. Roads and dispersed areas associated with roads in the following areas were monitored daily: Bald Ridge, upper Sunlight, Clay Butte, Upper Morrison Jeep Trail, Fantan, Crazy Creek, Pilot Creek, Russell Creek, Antelope Butte, and Muddy Creek. Each of these areas was monitored throughout the summer by visual observation. Patrols were documented and violations and incidents were recorded.

Monitoring continues to indicate an overall increase in OHV use on the Clarks Fork District. Of particular note, as in previous years, was the Bald Ridge area where over 60 vehicles a day are common during hunting season. The Morrison Jeep trail and the Upper Sunlight area are also experiencing an increase in OHV use, particularly among ATV users.

Greybull District: OHV use continues to increase. Problems with off road use were reported on Phelps Mountain, past the closure gate.

Monitoring indicates that on the southern portion of the Greybull District, in the Cottonwood Creek area, OHVs are traveling onto the Forest from private land in the south. Four wheeler tracks were observed off-road in the Cottonwood drainage.

Visits to the Kirwin area on the Greybull District continues to increase. Traffic counters have been installed along the Wood River Road to track all vehicle travel. Vehicles have been going around the closure gate to the town site causing noticeable resource damage. Vandalism has occurred at the Double Dee Ranch and has been reported to law enforcement officers.

Table 6 summarizes off-road use concerns.

Table 6. Off-Road Use Summary

Road System	Concerns	Remedies/Actions
Clocktower	Off-road travel is causing resource damage. Signs and gating appear to be effective.	Mitigation decisions made with the Wyoming Highway Department have resulted in the road being leveled and graveled and a parking/turn around area added. Barriers in the form of large boulders now block the road above the parking area. This has effectively prohibited illegal road use. The old illegal road continues to naturally silt in, rehabilitating it. Monitoring will need to continue
Elk Fork	This road continues to worsen. Intrusion into sensitive riparian areas continues as travelers drive around ruts and muddy spots. Heavy rains last spring caused large amounts of rock and mud debris to cover the parts of the road that cross natural drainage areas. Drivers traversed these slide areas leaving very rough conditions. The firewood sale area resulted in many spur roads, which have infringed upon more of the riparian areas along the river. Most damage occurs during hunting season.	Road monitoring during hunting needs to increase. Road restrictions may have to be implemented.
North Fork side roads	<p>Between Goff Creek and the East Entrance to Yellowstone, fishermen make a habit of accessing the river by driving at random where no road exists. Between Goff Creek and Clearwater Creek, historical use of non-established road use continues by fuelwood cutters, hunters, and fishermen. While these roads are continually monitored, total compliance will most likely not occur until this section of the highway is reconstructed.</p> <p>Even as the road construction was taking place this year between Clearwater Creek and the East Entrance to the Forest, users were accessing the river by creating new travelways.</p> <p>An access road to the North Fork River running roughly between Kitty and Libby Creeks has not been reported in previous monitoring reports. The road is traversed by leaving Highway 14/16/20 where the road leads to the BSA Camp and then turning upstream just prior to crossing the North Fork River. The road returns to Highway 14/16/20 at Libby Creek. The road is deeply rutted with many spurs created over time.</p>	<p>Access roads have been signed prohibiting use. Closure gates have been installed at the following locations: 50 Mile Creek drainage north side meadow; Grinnell Creek summer home access; spur road that led to a sensitive riparian area off the Boy Scout Camp road. Also large boulders were placed to prohibit travel at both ends of the 50 Mile Creek drainage south side and on both sides of the 50 Mile Creek drainage north side meadow closure gate.</p> <p>These roads have been signed prohibiting use.</p> <p>A side road within Big Game Campground that accesses the river and creates enforcement problems for illegal camping was gated</p> <p>More time will be spent during field season 2000 assessing the road condition and use.</p>
Kitty Creek	Off-road use is increasing, especially in previous harvest areas. Intrusion into wilderness is occurring.	The road was closed above the summer homes, which has prevented vehicle travel. Also, road rehabilitation has taken place between the closure and the end of the former road. In the future, monitoring should take place to assess how well the old road way is mending.
Blackwater	Vehicles are creating new by-ways, particularly in wet areas.	Gating and rehabilitation have helped situation. The healing process of the illegal side road gated 4 years ago continues to go well. The

Road System	Concerns	Remedies/Actions
		main road remains in nearly the same condition as reported in 1998. Rutting and deep holes, which fill with water during rains and melting snow, continue to invite travelers to increase the width of the road by driving around these spots. Continue monitoring.
Sweetwater	Minimal off-road use is occurring. Potential for damage is low. Conditions of the two spurs off the main road remain the same as reported in 1998.	Continue monitoring to deal with any damage. If resources are available, some effort should be made to block access on these roads. The primary purpose would be to prohibit camping rather than control road damage as little resource damage is occurring.
Logan Mountain	Vehicle use past signs and gate continues. Gates are being destroyed. Two monitoring trips in 1999 indicate illegal road use continues. All signs stating road use is prohibited no longer exist. The area is extremely difficult to monitor because of the remote nature and traveling via legal access is nearly impossible.	Gates and signs have been repaired. Patrols will increase.
Rattlesnake Mountain (Monument Hill)	In the past private landowners have restricted public access. Two monitoring trips were taken to this area. The first to assess dispersed campsites for meaningful measures. The second upon completion of the road project, which was part of a mitigation agreement between a landowner and the county. Now that an agreement has been negotiated, future monitoring trips will be more frequent. At this point, it is too early to evaluate compliance with road use.	Public access has being negotiated between the county and private landowners.
Ishawooa Creek	ATV use past Mariposa Ranch/USFS gates is causing new pathways. ATV use remains high in this area with a great deal of off-road travel. The area is difficult to patrol mainly due to access.	There is a definite need for installing signs. Planned for completion either this fall or early next spring. Regular patrols need to increase
Aldrich Creek Outfitter Corral Access	Off-road use to the corral area is no problem. However, above the corral area the road leading to the fenced riparian area is getting increased use with some deep rutting and off-road use occurring. This road should be evaluated for a possible gate. In previous years, this monitoring report indicated the large accumulation of manure from the corrals.	Manure pile is no longer present.
Aldrich Creek Access	Illegal roads continue to be used. Historic use of these illegal roads has made enforcement difficult. The occurrence of deep rutting and resource damage continues.	Carsonite signs installed indicating road closures and/or white arrows disappear as fast as they are installed. The persistent placement of signs may eventually improve the situation.
Schoolhouse Creek	Some travel beyond road end occurring.	A new "road closed" sign remains in place where illegal road use was occurring above the Valley Cemetery. Since the placement of the sign, travel has not occurred.
Carter Mountain Road	Recent assessment indicates widespread off-road use continues, primarily by ATVs	Reintroduction of white arrow signs occurred in 1999. Keeping signs in place (on and off the Forest) is difficult as users remove the signs nearly as fast as they are placed. ATV off-road use is wide spread. Depending upon resources, a more concerted effort will be made in 2000 to keep signs up to date.

Road System	Concerns	Remedies/Actions
Table Mountain, Clay Butte-Absaroka Beartooth Wilderness	Motorized off-road use is causing some resource damage in these areas.	Daily patrols monitor use. Compliance patrols checking for OHV use and resource damage.
Fantan/Morrison Jeep, Upper Sunlight, Russell Creek/ Clarks Fork Canyon Trails, /Crazy Lake Trail Lily Lake Trail, Bald Ridge	OHV use is increasing, particularly during hunting season	Compliance patrols have decreased. OHV use will be monitored
Phelps and Kirwin areas	OHV/ATV use is increasing	
Union Pass, Warm Springs, and Sheridan Creek	Use increasing on closed roads, snowmobile trails & off road, especially during hunting season	Gates are planned with State of Wyoming on some snowmobile trails in 2000 & 2001. Need increased signing and more patrols.
East Fork, Bear Basin, Horse Creek, & Double Cabin	Fall hunting use on closed roads and off road use.	Need increased signing & more patrols.
East of Louis Lake Road	Fall hunting use on closed roads, and off road use increasing during summer.	Additional gates and berms needed on closed roads. Snowmobile trails to be gated in 2000 & 2001.
South Pass	Off road travel is occurring due to ease of terrain	Increased summer/fall patrols are needed
Dickinson Park	Fall hunting use of closed roads, particularly on Government Slope	Increased fall patrols are needed

2. Trail Condition

Summer/Fall Use Trails

Trail condition is monitored annually on the Shoshone National Forest. In 1996 the Forest implemented a formal Forest-wide trails monitoring program. The monitoring goal for all districts was 100% of all mainline trails during the season. In addition to the mainline trails, a sample of 50% of all secondary trails was to be monitored and the results documented. All monitoring data is kept on file within each of the district offices. There are 1,388 miles of trails on the Shoshone. Motorized use is allowed on approximately 460 of these miles. In 1999, all mainline trails and the majority of secondary trails were maintained and monitored. In addition, a portion of the ways (or undeveloped trails) was monitored.

The priority on the Forest pertaining to trails management in 1999 was, and will continue to be over the next 4 years, deferred maintenance condition surveys. These surveys are the essence of very detailed inventory and monitoring of existing conditions and needs.

Trail condition monitoring on the north zone was recorded on trail monitoring forms and photographs. All data was input into a national database that will be used to direct future management of the trails system on the Shoshone National Forest.

The Forest Plan calls for maintenance of trails that provide for a full range of recreation opportunities. It also states that design and maintenance of trails should be appropriate for the intended use. Throughout the Forest, there is an extremely wide

range of recreation opportunities available relative to the trails system and management objectives, ranging from challenging foot travel to motorized uses. The majority of trails on the Forest are currently constructed and maintained to be compatible with the intended use. The only exceptions are those trail segments outside wilderness that were not intended for motorized use. But due to the introduction of ATVs the last decade, and the tremendous increase in their popularity, many primitive trail segments are being used and resource damage is occurring.

The 1999 trails budget continued to be above historical averages. The amount of maintenance accomplished was relatively high, and the overall trail system on the Forest was maintained to a high standard relative to safety. Maintenance priorities in the Washakie and North Absaroka wilderness areas continue to be public safety and resource concerns because of the numerous high-risk hazards inherent in these areas. In the Wind River and Beartooth Mountains, maintenance priorities continue to be structures, because these granitic areas do not possess the inherent safety risks.

Structures

The majority of bridges are still serviceable and safe, but due to age some may need replacement in the near future. Two bridges with a high priority for replacement currently are the Cut Coulee Bridge and the Red Creek Bridge, both on the Wapiti District. The Forest's south zone trail program has emphasized structures, therefore their corduroys are maintained to a higher degree than on the north zone. However corduroys continue to be a major challenge for maintaining to standard in the granite portions of the Forest. The major problem in the Beartooth area is not only the absence of structures where needed, but also the deteriorated condition and nonfunctioning of many existing structures. Due to human health and safety priorities in other areas of the north zone, resources required to bring these structures up to standard have not been committed. There are many other areas on the north zone where trails have inherent safety hazards. Although these structures in the Beartooths are of major concern, they are very obvious to the user and do not constitute a major safety hazard.

The lack of adequate drainage structures Forestwide, in conjunction with minimal maintenance/installation has resulted in a less than satisfactory condition of drainage structures. A higher emphasis is being placed upon installation and maintenance of drainage structures, and more intensive training for crews relative to this situation will occur beginning in fiscal year 2000. In addition, a program statement for trails management is being compiled which will contain specific trail maintenance standards (including standards for drainage) relative to trails on the Shoshone National Forest.

Evaluation

Meeting public expectations for acceptable levels of trail maintenance continues to be a problem for the Shoshone National Forest. Although many areas still need maintenance, there are many miles of trail at an acceptable standard considering the type of use, the amount of use, and the management objectives for the specific area

(i.e. primitive wilderness vs. nature interpretation adjacent to a campground). Many trails are located in terrain that limits the ability to achieve handbook standards, and management objectives on wilderness trails mandate a lower standard (and therefore higher risk and challenge) than that usually specified as a general standard in handbooks.

Sections of mainline and high-use secondary system trails that are impassable receive first priority; sections that present hazards with unacceptable safety risks (based upon the land management objectives and the experienced user concept) are the second priority; and the sections of trail that are contributing to resource degradation are the third priority. Trail crew flexibility allows the highest priority work to be completed throughout the season. Funding levels, though higher than in past years, do not allow the Forest the luxury of considering convenience of the user as criteria for trail maintenance.

Overall use of trails is increasing along with an increase in varieties of use, except in remote pristine and primitive areas. In addition to hikers, backpackers, and horses, use on some parts of the Forest includes mountain bikes, wheelchairs, runners, llamas, and goats. Llamas and goats are used on both wilderness and non-wilderness trails. Each of these activities is accompanied by a separate set of maintenance challenges. Use of motorized vehicles on trails, both where permitted and in many areas where restricted, is expanding rapidly, especially summer use of four-wheelers in the Dubois area and the Morrison Jeep Trail in the Beartooths.

On nonmotorized trails on the Forest's north zone, horses are the predominant use except in the Beartooth area where backpacking is the primary use. Use on the north zone has been fairly static due to late snow/high water and probably the increasing presence of grizzly bears.

Due to the extreme type of terrain present in many wilderness areas (slick rock, cliffs, boulder fields, and talus slopes), and the annual problems associated with high water, it is impossible to eliminate all the major safety hazards using only primitive skills technology. Motorized rock drill authorization was received this year for the Jones Creek project, and will be necessary in many situations involving rockwork if trails are to be maintained to an acceptable standard.

The majority of safety hazards for both humans and livestock are related to rock hazards on steep side slopes. Excessive grade and poor alignment with inadequate drainage continue to cause the most resource damage.

One of the major problems relative to trails management on the Forest, and one that needs to be addressed during Forest Plan revision is "management of trails for the intended use". As stated above, certain segments of non-wilderness trails were never intended for motorized use, and they are currently receiving it. This is due to the fact that when the latest Forest travel map was printed, motorized use on many of these areas was not a consideration. No motorized use was associated with these trails at that time, nor was any foreseen or anticipated. The original design and intended use was for foot and horseback travel.

Other problems relative to trails that surfaced during the deferred maintenance survey this season were related to trail standards. The design standard and the maintenance standard to be used for the deferred maintenance effort are nebulous because of the many different and, at times, conflicting standards they are based on. There is only one survey standard for deferred maintenance. However, the FSH 2309.11 trails handbook has standards that are based primarily upon recreation use desires (challenge, convenience, visual views, social criteria, etc.) in lieu of basic design and resource protection standards.

Trail condition for the 1999 use season as reported by district is:

Wind River District: Deferred maintenance inventories were completed on 100% of the Washakie Wilderness trails. Wilderness rangers and trail crew staff monitored 100% of the mainline trails on the Wind River District. Monitoring forms and photos were used to record the findings of the field crews.

In 1999, a Sierra Club volunteer group continued repair and rehabilitation on the Jade Lake Trail, and eight wilderness rangers cleared most of the mainline trails of downed timber. Many areas of trail braiding are getting worse and will continue to deteriorate without significant attention. Lack of regular maintenance over the last 40 years has led to significant erosion of tread material. Many small bridges and rock structures need replacement.

Washakie District: One hundred percent of the mainline trails and 90% of the secondary trails were monitored on the district in 1999. Trail monitoring reports and photo documentation of problem areas were recorded for each trail segment that had not been documented before. No monitoring of way trails took place due to limited staffing and the low amount of visitor use on these trails.

Another Sierra Club group continued to work on one heavily impacted area on the Bear's Ears Trail. Budget and staffing levels do not permit the level of attention required to complete the identified trail maintenance. A \$100,000 force account reconstruction project was completed on two miles of the Middle Fork Trail to Popo Agie Falls, with many partners and outside funding sources contributing.

North Zone (Greybull, Wapiti, & Clarks Fork Districts): Monitoring indicates that the majority of the mainline and secondary trails on the north zone are meeting the management objectives for health and safety. Way trails are being monitored at least every 5 years for condition and use.

Many of the trails on the zone have reached a maintenance plateau. Trail crews are able, for the most part, to keep them open and maintained to their current level. In most areas this level meets management objectives with regard to human safety. Not much more can be done to maintain these trails without major reconstruction. One of the major challenges on the zone is the instability of the Absaroka volcanics - any significant rainfall causes slides and blowouts. Many trails become unserviceable due to storms, and have to be worked several times just to keep them open.

As a result of continuing monitoring efforts, segments of the Jones Creek, Kitty Creek, and Grinnell trails which had been previously identified as priorities for reconstruction to eliminate major safety and resource problems, were reconstructed.

Due to heavy resource damage over the past few years, FS road 136, Muddy Creek Road was closed to motorized vehicles (1 ½ miles) and is open to foot and horse traffic only.

Winter Use Trails: The Shoshone National Forest is experiencing increased winter use. Winter trail use is monitored annually and trails are groomed and maintained in cooperation with the State of Wyoming and local snowmobile clubs.

Evaluation

On the Clarks Fork District monitoring indicates increasing use and has also identified some curtailment of snowmobile intrusions into the Absaroka Beartooth Wilderness due to new signs installed seasonally, warning snowmobilers about motorized vehicles in the wilderness. These signs also show where the wilderness boundaries are.

On the Forest's south zone, evaluation of data collected from 25 infrared counters was completed by the State of Wyoming's Department of Commerce. Since this was the first year, much was learned about the operation and maintenance of counters in winter conditions. There were many holes in the data relative to amounts of use on trails throughout the winter. Data was inconclusive although some good base line data was collected.

The State of Wyoming supplied the south zone Law Enforcement Officer with 2 snowmobiles and a trailer to assist in compliance with the State requirement for snowmobile registration and display of registration stickers. This applies to both residents and non-residents alike. Patrols on the Forest relating to registration compliance have resulted in a significant increase in the purchase of stickers in some areas such as the Beartooths. Compliance on the Washakie and Wind River District trail systems has been fairly high because enforcement has concentrated on this the past several years. Wilderness trespass has been improving on both zones as a result of patrols and increased signing of Wilderness boundaries for winter recreation. A small percentage of snowmobilers continue to trespass.

The Shoshone National Forest has been represented on an interagency team charged with evaluating winter visitor use in the Greater Yellowstone Area. The team was chartered by the Greater Yellowstone Coordinating Committee (GYCC) in response to greatly elevated levels of snowmobile use in Yellowstone National Park, and a number of other issues that are, or could potentially, affect the six national forests and two national parks represented. The team performed an assessment of the current winter use conflicts that are occurring in the GYA. Issues include crowding, safety, air quality, wildlife impacts, community expectations, wilderness trespass, adequacy of facilities, and conflicts between different user groups. The preliminary report on

winter use was published in April of 1997. The draft EIS was released in 1999, and resolution appears distant.

The work done in the assessment deserves continued attention in this report because of the ongoing issues associated with winter use by various segments of the public. Use is increasing in some places on the Shoshone National Forest; some conflict areas are being aggravated. The National Park Service (Yellowstone and Grand Teton) are engaged in preparing an EIS evaluating winter use as the result of a lawsuit settlement. The Forest Service is a cooperating agency in that effort, and the Shoshone Forest Supervisor represents the agency directly. We expect to analyze and document potential effects on the GYA forests, including the Shoshone, from a variety of alternatives for winter park management. The national forests are under a similar shadow for possible lawsuits on our winter programs. At the same time, Wyoming State Parks and Recreation personnel are requesting they be allowed to widen trails in order to accommodate trail-grooming machines and faster and greater amounts of snowmobile traffic more safely. The need for continued monitoring of winter recreation use and visitors' perceptions (social/economic) is indicated to prepare for the Plan revision effort.

3. Dispersed Recreation Use and Experience and 4. Dispersed Campsite Condition

In 1999, approximately 65% of dispersed sites on the north end of the Forest were monitored. Dispersed sites along roads were monitored more frequently than backcountry sites. On the south zone, 100% of the dispersed sites were inventoried and monitored on the Wind River Districts, and 50% on the Washakie District.

Evaluation

In 1999 the following areas were priorities on the Clarks Fork District. The Morrison Jeep Trail was only patrolled once a month via ATVs focusing on off-road violations, resource damage (primarily from camping), and violation of the grizzly bear special orders. Also because of past erosion problems on the switchbacks at the east end of the Morrison Jeep Trail, Clarks Fork Canyon, a volunteer group secured state grant funding and installed water bars, cleaned out or replaced culverts, and re-enforced banks with rock walls for the lower two thirds of the trail. Dispersed areas associated with roads in the following areas were monitored daily: Bald Ridge, upper Sunlight, Beartooths, Upper Morrison Jeep Trail, Fantan, Crazy Creek, Pilot Creek, Russell Creek, Antelope Butte, and Muddy Creek.

Within the North Fork of the Shoshone River corridor on the Wapiti District, resource degradation and littering from dispersed camping is minimal. Dispersed camping is not allowed within 1/2 mile of the highway. Consistent enforcement of the special order prohibiting this has virtually eliminated any problem dispersed areas on the corridor. Compliance was again a priority throughout the Forest. The majority of citations given were for violation of the grizzly bear food storage order (see

Compliance with Grizzly Guidelines section under Threatened, Endangered and Sensitive Species). Signing on the districts has been kept current and up to date. Visitors at the trailheads and campgrounds received information and education from Forest personnel. Every effort was made to keep users informed of the orders and the situation with grizzly bears. Table 7 summarizes dispersed recreation use on the Forest.

Table 7. Dispersed Recreation Use Summary.

Area	Status	Remedies/Actions
Lower Sweetwater Road	Past monitoring reports have indicated one campsite in this area - there are now four sites. Most of the use in all sites has been by high school and college students. Little resource damage has occurred due to the nature of the rocky terrain, but a great deal of time is spent cleaning debris and garbage from the sites. Future assessment may include finding ways to block access.	The first site located just across the bridge from the Wapiti Campground was closed this fall by building a berm
Lower Kitty Creek Road	No use of the sites is occurring. Since the closing and rehabilitation of the road, minimal if any use of the sites is projected.	Monitoring will continue.
Blackwater Creek Road	Minimal use except at road's end.	Sites cleaned and rehabilitated.
Elk Fork Creek Road	As previously reported, this area receives the most use of any dispersed location. Users have been fairly responsible. Many spurs were created to access available wood due to the firewood sale that took place this year along the road.	Monitoring efforts will have to be more consistent in 2000 to determine if the creation of these will lead to more dispersed camping spots.
Clocktower Creek Road	The creation of the small trailhead and closure of the road above the trailhead have made dispersed camping in the immediate vicinity nearly non-existent.	Future monitoring will determine if any use occurs.
Aldrich Creek Road	A prescribed burn this season has all but eliminated the dispersed sites that were formally used.	No actions necessary.
Carter Mountain Road	Since a major rehabilitation of sites in 1998 and greater emphasis on patrolling the area this season, responsible use of sites has been more evident.	Continue monitoring and rehabilitate as necessary.
Clearwater Creek Spur Road	No longer exists do to new road alignment.	No actions necessary.
June Creek Road	Rehabilitation of the road that accessed the campsites has effectively closed the area to use.	
Mummy Pit Area	Use has not recurred this season.	
Misc. North Fork Corridor Sites	Use of two sites both in narrow canyons - one NW of Clearwater Campground and the other NW of Mummy Pit - received limited use this season. Because both areas are located in rocky terrain resource damage is limited.	Clearing fire rings and the areas of debris is the major emphasis.

Area	Status	Remedies/Actions
Deer Creek	This area located along Deer Creek remains a constant problem due to irresponsible use. The site was cleaned of debris and fire rings were removed on a weekly basis.	If use continues to be irresponsible in 2000, the Hawkeye Ranch will be approached about locking the gate that not only accesses their irrigation head gate but also the dispersed camping area. The key(s) to the locked gate would be shared by the ranch and FS.
Brooks Lake, Wiggins Fork Road, Double Cabin Road, Union Pass	Heavy use is occurring.	Monitoring will continue.
Louis Lake Basin	Dispersed use is increasing,	Scheduled for CIP starting in 2001.
Sinks Canyon	Overflow parking conditions are increasing.	Joint BLM, USFS and volunteer trail construction has reduced resource damage potential.
South Fork Shoshone	Ice climbing use is increasing. Education about bighorn sheep has helped with responsible use.	Monitoring and climber education will continue.
Wild Iris Climbing area	Use is increasing.	Toilets have been installed. Monitoring will continue.
Rattlesnake-Monument Hill	There are many known dispersed campsites in this area which have not been monitored in many years. Now that the legal issues allowing access have been resolved, a concentrated effort will be made to initiate a monitoring program in 2000.	
Logan Mountain	Effective monitoring has not taken place due to the remote nature of the area. To do an adequate job, a strategy with the back country crew must be formulated or sending a recreation crew on foot with backpacks and overnight gear	

5. Developed Site Use

Developed recreation site use is monitored largely through user fees and observation. More reliable use data is available for sites where fees are collected. Where user fees are not collected, district recreation personnel keep track of use in a number of ways including car counts at trailheads, visual estimates, and sign-in sheets.

Evaluation

Overall, use of developed sites appears to be fairly stable. Although overall visitation seems to be increasing, overnight use appears static. This is primarily due to the fact that most travelers desire high levels of convenience and accommodations associated with the more urban experience while traveling. Off Forest and community associated campgrounds appear to be receiving tremendous use. This fits well with the Forest's management philosophy of not competing with the private sector. National Forest recreation opportunities are directed toward the "the outdoor" more primitive experience.

The campgrounds on the Greybull District operate on a donation system with a "pack it in, pack it out" policy. Donations in the Wood River Campgrounds have been

fairly level over the last five years. Donations at Kirwin have been slowly increasing. Collections at Jack Creek have been minimal. Use on the Wood River was not as high this year during hunting season while Jack Creek was beyond capacity.

In the past few years, region-wide standards (USFS Rocky Mountain Region) for maintaining recreation facilities were developed and prioritized. Implementation of the Meaningful Measures system began in 1998 and was continued into 1999. This process is expected to help the Forest better define the quality of use it provides and the amount. With implementation of Meaningful Measures monitoring of developed recreation site use will be consistent throughout the National Forest system.

6. Developed Site Condition

In 1999, the US Forest Service operated all developed campsites on the Shoshone National Forest since no legitimate bids were received on the concession prospectus. Facilities are maintained to the extent that funding levels allow.

A major effort undertaken in 1999 relates to deferred maintenance. A complete inventory and condition assessment of recreation facilities, as well as costs to bring facilities up to standard, will be occurring over the next five-year period. The Washakie District inventoried and entered data on 100% of its facilities, and the other districts completed the 20% scheduled.

Evaluation

Written public comments indicate that the public generally feels the campground facilities are clean and well maintained. The primary problem noted by Forest personnel is the degradation of these facilities through daily wear and tear. Most of the picnic tables, hand pumps, fire rings and toilets have been in place since the 1960s and need to be replaced. Despite the heavy use these sites receive, soil and vegetation condition is generally good.

Through past monitoring efforts, the Clarks Fork District identified the need to repair or replace toilets, fire rings, gates and do general maintenance at all eight campgrounds. In 1999 the district installed new fire rings at Island Lake Campground, Crazy Creek Campground and Little Sunlight Campground. All buildings, signs, gates, and barrier logs were painted at Island Lake Campground. Picnic tables were repaired and painted at Fox Creek Campground, Crazy Creek Campground, Dead Indian Campground, Hunter Peak Campground, and Lake Creek Campground. Island Lake, Morrison Jeep, and Muddy Creek trailheads were completed in August of 1999. Use of these three new trailheads will eliminate many of the resource problems and user conflicts now occurring. Many facilities were stained or painted in 1999. With limited budgets, maintenance levels at developed recreation sites are generally routine and the heavy maintenance backlog is large.

Developed sites on the Wapiti District receive heavy use from June through mid-

September. Monitoring of site condition occurred almost daily and was recorded in daily logs and on site inspection forms. Forty new fire rings were installed at needed sites in Eagle Creek, Newton Creek, Elk Fork, Big Game, Clearwater and Sleeping Giant Campgrounds. In a continuing effort to have bear resistant food storage boxes at each campsite, 13 boxes were installed in Elk Fork Campground. The two major buildings at the South Fork Guard Station and three buildings at Wapiti were painted. Extensive repairs were made to the toilet at Deer Creek Campground. Selected picnic tables, signs, and gates were painted within campgrounds. Trailhead signs were repaired and painted and in some cases trailhead bulletin boards were repaired or replaced. The Wapiti Wayside Information Center was improved by construction and installation of a bench for viewing the TV monitor. Additional benches were constructed and installed for visitor seating.

The developed sites on the Greybull District are approximately 15 years old. Monitoring has shown roads, tables, fire rings, barriers and signs need maintenance or replacement. In 1999 emphasis was placed on replacing planks, stripping and refinishing tables, and replacing barriers at the Jack Creek Campground and Trailhead. Bear boxes were installed to help with food storage order compliance. Past violations and the difficulty of removing attractants and then returning them to their owners after notification, prompted the placement of bear boxes in the camping areas.

All campground facilities in the North Fork corridor are planned for upgrading and retrofitting during the next decade. Three Mile Campground was completed in 1999 and will be open to the public in 2000.

The campground facilities on the southern half of the Forest are in poorer condition than those on the northern half. The Louis Lake campground, for example, continues to receive heavy use and subsequent resource impacts to the campsites and surrounding area. Major rehabilitation and/or reconstruction is needed. The water system in the Sinks Canyon campground requires constant maintenance. In 1999, seven breakdowns occurred. Additional capital investment funds are needed to upgrade these facilities.

The Greybull District will concentrate maintenance on the Wood River facilities by repairing and replacing facilities identified as needing attention in the past two to three years. New signs for the campgrounds will be installed this summer. Use will be monitored using traffic counters on the Wood River Road and on the Gooseberry Road accessed from Grass Creek. If possible, a traffic counter will be installed at the Forest boundary at Jack Creek.

Dispersed campsite inventories in areas not previously inventoried, will be conducted in areas outside of wilderness on the north zone.

7. Downhill Skiing Use

The Sleeping Giant Resort is the primary downhill ski area on the Shoshone National Forest. It is located on the Wapiti Ranger District and can accommodate approximately 1000 skiers per day.

Table 8 below summarizes use at the resort over the past five years.

Table 8. Sleeping Giant Skier Days for the Last Five Years

Season	December	January	February	March	April	Total
94/95	1,124	1,178	1,036			3,338
95/96	964	1,679	1,280	1,241		5,154
96/97	1,002	1,313	1,295	830	88	4,528
97/98	366	1,243	1,020	697	64	3,390
98/99	599	1,883	1,477	610		4,569

Evaluation

In fiscal year 1999, downhill skier use at the Sleeping Giant Resort returned to levels recorded in the winters of 95/96 and 96/97. This was largely due to the greater number of skiers in January and February, and the fact that the area was not closed due to maintenance problems as it was in 97/98.

In addition to weekly monitoring trips by district personnel, a monitoring trip was conducted at the Sleeping Giant Resort in March, 1999 by the Regional Tramway Specialist. The review included safety devices on both lifts, maintenance logs, lift operator training and other items detailed in the American National Standards for Aerial Tramways. All items identified to be corrected in this report were addressed within the timeframes allowed for correction.

The Red Lodge Race Camp on the Clarks Fork District offers a summer program for ski race training. Four week-long sessions run from early June through early July, providing a training opportunity in the summer season for ski racers.

Reevaluation of ski area development is recommended by the Forest Plan when use exceeds managed capacity for three years. Current figures of use at the Sleeping Giant Resort demonstrate that usage remains well below capacity at this time.

PROPOSED THREATENED, ENDANGERED AND SENSITIVE SPECIES

1. Grizzly Bear Mortalities

The 1998 Shoshone National Forest Monitoring and Evaluation Report presented a detailed discussion of mortality parameters being monitored in the Greater Yellowstone Area (GYA). The history, trends, and comparison of data collected in recent years to recovery parameters was also related. The reader is referred to that report to gain additional perspective on the significance of data collected this year. The 1999 monitored items related to this element included total mortality as well as the sex, age, date, location, type, and cause of mortality.

Evaluation

Seven known grizzly mortalities occurred in the GYA in 1999. This included two adult males, two subadult males, one male cub of the year, one adult female, and one female cub of the year. Of these seven mortalities, five were human caused and two were attributed to natural causes. An additional five probable mortalities occurred in the GYA in 1999. Four of these probable mortalities were cubs of the year and one was an adult, all of unknown sex.

Included in the 12 known and probable mortalities mentioned above, was the known mortality of the adult female and the probable mortality of her two cubs on the Shoshone National Forest. As is the case with the majority of known human caused grizzly bear mortality on the Forest and in the GYA, this adult female was killed by a hunter. Both total and female mortality six year averages for the GYA calculated including the 1999 data, continued to be below the recovery plan mortality thresholds.

2. Compliance with Grizzly Guidelines

The two main components of the Grizzly Guidelines are to maintain and improve habitat, and minimize the potential for or resolve grizzly-human conflicts. The 1998 Forest monitoring report discussed the main elements of the Forest program designed to achieve the above objectives and how these have contributed to the remarkable progress toward recovery on this Forest. The reader is referred to that report for background information and perspective. Items monitored in 1999 relative to this element included biological evaluations prepared, conflict reports, and public education contacts.

Evaluation

Sixteen major biological evaluations were completed in 1999 to determine the effects of proposed actions on grizzlies and their habitat on the Forest and to assist in the ultimate recovery and delisting of the species. Forest biologists and other personnel met regularly with biologists and personnel from other Federal and State agencies

with shared responsibilities for this species to review proposed actions and consider alternative courses of actions and associated consequences for the grizzly. As in previous years, grizzly bear clauses, as appropriate, were updated and included in special use permits, domestic livestock grazing permits, and contracts for other activities in grizzly bear habitat on the Forest.

Efforts to minimize or resolve grizzly-human conflicts were again given a high priority. Numerous public education outreach efforts were carried out throughout the year but particularly during the March through December period. Some of these efforts included education and enforcement of the Special Order requiring food attractants be kept unavailable to bears, dissemination of literature and personal contacts at Forest offices, trailheads, campgrounds, the Wapiti Information Center, Clay Butte Information Center, inspections of Guest Lodges and summer homes, safety presentations for organized groups, and a naturalist interpreter program during the summer in the North Fork Shoshone River recreation corridor. A more detailed description of some of these efforts can be found in the recreation section of this report.

Only eight incidents of grizzly bear/human, grizzly bear/livestock, or grizzly bear/property damage interaction were documented on the Forest in 1999. This included the hunter inflicted mortality of an adult female that had two cubs of the year, two incidents of livestock depredations, two incidents involving a damaged raft and a damaged life vest, an incident where an individual found and reported a dead bear, and an incident where a grizzly bear approached and chased an individual that was fishing in a creek. The number of incidents is considered quite small relative to the current number and distribution of bears inhabiting areas on and immediately adjacent to the Forest. Good natural bear food years and the efforts of all cooperating agencies, groups and individuals have obviously contributed much to the continued movement toward recovery and ultimate delisting of this species

3. Grizzly Habitat Effectiveness

The 1998 Shoshone National Forest Monitoring Report defined habitat capability and effectiveness as it relates to grizzly bears, discussed the relationship between the two, and presented information relating to various human factors likely to affect habitat effectiveness. It also outlined the focus of the recovery plan and associated methodologies in trying to quantitatively but indirectly assess this parameter. The reader is referred to the 1998 report for that discussion which is still pertinent. The conclusions which can be drawn from the 1999 monitoring effort relating to this element are as follows.

Evaluation

All recovery plan population parameters for the ecosystem were met in 1999. The habitats on the Forest continued to make a significant contribution to meeting these targets and to the overall goal of grizzly bear recovery. One known human caused mortality and two other probable mortalities occurred on the Forest. A minimum of

nine females with cubs of the year were observed on the Forest, and all three Bear Management Units (BUMS) appeared to be occupied by females with young. Grizzly habitat on the Forest appears to be stable to increasing. A continuation of the expansion of bears into new areas and apparent increases in population size and reproduction on the Forest all point in the direction of relatively high habitat effectiveness.

Forest personnel continue to assess the impact of proposed projects on habitat effectiveness at the site specific level, as well as on the Forest as a whole using assessment tools such as biological evaluations, the Interagency Grizzly Bear Guidelines, consultation with the FWS, and the CEM model. It appears these factors are playing an important role in maintaining and improving habitat effectiveness for grizzly bears on the Forest.

4. Nesting Peregrine Falcons

A cooperative recovery effort for this species has been in effect on the Shoshone National Forest for the past two decades. Over 131 peregrines were successfully released on and immediately adjacent to the Forest from 1987 to 1995. Recent efforts by the Wyoming Game and Fish Department (WGFD) and the Forest Service have concentrated on monitoring reproductive success and population expansion as the species moved toward recovery and delisting. The items monitored and results for the 1999 nesting season are documented below. Some historical information is included for perspective.

Monitored items: number of nest sites, number of nesting pairs, nesting success, and production for the entire Shoshone National Forest (SNF) area. Three nest sites (WA1, CF10, and W10), which have been occupied in previous years, were not inventoried in 1999 due to problems of access. Twelve areas were not surveyed because proximity to known nesting peregrines or occupancy by golden eagles indicated a low probability for new nesting peregrines. Thirteen priority sites were inventoried for nesting birds, including four for the Clarks Fork (CF) District, two for Wapiti (W), four for Washakie (WA), and three for the Wind River (WR).

Evaluation

Nesting site occupancy by district was CF-3, W-2, WA-4, and WR-3. These twelve pairs successfully fledged at least sixteen young or 1.3 young per pair. This production was less than in recent years when production averaged approximately 2.0 young per pair. However, since 1989, the number of known nesting pairs on the SNF has gradually increased from two to the current 12 (average of 12.2 for the past 5 years), while total production has increased from three in 1989, to the present 16 (average of 20 for the past 5 years) with a high in 1998 of 28 young produced. These results, as well as those occurring elsewhere in Wyoming and throughout the nation, resulted in the removal of this species from the endangered species list in August 1999.

5. Nesting Bald Eagles

A cooperative recovery effort for this species has been ongoing throughout the Greater Yellowstone Area, the state of Wyoming, and many other areas of the country for most of the past two decades.

Monitored items: Nesting surveys on the Shoshone National Forest have been conducted annually for the past several years as part of Wyoming statewide surveys.

Evaluation

The results of annual surveys, including the one conducted in 1999, have failed to reveal any current nesting by bald eagles on the Forest. However, two pairs of eagles nest very close to the Forest boundary in the Dunoir and Whiskey Mountain areas. The Dunoir pair fledged one young in 1999. Several observations of the Whiskey Mountain nest site in 1999 failed to locate nesting adults. However, adult bald eagles were observed on private land approximately 2 miles from the nest site. The low numbers of nesting pairs on and near the Forest is believed to relate to marginal habitat conditions including a relatively limited prey base during brood rearing and possibly a short supply of suitable nesting structures adjacent to aquatic habitats. Throughout the state of Wyoming and in the Greater Yellowstone Area the number of nesting pairs has increased dramatically in the past 20 years. With the greatly expanded population nearby, nesting on the Forest may only be a matter of time.

6. Lynx

In August 1998 the US Fish and Wildlife Service proposed the Canada lynx for listing as a threatened species. In March 2000, as this report was being written, the species was officially added to the list of nationally threatened species.

For the past five years, including 1999, surveys for lynx tracks have been conducted by snowmachine on preexisting snowmachine routes and on areas of the Forest adjacent to, but not directly on these established routes. Locations searched were associated with historic lynx locations, snowshoe hare presence, areas identified with GIS generated habitat maps, or habitats identified during searches in previous winters. Four previously established snowshoe hare scat transects in the vicinity of Horse Creek/Burroughs Creek, with an area of 2,461 feet each, were counted and cleared in late June 1999. Hare density was calculated from this information. Four previously established transects varying in length from 1,969 feet to 2,952 feet were also read in the Muddy Creek area in the Beartooth Mountains. Also, as part of the National Hair Snagging/DNA Analysis Survey protocol developed for this species in 1999, sampling grids were laid out and conducted in the Dubois and Beartooth/Sunlight areas. All the above work has been co-financed and conducted in cooperation with the WGFD.

Evaluation

Data collected during recent years indicates at least a temporary presence of lynx near Dubois in the following areas: Horse Creek/Burroughs Creek, Long Creek, Warm Springs/Sheridan Creek, Dunoir and around Togwotee Pass. Lynx tracks were also located near Lander in the Limestone Mountain area in previous years. Presence in these areas in 1999 could not be reconfirmed. The density for snowshoe hares in the Dubois and Beartooth areas, calculated from pellet surveys, was estimated at levels similar to figures reported in recent years. Exact figures were not available at the time of this writing. Figures for the Dubois area in 1997 and 1998 were .37 and .38 hares/acre respectively. The comparative figure for the Beartooth area in 1998 was .22 hares/acre. Snowshoe hare densities obtained from this survey work are similar to densities reported during cyclic lows in the Territories of Canada.

The Dubois hair sample grid area yielded 12 samples and the Beartooth/Sunlight grid yielded 11 samples during the four week sample period. Visual examination of two samples from the Dubois area and one from the Beartooth/Sunlight area appear to be felid. DNA analysis is currently being conducted but definitive results are still pending at this time.

The initiation of this survey work and study in 1995-96 on the Shoshone triggered additional work by the WGFD in the adjacent Wyoming Mountain Range, an area known for a healthy breeding population of lynx as late as the 1970s. That effort resulted in the radio-collaring and tracking of two individual lynx. Information obtained from that ongoing study, our survey efforts during the past five years, and criteria presented in the Draft Lynx Conservation Assessment and Strategy, have resulted in the tentative identification of potential lynx habitat and lynx analysis units on the Forest. The resulting potential habitat map indicates a rather fragmented boreal forest component on the Shoshone National Forest due to topography and associated factors. The larger potential habitat patches on the Forest appear to occur in the Dubois/Togwotee Pass area with some additional but more limited potential on parts of the Washakie Ranger District and in the Beartooth Mountains.

7. Boreal Owl

Surveys were performed along previously established routes in potential nesting habitat during the early spring. Methods used were taped/playback/broadcast calls and listening for a response. At each stop along the route the surveyor alternates between playing the Boreal Owl tape and listening for a response. All Boreals heard or observed are recorded. Typical habitat for this species consists mainly of mature high elevation sub alpine forests sometimes mixed with mature aspen forest with numerous openings or an open stand structure. These forest types, including Engelman spruce, sub alpine firs, and lodgepole pine, occur on parts of the Shoshone National Forest but no specific surveys had been conducted for this species prior to 1998. In 1999, surveys were conducted in four areas on the Forest in the following

locations during the month of March: Brooks Lake Road, Christina Lake Trail, Middle Fork of Long Creek, and Union Pass Trail Z.

Evaluation

The presence of Boreal Owls was documented on two of the four survey routes; namely Middle Fork of Long Creek, and Union Pass Trail Z. A total of three individuals were positively identified along the two routes, and as many as seven individuals may have been present. One owl was documented along the Middle Fork of Long Creek Route, and a second owl “barked” but never gave a staccato call so it could not be positively identified as a Boreal Owl. On the Union Pass Trail Z route, two Boreal Owls were positively identified, and three owls either “barked” or gave an “ooway” vocalization but never gave a staccato call so could not be positively identified.

The results of this and the 1998 survey are encouraging for the status of this species on the Forest. Based on the timing of the surveys, the response to the call tapes, and the fact that some individuals were heard calling before the tape was even played indicates these were probably male Boreal Owls advertising their presence to potential mates within their territories. It is likely that this species was attempting to breed on the Forest.

All 1999 surveys were conducted in mature Englemann spruce-sub alpine fir or mixed mature spruce-fir/mature lodgepole pine forests with scattered openings. These habitats appear to be necessary to provide breeding habitat for Boreal Owls on the Forest.

8. Dwarf Shrew

Additional emphasis on monitoring for lynx in 1999 precluded necessary funding for monitoring work on this species.

9. Wolf Population Status

Fourteen gray wolves were reintroduced into Yellowstone National Park in January 1995 from Alberta, Canada. The following year 17 additional wolves from British Columbia were added to the reintroduced population. These animals and any other native wolves that might have remained in the Greater Yellowstone Area (GYA) have been classified as a “non-essential experimental” population, as per provisions of the Endangered Species Act, which provides for additional management flexibility.

The U.S. Fish & Wildlife Service (FWS) and the National Park Service (NPS) monitor wolves with assistance from other agencies, groups, and individuals as circumstances will allow. Shoshone National Forest personnel maintain contact with these agencies, and use other information sources as well, regarding the status,

location, and activities of wolves on or near the Forest. Much of the following information was taken from data posted by the FWS on their Internet web site or appearing in the Rocky Mountain Wolf Recovery 1999 Annual Report also prepared by the FWS.

Evaluation

By December 31, 1999, at least 118 wolves were known to be present in the GYA. Twenty-four were captured and radio-collared during the year resulting in a total of 47 monitored electronically by the end of the year. Of the radio-collared wolves, 38 were in 11 established packs averaging 9.2 wolves per pack. The other nine collared wolves were traveling alone or in newly formed pairs. Reproduction occurred in the 11 packs and one pack had 2 litters. Pup survival however was relatively poor as many disappeared over the summer. Thirty-eight pups survived to be accounted for at the end of the year.

The Washakie pack, which previously occupied and produced pups on the south zone of the Shoshone National Forest in the Dunoir Valley, no longer exists. The 1998 Shoshone monitoring report details the problems with livestock conflicts and the subsequent removal of the alpha male and female and one yearling from that pack. However, during the past year, continued depredations and sightings in the Dunoir Valley suggest a few wolves probably still live there. Of the depredations in this area, one foal, one calf, and 4 dogs are confirmed wolf kills. Two additional calves were recorded as possible wolf kills. All depredations were on private land but adjacent to the Shoshone National Forest. Because of these depredations, the FWS issued a permit to a livestock producer in this area to shoot 2 wolves on sight. However that permit expired December 31, 1999 and no wolves were taken.

The Sunlight Basin wolf pair, which began using areas on the Forest near Trail and Painter Creeks in 1998, dened and produced four to seven pups in the area in 1999. In addition to this pair, there have been several other sightings of wolves, and known use by collared wolves in a few more areas on the north zone of the Forest in 1999.

In the first two months of the year 2000, considerable additional wolf activity was noted on the Forest. This was expected as the increasing population disperses. This will be discussed in next year's Monitoring and Evaluation Report. However, it was recently noted that the Sunlight Basin pack consisting of two adults and up to seven of last year's young were located in the Crandall Creek drainage. A possible new pack in this area consisting of four wolves and currently called the Valentine pack (first confirmed observation near Valentine's day) have been observed spending time in an area between Sunlight Basin and Russell Creek near the Clarks Fork River. Both of these packs have been in these areas for the past few weeks. An additional lone wolf (or two) was also recently seen near the confluence of Jones Creek and the North Fork Shoshone River. Additional activity by wolves on the Forest can be expected as dispersal and recovery occurs.

WILDLIFE AND FISH

1. Wildlife and Fish Habitat Improvements

Wildlife Habitat Improvements

In fiscal year 1999 several activities were monitored for habitat improvement accomplishments. The number of forestwide acres treated for noxious weeds, acres of sagebrush and conifers burned, were tracked. Planting of vegetation for cover reestablishment was also tracked.

Evaluation

In 1999, 1,150 total acres of noxious weeds were treated on the Shoshone National Forest to increase native plant species and improve desired habitat conditions and diversity. Approximately 4,400 acres of sagebrush, conifers, or a mix of vegetation types were burned in several locations across the Forest. The goal was to retard plant succession and improve habitat for bighorn sheep, elk, grizzly bears, and other wildlife. Reduction of fuels, improvement of forage for domestic livestock, and movement toward long term desired forest conditions were other primary goals in some of these areas. Finally, approximately 690 acres that were burned in the 1988 wildfires were replanted to coniferous species, which will provide wildlife cover in future years. Similar quantities of habitat improvements are anticipated for fiscal year 2000. It is hoped that funding in future years will continue to allow this or even greater levels of vegetation manipulations to enhance habitat diversity.

Fish Habitat Improvements

When the Forest Plan was developed a fisheries biologist was not among the Forest staff. As a result, the current Forest Plan has very little specific direction related directly to the management of fisheries habitat. Indirect inferences are made in other resource areas including watershed, riparian, wetlands, livestock grazing, and roads. The Forest is working towards a better link between the stream physical habitat, the biological habitat, and water quality. This issue will be addressed via Forest Plan Revision or a Forest Plan amendment.

North Fork Highway Reconstruction - Fisheries Mitigation

Phase I: Fisheries mitigation for highway encroachments impacting fisheries habitat on the North Fork Shoshone River in Phase I of the North Fork Highway reconstruction project (see FY1998 Monitoring and Evaluation Report) was monitored to determine fish mitigation structure effectiveness in fiscal year 1999.

Phase II: Random rock cover placement structures were installed during the early spring of 1999 in the North Fork Shoshone River and Elks Fork

Creek. This was done as Phase II fisheries mitigation for highway encroachments on the North Fork that impacted fisheries habitat.

Evaluation

Phase I fisheries mitigation work has been effective at meeting objectives including providing fish habitat and stream bank stability and protecting the Boy Scout Pond. This, despite the fact the North Fork Shoshone River experienced very high spring runoffs in 1998 and 1999.

The Boy Scout Pond was successfully completed to design standards and now has the capability to overwinter fish. The WGFD will monitor water quality and biological productivity in order to determine initial stocking rates and will develop a detailed management strategy.

In terms of Phase II, structures were installed according to Forest specifications. The overall effectiveness of these structures will be evaluated in detail by an interdisciplinary team in fiscal year 2000.

Pilot Creek and Horse Creek Projects

Fish habitat, channel morphology and riparian vegetation effectiveness monitoring continued on the Pilot Creek (Clarks Fork District) and Horse Creek (Wind River District) fish habitat enhancement projects. Details describing the objectives of the enhancement projects may be found in the 1995 Monitoring and Evaluation Report.

Evaluation

Pilot Creek Project: The road barrier has been effective in preventing compaction and damage to vegetation largely by keeping out all vehicular traffic. Vegetation planted on top of the stream bank is well established. The Clarks Fork River channel has migrated again and eroded a portion of the southern stream bank. Such events are common and anticipated for this type of stream system. Some of the willow shoots planted along the stream have been washed away due to the changing stream channel. Remaining willows are well established. Depending on future management decisions, additional restoration techniques could be applied to further stabilize the banks and to provide additional vegetation and fish cover.

Horse Creek: Some structures constructed by WGFD are not functioning as intended in a portion of the Creek. At the time of installation, the best techniques available to WGFD were used. An interdisciplinary site visit involving both WGFD and Shoshone National Forest personnel is planned in fiscal year 2000, after spring runoff, to review the situation. Planted willows have been highly successful at providing bank stabilization and overhead fish cover. The structures below the Horse Creek campground have been effective in preventing any further road erosion and in providing fish habitat. Overall, the project has been effective. Fish densities and biomass are increasing significantly.

3. Winter Range Carrying Capacity

The Forest was unable to accomplish monitoring for this item in 1999. There were three primary reasons; insufficient funding to hire wildlife seasonal employees, the necessity to continue the NEPA analysis for additional range allotments, and the high priority work for existing range seasonal employees associated with deferred maintenance inventory work.

4. Riparian Condition

Riparian condition was monitored by various interdisciplinary teams and resource specialists across the Forest (see Water Resources, Fisheries, Range and Wildlife sections for additional riparian monitoring). This section addresses riparian monitoring primarily conducted by the fisheries crew.

Fisheries field crews collected a variety of data including information on channel morphology, instream fine sediment, aquatic habitat, ungulate use and tie hacking effects in order to determine riparian condition in various stream reaches on the Forest.

Past Tie Hacking Effects

During 1999 the fisheries crew investigated the effects of past tie hacking on nine stream reaches on the Wind River District south of Wind River.

Evaluation

Of the nine stream reaches surveyed in 1999, the steeper boulder-armored streams appear to have minimal long-term impacts to aquatic habitat from past tie hacking activities. Smaller, low gradient streams with flumes also appear to have minimal long term impacts to aquatic habitat although these streams were severely dewatered at the time of the operation, adversely impacting fish populations then.

Preliminary research on Warm Springs Creek above the canyon indicates that major transport of a large number of ties, including splash dam operations, resulted in a wider and shallower stream than expected. This reach of stream had been channelized to improve transport of ties. Also, it appears this reach was picked clean of ties after the last tie drive, resulting in less large woody debris than anticipated. These activities have resulted in poor fish habitat not meeting desired conditions. Further monitoring will be conducted in fiscal year 2000 to validate initial findings and make comparisons to similar reference stream reaches for potential restoration efforts.

Livestock Grazing

The Forest fisheries crew and other resource specialists conducted riparian monitoring on various livestock allotments in 1999. This report addresses only monitoring conducted by the fisheries crew.

The nine reaches surveyed south of the Wind River (Wind River District) for tie hack impacts were also surveyed for impacts from livestock. Parameters monitored included channel morphology, bank alteration, livestock use and fish habitat conditions.

On the Clarks Fork District, the Ghost Creek allotment, (Unit 4, Muddy Corrals) was monitored for livestock grazing impacts. Portions of the riparian area along Ghost Creek were previously identified as having been negatively impacted by livestock.

Also on the Clarks Fork District, the Basin allotment, Russell Creek and riparian pasture were monitored again in fiscal year 1999. As mentioned in the fiscal year 1998 Monitoring and Evaluation Report, this meadow complex was previously identified as a high-use livestock area. An enclosed riparian pasture was constructed to reduce grazing pressure. An interdisciplinary team visited the site and concluded that although conditions had improved somewhat on the inside of the riparian pasture, livestock grazing and bank trampling had intensified outside the pasture causing further riparian damage. Subsequent follow-up monitoring has verified this situation.

Evaluation

Eight reaches were found to be in good condition relative to livestock use on the Wind River District. Heavy livestock use was found on upper Sheridan Creek in a meadow area about one-half mile upstream of the last upstream crossing with road #538. A detailed survey was conducted. This reach of stream was wide, shallow with heavy bank trampling, high instream fine sediment levels and few trout observed.

No improvement was noted in the riparian meadows of the Ghost Creek allotment in 1999. WGFDF personnel, in conjunction with the Forest fisheries crew, conducted electrofishing activities in this portion of the stream. This confirmed visual observations that no fish are currently present in this reach of stream although there is potential. Brook trout and hybridized cutthroat trout were found downstream in 1999 just above the juncture with trail #628. Construction of riparian pastures and off-site watering is planned for fiscal year 2000 to help alleviate riparian problems.

There appears to be no improvement on the Basin Allotment meadow complex based on ocular monitoring in fiscal year 1999. Potential solutions are being pursued including off-site watering and modifications to the riparian pasture fence.

Riparian Mapping

From 1994 through 1996 riparian areas were mapped and entered into the Forest GIS system. As a result, we were able to determine where riparian areas are located, the existing vegetation, land types and how much riparian area exists on the Forest.

In order to determine riparian condition, we used an integrated approach at the District/Zone level which involved a cross section of resource specialists to evaluate condition. In 1999, we assigned a condition rating to riparian polygons associated with perennial streams using the Proper Functioning Condition (PFC) methodology (Technical Reference 1737-15,1998. U.S. Department of the Interior, Bureau of Land Management, National Applied Resource Sciences Center, P.O. Box 25047, Denver, CO 80225-0047) .

Evaluation

By area, an estimated 88 percent of riparian polygons intercepting perennial streams on the Forest are at “proper functioning condition”. Another nine percent are functioning “at risk”, and about 0.3 percent are “non-functioning”. The condition of the remaining 2.4 percent is currently unknown. Further investigation is needed.

Through a cooperatively funded project between the Fish Habitat Relations Unit (Region 2 and the Washington Office), University of Wyoming Rangeland Ecology Department and the Forest, a master's student completed his second year of riparian field work focusing on stream and vegetative condition key criteria. The Forest's final report and master's thesis will be completed in fiscal year 2000.

Stream Crossings

In addition to inventorying roads, the watershed and fisheries crews inventoried and monitored problem stream crossings from 1994 to 1999. These included crossings that were potential barriers to upstream fish passage, causing road erosion problems, causing stream instability, and increased sedimentation that adversely affected riparian and fish habitat. Forestwide, 19 crossings that are the Shoshone National Forest's responsibility were prioritized. Work began in 1999 to correct fish passage problems.

Stream health, riparian concerns and fish migration barriers resulting from road culverts were identified as a result of monitoring on a one mile section of county road adjacent to Squaw Creek on the Clarks Fork District.

A culvert crossing on Newton Creek in the campground, Wapiti District, has periodically backed up, flooded portions of the campground, and created a periodic barrier to upstream fish passage.

Evaluation

Through a cooperative project involving numerous partners Park County began work to realign the county road on the hill side out of the Squaw Creek stream bottom, remove two problem road culverts, rehabilitate the old road grade, replace a third

with a bottomless arch culvert and plant native vegetation. Work will be completed in fiscal year 2000. Preconstruction monitoring was conducted, which included stream morphology, habitat conditions and trout population estimates. Follow-up monitoring will be conducted after spring run-off once the stream adjusts to determine the effectiveness of the project and if any additional stream restoration is needed.

The Forest had initially planned to replace the Newton Creek culvert with a larger bottomless arch culvert. Due to massive flooding in 1998, we decided to use a bridge. Newton Creek bridge construction was postponed and the bridge is scheduled for installation in the spring of 2000. This is a cooperatively funded project between the Shoshone National Forest and Wyoming Game & Fish Department.

6. Population and Habitat Trend of MIS

In the current Forest Plan, game trout were selected as the management indicator species for aquatic habitat. Unfortunately, many of the current trout species on the Forest are introduced. Some non-native stream species, primarily brook trout, can tolerate very poor stream habitat conditions yet still maintain viable populations. This issue, of fish management indicator species will need to be addressed via Forest Plan revision or a Forest Plan amendment.

Various trout populations were monitored in fiscal year 1999.

Evaluation

Yellowstone cutthroat trout (YSC) have been reduced to a small portion of their historic range primarily by stocking of non-native fish, hybridization, and habitat modification/degradation. As a result, they are a Region 2 sensitive fish species and were petitioned for listing under the Endangered Species Act in 1999. Few pure populations have been found on the north zone of the Forest. WGFD plans to sample and verify suspected pure populations on the south zone in 2000. Work is on-going to coordinate with the affected agencies to complete detailed current and historic range inventories and begin work towards a conservation strategy. In fiscal year 2000 the Forest plans to begin detailed mapping of historic, current and potential YSC range in cooperation with WGFD

Various reaches of Squaw Creek were electrofished in cooperation with WGFD to determine population status before enhancement activities begin. On Squaw Creek upstream of the third culvert crossing there were very few fish. Downstream fish densities were somewhat higher. Species composition based on meristic characteristics include eastern brook trout, rainbow trout and cutthroat trout hybrids.

During the watershed crew survey of Barrs Creek on the Clarks Fork District in 1995, trout were visually observed but not identified. At that time, WGFD had no records of fish in this stream. Follow-up electrofishing with WGFD in 1999 confirmed that brook trout were present just above the Morrison Jeep Trail. Based on ocular

surveys, the stream was in good condition with no current livestock use observed at the time of the survey.

TIMBER RESOURCES

1. Allowable Sale Quantity

The Allowable Sale Quantity (ASQ) is the maximum volume of timber that may be sold from the suitable timber base during the planning period specified in the Forest Plan. The quantity is normally expressed as the "average annual allowable sale quantity". The intent of this monitoring item is to facilitate tracking of how close the Forest is to meeting the ASQ during any given year, and to ensure that it is not exceeded in any given decade.

The Shoshone Forest Plan was amended in August 1994 to reflect a recalculated ASQ. The revised ASQ is 45 million board feet (MMBF) per decade or an average annual of 4.5 MMBF.

The Management Attainment Report for fiscal year 1999 shows that the Shoshone National Forest sold 878 thousand board feet (MBF) or 0.878 MMBF of green (live) timber. This figure represents approximately 18% of the target for the fiscal year. The Forest also sold 3.3 MMBF of salvage volume, consisting of small salvage sales, fuelwood and other product sales (post and pole, commercial fuelwood, house logs, etc.). This represents approximately 156% of the target for fiscal year 1999. Total sale volume on the Forest in fiscal year 1999 was approximately 4.2 MMBF.

Evaluation

There are several reasons why the Forest did not meet the projected new sale allocation for fiscal year 1999. One reason was the Forest Service shifted over to water based paint in the wake of studies showing a correlation between use of the petroleum based paint and various health threats. The new paint was being developed this year and was not available from the paint manufactures in sufficient colors or quantities until mid to late summer.

Another factor affecting timber sales on the Forest for the last couple of years relates to evolving national policies on roads. The development of a new transportation policy with the 18-month moratorium on road construction and reconstruction, elimination of purchaser road credit from all new sale offerings, and the President's Roadless Initiative have affected the Forest's ability to offer sales. This is because sales in the current pipeline and lands within the current suitable base are affected by these changes.

Yet another problem was the Forest's backlog of cultural surveys. Potential timber sale areas must be surveyed for cultural sites and or artifacts. Potential impacts to

these resources are addressed and mitigation identified in the NEPA document. This situation will be remedied through the use of contractors in fiscal year 2000. Rainbow Lake, Horse Creek, and Cartridge Creek timber sales were delayed due to pending cultural surveys.

The Ellsbury Timber Sale was appealed and remanded back to the Forest for additional NEPA analysis.

Field reviews were conducted on both open and closed sales in fiscal year 1999. The review yielded results similar to past monitoring efforts. Timber sales marked in the late 1980s and early 1990s contained less volume designated for harvesting than the volume prescribed in the silvicultural prescriptions. Sales marked in the mid to late 1990s were more closely matched to their silvicultural prescriptions. Monitoring of sales indicates that in a few instances, more attention needed to be focused on presale boundary delineation and marking. Sale boundaries were difficult to follow on some of the older sales, and did not follow topographic features such as ridges, valleys, existing roads, or drainages.

Review of open sales this year reinforced the need for proper presale layout on the ground to achieve the desired outcome. Some skid trails were located in close proximity to wetland areas. Although the approved locations meet the requirements of the contract and the silvicultural Best Management Practices, more effort will be made on future sales to locate skid trails as far as practical from sensitive areas. To address these findings, more time will be spent reviewing on-the-ground sale layout procedures with presale crews and sale administrators.

The minimal amount of vegetative treatment that was accomplished this past year is of concern. Many of the stands of timber on the Forest are in declining health and would be classified as approaching late successional stages. These stands of timber are more susceptible to insect and disease attacks and to the risk of wildfire.

The Shoshone National Forest does not have sufficient age and species diversity to provide for healthy forests in the future. Tree mortality is increasing substantially and can be viewed from any travel way on the Forest. Loss of minor tree species, such as Aspen and narrow leaf cottonwood is occurring due to succession and lack of management.

These concerns need to be addressed in project level documents and in the revision of the Forest Plan.

2. Restocking of Clearcuts

The National Forest Management Act (NFMA) requires that where trees are harvested for timber production "the cuttings shall be made in such a way as to assure that the technology and knowledge exists to adequately restock the lands within five years after final harvest". For clearcuts that means five years after the clearcut occurs

(36 CFR 219.27 sec. (c)(3)). This monitoring item was intended to ensure that clearcuts are restocked by the 5th year by requiring regeneration surveys 1, 3 and 5 years after the clearcut.

In 1992, three timber sales were treated by clearcut on the Wind River District of the Shoshone National Forest. The sales are the Union Pass Blowdown, Trapper Creek, and Wildcat Blowdown. The Union Pass Blowdown was surveyed this year and met restocking criteria. It was certified as stocked in fiscal year 1999. Trapper Creek will be fill-in planted in the spring of fiscal year 2000 and the Wildcat Blowdown is scheduled for spot planting or fill-in planting in FY 2001.

Except for power line right-of-way clearings and highway construction projects, there have been no clearcuts since 1992.

Evaluation

The majority of clearcuts on the Shoshone National Forest occurred prior to the passage of NFMA in 1976. Although regeneration surveys are not required for those acres clearcut prior to 1976, the Forest has spent considerable time visiting, evaluating, and surveying those acres in order to update records and evaluate past silvicultural treatments. Monitoring indicates that regeneration limitations are often due to site preparation or slash disposal methods applied.

Regeneration surveys were completed on 2,465 acres of pre NFMA harvest on the south zone of the Forest (Washakie and Wind River Districts) in fiscal year 1999. Of the total acreage surveyed this year 1,119 acres were certified as stocked. The additional 1,346 acres will be evaluated for fill-in planting needs in fiscal year 2000.

Other Reforestation Monitoring

Personnel of the north zone (Clarks Fork, Greybull, and Wapiti Ranger Districts) completed approximately 3,000 acres of "extensive" reforestation surveys in fiscal year 1999 to prepare for a 700 acre fiscal year 2000 reforestation target. These surveys took place on the Clarks Fork Ranger District predominantly in the 1988 Clover Mist wildfire area.

Force Account crews conducted first year survival and growth exams on 667 acres in fiscal year 1999. Extensive survival examinations took place on 26 acres of planted whitebark pine. Survival ranged from 19% to 63% on 667 acres. Whitebark survival was estimated at over 90% on two brief visits to these units. Force Account crews conducted third year survival and growth exams on 665 acres in fiscal year 1999. Third year survival ranged from 47% to 85% on these sites.

Evaluation

Relatively low first year survival percentages were experienced due primarily to two

factors. One is that reforestation of many of the more difficult planting sites (steep, rocky soil, heavy grass competition, south and west aspects) had been put off until this time in order to plant better sites with more growth potential, mainly within the suited timber base.

In addition, several planting units in fiscal year 1999 were harsh sites that had been planted over the last few years. Interplanting was needed to increase their stocking levels. “Microsites” within these units where seedlings had a better chance of survival were planted. The stocking objective was achieved but above average mortality of planted seedlings occurred.

The few planting units from FY97 that had relatively low survival were primarily flatter areas with heavier grass competition. Forestwide, some damage occurred in planted areas due to wildlife and domestic livestock eating or trampling seedlings. Overall, third year survival was good with all units above minimum stocking objectives.

3. Timber Stand Improvements

Timber stand improvement (TSI) is any vegetation management activity that improves the composition, condition, or growth of a stand of trees. This monitoring item requires that acres of TSI not vary more than 25% from what is planned annually. The Forest Plan projected 121 acres per year of TSI for the time period between 1991 and 2000 (Land and Resource Management Plan, Table III-1, page III-14). The following is a list of the acres of TSI projected by the Forest Plan and accomplished for the last nine years:

Table 9. Timber Stand Improvement 1991-1999

Year	Forest Plan Acres	Acres Treated	% of Forest Plan
1991	121	40	67
1992	121	407	336
1993	121	0	0
1994	121	140	115
1995	121	250	206
1996	121	117	97
1997	121	455	376
1998	121	937	774
1999	121	882	728
Ave.	121	359	296

Emphasis for TSI activities has been placed in cutover areas to enhance new stand growth by reducing competition on desirable species and to promote individual tree growth. The majority of this work has been achieved through the use of TSI contracts that are inspected by Forest personnel. Payment to contractors is approved after they

meet the minimum requirements of the contract and the inspectors approve the units. Force account crews and seasonal work crews have also completed TSI treatment under the guidance of a forester within this time frame. Contract inspectors and foresters, through the use of daily diaries and inspection reports, monitored accomplishments for the period shown above.

A new TSI emphasis item is the restoration and maintenance of whitebark pine stands in the subalpine zone. The ecosystem is experiencing an increasing loss of this tree species due to an exotic blister rust and the lack of stand disturbances. As an early seral "pioneer" species, whitebark pine is dependant on disturbances that maintain early seral conditions, such as wildfire. In addition, the seed from the cones on this tree are one of the four major grizzly bear food sources in the Greater Yellowstone area.

Evaluation

Between 1991 and 1999 the Forest accomplished approximately 296% of what the Forest Plan projected for acres of TSI. It should be noted that some of these contracts are multi-year contracts, and therefore, acreage accomplishments will vary from year to year. In some years accomplishments may exceed the planned acreage target. One reason the Forest has treated three times what the Forest Plan projected is that old clearcuts from the 1960s have grown in and are now overstocked. These acres are in need of thinning.

A Regional Office field review of some TSI areas on the Forest was conducted this past summer. During the review, discussions occurred regarding the effectiveness of having one precommercial thinning operation in lieu of the two that are prescribed in the Forest Plan before a final harvest. Although it was not a forestwide review, indications are that one thinning may be more cost effective than two.

TSI surveys were conducted on approximately 500 acres of old cutover areas on the north zone of the Forest in fiscal year 1999. On the south zone of the Forest, TSI surveys and evaluation were completed on approximately 3,780 acres (old 1960-1970 treatment areas). The majority of the surveyed acres showed a need for thinning to assure maximum growth of the stands and to protect against insects and disease that could infect these plantations or new stands of trees.

There is every indication that thinning over the next 5 years will exceed the Forest Plan average of 121 acres per year. Some concerns have been raised about the removal of posts and poles and Christmas trees from stands thinned in the past nine years. Monitoring indicates that these areas are not losing significant numbers of trees. However, if monitoring should indicate otherwise, thinned areas would be closed to further removal of Christmas trees and posts/poles until stands meet the vegetation management objectives.

4. Growth Response

Growth response to vegetation management is monitored through stand exam surveys. Three thousand acres were inventoried for growth response and reforestation on the north zone of the Forest in fiscal year 1999. On the south zone, 5,117 acres were inventoried using stand exams. New stand exam survey data will be used along with stand exam data gathered in prior years to revise the Forest Plan.

In addition to collecting stand exam data, several thousand acres of vegetation were surveyed using low elevation, digital color infrared air photography (with GPS markers). This work was completed in fiscal year 1999 with assistance from the Forest Service's Remote Sensing Application Center in Salt Lake City, Utah. This photography will be used for project planning, change detection and hopefully growth response of forest vegetation, site administration and special use permit administration.

Evaluation

Growth response in planted stands surveyed on the north zone of the Forest are meeting the expected growth potential. Stands that were clearcut in the 1960s on the south zone of the Forest that were surveyed for growth response after treatment are at least meeting, if not exceeding the expected growth potential.

5. Size of Clearcuts

Clearcuts greater than 40 acres in size require the Regional Forester's approval. Clearcuts are rare on the Shoshone National Forest. Those that have occurred (see discussion under Restocking of Clearcuts heading) since 1989 have not exceeded the 40 acre limit.

6. Lands Not Suited for Timber Production

Lands not included in the suited timber base may not be managed for wood fiber production but may be managed for other resource objectives. In some situations wood fiber is a by-product of resource management such as when openings are created for wildlife in a forested area. The Forest Plan standards and guidelines specify what types of activities are permissible outside the suited timber base and are reviewed before activity occurs. This monitoring item was intended to guarantee that lands outside the suited timber base be managed for the appropriate resource objectives.

As mentioned in last year's monitoring report, the Switchback timber sale, designed to improve Bighorn Sheep habitat, remains unsold. The Forest is considering re-offering in fiscal year 2000.

In fiscal year 1999, a tree-harvesting project was completed on the Washakie District

along the Loop Road on non-suited timbered lands. The project was designed to improve sight distance along the road and to increase vegetative diversity. Another objective was removal of conifers encroaching on aspen stands to help regenerate aspen.

Much of the reforestation done in fiscal year 1999 and probably all that will be done in fiscal year 2000 is on non-suited lands where the 1988 Clover Mist Wildfire destroyed conifer stands. The objective of planting these areas is primarily restoration of hydrologic function, restoration of wildlife habitat and improvement of vegetative diversity in these areas.

Evaluation

The vegetative management projects mentioned above, as well as highway reconstruction projects and power line right-of-way clearing, sometimes result in removal of timber from non-suited lands for reasons other than commercial timber production. The public may remove by-products of this type of project from the Forest by obtaining permits or through contracts. Individuals, communities, and businesses neighboring the Forest utilize material such as fuelwood (commercial and personal use), post and poles and house logs.

7. Forest Health

On the south zone of the Forest widespread infection of lodgepole pine by both commandra rust and dwarf mistletoe continues to severely affect the growth of stands. Stand exam surveys and routine field observations indicate that the reproductive potential of lodgepole pine may be at risk in many stands due to the proliferation of these diseases. Commandra rust kills the seed/cone producing portion of the tree, while dwarf mistletoe reduces vigor and the tree's ability to produce cones and eventually results in premature death. The fact that the majority of lodgepole pine have non-serotinous cones, or cones that open annually to release seed, compounds the problem since the tree is not able to store seed in the previous year's cones.

Forested stands on the north zone of the Forest also have commandra rust and dwarf mistletoe infestations although not to the extent found on the south zone. In addition the north zone continues to experience epidemic levels of Douglas Fir Bark Beetles in several areas including the North Fork of the Shoshone River corridor between the Forest Boundary and the east gate to Yellowstone National Park. Large overstory trees in excess of 20 inches in diameter are most at risk. This is affecting high use campgrounds like Newton Creek and Eagle Creek.

Evaluation

Most stands comprised predominantly of lodgepole pine are showing negative net growth rates or mortality exceeding growth. As a result, accumulation of fuel from

dead and dying trees has put these stands at a higher risk of wildfire. A catastrophic disturbance, such as a large wildfire, may result in a dramatic reduction or loss of lodgepole pine from many areas due to the loss of seed sources.

Conditions on the Forest in terms of forest health have changed since the original Forest Plan was written. Forested stands are older and the effects of prolonged infection are more evident in the form of increased net mortality. The loss of forested stands has the potential to affect all resources, from recreation to wildlife. This situation will need to be addressed during Forest Plan revision. A range of vegetative treatments including prescribed fire and timber harvest should be considered.

Douglas Fire stands in the Newton Creek and Eagle Creek campgrounds will be protected this summer through the use of disaggregation hormones that repel Douglas Fir Bark Beetles. This protection will continue until beetle levels in these areas return to endemic levels. It is recognized that this is a stop-gap measure.

VISUALS

Adopted Visual Quality Objective (VQO)

Visual quality objectives (VQO) are the goals that describe the acceptable degrees of alteration allowed in the natural landscape (Shoshone Forest Plan, FEIS, Vol.I, page VII-35). This monitoring item was intended to ensure that projects meet VQO or that corrective action, such as mitigation, is initiated when it appears a project will not meet VQO.

VQO are monitored on a project level and attained through project implementation. Projects are monitored for VQO compliance on the Shoshone National Forest through the NEPA process. If project level analysis indicates that an existing VQO, as identified in the Forest Plan, is not going to be met by the proposed action two options are available. First, if the VQO is inappropriate for the project area a Forest Plan amendment can change the VQO. The amendment is accomplished through NEPA. Second, if the visual analysis shows that the VQO is appropriate for the project area but is not being met (or is not going to be met), mitigation measures must be taken to meet the VQO in a minimum amount of time. Timeframes for meeting VQO vary between individual visual quality objectives.

In fiscal year 1999, several projects were monitored for consistency with Forest Plan VQO. The Northfork Highway reconstruction project was monitored to ensure that roadway reconstruction conformed to the VQO of “retention”.

A visual review of the proposed Ramshorn Analysis Area project was completed in fiscal year 1999. But since a portion of the project is in an inventoried roadless area, it was delayed.

Evaluation of the existing VQOs for the new Scenery Management (SMS) continued in fiscal year 1999 in preparation for Forest Plan revision. SMS, currently under development, will eventually establish new VQOs for the Forest Plan. SMS inventory documentation for the Wind River District is complete and mapping of the new information has begun. Inventory documentation of the Washakie District will be completed by the end of fiscal year 2000.

Evaluation

North Fork Highway Reconstruction

The second phase of highway construction has been completed. All blast lines from the ground to 20 feet up have been reworked to make them less visible than before. Although the cuts do not currently meet the VQO of retention, over time precipitation and wind will weather the rock faces to meet the VQO. Because of unsatisfactory rock blasting and the need to rework rock slopes, there has been a refocus on visual related specifications for the last phase of highway reconstruction. The goal is natural looking rock slopes that are also stable for safety reasons.

Roadway sculpting was very successful. Gentle, natural slopes were achieved. Even though approximately 20 plants were surreptitiously taken after planting, the revegetation also seems to have been successful. The next three years will be the true test of plant survival.

The instability of the rock face required the use of shotcrete (type of concrete) in two different areas. The color chosen for the shotcrete was incompatible with the native rock face. The dark shotcrete color was intended to simulate the color of the natural ash layer. However, application of the shotcrete extended well beyond the ash layer, covering it completely. Even though time has lightened the color and moisture has seeped through leaving marks of effervescence, visually, the shotcrete is still an eyesore. The matter is yet unresolved. Several suggestions have been made, but funding sources have not been secured for mitigation.

The last phase of highway reconstruction will start in the spring of 2000. This last section will incorporate more rock cuts and the first rock bolting of the entire corridor. It is estimated that the bolting will be less obtrusive than the shotcrete. Also, the use of rock catch nets may be needed for safety.

Scenery Management System

The existing condition inventory has been reviewed by Wind River District personnel and another review with completed maps will be scheduled for fiscal year 2000. Although the SMS for the Wind River and Washakie Districts is still in draft form, it appears that there may be a change in the Scenic Byway VQO designations. In the new SMS, Scenic Byways will be in a category of their own with more detailed explanations of the types of compatible activities. Also, a broader view of the ecosystem and its components will be incorporated into each of the designations.

WATER RESOURCES

Water Resource

Effects of Specific Resource Management Practices on Waters of the U.S.

Clean Water Action Plan

The Shoshone National Forest dedicated considerable effort in fiscal year 1999 to implementing the Clean Water Action Plan: Restoring and Protecting America's Waters (CWAP). The following table summarizes accomplishments. Details on the actual work may be found in other sections of this report (e.g. – Range). Due to differing reporting and accounting requirements, these figures may or may not match the MAR report.

Table 10. 1999 Clean Water Action Plan Accomplishments

HUC/MAR¹	13.0²	13.0	13.0	29.0³	30.0⁴	75.1⁵	76.1⁶	91.3⁷	91.4⁸	93.2⁹
5th Level	Upland Acres	Wetland Acres	Stream Miles	Acres	Structures	Allotments	Acres	Miles	Miles	Miles
1007000601						4	10500			
1007000602						2	200		0.9	
1007000603						1	8400		19.6	
1007000604						7	5700		7.8	
1007000605						2	1000			
1007000606						5	13100		4.3	
1007000609						1				
1008000101	1					4	12860		26	
1008000102						1	4000		2	
1008000103						4	24117		20.7	
1008000104						1				
1008000105						2	4088		7.2	
1008000106						2	320			
1008000107						2			9.4	2.6
1008000108						2	15612		8.6	
1008000109						1	1280			
1008000207						2	1920		3.5	
1008000301						1				

HUC/MAR ¹	13.0 ²	13.0	13.0	29.0 ³	30.0 ⁴	75.1 ⁵	76.1 ⁶	91.3 ⁷	91.4 ⁸	93.2 ⁹
5 th Level	Upland Acres	Wetland Acres	Stream Miles	Acres	Structures	Allotments	Acres	Miles	Miles	Miles
1008000302						2	8474		16.9	
1008000303						5	7115		10.9	0.9
1008000902	25									
1008001201		3								
1008001202	11.9	0.6								
1008001203			1							
1008001302				350	3					
1018000602	123.8					1	10659	9	8	

1 – HUC = Hydrologic Unit Code; MAR = Management Attainment Reporting
2 – 13.0 – Soil and Water Resource Improvements 3 – 29.0 – Range Non-structural Improvements
4 – 30.0 – Range Structural Improvements 5 – 75.1 – Grazing Allotment Administration to Standard
6 – 76.1 – Rangeland Monitored and Evaluated 7 – 91.3 – Roads Obliterated
8 – 91.4 – Roads Fully Maintained 9 – 93.2 – Road Reconstruction

Evaluation

fiscal year 1999 represented the first full year of Clean Water Action Plan implementation for the Forest Service. Yearly reporting of accomplishments, as presented above, is expected to continue in future fiscal years. Much of what is being reported represents work the Forest conducts as part of its normal program of work. CWAP reporting provides a tool for assuring work activity focuses on priority watersheds and meeting the goals of the CWAP.

Clean Water Act Compliance Field Reviews and Training

The Forest conducted three interdisciplinary Clean Water Act field reviews during fiscal year 1999. Two of the reviews, the Burroughs Creek Salvage Timber Sale and the East Fork Unit of the Bear Creek Allotment, are on the Wind River District. The third was of special use permit lodge facilities within the North Fork Shoshone River corridor, which is on the Wapiti District. Additionally, monitoring of the North Fork Highway Reconstruction continued during the fiscal year . The Forest also provided watershed awareness training to key field staff. This training focused on increasing understanding of watershed processes, Clean Water Act requirements, and best management practices implementation.

Evaluation

Review of the Burroughs Creek Salvage Timber Sale focused on compliance with requirements of the Clean Water Act 404 exemption for silvicultural activities and forest roads, Wyoming Non-Point Source Management Plan Silviculture Best Management Practices, and FSH 2509.25, Watershed Conservation Practices Handbook. Overall, the review demonstrated compliance. The review did identify some skid trails that could have been located further from wetlands and topsoil stockpiles that could have been located further from waters of the U.S.

Review of the Bear Creek Allotment focused on compliance with the Wyoming Non-Point Source Management Plan Grazing Best Management Practices and FSH 2509.25, Watershed Conservation Practices Handbook. The review occurred in the East Fork unit only; other units within the allotment were not reviewed. The review identified concerns with utilization in wet meadow and hillside seep areas. To address this concern, the Forest will continue monitoring the entire allotment to ascertain stocking levels are appropriate.

Review of the special use permit lodge facilities in the North Fork Shoshone River corridor focused on compliance with Wyoming Water Quality Standards and FSH 2509.25, Watershed Conservation Practices Handbook. Potential concerns with the location of corral facilities and disposal of manure from them were identified at several lodges. The Forest is presently developing a monitoring plan to collect water quality samples to ascertain whether water quality standards are being violated. Sample collection is scheduled to occur during late summer 2000.

Construction of the Hanging Rock section of the North Fork Shoshone River highway was completed late in the fiscal year . Monitoring indicates compliance with watershed protection criteria was generally met. Minor concerns were identified and subsequently resolved.

Watershed awareness training, provided to timber and range field-going staff, was well received. As a result the Forest plans to continue this type of training.

Water Uses

New water right applications are reviewed to ascertain the requested use will not conflict with existing uses and rights, including instream flow needs quantified by the Big Horn adjudication. Potential conflicts are resolved either as the application is processed through the State Engineer's Office or through Special Use permit clauses once a right is granted.

Evaluation

The Forest applied for and was granted several new water rights during fiscal year 1999. These water rights relate to stock water developments being constructed on the Dick Creek and Ghost Creek Allotments. These developments are being constructed to improve livestock distribution on uplands in an effort to reduce grazing pressure on

riparian areas and stream banks. Six developments are being constructed within the Dick Creek Allotment, while three developments are being constructed within the Ghost Creek Allotment.

SOIL RESOURCE

Soil Erosion

This monitoring item requires the use of MSLE (modified soil loss equation) for ensuring soil erosion is within tolerance levels as determined by Soil Resource Inventory (SRI) interpretations. The Forest has used MSLE on several projects since the Forest Plan was approved in 1986, however, because the SRI has been in progress since shortly after Plan approval, efforts have not been made to determine if erosion is within SRI interpretation tolerance levels.

Evaluation

MSLE has been replaced, agency-wide, by WEPP (Water Erosion Prediction Project). Early versions of WEPP are now available via an Internet website located at the Rocky Mountain Research Station in Moscow, Idaho. These models do not yet contain a spatial link that will allow for Forest-wide modeling. They do allow for modeling small watershed disturbances and erosion from roads. To date, the Forest has not made use of the models. However, now that the SRI is complete (see below), the use of WEPP will become more common.

Soil and Water Resource Improvement (improved watershed conditions)

Watershed Improvement Needs Inventory

Appendix G of the Forest Plan contains a watershed improvement needs inventory. Since the Plan was approved in 1986, Forest personnel have implemented numerous projects listed in the Appendix. The Forest has also collected new information on watershed condition and identified additional watershed improvement opportunities. Additionally, interest in watershed management and restoration on all National Forest lands has increased in the last few years, resulting in changes in agency priorities relative to watershed program management and budgets.

In response to the above, the Forest informally updated Appendix G during fiscal year 1999 into a document titled "Watershed Improvement Program for the Shoshone National Forest". The document is heavily tied to the Clean Water Action Plan (see Water Resources) and the Natural Resource Agenda. Included in the document are watershed restoration and maintenance priorities for the Forest and a 5-year action plan.

Evaluation

Appendix G of the Forest Plan needs to be updated during plan revision to reflect adjustments made in watershed restoration and maintenance priorities and the 5-year action plan.

Watershed Improvement Projects

Numerous watershed improvement projects were implemented during fiscal year 1999. The Forest continues to focus its efforts on reducing impacts of the transportation system on watershed condition, which is tied to recent transportation and stream health assessments (reference past Monitoring and Evaluation Reports).

Evaluation

Major projects designed to 1) improve road drainage and ability of structures to pass flood flows, 2) disconnect roads from streams, and 3) decommission roads were implemented in the South Pass area of the Washakie District, the North Fork Shoshone area (particularly the Kitty Creek watershed) of the Wapiti District, and the Dick Creek watershed on the Greybull District.

A significant river restoration and bank stabilization project was implemented on the North Fork Shoshone River near the Wapiti Ranger Station. The project was designed to stabilize severely eroding banks and protect ranger station facilities and pastureland from erosion and flood threats.

Approximately one mile of the Jones Creek Trail on the Wapiti District was relocated from the valley bottom (riparian zone) to the hillside.

A portion of the West Fork Long Creek ditch was rehabilitated in order to keep streamflow from diverting into the ditch and causing an existing headcut to migrate upvalley.

Preliminary monitoring of these projects indicates they have been effective in improving watershed condition.

Soil Survey

Since 1989, the Forest has been conducting a Soils Resource Inventory as a cooperator with the Natural Resource Conservation Service (NRCS) in the National Soil Survey Program. The work covered by this survey covers the entire Forest with the exception of the Washakie Ranger District. The Washakie Ranger District was scheduled for re-mapping early in the process but funding was shifted into other regional priorities. Both the NRCS and the Forest Soil Scientist agree that the Lander portion of the Forest does not meet current national standards.

During fiscal year 1999, the NRCS conducted its final "field correlation" of the soil survey. The field portion of the survey met NRCS standards. The next step in the correlation process involves map and database (NASIS) approval. The current soils map of the Forest is being edited by the Integrated Resource Inventory (IRI) team. This work should be completed in fiscal year 2000 and provided to the NRCS GIS specialists for their map certification process. NASIS database entry is currently being checked by the NRCS. Certification of this portion of work is expected in fiscal year 2000.

Evaluation

The current version of the Forest Soils map is available in the Forest GIS library. Soil interpretations and mapping unit descriptions are derived from the NRCS NASIS database. The Forest Soil Scientist produces information from the database on an as-needed basis for use by interdisciplinary teams and interested general publics. Information available includes engineering, forestry, physical/chemical data, and productivity summaries. Currently, data accessibility is limited due to data transfer problems between the Forest Service and NRCS computer systems resulting from network incompatibilities. In the near future, the NASIS database will be made available to the general public by means of the Internet. It is anticipated that most future soil survey products will be available only in electronic formats. This allows for the most current interpretations to be accessed immediately versus waiting during the long process required to update hardcopy publications. An important consideration for the future is the yearly maintenance of the NASIS database, which is expected to take 15 to 20 days per year.

IDT REVIEW AND RECOMMENDATIONS

The fiscal year 1999 program of monitoring was reviewed by an interdisciplinary team (IDT). In general, the team found that the Forest Plan is valid and reasonably up to date. Many of the recommendations made here relate to changes in conditions, policy, or use that have occurred since the 1986 Forest Plan was published and that are, therefore, not reflected in it. Others relate to projections made in the original Forest Plan that have not been met due largely to lower than estimated funding levels. These recommendations will be addressed during the Forest Plan revision process.

In addition, over the past several years Forest specialists have articulated the need for a more integrated ecosystem approach to monitoring than currently exists in the Forest Plan.

As of this writing, the process of revising the Shoshone National Forest Plan has not been initiated. The Washington Office has not allocated funds for revision. If revision of the plan continues to be postponed, the Forest Supervisor may consider a Forest Plan amendment.

- Reevaluate the Forest Plan for direction and projections made for Cultural Resource accomplishments. Goals and direction in the plan were too ambitious and could not be met given available resources.
- Reevaluate Forest Plan direction on number of acres to on which to apply wildland fire management for resource benefit (Fire Use) within the Fitzpatrick and Popo Agie Wilderness Areas. Adopt a dynamic procedure to determine the appropriate acres on which fire management can be applied.
- Re-examine Forest Plan direction relative to roads and update goals and projections for miles of new and reconstructed roads, miles of roads closed, and miles of decommissioned roads (obliteration).
- During revision, “management of trails for the intended use” must be reexamined and updated. The use of many non-wilderness trails has changed since the original Forest Plan but direction for management has not.
- The minimal amount of vegetative treatment accomplished in fiscal year 1999 and the declining health of many of the timber stands on the Forest are of concern. These Forest Health issues need to be addressed in the Forest Plan revision.
- The Roadless Initiative has the potential to affect approximately 26% of the Forest’s suitable timber base. If a national decision is made that would limit further vegetation treatment, the Forest Plan should be amended or revised to reflect the change.
- Replace the Modified Soil Loss Equation (MSLE) in the Forest Plan for monitoring soil erosion with the Water Erosion Prediction Project (WEPP) to make it consistent with agency-wide direction.
- Update Appendix G of the Forest Plan during revision to reflect adjustments made in watershed restoration and maintenance priorities and the 5-year action plan.
- Reevaluate the Forest Plan for direction concerning the conservation of the Canada Lynx. Incorporate direction from The Lynx Conservation Strategy as appropriate.

STATUS OF 1998 RECOMMENDATIONS

The 1998 Monitoring and Evaluation Report contained a number of interdisciplinary team recommendations based on that year's monitoring. Recommendations include changes to the Forest Plan that could be addressed through amendment or revision of

the plan. The Shoshone National Forest expects to begin revising the Forest Plan in FY 2001 pending allocation of funds. Therefore changes to the Forest Plan will most likely be addressed through that process. The following is a summary of the 1998 recommendations and how they are being addressed.

Forest Plan Revision:

- ❖ Reevaluate the number of miles of new road construction and reconstruction projected in the Forest Plan. We are currently deviating from Forest Plan projections.
Status: Address through Forest Plan revision
- ❖ Evaluate closed roads and decommission those that are unneeded.
Status: Address through Forest Plan revision
- ❖ The average annual output for Level 1 road maintenance should be updated to meet national requirements.
Status: Address through Forest Plan revision
- ❖ The two thinning treatments for timber harvest prescriptions modeled in the 1986 Forest Plan are not occurring. It is more economically realistic to include one in the model during Forest Plan revision.
Status: Address through Forest Plan revision
- ❖ Develop a way to address excessive bank damage along "E" stream types in meadow areas as a result of ungulate grazing. This is occurring even when overall use is within Forest Plan Standards and Guidelines.
Status: Address through Forest Plan Revision, Integrate Watershed Conservation Practices (WCP) handbook in new Forest Plan, permit clause through range EA.
- ❖ Review Forest Plan to ensure the appropriate levels of soil, water, and air protection are being afforded in light of increased use of prescribed fire as a management tool.
Status: Address through Forest Plan revision
- ❖ Replace old fire terminology in Forest Plan with terminology in newly adopted fire policy.
Status: Address through Forest Plan revision
- ❖ Ensure the appropriate guidelines from the Absaroka-Beartooth Wilderness Fire Management Plan are incorporated into the LRMP.
Status: Address through Forest Plan revision or amendment
- ❖ Resolve conflict between Forest Plan management area allocation and direction and scenic byway management requirements using corridor planning.

Status: Address through Forest Plan revision or amendmen and as the Scenery Management System is completed.

Implementation:

- ❖ The Forest should set a higher priority on implementation of the existing travel management plan. More resources should be spent on the following activities: putting up signs where use restrictions are not clearly marked, increase law enforcement in problem areas, increase public education, update the current Forest visitor travel map.
Status: Monitoring and patrol efforts were increased. Some volunteer roads were closed. Due to budget constraints, problems still exist.

- ❖ Continue monitoring winter recreation use and visitors' perceptions (social/economic) to prepare for the Forest Plan revision effort and to support any NEPA analyses that might arise before that.
Status: Monitoring is continuing to the extent that resources and budgets allow.

- ❖ Special Uses - Increase permit compliance checks, particularly related to livestock utilization in pastures and maintenance of water transmission lines (ditches). Special Use permits need to be reviewed to ascertain utilization standards are appropriate for site conditions. Ditches need to be walked on a periodic basis to ensure headgates are functioning properly, and cuts and fills are stable.
Status: Monitoring is continuing.

LIST OF PREPARERS

Dave Henry, Wildlife Biologist	Threatened & Endangered Species, Wildlife and Fish
Monte Barker, Recreation Forester	Recreation, Wilderness
Greg Bevenger, Hydrologist	Air, Water, and Soil Resources
Dennis Eckardt, Forester	Timber Resources
Roy Bergstrom, Forester	Timber Resources
Pat Heuer, Forester	Timber Resources
Dennis Eckardt, Minerals Staff	Minerals
Jim Fischer, Forest Engineer	Facilities
Joe Hicks, Range Conservationist	Range
Brad Russell, Range Conservationist	Range
Chiara Palazzolo, Landscape Architect	Visuals
Skip Shoutis, Outdoor Recreation Planner	Recreation, Wilderness
Dave Sisk, Fire Mgmt Officer	Protection
Bob Tribble, Forest Planner	Contributor/Editor
Olga Troxel, Land Mgmt Analyst	Forest Plan Budget, Monitoring Coordinator

Jennifer Watson, Lands Specialist
Ray Zubik, Fisheries Biologist

Recreation (Downhill Ski Use)
Wildlife & Fish, Riparian Condition

PUBLIC PARTICIPATION/DISCLOSURE

This report is available on the FS Web at www.fed.us/r2/shoshone (see link option **Electronic Reading Room, Planning Documents**). It is also printed hard copy and may be obtained by request to Forest Planner, Shoshone National Forest, 808 Meadow Lane, Cody, WY 82414.

APPENDIX A - fiscal year 2000 MONITORING PLAN

Introduction

Chapter IV of the Shoshone National Forest Land and Resource Management Plan (page IV-1) states that "an annual monitoring program will be prepared as part of the Forest's annual work program. This program will include the details displaying amount and location of monitoring to be accomplished. This will be based on the approved work program and funds available for monitoring." The results of the annual monitoring program will be documented in an annual monitoring report. The report is aimed at the Forest management team and provides the decisionmakers with information about the Forest's progress towards achieving the goals outlined in the Forest Plan and identifies any needs for amendments to or revisions of the Forest Plan.

The following monitoring plan represents the Forest's monitoring priorities for 2000. The monitoring plan assumes no interruptions to this year's program of work by activities such as a severe fire season, appeals or lawsuits, or other unforeseen circumstances that would divert personnel and funds away from field work.

AIR RESOURCE

MONITORING REQUIREMENT: Air Quality

RESPONSIBILITY: Liz Oswald

DUE DATE: March 2, 2001

DATA SOURCE: Deposition samples collected at a National Atmospheric Deposition site.

FUNDING/PERSONNEL: Funding is from watershed management dollars. Monitoring is conducted by 1 GS-9 hydrologist.

MONITORING REQUIREMENT: Air Quality

RESPONSIBILITY: Liz Oswald

DUE DATE: March 2, 2001

DATA SOURCE: Air Quality Related Values (AQRV) Wilderness Lake Sampling. Parameters sampled are water quality, macroinvertebrates, and zooplankton. Also sampling vegetation and soils in one watershed for MAGIC computer model.

FUNDING/PERSONNEL: Funding is from watershed management dollars. Monitoring is conducted by 1 GS-9 hydrologist.

MONITORING REQUIREMENT: Air Quality

RESPONSIBILITY: Liz Oswald

DUE DATE: March 2, 2001

DATA SOURCE: Air Quality Related Values (AQRV) Wilderness Lake Sampling, Synoptic Survey of low alkalinity lakes. Samples to be collected by the National Outdoor Leadership School (NOLS), under the direction of the Forest Service

FUNDING/PERSONNEL: Funding is from watershed management dollars. Monitoring is conducted by 1 GS-9 hydrologist.

PLAN BUDGET

MONITORING REQUIREMENT: Actual Costs of Applying Management Direction from Forest Plan

RESPONSIBILITY: Forest Analyst and Budget & Finance Person

DUE DATE: March 2, 2001

DATA SOURCE: Program Accounting and Management Attainment Reporting System

FUNDING/PERSONNEL: 5 person-days, GS-7 and 2 person-days, GS-11

CULTURAL

MONITORING REQUIREMENT: National Register of Historic Places - Listed Sites

RESPONSIBILITY: Archeologist

DUE DATE: Sept. 30, 2000

DATA SOURCE: Visual assessment of site conditions at 10 sites

FUNDING/PERSONNEL: Program cost: \$2,500.

MONITORING REQUIREMENT: National Register of Historic Places - Eligible Sites

RESPONSIBILITY: Forest Archeologist

DUE DATE: Sept. 30, 2000

DATA SOURCE: Visual examination of 20-25 sites which have been determined eligible to the National Register. Also update of site forms and reevaluation in case of some early designated sites.

FUNDING/PERSONNEL: Program Cost \$3,500.

MONITORING REQUIREMENT: Range Permit Issue MOU

RESPONSIBILITY: Forest Archeologist

DUE DATE: March 1, 2001

DATA SOURCE: Visual examination of areas identified as having high potential for heritage resources and high probability of impacts associated with livestock grazing. (MOU between Forest Service, Advisory Council for Historic Preservation, National Council of State Historic Preservation Officers, Wyoming State Historic Preservation Office.

FUNDING/PERSONNEL: Cost to Forest Service: \$20,000

FACILITIES

MONITORING REQUIREMENT: Road Construction

RESPONSIBILITY: North & south zone Engineering

DUE DATE: March 2, 2000

DATA SOURCE: Annual MAR and FRP Accomplishment Reports, RoADS Report

FUNDING/PERSONNEL: 1 person-day for Civil Engr Techs (2), 1 person day for Engineer, GM13.

MONITORING REQUIREMENT: Road Reconstruction

RESPONSIBILITY: North and south zone Engineering

DUE DATE: Nov. 1, 2000

DATA SOURCE: Annual MAR and FRP Accomplishment Reports, RoADS Report

FUNDING/PERSONNEL: 1 person-day for Civil Engr Techs (2), 1 person day for Engineer, GM13.

MONITORING REQUIREMENT: Roads Closed (system road miles closed by project activities)

RESPONSIBILITY: North and south zone Engineering, Rangers

DUE DATE: Nov. 1, 2000

DATA SOURCE: ROADS Report, Project Work Plans, Annual MAR report.

FUNDING/PERSONNEL: 1 person-day for Civil Engr Techs (2), 1 person day for Engineer, GM13, .5 person days for Rangers.

MONITORING REQUIREMENT: Roads Obliterated (system road miles obliterated by project activities)

RESPONSIBILITY: North and south zone Engineering, ID teams.

DUE DATE: Nov. 1, 2000

DATA SOURCE: Annual FRP and MAR reports, Project Work Plans, EA/DNs.

FUNDING/PERSONNEL: 1 person-day for Civil Engr Techs (2), 1 person-day for Engineer, GM13, .5 person-days for each Deciding Officer.

MONITORING REQUIREMENT: Level 1 Road Maintenance (Miles of Level 1 maintenance performed)

RESPONSIBILITY: North and south zone Engineering, WOC temp crew, 2 person-days Hydrologist/Fish Biologist.

DUE DATE: Nov. 1, 2000

DATA SOURCE: Annual MAR reports, completed project work plans, WOC crew field records.

FUNDING/PERSONNEL: 58 days GS9 Engr. Tech, 20 days GS7 Engr. Tech, 27 days GS9 Engineer, 3 days GM13 Engineer, 11 days GS9 Forestry Tech., 10 Days Hydrologist, 60 days GS-5 hydro Techs.

MINERALS

MONITORING REQUIREMENT: Notice of Intentions, Plan of Operations, Application of Permits, and Other Mineral Special Use Permits

RESPONSIBILITY: Forest Minerals Staff Officer

DUE DATE: January 15, 2001

DATA SOURCE: filed Notices of Intentions, Plan of Operations, Applications for Permits to Drill, and Mineral Materials Special Use Permits.

FUNDING/PERSONNEL: .5 person per year for Forest, GS-11

RANGE

MONITORING REQUIREMENT: Noxious Weed Surveys

RESPONSIBILITY: Invasive Plant Coordinator

DUE DATE: March 2, 2001

DATA SOURCE: Invasive Plant Surveys

FUNDING/PERSONNEL: 20 days GS-11

RECREATION

MONITORING REQUIREMENT: Off-road Vehicle Use of Designated Travelways

RESPONSIBILITY: North and south zone Recreation Coordinators

DUE DATE: March 2, 2001

DATA SOURCE: Citations, warning notices, ranger observations/notes/photos; inventoried orv use areas and access points would be the focus for monitoring, regularly used off-road areas would be prioritized.

FUNDING/PERSONNEL: This item is monitored continuously by District personnel. Approximately .5 person-year for Forest, GS-4-11s; and 2 person-days, GS-11

MONITORING REQUIREMENT: Trail Condition

RESPONSIBILITY: North and south zone Recreation Coordinators

DUE DATE: March 2, 2001

DATA SOURCE: Deferred Maintenance condition surveys on 20% of Forest trails per year for the next 4 years. Forest priority.

FUNDING/PERSONNEL: Approximately \$50,000.

MONITORING REQUIREMENT: Dispersed Campsite Condition and Trend

(monitoring of this item is focused on trend)

RESPONSIBILITY: North and south zone Recreation Coordinators

DUE DATE: March 2, 2001

DATA SOURCE: Visual observations incidental to other regular work and photo documentation. Inventoried orv use areas and access points would be the focus for monitoring, and regularly used off-road areas and road termini would be prioritized.

FUNDING/PERSONNEL: Dispersed areas along roads - 80 days for GS-5 and GS-6.

MONITORING REQUIREMENT: Developed Site Use

RESPONSIBILITY: North and south zone Recreation Coordinators

DUE DATE: Nov. 1, 2001

DATA SOURCE: Fee collection data

FUNDING/PERSONNEL: 10 person-days, GS-4-7s, 4 person-days GS-9

MONITORING REQUIREMENT: Developed Site Condition

RESPONSIBILITY: North and south zone Recreation Coordinators

DUE DATE: March 2, 2001

DATA SOURCE: Deferred Maintenance condition surveys, Infrastructure inventory.

FUNDING/PERSONNEL: 10 person-days, GS-4-7s, 4 person-days, GS-9.

MONITORING REQUIREMENT: Downhill Skiing Use

RESPONSIBILITY: Jennifer Watson

DUE DATE: March 1, 2001

DATA SOURCE: Permittee supplied use statistics, resort inspections

FUNDING/PERSONNEL: 15 person-days for Forest, GS-9, 5 person-days, GS 11.

MONITORING REQUIREMENT: Trail Construction/Reconstruction

RESPONSIBILITY: North and south zone Recreation Coordinators.

DUE DATE: March 2, 2001

DATA SOURCE: MAR Reports

FUNDING/PERSONNEL: negligible

THREATENED, ENDANGERED AND SENSITIVE SPECIES

MONITORING REQUIREMENT: Grizzly Bear Mortalities

RESPONSIBILITY: Forest Supervisor, TES Biologist

DUE DATE: March 2, 2001

DATA SOURCE: Interagency Grizzly Bear Study Team and Montana Fish, Wildlife and Parks annual reports.

FUNDING/PERSONNEL: 2 days GS-12 (Approximately \$500)

MONITORING REQUIREMENT: Compliance with Interagency Grizzly Bear Guidelines

RESPONSIBILITY: Forest Supervisor, District Rangers, team leaders, project biologists, TES Biologist.

DUE DATE: March 2, 2001

DATA SOURCE: Project Biological Assessments and consultation with U.S. Fish and Wildlife Service, grizzly bear compliance patrol reports, law enforcement reports, IGBC grizzly bear conflict annual report.

FUNDING/PERSONNEL: Above noted personnel and district compliance personnel (approximately \$20,000).

MONITORING REQUIREMENT: Grizzly Bear Habitat Effectiveness

RESPONSIBILITY: Forest Supervisor, TES Biologist

DUE DATE: March 2, 2001

DATA SOURCE: Grizzly Bear Cumulative Effects Model (CEM) and the IGBC access analysis process. (NOTE: Completion of this monitoring item is dependant on the following. CEM was run on the Forest in 1996 and model validation and testing is in process. CEM will be run again on the Forest as soon as model testing is completed for the Ecosystem. Databases used in the CEM analysis will be updated for any changes in 1997. Development of the access analysis process is underway and a baseline report will be generated once the process for completing the analysis is finalized.)

FUNDING/PERSONNEL: District biologists, district recreation staff, GIS Coordinator, engineering staff, timber staff, Grizzly Bear/Wolf Center of Excellence (Approximately \$15,000).

MONITORING REQUIREMENT: Wolf Population Status

RESPONSIBILITY: TES Biologist

DUE DATE: March 2, 2001
DATA SOURCE: Weekly Gray Wolf Recovery Progress Report from U.S. Fish and Wildlife Service, reports received from Forest Service Employees and the general public.
FUNDING/PERSONNEL: 10 days GS-12 (approximately \$3,000)

MONITORING REQUIREMENT: TES Sensitive Plants

RESPONSIBILITY: Sensitive Plant Coordinator

DUE DATE: March 2, 2001

DATA SOURCE: Monitoring of Round Leaf Orchid

FUNDING/PERSONNEL: 3 days GS-11

TIMBER

MONITORING REQUIREMENT: Allowable Sale Quantity

RESPONSIBILITY: Rangers and Forest Timber Staff

DUE DATE: March 2, 2001

DATA SOURCE: MAR Report

FUNDING/PERSONNEL: Timber Zone Personnel, Forest Timber Staff, TCE personnel in Laramie. Personnel estimate is 50 days at a cost of \$8,000.

MONITORING REQUIREMENT: Restocking of Clearcuts

RESPONSIBILITY: District Rangers, Forest Silviculturists, Timber Staff

DUE DATE: March 2, 2001

DATA SOURCE: Regeneration Surveys and Stand Exams

FUNDING/PERSONNEL: 20 person-days, \$4,000.00

MONITORING REQUIREMENT: Timber Stand Improvement

RESPONSIBILITY: Zone Timber Personnel, Contracting Officers and Inspectors

DUE DATE: March 2, 2001

DATA SOURCE: MAR Report, Field inspection reports, daily diaries, RMRIS

FUNDING/PERSONNEL: 40 person-days, \$6,000.00

MONITORING REQUIREMENT: Growth Response

RESPONSIBILITY: Zone Timber Personnel, Forest Timber Staff

DUE DATE: March 2, 2001

DATA SOURCE: Stage II data, regeneration survival surveys, MAR reports, RIS data base.

FUNDING/PERSONNEL: 50 person-days, \$8,000.

MONITORING REQUIREMENT: Openings Created by Management Activities

RESPONSIBILITY: Timber Staff, ID Teams, Permit or Contract Administrators

DUE DATE: March 2, 2001

DATA SOURCE: NEPA documents, contracts

FUNDING/PERSONNEL: 20 person-days, \$4,000.

MONITORING REQUIREMENT: Lands Not Suited for Timber Production

RESPONSIBILITY: Zone Timber Personnel, Forest Timber Staff, District Rangers

DUE DATE: March 2, 2001
DATA SOURCE: NEPA Documents, Contracts, RIS data base
FUNDING/PERSONNEL: 30 person-days, \$6,000.

WATER RESOURCES

MONITORING REQUIREMENT: Water Quality Trend

RESPONSIBILITY: North and south zone Hydrologists

DUE DATE: March 2, 2001

DATA SOURCE: Quantitative and qualitative field data collected and analyzed by professional and seasonal staff. Data collected is dependent upon the project type, monitoring objectives and statistical reliability required. Sampling and site selection is designed to facilitate extrapolation of data to other projects and areas.

FUNDING/PERSONNEL: Funding is spread across many projects. Monitoring not specifically funded by a project is funded through normal watershed management dollars. Monitoring is conducted by 1 GS-12 and 1 GS-9 hydrologist.

MONITORING REQUIREMENT: Water Uses

RESPONSIBILITY: North and south zone Hydrologists

DUE DATE: March 2, 2001

DATA SOURCE: Bighorn Decree and on-site information. Handled on a case-by-case basis.

FUNDING/PERSONNEL: Funding is either through project dollars or normal watershed management dollars on an as needed basis. Monitoring is conducted by 1 GS-12 and 1 GS-9 hydrologist.

SOILS

MONITORING REQUIREMENT: Soil Erosion

RESPONSIBILITY: Forest Soil Scientist

DUE DATE: March 2, 2001

DATA SOURCE: Quantitative and qualitative field data collected and analyzed by professional staff. Data collected is dependent upon the project type, monitoring objectives and statistical reliability required. Sampling and site selection is designed to facilitate extrapolation of data to other projects and areas.

FUNDING/PERSONNEL: Funding is spread across many projects. Monitoring not specifically funded by a project is funded through normal watershed management dollars. Monitoring is conducted by 1 GS-11 soil scientist.

MONITORING REQUIREMENT: Soil and Water Resource Improvement

RESPONSIBILITY: North and south zone hydrologists and soil scientist.

DUE DATE: March 2, 2001

DATA SOURCE: Dependent upon project

FUNDING/PERSONNEL: Funding is spread across many projects. Monitoring not specifically funded by a project is funded through normal watershed improvement dollars. Monitoring is conducted by 1 GS-11 soil scientist and 1 GS-12 and 1 GS-9 hydrologist .

WILDLIFE AND FISH

MONITORING REQUIREMENT: Wildlife Habitat Improvements - Forest Plan item

RESPONSIBILITY: Forest Wildlife Biologist

DUE DATE: March 2, 2001

DATA SOURCES: Information assembled for annual MAR Report

FUNDING/PERSONNEL: 1 person-day GS-12

MONITORING REQUIREMENT: Winter Range Carrying Capacity - Forest Plan item

RESPONSIBILITY: Forest Wildlife Biologist

DUE DATE: March 2, 2001

DATA SOURCE: Data sheets from seasonal Range and Wildlife Crew

FUNDING/PERSONNEL: 2 GS-5 seasonals - total project cost estimate = \$10,000.

MONITORING REQUIREMENT: Riparian Condition

RESPONSIBILITY: Forestwide Fisheries Biologist/Riparian Coordinator

DUE DATE: March 2, 2001

DATA SOURCE: Riparian, watershed, aquatic habitat, range, and wildlife field data collected on key monitoring areas/sites including functioning riparian, stream morphology, key aquatic habitat parameters, browse utilization, production-utilization transects, stubble height transects, photo points and other approved methods found in the Region 2 Analysis Handbook.

FUNDING/PERSONNEL: 60 days GS-7,9,11,12 (20 days range staff + 20 days GS-11 Aquatic Biologist + 10 days GS-12 Hydrologist + 5 days GS-9 Hydrologist + 5 days GS-12 Wildlife Biologist). Other miscellaneous riparian monitoring = 20 days (10 days GS-12 Hydrologist and 10 days Aquatic Biologist).

WILDERNESS

MONITORING REQUIREMENT: Wilderness Use

RESPONSIBILITY: North and south zone Recreation Coordinators

DUE DATE: March 2, 2001

DATA SOURCE: Observations at trailheads and user contacts.

FUNDING/PERSONNEL: .5 person year for Forest, GS-4-7s; and 2 person days, GS-11

MONITORING REQUIREMENT: Wilderness Campsite Condition

RESPONSIBILITY: North and south zone Recreation Coordinators

DUE DATE: March 2, 2001

DATA SOURCE: Observation and photo documentation.

FUNDING/PERSONNEL: .5 person year for Forest, GS-4-7s; and 2 person days, GS-11

VISUALS

MONITORING REQUIREMENT: Adopted Visual Quality Objective

RESPONSIBILITY: Landscape Architect/Districts

DUE DATE: March 2, 2001

DATA SOURCE: Management Reviews

FUNDING/PERSONNEL: 60 person days for visual monitoring of various projects,
1GS9 Landscape Architect.