FY 2001-2002 Monitoring Report
Umpqua National Forest

September 2004

FOREST SERVICE
US
DEPARTMENT OF AGRICULTURE

Dear Friends of the Umpqua National Forest:

Enclosed are the results of the fiscal year 2001 and 2002 Umpqua National Forest monitoring activities. This report summarizes the monitoring that was completed, and what was learned as a result. Resource specialists have also formulated recommendations for changes in the monitoring program.

Please direct comments or questions on this report to: Planning and Products Staff, Umpqua National Forest, 2900 NW Stewart Parkway, Roseburg, OR 97470.

/s/ James A. Caplan

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Introduction

The Umpqua National Forest annually monitors and evaluates programs and projects to determine whether they comply with management direction in its Land and Resource Management Plan (LRMP), as revised by the Northwest Forest Plan.

Monitoring and evaluation is an ongoing process, specifically designed to insure that LRMP goals and objectives are being achieved; standards and guidelines are being properly implemented; and environmental effects are occurring as predicted. The evaluation of monitoring results allows the Forest Supervisor to initiate action to improve compliance with management direction where needed, improve cost effectiveness, and determine if any amendments to the LRMP are needed to improve resource management.

Monitoring is conducted by field reviews of projects and by inventory and survey work conducted by Forest Service resource specialist and other cooperators.

This monitoring report for Fiscal Years (FY) 2001 and 2002 is divided by resource areas with overviews of the monitoring conducted and resulting recommendations in the Executive Summary, followed by detailed resource reports.

Impact of the 2002 wildfire season

Please note that FY 2002 monitoring activities were markedly impacted by the wildfires that summer. In total, over 88,000 acres burned on the Umpqua National Forest making it the largest combined burned acreage in recorded history on the Umpqua.

Executive Summary

Fire and Fuels

Monitoring

Monitoring activities for fire management include determining cost effectiveness of the fire management program, as well as responsiveness to resource goals and objectives. For fuels management, monitoring activities include determining if the program is meeting resource objectives and determining compliance with the Clean Air Act. The year 2001 had an above average fire season for the Umpqua. That year was quickly overshadowed by the record setting fire season of 2002, which was unprecedented on the Forest, resulting in over 88,000 acres that burned at various intensities.

Recommendations

The Forest should continue staffing at 90% Most Efficient Level (MEL) or above in order to effectively maintain adequate fire response resources.

Fisheries

Monitoring

The Fisheries program has responsibilities for five Forest Plan monitoring activities, as displayed below. These include:

- ME-6, Stream Inventory
- ME-11, Smolt Trapping
- ME-12, Pool Quality
- ME-13, Macroinvertebrates
- ME-24, Large Wood

These are primarily "effectiveness" monitoring activties. In 2001, the Forest fell well short of accomplishing the Fisheries monitoring anticipated in the LRMP, ranging from 0% to 43% accommplished. In 2002, the Forest accomplished no Fisheries monitoring, primarily due to the intense, record-setting fire season.

Three of the five Fisheries monitoring activities discussed above were implemented during the 2001-2002 period, but at very low levels; 2002 was the lowest level of monitoring accomplished since the LRMP was completed, and 2001 the second lowest. All monitoring activities have the potential to provide important information about the status of the Forest's aquatic resources and the effectiveness of restoration and land management actions in achieving resource goals. However, to achieve this potential would require a much greater commitment than what was accomplished in 2001 and 2002.

Recommendations

It is recommended that the Forest ensure that effective, project-specific monitoring, both pre- and post-project, is planned, implemented, and documented as an integral part of all watershed restoration activities.

If funding and personnel became available, additional monitoring to include would be to increase the Level 2 stream inventory to at least 75 miles/year, which is slightly less than one-half of the LRMP anticipated level; increase smolt trapping by three sites (to five sites); and double benthic macroinvertebrate monitoring levels to 30 sites. However, as budgets decline, it is unlikely that the Forest can support this level of monitoring.

Heritage Resources

Monitoring

In 2001, field monitoring checks were completed at 117 prehistoric and historic sites and field monitoring of 121 project areas for a total of 1,636 acres. Five archaeological sites are in the Umpqua National Forest Site Stewardship program and were monitored on a regular basis by the Cow Creek Band of Umpqua Tribe of Indians Cultural Committee.

In 2002, field monitoring checks were completed at 136 prehistoric and historic sites and field monitoring survey 38 project areas for a total of 882 acres. The five archaeological sites included in the Umpqua National Forest Site Stewardship Program were monitored on a regular basis by the Cow Creek Band of Umpqua Tribe of Indians Cultural Committee. In addition, the Umpqua National Forest and the Roseburg District Bureau of Land Management worked with the Oregon State Police Fish and Wildlife Division to include archaeological site monitoring in areas where resource damage was being noted. During fire suppression activities associated with the 2002 fire season, survey and monitoring were undertaken before construction of the fire line and safety zones to ensure protection of heritage resources.

Recommendations

Continue support of active law enforcement, the Site Stewardship Program, and the Heritage public awareness program.

Range, Livestock and Grazing

Monitoring

There are a total of nine permanent monitoring sites in the three allotments. These sites are located along perennial and fish-bearing streams, in wetlands, and in meadows. These sites are intended to assess forage utilization, as well as impacts to vegetation structure, riparian areas and streambank morphology (stability). All sites are situated in the Umpqua River Basin, except for the Crossover Meadows site, which is located in the headwaters of Wall Creek, a tributary of the Rogue River.

There also is a monitoring site for *Hydnum umbilicatum*, a fungus for which the Northwest Forest Plan requires management of known sites. A small population exists near Threehorn Campground in the Divide Allotment.

Recommendations

More effort must be directed to better utilize certified plantations, which comprise the transitory range. Cattle are allowed to consume up to 50 percent of that forage, but seldom take more than 15 percent. The use that occurred in Unit 9-10 and the aforementioned pine plantation along RD 1615-120 in the Divide Allotment is exemplary. However, there are numerous plantations where forage is under-utilized. When properly used they can significantly relieve grazing pressure in sensitive areas.

Recreation

Monitoring

The Forest participated in the National Visitor Use Monitoring (NVUM) project from October 2000 through September 2001. Additionally, during this same time period the Umpqua National Forest conducted surveys of recreationists' preferences and perceptions about recreational opportunities on the Umpqua National Forest. Researchers from the University of Florida and Penn State conducted visitor surveys focusing on the needs, expectations, and satisfaction levels of recreational users in the Umpqua National Forest. The purpose of this investigation was to examine recreational use patterns, satisfaction levels, economic expenditures, and experiences currently occurring on the Umpqua National Forest. This information provides baseline data and suggests management actions to address current issues identified in the study. More detailed information was studied for two sub-studies (recreation participation at the Diamond Lake Recreation Composite and the South Umpqua River Corridor).

Additional monitoring included a review of use in developed recreation sites, general forest areas, special interest areas/old growth groves, dispersed roaded environments, dispersed unroaded recreation areas, and the Oregon Cascades Recreation Area.

Limited monitoring of recreation use and related resource impacts was accomplished in 2002 due to the wildfires on the Forest. Overall developed recreation use was monitored through the fee collection system and observations of Forest recreation personnel.

Recommendations

Continue with present management direction and monitoring efforts. Complete a recreation plan for the South Umpqua Corridor. Continue with collection of statistically sound recreation use data in the Diamond Lake area. Complete the Diamond Lake Restoration Project Environmental Impact Statement. Review and consider update of the Diamond Lake Recreation Composite Plan after the Diamond Lake Restoration Project FEIS is completed.

Soil and Water

Monitoring

The Forest Plan requires monitoring the use of Best Management Practices (BMPs) to protect water quality, stream temperature, turbidity and streamflow, and soil productivity. BMP checklists were written for 5 projects out of 18 ground-disturbing activities with signed environmental assessments (EAs) in 2001, and 5 projects out of 33 EAs had

checklists in 2002. Checklists were completed to document that BMPs were implemented and effective on 6 activities in 2001 and 2002. The checklists showed that most practices were implemented on the projects that were monitored.

The Forest Plan requires 29 streams to have temperature measured each summer on the Forest. Thirty streams were monitored in 2001 and 2002. Five (5) are instrumented to show if turbidity changes for winter flows of the same size. Turbidity and flow was measured on Layng Creek, Steamboat Creek, Canton Creek, Boulder Creek and the North Umpqua Wild and Scenic River.

Stream temperatures did not change for most streams. Turbidity is not changing on the streams monitored, when compared to previous years during comparable winter flows.

Recommendations

The Umpqua Forest Plan was written in 1990, when many more activities (especially clearcut harvesting) were planned and implemented on the Forest. The Monitoring Plan requires BMP checklists on every ground-disturbing activity. North Umpqua and Diamond Lake Ranger Districts should continue monitoring and writing these checklists; Cottage Grove and Tiller are vulnerable to Clean Water Act lawsuits (and do not comply with the Memorandum of Understanding with Oregon DEQ) because they lack BMP checklists for some projects. Districts should write and complete BMP checklists on Cottage Grove and Tiller Ranger Districts in FY 2003 and 2004, with the goal of completing BMP checklists on all ground-disturbing activities by FY 2005. Until the Forest Plan is amended, projects with ground-disturbing activities should have BMP checklists.

Timber and Vegetation

Monitoring

The timber volume offered for sale from the Forest was extremely low in fiscal years 2001 and 2002, primarily due to continued litigation against the regulatory agencies. Volume harvested in 2001 was 9 million board feet (MMBF) from 467 acres of commercial thinning and 115 acres of shelterwood seed cut. In 2002, 72 acres of shelterwood harvest yielded 4 MMBF.

The Forest continues to move toward intermediate entries in older managed plantations that have opportunities for commercial thinning.

Precommercial thinning needs continue to be only partially funded and cooperative funding is an alternative to supporting of this work. Plantation success, with a higher percentage of the planting in older, failed plantations or wildfire affected plantations, continues to be a challenge.

Recommendations

Complete an inventory, through the stand examination process, of the best commercial thinning opportunities in managed stands. Continue to closely monitor planting stock quality and growth and survival response in the field and work with the Nursery to improve quality where possible. Maximize use of contributed funds to accomplish

vegetation establishment and improvement work, i.e., Payments to Counties (PayCo) and Forest Health (National Fire Plan and Healthy Forests Initiative).

Transportation System

Monitoring

Monitoring that was completed in 2001 included review of road system mileage by maintenance and use category. Traffic volume on eight high use sites was collected, but the information had not yet been compiled by the end of 2001. Road construction and reconstruction records were also checked, including whether there was new road construction in key watersheds.

Monitoring that was completed in 2002 included continuation of traffic data collection, which was not compiled by the end of 2002. A review of road system mileage by maintenance and use category was not completed in 2002. However, road construction and reconstruction records were also checked, including whether there was new road construction in key watersheds.

Recommendations

Compile traffic count data to estimate use trends. Collect road system mileage and use data on an annual basis. Amend Forest Plan Standards and Guidelines for traffic management and Appendix F to reflect the new budget trends, NW Forest Plan revision, and Roads Analysis Results. Continue monitoring road construction and reconstruction.

Visual Resources

Monitoring

Some general monitoring of viewshed condition occurred along State Highway 138, Little River Road and the South Umpqua Falls Road No. 27. The wildfires of 2002 affected the viewsheds of State Highway 138 and South Umpqua Falls to reduce the visual quality to a modified condition in segments of the viewsheds; however, the overall condition of the viewsheds remains primarily intact. No timber sales were surveyed for post-sale condition, as no sales were cut in scenic areas. Scenic quality was addressed in environmental assessments and watershed analyses.

Recommendations

Continue to expand monitoring to include all areas of landscape management, including management activities such as placing structures or roads in the landscape, developing rock sources, prescribed fires, and other types of projects that have the potential to affect the scenic resources.

Wild and Scenic Rivers

Monitoring

Yearly, from May thru September, river use is monitored 5 days per week through an MOU between the BLM and Forest Service. Monitoring elements track recreation

conflicts, perception of crowding, total boating use, and campground use, all of which are recorded yearly.

Recommendations

Continue present direction and monitoring. Improve boater put-in at Boulder Flat. Continue emphasis with BLM partnership and implementation of river user guidelines.

Wilderness

Monitoring

In 2001, the Forest participated in the National Visitor Use Monitoring (NVUM) project from October 2000 through September 2001. Additionally, during this same time period the Umpqua National Forest conducted surveys of recreationists' preferences and perceptions about recreational opportunities on the Umpqua National Forest. This information provides baseline data and suggests management actions to address current issues identified in the study.

There were 25 wilderness patrols and "Limits of Acceptable Change" (LAC) monitoring completed in the Rogue Umpqua Divide Wilderness. In the Mt. Thielsen area, there were numerous public contacts and some patrols completed over the season. LAC monitoring was not done in Mt. Thielsen or Boulder Creek Wilderness Areas.

No wilderness user surveys were conducted in 2002. Due to the Tiller Complex fires and public closures, there were only 10 wilderness patrols recording conditions identified in the wilderness monitoring plan. In the Mt. Thielsen area, there were numerous public contacts and some wilderness patrols completed during the season. Data was collected (vegetation, soil, litter, and constructions) and photos taken at all core camping areas (Tolo Camp, Thielsen Creek, and Maidu Lake).

Recommendations

Continue present monitoring. In 2004, the Diamond Lake Ranger District should prepare a summary containing the same elements as were contained in the Tiller report. Consider regulations regarding riparian campsites. Continue with implementation of "Meaningful Measures."

Wildlife and Threatened, Endangered, and Sensitive Species

Monitoring

With the exception of lynx surveys in FY01 and partial funding of peregrine falcon monitoring in FY01, Forest Plan monitoring requirements for wildlife and TES were not funded in either 2001 or 2002. Inventory and monitoring is critical to achievement of wildlife objectives. The shortfall in NFIM was therefore partially addressed using wildlife and TES program funds and partnerships with other agencies to meet some of the critical Forest Plan monitoring information needs. With the exception of the spotted owl surveys, the activities listed in Table 1 below are broad scale, and not associated with project level inventory or monitoring activities. They were conducted using established

regional and national protocols and standardized sampling methods to address key inventory and monitoring questions.

Table 1. TES and Other Inventory and Monitoring Activities

Activity	Resource Element
Northern Spotted Owl	CT1/NFWF 14
Blacktail Deer and Roosevelt Elk	CT1/NFWF 15
Sensitive Plants and Animals	CT1/NFWF 16
a. TES amphibian	
b. Level II Landbirds	
c. Wolverine	
d. Townsend's big-eared bat	
e. Western pond turtle	
f. Lynx	
Bald eagle	CT1/NFWF 17
Peregrine Falcon	CT1/NFWF 18
Pileated Woodpecker	CW1/NFWF 19
Pine Marten	CW1/NFWF 20
Primary Cavity Nester	CW1/NFWF 21

Recommendations

TES AMPHIBIANS

Increase annual monitoring of lakes and ponds. Intensify the monitoring effort to include as many ponds and lakes as possible in order to assure that the number of ponds with fish as well as those ponds without fish (reference ponds) are adequately sampled. Survey pond sites to establish a baseline for native and exotic species and determine which sites function as suitable habitat for native amphibians. Broaden the sampling to include invertebrates and detection of introduced disease, parasites, and invasive species such as the exotic snail detected in 2001 at Ash Pond and 2002 in Carmine Lake.

Dredged, dammed and stocked lakes and ponds:

Restore water levels and aquatic and riparian habitats to historic conditions at ponds selected for restoration. Consider the removal of fish and fishing recreation developments, including access roads, at those sites where it is determined that the impacts are retarding and preventing attainment of ACS (ROD-RM2) and that restoration is necessary to achieve management goals. Consider discontinuing fish stocking by ODFW in these lakes and ponds. Discuss management goals with ODFW and explore options for meeting these goals.

Focus priorities on ponds and lakes that have been legally or illegally stocked with fish. These ponds run the risk of the introduction of exotic invasive species such as bullhead, bass, sunfish, mosquito fish, brook trout, exotic snails, and bullfrogs. Prioritize these ponds with emphasis on those ponds that provide breeding habitat for the red-legged frog. The recommendation is to start with the following waterbodies: Drew Lake, West Dumont Pond (Podunk), Shadow Pond, Blue Bluffs Ponds, Carmine Lake, and Ash Pond.

Other priorities for assessing impacts on amphibian populations would be to determine if diseases such as *Saprolegnia* may be affecting western toad and other amphibian and invertebrate species reproduction. Triangle Lake is one pond that may be impacted in this manner. If a disease such as *Saprolegnia* is present, conduct additional studies to determine if fish stocking is associated with the disease. If fish stocking has contributed to the spread of disease, consider closing these areas to recreational fishing and work with ODFW to curtail stocking in these locations.

LEVEL II LANDBIRD

Amend the Umpqua National Forest LRMP to include standards and guidelines integrating the new information and management recommendations outlined in the Conservation Strategy for Landbirds in Coniferous Forests of Western Oregon and Washington. DecAID is another tool available for revision of the standards and guidelines.

WOLVERINE

Remote, undisturbed denning habitat is essential for wolverine. This type of habitat is limited across southwest Oregon. Roadless areas on the Forest provide this potential denning habitat. Based on the literature, it is reasonable to conclude that winter recreation activities that take place in forest roadless areas may lower the habitat suitability of these areas for denning.

It is recommended that the Forest continue funding this monitoring to complete the full 5 years of surveys. The results of these surveys will be helpful in addressing the wolverine in project planning, especially for projects on Diamond Lake RD.

TOWNSEND'S BIG-EARED BAT

Place an area closure as needed for the two caves where the population appears to be at risk. Conduct further study into options to provide additional protection of these important caves, such as gates and limiting road access to the sites.

WESTERN POND TURTLE

Integrate recommended restoration actions into the Forest Plan to meet the ACS and TES species management requirements once the Conservation Strategy has been finalized by the Western Pond Turtle Working Group. Following finalization of the Conservation Strategy, plan for additional funding for monitoring nesting habitat.

BALD EAGLE

Continue to annually monitor all known sites for bald eagle occupancy and reproduction, and focus on determining the number of young that fledge. Continue to record bald eagle observations, and if warranted, survey potential sites for occupancy by bald eagles. Complete site management plans required by the Forest Plan.

PEREGRINE FALCON

The Forest Plan and Regional Office delisting direction requires site management plans which outline site specific needs and management and protection measures. A Forest falcon management plan has been drafted and is nearly completed. A final review by district biologists, Regional Office and cooperating agencies will be scheduled. It is recommended that the falcon management plan be finalized and approved by District Rangers and the Forest Supervisor. Continue to fund and annually monitor all known

falcon sites for occupancy and reproduction. Continue to survey potential sites for occupancy.

DETAILED RESOURCE AREA REPORTS

Fire and Fuels

What monitoring did we do in 2001 and 2002?

There are two monitoring elements for fuels and one for fire management. For Fuels Management, one monitoring objective is to determine if fuel treatments are meeting expected resource management and protection objectives. The results of completed fuels activities were compared against the resource management and protection objectives in project National Environmental Policy Act (NEPA) documents. Districts completed post-treatment evaluations on all projects. Twenty percent of the post-treatment evaluations on each Ranger District were reviewed by the fire staff. Eighty percent or more of the evaluated acres should meet resource and protection objectives. In addition, the number of acres treated should be within twenty percent of annual projections.

The other fuels management monitoring objective is designed to determine whether the program has complied with applicable Clean Air Act standards. Total Suspended Particulates (TSP) created by fuel burning activity was compared with existing federal standards and the State of Oregon standard of 6,500 tons per year.

For fire management, the objective of monitoring is to determine if the program is cost efficient and responsive to resource goals and objectives. Total resource damage from wildfire was compared with the level of fire protection resources funded for that particular year. Program projections are based on the most recent data from the National Fire Management Analysis System (NFMAS).

What did we learn in 2001?

Fuels: In fiscal year 2001, 1026 acres of fuel treatment were evaluated, and 922 acres (90%) met the objectives. Therefore, project objectives exceeded the monitoring standards by 10 percent. The fuels treatment target with hazardous fuels funding was 367 acres. Good planning and favorable weather conditions allowed 367 acres to be accomplished. With brush disposal funds, the target was 607 acres. Overall, 942 acres were accomplished, fifty six percent more than expected.

TSP[1]: Total suspended particulates generated in 2001 were estimated to be 518 tons, 92% below the projected target of 6,500 tons for the year 2001. This trend has been evident since the early 1980's due to prescribed burning under spring-like conditions.

Fire: The 2001 fire season was an above average season for the Forest. The Umpqua NF had a total of 129 fires, which resulted in 285 acres burned. The largest fire of the season was the Calf Fire on the North Umpqua District at 171 acres. The winter was exceptionally dry with the fire season starting out with low fuel moistures. The Forest was in a staffing class of 4 and 5 for 53 days. The fire season began on May 24th and ended on October 14th.

[1] Total suspended particulate (TSP) estimates are provided by the Pacific Northwest Forest and Range Experiment Station (PNW), and computed by the Forest from fuel consumption records located in Smoke Management. The TSP emission formula from PNW is 29.5 lbs. of TSP per ton consumption of broadcast or understory treatment burns; and 20.4 lbs. of TSP per ton consumption for pile burning.

In 2001 the Forest was financed at the Most Efficient Level (MEL) based on FY93 NFMAS planning inflated to FY01 dollars. With this type of financing, the Forest expected 473 acres burned for a cost-plus-loss of $7,827,206; however, due to prompt and aggressive fire suppression actions only 285 acres were burned, for an actual cost-plus-loss of $7 million. These prompt and aggressive actions produced an estimated savings of almost one million dollars compared to how the fire preparedness organizations were financed.

What did we learn in 2002?

Fuels: There were 1125 fuel treatment acres evaluated; all 1125 (100%) met the objectives. Likewise, of the 505 acre treatment objective in brush disposal, 505 acres (100%) were accomplished. On the other hand, 585 acres were planned to be treated with hazardous fuels funds, while the Forest actually burned 623 acres, 6% more than expected.

TSP: The estimated Total Suspended Particulates for 2002 were estimated to be 445 tons. This is 93% below the projected target of 6,500 tons for the year 2002. The Forest had no air quality intrusions into critical airsheds during the year. This trend has been evident since the early 1980's due to prescribed burning under spring-like conditions, increased utilization, and a reduction in timber harvest activities on the Forest. See Figure 1 and Table 2, which display the TSP Production for the Forest.

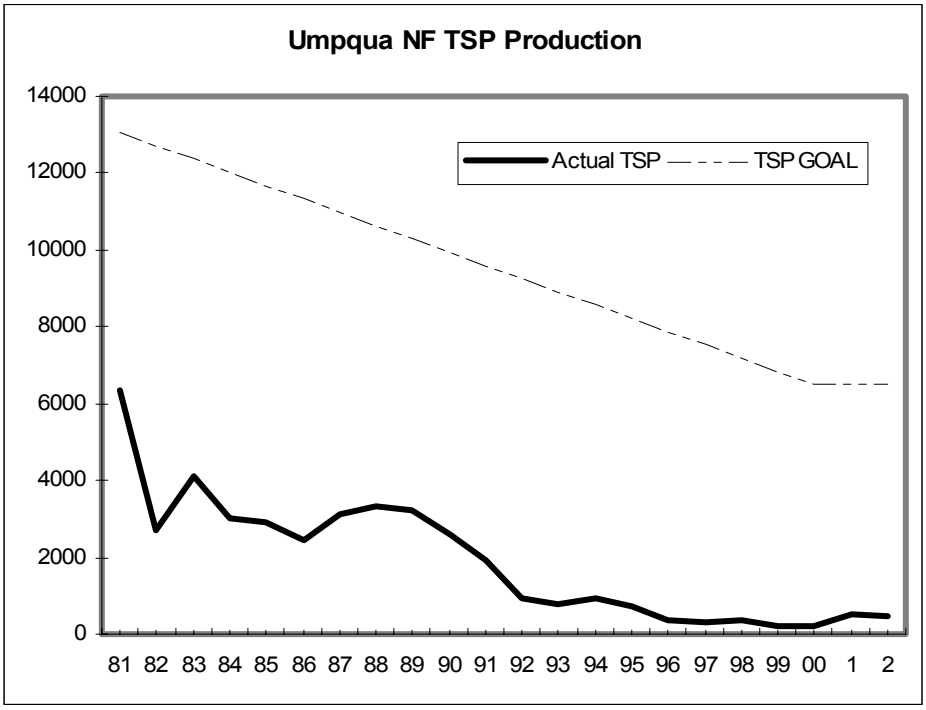

Figure 1. TSP production on the Forest, compared to TSP maximum production.

Table 2. Umpqua NF TSP Production in tons, actual and goal from 1979 – 2002.

Umpqua NF TSP Production		
Year	**Actual TSP**	**TSP GOAL**
79	13741	13741
80	10727	13396
81	6328	13051
82	2699	12706
83	4130	12361
84	3037	12016
85	2922	11671
86	2427	11326
87	3111	10981
88	3348	10636
89	3238	10291
90	2598	9946
91	1909	9601
92	958	9256
93	764	8911
94	954	8565
95	740	8220
96	339	7875
97	306	7530
98	345	7185
99	185	6840
00	232	6500
01	518	6500
02	445	6500

Fire: The year 2002 was a record breaking year for the Umpqua. There were 102 total fires for 88,159 acres burned on the Forest. The largest of the fires were the Tiller Complex at approximately 69,000 acres and the Apple Fire, at approximately 17,000 acres. The North Umpqua Complex also burned approximately 1,663 acres. The winter snow-pack was at 150%, but by March the rain ceased and warm and drying conditions prevailed. Fire season began on June 6th and lasted through November 8th for a 155-day season. The Forest was in a staffing class of 4 and 5 for 84 days compared to the average of 13 days. Cumulative acres burned on the Forest since 1939 (a 63 year period) were 37,593 acres. Thus, the acres burned on the Forest in 2002 were 2.3 times the cumulative 63-year total. That ranks the 2002 season as first for acres burned since the Forest began keeping historical records.

In 2002 the Forest was financed at approximately 90% of MEL (M1) based on the FY99 NFMAS planning inflated to FY02 dollars. With this type of financing, we can expect on average 1,912 acres to burn, for a total cost-plus-loss of approximately $13 million.

However, due to the extreme severity of the fire season, the actual cost plus loss was $259 million. Previously, a net loss occurred in only 1987 and 1996.

Fisheries

What monitoring did we do?

The Fisheries program has responsibilities for five Forest Plan monitoring activities. These are primarily "effectiveness" monitoring activties. In 2001, the Forest fell well short of accomplishing the Fisheries monitoring anticipated in the Land and Resource Management Plan (LRMP), ranging from 0% to 43% accomplished. In 2002, the Forest did virtually no Fisheries monitoring because of the record breaking fire season.

ME-6, STREAM INVENTORY: Three of the four districts conducted stream inventories in 2001 and/or 2002, totalling 34 miles, which represents 8.5% of the level anticipated in the LRMP (176 x 2 = 354 miles). All were conducted in accordance with Regional protocol and are of high quality.

ME-11, SMOLT TRAPPING (2001): Season-long smolt trapping (typically March-June), was conducted at two sites in 2001, all at Tiller, which represents 20% of the level anticipated in the LRMP (10 sites). No smolt trapping was conducted in 2002 because of fire season.

ME-12, POOL QUALITY: This monitoring activity has not been implemented and 0% of the anticipated level in the LRMP (eight transects) was accomplished.

ME-13, MACROINVERTEBRATES (2001 – FROM THE 2000 SAMPLE): Macroinvertebrate monitoring was conducted at 15 sites in three of the four districts: 0 in the Row River watershed, 9 in the North Umpqua basin, and 6 in the South Umpqua basin. This is 43% of the level anticipated in the LRMP (35 sites). Of the 15 sampled in 2000, all were long-term sites with enough samples to evaluate trends. The quality of protocol implementation and analysis is excellent.

ME-13, MACROINVERTEBRATES - (2001 – FROM THE 2000 SAMPLE): No macroinvertebrate monitoring was conducted in 2002 because of fire season.

ME-24, LARGE WOOD: This monitoring activity has never been implemented and 0% of the anticipated level in the LRMP (8 transects) was accomplished.

ME-6, STREAM INVENTORY: Most of the inventories were either first-time or re-surveys conducted because of suspected problems with previous inventories due to either changed protocol, quality control concerns, or both. The result is that these are base-lines and no trends in habitat quality or watershed function can be discerned. As previously described, all streams are somewhat impaired. This is characterized by lack of structure, over-widened channels, and scouring down to bedrock.

ME-11, SMOLT TRAPPING: Overall, the results from this monitoring continues to suggest that natural production of wild anadromous fish stocks is greatly diminished and recovery goals are not being met. Despite extensive habitat restoration over the past decade in most anadromous basins, population trends continue to suggest that conditions that have led to Candidate, Sensitive, and/or Threatened status are not improving. Other information sources, including other LRMP monitoring, suggest that several factors are

related to the decline and lack of recovery, including: continued adverse stream habitat conditions, diminished water quality, insufficient escapement (primarily due to harvest), and adverse interactions with hatchery fish.

ME-13, MACROINVERTEBRATE MONITORING - ALL FROM 2001: The Forest's macroinvertebrate bio-monitoring protocol uses community structure information from benthic invertebrate populations to assess impacts and trends in biotic and habitat integrity in montane watersheds across the landscape of the Forest. It is technically rigorous and is intended to document effects, particularly cumulative effects (positive or adverse), resulting from natural and anthropogenic disturbance or recovery resulting from restoration activities or both.

For the North Umpqua basin (9 sites), scores ranged from "Low" to "High", with most in the "Moderate" (6 sites) range. All sites had enough samples to evaluate trends and all showed no trend. For the South Umpqua basin (6 sites), scores ranged from "Very Low" to "High", with most (3) in the "Low" range. All six were long-term sites, with sufficient samples to assess trend. All showed no apparent trend.

What did we learn?

The monitoring results supports previous conclusions (from the 1998-2000 Monitoring Reports) that Forest Plan goals and Aquatic Conservation Strategy (ACS) objectives for fish habitat and aquatic ecosystem integrity are not, as yet, being realized. In 2001, for the 13 monitored watersheds within designated Key Watersheds, 12 remain in an impaired condition and none show an upward trend. Limited project-specific monitoring of watershed restoration actions has demonstrated changes in physical environments, but this bio-monitoring continues to show that there has not been a corresponding biotic response, with most sites remaining impaired. This suggests that restoration actions, to date, have not been effective in reversing the adverse impacts to aquatic ecosystems from past disturbance.

Three of the five Fisheries monitoring activities discussed above were implemented during the 2001-2002 period, but at very low levels; 2002 was the lowest level of monitoring attained ever since the LRMP was completed, and 2001 the second lowest. All monitoring activities have the potential to provide important information about the status of the Forests aquatic resources and the effectiveness of restoration and land management actions in achieving resource goals. However, to achieve this potential, the Foerst must make a much greater comittment than what was accomplished in 2001 and 2002.

Recommendations

The last monitoring reports were completed FY98 and FY2000. The actions items were from the 2000 report were to: Maintain macroinvertebrate monitoring at its present level (30 sites/year); Increase level II aquatic inventory surveys, centralized in the SO for funding (88 miles/year); Increase smolt trapping (5 sites/year); Revisit streams inventoried 10 years ago to indicate trends in condition over time; Initiate large wood transects as identified in the monitoring plan; Initiate pool transects as identified in the monitoring plan; Complete the 303(d) listed stream management plans; and ensure that

site and project specific moitroing is planned, implemented and documented for all watershed/fisheries projects.

Overall, in both 2001 and especially 2002, the Forest accomplished very little of what was recommended in the 2000 Report. The recommendations, as shown above, called for either increasing or maintaining the levels of Fisheries monitoring conducted in 2000. In actual performance, every element declined substantially, with many not being done at all in 2002.

For 2003, it is recommended that the Forest ensure that effective, project-specific monitoring, both pre- and post-project, is planned, implemented, and documented as an integral part of all watershed restoration activities.

If funding and personnel became available, additional monitoring to include in 2003 would be to increase the Level 2 stream inventory to at least 75 miles/year, which is slightly less than one-half of the LRMP anticipated level; increase smolt trapping by three sites (to five sites); and double benthic macroinvertebrate monitoring levels to 30 sites. However, as budgets decline, it is unlikely that the Forest can support this level of monitoring. No research needs were identified.

Heritage Resources

What monitoring did we do in 2001?

In addition to Forest Plan monitoring requirements, the Forest meets its monitoring obligations under the Programmatic Agreement between the Advisory Council on Historic Resources, State Historic Preservation Officer, and Region 6 of the Forest Service for project activities with the potential to affect historic properties. Monitoring is an added protection measure to prevent looting as required under the Archaeological Resource Protection Act of 1979. Both law enforcement, Forest Service Heritage Program staff, and the Cow Creek Band of Umpqua Tribe of Indians continued to monitor archaeological sites considered a risk for looting. In 2001, field monitoring checks were completed at 117 prehistoric and historic sites and field monitoring of 121 project areas for a total of 1,636 acres. Five archaeological sites are in the Umpqua National Forest Site Stewardship program and were monitored on a regular basis by the Cow Creek Band of Umpqua Tribe of Indians Cultural Committee.

What did we learn in 2001?

Nine incidents of archaeological looting were documented and an appropriate investigation was conducted for each incident. Forty-one new archaeological and historic sites were recorded during inventory work.

What monitoring was done in 2002?

In 2002, field monitoring checks were completed at 136 prehistoric and historic sites and field monitoring surveys were completed on 38 project areas for a total of 882 acres. The five archaeological sites included in the Umpqua National Forest Site Stewardship Program were monitored on a regular basis by the Cow Creek Band of Umpqua Tribe of Indians Cultural Committee. In addition, the Umpqua National Forest and the Roseburg District Bureau of Land Management worked with the Oregon State Police Fish and

Wildlife Division to include archaeological site monitoring in areas where resource damage was being noted. During fire suppression activities associated with the 2002 fire season, survey and monitoring were undertaken before construction of fire lines and safety zones to ensure protection of heritage resources.

What did we learn in 2002?

Seven incidents of archaeological looting were documented and an appropriate investigation was conducted for each incident. Fifty-eight new archaeological and historic sites were recorded during inventory work. Fire suppression and rehabilitation activities damaged 12 archaeological sites.

Recommendations

Although there has been a general decrease in the number of looting incidents over the past several years, the Forest has the highest looting incident rate in the Region. Support of active law enforcement, the Site Stewardship Program, and the Heritage public awareness program needs to continue. The Forest is committed to work with law enforcement and the Bureau of Land Management to complete a Heritage Resource Protection Strategy for lands administered by the agencies in the Umpqua Basin.

The Forest archaeologist will work with the Forest Resource Advisors for fire to develop a strategy to provide protection for historic and archaeological resources during fire suppression activities.

Range, Livestock and Grazing

Terms and Conditions contained in the two August 1999 Biological Opinions (Opinion) issued by the National Marine Fisheries Service (NMFS) have helped set standards for the Tiller Ranger District (District) livestock-grazing program. Biological Opinions for the previously listed Oregon Coastal Coho Salmon (OC coho) and Umpqua River cutthroat trout (URCT) have helped determine the monitoring necessary to protect anadromous fisheries in the basin. Although the URCT is no longer listed, the OC coho is still listed as Threatened. The modified terms and conditions from the URCT BO are still applicable to the OC coho, and monitoring strategies still apply to the 2002 grazing program. This has helped the District meet the intent of the Aquatic Conservation Strategy. The BO's and the Range Annual Operating Plan (AOP) are on file at the Tiller Ranger District.

2002 Livestock Grazing Program

The 2002 program represented the third full-season (May-October) of livestock grazing since 1997. Scheduled to commence on May 1st, turn out was delayed for 14 days due to late vegetation development, the result of a cold, dry spring. Grazing was authorized for three allotments: Divide, Drew Creek and Diamond Rock. Three permittees applied for use, and were authorized to place cattle on the range, subject to provisions in the AOP. Forty cow/calf pairs were authorized for the Divide Allotment. A total of 79 pairs were authorized to graze in the Drew Creek and Diamond Rock Allotments.

The permittees are required to manage cattle on the range according to provisions in the AOP. They are expected to meet utilization guidelines by monitoring livestock use, and by taking preventative and corrective actions to minimize resource damage. These utilization guidelines, found at Appendix A of the AOP, are established to assure compliance with Umpqua National Forest Land and Resource Management Plan, as amended by the Northwest Forest Plan.

The Tiller Ranger District livestock allotments were largely unburned by the 2002 wildfires. There were several small spot fires in the Whisky Camp Allotment, while three sizeable fires in the Acker Divide Allotment were contained at 2,700 acres, or six percent of the allotment acreage. The latter fires, at Tallow Butte, Crooked Creek and Buckeye Creek, were typical of the general fire pattern that consisted of underburns; some stand replacement, as well as unburned residual stands.

Most of the 2,700 acres that burned occur on steep, timbered terrain that is not suitable for livestock grazing. However, 1,100 acres, in the form of conifer plantations created by timber harvests, are considered to be transitory range for livestock grazing under the Forest Plan. Of this total, about 260 acres of plantations were burned. As these areas revegetate, there will be an increase in the amount and quality of forage.

What monitoring did we do?

There are a total of nine permanent monitoring sites in the three allotments. They are illustrated in Figure 2, and listed in Table 3, below. These sites are located along perennial and fish-bearing streams, in wetlands and in meadows, and are intended to assess forage utilization, as well as impacts to vegetation structure, riparian areas and streambank morphology (stability). All sites are situated in the Umpqua River Basin, except for the Crossover Meadows site, which is located in the headwaters of Wall Creek, a tributary of the Rogue River.

There also is a monitoring site for *Hydnum umbilicatum*, a fungus for which the Northwest Forest Plan requires management of known sites. A small population exists near Threehorn Campground in the Divide Allotment.

Table 3. Monitoring Sites and Purposes.

Monitoring Sites	5th Field	PFC	Key Areas	Utilization Cages	Vegetation Structure	Streambank Stability
Threehorn	Elk	X	X	X	X	X
RD 1615	Elk		X	X		
Crossover Meadows	Trail			X	X	
Peavine Camp	Cow			X		
B. Bates Meadow	Elk			X	X	
East Fork Cow Creek	Cow	X	X	X		X
RD 3201 MP 0.8	Elk		X			
Lower Camp Creek	Elk			X		
Upper Camp Creek	Elk	X	X			X

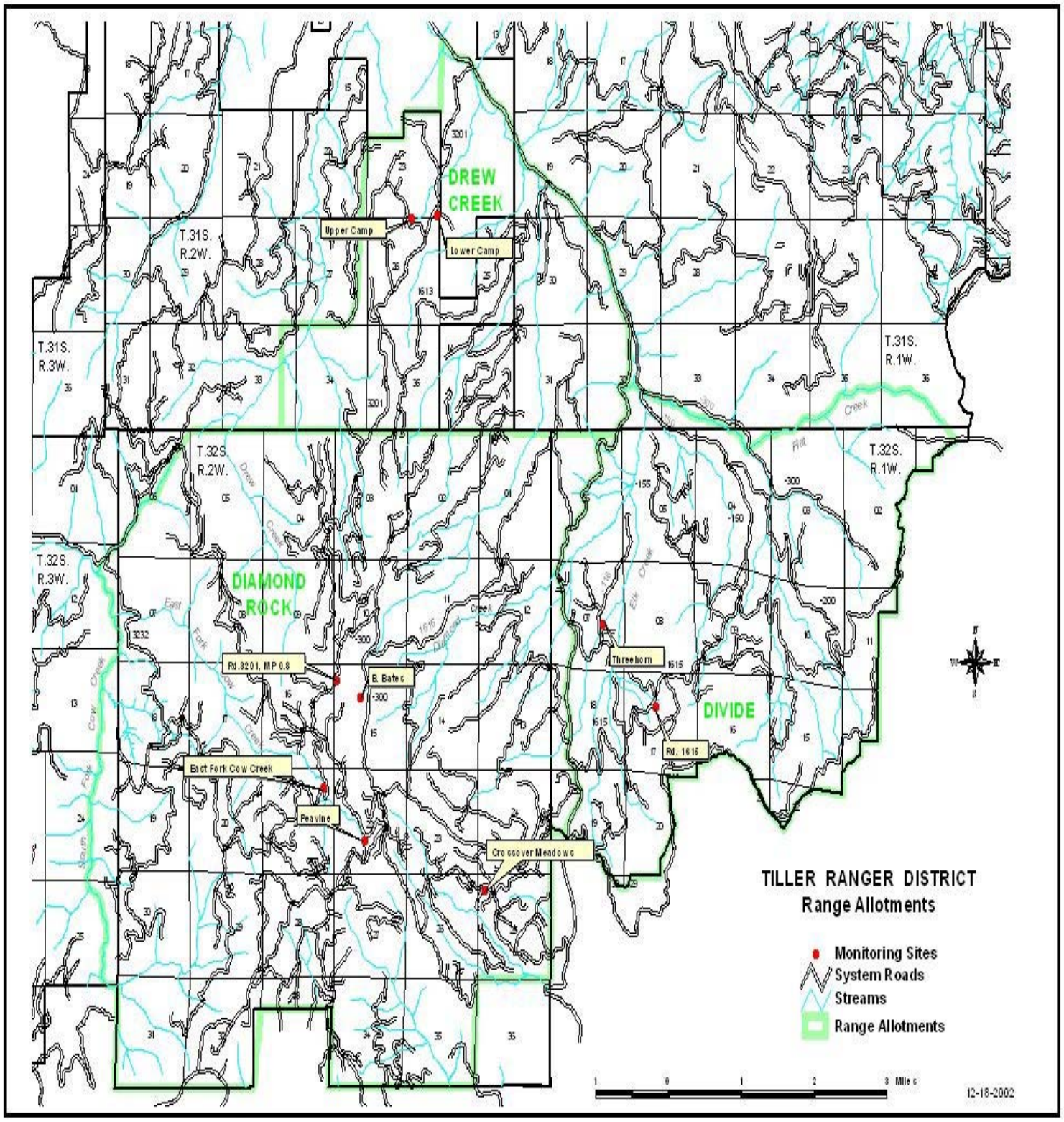

Figure 2. Tiller Ranger District range allotments and monitoring sites.

What did we learn?

District wildfires curtailed this season's monitoring effort. District personnel were only able to conduct five visits to the monitoring sites during the course of the grazing season to assess use. For similar reasons, contacts with permittees were minimal. The wildfires affected the permittees as well, as two permittees worked as contractors on the fires.

District staff and permittees were not available to conduct Proper Functioning Conditioning (PFC) assessments as a group for the 2002 season. However, there was a visit to the Upper Camp Creek PFC site with the permittee of the Drew Creek Allotment in early July to discuss cattle entry and use at that stream reach. In addition, there was good coordination between District staff and the Divide Allotment permittee during the Timbered Rock Fire, which had potential to disrupt cattle use in that allotment.

Table 4 summarizes actual livestock grazing use by monitoring type, along with the use thresholds prescribed in the AOP.

Table 4. Summary of Grazing Use at Monitoring Sites 2002.

Monitoring Sites	Site	Type	Threshold (%)	Actual Use (%)
Threehorn	Riparian	Forage Use 1/	10	20
Threehorn	Riparian	Vegetation Structure 2/	10	<10
Threehorn	Riparian	Streambank Stability 3/	20	<1
RD 1615	Riparian	Forage Use	10	<10
Crossover Meadows	Upland	Forage Use	25	Not measurable
Crossover Meadows	Riparian	Vegetation Structure	10	<10
Peavine Camp	Riparian	Forage Use	10	<5
B. Bates Meadow	Upland	Forage Use	25	Not measurable
B. Bates Meadow	Riparian	Vegetation Structure	10	<5
East Fork Cow Creek	Riparian	Forage Use	10	<5
East Fork Cow Creek	Riparian	Streambank Stability	20	<5
RD 3201 MP 0.8	Riparian	Forage Use	10	<5
Lower Camp Creek	Riparian	Forage Use	10	<10
Upper Camp Creek	Riparian	Streambank Stability	20	<10

1/ Forage use measures utilization by weight as compared to control plots.

2/ Vegetation structure measures reduction in canopy cover of ground vegetation as compared to control plots.

3/ Streambank stability measures the amount of bank instability, attributable to all causes, in key reaches.

The findings generally show increased levels of cattle use in riparian areas, compared to uplands, than in previous seasons. This preference appears to be related to the ongoing drought, which accentuates the palatability of riparian vegetation, and the attractiveness of cooler riparian environments for cattle seeking relief from heat.

Riparian Forage Use: There was measurable ungulate forage use at all riparian forage monitoring sites this season. These sites include Threehorn, RD 1615, Peavine Camp, East Fork Cow Creek and Lower Camp Creek. This finding compares with measurable use at only one site (RD 1615) last year.

Notably, Peavine Camp and East Fork Cow Creek experienced measurable grazing use for the first time in four years. The Peavine Camp use is the result of better dispersion of

cattle in the Diamond Rock Allotment, while use at the latter site is related to the droughty conditions.

Except for Threehorn, use at all other sites was within the prescribed threshold of ten percent. Elk (based on droppings) continue to use the Threehorn site, along with occasional use by cattle. The permittee ran "new" cattle in the portion of the allotment encompassing Threehorn; their lack of familiarity with the area may explain the higher than usual cattle presence at the monitoring site.

Streambanks: Livestock impacts at Threehorn and Upper Camp Creek were first detected in early July. This entry at Threehorn appeared to have been a single incident, as less than 1% of the streambank was affected along its 500-meter PFC reach.

While cattle affected less than 10 % of the streambank within the 200-meter reach at Upper Camp Creek, multiple entries were noted throughout the season. No cattle were actually observed at the site; however, circumstantial evidence points to trespass cattle, as well a permitted cattle that were not removed from the allotment in a timely manner.

Cattle entry into East Fork Cow Creek was first observed in late August. In addition to a single entry into the creek by several cattle, there was trailing along approximately 15 meters of stream. Streambank impacts were well within the threshold for this 300-meter reach.

Meadow Mosaics and Unique Habitats (dry): As in previous seasons, there was trailing and bedding by ungulates at Crossover Meadows and B. Bates Meadow, but no measurable utilization of forage. Use at B. Bates Meadow included some bedding by deer, as well as trampling by vehicles. Based on droppings, livestock use at both sites was considered to be incidental in nature.

Meadow Mosaics and Unique Habitats (wet): Post-season measurements of vegetation structure at Threehorn, Crossover Meadows and B. Bates Meadows were not conducted because ground vegetation was matted by early fall rains. This season's changes were estimated by comparing them to last year's end-of-season conditions. Changes in vegetation structure at Threehorn were attributable to trailing and grazing by elk and cattle, while trailing by unidentified ungulates altered conditions at Crossover Meadows. Although there was cattle use at B. Bates, impacts were primarily due to humans driving vehicles through the meadow. Fortunately, all sites met the incidental use standard of less than 10% damage to vegetation structure.

There was trailing, as well as some grazing, by unidentified ungulates, and occasional cattle (based on droppings) at the sedge wetland on RD 3201 at MP 0.8. There presumably were several entries in August and September. The associated impacts were also considered to be incidental.

Transitory Range: There appeared to be less grazing on the transitory range this season. Based on ocular estimates, utilization still remains well below the 50% threshold. Two notable exceptions included the use of Unit 9-10 along RD 1615-124 and the pine plantation on RD 1615-120 in the Divide Allotment, where use was nearly 50%.

Conifer Plantations: Impacts were within the tolerances prescribed for seedling damage, as well as damage to protection devices (rigid tubes).

Hydnum umbilicatum: There were no encroachments by livestock within the 100-foot buffer that comprises the protection zone for this species near Threehorn Campground.

Proper Functioning Condition: Due to commitments of PFC team members to fire suppression and rehabilitation priorities, no PFC assessments were performed during the season. Riparian conditions did not change appreciably from last season. Upper Camp Creek is considered to be "Functional, at risk, while Threehorn is "Properly Functioning" and the East Fork is "Nonfunctional." Timber harvest and roads have primarily degraded riparian conditions at all three reaches. Direct cattle impacts are confined to individual sites within all reaches.

June 30th Stream Restriction: Cattle were kept out of fish-bearing streams through June 30th. The first observed livestock entry into a fisheries stream occurred on July 2nd at Threehorn and Upper Camp Creek. These entries are earlier than those in previous years, a reflection of the ongoing droughty conditions.

Partial Removal of Cattle by September 30th: The permittees were able to remove the required 50% of their authorized numbers by this date.

Off-date: The permittees were able to remove the remaining numbers by the October 31st end-of-season date.

The Forest continued to build on last season's monitoring effort, namely the Robel Pole methodology to assess habitat quality (vegetation structure) and baseline stream reaches to assess bank stability. These methods were adopted to assess ungulate impacts that frequently occur in wetlands, riparian areas and meadows well before the utilization threshold is reached, and occasionally in the absence of noticeable grazing. This situation tends to occur at Crossover Meadows and B. Bates Meadows, where grazing is not obvious or measurable, but trailing and trampling alters vegetation structure. While there have not been sufficient iterations to validate these approaches, it appears that the selected monitoring sites are reliable indicators of use, and the techniques are able to measure the nuances of use they are intended to detect (within limits of the instruments used).

The monitoring results generally show that the permittees were able to comply with the provisions of the AOP. There were a number of contributing reasons. Part of the success continues to be the (smaller) numbers of cattle placed on the range that approximately matches the permittees' management capabilities. In addition, with yet another season under their belts, the permittees better understand what is expected of them in terms of outcomes. The reconfigured boundary for Divide Allotment helps to reduce resource conflicts by eliminating cattle use in an area containing numerous wetlands and meadow mosaics north of Flat Creek.

This grazing season was not without problems, however. Trespass cattle continue to affect allotment resources. The impacts to streambanks at the Upper Camp Creek PFC site were largely attributable to unauthorized use. (On a related note, the cattle that were primarily responsible for over-utilizing the RD 1615 site no longer run in the adjoining allotment. Consequently, this season's utilization at this site was within the prescribed threshold of 10%).

Recommendations

More effort must be directed to better utilize certified plantations, which comprise the transitory range. Cattle are allowed to consume up to 50% of that forage, but seldom take more than 15%. The use that occurred in Unit 9-10 and the aforementioned pine plantation along RD 1615-120 in the Divide Allotment is exemplary. However, there are numerous plantations where forage is under-utilized. When properly used they can significantly relieve grazing pressure in sensitive areas. For example, there is a largely untapped foraging opportunity at Unit 23-4 in the Drew Creek Allotment. This 300-plus-acre plantation can support 50 head for two weeks in the spring. Cattle again only minimally used the unit this season. In this respect, permittees must undertake aggressive herding to push cattle into and hold them in these plantations.

There was a notable effort by one of the permittees. Despite a life-threatening illness in the family, the Gilliams continued their exceptionally strong monitoring and management programs this season. In spite of the disruptiveness of the Timbered Rock Fire (and related fire suppression activities) in the Divide Allotment, the permittees were able to control their herd, minimize cattle encroachment on Highway 1 and keep cattle away from the *H. umbilicatum* site. Not surprisingly, this permittee spends considerable time managing her cattle to effectively minimize resource damage.

The District range program should continue adapting its practices and standards through its monitoring efforts. The configuration of three allotments appears to be a promising approach in meeting ACS objectives by providing livestock grazing opportunities within an environmental framework of moderate to low risks for riparian impacts. The District should continue to closely work with permittees to develop a common understanding of resource problems and common solutions to reduce these risks.

Recreation

What monitoring did we do in 2001?

The Forest participated in the National Visitor Use Monitoring (NVUM) project from October 2000 through September 2001. The NVUM will be repeated every four to five years on the Forest. Additionally, during this same time period, the Umpqua National Forest conducted surveys of recreationists' preferences and perceptions about recreational opportunities on the Umpqua National Forest. Researchers from the University of Florida and Pennsylvania State University conducted visitor surveys focusing on the needs, expectations, and satisfaction levels of recreational users in the Umpqua National Forest. The purpose of this investigation was to examine recreational use patterns, satisfaction levels, economic expenditures, and experiences currently occurring on the Umpqua National Forest. This information provides baseline data and suggests management actions to address current issues identified in the study. More detailed information was studied for two sub-studies (recreation participation at Diamond Recreation Composite and the South Umpqua River Corridor).

Additional monitoring included a review of use in developed recreation sites, general forest areas, special interest areas/old growth groves, dispersed roaded environments, dispersed unroaded recreation areas, and the Oregon Cascades Recreation Area (OCRA).

What did we learn in 2001?

Overall use on the Forest in developed areas varied from district to district. While all use was within the monitoring threshold, use at Diamond Lake decreased slightly while use on other districts increased slightly. The Diamond Lake decrease was due to restrictions on some water-based recreation activities for a few weeks in mid-summer due to lake water quality problems, and continued poor fishing conditions. Tiller campgrounds were at or near capacity on summer weekends.

Condition surveys conducted in dispersed unroaded recreation areas and special interest areas showed use levels low with no unacceptable impacts found. Summer off-road vehicle use remained low forest-wide. Winter off-road vehicle use at Diamond Lake was average due to the moderate snow pack. Dispersed recreation use has increased in areas along the lakeshore adjacent to Lemolo Lake, and use patterns and some riparian impacts continue along the South Umpqua Corridor. Oregon Cascade Recreation Area use remained low.

Key results for the NVUM were:

1. The respondents in this study appear to be long-standing, loyal visitors of the Umpqua NF. Nearly 80% of all respondents were repeat visitors, and over half of the visitors first visited the Forest prior to 1981.
2. Nearly three-quarters of the respondents recreated solely on the Umpqua NF during the trip on which they were interviewed, and just over half of the respondents said that the Umpqua NF was their primary destination.
3. For respondents who visited multiple locations during the trip on which they were interviewed, Crater Lake was the most popular response.
4. Nearly three-quarters of the visitors had spent the previous night on the Forest, and of those respondents, 40% spent only one night.
5. The mean number of persons per vehicle was 2.67, and just over one-quarter of the respondents had at least one child with them.
6. About 40% of the overnight visitors planned to be away from home for a period of 6-10 days, indicating that the Umpqua NF was their choice of a location for their vacation.
7. Diamond Lake District visitors were more likely to be first-time visitors (27%), while all of the Cottage Grove respondents were repeat visitors, and virtually all (91%) of Tiller visitors were repeat visitors.
8. Visitors to the Cottage Grove were most likely to have visited over 20 times in a typical year (33%), while North Umpqua District visitors were least likely (8%) to have visited so frequently.
9. About one-fifth of the Diamond Lake (21%) and North Umpqua (20%) respondents visited no other parks or forests in a typical year, compared to just 6% of Cottage Grove respondents.

10. Tiller and Cottage Grove respondents were much more likely to have visited only the Umpqua NF on this particular trip (94% and 100%) than Diamond Lake visitors (62%).
11. The Umpqua NF was the primary destination of three-quarters of North Umpqua respondents (75%), compared to just over half (52%) of Diamond Lake visitors.

Visitor use estimates are available at the national, regional, and forest level. Only forest level data is provided here (Table 5).

Table 5. Umpqua National Forest annual recreation use estimate, FY 2001.

Umpqua National Forest Visits		**Umpqua NF Site Visits**	
Visits	Error Rate	Visits	Error Rate
734,805	21.6 %	1,167,525	21.3 %

According to Table 5 the average recreation visitor went to 1.6 sites during their Forest visit. Forest visitors sometimes go to just one national forest site or area during their visit. For example, downhill skiers may just go the ski area and nowhere else. Almost 55% of visitors went only to the site at which they were interviewed. The FY 2001 recreation use surveys found the popular recreation activities on the Forest were camping, hunting, hiking/walking, fishing, relaxing, site seeing, and driving for pleasure (Table 6).

Table 6. Umpqua NF activity participation and primary activity, FY 2001.

Activity	**% participation***	**% of Participant's primary activity**
Camping in developed sites (family or group)	24.5	16.1
Primitive camping	4.8	1.1
Backpacking, camping in unroaded areas	2.3	0.1
Staying at Resorts, and cabins	16.1	4.9
Day gatherings in developed sites (family or group)	13.9	1.7
Viewing wildlife and natural features – site seeing,	38.1	7.0
Visiting historic and prehistoric sites/area	1.8	0.1
Other- relaxing, hanging out, escaping heat, etc,	38.4	9.4
Fishing- all types	16.8	9.3
Hunting- all types	16.0	11.6

Activity	% participation*	% of Participant's primary activity
Off-highway vehicle travel (ATV, etc)	2.4	0.9
Driving for pleasure on roads	27.5	10.4
Winter sports: Snowmobile travel, skiing, etc.	4.4	3.4
Motorized water travel (boats, water skiing, etc)	4.1	0.5
Hiking or walking	38.5	12.3
Horseback riding	1.8	0.2
Bicycling, including mountain bikes	10.6	6.1
Non-motorized water travel (canoe, rafting, etc.)	1.4	0.4
Other non-motorized activities	14.0	4.5
Total	100+	100

*Exceeds 100%, as visitors will participate in multiple activities on same visit to the Forest.

The more specific surveys of visitors to Diamond Lake and the South Umpqua River Corridor showed that many visitors to both places tend to be repeat visitors who visit the area regularly.

Diamond Lake visitors are more likely to come in single-family groups and to stay for longer overnight periods. Two thirds of the Diamond Lake visitors were visiting only Diamond Lake during their recreation trip. About 50% of those surveyed at Diamond Lake indicated that the "lake health" was what they liked least about area. Most of those that were concerned about the "lake health" wanted the tui chub controlled, water quality improved, or fishing improved at the Lake or a combination of all three.

South Umpqua River visitors included more groups comprised of families and friends and generally stayed longer for day trips. Activity participation in this area was dominated by non-motorized activities such as swimming, camping, picnicking. The primary concerns expressed by those surveyed in the South Umpqua River Corridor were the lack of drinking water at developed sites, need for more fire pits and garbage cans, and cleaning of restrooms.

What monitoring was done in 2002?

Limited monitoring of recreation use and related resource impacts was accomplished in 2002 due to the wildfires on the Forest. Overall developed recreation use was monitored through the fee collection system and observations of Forest recreation personnel.

What did we learn in 2002?

Camping was down about 4 to 5 % across the Forest from 2001. This was primarily due to the fact that most of the Tiller and North Umpqua Ranger Districts were closed to public access due to extreme fire danger from the middle of August until mid-September. There were also restrictions on some water based recreation uses at Diamond Lake for a few weeks in mid-summer due to water quality problems in the Lake.

Motorized and non-motorized winter recreation was at or near the levels of recent years. The use of recreation cabin rentals was about 35% from 2001 due to the fire danger and wildfire activities. Oregon Cascade Recreation Area use remained low.

Recommendations

Continue with present management direction and monitoring efforts. Complete the recreation plan for the South Umpqua Corridor. Continue with collection of statistically sound recreation use data in the Diamond Lake area. Complete the Diamond Lake Restoration Project Environmental Impact Statement. Review and consider update of Diamond Lake Recreation Composite Plan after the Diamond Lake Restoration Project FEIS is completed.

Soil and Water

What monitoring did we do?

The Umpqua National Forest LRMP requires monitoring the use of Best Management Practices (BMP's) to protect Water Quality, stream temperature, turbidity and streamflow, and soil productivity. The data for stream temperature and turbidity are attached to this summary.

Best Management Practices checklists were written for 5 projects out of 18 ground-disturbing activities with signed environmental assessments (EAs) in 2001 (Table 7), and 5 projects out of 33 EAs had checklists in 2002 (Table 8). Checklists were completed to document that BMP's were used on 6 activities in 2001 and 2002. Diamond Lake and North Umpqua Ranger Districts are writing and completing some checklists. Cottage Grove and Tiller Ranger Districts are not. Some Districts are reporting activities which may not have ground-disturbing activities (for example, Buckeye RAWS weather station maintenance at Tiller). This increases the number of activities without BMP checklists.

Table 7. Fiscal Year 2001 BMP Checklists.

Ranger District	Environmental Documents signed For Ground-Disturbing Activities	Best Management Practice Checklists	Percent of Projects With BMP Checklists
Cottage Grove	4	0	0
Tiller	5	0	0
Diamond Lake	5	3	60%
North Umpqua	4	2	50%
Forest	**18**	**5**	**28%**

Table 8. Fiscal Year 2002 BMP Checklists.

Ranger District	Environmental Documents signed For Ground-Disturbing Activities	Best Management Practice Checklists	Percent of Projects With BMP Checklists
Cottage Grove	5	0	0
Tiller	11	0	0
Diamond Lake	15	3	20%
North Umpqua	2	2	100%
Forest	**33**	**5**	**15%**

The Forest Plan requires 29 streams to have temperature measured each summer on the Forest. Thirty streams were monitored in 2001 and 2002. Five (5) streams are instrumented to show if turbidity changes for winter flows of the same size. Turbidity and flow was measured on Layng Creek, Steamboat Creek, Canton Creek, Boulder Creek and the North Umpqua Wild and Scenic River. The Forest Plan requires four monitoring sites. Boulder Creek data that wasn't available in the 1999 – 2000 monitoring report is included this year.

The Forest Plan requires Soil Productivity reports. One report was completed in 2001 and 2002.

What did we learn?

BMP's are being implemented, according to checklists written for some timber sales and other activities that operated in 2001 and 2002. Checklists were written for about 20% of projects planned in those two years. Clearly, funding and staffing do not permit writing checklists, and using them to check water quality practices (log suspension or waterbars, for example) on all Districts and all projects. The completed checklists show that most practices are implemented on the projects that were monitored. This monitoring element does not evaluate the effectiveness of the practices.

Stream temperature did not change for most streams, although 2002 maximum summer water temperatures were 1-2 degrees warmer than 2001 during the warmest week. No large streams displayed in Figures 3 and 4 met the Clean Water Act and Oregon standard of 64 degrees Fahrenheit in summer 2002. Only Squaw Creek was cooler than 64 degrees in 2000. Cedar Creek, a 78-degree stream with no shading riparian trees in the 1970's, is 10-degrees Fahrenheit cooler today. Boulder Creek (a designated Wilderness) is warmer than some streams and cooler than others of its size. Trees have never been logged along Boulder Creek. A large fire in 1996 burned some riparian trees, but did not noticeably increase the stream's temperature.

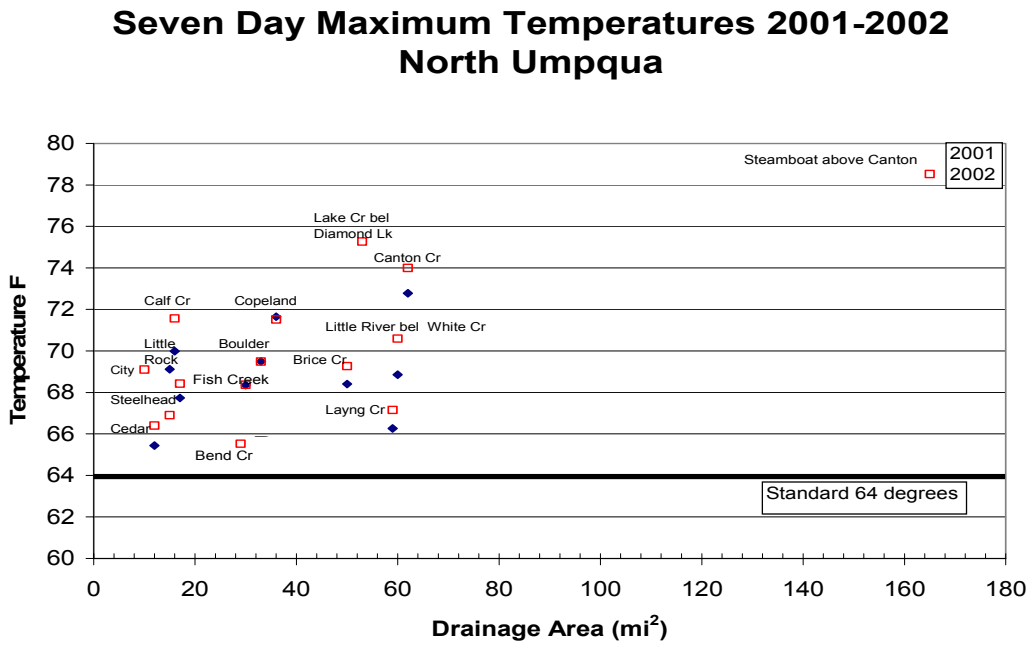

Figure 3. Seven Day Maximum Temperatures for the North Umpqua River Basin.

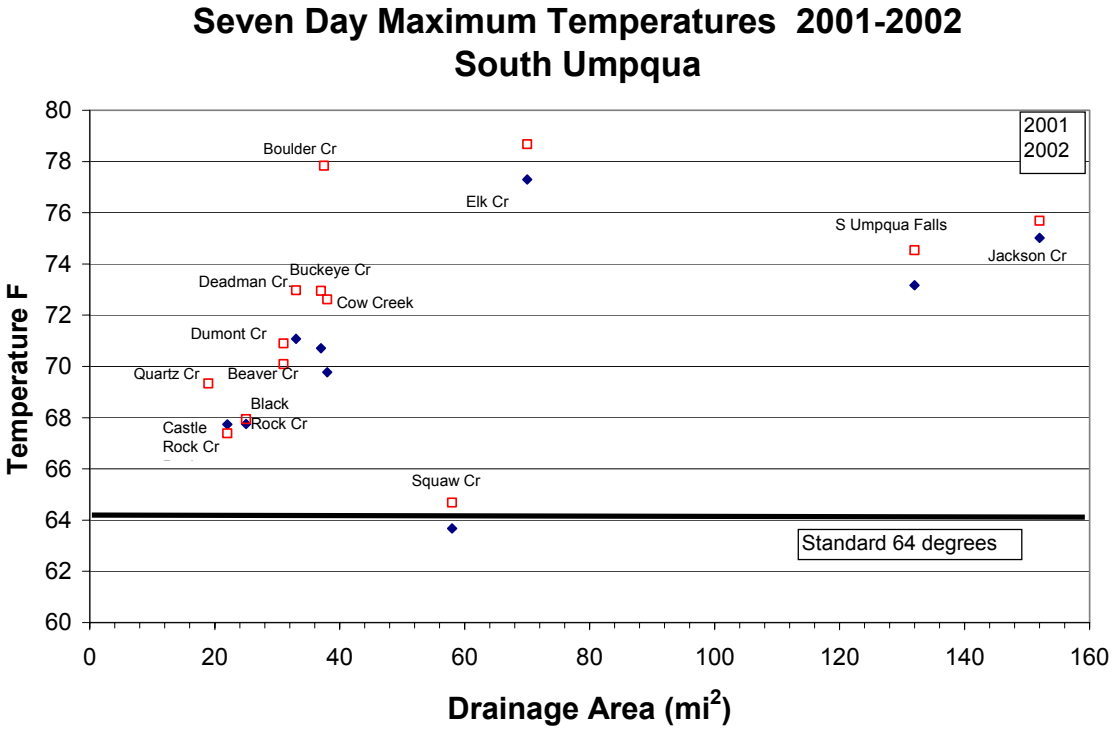

Figure 4. Seven Day Maximum Temperatures for the South Umpqua River Basin.

Turbidity is not changing on the streams monitored, when compared to previous years during comparable winter flows. Turbidities on all streams were higher in 2001, because streams did not flood and clean the streambanks that year. Normal floods and turbidities returned in 2002. Long term monitoring of Steamboat Creek and Canton Creek (Figure 5), and Layng Creek (Figure 6) shows that high turbidity in the 1970's has decreased in these streams. In some years, turbidity has increased, and then returned to relatively constant levels. Turbidity monitoring of the North Umpqua Wild and Scenic River above Rock Creek (Figure 7) began in 1993, and no large changes have occurred. Summer turbidity of the North Umpqua is important to anglers there. A year-round monitor run by the US Geological Survey shows that the normal summer turbidity is 1-3 turbidity units. One half inch of rain, stream disturbance, or a faulty monitor may explain higher turbidity in the summer of 2001. Boulder Creek (a designated Wilderness) turbidity and streamflow have been measured since 1993 (Figure 8). Trees have never been logged along Boulder Creek. A large fire in 1996 burned some riparian trees, but turbidity is similar before and after the fire.

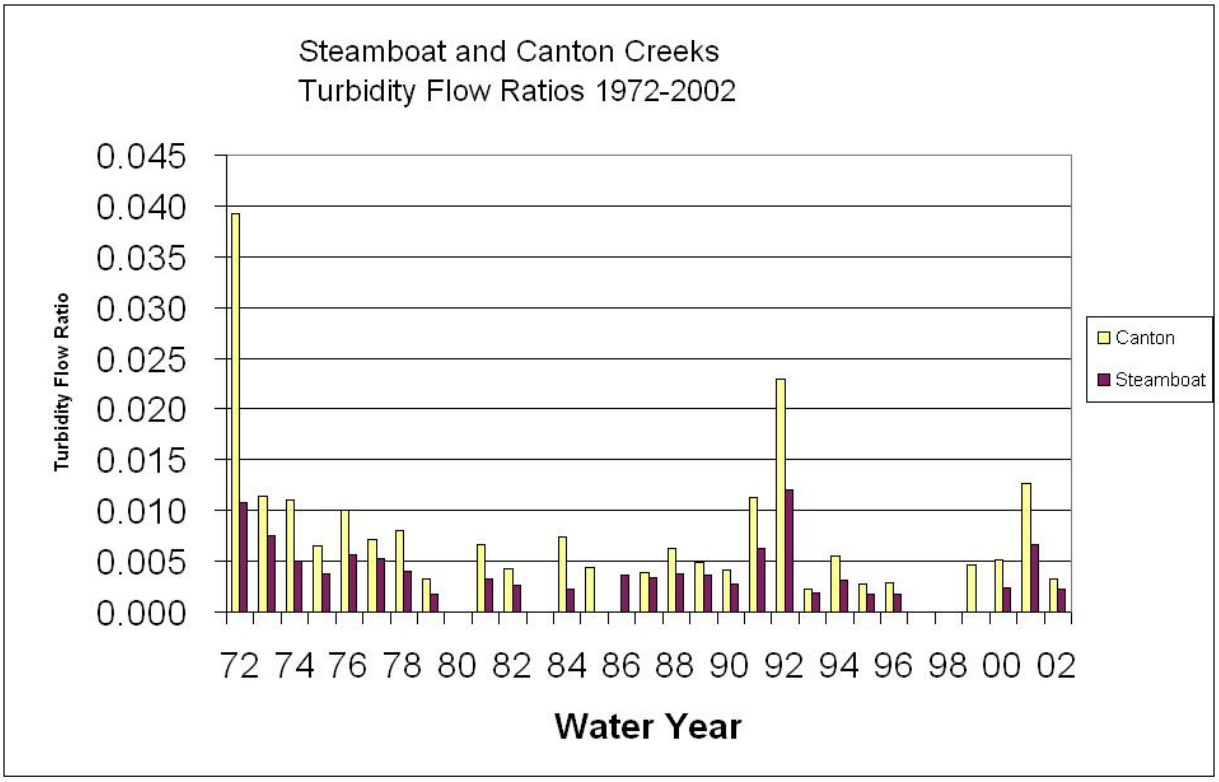

Figure 5. Long term monitoring of turbidity flow ratios for Steamboat and Canton Creeks.

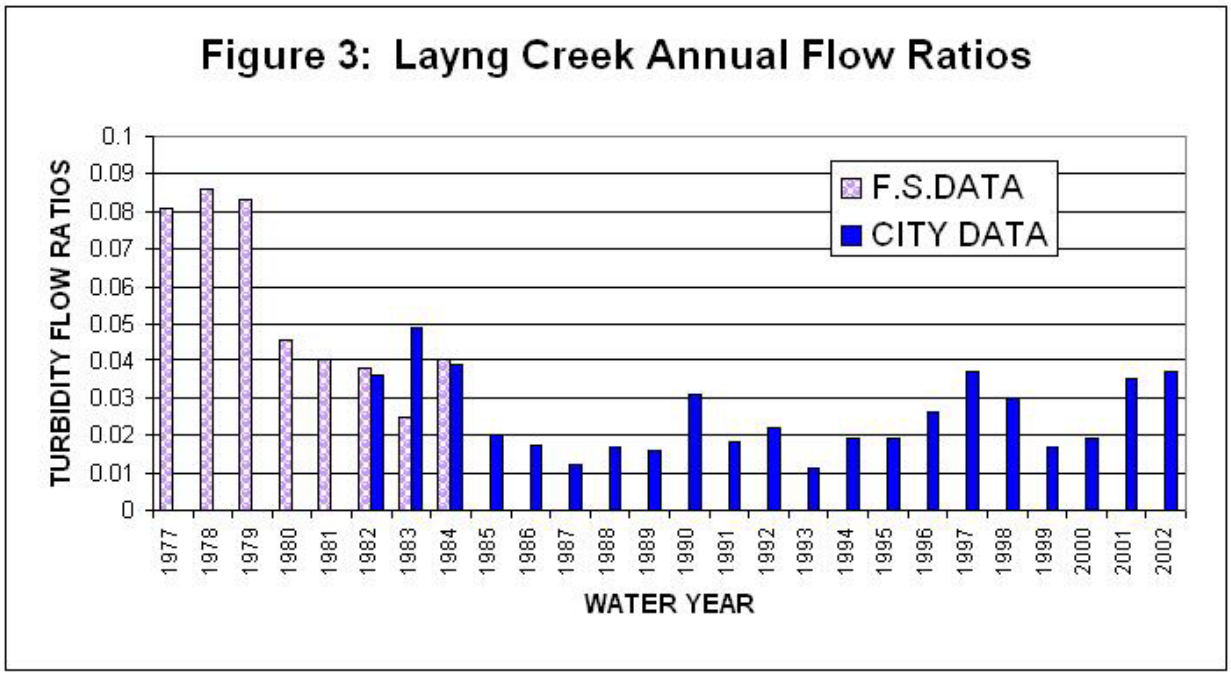

Figure 6. Layng Creek Annual Flow Ratios.

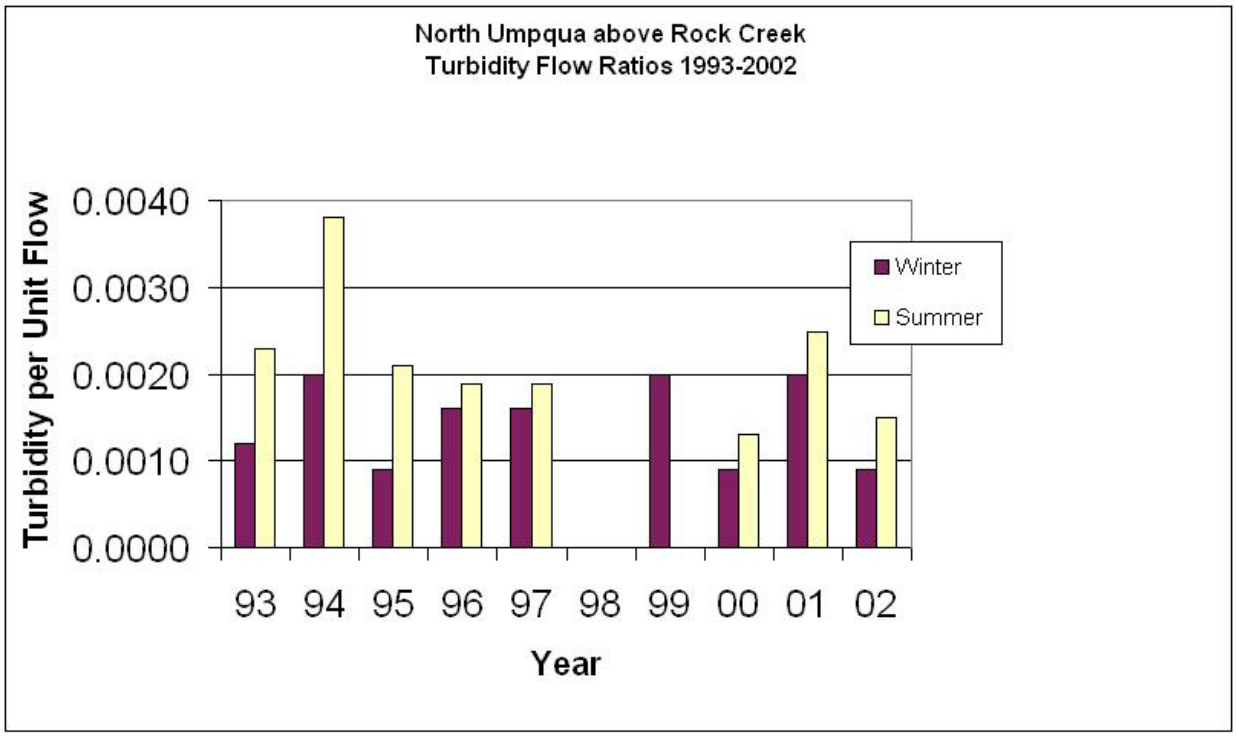

Figure 7. Turbidity Flow Monitoring for the North Umpqua River above Rock Creek.

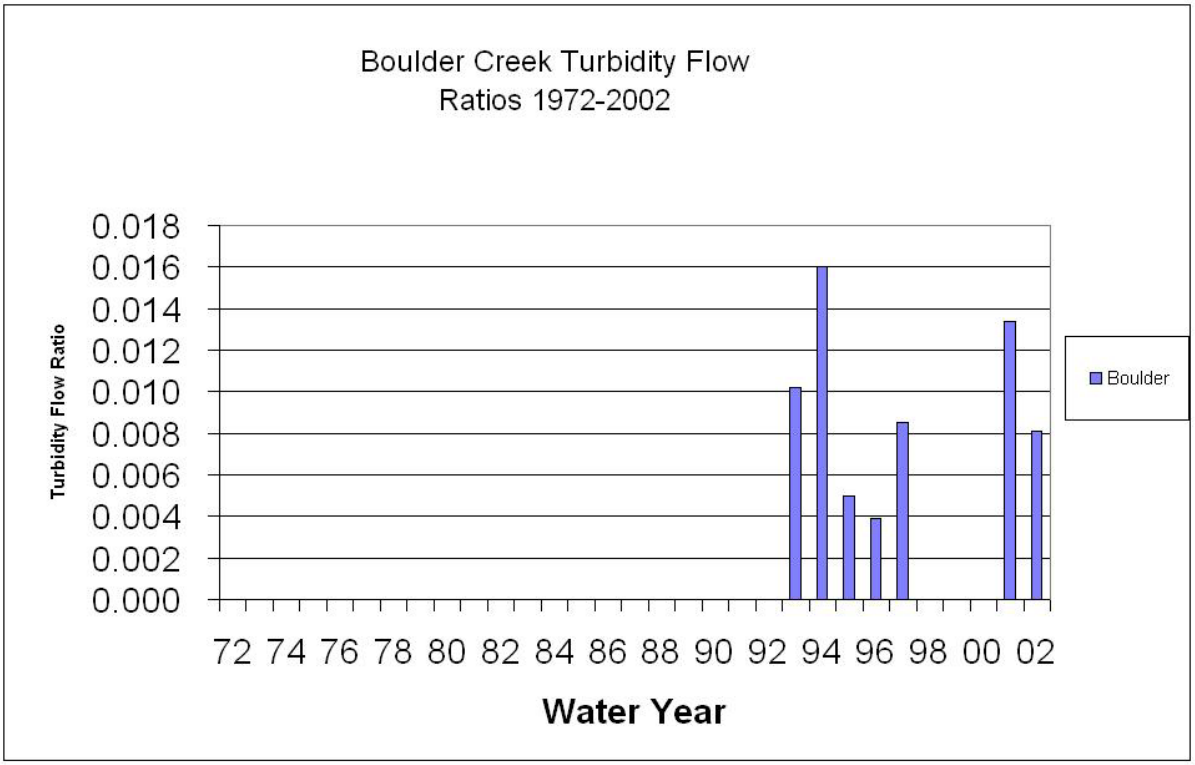

Figure 8. Turbidity Flow Monitoring for the Boulder Creek Wilderness.

Soil productivity monitoring shows that timber harvest practices maintain soil characteristics and organic matter, or recommend ways to improve them. This is some of the only monitoring done to show the immediate effectiveness of BMP's. One report was completed for 2001 and 2002.

Recommendations

The Umpqua National Land and Resource Management Plan was written in 1990, when many more activities, such as clearcut harvesting, were planned and implemented on the Forest. The Monitoring Plan requires Best Management Practice Checklists on every ground-disturbing activity. North Umpqua and Diamond Lake Ranger Districts should continue writing and implementing the use of these checklists; Cottage Grove and Tiller Ranger Districts are vulnerable to Clean Water Act lawsuits (and do not comply with the Memorandum of Understanding with Oregon DEQ). District Rangers should write and complete one BMP Checklist on Cottage Grove and Tiller Ranger Districts in FY 2003 and FY 2004, with a goal of monitoring all ground-disturbing activities by FY 2005. Until the Forest Plan is amended, projects with ground-disturbing activities should have BMP checklists.

Districts clearly cannot write BMP Checklists on every ground-disturbing activity. One solution is to amend the plan to require 10% of activities (minimum of one per Ranger District) have BMP monitoring. The monitoring could be randomly assigned by the Forest Supervisor, and done on a standardized form for that activity (timber sale, grazing allotment, road construction).

Almost all named streams on the Umpqua National Forest are warmer than the Oregon water temperature standard. These "water quality limited streams" need water quality management plans, and the Forest is working with Oregon DEQ to show that the Northwest Forest Plan protects water quality on federal lands. The data from water temperature monitoring allows the Forest to prove that, and should be continued.

Turbidity and flow monitoring provides a long-term assurance that land management activities are not reducing the visibility in the clear waters of the North Umpqua Wild and Scenic River, that drinking water from Layng Creek is not more turbid for the City of Cottage Grove, and that Steamboat, Canton and Boulder Creeks provide suitable fish habitat. Turbidity monitoring in cooperation with the City of Cottage Grove has been important to answer questions about logging in the municipal watershed. The monitoring should continue.

Soil productivity monitoring reports help soil scientists evaluate harvest practices and share those results with the staff that plan ground-disturbing activities. The monitoring should continue.

Forest Plan monitoring elements for landslides, public water supplies, cumulative effects analysis, and riparian shade measurements are no longer necessary and should be removed by amending the Plan. The Northwest Forest Plan limited harvest and other activities so that the thresholds in these elements are never reached. Some of the elements duplicate monitoring the Forest is already doing.

Timber and Vegetation Management

What monitoring did we do?

Monitoring for timber and silvicultural activities focused on planting survival, precommercial thinning inspection, and stand inventories. The Forest also reports timber harvest volumes as an accomplishment. The timber volume offered for sale from the Umpqua National Forest was extremely low in fiscal years 2001 and 2002, primarily due to the results of litigation against the regulatory agencies. These results included changes to the Survey and Manage species list, the requirements for surveys, and the requirements on when and how to manage known sites. Also, through court decisions, existing fisheries Biological Opinions for many of the Forest's timber sales were invalidated and the regulatory agency was required to establish new procedures for analyzing information and issuing new Biological Opinions. To date, the new procedures have not been established.

Volume harvested in 2001 was nine million board feet (9 MMBF) from 467 acres of commercial thinning and 115 acres of shelterwood seed cut, the regeneration phase of the shelterwood harvest system. In 2002, 72 acres of shelterwood harvest yielded 4 MMBF. The Forest continues to move toward intermediate entries in older managed plantations that have opportunities for commercial thinning.

Accomplishments in silvicultural activities are shown in below in Table 9.

Table 9. Silvicultural accomplishments for FY 2001 and 2002.

Activity	FY 01	FY 02
Planting with appropriated money	418 ac.	388 ac.
Planting with KV money	830 ac.	364 ac.
Animal damage control with appropriated money	292 ac.	515 ac.
Animal damage control with KV money	2,556 ac.	2,259 ac.
Precommercial thinning with appropriated money	1,014 ac.	1.075 ac.
Precommercial thinning with KV money	811 ac.	422 ac.
Precommercial thinning as a PayCo project	1,566 ac.	136 ac.
Pruning with appropriated money	55 ac.	Not reported
Pruning with KV money	26 ac.	Not reported
Pruning with Forest Health funds	422 ac.	Not reported

Precommercial thinning needs on the Forest continue to be only partially funded. There are opportunities to cover some of the need through cooperative funds such as payment to counties (PayCo). In FY 01 and 02 combined, securing these funds to augment thinning attainment has been fairly successful. The Forest will continue to propose these projects for PayCo funding. Forest Health funds are another means of funding work on five-needle pine health, and the use of these funds will be expanded in the future.

Plantation survival is how reforestation success is measured. Listed below are the results reported for fiscal years 2001 and 2002 (Table 10).

Table 10. Reforestation success for the Forest, FY 2001 and 2002.

Results	FY 01	FY 02
Seedling survival after first growing season	75%	59%
Seedling survival after third growing season (planted 3 years prior to survey year shown)	52%	70%
% of acres stocked at acceptable level after the first growing season:	66%	77%
% of acres that were satisfactorily reforested at initial planting, based on 3rd year survey results	83%	55%

As the planting of recently harvested acres becomes a smaller program (see KV planting in 01 versus 02), a larger percentage of planting will be in older, replant or wildfire affected harvest units. Attaining a high percentage of survival in these stands becomes a greater challenge.

Various factors contribute to seedling mortality, including weather, site condition, tree handling, planting quality, animal damage, and stock quality. Of the various factors, stock quality was determined to be a major factor in the poor survival of FY 02 compared to FY 01. The Forest continues to work with Stone Nursery to increase seedling vigor and obtain the best match of seedlings to site conditions. The long-term drought over the last five years also continues to have a significant effect on survival rates.

Recommendations

Complete an inventory, through the stand examination process, of the best commercial thinning opportunities in managed stands. Continue to closely monitor stock quality and response in the field and work with the Nursery to improve quality where possible. Maximize use of contributed funds to accomplish vegetation establishment and improvement work, i.e., PayCo and Forest Health.

Transportation System

What monitoring did we do in 2001?

Road system mileage by maintenance and use category was reviewed. Traffic volume on eight high-use sites was collected, but the information has not yet been compiled. Road construction and reconstruction records were also checked, including whether there was new road construction in key watersheds.

What did we learn in 2001?

Maintenance level categories have changed little from 2000. Passenger car mileage declined 4%, while high clearance miles increased and closed road mileage remained the same. According to the INFRA database, about 12 miles of road were decommissioned. There were 1.58 miles of new roads constructed, all in a Key Watershed (Jackson Creek).

2001 Recommendations

Continue with current monitoring.

What monitoring was done in 2002?

Road system mileage by maintenance and use category was not collected this year. Traffic data continued to be collected but still not compiled. Road construction and reconstruction records were also checked, including whether there was new road construction in key watersheds.

What did we learn in 2002?

About 15 miles of road were decommissioned. No new roads were constructed; therefore there was no road construction in key watersheds.

2002 Recommendations

Compile traffic count data to estimate use trends. Collect road system mileage and use data on an annual basis. Amend forest plan standards and guidelines for traffic management and Appendix F to reflect the new budget trends, NW Forest Plan revision, and Roads. Continue monitoring road construction and reconstruction.

Table 11. Road Mileage Maintenance by Operation Maintenance Level.

	Planned		Actual							
Operation Maintenance Level	1990 Forest Plan	1994 Access &Travel Mgmt.	1995	1996	1997	1998	1999	2000	2001	2002
3-5	1507	1226	1157	1187	1187	1181	1170	560	535	**
2	2430	2456	2503	2477	2467	2475	2440	3047	3061	**
1	943	1201	1239	1247	1227	1228	1220	1223	1225	**
Seasonally Closed		652	682	682	682	682	682	682	*	*

* Data lost during conversion of data base from TMS to Infra

** Data not compiled

Table 12. Roads in Key Watersheds.

Key Watershed Names	Classified Roads (Miles)	Unclassified Roads (Miles)	Total Road (Miles)
Boulder Creek	20.6	1.85	22.45
Calf Creek	52.81	1.59	54.4
Copeland Creek	86.43	1.2	87.63
Deception/Wilson Creeks	32.33	0.2	32.53
Internal Exclusions	15.18	24.05	39.23
South Umpqua River	1,633.17	241.06	1874.23
Steamboat Creek	572.77	46.24	619.01
Williams/Fairview Creeks	21.48	3.55	25.03
TOTALS	**2,434.77**	**319.74**	**2754.51**

Visual Resources

What monitoring did we do?

Some general monitoring of viewshed condition occurred along State Highway 138, Little River Road and the South Umpqua Falls Road No. 27. The wildfires of 2002 affected the viewsheds of State Highway 138 and South Umpqua Falls, by reducing the visual quality to a modified condition in segments of the viewshed; however, the overall

condition of the viewshed is substantially intact. No timber sales were surveyed for post-sale condition, as no sales were cut in scenic areas. Scenic quality was addressed in environmental assessments and watershed analyses.

What did we learn in 2001 and 2002?

When little timber harvesting is taking place, changes in the landscape occur through natural forces and create disturbances in vegetation that may require human intervention.

Recommendations

Continue to expand monitoring element to include all areas of landscape management including management activities such as placing structures or roads in the landscape, developing rock sources, prescription fires, and other types of projects that have the potential to affect the scenic resources.

Wild and Scenic Rivers

What monitoring did we do in 2001?

From May thru September, river use is monitored 5 days per week through a Memorandum of Understanding (MOU) between the BLM and Forest Service. Monitoring elements track recreation conflicts, perception of crowding, total boating use, and campground use, all of which are recorded yearly.

What did we learn in 2001?

Private boater use was down 2% and commercial use down 12%. Perception of crowding at put-in sites and parking areas decreased slightly.

What monitoring did we do in 2002?

From May thru September, river use is monitored 5 days per week through an MOU between the BLM and Forest Service. Monitoring elements track recreation conflicts, perception of crowding, total boating use, and campground use; all are recorded yearly.

What did we learn in 2002?

Private boater use was down 23% and commercial use up 9% compared to 2001. Perception of crowding at put-in sites decreased slightly from 2001. Boulder Flat boater put-in exceeded capacity for a total of 9 days and Horseshoe Bend parking area for 12 days. Campground use was up slightly (Figure 9).

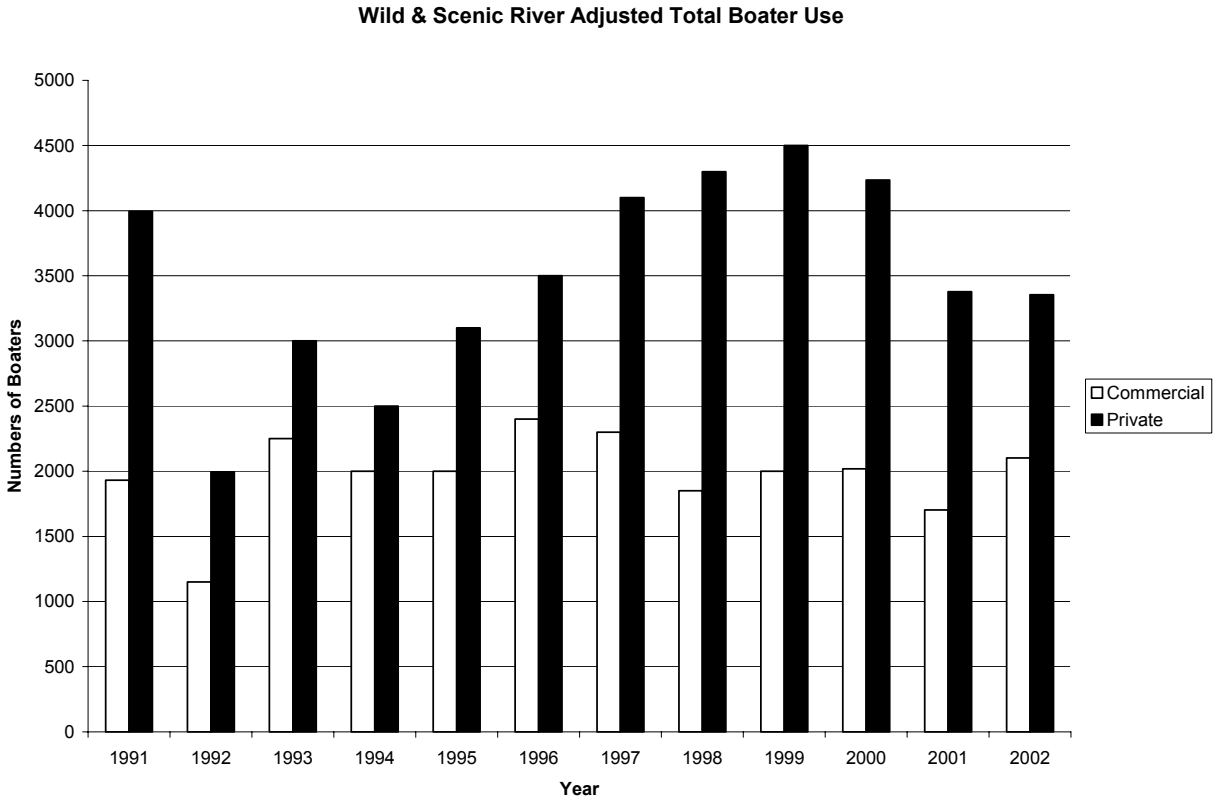

Figure 9. North Umpqua Wild and Scenic River Total Boater Use.

Recommendations

Continue present direction and monitoring. Improve boater put-in at Boulder Flat. Continue emphasis with BLM partnership and implementation of river user guidelines.

Wilderness

What monitoring did we do in 2001?

The Forest participated in the National Visitor Use Monitoring (NVUM) project from October 2000 through September 2001. Additionally, during this same time period the Umpqua National Forest conducted surveys of recreationists' preferences and perceptions about recreational opportunities on the Umpqua National Forest. This information provides baseline data and suggests management actions to address current issues identified in the study.

There were 25 wilderness patrols and "Limits of Acceptable Change" (LAC) monitoring completed in the Rogue/Umpqua Divide Wilderness. In the Mt. Thielsen area, there were

numerous public contacts and some patrols completed over the season. LAC monitoring was not done in Mt. Thielsen or Boulder Creek Wilderness Areas.

What did we learn in 2001?

Use continues to be low in each area. At Fish Lake, lakeshore campsites are impacting riparian vegetation. In addition, social standards were exceeded on holiday weekends. Based upon the NVUM, wilderness use on the Forest in 2001 totaled 20,587 visits, with an error rate of 39%.

What monitoring was done in 2002?

No wilderness user surveys were conducted in 2002 because of the record breaking fire season. Due to the Tiller Complex fires and public closures, there were only 10 wilderness patrols, recording conditions identified in the wilderness monitoring plan. In the Mt. Thielsen area, there were numerous public contacts and some patrols completed during the season. Data was collected (vegetation, soil, litter, constructions) and photos taken at all core camping areas (Tolo Camp, Thielsen Creek, and Maidu Lake).

What did we learn in 2002?

Use continues to be low in each area. In the Rogue/Umpqua Divide, there were a minor number of incidents/violations including motorized use, unattended campfires, unauthorized trail construction, and littering. A fire management plan that includes the wilderness would be beneficial for future management. In Mt Thielsen, data shows minor riparian impacts by horses and some devegetation at Maidu Lake.

Recommendations

Continue present monitoring. In 2004, Diamond Lake Ranger District should prepare a summary containing the same elements as were contained in the Tiller report. Consider regulations regarding riparian campsites. Continue with implementation of "Meaningful Measures."

Wildlife and Threatened and Endangered Species

What monitoring did we do?

With the exception of lynx surveys in FY01 and partial funding of peregrine falcon monitoring in FY01, Forest Plan monitoring requirements for wildlife and threatened and endangered species (TES) were not funded in either 2001 or 2002. Inventory and monitoring is critical to achievement of wildlife objectives. The budget shortfall in NFIM was therefore partially addressed using wildlife and TES program funds and partnerships with other agencies to meet some of the critical Forest Plan monitoring information needs. With the exception of the spotted owl survey, the activities listed in Table 13 are broad scale and not associated with project level inventory or monitoring activities. They were conducted using established regional and national protocols and standardized sampling methods to address key inventory and monitoring questions.

Table 13. TES and Other Inventory and Monitoring Activities.

Activity	Resource Element
Northern Spotted Owl	CT1/NFWF 14
Blacktail Deer and Roosevelt Elk	CT1/NFWF 15
Sensitive Plants and Animals	CT1/NFWF 16
TES amphibian	
Level II Landbirds	
Wolverine	
Townsend's big-eared bat	
Western pond turtle	
Lynx	
Bald eagle	CT1/NFWF 17
Peregrine Falcon	CT1/NFWF 18
Pileated Woodpecker	CW1/NFWF 19
Pine Marten	CW1/NFWF 20
Primary Cavity Nester	CW1/NFWF 21

Northern spotted owl

Six calling routes on the Diamond Lake Ranger District were monitored (NFTM) for nest site occupancy, covering 11 known owl cores. Four pairs were identified, with one nest successfully fledging young. A planning area on the North Umpqua RD was surveyed (NFTM) for owl occupancy. Approximately 12800 acres were surveyed. Three of six known sites were re-confirmed as part of this survey.

In 2002 a portion of the Boulder Creek drainage on the Tiller RD was surveyed. The survey covered three historic sites. Two pairs and a single male were detected.

Blacktail deer and Roosevelt elk

Deer and elk populations on the Forest were not monitored in 2001. Oregon Department of Fish and Wildlife (ODFW) aerial census was conducted on Washboard Ridge related to Road 3817 decommissioning project on the North Umpqua Ranger District.

Work on a big-game-habitat improvement project on the Tiller RD began. Three acres were treated.

Deer and elk populations on the Forest were not monitored in 2002. ODFW aerial census was conducted on Washboard Ridge related to Road 3817 decommissioning project on the North Umpqua Ranger District.

Fifteen acres were treated on the Tiller Ranger District as part of the big game habitat improvement project.

Sensitive Plants and Animals

TES AMPHIBIAN MONITORING: Monitoring was conducted in FY01. It was begun, but discontinued in FY02 because of fires. The following monitoring was completed:

1. Forty-five ponds across the Forest were surveyed for amphibians using standard survey protocols during the first year of a planned three-year monitoring effort.
2. Stream crossings were surveyed for southern torrent salamanders at 18 locations on the North Umpqua RD.
3. Southern torrent salamander surveys and training were conducted at six locations bordering the Tiller and North Umpqua Ranger Districts. One new site was documented.
4. Foothill yellow-legged frog surveys were conducted along Little River and Canton Creek, and four new locations were identified and documented. Approximately one mile of stream was surveyed at three different sites/transects.
5. Terrestrial amphibians and reptiles were surveyed as part of a post-fire retrospective study on Spring Fire. The survey was conducted by Bruce Bury's field-crew (Erin Hyde, leader). The crew completed 31 transects (60m) at six sites.
6. Volunteers assisted in surveying five transects along Horse Heaven Creek for instream large wood placement project monitoring. Transects were five meters long.

In 2002, eight ponds were surveyed for amphibians using standard survey protocols prior to funding being pulled for this project. Forest-wide surveys were not completed. The planned three-year monitoring project was discontinued.

What did we learn?

Initial results suggest a negative impact to amphibian populations in those ponds where fish are present. Habitat may be degraded and may not be functioning properly. In addition, it appears that aquatic breeding and rearing habitat has been lost in wetland ecosystems where recreational fishing has been developed. This is of particular concern at elevations below 4,000 feet. Impacts are most pronounced where recreational fishing has been developed and where illegal stocking of exotic fish has occurred (bullhead, bass, blue gill) or where other invasive exotic species have been detected (*Radix auriarlaria,* an aquatic snail, *and Rana catesbeiana,* bull frog). Conditions created by fish stocking historically fishless aquatic ecosystems have been shown to enhance conditions for establishment of other invasive exotic species (C. Pearl pers. com. 2001).

Initial results of amphibian surveys indicate that high-elevation ponds and lakes that have been developed for recreational fishing may be associated with reduced numbers of amphibians. The extent of impacts can vary by site, but in general the distribution and availability of breeding habitat is limited for individual amphibian species. Combined with cumulative factors such as the impacts of management activities, naturally occurring conditions (such as drought cycles), and introduction of non-native species. and disease, the risk and potential of negative impacts to amphibian population distribution may be significant and may lead to the loss of individual populations. Also, results of reviewing additional new information (Kiesecker, Blaustein, and Miller 2001) directly links transfer of pathogens carried by hatchery fish to native amphibians. The species currently showing the greatest impact is *Rana aurora*, red-legged frog. Other species also show substantive negative trends.

Recommendations

The issue of fishing recreation and adverse impacts to native species and aquatic ecosystems needs to be assessed to determine if the Forest is meeting ACS, TES and biological diversity objectives. A change in management practices would be needed to restore lakes and ponds across the Forest that may not be functioning properly. There is a risk of potential, and possibly expanded, adverse impacts if action is not taken. The risks associated with the impacts of invasive exotic species are high and will be costly and difficult to stop.

It is recommended to increase annual monitoring of lakes and ponds. Intensify the monitoring effort to include as many ponds and lakes as possible in order to assure that the number of ponds with fish as well as those ponds without fish (reference ponds) are adequately sampled. Survey pond sites to establish a baseline for native and exotic species and determine which sites function as suitable habitat for native amphibians. Broaden the sampling to include invertebrates and detection of introduced disease, parasites, and invasive species such as the exotic snail detected in 2001 at Ash Pond and 2002 in Carmine Lake.

Dredged, dammed and stocked lakes and ponds:

Restore water levels and aquatic and riparian habitats to historic conditions at ponds selected for restoration. Consider the removal of fish and fishing recreation developments, including access roads, at those sites where it is determined that the impacts are retarding and preventing attainment of ACS (ROD-RM2) and that restoration is necessary to achieve management goals. Consider discontinuing fish stocking by ODFW in these lakes and ponds. Discuss management goals with ODFW and explore options for meeting these goals.

Focus priorities on ponds and lakes that have been legally or illegally stocked with fish. These ponds run the risk of the introduction of exotic invasive species such as bullhead, bass, sunfish, mosquito fish, brook trout, exotic snails, and bullfrogs. Prioritize these ponds with emphasis on those ponds that provide breeding habitat for the red-legged frog. The recommendation is to start with the following waterbodies: Drew Lake, West Dumont Pond (Podunk), Shadow Pond, Blue Bluffs Ponds, Carmine Lake, and Ash Pond.

Other priorities for assessing impacts on amphibian populations would be to determine if diseases such as *Saprolegnia* may be affecting western toad and other amphibian and invertebrate species reproduction. Triangle Lake is one pond that may be impacted in this manner. If a disease such as *Saprolegnia* is present, conduct additional studies to determine if fish stocking is associated with the disease. If fish stocking has contributed to the spread of disease, consider closing these areas to recreational fishing and work with ODFW to curtail stocking in these locations.

Research Needs?

Additional research is needed in relation to: 1) Risks associated with identification of parasites and disease that may be spread by introduced exotic species, and 2) Methods of eradication of exotics.

LEVEL II LANDBIRD MONITORING: Seven Breeding Bird Survey (BBS) Routes were driven in both 2001 and 2002, for a total of 172 miles surveyed. Results were sent to Patuxent. FY 2002 was the final year for this regional survey.

What did we learn?

Populations of some forest dwelling birds are declining. Structural abundance and diversity of forest habitats have decreased.

Recommendation

Amend the Umpqua National Forest Plan to include standards and guidelines integrating the new information and management recommendations outlined in the Conservation Strategy for Landbirds in Coniferous Forests of Western Oregon and Washington. DecAID is another tool available for revision of the standards and guidelines.

WOLVERINE INVENTORY AND MONITORING: Aerial surveys were conducted for wolverine in both 2001 and 2002 (2001 was the first year of a five year survey) covering approximately 168,690 acres. Two wilderness areas (Mt. Thielsen and Sky Lakes) were surveyed in accordance with the Environmental Assessment written in 2000. This monitoring involves multi-forest and agency participation.

What did we learn?

Two years of a five-year survey (2001-2005) have been completed. To date, wolverine presence has not been documented. Based on actual landings and track measurements in 2002, earlier observations thought to be that of wolverine tracks and den may be incorrect. The Forest has learned is that it is difficult to distinguish track size and gait dimensions from the air. Landings are needed to confirm the species through track measurements. The surveys are becoming more efficient with each year. Tracking and identification experience are also improving. These aerial surveys for wolverine seem to be an efficient way to cover large areas of wilderness during short windows of opportunity (breaks in the weather) during the critical denning season.

Two years of surveys have documented very little human recreation within the wilderness areas during the denning season. Ski tracks have been observed near the west side of Mt. Thielsen. Snow mobile tracks have only been observed around the edge of the wilderness boundary, especially in the northern portions of the wilderness. No snowmobile use has been documented within the wilderness boundaries.

Recommendations

Remote, undisturbed denning habitat is essential for wolverine. This type of habitat is limited across southwest Oregon. Roadless areas on the forest provide this potential denning habitat. Based on the literature, it is reasonable to conclude that winter recreation activities that take place in forest roadless areas may lower the habitat suitability of these areas for denning.

It is recommended that the forest continue funding the wolverine monitoring to complete the full 5 years of surveys. The results of these surveys will be helpful in addressing the wolverine in forest project planning, especially for projects on Diamond Lake RD.

TOWNSEND'S BIG-EARED BAT: Exit counts were conducted at two sites at one cave complex on the North Umpqua RD. While numbers of bats are difficult to determine precisely because of the challenge in counting numerous individuals in flight, an exit count index was utilized to estimate that approximately 469 bats are using this cave complex. This site is one of a handful of maternity sites in the state of Oregon.

A second cave complex on the Tiller RD containing 12 caves was surveyed and five bats were counted in five of the caves. This site is important hibernacula for Townsend's bats.

Climate monitoring devices were set at one cave complex on the North Umpqua RD. Surveys were conducted at a third cave on the Diamond Lake RD that is utilized year-round. This cave is important hibernacula for Townsend's bats. It appears that population numbers have declined over time. The status of the current population is unknown, although it is believed that the number is very low.

What did we learn?

Previously in Southern Oregon, numbers of bats at known maternity sites increased at four sites, stayed the same at eight sites and declined at five sites. Increases and stable numbers were associated with sites afforded protection of gates, road closures, or relative remoteness or obscurity. Winter hibernacula counts were well below that noted for maternity colonies as a whole.

On the Umpqua, population continues to fluctuate at very low numbers at two of the Townsend's sites and it appears these colonies are at risk. One of these sites has been a target of vandalism in the past. At a third site, the population appears to be in good condition and is stable.

Recommendations

Place an area closure as needed for the two caves where the population appears to be at risk. Conduct further study into options to provide additional protection of these important caves such gates and limiting road access to the sites.

WESTERN POND TURTLE

What monitoring did we do?

A survey and monitoring protocol for Oregon and Washington has been tested and developed. A conservation strategy has been drafted and is in stages of peer review, state and agency coordination.

What did we learn?

Western pond turtle populations are in decline in many areas of Oregon, Washington and California with some highly localized and apparently stable populations. Important habitat components and connectivity to them have been lost. Restoration of both aquatic and terrestrial habitat and connectivity is needed to reverse habitat and population trends.

Recommendations

Integrate recommended restoration actions into the Forest Plan to meet the ACS and TES species management requirements once the Conservation Strategy has been finalized by the Western Pond Turtle Working. Plan for additional funding for monitoring of nesting habitat when the Conservation Strategy is completed.

LYNX SURVEY

What monitoring did we do?

The final year of a three-year survey for lynx was completed in 2001. The survey was conducted using the national Lynx Survey Protocol.

What did we learn?

Surveys to protocol were conducted for three consecutive years, from 1999-2001. Samples were collected for analysis to document the potential occurrence of lynx on the forest. After analysis it was determined that none of the samples collected was identified as belonging to lynx.

Recommendations

Based on Regional mapping direction, the Forest is considered to be outside the area identified as potential lynx habitat. There continues to be discussion within the Region as to the accuracy and assumptions used when delineating potential habitat. There have also been discussions regarding the survey design and materials used in the protocol, as well as doubts that forests are being adequately sampled.

BALD EAGLE

What monitoring did we do?

There are four known bald eagle sites on the Forest, all of which are located on the Diamond Lake Ranger District. All four sites were monitored in 2001 and 2002.

FY01: All four sites were occupied in 2001. Reproduction was confirmed at three of the four sites, for a total of three young fledged as described in Table 14.

Table 14. FY 2001 monitoring of Bald Eagle sites for young fledged.

2001		
Site Number	**Status**	**Young**
1	Pair	1 young
2	Pair	0 young
3	Pair	1 young
4	Pair	1 young

FY02: All four sites were occupied in 2002. Reproduction was confirmed at three of the four sites, for a total of five young fledged as described in Table 15.

Table 15. FY 2001 monitoring of Bald Eagle sites for young fledged.

2002		
Site Number	**Status**	**Young**
1	Pair	0 young
2	Pair	2 young
3	Pair	2 young
4	Pair	1 young

What did we learn?

Bald eagles continue to occupy known sites on the Forest. Reproduction varies by site and year.

Recommendations

Continue to annually monitor all known sites for bald eagle occupancy and reproduction, and focus on determining the number of young that fledge. Continue to record bald eagle observations, and if warranted then survey potential sites for occupancy by bald eagles. Complete site management plans required by the Forest Plan.

PEREGRINE FALCON

FY 01: In 2001, two protocol survey visits were conducted at ten sites covering 2500 acres that were surveyed (Table 16).

Table 16. FY 2001 monitoring of Peregrine Falcon sites for young fledged.

2001		
Site Number	**Status**	**Young**
1	Pair	No young
2	Auditory – status unknown	---
3	Pair	3 young
4	Pair	2 young
5	None observed	---
6	Pair	Unknown
7	Pair	No young
8	Pair	No young
9	Pair	3 young
10	Adult observed	No young

FY 02: In 2002, two protocol survey visits were conducted at eleven sites covering 2750 acres that were surveyed (Table 17).

Table 17. FY 2002 monitoring of Peregrine Falcon sites for young fledged.

2002		
Site Number	**Status**	**Young**
1	Pair	Unknown
2	One adult observed	Unknown
3	Pair	3 young
4	Pair	Unknown
5	None observed	---
6	Pair	Unknown
7	Pair	1 young
8	Pair	Unknown
9	Pair	2 young
10	Pair	Unknown
11	Pair	Juvenile mortality confirmed

What did we learn?

Falcons continue to occupy known sites on the Forest. Through 2002 there were eleven known falcon sites on the forest and two suspected. Sites are located on the North Umpqua, Diamond Lake, and Tiller Ranger Districts.

Falcons on the forest are not consistently fledging young, as reproductive success varies by site and year, as shown in Tables 16 and 17. Reproduction does not currently meet the goals outlined in the peregrine falcon recovery plan.

Recommendations

The Forest Plan and Regional Office delisting direction requires site management plans which outline site specific needs and management and protection measures. A Forest falcon management plan has been drafted and is nearly completed. A final review by district biologists, Regional Office and cooperating agencies will be scheduled.

The falcon management plan should be finalized and approved by District Rangers and the Forest Supervisor. Continue to fund and annually monitor all known falcon sites for occupancy and reproduction. Continue to survey potential sites for occupancy.

PILEATED WOODPECKER

No monitoring was conducted in either FY01 or FY02.

PINE MARTEN

No monitoring was conducted in either FY01 or FY02.

PRIMARY CAVITY EXCAVATOR

No monitoring was conducted in either FY01 or FY02.