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1998 Monitoring and Evaluation Report for the National Forests of the Blue Mountains

Malheur, Umatilla, and Wallowa-Whitman National Forests

United States Department of Agriculture | Forest Service | Umatilla National Forest | 2517 S.W. Hailey Avenue Pendleton, OR 97801

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Date: October 22, 1999

Dear Reader:

The Malheur, Umatilla and Wallowa-Whitman National Forests have completed the 1998 Monitoring and Evaluation Report. This is the eighth year of Forest Plan monitoring on each of the Forests and the second year of consolidated reporting for the Blue Mountains Forests. The consolidated Annual Monitoring Report documents the highlights from monitoring activities conducted during the year. I am pleased to provide a copy of the Report to you.

Monitoring and evaluation continue to be an important, ongoing process in the management of the three Forests. The intent of monitoring is to determine how well the Forest Plans are being implemented, and whether goals, objectives and desired conditions are being achieved. Monitoring and evaluation also help us identify any needed corrections or adjustments to Forest Plans or land management practices, and help us better serve the public.

Forest planning and direction have gone through many changes since each of the Forest Plans were signed. The Forests are adopting many of the changes and standardizing monitoring items where we can, so that results can be meaningfully analyzed. Other changes including declining budgets and fewer employees has also influenced the monitoring program. However, our goal is still to produce results which are usable for management, are easily understood, can be shared more efficiently and are obtained at less cost.

One unique aspect of the monitoring approach is the coordinated field reviews. During the past 3 years, the Forests have had a special monitoring focus item reviewed by teams made up of the three Forests' employees along with interested stakeholders. Similar programs are reviewed together across the Blue Mountains to see how well they meet objectives. An important outcome is the information sharing among the different units. Sharing the successes and failures of these efforts refines our collective strategy and should ultimately make forest management more efficient and successful. Our 1998 special focus was on monitoring prescribed fire. The prescribed burning program for the three Forests has increased substantially from 29,155 acres in 1992 to 62,939 acres in 1998 and is accomplishing a variety of resource objectives. The monitoring teams identified a number of prescribed fire issues that they felt should be addressed. More information on the review results can be found in the coordinated section of the report.

If you have comments or questions about the report, please contact Lyle Jensen (541-278-3823) or Dave Herr (541-278-3869) in the Planning section of the Umatilla NF Supervisor's Office.

Sincerely,

JEFF D. BLACKWOOD
Forest Supervisor

Enclosure

1998 MONITORING REPORT
for the
NATIONAL FORESTS of the BLUE MOUNTAINS

SECTION I - INTRODUCTION

This fiscal year (FY) 1998 Monitoring and Evaluation Report documents the monitoring results for the three Blue Mountain Forests - the Malheur, Umatilla, and Wallowa-Whitman of northeast Oregon and southeast Washington. This is the second year the three Forests have combined their monitoring information into one report. Fiscal year 1998 runs from October 1, 1997, to September 30, 1998.

The Forest Plans for the National Forests in the Blue Mountains were approved by the Regional Forester in 1990. The Forest Plans provide direction for integrated management of the resources on the three forests, and the Plans are implemented through projects designed to be consistent with that direction. Monitoring is integral to the correct and consistent implementation of the Forest Plans. Additionally, it is necessary to test the validity of the Plans themselves. Where monitoring shows a need for change, or when changes in law and regulation occur, Forest Plans may need to be amended.

Why Combine the Monitoring Efforts for the three Forests?

After several years of discussion, the Malheur, Umatilla, and Wallowa-Whitman National Forests began a Tri-Forest monitoring program for the Blue Mountains in 1997. The coordinated monitoring program was necessary for several reasons:

- Current monitoring questions and protocols vary widely among the Forests, so the monitoring results cannot be meaningfully aggregated to provide Blue Mountain or other subregional information. Under ecosystem management, monitoring needs to occur on a broader, landscape scale.
- The number of required monitoring items has increased (PACFISH, INFISH, Rescission Bill sales, etc.), and the requirements are likely to increase further when the Interior Columbia Basin Ecosystem Management Project (ICBEMP) is completed.
- The three Forests share common publics and issues, and the Forests should be responding with similar monitoring objectives and methodology.
- Some monitoring can be done more systematically on fewer sites across a larger area, thereby reducing redundancies and costs.
- Monitoring will be the key to adaptive management under ICBEMP.

The Forests anticipate that it will take 3 to 4 years to fully coordinate and standardize the monitoring program. Fiscal year 1997 coordination efforts focused on standardizing the reporting format for items that the Forests have been reporting similarly for many years, including range planning, timber outputs, and social/economic parameters. The Forests also began fielding Tri-Forest interdisciplinary monitoring teams to review emphasis areas. The emphasis focus in FY 1998 was prescribed fire.

Organization of this Report

This monitoring and evaluation report is composed of five primary sections. The last four sections have their own Table of Contents.

Section I: Introduction (this section).

Section C: Coordinated/Consolidated Monitoring Items which the three Forests reported in generally the same manner.

Section M: Malheur National Forest monitoring items done independently of the other Blue Mountain Forests in FY 98.

Section U: Umatilla National Forest monitoring items done independently of the other Blue Mountain Forests in FY 98.

Section W: Wallowa-Whitman National Forest monitoring items done independently of the other Blue Mountain Forests in FY 98.

Blue Mountain Forests' Monitoring Report - FY 98
Section C - Combined/Coordinated Monitoring Items

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MONITORING ITEM: Air Quality
(Monitoring Items: Malheur 31, Umatilla 1, Wallowa-Whitman 22)

Questions: Did the Forests meet the reporting obligations under the Oregon State Implementation Plan and the Northeast Oregon Smoke Management Memorandum of understanding (MOU)? Were emissions under the cap established for Northeastern Oregon (currently 15,000 tons per year of PM10).

Questions: Did prescribed burning on the Forests result in any smoke intrusions on La Grande (Special Protection Zone) or smoke impacts to other population centers? If so, where and when were they, and what was the cause (if known)? Impacts are defined as smoke entering the community at the ground level.

The National Forests of northeast Oregon met the reporting obligations to the Oregon Department of Forestry (ODF) during calendar year (CY) 1998. Unique problems occurred with the reporting system this year as the Forest Service changed computer systems. Because of interface problems with the new computer system, the ODF is still compiling the accomplishment record. The preliminary information would indicate the PM10 emissions from timbered acres, as addressed in the Northeast Oregon Smoke Management MOU, were well below the 15,000-ton cap.

On the Malheur National Forest, not all fuels treatments are accomplished with prescribed burning. Fuels treatment may be defined as reducing the fire hazard within a given area in a variety of ways, such as crushing, removing the fuels from the site, lop and scatter, piling, etc. The numbers displayed below are treated acres; not all acres are treated by prescribed burning. For example, of the 36,124 acres treated in 1998, prescribed fire was applied to 12,130 acres.

Emissions trend (from acres actually treated by prescribed burning) and acres treated (all treated acres) for years 1993 through 1998 are listed below.

Table C-1
EMISSIONS TREND
Malheur National Forest

Year	Acres Treated	PM 10	BD Acres	Natural Fuels Acres
1993	6,133	889	5,286	847
1994	8,117	456	3,658	4,432
1995	11,218	1,635	6,681	4,537
1996	18,019	1,930	5,684	12,335
1997	32,142	3,553*	9,392	22,750
1998	36,124	1,882	9,159	26,965

* The relatively high PM10 calculations in 1997 were the result of incorrectly entering the burned acres into the Smoke Management System. Correct results may be seen in the 1998 values.

As treated acres increase, PM10 emissions increase. The rate of change, however, indicates the 15,000-ton cap should not impede the fuels treatment program if treatment methods and acres remain relatively constant.

The Malheur NF did not record impact to any Special Protection Zones. However, the Forest did receive numerous smoke complaints during the end of April and the first part of May. Close coordination with Oregon Department of Environmental Quality (DEQ), Bend Field Office, was maintained. Several prescribed burns were canceled during this period of poor visibility. Eventually, the cause of the "intrusion" was determined to be dust from a wind storm in China.

Other complaints were received from the public in Seneca, Juntura, and Burns. As soon as the complaints were received, burning was adjusted to alleviate the situation. Even though complaints were received from the Burns area, the nephelometer readings indicate no abnormal or high readings occurred. Nephelometer data were not available at the other sites.

In CY 1998, several prescribed burning activities were used to accomplish management objectives on the Umatilla NF for hazard reduction, site preparation, range improvement, and wildlife enhancement. Based on averaged fuel moistures, fuel types, and acres burned, the total tons of fuel consumed and suspended particulate emissions produced are estimated for the Forest at levels shown in Table C-2. The total 938 tons of emissions produced by the Umatilla was further estimated as 804 tons from prescribed burning in Oregon and 134 tons from prescribed burning in Washington.

Table C-2
PM10 EMISSIONS - CY 1991-1998
Umatilla National Forest

Year	Total Fuel Consumed (Tons)	Particulate Produced (Tons)
1998	63,115	938
1997	95,747	1,388
1996	53,720	779
1995	35,002	507
1994	96,235	1,396
1993	66,852	969
1992	156,436	2,268
1991	178,811	2,593

As seen in Table C-2, the amount of prescribed burning and particulates decreased from 1997. The decreased emission is not an indication of fewer acres burned in total, but is due to a larger portion of the burning occurring in "natural fuels" rather than "activity fuels." Activity fuels burning occurs in more concentrated fuel beds after a timber harvest operation, thereby producing more tons of fuel consumed per acre.

No smoke intrusions were identified for La Grande in 1998. One intrusion was documented in Baker City, Oregon. The specifics of the Baker City intrusion are shown in Table C-3.

Table C-3
SMOKE INTRUSIONS -- 1998
Malheur, Umatilla, and Wallowa-Whitman National Forests

No./ Date	District/ Forest	Area Affected	Total Tons	Mixing Depth	Transport Wind	Forecast/ Instruc-tion OK?	Cause	Comments	Intensity	No. of Hours
1E 10/1/98	Wallowa-Whitman NF	Baker City	1,794	Unk	S to SW @ 5-15 mph	N/Y	Drift smoke and main plume traveled into town under stable air mass	Wind shifted from south to west later than expected	Light	2

For the Umatilla NF, on September 23, 1998, the Heppner Ranger District ignited a large (landscape) prescribed burn across 6,000 acres. This type of large-scale fall burning has not been done before on the District. Experience during previous spring burns indicated that the inversion would set up low in the canyon and a majority of smoke would not penetrate below it. During the fall burn ignition period, the smoke flowed to the northeast and obtained enough height to avoid any population centers. However, the nighttime inversion resulted in residual smoke flowing into the John Day River drainage. The inversion did not set as low in elevation so that smoke flowed under it and was trapped through the evening and morning hours. The result was a large volume of smoke in the Monument area, in particular. Without a nephelometer in place, the smoke impact could not be quantified in these low population density areas.

All ranger districts on the Umatilla reported that burns were planned and implemented following Forest guidelines and approved by district rangers. One intent of the program was to minimize smoke production and impacts to sensitive areas. Measures to reduce emissions from burns followed the Managing Competing and Unwanted Vegetation EIS and Forest direction and included: scheduling burns during appropriate times to minimize conflicts; igniting burns under conditions conducive to rapid fuel consumption; and prompt mopup of smoldering fuels. The mitigation was effective in reducing emissions and minimizing intrusions associated with burning for the 1998 fire season.

The Wallowa-Whitman National Forest manages two Class I areas, Eagle Cap Wilderness and Hells Canyon Wilderness. The Land Management Plan for the Wallowa-Whitman NF provides that these two areas not be impacted by prescribed fire emissions during the period between July 4 and Labor Day each year. No prescribed burns were conducted by the Forest Service during this period, thus no impacts from Forest Service burning projects occurred.

Recommended Action:

Continue monitoring and coordinating air quality improvement activities. Monitoring and reporting of application and effectiveness of mitigation measures are still needed.

MONITORING ITEM: Forage Utilization (Monitoring Items: Malheur 21, Umatilla 10, Wallowa-Whitman 13)

Questions: Are actual forage utilization levels within established Forest Plan allowable utilization standards in riparian and/or upland areas as appropriate, particularly within those pastures identified as high priority?

In FY 98, Forest Plan utilization standards continued to be incorporated into the Annual Operating Plans for each allotment on each Forest. On all three Forests, the standards included modifications to comply with Endangered Species Act mitigation for listed fish species. Utilization standards can vary by Forest and allotment.

Table C-4
UTILIZATION MONITORING BY FOREST - FY 98
Malheur, Umatilla, and Wallowa-Whitman National Forests

	MALHEUR	UMATILLA	WALLOWA-WHITMAN*
Total number of pastures within active allotments	422	130	508
Total number of pastures monitored*	283**	107	297
Percent of total pastures monitored	67%	82%	58%
Total number of monitoring data collections	680	373	887
Total number of these within riparian areas	386	275	604
Number of monitored pastures meeting standards	261	104	272
Percent of monitored pastures meeting standards	92%	97%	92%
Number of monitored pastures exceeding standards	21	3	13
Percent of monitored pastures exceeding standards	7%	3%	4%
Number of monitored pastures uncertain	1	0	12
Percent of monitored pastures uncertain	<1%	0%	4%

* Note: A pasture grazed more than once during the year may be reported as two pastures. A pasture within an active allotment, which is scheduled for rest, is considered to be an active pasture. In addition, there are many exclosures and small special-purpose pastures. Monitoring in these areas often does not involve utilization sampling but may involve simply a check to ensure that management requirements were met.

** Some partners were monitored that were not in active allotments. They were monitored for use by unauthorized livestock.

Some pastures are not receiving adequate utilization monitoring. This situation is a direct result of continued insufficient funding in the range program.

The Threshold of Variability was not exceeded on the Malheur, Umatilla, or Wallowa-Whitman National Forests.

Recommended Action:

Continue to emphasize utilization monitoring as funding and priorities permit. Permittees on the Wallow-Whitman are, and will continue to be, required to conduct stubble height (utilization) monitoring. The other forests will phase in that practice.
Continue to emphasize effectiveness monitoring to validate utilization standards, with special emphasis on riparian areas.

MONITORING ITEM: Noxious Weeds
(Monitoring Items: Malheur 22, Umatilla 12, Wallowa-Whitman 17)

Questions: Are noxious weeds being inventoried and managed in accordance with the Regional FEIS for Competing and Unwanted Vegetation, Forest Plan direction, and applicable NEPA decisions? Are treatments effective at meeting objectives defined in the NEPA decisions and/or in associated treatment plans? What are the trends in noxious weed populations?

Both the Umatilla and Wallowa-Whitman National Forests have approved Noxious Weed EAs. These EAs incorporated provisions from the Region 6 FEIS for Managing Competing and Unwanted Vegetation, its Mediated Agreement, and the Forest Plans. The Umatilla's EA was prepared in 1995. The Wallowa-Whitman completed a programmatic Noxious Weed EA and integrated Management Plan in 1992, and in 1994 completed an update to this decision to incorporate additional inventoried sites. Each EA provides the basis for weed treatments on the Forest.

The Umatilla NF has initiated an EIS to build a strategy that "gets out in front" of the noxious weed spread. The strategy incorporates older weed sites, newly inventoried areas and areas of high risk for invasion. The EIS preparation has been delayed due to lack of funding. The Umatilla and Wallowa-Whitman are currently working on a joint EIS for aerial application of herbicides in remote sites. This EIS is expected to be completed in FY 99. The Malheur expects to complete an EA for noxious weed control in FY 2000.

All three Forests treated noxious weed infestations this year and inventoried new sites as well. As in past reporting, new sites probably represent some increased spread of weeds, as well as older sites that have only recently been inventoried. Table C-5 summarizes the existing inventory for the three forests and the type of noxious weed treatment conducted in FY 98.

Table C-5
NOXIOUS WEEDS - INVENTORY AND TREATMENT - FY 98
Malheur, Umatilla, and Wallowa-Whitman National Forests

	Gross or Net Acres*	MALHEUR	UMATILLA	WALLOWA-WHITMAN
Total acres of inventoried noxious weeds	Gross	-	24,109	18,239
	Net	486	8,380	--
Acres newly inventoried in FY 98	Gross	-	--	--
	Net	-	912	
Acres currently NEPA-approved for treatment	Gross	47	4,341	3,989
	Net	-	4,341	
METHODS OF TREATMENT				
Manual	Gross	-	--	283
	Net	70	706	
Mechanical	Gross	-	0	0
	Net	8	0	-
Biological **	Gross	-	--	48
	Net	0	35	--
Cultural (incl. prescription fire)	Gross	-	--	0
	Net	0	0	--
Chemical	Gross	-	--	1,467
	Net	0	278	--
TOTAL TREATED ACRES	Gross	-	4,341	1,838
	Net	78	1,019	--

** Gross acres are the total acres considered to be "infested." Within the gross acres, the net acres are the land base actually occupied by noxious weeds. For example, a 10-acre (gross) infestation may be occupied by widely-scattered individuals that occupy only 5 percent (0.5 net acres) of the area.*

*** Biological controls released in past years are not reflected here, even though biological agents may still be active and providing ongoing treatment.*

Treatment Effectiveness

Informal monitoring on the Forests continues to indicate that manual control of noxious weeds is often not very effective, especially on established sites and on deep-rooted species or species which spread vegetatively. Informal monitoring indicates that control rates are generally high where herbicides are used, especially when the most effective herbicide can be used. However, on established infestations with substantial seed in the ground, and with the seed capable of sustaining viability over many years, each site will need to be treated and monitored for many years if objectives are to be achieved.

On the Umatilla NF for 1998, two ranger districts reported on treatment effectiveness. On the Heppner Ranger District, all known populations of knapweed, St. Johnswort, scotch thistle, dalmation toadflax, hound's tongue, common burdock, scotch broom, and tansy ragwort were treated. Based on follow-up surveys, hand pulling (grubbing) has kept populations of knapweed and tansy ragwort in check. Canada thistle continues to expand as hand pulling is neither feasible nor effective. During 1998, the North Fork John Day Ranger District revisited and treated virtually all of its active noxious weed sites. Monitoring of treatment effectiveness showed nearly identical results for manual and chemical treatments:

Manual treatments (105 sites) -- Trends: 30% increase; 50% decrease; and 20% no change
Chemical treatments (47 sites) -- Trends: 29% increase; 46% decrease; and 23% no change

The North Fork John Day Ranger District also noted that a few of the larger sites showed a significant increase in the number of plants for both manual and chemical treatments.

Noxious Weed Trends

Determining trends in noxious weed populations has been difficult. While more infestations are reported each year, it is generally unknown whether these are new sites or established sites that have just recently been found and reported.

The Heppner Ranger District completed an updated inventory of noxious weeds in 1998, focused on roads, trails, and other disturbed sites. Twenty new noxious weed sites were located, including one tansy site. In addition, two new noxious weeds were found, musk thistle and yellow starthistle; each was hand treated. Overall, known weed populations on the Heppner Ranger District are remaining stable. On the North Fork John Day Ranger District, some examples of specific noxious weeds may provide a flavor and range of trends, as follows. Hound's tongue is established on a few areas on the District but aggressive treatment efforts have contained it to those areas. All knapweed sites are currently under control, with many close to eradication. One yellow starthistle plant was found on the District. Aggressive new invader species -- white top, dalmation toadflax, and scotch thistle -- are being treated to eradicate them. The District is experiencing invasion of sulphur cinquefoil and yellow toadflax, which have proven to be aggressive weeds or difficult to successfully treat.

Recommended Actions:

Complete the noxious weed EIS and action plans on the Umatilla NF to more effectively treat weeds in a timely manner.

Continue work on a remote sites aerial application EIS for the Umatilla and Wallowa-Whitman NFs.

Continue to build an aggressive prevention, inventory, treatment, and monitoring program for noxious weeds.

Continue work on the Tri-Forest noxious weed data base.

MONITORING ITEM: Harvest Methods and Acres (Monitoring Item: Malheur 26, Umatilla 13, Wallowa-Whitman 5)

Questions: *How do the silvicultural harvest methods implemented on the ground compare to predictions from the Forest Plan? Is clearcut acreage going down per the Chief's 1992 direction to reduce clearcutting by 25 percent?*

The following table displays silvicultural harvest methods implemented on the ground compared to Forest Plan projections.

Table C-6
SILVICULTURAL HARVEST METHODS (IN ACRES) FOR FY 98
Malheur, Umatilla, and Wallowa-Whitman National Forests

SILVICULTURAL METHOD	MALHEUR	UMATILLA	WALLOWA-WHITMAN
Clearcut			
Forest Plan Estimate (acres/year)	3,330	4,000	4,300
Actual FY 98 Harvest (acres)	392	1,348	0
Percent (actual/planned)	12%	34%	0%
Shelterwood/Seed Tree			
Forest Plan Estimate	5,084	2,600	8,500
Actual FY 98 Harvest	1,199	1,616	527
Percent (actual/planned)	24%	62%	6%
Overwood Removal			
Forest Plan Estimate	6,301	1,500	1,200
Actual FY 98 Harvest	346	-	846
Percent (actual/planned)	5%	-	70%
Uneven-age/Selection			
Forest Plan Estimate	6,424	900	6,500
Actual FY 98 Harvest	1025	371	381
Percent (actual/planned)	16%	41%	6%
Commercial Thinning			
Forest Plan Estimate	6,778	100	3,900
Actual FY 98 Harvest	2,384	137	6,253
Percent (actual/planned)	35%	137%	160%
Salvage/Sanitation			
Forest Plan Estimate	3,956	0	0
Actual FY 98 Harvest	1,127	436	1,841
Percent (actual/planned)	28%	NA	NA
Special Cut			
Forest Plan Estimate	0	0	0
Actual FY 98 Harvest	92	0	0
Percent (actual/planned)	NA	NA	NA
TOTAL			
Forest Plan Estimate	**31,873**	**9,100**	**24,400**
Actual FY 98 Harvest	**6,565**	**3,771**	**9,906**
Percent (actual/planned)	**21%**	**41%**	**41%**

Many of the assumptions used to develop Forest Plans are no longer valid; the Forest Service has moved away from regeneration harvest to implement ecosystem restoration objectives. More timber was harvested using commercial thinning and salvaging prescriptions and less with regeneration harvest prescriptions than anticipated in the Forest Plan. These methods will continue to be used as the predominant silvicultural objectives as we continue to focus on forest health and ecosystem restoration.

Table C-7
CLEARCUT ACRES - FISCAL YEARS 1993-98*
Malheur, Umatilla, and Wallowa-Whitman National Forests

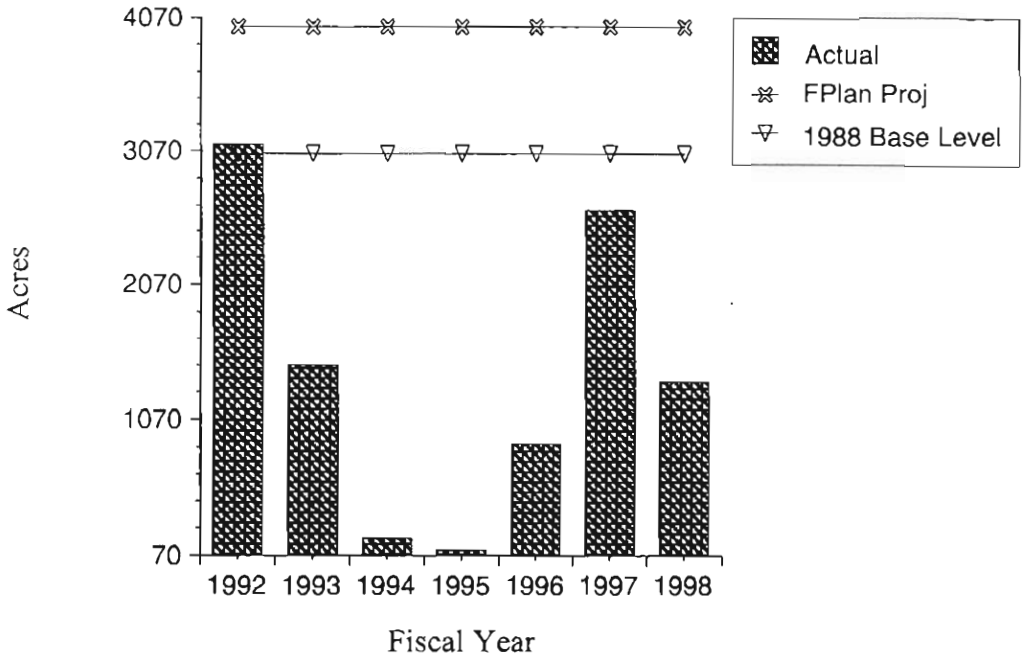
YEAR	MALHEUR	UMATILLA	WALLOWA-WHITMAN
1988 Base		3,299	
Forest Plan Projection	3,330	4,000	3,900
1993	3,095	1,470	700
1994	972	195	286
1995	992	109	80
1996	265	895	4
1997	220	419	0
1998	392	1,348	0

* Monitoring Reports for Fiscal Years 1991 through 1996 displayed acres offered for sale. The Report this year displays actual acres harvested. The table begins with 1993, as sales designed prior to implementing the Forest Plan were harvested in 1991 and 1992; 1993 reflects the first year of fully implementing the Forest Plan.

For the Umatilla National Forest in 1998, silvicultural harvest methods, total harvest acres, and most individual treatment methods continue to be well below Forest Plan projections. Based upon the Forest Plan Threshold of Variability (more than 25 percent annually), 1998 harvest level totals were 56 percent below the Forest Plan threshold. Overall, total harvest acres for 1998 are down about 37 percent from a year ago; the exceptions include acres of shelterwood/seed-tree harvest methods. Silvicultural prescriptions implemented in 1998 were determined to meet Forest Plan Standards and Guidelines as well as meeting Riparian Habitat Conservation Area widths.

In 1992, the Chief of the Forest Service announced that the amount of clearcut acres would be reduced on National Forest lands by 25 percent based on 1988 levels. Since this announcement, the Umatilla NF has been reducing the amount of actual clearcut acres. The table and chart below display the trend in clearcut acres for the Umatilla since 1992. Comparing the 1998 clearcut level to 1988, the Forest reduced the amount of acres by about 60 percent. The Forest has been reducing the amount of clearcut acres and continues to meet the Chief's policy.

Figure C-1
CLEARCUT ACRES
Umatilla National Forest



The trend has been complicated in recent years by salvage prescriptions in large fire areas and insect killed stands, since the silvicultural definitions for harvest methods often do not represent the mix of treatments done on the ground. Some of the salvage harvest areas appear to be clearcuts when completed, but do not meet the current forestry definitions for clearcuts. Therefore, harvest descriptions were used that most resemble the appearance of treatments occurring on the ground.
The long-term projection (based upon the current trend) indicates that the amount of clearcut acres will continue to decline. It is projected that the future timber sale program on the Umatilla NF will primarily focus on the issue of overstocked stands (middle structure or story) by implementing a commercial thinning program to bring stand densities in line with environmental conditions.

Recommended Action:

Silvicultural harvest methods continue to vary substantially from Forest Plan projections. The Forests expect differences to remain until the Forest Plans are adjusted, sometime after completion of the Interior Columbia Basin Ecosystem Management Project (ICBEMP).

MONITORING ITEM: Reforestation
(Monitoring Items: Malheur 24/25, Umatilla 15, Wallowa-Whitman 8)

Questions: How many acres were reforested this year using natural and artificial regeneration practices? Are acres being satisfactorily restocked within 5 years of final harvest, per NFMA?

Table C-8 shows acres of reforestation accomplished by treatment method as compared to assumptions made in the Forest Plans.

Table C-8
REFORESTATION ACCOMPLISHMENT (IN ACRES) FOR FY 98
Malheur, Umatilla, and Wallowa-Whitman National Forests

	MALHEUR		UMATILLA		WALLOWA-WHITMAN	
Activity	Forest Plan Avg/Year	FY 98 Accomplish-ment	Forest Plan Avg/Year	FY 98 Accomplish-ment	Forest Plan Avg/Year	FY 98 Accomplish-ment
Site Prep for Natural Regeneration	7,212	465	Not Available*	2,321	1,700	500
Natural Regeneration without Site Prep	0	59	3,100*	4,482	8,000	2,084
Artificial Regeneration (Planting)	5,460	10,427	4,400	5,767	4,800	3,052

** The Umatilla NF Forest Plan does not differentiate between natural regeneration categories (with and without site preparation).*

First-year survival for planted seedlings on the three Forests was 81 percent for the Malheur for ponderosa pine, 94 percent for the Umatilla, and 78 percent for the Wallowa-Whitman.

On the Wallowa-Whitman NF, first-year survival in 1996 was 75 percent. The 1998 Plantation Survival and Growth Report shows third-year survival on the same units has dropped to 56 percent, a significant and cumulative effect of the prolonged hot and dry summers of both 1996 and 1998 growing seasons, as well as continued mortality from gophers, livestock and big game, vegetative competition, and seedling problems.

An area is stocked to a satisfactory level when trees per acre meet the minimum or greater standards defined in the silvicultural prescription. Units are to be satisfactorily restocked within 5 years of final harvest. Tables C-9, C-10, and C-11 show stocking status on acres harvested 5-7 years ago for each of the Forests.

Table C-9
STATUS OF REFORESTATION AFTER FINAL HARVEST
Malheur National Forest

Year of Harvest	Revised Final Harvest Acres	Adequately Stocked		Not Adequately Stocked		Not Adequately Stocked - No Further Treatment	
		Acres	%	Acres	%	Acres	%
1991	14,100	13,978	99	122	1	0	0
1992	12,430	11,913	96	517	4	0	0
1993	9,221	8,491	92	730	8	0	0

(Source: Annual Reforestation and Timber Stand Improvement Accomplishment Report, Table 22.)

Table C-10
STATUS OF REFORESTATION AFTER FINAL HARVEST
Umatilla National Forest

Year of Harvest	Revised Final Harvest Acres	Adequately Stocked		Not Adequately Stocked		Not Adequately Stocked - No Further Treatment	
		Acres	%	Acres	%	Acres	%
1990	8,080	7,251	90	829	10	87	1
1991	9,754	9,176	94	578	6	22	<1
1992	10,368	8,619	83	1,749	17	0	NA
1993	5,084	4,473	88	355	7	256	5

(Source: Annual Reforestation and Timber Stand Improvement Accomplishment Report, Table 22.)

Table C-11
STATUS OF REFORESTATION AFTER FINAL HARVEST
Wallowa-Whitman National Forest

Year of Harvest	Revised Final Harvest Acres	Adequately Stocked		Not Adequately Stocked		Not Adequately Stocked - No Further Treatment	
		Acres	%	Acres	%	Acres	%
1991	13,625	10,913	80	2,684	20	28	<1
1992	7,846	6,014	77	1,832	23	0	NA
1993	4,695	3,573	76	1,122	24	0	NA

(Source: Annual Reforestation and Timber Stand Improvement Accomplishment Report, Table 22.)

On the Wallowa-Whitman NF, many of the acres considered not adequately stocked are associated with wildfire areas of the mid to late 1980s. Many areas burned by wildfires, and then subsequently salvaged, were planted to grass seed as part of the planned rehabilitation efforts. The resultant thick sod of grass adversely affected the survival of planted seedlings. These areas may need up to 20 years to adequately restock themselves naturally. Since some of these areas would not have been harvested had the wildfires not occurred, the Forest Service cannot justify attempting to reforest them every year.

The following table displays natural and planted regeneration acres for the Umatilla NF during FY 98. For reporting purposes, natural regeneration includes the acres of site preparation for natural regeneration and acres of certified natural regeneration without site preparation (National and Regional procedures).

Table C-12
REFORESTATION ACCOMPLISHMENT ACRES -- FY 98
Umatilla National Forest

Activity	Heppner	NFJD	Pomeroy	Walla Walla	Forest Total	Forest Plan Ave./Yr.
Site Preparation for Regeneration:						
Natural	-	63	-	-	63	Not Available*
Artificial (planting/seeding)	68	352	416	1,422	2,258	
Natural Regeneration Without Site Preparation	76	3,291	173	942	4,482	3,100*
Artificial Regeneration (planting)	1,808	2,973	611	375	5,767	4,400

* The Umatilla Forest Plan does not differentiate between natural regeneration categories (with and without site preparation).

For FY 98, both planting and natural regeneration acres exceeded Umatilla Forest Plan projections. The higher levels have resulted from reforestation of the large fires and recent insect mortality areas. First year survival is slightly above 1997 levels at 94 percent, while third-year survival dropped to 47 percent, the lowest level for the last 10 years. Additional information on the reforestation program is provided in the Umatilla NF Monitoring Item 15.

Survival and growth show how well the seedlings are doing during the first few years after planting or natural regeneration. Stocking levels provide a picture of how well harvested stands are becoming reforested to desired levels. Stocking exams are conducted yearly to determine if harvested acres are being fully stocked within 5 years after final harvest, a key requirement of NFMA for timber production areas. Information gathered from the surveys is also used by managers to determine if further treatments are needed. The following table displays the status of the Umatilla NF's reforestation after final harvest from 1990 through 1993.

The information provided in Table C-10 shows that since implementation of the Umatilla Forest Plan, between 83 and 94 percent of the timber harvest acres receiving a final harvest treatment (clearcutting, shelterwood, seed tree, or overstory removal; individual tree or group selection cut) were adequately stocked within the 5-year timeframe established by NFMA. Of the acres not adequately stocked (a total of 3,511 acres for the 4 years combined), it is anticipated that all acres can be adequately stocked after additional treatments (replanting, fill-in planting, etc.).

Recommended Actions:

The Umatilla NF needs to review the long-term reforestation survival on the Forest (see Umatilla Monitoring Item 15).

Assumptions regarding Forest Plan reforestation projections will probably be updated upon completion of the ICBEMP and initiation of Forest Plan adjustments. The Forests need to re-examine some of the assumptions in the Forest Plans related to total anticipated acres of reforestation through the remaining portion of the decade. With adoption of an ecosystem management approach, a new trend is toward less regeneration harvest and a resulting downward trend in reforestation.

MONITORING ITEM: Fire Managed for Resource Benefits (Prescribed Fire) (Monitoring Items: Malheur 36, Umatilla 18, Wallowa-Whitman 10)

Questions: Are natural ignitions being utilized to allow fire to play its natural ecological role in wilderness areas? Are activity fuels being treated as predicted in the Forest Plan? Are non-activity fuels being treated on forested lands as envisioned by the Forest Plan?

On the Malheur National Forest, natural ignitions are not being utilized to allow fire to play its natural ecological role in forest ecosystems. The Forest has not updated the documents necessary to allow natural ignitions to burn.

Non-activity hazardous fuels on forested lands are being treated to reduce fire hazard, which leads to more cost-effective suppression.

Prescribed burning is being utilized to meet a variety of other management objectives as indicated in Table C-13.

Table C-13
DISTRICT ACRES BURNED BY MANAGEMENT OBJECTIVE
Malheur National Forest

District	Total Rx Acres	Fuels Reduction Acres Burned	Wildlife Acres Burned	Silviculture Acres Burned
Bear Valley	2,945	2,456	493	36
Long Creek	9,250	5,434	725	61
Burns	2,680	1,776	0	904
Prairie City	6,719	5,260	0	1,459
Total	21,594	14,926	1,218	2,460

As noted in other monitoring items, the Umatilla NF uses a variety of burning activities to accomplish resource and ecosystem management objectives, such as hazard reduction, site preparation, wildlife enhancement, and range improvement.

The Umatilla experienced 87 lightning fires in 1998; 14 occurred in wilderness. All were suppressed because the Forest does not have updated Fire Plans to allow use of fire as a management tool in these areas. Current Regional Office direction requires revision of past plans before natural ignition fires will be allowed to play a role in accomplishing management objectives. Updating these plans is not a priority for the Forest at this time.

Even if the Fire Plans had been updated, it is unlikely that all fires would have been considered to play a role in accomplishing management objectives. Other factors (chance of escape, lack of contingency resources, etc.) would have initiated suppression action. Human-caused fires would always be suppressed.

The Umatilla Forest Plan predicted an average annual treatment of activity fuels at 8,000 acres per year. In 1998, only 956 acres of activity fuels were treated using prescribed fire. The level of activity resulted from a decreased timber sale program and from adverse burning conditions, which reduced opportunities to treat fuels with fire in 1998.

Each ranger district reported that (non-activity) fuel treatments -- hazard reduction and/or wildlife habitat improvement burns -- were conducted during 1998. Only the Walla Walla Ranger District noted their success as shown in the following table.

Table C-14
PRESCRIBED FIRE USE AND RESULTS -- 1998
Walla Walla Ranger District - Umatilla National Forest

Objective	Acres Treated	Acres Meeting Objective
Hazard Reduction	600	500
Site Preparation	388	388
Habitat Improvement	1,000	600

Recommended Action:

Continue monitoring and reporting, and follow-up with reviews that test results against resource and ecosystem objectives.

MONITORING ITEM: Insects and Disease (Monitoring Items: Malheur 29, Umatilla 21, Wallowa-Whitman 3)

Questions: What are the current levels and trends of key insects and diseases on the Forests? Are destructive insects and diseases remaining below potentially damaging levels following management activities?

The annual aerial insect detection survey flights conducted cooperatively by the Pacific Northwest Region of the Forest Service and the States of Oregon and Washington provide data on the extent of insect infestations on all lands covered by the survey flights. Acres infested by key insects on National Forest lands and mapped during the 1998 survey flights are shown in Table C-15. Most forest diseases are not identified by aerial observers, so there is no annual tabulation of incidence or severity. Most data on Forest diseases comes from stand exams and personal observations by silviculture staff and pest management specialists. Risk Rating models can be used to estimate expected disease incidence based on more identifiable stand attributes.

Table C-15
FOREST SERVICE ACRES OBSERVED INFESTED BY KEY INSECTS IN 1998
(Aerial Insect Detection Survey)
Malheur, Umatilla, and Wallowa-Whitman National Forests

Key Insect	Malheur	Umatilla	Wallowa-Whitman
Douglas-fir beetle	1,013	2,602	3,627
Spruce beetle	0	0	765
Fir engraver	139	428	248
Mountain pine beetle, lodgepole pine	128	18	241
Mountain pine beetle, ponderosa pine (PP)	1,435	894	482
Mountain pine beetle, western white pine	0	0	0
Mountain pine beetle, whitebark pine	0	0	0
Pine engraver	135	101	6
Western pine beetle	533	89	19
Western pine beetle, pole-size PP	27	323	4
Western spruce budworm	0	0	0
Tussock moth	0	0	0
Larch casebearer/larch needle cast	1,927	731	4,711

Note: Not all acres were equally infested by insects.

Aerial survey data indicate that current population levels of most key insects in the Blue Mountains Province are relatively low. Douglas-fir beetles are increasing, especially in the Wallowa Mountains. Trees mapped in the survey faded in 1998, but were killed the year before. Informal observations indicate that even more trees were killed in 1998. An extreme wind event on July 2, 1998, resulted in scattered blowdown over a large area and near-complete blowdown over 300 acres of spruce and lodgepole type on the Malheur NF. Spruce beetle populations already exist in this area and there is potential for substantial population increase. Fir engraver levels that continue to remain high are sometimes associated with root diseases that have become more active in stands with budworm-weakened host trees.

Following the August 1996 Summit Fire on the Malheur NF, western pine beetle populations increased dramatically, and are currently in outbreak. Most of the large, reserved ponderosa pine that initially survived the fire were later killed by these beetles. Based on preliminary monitoring, the level of beetle damage that resulted was not expected. It is likely these trees were rendered susceptible to insect attack by heat damage to fine roots in the thick duff layer. Many decades of fire exclusion in ponderosa pine stands has often allowed an abnormally heavy accumulation of exfoliated bark scales and other fuels around the base of older trees. Long-duration heat, generated when this duff layer burns, often damages fine shallow roots, weakening the trees and rendering them susceptible to bark beetles.

Douglas-fir tussock moth pheromone trapping is used to monitor sub-outbreak population levels. Trap catches in 1998 increased dramatically over the previous year throughout the entire Blue Mountains Province. It is anticipated that some minor defoliation may occur in some areas in 1999. This situation will be closely monitored by larval sampling, cocoon sampling, and continued pheromone trapping.

For several previous years, population trends of most insects in the Blue Mountains has been downward, as indicated by the aerial survey. In 1998, most detectable damage did not change significantly from the previous year with the exception of the Douglas-fir beetle, which increased on all three Forests. As mentioned, Douglas-fir tussock moth is known to be on the increase, although defoliation is not yet visible. Larch casebearer has appeared in some areas in the last several seasons, causing only spotty, mostly light to moderate defoliation of some larches.

Insect and disease evaluations of projects indicate that management activities are not aggravating insects and diseases, and in fact may be reducing the susceptibility of stands to insects and diseases in many cases through stocking level control and increasing seral species component in treated stands. Most tree diseases increase with tree age and proportion of hosts in the stand. Since shade-tolerant species are susceptible to a high proportion of diseases, many managed stands are experiencing a gradual increase in disease activity. These same stands also increase in susceptibility or vulnerability to insects with time. The trend toward uneven-aged management could increase root disease, defoliators, bark beetles, and dwarf mistletoe above their historic levels.

Recommended Action:

Continue to monitor.

MONITORING ITEM: Allotment Management Planning (Monitoring Items: Malheur 19, Umatilla 38, Wallowa-Whitman 16)

Questions: Are Range analyses, AMP level NEPA decisions, and Allotment Management Plans (AMPs) being completed according to the Forest Plan schedule as revised by the 1995 Rescission Bill?

Forest Plans included schedules which emphasized allotment management planning on high priority allotments. The recent Rescission Bill (PL104-19) required the Forests to develop a new schedule to complete all AMP NEPA work within a 15-year timeframe. All three Forests are currently behind schedule.

Table C-16
STATUS OF RANGE AMPs AND EAs BY FOREST
Malheur, Umatilla, and Wallowa-Whitman National Forests

	Malheur	Umatilla	Wallowa-Whitman
Number of Range Inventory and Analyses completed in FY 98	None	None	None
Number of NEPA decisions completed in FY 98 Number of allotments covered by these decisions	None n/a	None n/a	None n/a
Number of AMPs completed in FY 98 Number of allotments covered by these AMPs Cumulative number of AMPs that are Forest Plan sufficient	2 2 9	4* 4 7	0 0 24
Number of active allotments	97	34	120
Percent of active allotments with AMPs that are Forest Plan sufficient	9%	21%	20%

* NEPA completed in previous years.

Range program funding for the Wallowa-Whitman NF did not allow any new range inventory or NEPA decisions in 1998. A total of 22 allotments on the Wallowa-Whitman were in various stages of planning in FY 98. Ten allotments are included in the Upper Grande Ronde Range Planning Area (RPA) document which is near draft stage; three are in the Ghostbull RPA which is complete pending completion of ESA consultation; the remainder are in stages varying from completed field work to nearly-completed NEPA processes. In addition, work began near the end of FY 98 on two additional multi-allotment processes on the Lower Joseph RPA (11 allotments) and the South Burnt RPA (five allotments). These two efforts are anticipated to be completed to a draft document stage by the end of FY 99. When completed, these efforts should bring the Wallowa-Whitman NF on track with Rescission Act requirements.

The Umatilla NF completed four AMPs based on prior NEPA decisions. There was no funding for additional range inventory or NEPA planning efforts in FY 98 nor was any received to begin work for FY 99. Multi-allotment project proposals are being developed for FY 2000 which, if funded, would bring the Umatilla substantially on track.

Funding on the Malheur NF did not allow any new range inventory or NEPA decisions in 1998. The two AMPs completed were holdovers from NEPA done in previous years. Two other allotments are in the NEPA process but were not completed in FY 98. Work was started at the end of FY 98 for a multi-allotment NEPA process for a group of eight allotments in the Middle Fork John Day RPA. It is planned to have a draft EIS for public review by the end of FY 99. These efforts will still leave the Malheur behind Recission Act requirements, but additional planning efforts scheduled for FY's 2000 and 2001 should put the Forest near its needs.

Although progress has been made in analysis and planning, significant changes in program emphasis, including ESA consultation efforts, combined with extreme reductions in funding continue to cause overall accomplishments to remain low. The threshold of variability was exceeded on the three Forests but current efforts should allow all three Forests to be on track with Rescission Act requirements within a few years.

Recommended Actions:

Continue updating the Allotment Management Planning schedule, based on actual budgets and accomplishments to meet the requirements of the Rescission Act.

Continue pursuing adequate funding to accomplish allotment management planning in a timely manner.

Continue implementing the Tri-Forest process for multiple allotments analysis, providing greater efficiencies and accomplishments.

MONITORING ITEM: Timber Offered for Sale (Monitoring Items: Malheur 27, Umatilla 43, Wallowa-Whitman 4)

Questions: Are the Forests offering the ASQ and TPSQ estimated in the Forest Plans? Of the offered volume in the fiscal year, how much was actually awarded? How many sales and how much volume received no bids, and what were the reasons given for no bids?

In 1998, on the Malheur National Forest, all sales received bids and were awarded, although some were not awarded until FY 99.

Table C-17
TIMBER VOLUME OFFERED - FY 91-98
Malheur National Forest

	VOLUME OFFERED FOR SALE			
	MMBF		MMCF	
FISCAL YEAR	ASQ	TPSQ	ASQ	TPSQ
1991	NA	202	NA	39
1992	NA	102	NA	20
1993	66	72	13	14
1994	26	33	5	6
1995	65	67	13	13
1996	80	81	15	16
1997	38	39	7	8
1998	77	77	15	15
Forest Plan Projected Output	200	211	35	38

On the Umatilla NF, the amount of timber offered for sale remains below Forest Plan projections. About 39 percent of TSPQ and 31 percent of the ASQ were offered for bid in FY 98. All sales received bids and all offered volume was awarded. Table C-18 shows the timber offered for sale for FY 98.

Table C-18
TIMBER VOLUME OFFERED - FY 94-98
Umatilla National Forest

	VOLUME OFFERED FOR SALE			
	MMBF		MMCF	
FISCAL YEAR	ASQ	TPSQ	ASQ	TPSQ
1994	1	9	<1	2
1995	5	22	1	4
1996	19	45	4	8
1997	37	82	7	15
1998	38	62	7	12
Forest Plan Projected Output	124	159	22	28

During FY 98, timber offered for sale consisted mostly of salvage volume. The Forest still has some salvage potential from large-scale insect damage and mortality of the early 1990s. Salvage efforts continue on several large fires that burned in 1996. Timber killed in the Tower, Bull, and Summit fires on the North Fork John Day Ranger District is expected to be sold or resold in FY 99.

Table C-19
TIMBER VOLUME OFFERED - FY 91-98
Wallowa-Whitman National Forest

	VOLUME OFFERED FOR SALE			
	MMBF		MMCF	
FISCAL YEAR	ASQ	TPSQ	ASQ	TPSQ
1991	33	53	Not available for this report	
1992	66	79		
1993	8	23		
1994	17	29		
1995	39	54		
1996	44	53	86	103
1997	40	49	79	97
1998	32	40	62	78
Forest Plan Projected Output	141	205		

The Wallowa-Whitman National Forest had a target of 52,800 mbf for all products in FY 98; 40,332 mbf was offered. All sales offered were awarded. Three sales which were not offered account for the shortfall in the target. Two sales were delayed due to consultation requirements of the Endangered Species Act. A third sale received an appeal. The Forest withdrew the Decision Notice for this sale. After conducting additional analysis, a new Decision Notice was issued and the sale is being offered in FY 99.

On all the Forests since FY 93, the annual volume targets assigned by the Regional Office have been considerably less than Forest Plans TPSQs and ASQs. Forests' output levels have been based on estimated amounts which each has determined they can produce under the newer standards of PACFISH, INFISH, and Regional Forester's Amendment 2.

Recommended Actions:

Adjust Forest Plan ASQ and TPSQ levels upon completion of the ICBEMP.

Continue to update vegetation data and other relevant information in preparation for Forest Plan adjustment.

MONITORING ITEM: Socio-Economics (Monitoring Items: Malheur 37-41, Umatilla 54-59, Wallow-Whitman 45-47)

The coordinated socio-economic monitoring items are not addressed this year. A brief status of available information is described below.

Annual Programs and Budgets

The Forest Service is currently developing and implementing a new budget process (FFIS); Region 6 is a test region. Currently, the budget and program data and information for FY 98 are not readily available and not expected to be available for some time. Reporting on this monitoring item therefore has been delayed.

Costs and Values

Information for this item is also, in part, derived from information based on the new budget process. In addition, RPA non-market values are currently under review and development by the Washington Office. No date has been given for the release of the RPA data (a component of this monitoring item).

Payments to Counties

Payments to Counties information has been released to the public in news releases and articles. Payments continue to be significantly less than Forest Plan projections.

Employment and Income

Information related to this item was extensively reviewed and described in the "Economic and Social Conditions of Communities" released by ICBEMP in February 1998. The Employment Specialization by Industry Category was determined for nine communities in Grant County, two in Harney County, 12 in Umatilla County, eight in Union County, four in Wallowa County, and three in Wheeler County, which represents almost half the communities in the impact zone for the Blue Mountains. Based on reduced harvest levels from the Forest Plans, expected timber jobs and income continue to be approximately 50-80 percent out of the range of projections.

Recommended Action:

Continue monitoring and report FY 98 results in next year's report.

SPECIAL FOCUS ITEM: Prescribed Fire Monitoring

Background

The prescribed fire program in the Blue Mountains has significantly increased in the past few years, from 29,155 acres for the three Blue Mountain Forests in 1992 to 62,939 acres in 1998. Burning is being done to meet a variety of objectives, including fuels reduction, forage improvement, noxious weed control, wildlife habitat improvement, and stocking control.

Because the prescribed fire program was expected to continue to increase in the immediate future, the Forest Supervisors of the three Blue Mountain Forests decided to have 1998 Tri-Forest monitoring reviews focus on the prescribed burning program. In particular, field reviews were to focus on management-ignited fires conducted for reasons other than reduction of activity (e.g., timber sale) fuels.

In addition, Region 6 (Pacific Northwest Region) of the Forest Service is currently operating under two interim aquatic management strategies: PACFISH, for stream systems providing habitat for anadromous fish species; and INFISH, for stream systems providing habitat only for resident fish. The Blue Mountain Forests felt that prescribed fire reviews would also provide an opportunity to monitor implementation of PACFISH and INFISH standards.

Project Selection and Monitoring Process

Prescribed fires were randomly selected for review from a list of prescribed fires completed from 1995 through the fall of 1997. In cases of extremely small or isolated fires, or where a prescribed fire had already received extensive on-Forest review, minor adjustments were made to the sampling strategy. Sixteen prescribed fires were selected for review; an additional four fires were reviewed at a Monitoring Team's discretion when they were out in the woods. The prescribed fires reviewed by Tri-Forest Monitoring Teams are shown in Tables C-20 and C-21.

Table C-20
BREAKDOWN OF PRESCRIBED FIRES* BY FOREST
1995 to Fall 1997
Blue Mountain National Forests

	MALHEUR		UMATILLA		WALLOWA-WHITMAN	
	PACFISH	INFISH	PACFISH	INFISH	PACFISH	INFISH
Total number of prescribed fires 1995-1997	11	26	20	0	9	2
Number of prescribed fires monitored by Tri-Forest Interdisciplinary Teams	2	11	4	0	2	1

* Not including prescribed natural fires or treatment of activity fuels.

Table C-21
PRESCRIBED FIRES MONITORED BY TRI-FOREST TEAMS IN 1998
Blue Mountain National Forests

PRESCRIBED FIRE	FOREST	DISTRICT	PACFISH or INFISH	FALL OR SPRING BURN	APPROX. ACRES
Joaquin 01	Malheur	Burns	INFISH	spring	245
Poison 01	Malheur	Burns	INFISH	combination	26
Lonesome 01	Malheur	Burns	PACFISH	spring	1,250
Windfall Aspen	Malheur	Bear Valley	INFISH	combination	5
Antelope 2 *	Malheur	Bear Valley	INFISH	spring	1,205
Antelope 3	Malheur	Bear Valley	INFISH	combination	655
Antelope 4 *	Malheur	Bear Valley	INFISH	combination	785
Antelope 7	Malheur	Bear Valley	INFISH	spring	1,005
Antelope 8 *	Malheur	Bear Valley	INFISH	spring	600
Vinegar	Malheur	Long Creek	PACFISH	spring	3,170
Awake 02	Malheur	Prairie City	INFISH	spring	649
Awake 04	Malheur	Prairie City	INFISH	spring	721
Awake 08 *	Malheur	Prairie City	INFISH	fall	464
Oriental Juniper 1	Umatilla	North Fork John Day	PACFISH	combination	2,470
Oriental Juniper 2	Umatilla	North Fork John Day	PACFISH	fall	2,545
Camp Creek	Umatilla	Walla Walla	PACFISH	fall	2,000
Pasture	Umatilla	Pomeroy	PACFISH	fall	1,000
Spring Creek 501	W-W	La Grande	PACFISH	fall	460
BMEI #6	W-W	La Grande	PACFISH	fall	200
Lower Montane C	W-W	Baker	INFISH	spring	505

* Not selected as part of random sample. Reviewed at Monitoring Team's discretion.

Monitoring Teams consisted of six to nine Forest Service employees, with at least one representative from each Blue Mountain Forest. Most teams included a wildlife biologist, silviculturist, fire/fuels specialist, and either a hydrologist or soils scientist. The larger teams included other resource specialists, such as fish biologists, archaeologists, line officers, or landscape architects. Both District and Forest-level people participated on these teams. The Teams also included one to three National Forest stakeholders, including private citizens, timber industry representatives, cooperators, environmental groups, and local elected officials.

The Monitoring Teams focused on the following questions given them by the Forest Supervisors and Forest Planners:

- Was the NEPA planning done in an interdisciplinary manner?
- Were project goals and objectives appropriate? Were they met?
- What kind of ecological effects were observed (e.g., erosion, snag levels, stand structure, etc.)?

- Were mitigation and design features implemented as described in the NEPA document?
- Were appropriate procedures followed in planning and reporting air quality?
- Were any conflicts perceived between the Forest Plan assumptions and the Desired Future Condition?

Summary of Findings

While each prescribed fire had its own unique issues and findings, certain themes recurred across a number of fires. These are summarized in individual subsections below, along with the Monitoring Team's major recommendations. Detailed information on each individual review may be obtained from the Malheur National Forest Headquarters in John Day, Oregon.

While the following discussions indicate that documentation of the burning program could be improved, the Monitoring Teams were generally pleased with the results on the ground. The people involved with implementation demonstrated a high level of professionalism and expertise, and were aware of resource objectives even if those objectives were not explicitly documented.

NEPA Planning

Most of the prescribed fire NEPA efforts appeared to be more multi-disciplinary than interdisciplinary. Purpose and Need statements were very broad, and frequently did not provide a common vision of what was desired on the ground, particularly in relation to vegetative effects. Design features and mitigation measures were not always coordinated among the resources, occasionally resulting in conflicting direction for the project. In some cases, Monitoring Team members were left with the impression that prescribed burning was done simply to meet burning targets rather than to achieve desired conditions.

Many of the effects analyses were quite weak, with only cursory discussion of the expected effects of the project. This may be due to a variety of reasons, including other priorities, perception of limited risk, lack of fire funding for detailed analysis, limited line officer (Deciding Official) involvement, and the perceived "white hat" nature of the role of fire in the ecosystem.

Ties to higher-order plans, such as PACFISH, INFISH, and the Region 6 EIS for Competing and Unwanted Vegetation, were sometimes not clear. For example, some fire prescriptions prohibited fire ignition in riparian areas, but fire was allowed to back into these areas. While this resulted in no observable detrimental impacts to riparian areas, the analyses did not address how this prescription would "contribute to the attainment of the Riparian Management Objectives" per PACFISH and INFISH. Similarly, because almost all the prescribed fires had multiple objectives in addition to fuels reduction, the prevention of competing and unwanted vegetation should have been addressed per the Region 6 EIS.

While most prescribed fire projects were documented in Decision Memos rather than EAs, a few were part of larger multiple-project restoration EAs. Even in the EAs, discussion of the issues, alternatives, and effects of large-scale prescribed burning were generally limited, with most of the documentation centered around other elements of the restoration project, usually a timber sale.

With a few notable exceptions, little formal monitoring has been done of any of the prescribed fires, although a number of ranger districts indicated they are developing prescribed fire monitoring strategies this year. Most fires received some level of informal walk-through monitoring, although results were not always documented in project files.

Although the NEPA analyses for most the prescribed fire projects was weak, the Monitoring Teams recognized that they were reviewing some of the districts' earliest efforts at prescribed fire analysis, not the current efforts. The results discussed above are based on NEPA documents that were generally 2 to 5 years old, and improvements may have been made since that time.

Recommendations:

Emphasize use of interdisciplinary Watershed Analyses or Integrated Resource Analyses to identify the Desired Future Conditions and Purpose and Need for prescribed fire in a given landscape.

Increase line officer (Deciding Official) involvement with the NEPA process, particularly at key points of the analysis process such as identification of Purpose and Need, Issues, and Range of Alternatives (per Forest Service Manual direction). Line officers should also emphasize the need for interdisciplinary rather than multi-disciplinary analyses and review.

Improve documentation of compliance with higher-order plans, particularly PACFISH, INFISH, and the Region 6 EIS for Competing and Unwanted Vegetation.

Provide direction for a consistent level of analysis across the Blue Mountain Forests (Forest Planners to take the lead with assistance of the Fire Planners). As identified on the field trips, there is a need for consistent direction relating to:

* How/whether to address multiple burning entries in a single NEPA document.
* When it is appropriate to document prescribed burning in a Categorical Exclusion rather than an EA, particularly in regards to size (acreage) and Federally listed species.

Conduct additional monitoring using measurable protocols and report the results.

Project Goals and Objectives

In many cases, objectives stated in the Burn Plans were general and not measurable, such as "improve forage" or "improve forest health." Because Burn Plans are essentially the implementation documents for the projects, more site-specific objectives would be appropriate, such as "improve grass forage in Unit 11 by 20 percent" or "improve forest health by reducing stocking of seedlings and saplings in Units 11 and 12 by 30-50 percent."

Other Burn Plans were largely boilerplate, with a single set of objectives and burning prescriptions developed for an entire ranger district or zone. These, too, lacked site specificity, and were often extremely broad so as to encompass all possible conditions that might be encountered in a large area. This is not conducive to achieving specific results on a given area.

Objectives, design features, and mitigation measures in the EAs did not always track through into the Burn Plans. EA requirements were frequently omitted and sometimes changed in the Burn Plans.

The lack of site-specific information in the Burn Plans would make it difficult to implement for those not involved with the planning process. However, the fire people implementing these projects had a good understanding of the concerns and expectations for each area, even when the site-specific objectives were not documented, and did a professional job at applying fire on the ground.

With the broad objectives and little measurable monitoring, it was not always clear whether objectives were met, particularly fuels reduction and forage enhancement. The fires generally burned fairly cool, and fuel and duff reduction objectives were sometimes not met with the initial burn entry. It was not always clear in the NEPA documents and Burn Plans whether multiple burns were expected to be necessary in order to meet objectives.

Recommendations:

Ensure there is a clear tie between the Purpose and Need in the EA and the site-specific objectives in the Burn Plans. Ensure concerns, design features, and mitigation measures are tracked and documented.

Where appropriate, identify a range of acceptable results rather than just a maximum or minimum. For example, if an objective is fuels reduction, say "reduce duff 30-50 percent" (which ensures SOME duff reduction) rather than saying "reduce duff no more than 50 percent" (which means even 1 percent is acceptable).

Improve site specificity of Burn Plans so that someone unfamiliar with the project could read the plan and know the site-specific objectives and mitigations for a given burn area. For example, rather than a generic "protect archaeological sites" for the area, specify "protect archaeological site in NE corner of burn unit 11 near road 419."

Identify whether objectives in Burn Plans are for the initial prescribed fire entry (short term) or the end result of multiple prescribed fire treatments (long term).

The ranger districts showed a wide range of burning costs. Capitalize on lessons from other units on cost reduction where possible.

Many of the projects were done in cooperation with adjacent landowners or partnerships with other interested stakeholders. The districts are to be commended for this outreach effort. (Note: if burning private land with National Forest land, this should be disclosed in the cumulative effects analysis.)

Implementation of Project Design and Mitigation Measures

As noted earlier, occasional problems were noted with tracking design features and mitigation measures from the EA to the Burn Plans. In some cases, this resulted in conflicting direction (e.g., the EA said to kill no more than 10 percent of the understory, the Burn Plan said no more than 20 percent of the understory). More common was the omission of EA design and mitigation measures from Burn Plans.

As discussed under NEPA and Project Objectives, identification of design and mitigation measures should have been more site specific, to ensure that people unfamiliar with a project could implement it if necessary.

Recommendations:

In addition to some of those already listed under NEPA and Objectives, address Burn Plans at the next Tri-Forest Fire Management Officer meeting, to improve tracking and documentation before a failure in the system occurs.

Where the Burn Plan is essentially the Implementation Plan for the entire project, it should include responsibilities (who/when/etc.) for implementation and monitoring. When burning is part of a large restoration plan with a variety of projects, a separate implementation plan is needed to address all aspects of the project.

Ecological Effects

Because most of the prescribed fires burned at low intensity, effects were mostly neutral to slightly positive. Fuel loading was reduced and forage appeared to increase, although not always to the levels prescribed in the Burn Plans. Tree mortality was limited except in units were stocking level reduction was an objective of the treatment. On two of the Malheur units, however, stocking levels were not reduced enough to meet that objective. A plantation on the Wallow-Whitman suffered excess mortality when winds shifted during the ignition of the unit. None of the burning resulted in significant increases in bark beetles, although in some fire units it was too soon to tell. Snags and down woody material were minimally impacted.

Where fire was allowed to back into riparian areas, no adverse effects were observed. Soil impacts were generally neutral except for a few small, localized areas that were severely burned, resulting in some pedestaling and erosion. These occurrences were minor, well within Forest Plan standards, and sediment did not appear to be reaching any streams.

Overall, the ranger districts showed good understanding of, and sensitivity to, resource values. Most of the sale units appeared to be appropriately implemented; however, there is still room for improvement. An example would be Riparian Habitat Conservation Areas (RHCAs) where objectives and prescriptions were not clearly defined.

Recommendations:

Develop a formal monitoring study of prescribed fire effects on large-diameter ponderosa pine. There is concern that delayed mortality will result from burning heavy duff around these trees, as surface root mortality was observed on one of the Bear Valley Units.

Stratify the sampling strategy the next time prescribed fires are monitored to include the full range of forest types where we will use burning as a tool.

The Forests need to address the emerging issue of noxious weeds and how it relates to the use of prescribed fire.

Tracking and Reporting Air Quality (Smoke Emissions)

All ranger districts appeared to meet the reporting procedures regulated by the Memorandum of Understanding with the states. Some districts appeared to have over-reported the tons consumed, reporting total acres rather than blackened acres to the State, but this situation has since been corrected.

Forest Plan Questions and Potential Conflicts

The Monitoring Teams identified a number of prescribed fire issues that they felt should be addressed during the next round of Forest planning:

- Are current standards for snags, down woody material, and big-game cover ecologically sustainable in drier pine sites if fire is to be kept as part of the ecosystem?
- Areas or stands with prescribed fire mortality may need to be replanted in order to meet requirements of the National Forest Management Act if they fall below the minimum stocking level.
- How does the historic fire regime fit the Desired Future Condition?
- The current Forest Plan standards and goals view prescribed fire primarily at the stand level. The next round of Forest planning should address prescribed burning at a landscape level.
- The prescribed fire program should be monitored again in 2 to 3 years to determine whether improvements have been made in analysis and documentation, and to observe the ecological effects on the ground.

Blue Mountain Forests' Monitoring Report - FY 98
Section M - Malheur National Forest

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MONITORING ITEMS NOT REPORTED FOR FY 1998

A few Monitoring Items from the Malheur Forest's 1995 Monitoring and Evaluation Plan were not reported in FY 1998. Some items only need to be reported every few years in order to detect trends. Other items were purposely deferred pending updated monitoring protocols or direction, and some were deferred due to lack of funding. Some items not found in this section were reported in Section C, the coordinated monitoring items.

Monitoring Items that were not reported for any of the above reasons discussed above include the following:

Item 2	Dispersed Recreation Sites
Item 4	Semi-Primitive Recreation Setting
Item 5	Off-Highway Vehicle Use
Item 13	Big Game Habitat
Item 23	Timber Suitability
Item 35	Administrative Facilities
Item 37	Budgets
Item 38	Costs and Values
Item 39	Local Income
Item 40	Local Employment
Item 41	Payments to Counties

The Summary Of Recommended Actions, beginning on page M-3, shows all Malheur Monitoring Items and whether they were deferred, consolidated with the other Blue Mountain Forests (Section C of this Monitoring Report), or reported in this Section.

NOTE: Even when a Monitoring Item is reported, it may not be addressing all the Monitoring Questions from the 1995 Monitoring Plan.

SUMMARY OF FINDINGS AND ACTIONS TO BE TAKEN

The table on the following pages summarizes for the Malheur National Forest the key findings and the recommended actions to be taken as a result of this year's monitoring. A more complete discussion of each monitoring item can be found later in this section or in the Coordinated Monitoring Section (Section C).

It is assumed that monitoring will be continued with all monitoring items in the future, although not all will be reported every year. Categories of recommended actions are identified in the table as follows:

Change Practices (CP) - Indicates that the results of current practices are outside the thresholds of variability and/or are not meeting specific direction set by the Forest Plan. A change in practice or procedure may be needed.

Further Evaluation (FE) - Indicates that results may or may not have exceeded the threshold of variability, but additional information or evaluation is needed to better identify the cause of the concern and/or determine future actions.

Amend Forest Plan (AP) - Indicates that results are inconsistent with the Forest Plan, or the Forest Plan direction was not clear. The Forest Plan may need changing or clarifying through the amendment or revision process.

Continue Monitoring (CM) - Indicates we will continue with the current scheme.

Not Evaluated (NE) - Not evaluated in FY 1998

Summary of Recommended Action

♦ 1998 **Monitoring Report** ♦

Malheur National Forest

Report Section	MI#	Monitoring Item (MI)	1997 Action	1998 Recommended Action			Remarks
				Change Practice	Further Eval.	Amend Forest Plan	
MAL	1	Developed Recreation	CM	X			Public seems generally satisfied with the Forest's recreation facilities. Use collected fees to upgrade and maintain campgrounds in FY 99.
DEF	2	Dispersed Recreation	NE				Deferred for FY 97 and FY 98.
MAL	3	Trail System	CM				All summer trails were maintained to standard. 79% of winter trails were maintained.
DEF	4	Semi-Primitive Recreation Setting	NE				Deferred for FY 97 and FY 98.
DEF	5	Off-Highway Vehicle Use	NE				Deferred for FY 97 and FY 98.
MAL	6	Wilderness	CM				Need to complete the Levels of Acceptable Change and the capacity study for determining outfitter needs.
MAL	7	Wild and Scenic Rivers	CM	X			Most Wild and Scenic characteristics and standards are being met. Make range administration a high priority.
MAL	8	Cultural and Historic Site Protection	FE	X			13 out of 203 monitored sites were damaged.
MAL	9	Visual Resources	NE	X			Management practices other than timber sales need monitoring.
MAL	10/-11	Resident and Anadromous Fish Habitat	CM				Best Management Practices are generally being implemented.
DEF	12	Dead and Defective Tree Habitat	NE		X		Surveys indicate we are not meeting standards in many areas.
DEF	13	Big Game Habitat	NE				Deferred for FY 97 and FY 98.
DEF	14	Old Growth Habitat	NE		X		Analyses show adjustments are needed.
MAL	15	Threatened, Endangered, and Sensitive Species	CM	X			Limited implementation monitoring occurred.
MAL	16	Raptor nests	FE	X	X		Goshawk nesting areas are being protected per Regional Forester's Amendment #2. Limited implementation monitoring of other species occurred.
COORD	19	Range Allotment Status	NE		X		2 AMPs were completed on the Forest in FY 98. 9% of active allotments with AMP's are Forest Plan sufficient.

Report Section	MI#	Monitoring Item (MI)	1997 Action	1998 Recommended Action			Remarks
				Change Practice	Further Eval.	Amend Forest Plan	
Accomp Report	20	Range Improvements	CM				Reported in Accomplishments Table M-8.
COORD & Accomp Report	21	Range AUMs, Utilization, and Condition	CM				92% of the monitored pastures met standards; the Forest is not funded to monitor all pastures. Need to emphasize effectiveness monitoring for utilization standards in riparian areas.
COORD & MAL	22	Managing Competing and Unwanted Vegetation	CM				The Forest treated 78 acres of noxious weeds this year, primarily through manual means. Other elements of competing and unwanted vegetation were not reported in FY 98.
DEF	23	Timber Suitability	NE				Deferred for FY 97 and FY 98.
COORD	24	Silvicultural Practices	NE				First year survival was 81% for ponderosa pine.
COORD	25	Reforestation	CM		X		Five year surveys show 92% of 9,221 acres were adequately stocked.
COORD	26	Timber Harvest	CM		X	X	Timber harvest acres remain well below Forest Plan projections, with silvicultural methods shifting towards uneven-aged management and commercial thinning. A Forest Plan adjustment will be needed following completion of ICBEMP.
COORD	27	Timber Offered	CM		X	X	Timber offered remains well below Forest Plan projections. Outputs will need to be re-evaluated after the completion of ICBEMP.
COORD	29	Insects and Disease	CM				Insect levels have increased during the past year. Continue to monitor.
MAL	30	Water Resources	CM		X		Stream temperatures were monitored at 77 locations across 8 watersheds. Data has not yet been analyzed. BMP implementation on stream buffers on the Summit Timber Sale was 100% compliant after checking and remarking.
COORD	31	Air Quality	CM				Prescribed burning met Forest Plan Standards.
MAL	32	Soils Resources	CM	X			Two monitored prescribed fires showed effects were within Forest Plan standards. Three units showed subsoiling fully met objectives.
MAL	33	Minerals	CM				All four active mining operations covered by plans of operation met Forest Plan standards.

Report Section	MI#	Monitoring Item (MI)	1997 Action	1998 Recommended Action			Remarks
				Change Practice	Further Eval.	Amend Forest Plan	
MAL	34	Road Mileage and Open Road Density	CM	X			Road construction remains below Forest Plan Projections. Open road densities meet standards except in Silvies watershed.
DEF	35	Administrative Facilities	NE				Deferred for FY 97 and FY 98.
COORD	36	Fire	CM				Natural fuels treatment by fire totalled over 21,000 acres. No natural ignitions were allowed to burn.
COORD	37	Program Budgets, Expenditures, and Accomplishments	FE AP		X	X	Deferred for FY 98.
COORD	38	Costs and Values	FE/AP		X	X	Deferred for FY 98.
COORD	39	Local Income	FE/AP		X	X	Deferred for FY 98.
COORD	40	Local Employment	FE/AP		X	X	Deferred for FY 98.
COORD	41	Payments to Counties	FE/AP		X	X	Deferred for FY 98.

MALHEUR MONITORING ITEM 1
Developed Recreation

Questions: Are existing developed recreation facilities accommodating recreation demand? Are developed recreation facilities meeting customer expectations and desires?

Existing facilities are meeting current recreation demand. There were 20 campgrounds provided for in the Forest Plan, and 19 were available for use in FY 98. Beech Creek Campground was closed a few years ago due to a very high number of hazard trees. It is unlikely that it will be opened in the future because of low demand. Also, removing all the hazard trees would probably result in a small clearcut, which would not be appealing to campers.

Informal use surveys were conducted at campgrounds periodically during the late spring, summer, and early fall months. The surveys showed an occupancy rate of approximately 69 percent at the most popular campgrounds--Magone Lake, Strawberry, and Big Creek. This is a decrease from the 1997 average occupancy rate of 71 percent for the same campgrounds. These three campgrounds are of the nine fee campgrounds on the Malheur National Forest included in the fee demo program, implemented in 1998. The decrease in occupancy rate is suspected to be due to the collection of fees at these campgrounds. The other campgrounds showed an occupancy rate of approximately 45 percent which is higher than the occupancy rate of 43 percent shown in 1997. This is suspected to be due to shifting use from campgrounds that are now fee campgrounds to those that are not.

Based on the data collected, it appears the existing campground facilities are accommodating recreation demand, but some are approaching their capacity at certain times of the year.

Most customer expectations are being met, especially at the non-fee campgrounds. As free campgrounds become fee campgrounds, customers expect a higher standard of services. Comments received on comment cards at the campgrounds show that customers paying fees expect trash cans to be available, more contacts with Forest Service personnel, and facilities such as water pumps that are easier to pump or toilets that are more accessible. Fee-paying customers also want potable water; they prefer not to dry camp. Sampling methods for this item included informal discussions with developed recreation site users and responses on comment cards, available at the campgrounds.

Most comments were positive for the operation and maintenance of the campgrounds on the Malheur National Forest. Compliments were received on the following items:

- Clean toilets
- The Romtec toilets
- A good campground host
- Campgrounds
- The level of improvements
- The handy location of some campgrounds
- Mountain bike trails and nearby trails
- The beautiful natural setting of several campgrounds
- Shelter from the wind
- Fewer cattle around two campgrounds
- Wildlife
- Improved road to one campground

However, complaints were received on the following:

- The toilets in one campground smelled
- Toilets are located too far away from some camp sites or from a trailhead
- Toilets are not very accessible
- Not enough tent spaces at one campground
- Not enough or no drinking water (and still having to pay a fee to stay at the campground)
- Water pump at one fee campground is too difficult to use
- More water sources needed at picnic area and beach
- Horse facilities are not maintained or are only suitable for one user
- Heavy cattle use around a campground exclosure
- No trash cans at fee campgrounds
- Campsites are dusty and should be gravelled
- Campsites need to be leveled
- Few to no handicapped accessible campsites at campgrounds with accessible toilets

Some negative comments received that are somewhat outside the Forest's ability to correct were as follows:

- Magone Lake beach is too crowded.
- Low water levels due to drought, subsurface leaks, and leaking dams in lakes adjacent to two campgrounds.
- Poor water quality (high levels of plant growth) at one lake (pond) due to low water levels.
- Accessible fishing facilities being useless when the water level is too low.

More drive-through trailer sites and larger parking sites for RVs and trailers were repeated suggestions. A need for more parking in the day-use area of one campground with a popular trailhead was also identified by recreation users, especially for numerous trailers and RVs. Others mentioned a desire for a large-group site in two campgrounds, including room for hunters with wall tents. There is a demand for more campsites in Little Crane Creek Campground during hunting season. Many recreationists do not want to see any (more) changes at nine campgrounds, although the public would also like to see potable water at fee campgrounds.

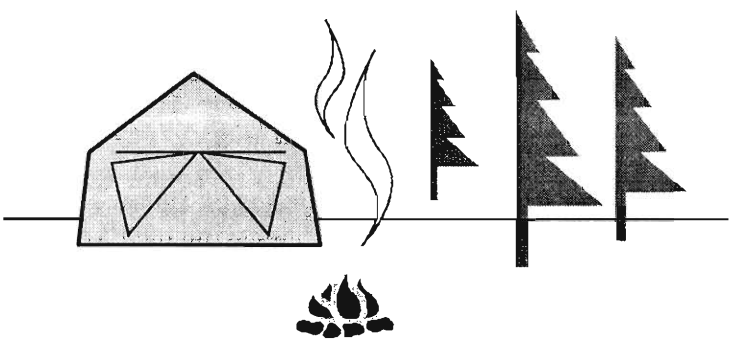
Generally, the public seems satisfied with the management and maintenance of recreation facilities on the Forest. Public acceptance of the fee demo program at the campgrounds was better than expected. Most people did not mind paying a fee if their money went back into the campground. Low funding levels for recreation management continues to limit the Forest's ability to make some of the improvements desired by recreating visitors, and limits ability to do thorough use surveys and customer surveys. However, even without adequate customer surveys, the Forest recognizes the need to make improvements in management and maintenance as funding allows. At low funding levels, the priority is to correct public safety hazards, rather than investing in large scale facility improvements.

The Forest replaced approximately 20 toilets this year and charged fees under the fee demo program at 9 campgrounds. This will allow the Forest to maintain 80 percent of the collections on the Forest to upgrade facilities in 1999.

Recommended Actions:

Continue to monitor.

Improve the campground operation and maintenance by using collected fees to upgrade and maintain our campgrounds.



MALHEUR MONITORING ITEM 3
Trail System

Question: How many miles of trail were maintained, constructed, and reconstructed for each type of trail that exists on the Forest?

Approximately 906.7 miles of trails were maintained on the Forest in FY 98.

Table M-1
TRAIL MAINTENANCE
Malheur National Forest

TYPE OF TRAIL	TOTAL MILES OF TRAIL	MILES MAINTAINED IN FY 98	MILES CONSTRUCTED/ RECONSTRUCTED IN FY 98
Wilderness	133.6	133.6	Reconstruct 5.9
All-purpose (hiking, horse, mtn biking, and motorized use)	46.9	46.9	Reconstruct 9.3
Non-motorized	79.9	79.9	Reconstruct 7.6
Foot-only (non-wilderness)	5.2	5.2	Construct 0.4
Barrier-free (handicapped accessible)	2.5	2.5	
Mountain bike	223.1	223.1	
Snowmobile	502.5	397.5	
Cross-country ski	8.0	8.0	
TOTALS	997.4	906.7	

All summer trails were maintained in 1998. Because of the reporting methodology, the Forest did not distinguish if they were maintained to standard or not to standard. Approximately 79 percent of the winter trails were maintained, however many trails are located on roads that received maintenance during the summer. Winter trail maintenance may not be to standard. Due to 10 percent funds, allowed approximately 30 percent of back log maintenance items to be completed on wilderness trails.

Approximately 7.6 miles of Malheur River Trail and 9.3 miles of Squaw Rock Trail were reconstructed, along with 5.9 miles of Pine Creek trail. Approximately 0.4 mile of a new interpretive trail was constructed. Preconstruction was accomplished for the Malheur Ford trailhead. NEPA is planned for completion on Riley Creek Trail reconstruction, Squaw Rock trailheads, and Craft Cabin Trail.

While Forest Plan projections for trail construction and reconstruction are not being met, some work is being accomplished on the higher priority projects with the funding the Forest received through the 10 percent funds.

Recommended Action:

Recreation Staff Officer will develop a standardized reporting format for trail maintenance.

MALHEUR MONITORING ITEM 6
Wilderness

Question: What is the current level of public acceptance and expectations regarding the current wilderness conditions?

The sources of information about the current level of public acceptance and expectations regarding wilderness conditions include verbal comments made in the office and to wilderness rangers in the field, as well as letters and comments on Visitor Registration Cards.

Strawberry Mountain Wilderness: No comments were received regarding air quality. Several comments regarding "no cows in wilderness" were received. It is not clear if the authors encountered cows in the wilderness or if it was a general comment. Comments were received about the amount of soil movement and loss of streamside vegetation along Indian Creek and Onion Creek following the 1996 Wildcat Fire. Tree mortality in the southeast section of the wilderness drew some comments. In regards to the issue of prescribed natural fire, the Forest received comments that varied from full support of the program to no support for fires during the summer months or in scenic areas visible to the John Day Valley. There were comments made about the loss of big game cover/habitat, and native and sensitive anadromous fish habitat in the Indian Creek subwatershed. Some people were very concerned about the impact to the scenery from the fire. Some negative comments were also received about the private logging adjacent to the wilderness boundary near Graham and Roberts creeks.

No concerns were received about camp sizes or locations, except for large camps set up prior to hunting seasons. Comments were received about users leaving camps too trashy. Users have the expectation that camps can be built anywhere and that they can have campfires at all times. The visual aspect of having boats and float tubes on the lakes has been identified as an issue. Concerns have been raised about float tube users kicking up soil on the bottom of the lake and leaving the water cloudy for hours afterwards. Visitors have expressed concern over the grazing of most of the forage at the small meadows near lakes, as well as over some hitching practices. There is a concern about the unauthorized use of mountain bikes on trails and ATVs and vehicles accessing the wilderness via old roads or mining roads. The rule prohibiting strollers in the wilderness also drew comments. Some hikers are concerned about others cutting switchbacks near Strawberry Campground.

There are concerns when trails are closed for safety purposes because users are sometimes inconvenienced by trail closure. There were several mixed comments regarding the new Slide Connector Trail #386. Many horse users felt the trail was dangerous for horses due to the bridge at the start of the trail, the narrow, steep portions of the trail that made horse packing almost impossible, and the fact that there was no connector trail to Strawberry Campground (they would have to ride their horses up/down the gravel road to make a "loop"). Other users felt the trail was great - no problem for horses at all. Compliments were received on the Slide Connector horseback trailhead facilities. There were comments that the trails needed maintenance sooner, immediately after the snow melts off. There were complaints about Onion Creek Trail (it's steep, poorly marked, hard to find in the snow, hard to find in the meadows). Comments were also received that the Forest should spend less time on the trail to Strawberry Lake and more time on Onion Creek trail. Compliments were received regarding trail maintenance on Strawberry Basin trail and on the new road surface to Strawberry Campground. There are requests for more horse facilities at trailheads (adequate parking and turnarounds, individual corrals, and a stock watering source within 100 yards).

There is high public acceptance for the Forest Service "presence" during the summer use season. Many people using the wilderness during this time are from outside the area and already practice some form of satisfactory wilderness ethics. There appears to be less acceptance of wilderness values by some local users. Some of the most significant problems are the use of ATVs, vehicles and snowmobiles on Baldy Mountain, caching of rafts (especially near Strawberry Lake), caching of camps and supplies at various locations, and tethering horses to trees in camps and on trails.

Monument Rock Wilderness - No comments have been received about air quality, soil retention, fish and wildlife, prescribed natural fires, or scenery. The public has expressed concern about the amount of fuel loading in the Little Malheur River drainage, and the high risk of catastrophic fire due to lightning. Compliments were received about the limited livestock use at Bullrun Spring, but there were some concerns that hunters had put stock in the exclosure and overgrazed the vegetation. Negative comments were received about sheep in the wilderness and how they affect big game (generally) and sheep use around Rock Springs (specifically). Positive comments regarding the sheep use in other areas of the wilderness were also received. Favorable comments were received about a new fence that eliminated livestock along the lower 1.5 miles of the Little Malheur River.

No comments were received regarding camp sites or locations. Some visitors have expectations that camps can be built anywhere. Concerns have been expressed over recreational livestock grazing all the forage at small meadows (i.e., Bull Run and Rock Springs).

Both Wildernesses: Visitors feel generally favorable about trail condition, length, number, and destination. Comments were received about horses leaving manure on trails and breaking down the trail tread. Some folks want to have trail names on the wilderness map. More signs in the wilderness that give distances to destinations are desired by some users; however, putting up additional signs would mean that we would not meet Forest Plan standards for signing in the wilderness. Some users have requested being able to hire outfitters/guides for services such as drop camps and hunting, and some outfitter/guides have requested permits to conduct services. There were no comments from the public on the backpacking outfitter/guides permit issued for the Strawberry Wilderness in 1998.

There is high public acceptance for the Forest Service "presence" during the summer use season. Many of the wilderness violations (i.e., use of motorized vehicles, use of game carts, chain saw used to cut firewood/clear late season blow down, leaving trash) tend to occur during hunting season, when contact with wilderness rangers or law enforcement officers is very low.

No formal monitoring for public acceptance and expectations of wilderness experiences was done, but we did receive many informal comments, as discussed above, which gave some fairly reliable information. Most responses can be dealt with by the wilderness rangers and receptionists if they are properly trained. Some of the comments are good information that can be used by the manager responsible for wilderness areas in work planning for the following year. There is a need to emphasize wilderness patrols for the education and enforcement of wilderness values during hunting season. Due to low funding, it is unlikely that the Forest will be able to have as many wilderness patrols as needed.

Recommended Actions:

Complete the Levels of Acceptable Change (LAC) and the capacity study for determining the need for Outfitters and Guides.

Emphasize having wilderness patrols during hunting seasons.

MALHEUR MONITORING ITEM 7
Wild and Scenic Rivers

Question: Are the free-flowing characteristics, water quality, and outstandingly remarkable values of Designated Rivers being protected and enhanced in a manner consistent with the standards and guidelines of the Forest Plan?

Specific questions relating to the values are from the River Management Plans.

NORTH FORK MALHEUR SCENIC RIVER MANAGEMENT PLAN

Are scenic values being maintained in project implementation?
No projects such as timber harvest, prescribed burning or road construction have occurred in the area this year.

Are scenic values being enhanced in the river segment?
No projects were undertaken that would enhance the river's scenic values, due to lack of funding for any type of project work. Higher priority work is being conducted outside the Wild and Scenic River corridor.

Are old growth characteristics being maintained consistent with desired conditions?
No quantifiable surveys have been done to validate the desired conditions but existing characteristics are being maintained. Natural processes are being allowed to work except fire is still being suppressed and some human activities may have some effects. A fire, possibly started by recreationists, was suppressed with light hand on the land techniques in late fall.

Is forage utilization within standards?
In most cases, forage utilization is meeting the standards. Inspections in the riparian areas located within the corridor for each allotment/unit showed the following:

Table M-2
RANGE UTILIZATION WITHIN THE NORTH FORK MALHEUR RIVER WILD AND SCENIC CORRIDOR
Malheur National Forest

Spring Creek:	North River Unit	Meets standard
	South River Unit	Meets standard
	River holding	Meets standard
	Bucktrough	Meets standard
	Elk Flat Unit	Meets standard
North Fork:	North River Unit	Meets standard
	South River Unit	Meets standard
Flag Prairie:	River Unit	Meets standard
Ott:	Rattlesnake Unit	Meets standard

A few negative comments about livestock use were reported. One dealt with the presence of livestock in the Crane Crossing area near the campground. Although a fence normally excludes livestock from the camping area, the permittee is still allowed to have livestock in the unit for 2 days while he moves his cattle from east to west across the allotment. The complaint was received after the cattle had been in the area for 2 days. Another comment came from a hiker using the trail after cattle were trailed off of the Flag Prairie River unit. The hiker complained about manure on the trail. A follow-up inspection to review his concerns, and phone call with more information was well received. The third comment came from the USFWS during their fall bull trout tour. They would like to see less use of riparian vegetation in the Crane Creek confluence area and up Crane Creek itself. They had compliments for the other sections of river seen during their tour.

How are riparian elements of desired future conditions (DFCs) changing through time?

Elements of streambank stability, increased shading, and shrub composition are variable due to livestock and big game use. They are improving in some areas and declining in other smaller areas (<15% of the total riparian area of the grazing unit) with concentrated livestock/ungulate use. Sedimentation, embeddedness, herbaceous and tree canopy are remaining static. A Challenge Cost Share (CCS) survey for bull trout migration and identifying spawning areas was conducted this summer and should be available from the District or SO fisheries departments. Information about the use of cold water refugias which was collected in FY 97 is still not available.

What are water temperatures within the drainage?

Water temperature data were collected on a representative number of streams influencing the river from May/early June through mid-November. The State standards for streams with bull trout is 50°F or lower and without bull trout is 64°F. The distance from the Wild and Scenic River boundary varies as indicated below. Days exceeding the 7-day maximum standard are represented.

Table M-3
STREAM TEMPERATURES WITHIN THE NORTH FORK MALHEUR RIVER WILD AND SCENIC CORRIDOR
Malheur National Forest

Stream	Maximum Temperature °F	Temperature Standard	Days Exceeded 50°F Temperature	Distance From Corridor
Sheep Creek	56.1	50°	0	200 ft.
Lower Crane Creek	69.8	50°	42	600 ft.
Upper NF Malheur River	60.8	50°	0	within
Lower NF Malheur River	74.3	50°	107**	within
Elk Creek	54.5	50°	79	500 ft.

Note: All of the above streams have bull trout so the 50°F standard applies. (The 64°F standard is shown for reference.)
**Temperatures exceeded 50°F when monitor was installed.

What are stream sediment and turbidity levels?

This element was not monitored in Fiscal Year 1998.

What other pollutants are present within the river?

No formal sampling surveys were conducted. Seasonal pollutants of fecal coliform (cattle and other ungulates) occur. Minor incidental pollutants from users' wash water, and oil and gas pollutants from vehicles using the bridge and river ford crossings may also occur.

MALHEUR WILD AND SCENIC RIVER MANAGEMENT PLAN

Are scenic values being maintained in project implementation?

Yes. The reconstruction of the Malheur River Ford and Trailhead was designed by the District Landscape Architect (LA) and reviewed by the Forest LA. The project entailed moving the trailhead sign and trail to the west out of the meadow. Future proposals include moving the toilet uphill, adding barrier rocks for parking control, enhancing the ford, and adding a barrier free site. No concerns were received about livestock use at the Malheur Ford.

Are scenic values being enhanced in the river segment?

See comments above.

Are old growth characteristics being maintained consistent with desired conditions?

No quantifiable surveys have been done to validate the desired conditions but existing characteristics are being maintained. Natural processes are being allowed to work except fire is still being suppressed and some human activities may have some effects. A fire, possibly started by recreationists, was suppressed with light hand on the land techniques in late fall.

Is forage utilization within standards?
Yes, see the following table for inspection results in the riparian areas located within the Corridor for each allotment/unit.

Table M-4
RANGE UTILIZATION WITHIN THE MALHEUR RIVER WILD AND SCENIC CORRIDOR
Malheur National Forest

Star Glade:	South Unit	Meets standard
Dollar basin:	Dollar Unit	Meets standard
Bluebucket:	Rock Springs	Meets standard
	Cougar Unit	Meets standard

No concerns were received about livestock use at Malheur Ford.

How are riparian elements of desired future conditions (DFCs) changing through time?

Elements of streambank stability, increased shading, and shrub composition are variable due to livestock and big game use. They are improving in some areas and declining in other smaller areas (<15% of the total riparian area of the grazing unit) with concentrated livestock/ungulate use. Sedimentation, embeddedness, herbaceous and tree canopy are remaining static.

A Challenge Cost Share survey for bull trout migration and identifying spawning areas was conducted this summer and should be available from the District or SO fisheries departments. Information about the of cold water refugias which was done in FY 97 is still not available.

What are the water temperatures within the drainage?

Water temperature data were collected on a representative number of streams influencing the river from late May through mid-November. The State standards for streams with bull trout are 50° F and 64° F for streams without bull trout. The distance from the Wild and Scenic River boundary varies as indicated in the following table:

Table M-5
STREAM TEMPERATURES WITHIN THE MALHEUR RIVER WILD AND SCENIC CORRIDOR
Malheur National Forest

Stream	Maximum Temperature °F	Temperature Standard	Days Exceeded 50°F Standard	Distance From Corridor
Upper Malheur River (Malheur Ford)	77.0	50°	76	within
Lower Summit Creek (at Larch Creek)	78.8	50°	88	2.5 miles

What are the stream sediment and turbidity levels?

This element was not monitored in Fiscal Year 1998.

What other pollutants are present within the river?

No formal sampling surveys were conducted. Seasonal pollutants of fecal coliform (cattle and other ungulates) occur. Minor incidental pollutants from users' wash water, and oil and gas pollutants from vehicles using the river ford crossing may also occur.

Most Wild and Scenic characteristics, qualities, and values are being protected in a manner consistent with the standards and guidelines in the Forest Plan. However, there is room for improvement in regards to high water temperatures and range utilization in selected locations. Also, enhancement projects have not been implemented due to lack of funding.

Recommended Action:

Continue with monitoring and make range administration a high priority.

MALHEUR MONITORING ITEM 8

Cultural and Historic Site Protection

Question: Are the unevaluated and eligible cultural resource sites being protected so as to not compromise their potential National Register eligibility?

Two hundred and three (203) archaeological and historic sites were monitored in 1998. This is 7 percent of the approximately 3,000 known National Register eligible and undetermined sites on the Forest. Thirteen (6%) of the monitored sites showed some degree of impact by human activities (4 timber harvest related, 3 grazing related, 2 looting/vandalism, 4 recreation). None of these impacts were significant enough to adversely affect those aspects of the sites which make them eligible or potentially eligible for inclusion in the National Register of Historic Places. This is similar to the results reported during 1997 with the exception that no sites were adversely impacted by wildfire like the 18 historic structures lost or damaged during the Summit Fire.

Table M-6
ARCHAEOLOGICAL AND HISTORIC SITE SUMMARY
Malheur National Forest

year	# of sites monitored	# of sites impacted	# of sites adversely effected	effect = timber harvest	effect = wildfire / suppression	effect = grazing	effect = looting vandalism	effect= recre-ation	effect= natural erosion
1998	203	13	0	4	0	3	2	4	0
1997	232	29	18	4	18	4	1	1	1

National Register eligible or undetermined sites 1997-1998

Recommended Action:

Coordinate future monitoring with Wallowa-Whitman and Umatilla National Forests.

MALHEUR MONITORING ITEM 9
Visuals

Question: Are the Visual Quality Objective (VQO) standards being met?

One timber sale within a visual corridor, with a visual quality objective of Partial Retention, was monitored in 1998. Portions of the timber sale were planned with the intent to mimic natural openings. The remaining ponderosa pine and tamarack/larch were to be highlighted while still meeting timber management needs. Units were laid out in a square shape with designated areas of trees of less thinning with the intent that the remaining trees would break up the overall geometric shape.

During a winter monitoring trip, it was apparent that the shape of the square unit was highlighted due to the contrast between the snow covered ground and the surrounding dense vegetation. The trees that were left were predominately tamarack/larch which lose their needles in the winter. The leave trees were not effective in breaking up the geometric shape of the unit. A summer trip to the same area shows that the leave islands were successful in breaking up the geometric shape of the unit. Other effects of logging were not obvious as a helicopter was used to log the unit.

In summary, the area monitored does meet the visual quality objective of Partial Retention, as outlined in the Malheur NF Land and Resource Management Plan during the summer months. During winter months, depending on the amount of snowfall, these units may not meet Partial Retention, due to the angular geometric shape and the ineffectiveness of the leave islands of tamarack/larch trees.

Recommended Action:

In addition to monitoring timber sales, monitor other practices within visual corridors such as prescribed burning, road maintenance practices and recreation improvements.

MALHEUR MONITORING ITEM 10
Resident Fish Habitat

Questions: Are standards and Guidelines for Non-Anadromous Riparian Areas and related BMP's being applied in MA 3A and MA 14 as directed by the Forest Plan? Is the base line data being collected and analyzed for all proposed projects in MA 3A? Are site-specific desired future conditions being established for resident fish habitat?

Standards are being applied. Burns Ranger District did enter some RHCA's to rehabilitate some declining aspen stands. Prairie City Ranger District reported that Standards and Guidelines were being applied in Timber Sale implementation primarily by avoidance. With cattle grazing, meeting riparian management objectives is more difficult and is not typically achieved. Many of the MA 3A areas are experiencing slow recovery due to overgrazing or trampling by cattle. On Bear Valley Ranger District, small project decision memos dealing with fish and wildlife restoration, range spring developments, and KV enhancement projects are applying standards and guides established under the Interim INFISH Strategy. Analyses were conducted on 11 spring sites, 2 range fence projects, one special use permit renewal, one ODFW stream monitoring weir project, 2 silvicultural post sale treatments, 1 KV project and one prescribed fire project.

Burns Ranger District did 24 miles of level II stream surveys and 60 miles total. Prairie City Ranger District conducted 8.8 miles of bull trout spawning in cooperation with the Burns Paiute Tribe and the Oregon Department of Fish and Wildlife. Locations of bull trout and redds were recorded and entered into GIS. Region 6 Level II surveys are being done as part of all timber sale analyses. Additional stream surveys are done on non-fish bearing streams with a technique developed by district personnel. Bull trout movement was monitored by tracking radio tagged fish with telemetry in the summer and fall. This information will be used to better define their habitat.

On Bear Valley Ranger District, existing data on inland projects provided the necessary baseline needed for analysis of the FY 1998 projects. No new surveys were conducted this past season. The Bear Valley District has 10 miles of inland streams left to survey under the Regional protocol.

Watershed analyses include recommendations describing the desired conditions of the watershed.

Recommended Action:

Coordinate the future monitoring strategy with the Umatilla and Wallowa-Whitman National Forests.

MALHEUR MONITORING ITEM 11
Anadromous Fish Habitat

Questions: Are standards and Guidelines for Anadromous Riparian Areas and related BMP's being applied in MA 3B and MA 14 as directed by the Forest Plan? Is the base line data being collected and analyzed for all proposed projects in MA 3B? Are site-specific desired future conditions being established for anadromous fish habitat?

Prairie City Ranger District reported that Standards and Guidelines were being applied in Timber Sale implementation primarily by avoidance. With cattle grazing, meeting riparian management objectives is more difficult and is not typically achieved. Most of the MA 3A areas are experiencing very slow recovery of continued declines due to overgrazing or trampling by cattle.

On Bear Valley and Long Creek Ranger Districts, small and large project analyses are applying PACFISH standards and guidelines established under the Interim Strategy. Bear Valley conducted analyses on one prescribed fire (ongoing), one road improvement project (ongoing), two recreation projects, a land exchange project and one small timer sale. Bear Valley also has one large timber sale and one range AMP analysis nearly complete. Long Creek Ranger District reviewed all projects taking place in bull trout waters to ensure compliance with PACFISH and to conference with U.S. Fish and Wildlife Service. Long Creek also worked on small sales, road projects, spring development and fence projects, two underburns and a land exchange

Burns did not do any stream surveys because of limited funding. Prairie City Ranger District conducted spawning surveys two times in Clear Creek. Locations of bull trout and redds were recorded. Region 6 Level II surveys are being done as part of all timber sale analyses. Additional stream surveys are done on non-fish bearing streams with a technique developed by district personnel. Sixteen and one half miles of riparian vegetation surveys on Bear Valley RD needed for upcoming AMP's were done along with 6.5 miles of Hankin and Reeves Surveys on Long Creek RD's Bear Creek.

Watershed analyses include recommendations describing the desired conditions of the watershed. Bear Valley worked on Upper Silvies, Long Creek worked on the Upper Middle Fork of the John Day with Prairie City and on the Galena Ecosystem Analyses. Movement towards desired future conditions is occurring with riparian planting and protection on Summit and with road restoration projects in the Murderer's Creek subwatershed.

Recommended Action:

Coordinate the future monitoring strategy with the Umatilla and Wallowa-Whitman National Forests.

MALHEUR MONITORING ITEM 12
Dead and Defective Tree Habitat

Question: Are the number and distribution of snags, replacement trees, and down logs, prescribed in site-specific planning efforts being retained following management activities?

Dead wood inventories were conducted on two fire salvage sales on the Malheur National Forest, the Jordan Spring Salvage Sale (Burns Ranger District) and the Summit Fire Recovery Project (Long Creek/Bear Valley Ranger Districts). Snag retention levels for Jordan Springs was set at 125 percent potential woodpecker population level (PPL) and all live trees were to be retained in order to provide future snags. There was no snag data for pre-fire or pre-salvage operations. Post-salvage percent PPL was 100 percent in 5 units monitored. Biologists assumed that dead wood within the RHCAs would supplement this shortfall. Within the Summit Fire Project trees necessary to meet Standards were marked as leave trees. Several units had marked trees felled for safety concerns. Where possible similar trees were substituted. At this time approximately 50 trees were felled with no replacement trees designated. This shortfall has been documented yet is not considered significant due to the size of the burn and the numerous snags being retained that exceed Standards.

On the Prairie City Ranger District, 13 units within the Genesis demonstration area (Raven and Snake Timber Sales) were monitored for dead wood. The units had post-harvest data available and had prescribed burning completed or planned (Snake 57). The intent of the survey was to determine the effects of prescribed burning on downed dead wood retention requirements. The relative number of snags and green replacement trees were also noted but not tallied. All units were surveyed with transects after treatment. Six of the 13 units did not meet the downed log requirement of three pieces per acre*. Snake 57 had six pieces per acre pre-burn. Post-burn monitoring has not occurred in this unit. Snags and green replacement trees did not appear to meet Standards following sale activities. Due to shortfalls in snags some green trees were girdled with the intent of providing snags in the short-term and downed logs in the future.
*Genesis was planned prior to the Regional Forester's Amendment #2.

As part of the Silvies Canyon Watershed Assessment (Burns Ranger District), dead wood surveys have been conducted on 3 percent (158 acres) of the forested stands within the watershed. Average snags per acre greater than 12" dbh were 1.47. Only 15 percent of the stands surveyed are meeting snag Standards. Downed wood levels were 3.85 pieces per acre on average and 67 percent of the stands surveyed met Standards.

Pre-project surveys for downed wood on the Parasol Vegetation Project (Burns Ranger District) reported only 11 percent of the area meets Standards. Green tree retention did meet guidelines to ensure long term snag and downed wood Standards. Monitoring and requirements to meet Standards following harvest are included in the EA.

Recommended Action:

Coordinate future monitoring with Wallowa-Whitman and Umatilla National Forests.

MALHEUR MONITORING ITEM 14
Old Growth Habitat

Question: Are dedicated old growth areas providing suitable habitat for MIS, including meeting distribution patterns of these species? If not, are site specific planning efforts analyzing and prescribing needed changes to improve the situation, including moving and /or modifying areas to provide suitable habitat when needed? Are these changes or prescriptions maintained following management activities?

To insure that designated old growth areas (DOGs) best meet old growth definitions and characteristics and that each designated area has an identified replacement old growth (ROG) that has the capability of providing old growth habitat in the future. Monitoring and analysis is conducted through the project level evaluation process.

Currently, DOG 2031 and 2044 on the Burns Ranger District do not have designated ROG's. Additionally one DOG does not meet Regional old growth definitions and is not providing suitable MIS habitat. DOG 2031 will be relocated to a 378 acre area that meets the regional old growth definitions. Of the 473 acres currently designated as DOG 2031, only 46 acres meet the regional old growth characteristics. ROG areas for both the "new" DOG 2031 and DOG 2044 will be designated. These ROG areas will be treated by prescribed burning and pre-commercial thinning to promote old growth characteristics and structure.

These actions, relocating of DOG 2031, designating ROGs, pre-commercial thinning, and prescribed burning, all have the following objectives: 1) reduce the number of small understory trees that are competing with the large overstory trees, or 2) increase the growth of residual trees so that they can grow larger more quickly and begin to function as late and old structure sooner, or 3) preserve the stands that have late and old structure. These activities would increase the long-term sustainability of the Late and Old forest stands in the area. The "new" DOG 2031 and ROGs will be monitored after treatments as directed in the EA. This will be done by photo points and wildlife transects. A monitoring report will follow shortly afterwards.

Within the Clear Timber Sale Area on Prairie City Ranger District analysis indicated that three DOGs and associated ROGs needed attention. One DOG was moved to a new location and a ROG was designated. The "new" DOG was moved to an area that had a greater component of large trees. Downed wood is low within the "new" DOG and a decision was made to fell some medium sized trees to provide more habitat for American marten. Completion of the log falling is dependent on funding in 1999. Two other DOGs and ROGs had boundary adjustments. Adjustments were made so that boundaries follow forested stands and roads. MIS habitat was improved by increasing the size of the DOGs and ROGs.

Recommended Action:

Continue monitoring.

MALHEUR MONITORING ITEM 15
Proposed/Threatened/Endangered/Sensitive Species

Question: Are protection and enhancement measures for proposed, threatened and endangered species prescribed in site-specific planning efforts implemented as described?

Bald Eagles - Active roosts and nests are monitored yearly and have written management plans.

The Rattlesnake Bald Eagle Roost stand (Burns Ranger District) was showing signs of being over stocked. Many of the larger ponderosa pine trees, trees used as roost trees by the eagles, were beginning to die off. To ensure the prolonged life of these large trees stocking reduction needed to be done. The District's silviculturist created a thinning prescription specifically for this eagle roost and this prescription was carried out by District personnel. Fifteen acres of the Rattlesnake bald eagle roost were identified for thinning. Approximately 20 acres were thinned and piled. 1999 bald eagle roost counts will help determine what effect this activity had on eagle use of the roost site. These counts occur in March of each year.

The Scotty and Trio Timber Sales on Long Creek/Bear Valley Ranger Districts had a winter haul past a winter bald eagle roost. Timing restrictions were applied to prevent disturbance to roosting eagles. This was monitored in 1998. The haul restriction was violated on 2 days (log trucks hauling past the roost during restricted hours). This may have occurred at other times when the site was not being monitored. The contractor was contacted by the sale administrator to stop the violation.

Peregrine Falcons/Canadian Lynx - No site-specific plans were implemented that included potential peregrine falcon habitat. There have been no conferences with the USFWS for lynx habitat in 1998.

Questions: Is management of proposed, threatened and endangered species across the Forest meeting Forest Plan Standards and goals and objectives of recovery plans? What is the population and distribution status and trend for these species?

Bald Eagle Nest and Winter Roost Monitoring - The South Silvies bald eagle nest site (Burns Ranger District) is a recently (1991) documented nest in SE Oregon. Nesting/breeding activity was observed in April 1991, and two young were fledged in July 1991. Continued monitoring of this nest indicate that this eagle pair has a strong site fidelity to this nest. These birds are known to have a nest there for the last 8 years (1992-1998) and have been successful at rearing young 6 out of 8 years. In 1995 and 96, nesting was attempted but no young were produced. On May 21, 1998, occupancy and possible incubation was determined during a site visit by district wildlife biologists. A follow-up visit was conducted on June, 30 1998, to determine if and how many nestlings were present in the nest. During this visit, one fully feathered nestling was observed perched in the nest tree near the nest platform. Based on these observations, this breeding territory is considered successful for 1998.

Several communal winter roost sites have been identified on the Malheur National Forest with the majority occurring on the Burns Ranger District. Roost sites are still being discovered and vary as to location and use, according to food supply and availability of roost trees.

Bald eagle winter roosts have been monitored in the Harney Basin for several years as part of a joint effort between the Forest Service, Fish and Wildlife Service, Oregon State University, Bureau of Land Management, and many local partners. In 1998, partners have played an important part in assisting Burns District wildlife personnel perform surveys.

1998 National Wildlife Federation and Oregon Midwinter Bald Eagle Count

Morning mid winter bald eagle counts at the Coffeepot observation point identified a total of eleven (7 adult, and 4 immature) eagles flying out from the Coffeepot roost on January 8th. This number represents 19 percent of all eagles observed during the 1997 midwinter count and a 42 percent decrease of last year's mid winter roost count. 1997 was a record year with 19 eagles counted. The 8-year average for the Coffeepot roost is 6.75 eagles (range 19 - 1). When the 1998 count is compared to the 8-year average and with the last 8 years of data an upward trend is observed. A point of interest is that the Rattlesnake roost, some 1.5 miles to the NE, from the Coffeepot roost, had 25 eagles in 1998 and only three eagles in 1997. This may be showing that the eagles using these two roosts switch between roost from year to year or maybe even day to day.

1998 Harney Basin Coordinated Bald Eagle Counts

This year counts were conducted from 16 historical observation sites, with each being counted one day a week, for four consecutive weeks beginning late February. Evening counts are conducted on ten sites and morning counts are done on the remaining six. Morning eagle counts at the Coffeepot observation point (one of two known active roost sites on the Burns ranger district) revealed a high for the year of 46 eagles flying out from the roost on March 18 and a total of 120 eagles flying from the roost during the survey period. This number represents a decrease of 26 percent over last year, but is still greater than the 8-year average (12% increase over 1996). Rattlesnake and Coffeepot drainages continue to hold over 50 percent of the eagles during peak counts and during the entire survey period for the Harney Basin.

Peregrine Falcons/Canadian Lynx - There has been no management specific to lynx or peregrine falcons. Mitigation to maintain habitat is included in site-specific plans where suitable habitat exists. Population and distribution status is unknown for these species. Lynx sightings have been reported on the Prairie City Ranger District.

Question: Are Biological Evaluations being prepared and enhancement measures for sensitive species prescribed in site-specific planning efforts implemented as described?

All planning efforts are in compliance with the NFMA and biological evaluations are written for all ground or vegetation disturbing activities. Many planning efforts contain activities specifically designed to enhance sensitive species habitats, and if necessary, mitigation measures are used for other activities that do not enhance habitats.

The Malheur National Forest recognizes that aspen stands, a habitat type used by Preble's shrews as well as management indicator species and many other animal species, are declining across the Region. A continuing effort is being made to document and enhance these aspen stands whenever possible. Ongoing monitoring efforts will, hopefully, demonstrate the effectiveness of these treatments. On the Burns Ranger District, the Parasol Vegetation and Watershed Management Project has 28 acres of aspen rehabilitation of which one objective is to improve habitat conditions for Preble's Shrews. In addition, the Badger Timber Sale will treat 23 acres of aspen stands in 1999, and it is planned to rehabilitate a total of 143 acres in the next 5 years. An additional 28 acres of aspen stands had conifer removal to promote aspen regeneration, 11 acres were fenced, and 20 cages installed to protect aspen regeneration.

Two, 300-bat capacity, bat roost boxes were installed under the 31 road, Silvies River Bridge, this summer to provide more habitat for a variety of bats. These will be monitored at least once every summer.

To help meet snag density objectives for management indicator species on the Burns Ranger District four trees were girdled in Lems Ideal Timber Sale area. Ninety-six ponderosa pine trees were released from competition by falling all < 15"dbh trees within the drip line in the following timber sales: Frost, West Myrtle, and Mosier. These trees also had their positions GPSed and they along with an addition 81 trees (177 in all) will be part of a snag inoculation project being conducted on the Burns Ranger District in cooperation with PNW-La Grande lab. Inoculation is scheduled to occur in 1999.

Prairie City Ranger District conducted implementation monitoring for upland sandpipers in Logan Valley. A project to reduce lodgepole pine encroachment on the meadow has resulted in cutting trees in 1998. Slash burning is proposed for 1999.

Nine Biological Assessments (BA's) were prepared on the Long Creek and Prairie City Ranger Districts for Bull Trout and were sent to the USFWS for concurrence. Close monitoring of grazing activities were implemented during the season to insure compliance with special restrictions identified in the BA's.

Question # 6: Is management of sensitive species across the Forest: 1) meeting Forest Plan Standards; 2) goals and objectives of conservation strategies; and 3) resulting in activities which do not contribute to the loss of viability of any native or desirable non-native plant or animal species and will not cause species to move towards federal listing? What is the population and distribution status and trend for these species?

All management activities on the Malheur National Forest go through an interdisciplinary team process which filters out most activities that will negatively impact sensitive species. Any other potential impacts are mitigated to reduce or eliminate any negative impacts to sensitive species through the Biological Evaluations. To date, no sensitive species on the Malheur National Forest have been moved to federal listing due to activities conducted on the Forest.

Currently the Malheur National Forest does not monitor population viability or conduct distribution studies for any species. We do, however, attempt to maintain important habitats and habitat features that sensitive species require to maintain viable populations (i.e. snags/large woody material). For actual species numbers and distributions refer to ODF&W or USFWS.

Surveys for Luina serpentina have been conducted in proposed underburn areas on Long Creek Ranger District in order to meet the conservation strategy for that species. Upland sandpiper surveys are ongoing on Prairie City Ranger District. No upland sandpipers were seen in 1998. Habitat management projects for this species are described above.

Recommended Action:

Coordinate future monitoring with Wallowa-Whitman and Umatilla National Forests.

MALHEUR MONITORING ITEM 16
Raptor Nest Sites

Question # 2: Are prescriptions for raptors nest site protection and associated fledgling areas or similar measures identified in site-specific planning efforts and are these measures implemented as described following management activities?

The Regional Forester's Forest Plan Amendment # 2, June 1995 is followed and all known northern goshawk nest sites are protected, an associated post-fledging area (PFA) is established, and timing restrictions are applied to activities within territories active during the past five years. All other raptor nest sites are protected with at least a $\geq$ 50 foot no cut buffer and a seasonal restriction of operations, if appropriate, are applied.

On the Burns Ranger District, the Parasol Vegetation and Watershed Management Project has one known northern goshawk nest site. This nest site was given a 30-acre no-cut buffer and a seasonal restriction. A PFA was established for this nest site. Two northern goshawk nest sites were discovered in the Badger Timber Sale area. These nest sites have been given the same protections.

Long Creek/Bear Valley Ranger Districts have prescribed protection measures (nest cutting buffers, modified harvest prescriptions and timing restrictions) for all known raptor nest sites and fledgling areas in the Summit Fire Recovery Project SEIS. This includes the nest and fledgling areas for northern goshawk, Cooper's hawk, and great gray owl. Red-tailed hawk nest sites were also protected. Monitoring trips by biologist staff have shown that these prescriptions were implemented. Layout and marking crews and the sale administrators have been very cooperative in implementing this protection. Goshawk PFAs were established and timing restrictions were applied and followed on the 96 II SS Timber Sale and the Scotty Timber Sale.

Prairie City Ranger District did not conduct any raptor nest site monitoring in 1998.

Question # 3: Were the protection measures implemented successful in meeting Forest Plan Objectives?

Nest site protections and seasonal restrictions on operations in the immediate area have been respected on the Burns Ranger District. The nest site areas mentioned in question 2 will be monitored Spring 1999 to see if the protection measures were effective.

The protections placed on nest sites on Long Creek/Bear Valley Ranger Districts appeared to allow the young to successfully fledge (great gray owl young were seen near the Summit nest sites) and the nest groves retained the structure that would allow future nesting.

Prairie City Ranger District did not conduct any raptor nest site monitoring in 1998.

Recommended Action:

Coordinate future monitoring with Wallowa-Whitman and Umatilla National Forests.

MALHEUR MONITORING ITEM 30
Water Resources

Question: Is the Forest complying with the Clean Water Act and the MOU with the State of Oregon by properly implementing Forest Plan Standards for water quality protection? (Forest-wide Standards 117-120 and applicable Management Area specific standards)

The Forest continued to focus on water quality protection in FY 1998. Key to the water quality program is providing cool water to support the beneficial uses of the Malheur National Forest streams. Equally important to the water quality program is implementation of recommended best management practices and determination of effectiveness.

Water Temperature:
Oregon's Department of Environmental Quality's 1998 303(d) list of water quality limited stream segments identified 69 streams on the Malheur National Forest as being temperature limited. The goal of the Forest's water temperature program is to monitor stream water temperatures from the major fish-bearing waters on the Forest. Stream temperatures were monitored at 77 locations across 8 watersheds. Work was accomplished by both Forest personnel and private cooperators through a challenge cost share project with The Nature Conservancy in the Middle Fork of the John Day River basin. Data from these sites has not been analyzed to date.

Best Management Practices:
A main focus for evaluating BMPs this year concentrated on prescribed riparian habitat conservation areas (RHCAs): were they properly implemented and were resources protected? RHCAs on the Summit timber sale were checked for proper layout on approximately 50 units affecting 120 stream segments. Initial compliance showed good attention had been given marking of RHCAs. Following findings of the monitoring, a few boundaries were re-marked to bring compliance of the RHCAs to 100 percent of recommendations. A monitoring team did observe skidding had occurred down some ephemeral streams, due to lack of classification of these drainages. Interception of subsurface can result from skidding in these drainages. Monitoring of prescribed fire units on the Forest observed that low intensity fires were allowed to back into riparian areas with no adverse effects to the water quality. Sediment caused by prescribed fire did not appear to reach any streams.

Skid trail and road conditions on timber sales were observed for implementation of BMPs and maintenance needs. Some trails were noted with soil displacement and were rehabilitated to reduce risk of erosion and sediment transport. Roads were allowed to dry and haul of logs were curtailed to reduce damage to the road surface and reduce sediment.

Ancillary to the water quality program was testing of campground water quality, and review of sanitation facilities and refuse disposal. Ten campgrounds and one organizational camp were checked and passed review.

Recommendations:

Continue to monitor stream temperatures at the recommended Level A and B of Oregon DEQ protocols. Assess causes and determine restoration needs to bring stream temperatures into compliance with state water quality standards. Work toward de-listing of identified 303(d) streams on the Forest.

Find ways to get stream temperature data analyzed.

Continue to closely monitor implementation of BMPs and follow up with needed corrections and maintenance.

Proper classification and mapping of ephemeral drainages is needed. Protection must be given to these drainages when locating skid trails and landings.

MALHEUR MONITORING ITEM 32
Soil Resources

Question: Is the Forest complying with Regional guidelines for the protection of soil resources by properly implementing Forest Plan Standards for the protection of soil resources? (Forest-wide standards 125-129)

The focus of the Tri-Forest Monitoring Team for the Blue Mountain forests centered on prescribed fires where observations were made related to soil and water quality BMPs. The two monitored prescribed fires burned at low intensity and the effects to the soils were neutral. The duff layer was mostly intact with no signs of overland flow or sediment movement. A few localized areas were severely burned, resulting in some minor erosion but overall effects were well within Forest Plan standards. Sediment did not appear to reach any streams.

A study was conducted by the Long Creek/Bear Valley district soil scientist to determine transport distances of sediment from roads in the Swamp planning area in the upper Silvies River watershed. A total of 35 points were observed along older, well vegetated roads and measured for sediment movement from the road surface At only two points did sediment travel more than 50 feet from the road. Those points were at locations where ground cover was minimal and soils were shallow. Sediment flows stopped before reaching 50 feet from road edge and only a very small amount of sediment was transported at the remaining 33 sites. This study suggested that within this planning area, because of characteristic soils, slopes, and precipitation; buffers between proposed activities and streams may be sufficient at 50 feet.

Monitoring of 3 units on the Prairie City District where a winged subsoiler was used to restore compacted areas showed full compliance with implementation and effectiveness with project objectives. This project was a rework of initial treatment.

Recommended Actions:

Continue to promote low intensity prescribed fires to protect the long term productivity of the soil resources.

Incorporate site specific recommendations for protection of the soil resources when assessing effects from management activities, based on local characteristics of the watershed and soil types.

Continue to utilize and evaluate winged subsoiling as a treatment for decompaction and restoring site productivity.

MALHEUR MONITORING ITEM 33
Minerals

Questions: Do mining operations meet Forest Management Goals and Forest Plan Management Area Standards and Guidelines? Are lands disturbed by mining being reclaimed to a use consistent with rehabilitation standards and guidelines contained in the Forest Plan? Are the rehabilitation standards for mineral operations effective (Forest-wide #139)?

Mining activities have remained low compared with the number of active operations approximately 15 years ago. This low activity level is due to the current low gold and silver prices.

Standards were met on all inspected active mining operations covered by operating plans.

Four active mining operations on the Forest were covered by plan of operation. Two of these operations are bonded. All were reviewed and are working within their plan.

All authorized Notices of Intent were reviewed by a team of resource specialists prior to authorization to ensure these small operations meet Forest Plan standards. All of the active operations inspected were meeting or were brought into compliance with Forest standards and guidelines. No heritage sites associated with mining were identified this year.

One bonded Plan of Operations on the Burns Ranger District will be closed in 1999. There were no mining operations on the Bear Valley or Prairie City Ranger Districts in 1998.

The Forest has an active non-locatable (common varieties) minerals program with an increased demand for this type of product developing over the past 2 years. Operating plans are developed for the larger material extractions, with smaller entries on a case-by-case basis. Informal coordination between the District minerals technicians and the Forest minerals coordinator has resulted in consistency across the Forest.

Although not specifically identified in the Forest Plan, cabin occupancy associated with mining is a lingering concern. Currently there are six unauthorized cabins being used and maintained. Two other cabins are covered by plan of operation. All cabins require close monitoring to insure proper use.

There are currently no oil and gas leases on the Forest.

Operating plans contain specific procedures that are required of the operator after mining is completed. The intent is to return the site to the condition that existed prior to mining. It is recognized, however, that the change may have improved the area and be allowed to remain, like a settling pond being left for wetland habitat, a bat gate installation in an abandoned adit to provide for bat sanctuary, and structures left for cultural heritage.

Bonding is required on all operations that involve the use of mechanized equipment and hand operations when significant damage may occur, especially in riparian areas. This direction will help assure reclamation objectives.

Forest-wide Standard 139 is a general statement that calls for environmental protection and ultimate rehabilitation, stating that reclamation plans should clearly state final management objectives for a specific mined area. Our current practice is to describe these objectives in the plan of operations.

Reclamation work of past years was reviewed this year to determine how effective reclamation techniques were and to capture new opportunities for improvements. All sites were in a stable condition overall with an active and growing ground vegetation cover.

All current mining operations do meet Forest Standards and Goals. Some closed operations do not, however, and funds are not currently available for Forest Service reclamation.

Recommended Action:

Coordinate future monitoring with Wallowa-Whitman and Umatilla National Forests.

MALHEUR MONITORING ITEM 34
Road Mileage and Open Road Density

Questions: Are the Forests reducing open road densities as envisioned by the Forest Plans? Are road closures effective at eliminating vehicle traffic? If a closure is breached, does the road still meet management objectives?

Table M-7
OPEN ROAD DENSITIES BY MAJOR WATERSHED
YEARLY COMPARISONS AND MINIMUM FOREST PLAN GOAL FY'99
Malheur National Forest

Major Sub-basin	FY'90 M/SM	FY'91 M/SM	FY'92 M/SM	FY'93 M/SM	FY'94 M/SM	FY'95 M/SM	FY'96 M/SM	FY'97 M/SM	FY'98 M/SM	Goal FY'99
ANADROMOUS										
(North Fork JD) Fox/Cottonwood										
Summer Range	4.0	4.1	3.1	3.1	1.7	1.7	1.7	1.7	1.2	3.2
Winter Range	4.0	3.4	3.4	3.5	1.8	1.8	1.8	1.8	1.6	2.2
Middle Fork JD							*			
Summer Range	4.6	4.5	3.6	3.4	3.4	2.9	2.7	2.4	2.3	3.2
Winter Range	7.2	6.8	6.1	5.9	5.3	4.5	2.8	1.8	1.3	2.2
Wildlife Emp	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	1.5
Upper John Day					*					
Summer Range	4.6	4.3	3.6	3.3	1.8	1.8	1.8	1.8	1.8	3.2
Winter Range	1.7	1.6	1.4	1.2	2.0	2.0	2.0	2.0	2.0	2.2
Wildlife Emp	0.2	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	1.5
South Fork JD								*		
Summer Range	3.7	3.7	3.3	3.1	2.7	2.7	2.7	2.7	2.7	3.2
Winter Range	2.8	3.6	3.3	2.9	2.4	2.4	2.4	2.2	2.2	2.2
Wildlife Emp	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	1.5
NON-ANADROMOUS										
Silvies										
Summer Range	6.8	4.2	3.9	3.8	3.8	3.7	3.7	3.6	3.5	3.2
Winter Range	3.3	3.2	3.6	3.6	3.5	3.3	3.1	3.1	3.0	2.2
Malheur					*					
Summer Range	3.2	2.8	2.8	2.8	2.6	2.5	2.5	2.5	2.4	3.2
Winter Range	4.1	4.0	3.5	3.5	1.5	1.5	1.5	1.5	1.5	2.2
North Fork Mal					*					
Summer Range	4.0	3.4	3.3	3.3	2.8	2.8	2.8	2.8	2.8	3.2
Winter Range	2.0	1.6	1.7	1.7	2.2	2.2	2.2	2.2	2.2	2.2
Forest Totals										
Summer Range	4.2	3.9	3.5	3.4	3.0	2.9	2.8	2.7	2.6	3.2
Winter Range	3.6	3.8	3.3	3.2	3.0	2.8	2.4	2.3	2.3	2.2
Wildlife Emp	0.3	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	1.5

* - Indicates FY minimum forest plan goals were met for watershed (sub-basin).

Are road closures effective at eliminating vehicle traffic?

Closure effectiveness monitoring and analysis has not been done.

If a closure is breached, does the road still meet management objectives?

The road will meet most management objectives if the breach occurs during the dry season. The breached barricades that occur in late fall (November and later) do not meet the management objectives due to snow and rain causing erosion and sediment problems.

Miles of road decommissioned per Regional definitions	60
Miles of road closed	267
Miles of road constructed	8
Miles of road reconstructed	98

Recommended Action:

Coordinate future monitoring with Wallowa-Whitman and Umatilla National Forests.

Table M-8
FOREST ACCOMPLISHMENTS - FY 1998
Malheur National Forest

The following table provides a summary of selected Forest accomplishments and resource outputs for FY 98 from all funding sources, including trust funds and partnership efforts. Where possible, these are compared to Forest Plan estimates, but in many of the cases the unit of measure has changed since the Forest Plan was completed and direct comparison is no longer possible.

RESOURCE ACTIVITY/OUTPUT	UNIT OF MEASURE	FOREST PLAN PROJECTION (avg/year)	ACTUAL FY 98 FOREST OUTPUT	% ACTUAL TO FOREST PLAN
FIRE				
Natural Fuel Treatment	Acres	2,000	2,460	125
Activity Fuel Treatment	Acres	10,000	14,926	149
FISH				
Anadromous Stream Restored/Enhanced	Miles	Not Specified	19.6	NA
Inland Stream Restored/Enhanced	Miles	Not Specified	5	NA
RANGE				
Permitted Grazing	AUMs	110,000	110,789	101
Non-structural Improvements	Acres	4,800	2,195	46
Structural Improvements	Structures	250	44	18
Noxious Weed Treatment	Acres	200	78	39
RECREATION				
Trail Construction/Reconstruction	Miles	50	23.2	46
Developed Recreation Capacity	PAOTs	371,000	377,000	102
ROADS				
Construction	Miles	220	8	4%
Reconstruction	Miles	Not Specified	98	NA
Decommissioned	Miles	Not Specified	60	NA
Closed	Miles	Not Specified	267	NA
THREATENED, ENDANGERED, and SENSITIVE SPECIES				
Aquatic Habitat Restored/Enhanced	Miles	Not Specified	1	NA
Terrestrial Habitat Restored/Enhanced	Acres	4	40	1000
TIMBER				
Total Program Sale Quantity	MMBF	211	77.1	37
Reforestation	Acres	12,672	10,427	82
Timber Stand Improvement	Acres	10,800	5,037	47
WILDLIFE				
Habitat Restored/Enhanced	Acres	750	4,009	535
Habitat Structures	Structures	300	32	11
WATER				
Watershed Improvements	Acres	172	201	117

FOREST PLAN AMENDMENTS

One non-significant Forest Plan Amendment was prepared for the Malheur National Forest in FY 1998.

Amendment Number	Date	Summary and Comments
50	July, 1998	Amends the Forest Plan to allow short term management activities not consistent with current Forest Plan direction within the Summit Fire Recovery Project.

Blue Mountain Forests' Monitoring Report - FY 98
Section U - Umatilla National Forest

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MONITORING ITEMS NOT REPORTED FOR FY 1998

A number of Monitoring Items from the Umatilla Forest's 1994 Monitoring Strategy were not reported in FY 1998. Some items only need to be reported every few years in order to detect trends. Other items were purposely deferred pending updated monitoring protocols or direction, and some were deferred due to lack of funding. Some items not found in this section were reported in Section C, the coordinated monitoring items.

A handful of monitoring items were scheduled for monitoring in FY 98, but were not reported for a variety of reasons, such as personnel turnover or other work priorities.

Monitoring Items that were not reported for any of the reasons discussed above include the following:

Item 9	Riparian Vegetation
Item 11	Range Condition and Trend
Item 14	Created Openings
Item 16	Ponderosa Pine Regeneration
Item 19	Vegetation Management
Item 24	Old Growth
Item 26	Woodpecker Populations
Item 27	Pine Marten
Item 29	Plant and Animal Diversity
Item 30	Management Area Standards and Guides
Item 31	Primitive/Semi-Primitive Recreation and Roadless Areas
Item 32	Recreation - Off-Highway Vehicle Use
Item 34	Wild and Scenic Rivers
Item 35	Existing Visual Conditions
Item 36	Nonconforming Uses in Wildernesses
Item 37	Limit of Acceptable change and Amount of Primitive Wilderness
Item 41	Lands Suitable for Timber Management
Item 42	Timber Yield Projections
Item 48	Trails
Item 50	Cultural Resources
Item 51	Effects of Management Activities on Special Interest Areas
Item 52	Research Natural Areas
Item 54	Income Levels, Populations and Employment
Item 55	Payments to Counties
Item 57	Forest Contribution to Forest Products Industry
Item 58	Forest Budget
Item 59	Cost/Values of Plan

The Summary Of Recommended Actions, beginning on page U-5, shows all Umatilla Monitoring Items and whether they were deferred, consolidated with the other Blue Mountain Forests (Section C of this Monitoring Report), or reported in this Section.

SUMMARY OF FINDINGS AND ACTIONS TO BE TAKEN

The table on the following pages summarizes for the Umatilla Forest the key findings and the recommended actions to be taken as a result of this year's monitoring. A more complete discussion of each monitoring item may be found later in this section or in the Coordinated Monitoring Section (Section C).

It is assumed that monitoring will be continued with all monitoring items in the future, although not all will be reported every year. Categories of recommended actions are identified in the table as follows:

Change Practices (CP) - Indicates that the results of current practices are outside the thresholds of variability and/or are not meeting specific direction set by the Forest Plan. A change in practice or procedure may be needed.

Further Evaluation (FE) - Indicates that results may or may not have exceeded the threshold of variability, but additional information or evaluation is needed to better identify the cause of the concern and/or determine future actions.

Amend Forest Plan (AP) - Indicates that results are inconsistent with the Forest Plan, or the Forest Plan direction was not clear. The Forest Plan may need changing or clarifying through the amendment or revision process

Continue Monitoring (CM) - Indicates we will continue with the current scheme.

Not Evaluated (NE) - Not evaluated in FY 1998

Summary of Recommended Action

♦ 1998 **Monitoring Report** ♦

Umatilla National Forest

Report Section	M-I#	Monitoring Item (MI)	1997 Action	1998 Recommended Action			Remarks
				Change Practice	Further Eval.	Amend Forest Plan	
I. PHYSICAL RESOURCES							
COORD	1	Air Quality	CM				All burning was done in compliance with smoke mgt plans. Prescribed burning was restricted in December when the emissions cap was reached for NE Oregon.
UMA	2	Soil Productivity	CM				Soil protection practices are being implemented properly and are meeting standards. Continue to monitor; effectiveness monitoring needed.
UMA	3	Water Quantity	NE	X			1 drainage had earlier snowmelt peaks after harvest.
UMA	4	Water Quality	NE	X			Baseline, fire and timber sale monitoring show some potential problems although analysis is not yet complete.
UMA	5	Stream Temperature	NE	X			Meeting water temperature standards is a problem.
UMA	6	Stream Sedimentation	NE				High annual variability is evident. Peak runoff occurs during spring snowmelt or rain on snow events.
UMA	7	Stream Channel Morphological Features	NE				Channel area change occurred at all sites affected by the severe winter flooding of 1996.
UMA	8	Fire Effects - Wildfire on Water and Soils	CM				Erosion monitoring started on 1996 wildfire areas. 1998 storms caused additional erosion and sediment movement.
II. BIOLOGIC RESOURCES							
DEF	9	Riparian Vegetation	NE				Deferred for FY 97 and FY 98.
COORD	10	Level of Utilization	CM FE	X			97% of the monitored pastures met standards. Need to emphasize effectiveness monitoring to validate utilization standards, particularly in riparian areas.
DEF	11	Range Condition and Trend	NE				No integrated range analysis was completed in FY 97 or FY 98 due to inadequate funding.
COORD	12	Noxious Weeds: Invasive Vegetation	CM				Over 4000 acres (gross) were treated, primarily through manual and chemical means. Continuing need to monitor and document treatment results and effectiveness of practices.
COORD	13	Silvicultural Harvest Method	AP			X	Change in harvest method needs to be evaluated and adjusted upon completion of ICBEMP process.

Report Section	M-I#	Monitoring Item (MI)	1997 Action	1998 Recommended Action			Remarks
				Change Practice	Further Eval.	Amend Forest Plan	
DEF	14	Created Openings	NE				Deferred until FY 99.
UMA & COORD	15	Stand Management - Regeneration	FE		X		First year survival was 94%. Third year survival dropped to below 50%. Continue to review longer term survival.
DEF	16	Stand Management - Ponderosa Pine Regeneration	NE				Deferred for FY 97 and FY 98.
UMA	17	Stand Management - Thinning/Improvement	CM				Funding for thinning is inadequate.
COORD	18	Fire Effects - Prescribed Fire	CM				956 acres of activities fuels were treated.
UMA	18A	Fire Effects - Wildfire	NE				Tower Fire lost additional trees in FY 98 due to scorch and insect attack.
DEF	19	Vegetation Management	CM				Deferred for FY 98.
UMA	20	Threatened, Endangered, and Sensitive Species	CM				Known populations of sensitive plants appear fairly stable. Focus monitoring to mitigated and "at risk" populations.
UMA & COORD	21	Insect and Disease Control	CM				Most key insect populations are low. Continue monitoring tussock moth.
UMA	22	Anadromous and Resident Fisheries	CM	X			Post fire recovery continues for redband trout Bull trout redd counts increased over the previous year. No chinook or their redds have been found in Asotin Creek since 1993.
UMA	23	Elk/Deer Habitat and Estimated Populations	FE		X		Deer populations remain below Management Objectives. Elk populations remain below Management Objectives if all lands are considered.
UMA	24	Old Growth Tree Habitat	NE				Not reported in FY 97 or FY 98.
UMA	25	Dead and/or Defective Tree Habitat	CP FE				Snag levels generally exceeded standards following harvest and prescribed fire activities.
DEF	26	Pileated and Northern Three-Toed Woodpecker Populations	NE				Deferred for FY 97 and FY 98.
DEF	27	Pine Marten	NE				Deferred for FY 97 and FY 98.
UMA	28	Threatened/Endangered/Sensitive Wildlife and Fish Species	CM				The Dry Creek Bald eagle nest appeared to have fledged 2 young, need to continue work on the management plan for the nest site.
DEF	29	Plant and Animal Diversity	CP				Deferred for FY 98.

Report Section	MI#	Monitoring Item (MI)	1997 Action	1998 Recommended Action: Change Practice	1998 Recommended Action: Further Eval.	1998 Recommended Action: Amend Forest Plan	Remarks
III. RESOURCES AND SERVICES TO PEOPLE							
DEF	30	**A. Forest Plan Implementation** Management Areas/Standards and Guidelines	NE				Deferred for FY 97 and FY 98.
DEF	31	**B. Recreation** Primitive/Semi-Primitive Recreation and Roadless Areas	NE				Deferred for FY 97 and FY 98.
DEF	32	Off-Highway Vehicle Use	NE				Deferred for FY 97 and FY 98.
UMA	33	Developed Sites	NE				Developed recreation use has declined since 1996 while dispersed recreation use has increased.
DEF	34	Wild and Scenic Rivers	NE				Deferred for FY 97 and FY 98.
DEF	35	Existing Visual Condition	NE				Deferred for FY 97 and FY 98.
DEF	36	Nonconforming Uses	NE				Deferred for FY 97 and FY 98.
DEF	37	Limit of Acceptable Change (LAC) and Amount of Primitive Wilderness Resource Spectrum (WRS)	NE				Deferred for FY 97 and FY 98.
COORD	38	Allotment Planning	FE				Four AMPs were completed in FY 98 based on prior NEPA decisions. Changes in program emphasis, including ESA consultation, and reduced funding have reduced the Forest's ability to complete AMPs.
Accomp Report	39	Range Outputs	CM				50,400 AUMs were reported in FY 98. Future Forest Plan Adjustment may affect outputs.
Accomp Report	40	Range Improvement	CM				Reported under Table U-33 (Forest Accomplishments).
DEF	41	Identification of Lands Suitable for Timber Management	NE				Deferred for FY 97 and FY 98.
DEF	42	Timber - Yield Projection	NE				Deferred for FY 97 and FY 98.
COORD	43	Timber Offered for Sale	FE AP		X	X	Timber offered is still well below Forest Plan projections. Need to adjust Plan when ICBEMP process is completed.
UMA	44	Availability of Firewood	CM				Current demands are being met.
UMA	45	Mineral Development and Rehabilitation (MDR) Accessibility	CM				Standards and Guidelines being met. One abandoned mine was reclaimed in FY 98.
UMA	46	Forest Road System	CM				About 65 miles of roads were obliterated. The existing road system appears to be meeting public and resource management needs.
UMA	47	Open Road Density	CM				Physical closures are more effective than signs.
UMA	48	Trails	NE				Not reported for FY 97 or FY 98.

Report Section	MI#	Monitoring Item (MI)	1997 Action	1998 Recommended Action			Remarks
				Change Practice	Further Eval.	Amend Forest Plan	
UMA	49	Fire - Program Effectiveness	CM				FY 98 was a mild wildfire season; 226 acres burned from 31 human-caused starts.
DEF	50	Cultural Properties/Sites	NE				Deferred for FY 97 and FY 98.
DEF	51	Effects of Forest Management Activities on SIA's	NE				Deferred for FY 97 and FY 98.
DEF	52	Research Natural Areas (RNAs)	NE				Deferred for FY 97 and FY 98.
UMA	53	National Environmental Policy Act (NEPA)/National Forest Management Act (NFMA)	CP	X			9 EAs and 44 CEs were prepared. No formal reviews by the Forest ID team in FY 98. Need to evaluate and possibly issue white paper on appropriate NEPA and a standard review process.
IV. SOCIAL AND ECONOMIC **							
COORD	54	Changes in Income Levels, Populations, and Employment	FE AP				Not reported in FY 98.
COORD	55	Payments to Counties	FE AP				Not reported in FY 98.
COORD	56	Lifestyles, Attitudes, Beliefs, Values, and Social Organizations	FE AP				Not reported in FY 98.
DEF	57	Forest Contributions to the Local Timber Supply	NE				Deferred for FY 97 and FY 98.
COORD	58	Forest Budget	FE AP				Not reported in FY 98.
COORD	59	Costs/Values of Forest Plan	FE AP				Not reported in FY 98.

**A new budget process (FFIS) delayed report generation for many of the budget items.

UMATILLA MONITORING ITEM 2
Soil Productivity

Questions: Are management practices/projects resulting in conditions that comply with Forest-wide Standards and Guidelines for the management of the soil resource? Do Forest-wide Standards and Guidelines adequately protect long-term site productivity? Is soil productivity maintained or enhanced over time?

Timber harvest activities continued to be the focus of soil monitoring during the year. Little road construction activity took place and grazing effects monitoring is unfunded. Cursory assessment of prescribed burns occurred concurrently with other monitoring. Watershed improvement projects are being evaluated for erosion and sedimentation effects but not as yet for productivity changes, although the intent of these projects is to improve conditions.

As in the recent past, Timber Sale Administrators conducted most of the monitoring of soil resource productivity and erosion for harvest operations by observing/inspecting unit erosion control measures (Best Management Practices or BMPs) and soil rehabilitation work (e.g., subsoiling, cross ditching, waterbarring, and barricading). Specific areas inspected/monitored included temporary roads, tractor skid trails, forwarder routes, skyline/cable corridors, tractor and hand firelines, and log landings. Additional unit areas were monitored by the Forest Soil Scientist on a sample basis.

On Pomeroy Ranger District, three active timber sales operated during 1998. Each was monitored for compliance with Forest-wide Standards and Guidelines for soil disturbing activities during routine sale administration inspections. The three timber sales were School, Tucannon, and Trent. School and Tucannon sales were helicopter sales; Trent was a conventional tractor system sale completed in 1997, with only final erosion control work required in 1998.

School and Tucannon timber sales met standards and guidelines for soil impacts since helicopter yarding exhibited little disturbance or compactive action within the harvest units. The primary impacts of helicopter yarding take place at the landings. All landings and access roads used in the School and Tucannon sales were pre-existing features, used in past sales. The number of landings and roads needed for these sales fell well below the Umatilla National Forest's standard of 5 percent of project area in landings and roads. These landings and roads will likely be used again in the future, so the landing areas were treated for erosion control and revegetation, but without subsoiling.

The Trent Timber Sale was completed in 1997 with only final erosion control measures to be completed in 1998. The sale required designated skidtrails and preapproval of trail locations and landings to meet soil protection guidelines. Operators were required to space skid trail at a width that met standards, and to winch timber to the skid trails. One operator fell timber toward trails and limbed and topped trees, which resulted in a slash mat covering a large percentage of the skid trails. A portion of the sale was also logged during heavy snow conditions. Overall, this sale met standards and guidelines for soil protection. Acceptable erosion control measures were completed in 1998.

Moe Salvage Timber Sale, on the Walla Walla Ranger District, was harvested in 1998 using a cut-to-length/forwarder logging system. Field review by the Sale Administrator and the Forest Service Representative determined the following results:

> This sale has eight harvest units that were individually tree marked and it covers 296 acres. Two Valmet 500T processors cut the timber and placed the tops, limbs, slash, etc., in the skid trails, thereby creating a slash mat which reduces or eliminates soil compaction. Equipment is required to stay on designated trails that are not closer than 40 feet and do not exceed 12 feet in width. Most trails are generally farther apart than required because these processors have a usable reach of 28 feet and maximum reach of 32 feet. Following the log processors are two Valmet log forwarders, one 890 and one 860. The forwarders picked up the logs without leaving the designated trails and carried them to predesignated landings. All landings were located in existing openings adjacent to the haul roads and no landing construction was needed. Landings were then seeded with native seed.
>
> The amount of exposed soil was estimated based on an average harvest trail spacing of approximately 45 feet and assuming that the only portion of each trail with exposed mineral soil was the last 50 feet. Calculations indicate that approximately 3 percent of the sale area had exposed mineral soil. Observations by the Forest Soil Scientist generally concur with these estimates.

Results from continued soil monitoring on the Grande Ronde Salvage Sale in 1998 were similar to 1997 findings, with about 8-10 percent of the activity area having detrimental soil impacts.

Positive results were observed with tracked processors and forwarder(s) operating on deep snow on some units within the Rockhard Sale, North Fork John Day Ranger District. Unit 15 provided an example of good harvest operations with acceptable soil productivity results. However, excessive dozer blade use and bermed fireline construction unnecessarily displaced soil in units 8, 10, and 15. Unit 12 appeared to have been logged under wetter conditions; however, rutting and compaction were still limited in extent, with the overall soil condition rated as good and within guidelines. Several areas had high stumps, which may have been from winter logging (snow). Snow conditions and operator care were critical to success in these situations.

Monitoring of salvage operations in the Tower Fire area showed very little soil disturbance from the helicopter operations. Ground-based operations appeared acceptable with some minor rilling on an access road into a landing after a summer thunderstorm.

Monitoring of the subsoiled evaluation plantations on North Fork John Day district (Morsay and Wilkins) showed no erosion and moderate effectiveness of treatment. The planted unit (Wilkins) was holding moisture well when observed early (June 23), with the seedlings vigorous.

In summary, soil monitoring results continue to indicate that various logging systems used on the Forest meet Forest-wide Standards and Guidelines. Mechanized harvest systems (such as cut-to-length systems) are achieving acceptable results. Ground-based systems continue to have a higher risk of detrimentally exceeding the requirements when compared with aerial systems. Tractor fireline construction is still occasionally excessive or unneeded on some units.

Recommended Action:
Continue to monitor. Follow up effectiveness monitoring of erosion control and other measures is still needed.

UMATILLA MONITORING ITEM 2A
Soil Productivity Over Time

Question: Is soil productivity maintained or enhanced over time?

The Davis Unit 31 monitoring/demonstration project begun in 1990 on the Heppner Ranger District was revisited in 1998. The intent of the project was to assess the benefits of site preparation and soil restoration with a self-drafting, winged subsoiler to reduce compaction. The project area had a history of multiple, ground-based harvesting operations that compacted soils to a degree considered beyond the limits of standards and guidelines. Artificial reforestation had commonly been a problem in areas like this, and the compacted conditions were believed linked to reforestation failures and shortfalls.

Plot areas on three sites/soil types within the unit were selected for treatment with the subsoiler or received no treatment. Subsoiling was done in 1991. In 1992, seedlings of 2/0 ponderosa pine were planted using planting hoes, and part of the tree seedlings on one site (the ash soil type) were fertilized. The effectiveness of site preparation was assessed in 1998 (the seventh growing season) by comparing planted tree survival. The data obtained are detailed in the following tables that follow.

The 1998 tree survival for subsoiled versus not-subsoiled plots over the three soil types was essentially unchanged since 1996. Only the subsoiling on ash soil types changed and it decreased by only two percentage points. Survival remained 20-40 percentage points higher with subsoiling (Table U-1). The subsoiled plot on the residual soil type had 10 percentage points higher tree survival than subsoiled plots on the other soil types, and survival was also highest here (11-30 percent) for the not-subsoiled plots.

Table U-1
PLANTED TREE SURVIVAL (%) WITH AND WITHOUT SUBSOILING TREATMENTS
1998 Results (seventh growing season)
Heppner Ranger District, Umatilla NF

Site/Soil Type	Not Subsoiled (%)	Subsoiled (%)
Transition Soil Type	28	68
Ash Soil Type	47	68
Residual Soil Type	58	78

Starter fertilizer effects tested at the ash soil site also changed little since 1996. Using a starter fertilizer at planting showed a 15 and 21 percentage point suppression effect on tree survival without or with subsoiling, respectively (Table U-2).

Table U-2
PLANTED TREE SURVIVAL (%) WITH AND WITHOUT FERTILIZER AND SUBSOILING TREATMENTS
1998 Results (seventh growing season)
Heppner Ranger District, Umatilla NF
Ash Soil Type Only

Treatment	Not Subsoiled (%)	Subsoiled (%)
No Fertilizer	47	68
Fertilizer Packet Added	32	47

Over seven growing seasons, a substantially higher tree survival continues to be consistently associated with site preparation using the self-drafting, winged subsoiler. Depending on the initial planting rate, if the survival advantage is sufficient to avoid replanting, the subsoiling practice would be considered cost effective.

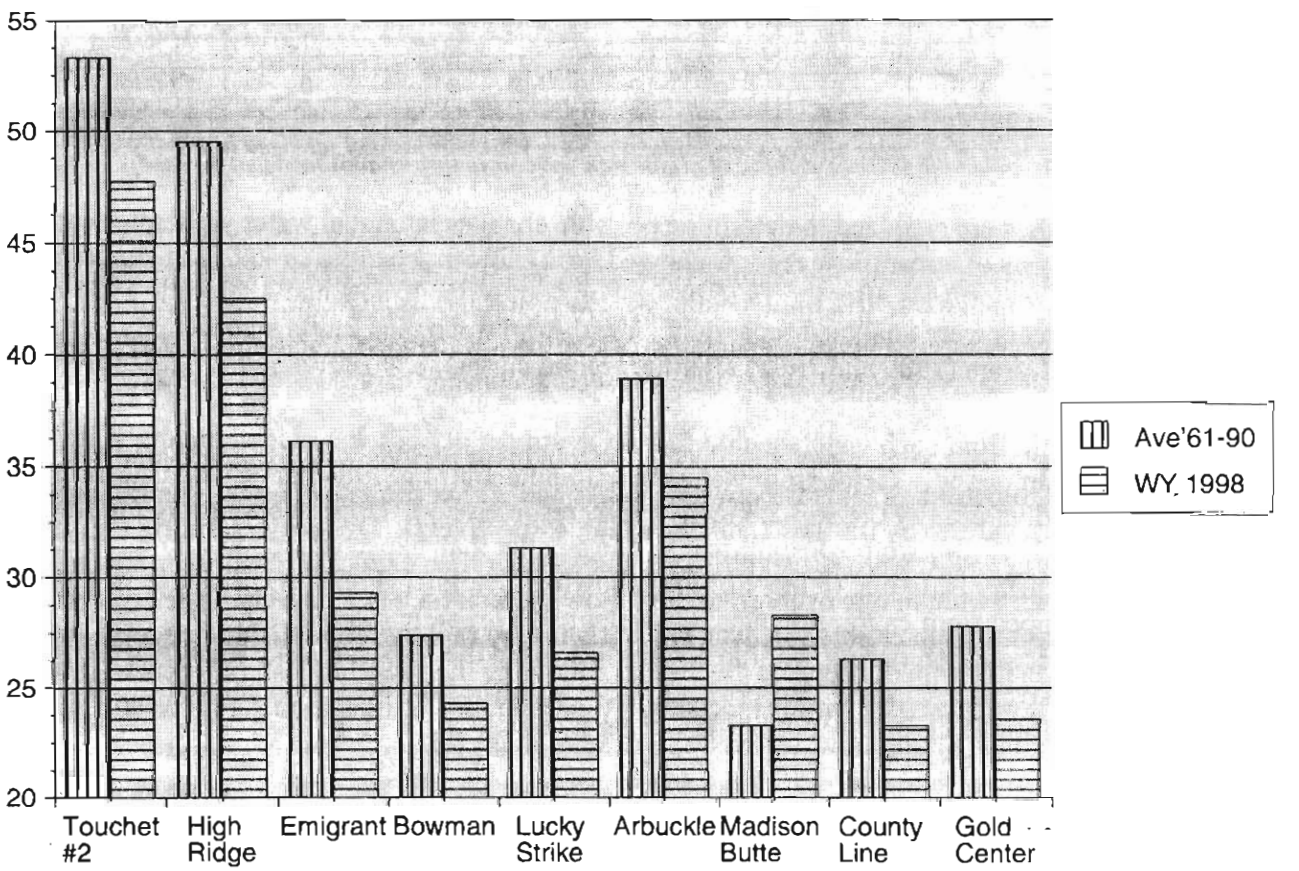
Recommended Action:
The project needs to shift focus and review growth differences in addition to tracking tree survival. A formal report will be submitted for publication.

UMATILLA MONITORING ITEM 3
Water Quantity

Questions: What is the water yield from the Forest and key watersheds? Are management activities significantly affecting the volume of water yields from Forest watersheds? Are management activities significantly affecting the timing of water yield from Forest watersheds? Are management activities significantly affecting the magnitude of summer low flows from Forest watersheds?

Annual precipitation for water year (WY) 98 was generally below average, ranging from 81 to 89 percent of the average, with the exception of Madison Butte which recorded 120 percent of average (Figure U-1). Streamflow gauging is ongoing at eight locations across the Forest: Tucannon River at Panjab; Mill Creek above the intake for the City of Walla Walla; Umatilla River at Corporation; North Fork Umatilla River; South Fork Umatilla River; Desolation Creek above Kelsay Creek; and Skookum Creek and an unnamed tributary.

Figure U-1
ANNUAL PRECIPITATION
Umatilla National Forest (SNOTEL Sites)



In past monitoring reports, the Umatilla National Forest indicated that a final report on the Umatilla Barometer Watershed program "High Ridge Evaluation Area" was in process. The following summarizes long-term monitoring findings from the recent administrative report by J.D. Helvey and W.B. Fowler; the report describes the effects of timber harvest on water yields and other hydrologic values for small, forested watersheds.

The Umatilla Barometer Watershed covers 84,750 acres of the headwaters of the Umatilla River on the Walla Walla Ranger District. Included in the watershed is the High Ridge Evaluation Area which consists of four, first-order watersheds that together drain 550 acres. Streamflow and other measurements were initiated in 1966 and continued until November 1996. After a calibration period, timber was harvested twice, first in 1976 and again in 1984 (see Table U-3). Harvest methods included clearcutting on watershed 1; shelterwood treatment on watershed 2; and patch cut on watershed 4.

Table U-3
WATERSHED ACRES AND ACRES HARVESTED
IN 1976 AND 1984
High Ridge Evaluation Area
Umatilla National Forest

Watershed	Acres	Acres Logged		% Stand		Removed Total	Harvest Method
		1976	1984	1976	1984		
1	73.1	31	42	43	57	100	Clearcut
2	60.3	60	60	50	50	98*	Shelterwood
3	0	0	0	0	0	0	Control
4	291.7	64	49	22	38	60	Patch-cut

**** Approximate value; most of the trees left for seed production were wind thrown and salvaged in 1984.***

Streamflow records were analyzed to determine possible changes in annual water yield after each harvest. The analysis of streamflow records showed no significant changes ($p=0.05$) in annual water yield from treated watersheds after the 1976 harvest or from watersheds 1 and 4 after the 1984 harvest, when individual years were analyzed separately. Yield from watershed 2 was significantly ($p=0.05$) increased during 2 years (1989 and 1992) after the second cutting.

Average water yield from each watershed during the treatment periods was also compared with yield from the calibration period. Yields from watersheds 1 and 2 after the 1984 harvest significantly exceeded expected values (by 0.4 and 2.3 inches/year, respectively). Differences during the first treatment period (1977-84) were nonsignificant. The smaller than expected response to intensive timber removal may be attributed to one or more of the following factors: (1) relatively large error terms in regressions developed from calibration data; (2) water use by rapidly reestablishing vegetation; (3) below-average precipitation during 7 of the 9 years following the 1984 harvest; (4) increased wind speeds that may have caused snow transport out of the watershed or increased sublimation and evaporation rates; and (5) groundwater-surface water interactions.

Soil moisture records and vegetation surveys in the logged areas provide useful information for interpreting water yield results. Soil moisture was measured between 1984 and 1995 under different cover conditions (clearcut 1976, clearcut 1984, partial cut, and forested-uncut) and at 3- and 4-foot depths. The analysis showed expected seasonal declines at approximately the same rate for all cover types, indicating similar rates of soil moisture depletion regardless of cover. However, fall recharge appeared to be faster in the cutting units, indicating lower water use by plants. Over the measurement period, annual water content was greater in patch cut units compared to an uncut stand until 1988. After 1988, moisture content was similar on harvested and unharvested plots, indicating similar moisture use rates by the old and new stands.

Daily streamflow peaks increased after the 1984 harvest on watersheds 1 and 2 (26 percent on watershed 2). No changes were detected in the magnitude of annual snowmelt peaks; however, peaks from watershed 4 occurred earlier after the 1984 harvest, indicating earlier snowmelt from that drainage.

Suspended sediment and turbidity sampling began in 1984. A sharp increase in sediment yield and turbidity occurred immediately following the 1984 harvest, then declined. Increases were greatest in watershed 2 and were likely the result of direct disturbance by skidding across the channel upstream from the weir. Most suspended sediment left the watershed during spring snowmelt runoff. Bedload measurements showed low contributions overall, averaging less than one pound per acre per year. Bedload volume remained small even after logging.

Stream channel cross sections were established in 1984 and resurveyed each year through 1995. Changes in channel form are indicative of adjustments to increased discharge, erosion, and/or deposition. Overall, channels were relatively stable, showing minor fluctuations in bed elevations and that timber harvest had no lasting effect. Instream woody material is an important component in maintaining channel stability. It may be that with the future supply of instream wood depleted, channel stability may decrease as instream wood decays.

Recommended Action:
The High Ridge study was closed in the fall of 1996, and emphasis has shifted to maintaining the baseline Umatilla gages at Corporation, North Fork, and South Fork. These sites should be maintained and modernized with new equipment. The Mill Creek gage duplicates efforts by the City of Walla Walla and should be discontinued.

UMATILLA MONITORING ITEM 4
Water Quality

Questions: Are Forest Management Activities or other factors affecting water quality parameters in Forest streams? Has the Forest met its designated obligations and responsibilities with respect to management of non-point source pollution? Did the Forest comply with the Clean Water Act as outlined in the MOU with the states? What is the long-term trend in water quality.

Questions: Are Best Management Practices (BMPs) and other measures implemented as designed to protect water quality? Are Best Management Practices and other practices effective in meeting water quality goals?

I. Baseline Monitoring

The Forest operated 18 automated pumping samplers on the following streams: Tucannon (two locations); Pataha Creek; Touchet River (three locations); Mill Creek; Umatilla River (three locations); Willow Creek (five locations); Desolation Creek; and Skookum Creek (two locations). Daily (composite) samples were analyzed for suspended sediment (mg/l), turbidity (NTU), total dissolved solids (mg/l), and conductivity (mmhos). These data have not yet been summarized and interpreted.

Grab samples were taken at 14 locations (nine streams and one lake) on the Heppner Ranger District. Samples are collected four times per year and analyzed for dissolved oxygen (mg/l), coliform bacteria (total, fecal, and *E. coli*), total dissolved solids, conductivity, suspended solids, and pH. On Ranger Pomeroy District, samples for bacteria analysis were collected at three locations on Pataha Creek in September and October 1998. Results from samples collected on the National Forest complied with Washington State water quality standards.

Project monitoring continued through the year on several major Forest activities: trail restoration work in the Wenaha watershed, supported in part by the Grande Ronde Model Watershed Program; the Ski Bluewood area; the Willow Creek road reconstruction (a Federal Highways Administration project); and the Skookum landscape burn.

The Wenaha trail project included: implementation monitoring of trail reconstruction contracts; aquatic habitat surveys; and measurement of stream channel conditions at permanent monitoring stations (reference reaches). Results are not yet reported. Ski Bluewood sediment monitoring was terminated in the fall; data for the years 1995-1998 have not yet been analyzed yet (previous years were reported in the 1994 monitoring report). The Willow Creek road reconstruction and Skookum burn projects are summarized in the Umatilla Special Focus Monitoring Item and in separate reports on file at the Heppner Ranger District office.

II. Tri-Forest Prescribed Fire Monitoring Trips on the Umatilla National Forest

Prescribed fire program project reviews conducted in FY 98 generally show limited or no effects to water quality because of low burn intensity and mitigation (e.g., no ignition within 150 feet of streams). The following projects were reviewed by interdisciplinary teams in July 1998 on the Umatilla NF: Camp Creek Project on Walla Walla Ranger District; Pasture and Abel's Ridge projects on Pomeroy Ranger District; and Oriental Juniper 1 and 2 on North Fork John Day Ranger District (documented in July 15 and October 5 letters to District Rangers, on file).

III. Timber Sale Reviews

Timber sale reviews were conducted on Pomeroy, Walla Walla, and Heppner ranger districts. Field trips to the following project areas were made in September 1998 to monitor implementation of BMPs.

The School Timber Sale project (Pomeroy Ranger District, in the Tucannon watershed) has mostly helicopter units; landings and access roads (system and nonsystem) have the greatest potential for affecting water quality in this area. Compaction at landing sites increases risk of runoff and erosion. Recommended actions included adding structural measures (water bars) and increased cover (seed and straw mulch, or "mulching" with slash). Streamside protection was needed for an active landing in a riparian area (FS Road 4625-015) either through closure and rehabilitation of the site or planting and set-back along the stream. Several temporary roads were visited. Many needed treatment including barriers to prevent access, limited erosion control, or complete obliteration. Work to treat problem areas on temporary roads is planned for implementation in FY 99.

The West Patit project (in the Touchet watershed) was reviewed in 1995. The sale had several areas of concern. Multiple logging roads crossing West Patit Creek (FS Road 4625-015) are active sources of runoff, erosion, and loss of streamside shade. This site was noted as a high priority for treatment in 1995, and has been re-identified for action in FY 99. Although not related to the logging activity but in the same location, unauthorized livestock (about 10 head of cattle) were observed within the sale area during the review.

On the Walla Walla Ranger District, Moe and Umatilla Breaks timber sales were reviewed. Located on the Umatilla and Upper Grande Ronde drainages, both sales were active with logging nearly completed and slash burning partially completed. Seven harvest units, two system roads, and several riparian areas were visited. BMPs were rated using the tri-Forest monitoring form and summarized as follows.

Logging activity, using a cut-to-length "forwarder" system, appeared to have low ground impact (also see Soils, Monitoring Item 2); no evidence of surface erosion was observed since slash left on the ground provided a "cushion" for the soil. Slash burning had been implemented on some units. The review team discussed effectiveness in treating slash on some units, and the need for use of fire on others. On Moe unit 7, a specified tractor line adjoining private land followed an existing skid trail; further equipment work would cause soil disturbance and increase erosion potential. The application of fire to treat logging slash near a water development in this unit was an additional concern.

For the most part, access roads were graveled and well maintained. However, two problem sites were reviewed and discussed. On the Moe Timber Sale, a 24 inch culvert on Road 3719040 at an intermittent/ephemeral stream crossing is partially crushed and has potential to divert water onto the roadway if plugged. On the Umatilla Breaks project, Road 3727011 which accesses part of unit 32 had been waterbarred, but most were ineffective because the road is located in a throughcut.

The final BMP reviewed and discussed was riparian protection. Units were, for the most part, located outside of riparian protection areas. Specified buffers on intermittent streams in the Grande Ronde drainage are 100 feet, and in the Umatilla drainage are 50 feet on either side of streams. Two situations were addressed. A small (<1 acre) wetland area within Moe unit 2 was not identified on the sale area map, but a minor change to the marking of leave trees and skidding prohibition prevented any serious damage to this area. Riparian buffer width adjacent to Umatilla Breaks unit 32 was less than 150 feet on a perennial stream (tributary to North Fork Umatilla River). Road 3727011 is also within the riparian protection area at this same location, increasing the potential for adverse effects. (The sale area map incorrectly located the unit, and a streamcourse was not identified on the map.)

Two sales, Skookum and Hitching Post, were reviewed on the Heppner Ranger District. Several practices were monitored on these projects, with emphasis on erosion control on skid trails, landings, and temporary roads. Waterbarring and ripping on some temporary roads had been implemented, with no evidence of surface erosion. One site (Hitching Post unit 1) had potential for erosion because of improperly installed waterbars and soil berms that will concentrate runoff.

Recommended Actions:
Continue to emphasize data analysis from baseline water quality monitoring, and reporting of project monitoring results as plans are implemented. Overall, develop a strategic water quality monitoring program that leverages ongoing baseline and project-level efforts with the legacy of projects such as the High Ridge evaluation area, using a watershed-scale approach. The program needs to address current issues of 303d water quality status.

Meeting water temperature standards is a problem (see Monitoring Item 5). Impacts to beneficial uses are of greatest concern to the fisheries resource (anadromous spawning, bull trout, and aquatic life). Other beneficial uses are generally supported by existing water quality.

Continued emphasis on BMP monitoring (see discussion) is recommended, with more quantitative sampling, analysis of data, and reporting of findings. Improve the documentation of BMP implementation and analysis of the backlog of water quality data.

Currently, BMP monitoring focuses on projects that were active or had recent activity during the scheduled review period. A relatively small percent of the project areas were visited, and practices reviewed were not necessarily representative of overall BMP implementation and effectiveness in the project area. The Forest should consider selecting projects and practices on a "stratified random" basis to improve reliability of results. Units and roads could be randomly selected from project databases. In addition, a larger percentage of units and roads should be visited (suggest visiting 25 percent of all units and roads).

Unmapped riparian areas are a typical problem encountered during project implementation. Continue to make minor contract and marking adjustments for resource protection in this circumstance.

Post-logging activities should be implemented as soon as possible to minimize resource problems. K-V projects may be implemented while the sale is still active (if projects are identified on the plan and funds are available).

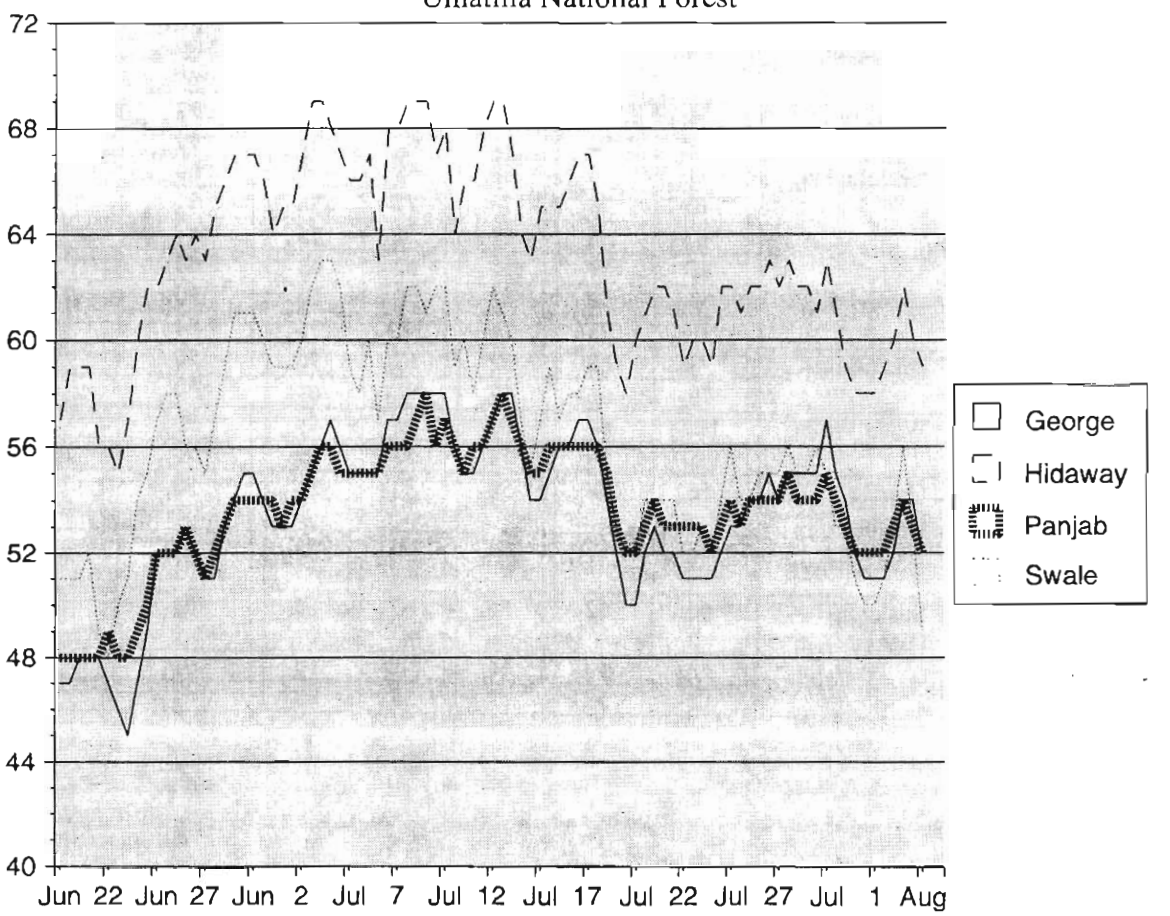
Road management concerns encountered during the reviews included future maintenance problems at road-stream crossings and post-logging erosion control. Drivable dips on roads are one alternative to metal pipes at intermittent stream crossings. Erosion control needs on some closed roads may exceed the standard, required waterbar work identified in the contract. In these cases, work with contractors to complete additional erosion control as needed, or adjust plans to reflect additional needs. Recommended practices on roads and skid trails where waterbars may be ineffective include drifting in sidecast rootwads, and lopping and scattering slash and debris.

UMATILLA MONITORING ITEM 5
Stream Temperature

Questions: Is project implementation in riparian areas resulting in attainment of objectives (desired conditions) for stream surface shading and/or in-stream water temperatures? Are Forest Plan standards being met? What are the long-term changes and trends in stream temperatures? Are the long-term changes meeting Forest Plan objectives? What are the cumulative effects of Forest management activities on stream temperatures?

Water temperatures were measured at 110 locations across the Forest. Summer temperatures reached maximum in late July (Figure U-2).

Figure U-2
SUMMER STREAM TEMPERATURE
Umatilla National Forest



A summary of the maximum 7-day average of the daily maximum temperatures for selected streams across the Forest for the past 5 years shows variability caused by seasonal differences in temperatures, water supplies, and watershed conditions. Shifts in annual maximum water temperatures resulting from changes in watershed conditions are most evident in the case of wildfire, where large areas are affected (Table U-4).

Five or more years of data are available for many stations across the Forest, showing year-to-year variability and providing some initial evidence of trends such as wildfire effects. For example, the annual 7-day average of the daily maximum temperature was higher on Oriental Creek in the 2 years following the 1996 Tower Fire, in part because of reduced stream canopy cover. Overall, most streams are not meeting State water temperature standards. Achieving target temperature standards may not be possible in some watersheds and in some situations, such as after extensive wildfire. The Wenaha River in the Wenaha-Tucannon wilderness, which supports bull trout, has a 50 degree Fahrenheit standard. As seen in Table U-4, the standard was exceeded during the summer period.

Table U-4
ANNUAL SUMMER MAXIMUM WATER TEMPERATURES
SELECTED STATIONS, 1994-1998.
(7-Day moving average of the daily maximum, degrees Fahrenheit)

Stream Name	Basin	1994	199-5	199-6	19-97	19-98	Temp Stan-dard	# Days in '98 above Standard
Henry Cr @FB	John Day	72	72	71	71	**75**	64	90
Herren Cr	Willow	63	58	61	62	**64**	64	11
Wall Cr @FB	NF John Day	80	77	68	68	**77**	64	69
Hidaway Cr[1]		ND	78	75	77	**78**	64	87
Oriental Cr[1]		ND	58	61	65	**75**	64	70
White Creek Cr[2]		ND	59	63	62	**63**	64	4
SF Desolation[3]		68	59	62	62	**62**	50	80
NFJD @Camas		ND	72	76	ND	**76**	64	90
NF Meacham Creek	Umatilla	72	68	67	67	**70**	50	103
SF Umatilla		70	66	67	ND	**69**	50	45
NF Walla Walla	Walla Walla	ND	64	63	64	**66**	50	69
SF Walla Walla		ND	54	54	53	**55**	50	85
Lookingglass@FB	Grande Ronde	56	56	56	54	**55**	50	70
Wenaha@ Wilderness Bdy		ND	ND	66	66	**70**	50	150
NF Asotin @FB	Snake R (WA)	66	62	66	63	**68**	61	84
SF Asotin @FB		63	57	56	ND	**60**	61	-1
Panjab Cr		63	59	57	58	**60**	61	11

FB=Forest Boundary

ND=No Data
1 Streams in 1996 Tower fire area
2 Stream in 1994 Boundary fire area
3 Stream in 1996 Summit fire area

Recommended Actions:
Temperature monitoring has expanded over the past 5 years with the advent of low-cost data recorders, resulting in an increased number of sites being monitored. The need to maintain quality control over data collection and management is an ongoing issue. Overall, operating fewer, permanently-established sites for the long term is preferred for better quality control, more efficient data management, and comparability from year to year (trend analysis).

UMATILLA MONITORING ITEM 6
Water Quality - Stream Sediment

Questions: Are Forest streams meeting state water quality standards for sediment? How are Forest management activities and/or natural events affecting the rate of stream sedimentation or potentially impacting beneficial uses? Is stream sedimentation impacting critical components of stream fish habitat? What is the cumulative impact of changes in stream sedimentation on water quality and fish habitat?

The Umatilla National Forest maintains gauging stations at three sites on the upper Umatilla River watershed: the North Fork, the South Fork, and Umatilla River at Corporation. Streamflow records are available for 1965 to present, and suspended sediment data are available for 1987 to present. Streamflow and sediment data were analyzed, with emphasis placed on: identifying tributary flow and sediment contributions; determining annual and seasonal suspended sediment loads; and identifying relationships between suspended sediment and discharge, and between suspended sediment and turbidity. Contributions of individual peak flow events were also investigated. The findings were reported in Upper Umatilla River Sediment Analysis (Harris and Clifton, November 13, 1998, on file at the Umatilla National Forest headquarters).

Highlights of a few major findings from the assessment include the following.

- High annual variability is evident in suspended sediment loads. As seen in Table U-5, annual unit suspended sediment loads for the Umatilla River at Corporation ranged from 14 tons/mi^2/yr in WY 97 to 197 tons/mi^2/yr in WY 93, an order of magnitude difference in annual load. In general, year-to- year variability in suspended sediment loads is the result of variability in weather conditions, storm events, sediment sources, and storage on hillslopes, floodplains, and channels.

Table U-5
ANNUAL SUSPENDED UNIT LOADS (TONS/MI^2)
Umatilla Barometer Watershed
Umatilla National Forest

	WY 88	WY 89	WY 90	WY 91	WY 92	WY 93	WY 94	WY 95	WY 96	WY 97
Umatilla @ Corp	N/A	N/A	60	93	24	197	33	143	45	14*
North Fk. Umatilla	109	354	71	40	42	251	52	149	21	42*
South Fk. Umatilla	2.4	4.1	36	70	18	39	13	28	37*	12*

N/A Not applicable, measurements not representative of entire year
** Limited data available*

- In 8 of 10 years, the North Fork Umatilla River produced more suspended load per square mile and in total than the South Fork, even though the South Fork is a larger watershed and has higher peak flows. Watershed characteristics contribute to the differences, including higher precipitation, deeper soils, and higher sustained stream velocities in the North Fork drainage. The North Fork is largely managed in wilderness status with low levels of land use impacts. Midslopes and valley bottoms are intact; land use is confined to upper ridgetops.

- The highest peak runoff events occur during spring snowmelt (March-May) and during winter rain-on-snow events (December-February). Overall, on an annual basis, spring snowmelt appears to be the dominant sediment transport process; for most years, at all stations, the highest loads occur during the beginning of spring snowmelt.

Table U-6
PEAK FLOW DURATION, TIMING, AND PERCENT OF TOTAL ANNUAL SUSPENDED LOAD
Umatilla National Forest

	Umatilla @ Corp			North Fork Umatilla			South Fork Umatilla		
Water Year	# days	% load	Start Date	# days	% load	Start Date	# days	% load	Start Date
WY 88	6	28	3/27	5	14	4/21	9	21	4/12
WY 89	no	data for	peaks	9	26	4/19	11	21	4/13
WY 90	5	9	4/26	9	12	5/2	11	13	4/28
WY 91	8	41	5/17	10	4	5/17	11	55	5/17
WY 92	4	5	12/6	8	5	12/6	8	4	12/6
WY 93	11	20	5/3	11	46	4/29	11	10	4/29
WY 94	9	40	3/1	6	7	3/1	9	14	3/1
WY 95	13	27	1/31	10	50	5/11	9	28	1/31
WY 96	7	44	2/7	6	7	2/7	no	data for	peaks

- Rating equations linking total suspended sediment to discharge were not developed due to the high variability.

Recommended Action:
Continue monitoring with emphasis on refining technical sampling methodology and minimizing operational problems.

UMATILLA MONITORING ITEM 7
Stream Channel Morphological Features

Questions: What are the stream channel processes, responses, and recovery resulting from the 1996-1997 floods?

Twenty-nine stream channel monitoring sites were established in the summer of 1996, after severe winter flooding, for the purpose of evaluating stream channel response and recovery. Of these, 16 were resurveyed in 1997 and/or 1998. Two or three years of post-flood monitoring data are available for sites in the Umatilla (six), Walla Walla (two), Mill Creek (two), Touchet (two), Tucannon (three), and Wenaha (one) watersheds. At each site, measurements were taken of channel cross sections, longitudinal profiles, and channel sediments. Stream channel response and recovery were evaluated by comparing post-flood years to the initial baseline year (1996).

Changes in cross-section area and sediment size were evident 2 years after the floods. Change in cross-section area (A) was determined from the difference between first year (1996) cross-section area and the following year, expressed as a percent (Table U-7). Channel area change occurred at all sites, with some showing relatively minor change (<5 percent) and others showing greater change, for example at the SFUMA3 site. Areas increased at some sites and decreased at others, indicating changes in sediment storage at a site. The volume of material gained or lost was estimated by averaging the individual transects across the site and calculating a volume per 100 feet of stream length.

Table U-7
CHANNEL CHANGES 1996-1998: CHANGE IN CROSS-SECTION AREA AND ESTIMATE OF SEDIMENT GAINED OR LOST
Umatilla National Forest

Stream/ Site Name	Survey Years	WS Area (mi^2)	Rosgen Stream Class	Change in Volume (yd^3/100 ft)	Change Area %	Gain or Loss
Umatilla						
UMA1	96,97	91	F4	+80	4	gain
SFUMA3	96-98	46	B4	-243	7	loss
SFUMA4	96,97	44	B3*	+15	4	gain
SFUMA6	96,98	24	B4	+10	2	gain
NFUMA1	96,98	31	B3c	+14	5	gain
NFUMA2	96-98	30	F4	-20	2	loss
Walla Walla						
SFWW3	96,97	49	B4c	+24	2	gain
SFWW4	96,97	41	C3	-44	2	loss
Mill						
MILL1	96,98	33	B3	+33	1	gain
MILL2	96,98	25	B3	+1	4	gain
Touchet						
NFTCH1	96-98	17	B4	-82	6	loss
NFTCH3	96,98	9	B3*	-6	2	loss
Tucannon						
TCNN1	96,97	93	B3c	+113	5	gain
TCNN3	96,98	79	B3c*	-75	5	loss
TCNN4	96-98	66	B4	-147	3	loss
Wenaha						
WNH2	96,97	190	B3	-37	3	loss

* *Current Rosgen Stream Class*

At three sites, the median particle size, or d50, shifted from gravel to cobble, or cobble to gravel, which changed the stream type (Rosgen, 1996). Two sites shifted from gravel to cobble dominated (SFUMA4 and TCCN3) and one site changed from cobble to gravel dominated (NFTCH3). Four sites have 3 years of data that show a first-year increase in fines of less than 2 and 6 mm, followed by "flushing" and a shift to coarser substrate. This may represent the initial release of finer sediment from upslope and floodplain erosion (Table U-8).

Table U-8
CHANGES IN STREAM PARTICLE SIZES 1996-1998.
(d16, d50, and d84 represent percentiles)
Umatilla National Forest

Stream/ Site Name		d16	d50	d84	% finer 2 mm	% finer 6 mm
UMA1	1996	6	38	106	5	17
	1997	2	32	88	17	22
SFUMA3	1996	16	43	94	5	10
	1997	8	39	126	12	15
	1998	8	44	117	11	13
SFUMA4	1996	18	**41**	75	2	5
	1997	18	**80***	223	9	12
SFUMA6	1996	28	89	225	0	1
	1998	20	60	220	1	3
NFUMA1	1996	6	39	87	13	15
	1998	3	50	119	15	17
NFUMA2	1996	11	54	165	9	10
	1997	0.1	27	86	30	30
	1998	17	47	169	6	9
SFWW3	1996	1	44	120	18	20
	1997	3	51	149	15	19
SFWW4	1996	18	61	200	7	9
	1997	2	51	130	16	16
MILL1	1996	22	65	163	2	2
	1998	25	88	256	2	3
MILL2	1996	27	79	203	1	2
	1998	16	72	224	7	9
NFTCH1	1996	10	38	99	5	8
	1997	2	28	92	16	23
	1998	8	38	95	5	7
NFTCH3	1996	18	**66**	143	4	6
	1998	10	**51***	110	6	11
TCNN1	1996	21	49	104	1	2
	1997	12	40	95	12	13
TCNN3	1996	**1**	**25**	70	18	25
	1998	27	**70***	125	3	3
TCNN4	1996	31	85	176	4	4
	1997	0.1	32	92	39	40
	1998	45	93	186	0	0

***BOLD** = Sites with 3 years of data*
** = Changed Rosgen Stream Class*

Half of the sites showed a net loss, or channel enlargement, and half showed a net gain, or channel narrowing (deposition) in 2 years. Overall, measurable changes have been observed in channel cross-section area and in the sediment substrate. Sediment mobilized during flooding from hillslope failures, sheet erosion, and channel and floodplain erosion is now migrating downstream through the channel network. Development of mid-channel bars can be seen in some reaches. Such "slugs" of sediment illustrate the episodic nature of sediment transport through the channel system.

Some of the controls on reach deposition and erosion have been identified. These include sediment source, valley width, and large wood jams. For example, sediment gains at SFUMA6 were directly associated with a small landslide upstream; SFUMA4 is downstream from a tributary junction (Thomas Creek) where several landslides occurred; and NFUMA1 and UMA1 are downstream from identified source areas (hillslope or channel). Sediment losses appear to be associated with lateral migration of the dominant channel (SFUMA3, NFUMA1) or log jam release (NFTCH1).

Overall, large, rare flood events are important in influencing channel morphology and aquatic habitat; during flood events channels widen, fine sediment is flushed downstream, and streamside vegetation is destroyed. Smaller flood events in subsequent years further redistribute sediment and debris, and channels gradually "recover."

Recommended Actions:
Baseline monitoring provides an opportunity to measure channel recovery processes, and identify the magnitude and direction of change. Maintain channel reference reaches and resurvey selected sites in 1999, and at 5-year intervals thereafter.

UMATILLA MONITORING ITEM 8
Fire Effects on Water and Soil

Questions: How many acres (percentage) of each subwatershed have sustained high intensity burns per 3-year period? Is visible accelerated erosion occurring within a subwatershed due to past burns and/or fire management actions?

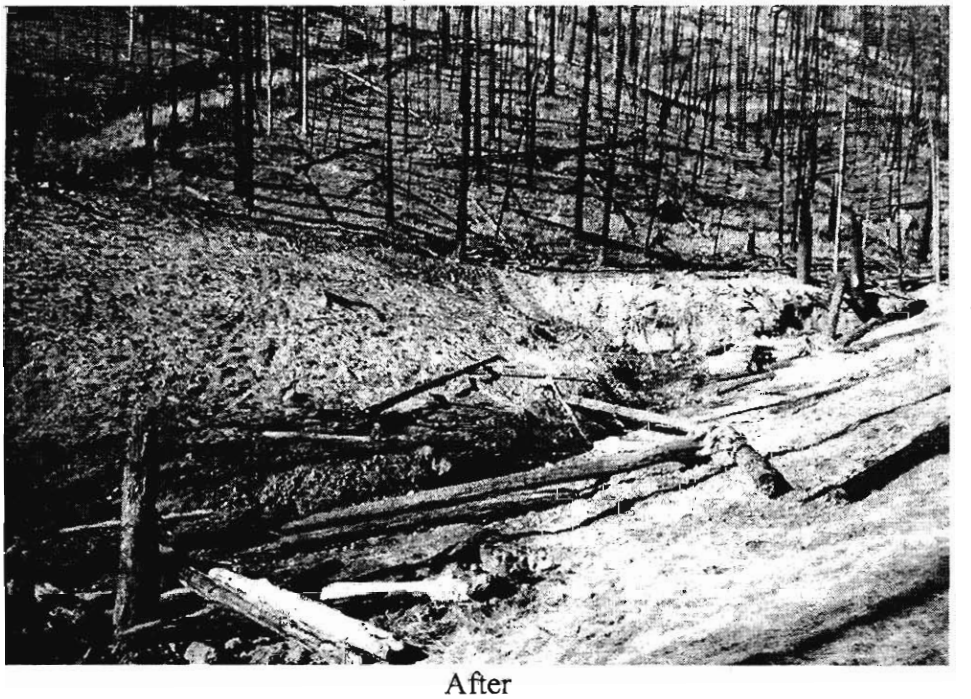
Several high intensity spring and summer thunderstorms occurred over recently burned areas of the Forest, affecting the North Fork and Middle Fork of the John Day River. Episodes of upland and channel erosion and damage were initiated, resulting in extensive areas of hillslope gullying, channel scour, road impacts, and sediment deposition. Watersheds that were impacted include Oriental Creek, South Fork Desolation Creek, and upper Big Creek. Storms occurred on May 8 over the 1996 Tower Fire area, impacting Oriental Creek and surrounding south-facing slopes. On July 30, storms developed over the Summit Fire area, in the vicinity of Indian Rock between Badger Creek (Malheur) and South Fork Desolation Creek. A third storm was reported on September 8 within the headwaters of Big Creek within the Boundary Fire area, which burned in 1994. The Indian Rock lookout reported 0.5 inch of rain the morning of July 30, and the Tower Mountain lookout reported 0.88 inch of rain on September 8. The 24-hour/100-year precipitation predicted in the NOAA atlas is 0.46 inch, which indicates that these were unusual rainfall intensities.

Spring and summer storms, produced by convective air masses (topographic lifting), tend to be more localized and often have higher precipitation intensities than winter frontal weather systems, which are generally more widespread and have lower precipitation intensities. The burned areas are particularly vulnerable to thunderstorms because of reduced protective groundcover. Evidence of accelerated surface erosion (rilling and gullying), channel erosion (scour), and mass wasting processes (debris flows and torrents) were noted in Oriental Creek, South Fork Desolation Creek, and Big Creek.

Stream channel reference reaches installed in 1996 on Texas Bar and Oriental Creek, within and downstream of the Tower Fire area, were resurveyed in 1998. The May 8 storm, centered over Oriental Creek, resulted in upland gullying and severe channel erosion on approximately 3 miles of Oriental Creek. Sediment and debris were transported downstream, plugging culverts on the main midslope road (5507) and North Fork John Day river road (5506). At the 5507 road stream crossing, sediment and debris were deposited behind the plugged culvert; the 30-foot high roadfill functioned briefly as a dam until the fill was overtopped and breached. A rapid "dam-burst" flood swept downstream, scouring the main channel for about 1/4 mile, and depositing sediment at the mouth and into the North Fork John Day River. After the flood event, the 5507 road fill was recontoured to stabilize the fill and reduce sediment delivery into the stream (Figure D). The channel will continue to adjust vertically to reach equilibrium by downcutting and depositing sediment.

Figure U-3
PHOTOS OF 5507 ROAD CROSSING

Before



After

Surveys of the Oriental sites, located near the mouth (Oriental 1) and below the 5507 road crossing (Oriental 2), showed major changes in channel cross-section area (Table 7). Net change is calculated as the difference between the 1996 and 1998 cross-section areas, where positive values indicate a reduction (channel aggradation) in area and negative value in increase (incision) in area. Absolute change is the total (gains and losses) change in area. All monitoring stations show strong evidence of post-fire channel change. The effects of the May 1998 storm and flood event are particularly evident in the Oriental 2 site; the 40 percent increase in cross-section area is a direct effect of the May 8 storm event (see Figure U-D). Overall, the two upper monitoring sites (Oriental 2 and Texas Bar 2) showed loss of material while the two lower sites gained material.

Figure U-4
ORIENTAL CREEK #2 BELOW 5507 ROAD

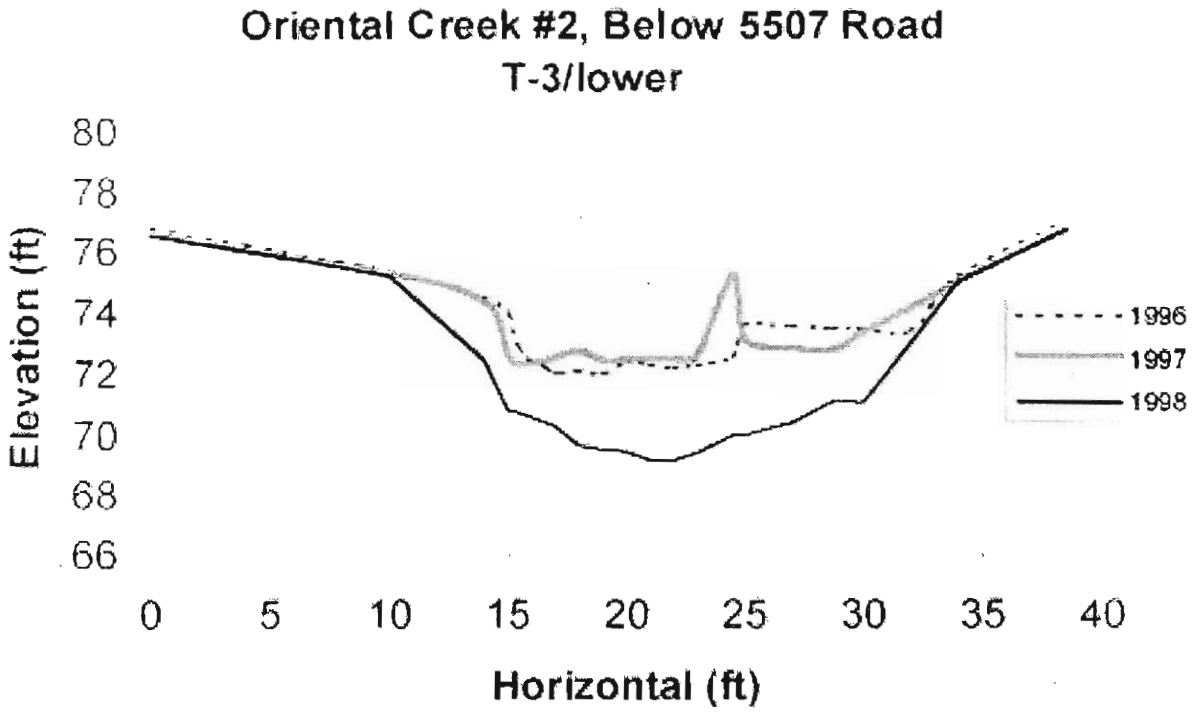


Table U-9
STREAM CHANNEL CHANGES - TOWER FIRE, 1996-1998

Station	Net Change Cross Section Area 1996-1998 (%)	Absolute Change Cross Section Area 1996-1998 (%)
Oriental 1 (lower)	2.1	12.6
Oriental 2(upper)	-40.1	40.2
Texas Bar 1 (lower)	7.1	24.8
Texas Bar 2 (upper)	-8.4	17.4

Repeat measurements of stream particles between 1996 and 1998 also show strong evidence of channel changes; at both Oriental monitoring sites, the median particle size (d50) increased from very fine gravel to coarse gravel. A similar increase occurred on Texas Bar 2, from coarse sand to very fine gravel. However, on Texas Bar 1 the median particle size decreased from coarse gravel to fine gravel

(Table U-10). The percent of fines in the channel, one direct measure of aquatic habitat quality, shows strong shifts at all sites. For example, at the lower Texas Bar site, the channel is filling with sand, and channel bars are developing. On the upper Oriental site, the decrease in channel fines is largely the result of recent scouring by high flows.

Table U-10
CHANGES IN STREAM PARTICLE SIZES - TOWER FIRE, 1996-1998
Umatilla National Forest

Station	d16 mm	d50 mm	d84 mm	% finer 2 mm	% finer 6 mm
Oriental 1 low intensity					
1996	1.18	3.3	8	24	83
1997	0.08	2.4	67	50	55
1998	0.33	17.8	99	27	35
Oriental 2 high intensity					
1996	0.72	1.9	6	51	83
1997	0.06	0.4	158	66	70
1998	0.30	32.0	98	30	37
Texas Bar 1 low intensity					
1996	16.80	26.9	58	5	9
1997	0.35	17.3	45	26	34
1998	0.20	5.2	28	44	51
Texas Bar 2 high intensity					
1996	0.34	1.5	31	52	58
1997	0.11	2.6	24	48	58
1998	0.21	7.2	58	38	48

Tallies of large wood present in the channel were also made in each of 3 years (Table U-11). Storm effects are again evident by the almost complete loss of large wood in Oriental Creek. Large wood in the Texas Bar monitoring sites remained the same or increased slightly.

Table U-11
LARGE WOOD FREQUENCIES BY SIZE CLASS - TOWER FIRE, 1996-1998
Umatilla National Forest

Station	Number of Logs < 10'	Number of Logs 10-20'	Number of Logs >20'
Oriental 1 low intensity			
1996	26	21	12
1997	21	17	9
1998	0	0	0
Oriental 2 high intensity			
1996	30	15	13
1997	21	12	16
1998	2	3	2
Texas Bar 1 low intensity			
1996	16	10	8
1997	22	10	8
1998	14	11	12
Texas Bar 2 high intensity			
1996	38	18	12
1997	31	18	12
1998	25	16	12

In general, streams in the Tower Fire area are showing adjustment to increases in sediment loads and high flows after the 1996 fire and 1998 storms. Fires initially altered the vegetation cover which then results in a "flush" of fine sediment entering the stream system, usually within the first year after the fire. Storms over recently burned areas cause additional erosion and sediment movement through the channel network.

Riparian vegetation conditions were initially surveyed along staked channel transects in 1997. Post-fire, pre-flood vegetation characteristics were as follows. Oriental 1 (natural regeneration) had high plant species diversity, low non-native species, and riparian obligate species present. Oriental 2 (aerially seeded) had a large proportion of introduced species, no noxious weeds, and low presence of riparian obligate species. Texas Bar 1 (natural regeneration) had high species diversity, riparian obligate species, and some introduced species indicative of livestock disturbance. Texas Bar 2 (aerially seeded) was variable with some species diversity, presence of introduced species, and evidence of livestock disturbance. The riparian areas need to be resurveyed to check on changes resulting from the storm events.

Recommended Actions:
Post-fire disturbance monitoring provides an important gage of watershed and stream channel change. Continue annual surveys as channels recover. Include resurvey of riparian vegetation in FY 99.

UMATILLA MONITORING ITEM 15
Stand Management - Regeneration

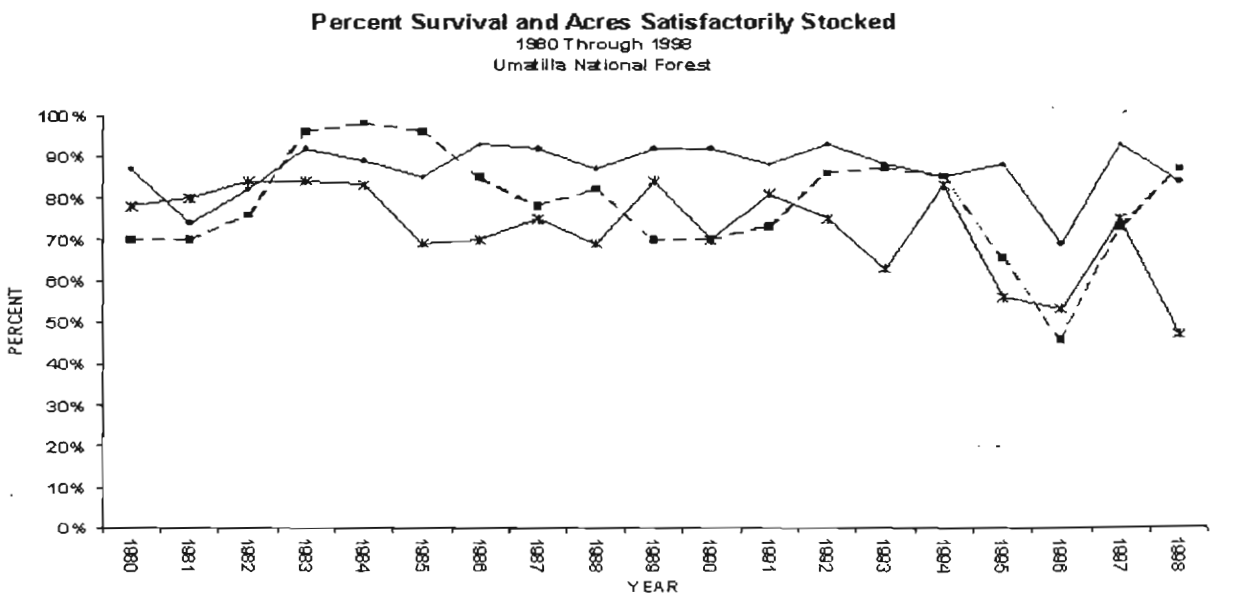
Questions: How many acres were reforested this fiscal year using natural and artificial regeneration practices? Are acres being satisfactorily restocked within 5 years of final harvest per NFMA?

The Combined portion of this report (Section C) addresses the questions and allows for direct comparisons with the other Blue Mountain Forests. However, the Umatilla NF is also tracking additional information and details, which are reported here.

Currently, the Forest performs regeneration examinations after the first and third growing season following regeneration. The staked row method continues to be used to determine survival and growth of each seedling and overall area success.

The following chart displays the historical survival trends (first and third year) and satisfactorily stocked acre percentages for the Umatilla NF since 1980. In general, first-year survival has been consistently averaging approximately 87 percent. Third-year survival has been averaging 73 percent. However, for 1998, third-year survival dropped to less than 50 percent, the lowest rate on record since 1980; in addition, with some exceptions, the general trend for the 90's has been down. Several factors, such as weather, site conditions, vegetative competition, and damage from animals, are contributing to low third-year survival rates. The Forest has applied various mitigation measures to increase survival, including improved seedling handling, planting practices, site preparation, animal damage control, and contract administration.

Figure U-5
SURVIVAL & STOCKING TRENDS



Certification of regeneration is based on a site-specific determination; units must meet minimum stocking guidelines prior to certification. In 1998, the Forest certified a total of 5,111 acres (planted and natural regeneration) as meeting or exceeding minimum stocking standards after 3 years. Certification represents acres which were reforested in 1995 and before.

The 1998 Heppner Ranger District annual survey for survival and growth shows that overall results were influenced by heavy grass competition late in the growing season, compounded by drought stress on seedling establishment. About 15 percent of the planting sites showed signs of soil compaction which tends to reduce reforestation success. The condition of seedlings at the time of planting may also have played a role, particularly in the case of western larch. The quality of larch seedlings was low; approximately 10 to 20 percent of the larch were found to be dead planting time and most of these seedlings were discarded. The poor condition of the larch contributed to its low survival rate of 30 percent.

The North Fork John Day Ranger District established monitoring plots throughout the district within 22 harvest units to measure gopher activity, which is then compared to the unit stocking levels. The comparisons are used to determine if further treatments are needed; i.e., to control the gopher population or to replant the unit(s). Results from 1998 surveys indicate that mortality rates range from 0 to 12 percent, with 0 to 1,500 mounds per acre. Preliminary indications thus far show low gopher damage overall compared to higher mortality rates resulting from drought, frost, and trampling by domestic livestock and big game. In the future, the district expects to develop a predictive model for site condition, stocking level, and mounds per acre where it can be used to improve resource decisions. In addition, the district has installed 25 transects and plans to install more in the future to monitor porcupine damage. The goal is to determine when damage begins to occur and what tree size is most affected.

In 1995, the Washington Office of the USDA Forest Service conducted a national review of the reforestation program which the Umatilla NF participated in. In 1998, the Pacific Northwest Regional Office conducted a follow up review to address some of the original findings from the national review. The objectives of the review were to assess management direction, control of activities, accountability, and cost effectiveness in the reforestation program area. The items reviewed included silvicultural prescriptions for reforestation, costs, animal damage issues, stock questions, surplus of seedlings, and program direction. Preliminary results indicate that the Forest is following procedure and has corrected many of the discrepancies found in the original review.

Recommended Action:
The Forest should complete a review of the survival data and investigate alternatives to increase third-year survival success.

UMATILLA MONITORING ITEM 17
Stand Management - Thinning/Improvement

Question: *How many acres were treated with stocking level control? How many acres needing stocking level control were treated?*

The total amount of pre-commercial thinning accomplished on the Forest in 1998 was 4,841 acres. The planned output is 2,900 acres (Forest Plan, Table 4-1), which is approximately 67 percent above the planned level. The following table shows the actual accomplishment from 1994 to 1998 and the percentage of the actual measured against planned output.

Table U-12
PRECOMMERCIAL THINNING ACRES - FY 94-98
Umatilla National Forest

1994	1995	1996	1997	1998	5 Year Average	Percentage of Forest Plan (Actual/Planned) 5-Year Average
2,301	3,132	4,127	2,769	4,841	3,434	+18%

All acres needing stocking level control, as reported in the Out-year Projection report (a reporting system which identifies projects in need of management action), were not treated in FY 98.

In 1998, the Heppner Ranger District treated approximately 85 acres with a winged subsoiler to reduce soil compaction. The units treated were dense stands of 6- to 8-year-old lodgepole. Although this type of activity helps in reducing stocking levels, it was not used as a pre-commercial thinning target since additional treatments were needed to reduce stocking levels to desired levels.

Recommended Action:
Although the Forest exceeded plan projections based upon the 5-year average, but is within Forest Plan thresholds, a change is needed. Funding for stocking level control has been lacking for several years. The Forest currently has a backlog of acres to treat. Unless a shift in funding and priorities from reforestation to stocking control occurs, the amount of acres needing thinning will continue to increase. And it is unlikely the Forest will be able to accomplish all of the acres needing treatment and meet long-term desired future conditions, sustainability and improved forest health. The Region is currently looking at this issue to try to come up with possible solutions and alleviate some of the survival data relating to funding.

UMATILLA MONITORING ITEM 18A
Fire Effects - Wildfire

Question: What are the stand structure (overstory and understory) and species responses in the Forest's larger wildfire burned areas?

During 1996, the Forest experienced four major wildfires: Bull, Summit, Tower, and Wheeler. Follow up monitoring of forest vegetation was done on all of the fire areas. Data were collected from permanent Current Vegetation Survey (CVS) plots that were measured prior to the fires and then post-fire in 1998. In addition, other plots were established during 1997 in the Tower Fire area to address vegetation and insect responses (mortality) following the fire event. The mortality plot sampling system was similar to the CVS plots but used a variable rather than fixed plots.

For this monitoring report, only the Tower Fire results are discussed since this fire had by far the most CVS sample points and other sampling activity. The 50,800-acre Tower Fire area is quite variable, ranging in elevation from 3,400 to 5,700 feet and with slopes from 2 to 86 percent, averaging about 30 percent. According to the Tower Fire Ecosystem Analysis, primary ecological settings were warm dry sites but ranged from hot dry to cool moist to cold moist conditions. Moderate to high burn intensities (as rated by soil conditions) covered about 42 percent of the area. Initial estimates indicated that complete to near-complete vegetation mortality occurred on about 45 percent of the fire and partial mortality on the remaining 55 percent.

Changes in forest stand conditions as a result of the fire can be seen in Table U-13. Initial results tend to show the obvious: hot fires kill trees (particularly small ones), as total tree stocking was reduced by about 82 percent and average stand diameter increased; large trees were reduced by about half from five to less than three trees/acre; and snag numbers increased substantially. The CVS remeasurements also indicate that initial Ecosystem Analysis estimates were generally "in the ballpark."

Table U-13
TOWER FIRE - FOREST STAND CHANGES
Umatilla National Forest

	LIVE TREES/ACRE		
	Pre Fire	**Post Fire**	**% Change**
1" + DBH	361.5	63.6	-82
10-20" DBH	26.1	14.3	-44
21+" DBH	5.0	2.7	-46
AVE. DBH All Trees (quad. mean)	6.3	9.6	+52

	DEAD TREES/ACRE		
	Pre Fire	**Post Fire**	**% Change**
10-20" DBH	13.6	20.9	+54
21"+ DBH	3.2	4.3	+34

Not only did trees of all species decline in absolute numbers, but as might be expected, changes in stand composition percentages also occurred with the larger fire. More fire-tolerant species, often of larger size, survived the fire; ponderosa pine and Douglas-fir increased as a percentage of total forest composition, as shown in Table U-14. On the other hand, the percentage of western larch increased although the stand composition of larger trees declined. One surprise is that the percentage of grand fir

(all trees) in the stand composition actually increased although large trees (and total basal area) declined. Lodgepole pine percentage was substantially reduced.

Table U-14
Tower Fire -- PERCENT CHANGE IN SPECIES COMPOSITION
Umatilla National Forest

	ALL TREES 1"+ DBH[1]		
	Pre Fire	**Post Fire**	**Actual % Change**
Ponderosa pine	8	26	+213
Douglas-fir	7	13	+81
Grand fir	41	45	+12
Lodgepole pine	31	10	-67
Engelmann Spruce	6	+0	-91
Subalpine fir	5	1	-68
Western larch	2	3	+29

	ALL TREES 21"+ DBH[1]		
	Pre Fire	**Post Fire**	**Actual % Change**
Ponderous pine	44	57	+30
Douglas-fir	19	20	+3
Grand fir	19	14	-25
Engelmann Spruce	2	0	-100
Western larch	16	9	-41

1. Actual percent change varies due to rounding of pre/post fire percentage.

Post-fire plots were established in the Tower Fire area in 1997 and revisited in 1998 to monitor vegetative and insect responses. Additional tree mortality was to be tracked. Several initial observations were made from the plot installation phase of the monitoring.

- For the live trees sampled, fire damage ranged from severe (42 percent) to moderate (11 percent) to none (29 percent). Initial estimates of the dead trees were that most (93 percent) were killed by the fire and the remainder died from other causes. Pre-fire insect mortality from the spruce budworm outbreak was evident.

- Bark beetle activity was evident 1 year following the fire, with most activity on pine species and Douglas-fir. Older, larger ponderosa pine had a high incidence of turpentine beetle even though they had light fire damage.

- A variety of other vegetation was invading at "relatively light" levels. Species included fireweed, elk sedge, pinegrass, strawberry, thistles, ceanothus, bromes, rose, willow, manzanita, lupines, western meadowrue, hawkweeds, ryegrass, miner's lettuce, and a host of lichens and mosses.

Follow up measurement on these plots in 1998 showed a number of changes. Highlights include the following.

- Additional trees have died, mostly lodgepole and grand fir in the smaller to mid diameter classes (3-21 inches dbh). Most mortality appears to be a direct result of the fires (high percentage of crown and bole scorch) and probably accelerated by successful beetle attacks.

- Total tree seeding numbers per acre have increased by about 37 percent. Lodgepole pine accounts for the increase and now amounts to about 90 percent of the seedlings. All other species of seedlings declined in numbers from initial measurements. Other plant responses were dramatic with grass species, primarily pinegrass, increases being prevalent.

Recommended Action:
Continue to remeasure the plots at periodic intervals to note the changes. Of particular monitoring interest is the change in dead trees (snags) by species through time to help refine snag retention models.

UMATILLA MONITORING ITEM 20
Threatened, Endangered, and Sensitive Plants

Question: Is adequate protection afforded the documented sensitive plant species of the Forest?

During FY 98, botanical surveys were mostly concentrated in the remaining unsurveyed blocks on the Walla Walla Ranger District (22,100 acres) in the Mill Creek watershed, and in the Wenaha-Tucannon Wilderness on the Pomeroy Ranger District. Sensitive plant surveys were completed on 61,717 acres bringing the cumulative Forest total acres for sensitive plant surveys (from 1988-1998) to almost 1.2 million acres. During the year, 9,807 acres were surveyed on the Pomeroy Ranger District, 47,139 acres on the Walla Walla Ranger District, and 4,770 acres on the North Fork John Day Ranger District. No portions of the Heppner Ranger District received botanical surveys this year.

The Forest currently has 34 listed sensitive plant species including a significant find in 1998 of *Botrychium fenestratum*, which is a new species in publication and is new to the Forest. Sixty-four new sensitive plant populations were found this year, raising the Forest total to 839 currently listed sensitive plant populations. Another significant find was one more population of *Botrychium paradoxum* on the Walla Walla Ranger District, which raises the Forest total to two populations. *Allium dictuon* had a previously known worldwide distribution of 16 populations near Weller Butte in Washington. However, the discovery of 34 new populations this year has substantially expanded the known distribution, including 17 populations in Oregon, which adds a new sensitive species to the state list. Totals for species and populations can be expected to be adjusted as the Regional Forester's Sensitive Species list is revised and updated.

A total of 63 Biological Evaluations for plant species listed as "sensitive" on the Regional List were issued for the ranger districts' projects: 10 for Walla Walla, 22 for North Fork John Day, 16 for Heppner, and 15 for Pomeroy.

Monitoring activities for sensitive plant populations consisted almost entirely of informal presence/absence spot checks on known populations including: *Trifolium douglasii, Calochortus longebarbatus* var. *longebarbatus, Botrychium paradoxum, B. pinnatum,* and *B. lanceolatum* on the North Fork John Day Ranger District; and *Botrychium pinnatum* and *B. lanceolatum* on the Walla Walla Ranger District. All were noted as present except *Botrychium paradoxum.* This plant species has been absent for several years but is known to flower infrequently and will continue to be tracked. The *Trifolium douglasii* population on the Pomeroy Ranger District was also monitored. Changes in parking and trailhead facilities have reduced potential impacts to this population. Current status of plants monitored in FY 98 suggests that sensitive plants are adequately protected. Monitoring plots established in 1997 were read in 1998 for the response of *Silene spaldingii, Calochartus macrocarpus v. maculosus* and *Ribes oxyacarthoides ssp. cognathum* to prescribed fire and the potential spread of noxious weeds. Preliminary observations indicate stable populations in response to prescribed fire for all three species.

Recommended Actions:

Continue monitoring, with priority given to "at risk" populations or if populations are subjects of mitigation measures written into biological evaluations. Other populations should be monitored as time and budget allow.

Focus monitoring efforts on species that are least likely to be dropped from the Regional Forester's Sensitive Plant Species List.

UMATILLA MONITORING ITEM 21
Insects and Disease

Questions: What re the current level and trends of the tussock moth on the Umatilla NF?

Tussock moth sampling continued on the Forest as part of the Region's early warning system of possible outbreaks. The Forest currently conducts low-level population monitoring through a system of 22 plots with five traps per plot. Three plots were lost on the North Fork John Day District due to fires and other factors; these plots are being replaced.

Results from the 1998 sampling are shown in the following table.

Table U-15
TUSSOCK MOTH TRAPPING RESULTS -- 1998
Umatilla National Forest

	1998 Results		1997 Results	
Total Traps	Total Moths Captured	Average Moths/Trap	Total Moths Captured	Average Moths/Trap
110	1,417	12.9	112	0.9

Tussock moth populations have been increasing on the Forest since 1994 and increased substantially in 1998. Population levels are still below the Regional epidemic threshold level of 40 moths/ trap. None of the plots reached this threshold level in 1998; however, three of the four districts have at least one plot with an average of 25 or more trapped moths/plot. Based on the life history and experience with tussock moth in the Blue Mountains, the current level (25 moths/trap) strongly indicates that a rapid expansion of the population and epidemic level will occur. Along with the rapid population increase, extensive forest defoliation and damage in the fir types is anticipated, probably in the year 2000.

Recommended Action:
Two primary actions are recommended for 1999 including:

Continue monitoring using Regional tussock moth monitoring protocol. Sampling will shift to larval and cocoon surveys to estimate populations. Although the North Fork John Day Ranger District showed a minor increase in population (from remaining plots), the district will be included in the sampling protocol since adjacent districts to the south on the Malheur NF also show expanding tussock moth populations.

The three Blue Mountain National Forests need to develop a joint strategy and action plan to deal with the impending outbreak. This should involve other Federal and state agencies, private landowners, and other cooperators in this Blue Mountain area.

• UMATILLA MONITORING ITEM 22
Anadromous and Resident Fisheries

Questions: Are the population trends for anadromous and resident Management Indicator Species stable to improving? Are Forest Plan goals, objectives, and desired conditions for anadromous fish being achieved? Is fish habitat capability improving as projected in the Forest Plan?

Steelhead and resident rainbow trout were recognized as management indicator species for streams and riparian habitats in the Forest Plan. Habitat requirements of the selected species were presumed to represent those of a larger group of species. Steelhead and rainbow are among the most well distributed fish species on the Forest. While they don't require the coldest water of species on the Forest, they do require good water quality.

Steelhead was selected in 1990 to represent anadromous fish and rainbow trout was selected to represent resident fish. Resident rainbow, commonly referred to as redband trout east of the Cascade Mountains, may share a common gene pool with anadromous steelhead trout in the same geographic area over evolutionary time periods. Resident fish are generally considered part of the steelhead Evolutionary Significant Unit (ESU) but may not be included when an anadromous life form is listed under the Endangered Species Act.

Steelhead

Steelhead trout in the Snake River ESU were listed as a threatened species in August 1997 by the National Marine Fisheries Service (NMFS) under the Endangered Species Act. Ongoing and proposed activities were initially screened by the Level 1 Consultation Team in October 1997, with Final screening documentation submitted to NMFS in August 1998. The status of Snake River steelhead on the Umatilla National Forest was reviewed as part of the project screening activity. The following is a summary of that review.

Prior to 1970, annual returns of native steelhead to the Tucannon River were estimated by the Washington Department of Fisheries (WDF et al., 1990) to average 3,400 fish or 3 percent of the total Snake River return. The sport fishery allowing the harvest of wild fish was closed in 1974. The in-river sport catch ranged from a high of 689 in 1957 to a low of 24 fish in 1973. The estimated number of returning wild fish has steadily declined since 1988 (Table U-16).

Table U-16
ESTIMATED WILD STEELHEAD ESCAPEMENT – TUCANNON RIVER
Marengo Bridge to Sheep Creek (Schuck 1997)
Umatilla National Forest

Year	# Wild Steelhead	Year	# Wild Steelhead
1987	376	1992	133
1988	418	1993	69
1989	255	1994	103
1990	333	1995	116
1991	168	1996	63

Redd surveys are not a good indicator of wild steelhead production in the Tucannon River because both wild and hatchery steelhead spawn together, and the operation of the weir/trap at the Tucannon River hatchery may have effected upstream migration of adult steelhead in past years.

Asotin Creek supported a run of over 1,000 steelhead from 1954 to 1961 (Schuck, personal communication). The present annual return is between 120 and 170 adults with a Washington State escapement goal of 225 spawning steelhead. Spawning habitat on the Forest is restricted to the approximately 10 miles of the North Fork of Asotin Creek. Other steelhead tributaries with headwaters on the Forest are Charlie Creek, George Creek, and South Fork Asotin Creek. The following table is a summary of steelhead spawning surveys by the Washington Department of Fish and Wildlife since 1986 (Schuck, Viola, and Keller, 1997).

Table U-17
STEELHEAD SPAWNING GROUND SURVEYS -- REDDS PER MILE
Asotin Creek Watershed
Umatilla National Forest

Year	North Fork Asotin Creek	South Fork Asotin Creek
1986	37.2	21.9
1987	25.6	10.3
1988	15.0	11.5
1989	5.2	3.2
1990	3.5	2.6
1991	5.4	0
1992	4.5	3.3
1993	5.4	7.1
1994	5.5	2.4
1995	11.0	4.5
1996	8.9	9.3
1997	no data	no data

Mid-Columbia steelhead ESU was added to the Regional Forester's Sensitive Species List in August 1997. Steelhead in the Mid-Columbia ESU are proposed for listing by NMFS under the Endangered Species Act with a listing decision anticipated in the spring of 1999. The Forest Service sensitive species policy requires that species, populations, or ESUs with viability concerns or trending toward Federal listing be given management emphasis to ensure their continued existence. Steelhead in the mid-Columbia are clearly trending toward Federal listing under the Endangered Species Act.

Chinook Salmon

The Oregon Department of Fish and Wildlife (ODFW) has established spring chinook spawning distribution and abundance index reaches on Clear Creek, Granite Creek, North Fork John Day River, and Wenaha River. Additional spring chinook spawning surveys were conducted by North Fork John Day Ranger District employees from 1992 through 1996. No additional surveys were conducted by the District in 1997 or 1998. Camas Creek, Hidaway Creek, and North Fork John Day River were surveyed for chinook redds, carcasses, and number of live fish. Survey results are displayed in TablesU-18 and U-19.

Table U-18
CHINOOK COUNTS BY INDEX REACH -- OREGON
Umatilla National Forest

	Year	No. of Redds	No. of Carcasses	No. of Live Fish
ODFW MEASUREMENTS				
S. Fork Wenaha River (above Milk Cr. to Forks)	1994	12	0	2
	1995	2	0	1
	1996	28	3	16
	1997	35	9	11
	1998	24	11	13
Wenaha River (Forks to Crooked Creek)	1994	30	5	18
	1995	18	3	10
	1996	69	11	54
	1997	33	27	18
	1998	38	12	31
Milk Creek (tributary of Wenaha River	1994	0	0	0
	1995	0	0	0
	1996	0	0	0
	1997	0	0	0
	1998	0	0	0
Butte Creek (tributary to Wenaha River)	1994	0	0	0
	1995	1	0	0
	1996	5	1	3
	1997	4	1	0
	1998	3	0	0
USFS MEASUREMENTS (North Fork John Day Ranger District)				
Camas Creek	1992	0	0	0
	1993	2	1	0
	1994	5	1	3
	1995	0	0	0
	1996	0	0	0
	1997	-	-	-
	1998	-	-	-
Hidaway Creek	1992	0	0	0
	1993	0	0	0
	1994	0	0	0
	1995	0	0	0
	1996	0	0	0
	1997	-	-	-
	1998	-	-	-
N. Fork John Day River	1992	5	4	0
	1993	21	4	5
	1994	2	9	0
	1995	1	0	10
	1996	5	7	0
	1997	-	-	-
	1998	-	-	-

Table U-19
ODFW CHINOOK REDD COUNTS - REDDS/MILE
North Fork John Day River Drainage
Umatilla National Forest

Index Reach	1992	1993	1994	1995	1996	1997	1998
Clear Creek	11.7	25.6	4.0	2.8	9.5	7.3	2.8
Granite Creek	16.5	19.8	14.5	2.2	14.7	10.0	8.4
N.Fork John Day (wilderness)	28.1	27.3	15.6	2.5	20.6	18.1	9.3
N.Fork John Day (lower)	11.4	16.1	7.6	0.7	12.6	5.2	3.5

The NMFS listed the Snake River spring chinook salmon and Snake River fall chinook salmon as threatened species in May 1992. Critical habitat was designated for both species in December 1993. Fall chinook and their critical habitat are not found on the Umatilla NF but are downstream from several of the Forest's Snake River tributaries. Snake River spring chinook are found in the Tucannon watershed and Grande Ronde tributaries on the Forest.

Chinook salmon spawning escapement potential prior to mainstem Columbia River and Snake River dam construction was estimated at 20,000 fish (Van Cleave and Ting, Oregon Fish Commission, unpublished report). Actual escapement in 1957 was estimated at 12,200 spring chinook (ODFW, 1990). An estimated 8,400 spring chinook returned to the Grande Ronde subbasin in the early 1970s (Smith, 1975). Since 1975, Grande Ronde spring chinook must pass a total of four mainstem Columbia River dams and four mainstem Snake River dams. Annual escapement estimates by ODFW for 1977 through 1987 range from 324 to 1,715. Chinook counts by index reach within the Wenaha Wilderness are displayed in Table U-18. Chinook numbers have declined within the wilderness at approximately the same rate as other, more developed subwatersheds in the Grande Ronde subbasin (ODFW, 1990).

Lookingglass Creek is a tributary of the Grande Ronde River and was considered one of the major spring chinook producers in the subbasin. The wild spring chinook of Lookingglass Creek were incorporated in the Lookingglass Creek hatchery stock developed after completion of the hatchery in 1982. Although some returning adults are able to pass over the hatchery weir each year and spawn naturally, it is currently believed that these fish are of hatchery origin. The wild spring chinook population of Lookingglass Creek is extirpated.

Asotin Creek chinook spawning ground surveys conducted by the Washington Department of Fish and Wildlife (WDFW) were reported in the 1997 Annual Report for the Tucannon River Spring Chinook Hatchery Evaluation, September 1998. Spawning ground surveys have been conducted by WDFW since 1984. The results of these surveys are included in Table U-20. The WDFW concludes that the survey results indicate spring chinook salmon in Asotin Creek have been extirpated. Any adult salmon that return in future years will likely be strays from other basins.

Table U-20
CHINOOK SALMON COUNTS ON NORTH FORK ASOTIN CREEK - 1984-1987
Umatilla National Forest

Year	84	8-5	86	8-7	88	89	90	91	92	9-3	9-4	95	9-6	97
Redds	21	8	1	3	1	0	2	0	0	2	0	0	0	0
Live Fish	12	7	3	6	0	0	0	0	0	0	0	0	0	0
Carcasses	5	1	0	0	0	0	0	0	0	1	0	0	0	0

Historic Tucannon River runs of spring chinook salmon averaged approximately 2,400 adults annually (WDFW, 1992). The status of the Tucannon River spring chinook salmon was evaluated by NMFS in the Tucannon River Subbasin Biological Opinion dated July 1993. NMFS reported estimated adult returns based on redd counts and counts at the Tucannon Fish Hatchery Rack as follows:

Year	89	90	91	92
Adults	178	420	161	353

WDFW has conducted a spring chinook index area spawning ground survey since 1954. The survey area is from Cow Camp Bridge to Camp Wooten Bridge, approximately 2.4 miles. The data are collected on one day of spawning ground survey between August 26 and September 28. The results of the survey are shown in Table U-21.

Table U-21
CHINOOK COUNTS BY INDEX REACH - WASHINGTON
Umatilla National Forest

Year	**54**	**55**	**56**	**57**	**58**	**59**	**60**	**61**	**62**	**63**	**64**
Redds	33	0	-	168	54	27	42	102	52	21	61
Live Fish	52	80	-	232	89	56	69	63	47	25	55
Car-casses	3	0	-	51	7	1	13	23	24	11	24
Year	**65**	**66**	**67**	**68**	**69**	**70**	**71**	**72**	**73**	**74**	**75**
Redds	24	65	40	18	61	62	6	23	24	18	37
Live Fish	20	56	41	20	55	68	11	3	18	12	28
Car-casses	4	10	8	4	28	6	1	0	3	5	8
Year	**76**	**77**	**78**	**79**	**80**	**81**	**82**	**83**	**84**	**85**	**86**
Redds	13	19	-	-	38	67	27	40	31	50	20
Live Fish	0	3	-	-	47	55	5	25	26	37	31
Car-casses	11	4	-	-	3	3	11	8	15	13	2
Year	**87**	**88**	**89**	**90**	**91**	**92**	**93**	**94**	**95**	**96**	**97**
Redds	32	7	16	13	4	27	20	1	0	0	3
Live Fish	57	16	21	24	12	37	28	1	0	1	5
Car-casses	5	6	5	7	0	2	1	0	0	0	0

Bull Trout

Columbia River bull trout (*Salvelinus confluentus*) were listed as a threatened species by the U.S. Fish and Wildlife Service in June 1998. Bull trout are present on the Umatilla NF in the Umatilla, Walla Walla, Tucannon, Asotin, Wenaha, Lookingglass, and North Fork John Day drainages. The Forest, in cooperation with Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife, and Confederated Tribes of the Umatilla Indian Reservation, have been conducting bull trout spawning surveys within the Umatilla, Walla Walla, Tucannon, and Wenaha Rivers, and Lookingglass Creek drainage. Results are displayed in the following table.

Table U-22
BULL TROUT REDD COUNTS
Umatilla National Forest

Subwatersheds	**Miles Surveyed**	**Total Bull Trout Redd Count**				
		1994	**1995**	**1996**	**1997**	**1998**
Tucannon	8.5	131	114	184	78	108
Lookingglass Creek	12.3	15	16	29	39	62
Touchet	8.2	86	27-*	64	41*	95
Mill Creek	15.7	191	165	134	118	137

Table U-22 (continued)
BULL TROUT REDD COUNTS

Subwatersheds	Miles Surveyed	Total Bull Trout Redd Count 1994	1995	1996	1997	1998
S.F. Walla Walla	21.5	143	114	177	180	276
Umatilla	18.7	39	22	37	32	84
TOTAL	84.9	605	458	625	488	762

**Counts may be low due to late season monitoring (Wolf Fork).*

Fire Recovery

The North Fork John Day Ranger District has been monitoring recovery of fish populations in streams which experienced fish kills caused by the 1996 Tower Fire. This was the third year of population monitoring in affected and control reaches. Population estimates are for resident redband trout within 100-meter sample areas, except where noted. The Tower Fire effects monitoring study of fish populations will continue for at least two more years. Preliminary results are displayed in Table U-23.

Table U-23
REDBAND TROUT POPULATION ESTIMATES
for the surveyed reach (standard error in parentheses)
Umatilla National Forest

Stream	Reach	1996	1997	1998
Texas Bar	Treatment #1	No Fish	3 (0)	20.5 (2.2
	Treatment #2	No Fish	2 (0)	36 (1.4)
South Fork Cable	Treatment #1	31.7 (2)	96.4 (4.1)	59.5 (7.0)*
	Treatment #2	No Fish	96.9 (4.1)	103.2 (3.7)
Oriental	Treatment #2	No Fish	5.3 (1.0)	--
Texas Bar	Control #1	76.5 (4.2)	136.9 (5.3)	112.5 (3.3)
	Control #2	128.2 (9.7)	150.2 (6.5)	170.7 (6.1)
Hidaway	Control #2 (50m)	84.3 (6.6)	47.6 (1.0)	107.4 (5.5)
Oriental	Control #1	77.8 (7.9)	67.8 (3.7)	2 (0)**
	Control #2	94.3 (6.3)	50.7 (2.7)	1 (0)**
Frazier	Control	--	--	55.7 (1.2)
Battle	Control	--	--	63.0 (5.6)
Sponge	Control	--	--	28.8 (1.3)

** Treatment #1 in South Fork Cable was moved during 1998; the new reach partially overlaps the old reach.*
*** Oriental Creek experienced a debris torrent in spring of 1998, altering habitat and likely pushing all fish out of the stream.*

Within the last few years, chinook salmon, steelhead trout, and bull trout have been listed as threatened species in ESUs that include habitat on the Umatilla NF. Almost all subwatersheds on the National Forest contain habitat for at least one listed aquatic species. The Forest will work closely with the Regulatory Agencies toward recovery of the listed species.

Recommended Action:
Changed practices will be implemented through Endangered Species Act consultation.

UMATILLA MONITORING ITEM 23
Elk/Deer Habitat and Estimated Populations

Questions: Are the populations being maintained as predicted in the Plan? Are the standards and guidelines being followed as required to meet habitat effectiveness index levels established for the subwatershed and (aggregated to the) management area? Are the assumptions pertaining to the prediction of cover resulting from harvest and silvicultural activity valid? Are the assumed interrelationships between cover spacing, cover quality, and open roads valid? Are the assumptions relating elk habitat effectiveness to elk populations valid?

Elk and deer population estimates were derived from the Oregon Department of Fish and Wildlife and Washington Department of Fish and Wildlife reports for 1998. Tables U-24 and U-25 contain elk and deer management objectives, population estimates, and herd composition for each State Management Unit (SMU) occurring on the Forest. Management units are aggregated into various groups for evaluation.

The estimated elk population and distribution in Table U-24 closely reflect the elk populations on the Forest because the bulk of suitable elk habitat within SMUs occurs on National Forest lands. In 1998, the total number of elk on the Forest was estimated at 24,400 animals. Over the last 3 years, the elk population on the Forest has increased slightly and remains above the Forest Management Objective of 21,200 animals (for the first decade). The 1998 estimate is about 3 percent above the previous year's estimate and approximately 4 percent above 1996 estimates. Overall, the 1998 estimated Forest-wide elk population (total) is 16 percent above the Forest Management Objective and within the 20 percent threshold of variability identified in the Forest Plan. On the other hand, when all lands are considered, the 1998 estimate is 10 percent below State Management Objectives (SMO) for combined State Management Units.

Estimated elk populations continue to vary by general area on the Forest. The elk population in Washington and northern Oregon units continues to fall below the management objectives for State Management Units; the area is consistently below the 20 percent threshold of variability. Many of these units have been declining since the mid-1980's. Speculation about low elk populations in Washington and northern Oregon areas centers around low calf survival, changes in habitat suitability leading to a seasonal shift in the herd followed by an increase in vulnerability, and/or the efficient harvest of cow elk in antlerless hunts in Washington and Oregon.

In general, the bull/cow ratio for the Forest has been above or near the SMO during the last 3 years. SMUs consistently below SMOs for the last 3 years include the Tucannon, Lick Creek, Mt. Emily, and Heppner units. In 1998, the average bull/cow ratio Forest-wide was estimated at 13 bulls/100 cows. This estimate is within the Forest Plan 20 percent threshold of variability.

In 1998, calf/cow ratios were below 40 calves/100 cows for all SMUs on the Forest. Only three management units (Desolation, Heppner, and Fossil), all on the south end of the Forest, had calf/cow ratios >30 calves/100 cows. The average calf/cow ratio for SMUs in Washington was 18 calves/100 cows. Over the last 3 years calf/cow ratios have averaged less than 24 calves/100 cows for SMUs in Washington and less than 35 calves/100 cows for SMUs in Oregon.

Table U-24
ROCKY MOUNTAIN ELK
Management Objectives, Composition, and
End-of-Winter Population Trends for 1996-1998
Umatilla National Forest

Management Units	Population Tends				Bulls Per 100 Cows				Calves Per 100 Cows		
Washington*	*Mgmt. Ob-ject.*	*1998*	*1997*	*1996*	*Mgmt. Ob-ject.*	*1998*	*1997*	*1996*	*1998*	*1997*	*1996*
"North" Umatilla NF											
Mill Creek	400	738	375	375	15	22	26	19	21	24	13
Dayton	800	908	719	725	15	15	9	13	19	25	18
Tucannon	1,200	448	376	410	15	8	13	12	26	23	18
Wenaha	1,200	600	600	700	15	33	19	27	11	13	6
Lick Cr.	1,000	684	600	650	15	6	5	6	18	23	14
Mt. View	1,100	478	475	520	15	12	14	25	27	27	21
Subtotal	*5,700*	*3,856*	*3,145*	*3,380*	*@15*	*@17*	*@14*	*@17*	*@18*	*@23*	*@15*
Oregon**	*Mgmt. Ob-ject.*	*1998*	*1997*	*1996*	*Mgmt. Ob-ject.*	*1998*	*1997*	*1996*	*1998*	*1997*	*1996*
"North" Umatilla NF	4,250	1,300	1,500	1,700	10	16	12	14	16	14	14
Wenaha	1,800	1,600	1,600	1,900	10	17	11	14	22	20	21
Walla Walla	5,700	6,000	6,300	6,000	10	5	6	6	27	27	17
Mt. Emily											
Subtotal	*11,7-50*	*8,900*	*9,400*	*9,600*	*@10*	*@13*	*@10*	*@11*	*@22*	*@20*	*@17*
"South" Umatilla NF	5,000	6,000	5,500	5,500	10	10	6	8	27	36	25
Ukiah	1,300	1,500	1,600	1,400	10	12	10	10	31	52	27
Desolation	2,800	3,100	3,300	2,900	10	7	5	6	37	43	43
Heppner	700	1,100	900	800	10	9	4	12	39	52	53
Fossil											
Subtotal	*9,800*	*11,7-00*	*11,3-00*	*10,60-0*	*@10*	*@10*	*@6*	*@9*	*@34*	*@46*	*@37*
Forest Total	***27,2-50***	***24,4-56***	***23,8-45***	***23,58-0***	***@12***	***@13***	***@11***	***@11***	***@25***	***@29***	***@22***

* Washington Department of Fish and Wildlife, 1998 Game Status and Trend Report
** Source: Oregon Department of Fish and Wildlife, Big Game Statistics 1998
@ Average for the area described

Unlike elk, deer are distributed widely across SMUs, occurring on Forest lands as well as State and private lands. The deer estimates for the Forest would, therefore, be less than the estimate for the entire SMU. Population densities and management objectives identified on Table U-25 are estimates for National Forest lands (i.e., a portion of the estimate for the management unit). The estimates for herd composition on National Forest land should mimic trends on SMUs.

In 1998, the total number of deer associated with the Forest was about 10,200 animals. Over the last 3 years, deer populations on the Forest have been below Forest Management Objectives (18,300 animals) and below SMOs (16,800 animals). The 1998 deer estimate is about 28 percent below the 1997 and 1996 estimate for deer. In Washington, the population has declined over the last 3 years and is currently 60 percent below the SMO. The Oregon population remains stable but slightly below the SMO for the area. Overall, the Forest-wide deer population (total) is outside the 20 percent threshold of variability identified in the Forest Plan. Speculation about the low deer numbers revolves around the same factors that may be influencing the elk population levels.

The bucks per does ratios have been variable across all management units for the last 3 years. In 1998, the majority of units were below MO for bucks/100 does. However, buck/doe ratios were slightly below MO on the "north" end of the Forest and slightly above MO on the "south" end. The 1998 Forest-wide ratio is 14 bucks/100 does. This is slightly below the MO of 15 bucks/100 does, but within the Forest Plan threshold of variability. The fawn/doe ratios for the "north" and "south" ends of the Forest are below the 1997 estimates but are generally greater than 35 fawns/100 does.

Table U-25
MULE DEER
Management Objectives, Composition, and End-of-Winter Population Trends For 1998-1996
Umatilla National Forest

Management Units	Population Tends				Bucks Per 100 Does				Fawns Per 100 Does		
Washington *	*Mgmt. Object.*	*1998*	*1997*	*1996*	*Mgmt. Object.*	*1998*	*1997*	*1996*	*1998*	*1997*	*1996*
"North" Umatilla NF											
Mill Creek	-	50	65	95	16	-	20	-	-	40	-
Dayton	-	475	945	755	16	-	15	16	-	70	38
Tucannon	-	125	250	250	16	-	10	10	-	70	50
Wenaha	-	60	190	220	16	-	10	7	-	39	65
Lick Cr.	-	50	95	95	16	-	20	16	-	66	30
Mt. View	-	65	125	190	16	-	10	14	-	65	27
Subtotal	*2,100*	*825*	*1,670*	*1,6-05*	*16*	-	*@14*	*@13*	-	*@58*	*@42*
Oregon**	*Mgmt. Object.*	*1998*	*1997*	*1996*	*Mgmt. Ob-ject.*	*1998*	*1997*	*1996*	*1998*	*1997*	*1996*
"North" Umatilla NF	1,100	770	715	715	12	9	10	11	48	64	39
Wenaha	650	390	420	420	15	10	6	11	51	52	72
Walla Walla	1,950	1,560	1,560	1,56-0	15	19	14	17	47	66	63
Mt. Emily											
Subtotal	*3,700*	*2,720*	*2,695*	*2,69-5*	*@14*	*@13*	*@10*	*@13*	*@49*	*@61*	*@58*
"South" Umatilla NF	2,450	2,330	2,330	2,20-5	15	18	22	24	38	49	52
Ukiah	2,200	1,650	1,500	1,32-0	15	11	21	32	33	73	37
Desolation	4,350	4,785	5,090	4,35-0	12	14	13	12	58	65	49
Heppner	2,000	1,900	1,860	1,80-0	12	12	13	11	50	79	44
Fossil											
Subtotal	*11,00-0*	*6,665*	*9,860*	*9,67-5*	*@14*	*@13*	*@17*	*@20*	*@45*	*@67*	*@46*
Forest Total	***16,80-0***	***10,2-10***	***14,2-25***	***13,9-75***	*@15*	*@13*	*@14*	*@15*	*@46*	*@61*	*@47*

* Washington Department of Fish and Wildlife, 1998 Game Status and Trend Report
** Source: Oregon Department of Fish and Wildlife, Big Game Statistics 1998
@ Average for the area described

The elk Habitat Effectiveness Index continues to be determined for activities that could affect forage and cover values. However, as mentioned in previous monitoring reports, the HEI model has problems and is no longer considered a useful tool to evaluate elk habitat. Key elk habitat components, such as forage, suitable cover, marginal cover, road density, and their interrelationships will continue to be evaluated at the project level. A continuing need is to conduct follow up monitoring of changes in elk (and deer)

habitat resulting from activities and other disturbance events across the Forest. The relationship between habitat quality on the Forest and elk populations needs to be explored.

Meeting cover objectives can be problematic when the project encompasses areas of high mortality from past insect and disease infestations. However, this is usually compensated by a reduction in the road density through implementation of the Access and Travel Management Plans. Thinning is expected to increase across the Forest to reduce stand densities and allow for more tree-sustainable forest condition. As a result of the anticipated action, a change in cover quality will occur when areas of suitable cover are moved to marginal cover. Elk needs for cover is still a point of debate. Recent literature (Cook, et. al., 1998) indicates that thermal cover may not be as important as earlier studies show.

Recommended Action:
Monitoring and evaluation of habitats for elk and deer on the Forest are needed, particularly where large-scale insect infestations and fires have occurred and have likely affected overall habitat quality.

Continue reviewing the utility of HEI and change Forest Plans as needed during the Forest Plan adjustment process (upon completion of ICBEMP).

UMATILLA MONITORING ITEM 25
Dead and/or Defective Tree Habitat

Questions: Are dead and defective trees being left in appropriate numbers and sizes with proper distribution following timber sales, firewood cutting activities, post-sale treatments, and other management activities as outlined in the standards and guidelines? Are sufficient numbers, size classes, and distribution of green replacement trees and down logs being left following all management activities?

Dead standing tree and down wood inventories are conducted at the project level on all the Ranger Districts on the Forest. Inventories conducted in 1998 show that snag standards and guides from the "Eastside Screens" (Regional Forester's Forest Plan Amendment #2, June 1995) and Interim Snag Guidance for Salvage Operation (Umatilla NF, April 14, 1993) were addressed. Table U-26 displays activities that have had pre-treatment and post-treatment dead wood inventories.

Table U-26
DEAD WOOD DENSITIES (no./ac.)
For Various Management Activities
Umatilla National Forest

DEAD STANDING TREE INVENTORY								
Management Activity	**Guidelines***		**Pre-Treatment**		**Post-Treatment**		**Down Wood Inventory****	
	Total	*>20" DBH*	*Total*	*>20" DBH*	*Total*	*>20" DBH*	*Pre-Treatment*	*Post-Treatment*
Timber Harvest ***								
Swampy Salvage 03	1.8	.14	8.3	1.7	17.6	3.7	N/D	11.4
Swampy Salvage 04	1.8	.14	7.4	0.9	13.0	1.0	N/D	20.6
Swampy Salvage 05	1.8	.14	4.4	0.6	20.9	4.5	N/D	18.4
Swampy Salvage 06	1.8	.14	25.3	0.9	49.5	0.0	N/D	32.5
Summer Home Salvage	1.8	.14	4.8	1.8	5.1	1.8	N/D	18.0
Prescribed Burn								
West Patit 01	1.8	.14	18	N/D	13	N/D	38	25
West Patit 04	1.8	.14	16	N/D	9	N/D	30	17
West Patit 10	1.8	.14	10	N/D	7	N/D	29	16
West Patit 17	1.8	.14	9	N/D	3	N/D	20	7
West Patit 18	1.8	.14	5	N/D	1	N/D	11	13
Fuelwood Harvest (1yr)								
Jarboe/Walla Walla #3	1.8	.14	39-.8	19.0	32-.2	5.6	85	84

* - Guidelines identified as a result of the "Eastside Screens." ** - No. Pieces ≥ 10" diameter at the small end and ≥10' in length.
*** - Dead standing trees marked for retention. N/D - No Data were collect.

Dead wood inventories were conducted on the Swampy Salvage Sale and Summer Home Salvage Sale (Walla Walla Ranger District) before the units were marked or after the units were marked (pre-treatment), and after the units were harvested (post-treatment). A select number of sites were surveyed with transects repeated at the same location to collect pre- and post-treatment data. The intent of the survey was to determine the effectiveness of marking guidelines and the effects of harvest operations on dead wood retention. In all cases, all size classes were retained and more snags were designated to be left than required by the "Eastside screens." Snags marked for retention were relatively proportional to the size (diameter) and height of snags in the stand prior to marking. Snag densities actually increased in some units when comparing pre- and post-treatment densities because mortality continued to occur in the stand. While the required down wood densities were met, the predominate decay class of down wood was "soft," with very few down logs remaining in the "hard" decay class.

On the Pomeroy Ranger District, five units of the West Patit Timber Sale were monitored for dead wood. The units had post-harvest data available and prescribed burning planned. The intent of the survey was to determine the effects of prescribed burning on dead wood retention. A select number of sites were surveyed with transects repeated at the same location to collect pre- and post-treatment data. Most of the West Patit units retained dead wood densities above the prescribed level after conducting the prescribed burn. However, snag densities were slightly below minimum levels along the transect in Unit 18. The greatest percent reduction (65 percent) in down wood densities occurred in Unit 17 but remained above prescribed levels. As anticipated, the smaller diameter dead wood and dead wood with advanced decay were largely consumed by the fire.

Monitoring of firewood cutting was conducted at six locations in the Sinks Woodcutting area of the Walla Walla Ranger District. The area was monitored to determine the effects of fuelwood harvesting on the snag and down wood components along a road corridor. Table U-27 displays the results of one site (Jarboe/Walla Walla #3), because the remaining sites showed little or no visible sign of fuelwood harvest after 1 year of use. After harvest, dead wood densities were far above the prescribed level. While the area met current guidelines, overall the site contained locations that were far below current guidelines. Dead standing trees greater than 20 inches seemed to be the preferred tree for cutting. It was even noted that standing 20-inch trees were selected over down logs of the same size, near the harvested tree. Overall, Ranger Districts are still concerned about maintaining sufficient densities and size classes of dead standing and down wood in fuelwood harvest units over an extended period of time.

Recent past and current harvest activities have focused on stands with a high density of dead or dying trees and low to no existent density of green trees. The retention level for green replacement trees is met when sufficient numbers and size classes are available for retention. When a sufficient number or size is not available, the next lowest quantity and/or size is retained.

Recommended Actions:
Continue monitoring with emphasis on review of post-harvest dead wood densities, including trees greater than 20 inches, down logs, and green tree retention. Habitat use monitoring is an ongoing need. Tentative results suggest that additional work is needed throughout the operations process, to improve snag selection and placement in harvest units in order to minimize the loss of snags. In addition, snag densities after marking should exceed minimum levels in order to offset anticipated losses from follow up activities.

UMATILLA MONITORING ITEM 28
Threatened/Endangered/Sensitive Wildlife and Fish Species

Questions: Bald Eagles: *Are potential habitats, including nest sites, communal roosts, and associated foraging habitats, being identified and planned to assure species recovery as specified in the Recovery Plans and in the Forest Plan? Are wintering populations stable or increasing?*
Peregrine Falcons: *Are nesting and associated foraging habitats being identified? Are potential nest habitats identified and being managed to maintain suitability?*
Chinook Salmon: *Are terms and conditions as identified by NFMS being followed?*
Sensitive Species: *Are potential habitats being identified and protected to maintain identified species and to ensure management standards are being met?*

Bald Eagles

The Dry Creek (Rail Canyon) bald eagle nest was monitored in 1998. During several visits between March and July, adults were observed on and around the nest. At the latter part of the breeding season, two fledged young eagles were observed in the drainage. Since 1994, this nest site has fledged eight eaglets, an average of 1.6 eaglets fledged per year. A draft site-specific management plan was initiated in 1998 for the Dry Creek Bald Eagle nest. The plan is expected to be finalized in 1999.

Two winter bald eagle survey routes were run on the North Fork John Day Ranger District in 1997-1998, which followed the same routes used in the original study by Frank Issacs (1991-1992). Overall, the number of wintering bald eagles was lower than previous years; however, not alarmingly low considering the abnormal winter weather (warm and wet) that occurred that year. With the lower than normal snow depth, the eagles could have been well dispersed and foraging over a larger area. No evidence of new night roosts was found on the Forest.

No bald eagles were detected after the end of March. No evidence of nesting or attempted nesting eagles was observed on the Forest in 1998.

Peregrine Falcon

Aerial surveys for peregrine falcons were not conducted on the Forest in 1998. Ground surveys were conducted at suspected nesting sites on the Pomeroy, Walla Walla, and North Fork John Day ranger districts. No peregrines or nesting sites were observed; however, incidental falcon sightings continue to occur in July and August on the Pomeroy and North Fork ranger districts. These late season observations could be dispersing juveniles or individuals migrating through the area.

Sensitive Species

During 1998, no report was submitted specific to the Forests's sensitive species.
Other Threatened and Endangered (T/E) species populations and their habitat were not compromised as a result of management activities on the Forest in 1998. Effects on T/E species and their habitat continues to be documented in the project Biological Evaluation and/or "Specialist Reports." T/E species and their habitats will continue to be analyzed on the Forest through the project evaluation process.

Recommended Actions:

Continue to monitor. Follow up monitoring and documentation are needed for the Forest's sensitive species.

Continue development of a site management plan for the Dry Creek (Rail Canyon) bald eagle nest site. A final plan is anticipated by fall 1999.

UMATILLA MONITORING ITEM 33
Recreation

Question: How much recreation is occurring on the Forest and in which categories? How much use and what occupancy rate is occurring at each recreation site? Are recreation sites adequate to meet demand and to provide user satisfaction?

Total recreation use on the Forest in FY 98 has increased by about 14 percent from the last reported year (FY 96). Recreation use amounted to an estimated 1,043,657 Recreation Visitor Days (RVDs). Dispersed recreation activity (86 percent of the total) still provides the major share of use on the Forest; developed recreation has declined somewhat from reported use in FY 96.

Table U-27
RECREATION USE -- FY 98 (RVDs)
Umatilla National Forest

Site or Area	Heppner	North Fork John Day	Pomeroy	Walla Walla	Forest Total
General Forest	134,820	231,236	281,345	99,327	746,628
Wilderness		18,644	10,546	3,567	32,757
W&S River S.A.		36,971	15,870	8,889	61,730
Trailhead	1,760	15,250	35,301	2,908	55,219
Subtotal Undeveloped	136,580	302,101	342,962	114,691	896,334
Campgrounds	12,195	29,211	27,755	26,360	95,521
Rec. Residences		2,862	15,651	2,128	20,641
Ski Areas				28,286	28,286
Cabin Rental	172		1,196	122	1,490
Interpretive Site	300	500	255	330	1,385
Subtotal Developed Sites	12,667	32,573	44,857	57,226	147,323
Total RVD	149,247	334,674	387,819	171,917	1,043,657

Based on limited ranger district reports on developed recreation use, sites that have been identified as having heavy use in the past continue to experience occupancy rates at or above levels strongly suggesting expansion or improvement. A number of maintenance or improvement needs continue to be identified for developed sites. Facilities to meet accessibility standards still need to be added at a number of identified locations; however, limited recreation budgets have constrained the Forest's ability to make appropriate improvements.

Recommended Actions:
The Forest should conduct a systematic user satisfaction survey at key developed sites, particularly at identified high use areas.

Continue systematic "measurement" of recreation use Forest-wide.

UMATILLA MONITORING ITEM 44
Availability of Firewood

Questions: How much firewood is being provided? Is sufficient fuelwood being offered to the interested public?

In 1998, the Forest's firewood output was 4.0 million board feet (mmbf), nearly 27 percent of Forest Plan projected output of 15 mmbf. Trends since the late 1980s show a slowly declining "demand" for firewood, with strong year-to-year variation. The general trend continued in 1998 for firewood output and total permits, although total permits increased from 1996. Table U-28 shows the firewood program trends from 1989 to 1998.

Table U-28
FIREWOOD PROGRAM - CHARGE PERMITS ISSUED 1989-98
Umatilla National Forest

Year	Number	MMBF
1989	4,794	12.4
1990	3,871	8.0
1991	3,792	8.7
1992	2,838	6.8
1993	3,786	9.5
1994	2,373	5.5
1995	3,214	9.2
1996	2,115	5.9
1997	2,724	5.2
1998	2,308	4.0

Current "demand" for firewood continues to be met from the Forest. Firewood "demand" is expected to continue at relatively low levels for the next few years, particularly as other sources of energy remain plentiful and at low cost. The Forest continues to anticipate a surplus of firewood for the next several years due to the high level of insect- and fire-killed timber, particularly on the south-end districts. However, the quality and quantity of trees for firewood have been declining as the dead material deteriorates and some is removed in salvage sales. In addition, some popular areas such as Tollgate, that are closer to population centers, are nearly depleted of available dead/down material. Ranger district restrictions and closures of these areas to firewood gathering has required the public to travel farther to areas with adequate supplies.

Recommended Action:
Continue to monitor.

UMATILLA MONITORING ITEM 45
Mineral Development, Rehabilitation, and Accessibility

Questions: Are the standards and guidelines being implemented correctly? Are the standards and guidelines for mineral operations "reasonable" and effective in meeting Forest Plan goals? Is vehicle (potential) access to mineral (mining claims) or energy (gas and oil) lease sites being restricted?

The Forest's mineral activities occur almost entirely on the North Fork John Day Ranger District. In 1998, the North Fork John Day Ranger District had 81 claims under Plans of Operation or Notices of Intent. Twenty-three claimants filed or phoned Notices that they intended to operate during the 1998 season. A total of 32 claims were worked during the season. All claims worked had ongoing reclamation work done during the mining operation.

The 32 active claims were monitored for compliance at least once during the year. Reclamation monitoring was done on all work of the 23 claimants that operated during the season. Findings include:

Average disturbance was approximately .05 acre for 32 working claims or a total of 1.6 acres.

All 1.6 acres were reclaimed and all reclaimed areas met objectives for reclamation.

The ranger district received five new Plans of Operation during the 1998 field season. Most Plans of Operation will be processed during FY 99, depending on endangered species consultation timelines. None of the ranger districts reported any active sites requiring access during FY 98.

Mineral inspections and reclamation reviews indicate that standards and guidelines are being met. One abandoned claim was reclaimed in FY 98.

Recommended Action:
Continue monitoring active claims and permits. The North Fork John Day Ranger District has proposed four sites for reclamation projects. Monitoring will be needed when these ongoing projects have been funded and accomplished.

UMATILLA MONITORING ITEM 46
Forest Road System

Questions: Are the total miles and those usable by passenger cars and high clearance vehicles within Forest Plan projections? Is the Forest providing and managing the Forest road system to accomplish land and resource management objectives as outlined in the Forest Plan?

For the Umatilla National Forest, the current transportation information and road use status are shown in Table U-30 below:

Table U-29
FOREST ROAD SYSTEM
Umatilla National Forest

Road System	Maintenance Level	1996 Miles	1997 Miles	1998 Miles
Closed Road	1	2,643	2,364	2,299
High Clearance	2	1,733	1,960	1,960
Passenger Car	3	491	498	498
Passenger Car	4	177	177	177
Passenger Car	5	147	78	78
Total Open		2,479	2,713	2,713
Total Road		5,122	5,120	5,012

Some change in road totals occurred from last year's report, due to road obliteration. Currently, the total passenger car mileage amounts to 753 miles or about 84 percent of the Forest Plan projection (900 miles); high clearance miles total 1,960 miles or about 77 percent of the Forest Plan estimate (2,530 mile). The Forest has reduced total open miles and increased closures by about 30 percent (compared with Forest Plan expectations), primarily due to a relatively assertive road closure program, and in part to more accurate information about the road system. The Forest Plan projection of an increase in newly constructed mileage (mostly local roads) to meet planned resource objectives has never materialized.

Ranger District Motorized Access and Travel Management Plans have been implemented on the Forest, although minor adjustments will continue to be made. During 1998, about 65 miles were reported as obliterated and no additional roads were reported as closed.

Total miles, specific road use types, and road construction levels are less than Forest Plan projections. However, the current road system appears to be meeting public and resource management needs. The levels of resource management, project activities, and public use appear to be occurring satisfactorily within the Forest's road management framework.

Recommended Action:
Continue monitoring of the Forest road system. Future monitoring should focus more on addressing all the resource objectives, with emphasis on water and aquatic resources.

UMATILLA MONITORING ITEM 47
Open Road Density

Questions: Are road closures effective at eliminating vehicle traffic? If a closure is breached, does the road still meet management objectives? (New Coordinated Questions)

Heppner Ranger District has been installing various types of road closures for the last several years, to meet the intent of their Access and Travel Management (ATM) Plan. During 1998, the Ranger District monitored the effectiveness of the closures and was able to respond to the new questions about road closures developed for the Blue Mountains Forests.

Table U-30
DISTRICT ROAD CLOSURE VIOLATIONS -- 1998
Heppner Ranger District
Umatilla National Forest

Closure Type	No. of Violations	Miles of Road Violated	Percent of Violations
Earth Barricades	12	10	29
Gates	1	5	2
Guardrails	2	10	5
Signs	26	12	63

The data show, and Ranger District experience indicates, that the "hard closures" (earth barricades, gates, and guardrails) are more effective than the "soft closures" (signs). Currently the District has about 450 miles of closed road. An estimated 8 percent of the closed system miles was used, with most (about 78 percent) of the violations occurring during big-game hunting season.

As part of the Heppner Ranger District ATM program, permitted use on closed roads across the District has been monitored through a permit system. The permits allow administrative use, commercial activities, and access for special use permittees. In FY 98, a total of 67 closed roads or about 80 miles (219 trips) received traffic as a result of the permits issued. Given the amount and timing of violations and permitted use, the Ranger District generally believes that management objectives are being met. The District intends to continue installing "hard closures" on problem roads, given adequate funding.

Recommended Action:
Continue monitoring.

UMATILLA MONITORING ITEM 49
Fire Program Effectiveness

Question: Are fire programs (i.e., prevention, detection, suppression) meeting the standards as required by the National Forest Management Act? Are these programs effective? What is the number of fires, by cause and acres burned, plus the actual expenditure of EFFS dollars?

The calendar year 1998 fire season was actually below average in number of wildfires and acres burned. Acres burned associated with human-start situations were slightly higher than lightning-caused fires. Table U-31 shows the total number of human- and lightning-caused fires and acres burned.

Table U-31
LIGHTNING- AND HUMAN-CAUSED FIRES AND ACRES BURNED 1991-1998
Umatilla National Forest

Fire Cause	1991	1992	1993	1994	1995	1996	1997	1998
Human Caused:								
Total Number of Fires	52	53	71	45	16	32	45	31
Total Acres Burned	29	156	635	153	7	8,289	3,281	226
Lightning-Caused								
Total Number of Fires	93	137	20	201	82	97	70	87
Total Acres Burned	49	278	3	5,637	131	64,228	37	195
Forest Totals:								
Number of Fires	145	190	91	246	98	129	115	118
Acres Burned	78	435	638	5,793	138	72,517	3,318	421

The total number of fires in 1998 represents 78 percent of the 10-year (1988-97) average of 151. When comparing the total number of lightning fires in 1998 to the 10-year lightning average (same period), the 1998 level was 86 percent of the average. Human-caused fires were 62 percent of the human-caused average.

The total acres burned in 1998 represents 30 percent of the base period average (1991-1995) of 1,416 acres. Acres burned associated with human start situations were slightly higher than lightning-caused fires. The total represents a strong suppression effort combined with a fire season when adverse fire weather situations were not occurring with fire ignitions.

The most intense fires of the 1998 season generally appeared to occur in lower elevation sites where the Forest provided assistance to the Pendleton Unit of Oregon Department of Forestry. During the August fire that burned into and around the City of Pendleton, the Forest offered assistance; however, the State Fire Marshall and local fire departments did not request any assistance.

Table U-32 shows estimated expenditures of Wildfire Suppression and Rehabilitation Funds (WFSU) in FY 98, with final payments still being resolved in some contested situations.

Table U-32
ACTUAL EXPENDITURES OF WFSU - CY 1991 to 1998 ($98)
Umatilla National Forest

Year	1991	1992	1993	1994	1995	1996	1997	1998
Total Expenditure	$625,527	$1,662,787	$1,179,212	$4,131,005	$1,682,486	$29,877,095	$2,205,646	$227,305

Recommended Action:

Continue to monitor.

UMATILLA MONITORING ITEM 53
National Environmental Policy Act (NEPA) and National Forest Management Act (NFMA)

Questions: Are project-level decisions made using appropriate NEPA/NFMA procedures including analysis of cumulative effects? Are project-level decisions tiered to, and in accord with, the Forest Plan?

The number of environmental documents prepared in fiscal year FY 98 was similar to the number prepared in FY 97. In FY 98, nine environmental assessments (EAs) and 44 categorical exclusions (CEs) were prepared on the Umatilla National Forest. Three of the EAs and 11 of the CEs were for salvage timber sales. The non-timber EAs and CEs covered a wide range of activities.

No formal NEPA/NFMA compliance reviews were completed by the Forest Interdisciplinary (ID) team this fiscal year. Several less formal reviews by ranger district NEPA coordinators and district management teams as well as Supervisor's Office staff were conducted. Generally, it was found that all NEPA requirements were being met.

Two Forest CEs were reviewed as part of the coordinated tri-Forest field monitoring effort. These CEs documented prescribed fire activities on the North Fork John Day Ranger District. Some concerns regarding the NEPA documentation for these projects were noted; however, the two projects reviewed appeared to meet all objectives.

Recommended Action:
Evaluate the need to issue a new Forest White Paper to re-initiate standard NEPA review and other procedures.

The Forest NEPA coordinator will develop guidance to determine if it is appropriate to document prescribed fire projects with a categorical exclusion. Guidelines for documenting multi-year projects will also be developed.

SPECIAL FOCUS ITEM
Interagency Critique of the Design and Construction Process for the Coalmine Hill Road Reconstruction Project

Background

During 1998, an interagency review was conducted of the Coalmine Hill road reconstruction project, on the Heppner Ranger District. The project was to reconstruct 2.92 miles of road from milepost 2.37 to 5.29 on County Road 603. Primary activities included widening the road and reducing the sharp curves on the relatively steep, northfacing grade. The project was initiated in 1988, with planning since 1993 and construction implementation in May 1998.

The project was a joint effort of the Federal Highways Administration (FHA) and Forest Service, Umatilla NF. The FHA wrote the NEPA documents, designed the road, and contracted for the construction work and the Forest provided specialist input to the project about objectives and resource concerns. Since the road parallels Willow Creek, major concerns were expressed about maintaining water quality (sedimentation and water temperature) and stream channel characteristics.

Monitoring Process

The critique was precipitated by the Heppner Ranger District employees who were concerned that project resource objectives were not being met. A joint agency review was planned with an intention of learning from the experience and implementing safeguards to ensure similar problems do not happen on future projects. During June 1998, Forest and FHA personnel reviewed the project on the ground several times. They tried to reconstruct past events that led to this current point and discussed possible mitigation ideas.

The review was to address several perceived problems and questions. Ranger District employees were concerned about results of the construction, as evidenced by fill placement, shifting the road location toward the creek in four places. Of particular concern were two sites which constrained the channel and floodplain and therefore affected the creek's sinuosity and velocity. Removing the timber along the creek, whether dead or live, affected shading and possibly water temperature of the creek. In addition, the risk of sediment input to the stream may have increased.

A second resource concern involved the placement of fill near the start of the project area, which covered about 1,000 feet of trail. The impact to the trail was greater than anticipated. The trail will need to be relocated/reconstructed.

The shift of the centerline and widening of curves toward the creek had other unanticipated outcomes. The District twice offered for sale the timber within initial clearing limits and hazard trees, however there were no bidders. Most of the timber was then transferred to FHA. When the design apparently changed toward the creek, a different set of timber was now within the clearing limits, thereby possibly changing timber volume and value. A key question to be addressed is "Was the timber accounted for properly?"

Both agencies had concerns about personnel turnover during the life of the project. The FHA had several environmental and design engineers on the project in addition to a contracted design consultant. For the Forest Service, the responsibility for reviewing plans or making agreements and negotiations with FHA was never clearly assigned (after a key employee retired). The fundamental question to be answered is, "Where did communications break down between the two agencies such that the Forest was 'surprised' to see the construction work being implemented as it was?"

Summary of Findings

Movement of the Road and Fill Placement toward the Creek:
The contractor is building the road exactly as it's presently drawn in the contract package. The final designs show the road being moved toward the creek and filling in the riparian area in spots. The National Forest fishery specialist report in 1994 shows a 50-foot buffer to be maintained on the creek, considered necessary by the Forest to be in compliance with the Umatilla Forest Plan. The buffer was captured in the design specifications.

The underlying finding was that the two agencies had a different "sensitivity" to the importance of the 50-foot buffer. The Forest Service viewed it as a requirement in order to remain in compliance with the Forest Plan and to be able to do a Finding of No Significant Impact (FONSI). If it had been known earlier that this design criteria could not be met, the environmental analysis process (NEPA) may have been approached differently, or the costs of the project may have been sharply increased. FHA viewed this as a design objective, but did not recognize it as a serious "red flag."

The initial "plan-in-hand" project field review indicated that most of the attention was on discussing the cut slopes, not the fill slopes toward the creek. Cross sections were not closely examined. Lengthy discussions occurred about what to do with the large amount of waste material; a plan was devised to put a small amount of it on the 5350 road. However, the discussion never fully resolved the location of excess material and the FHA assumed at least some of it would be "redesigned" into the fill.

Loss of Shade and Effects to Water Quality:
Some shade was lost, which may affect water quality and stream temperature. This was not fully anticipated but became apparent when construction began. If the design and buffer differences had been fully understood, the nature of the project may have been changed from the beginning or a different disclosure of effects (NEPA) would have been done.

Trail Relocation/Reconstruction:
Although more of the trail was affected than originally anticipated, trail impacts are the most easily mitigated concern. A reimbursable agreement is being crafted to relocate the trail, with the Forest Service to perform the work.

Timber Accountability:
Scale tickets from truck loads of timber removed from the clearing limits indicate that the amount is an increase of approximately one-third over the estimated volume transferred to FHA. It is not possible at this point to determine whether the difference is due to the changed location, the difference in scaled volume versus cruised volume of standing timber, or simply due to sampling error. Although one might argue that the volumes from the two locations do not appear to be wildly dissimilar, estimating volumes for one set of trees and actually removing a different set of trees cannot be considered proper accountability.

Personnel Turnover/Communications:
Even with the number of design engineers used in the project, the objective of maintaining a stream buffer of 50 feet was captured throughout the process. The problem was not in the information being passed along, but in having a common understanding of the importance and sensitivity of the information.

An important finding for this concern area is that Forest Service responsibilities to check the plans and drawings were not well assigned and understood. If plans and drawings had been checked at the plan-in-hand review (or earlier), the problem may have been discovered sooner and action taken to adjust the road.

A major concern was centered on the breakdown in communications such that "surprises" happened and expectations were not met. Such a breakdown has potentially serious consequences for the agencies' credibility with each other and with our publics. The most revealing and significant lesson learned was that the two agencies have very different views of the NEPA process and requirements.

Recommended Actions:
Only a few "physical" actions need to be done at this point:

- Water quality monitoring being done on the site will eventually yield good information on sedimentation and temperature from a project of this scale.
- The field review led to several desirable mitigations to improve the situation by steepening the slopes at key locations and pulling the road away from the stream, allowing the floodplain to function more appropriately.
- As noted, a reimbursable agreement for the trail relocation is being prepared.

More time should be spent in educating each agency about Forest Plan "requirements" as compared to "objectives," and identifying design elements that would be "red flags" (i.e., those elements for which nonachievement changes the project scope, context, or intensity). The level of NEPA clearance, whether CE, EA, or EIS, is viewed very differently by the two agencies and should be closely examined on each project.

Continue monitoring projects of this type by personnel from the two agencies and continue to focus critique on lessons learned from the experience.

The following table provides a summary of selected Forest accomplishments and resource outputs for FY 98. Where possible, these are compared to Forest Plan estimates, but in many cases the unit of measure has changed since the Forest Plan was completed and direct comparison is no longer possible.

Table U-33
FOREST ACCOMPLISHMENTS - FY 98
Umatilla National Forest

Resource Activity/Output	Unit Of Measure	Forest Plan Projection (Avg/Year)	Actual FY 98 Forest Output	% Actual To Forest Plan
FIRE				
Natural Fuel Treatment	Acres	3,400	17,500	514
Activity Fuel Treatment	Acres	5,800	1,000	17
FISH				
Anadromous Stream Restored/Enhanced	Miles	Not Specified	41	NA
Inland Stream Restored/Enhanced	Miles	Not Specified	8	NA
RANGE				
Permitted Grazing - Sheep & Goats				
- Cattle & Horses	AUM	58,000	50,400	87
Non-structural Improvements		Not specified	2,325	NA
Structural Improvements		Not specified	44	NA
Noxious Weed Treatment		Not specified	1,020	NA
RECREATION				
Trail Construction/Reconstruction	Miles	30	1	3
Developed Recreation Capacity	PAOTs	255,000	667,000	261
ROADS				
Construction	Miles	92	0	0
Reconstruction	Miles	94	30.5	32
Obliteration	Miles	Not Specified	65	NA
THREATENED, ENDANGERED, and SENSITIVE SPECIES				
Aquatic Habitat Restored/Enhanced	Miles	Not Specified	1	NA
Terrestrial Habitat Restored/Enhanced	Acres	Not Specified	30	NA
TIMBER				
Total Program Sale Quantity	MMBF	159	62	39
Reforestation	Acres	7,500	5,767	77
Timber Stand Improvement	Acres	2,900	4,865	168
WILDLIFE				
Habitat Restored/Enhanced	Acres	10,000	3,332	33
Habitat Structures	Structures	75	195	260
WATER				
Watershed Improvements	Acres	454	254	56

* Unit of measure changed between FY 90 Forest Plan and FY 98 Accomplishment Report.

FOREST PLAN AMENDMENTS

Only one nonsignificant Forest Plan Amendment was prepared on the Umatilla National Forest in FY 98.

Amendment Number	Date	Summary and Comments
21	6/1/98	Makes minor adjustments in management area designations within the Cliffhanger project area.

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Section W - Wallowa-Whitman National Forest

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MONITORING ITEMS NOT REPORTED FOR FY 1998

A few of the Monitoring Items from the Wallowa-Whitman's 1991 Monitoring Implementation Plan are not reported in FY 1998. Some items only need to be reported every few years in order to detect trends. Some items were purposely deferred pending updated monitoring protocols or direction. Others were scheduled for monitoring in FY 1998 but were not reported. Some items not found in this section were reported in Section C, the coordinated monitoring items.

Monitoring Items that were deferred or not reported include the following:

Item 1	Compliance with NEPA and the Forest Plan
Item 7	Harvest Units
Item 9	Lands Not Suitable for Timber Management
Item 14	Range Vegetative Conditions
Item 18	Watershed Standards, Guidelines, and BMPs
Item 19	Riparian Area Cumulative Effects
Item 20	Peak Flow/Low Flow Cumulative Effects
Item 21	Soil Productivity
Item 27	Old Growth
Item 28	Dead and Defective Tree Habitat & Primary Cavity Excavators
Item 29	Pileated Woodpecker
Item 30	Goshawk Populations
Item 31	Pine Marten Populations
Item 32	Elk Habitat/Populations
Item 33	Bald Eagles
Item 34	Peregrine Falcons
Item 35	Sensitive Species
Item 36	MacFarlane's Four O'Clock
Item 37	Greenman's Lomatium
Item 44	Cultural and Historic Resource Sites
Item 45	Budget
Item 46	Costs and Values
Item 47	Community Effects
Item 48	Adjacent Lands

The Summary of Recommended Actions, beginning on page W-3, shows all Wallowa-Whitman NF Monitoring Items and whether they were deferred, not reported, consolidated with the other Blue Mountain Forests (Section C of this Monitoring Report), or reported in this section.

No Forest Plan amendments were done in fiscal year 1998.

SUMMARY OF FINDINGS AND ACTIONS TO BE TAKEN

The table on the following pages summarizes for the Wallowa-Whitman National Forest the key findings and the recommended actions to be taken as a result of this year's monitoring. A more complete discussion of each monitoring item may be found later in this section or in the Coordinated Monitoring Section (Section C).

It is assumed that monitoring will be continued with all monitoring items in the future, although not all will be reported every year. Categories of recommended actions are identified in the table as follows:

Change Practices (CP) - Indicates that the results of current practices are outside the thresholds of variability and/or are not meeting specific direction set by the Forest Plan. A change in practice or procedure may be needed.

Further Evaluation (FE) - Indicates that results may or may not have exceeded the threshold of variability, but additional information or evaluation is needed to better identify the cause of the concern and/or determine future actions.

Amend Forest Plan (AP) - Indicates that results are inconsistent with the Forest Plan, or the Forest Plan direction was not clear. The Forest Plan may need changing or clarifying through the amendment or revision process.

Continue Monitoring (CM) - Indicates we will continue with the current scheme.

Not Evaluated (NE) - Not evaluated in FY 1998

Summary of Recommended Action

♦ 1998 **Monitoring Report** ♦

Wallowa-Whitman National Forest

Report Section	MI#	Monitoring Item (MI)	1997 Action	1998 Recommended Action			Remarks
				Change Practice	Further Eval.	Amend Forest Plan	
DEF	1	Compliance with NEPA and Forest Plan	NE				Deferred for FY 97 and FY 98.
W-W	2	Forest Plan Standards and Guidelines	CM				S&G checklists no longer needed or required. Advice and reviews come from Regional and Forest staff. The Tri-Forest field reviews indicate most standards are being followed.
COORD	3	Insect and Disease Management	CM				Insect populations of most key insects are low. Tussock moths need monitoring.
COORD	4	Timber Offered for Sale	FE/AP		X	X	Timber offered (40MMBF) remains far below ASQ and TPSQ from the Forest Plan. Adjustments will be necessary following completion of ICBEMP analysis.
COORD	5	Silvicultural Harvest Methods	FE/AP		X	X	Harvest methods continue to shift toward unevenage management and commercial thinning; total harvest acreage is below Forest Plan threshold. Adjustments will be necessary following the completion of ICBEMP.
Accomp Report	6	Precommercial Thinning	CM				4,481 acres of timber stand improvement in FY 98.
DEF	7	Harvest Unit	NE				Deferred until FY 99.
COORD	8	Reforestation	FE				First-year survival at 78%, down 10% from last year. 5 year surveys indicate 24 percent of harvested acres are not adequately stocked.
DEF	9	Lands Not Suitable for Timber Management	NE				Deferred for FY 97 and FY 98.
W-W	10	Vegetation Management	FE				A variety of treatments totaled over 8,000 acres.
W-W	11	Transportation	FE AP		X	X	Given current funding levels, the Forest is unlikely to meet road density goals by the end of the decade.
Accomp Report	12	Range Outputs	CM				Reported in Accomplishment Table W-4.

Report Section	MI#	Monitoring Item (MI)	1997 Action	1998 Recommended Action			Remarks
				Change Practice	Further Eval.	Amend Forest Plan	
COORD	13	Forage Utilization	FE	X			92% of monitored pastures met standards; only 58% of the allotments were monitored. Need to continue emphasis on riparian monitoring.
DEF	14	Range Vegetative Condition	CM				Not reported in FY 98.
Accomp Report	15	Range Improvements	CM				Reported in Accomplishment Table W-4.
COORD	16	Allotment Management Planning	CP FE	X	X		The Forest completed no AMPs or range NEPA documents. The Forest is currently behind schedule.
COORD	17	Noxious Weeds	CM				The Forest treated over 1800 acres in FY 98.
DEF	18	Watershed Standards, Guidelines, and BMPs	CM				Not reported in FY 98.
DEF	19	Riparian Area Cumulative Effects	CM				Not reported in FY 98.
DEF	20	Peak Flow/Low Flow Cumulative Effects	CP				Not reported in FY 98.
DEF	21	Soil Productivity	CP/AP				Not reported in FY 98.
COORD	22	Air Quality	CP				A smoke intrusion affected Baker City on 10/1/98. No prescribed burns occurred during the summer restricted period affecting the 2 wildernesses.
W-W	23	Fisheries Habitat	CM				265 structures monitored showed that 220 were functioning properly, 44 partially functioning, and 1 was nonfunctional.
W-W	24	Anadromous Fisheries Consultation	CM				Timber, recreation, road and fire projects were monitored.
W-W	25	Columbia River PIG, PACFISH, and INFISH	CM				All DFCs and 98% of the stream inventories for the PIG have been completed. 11 BAs were completed for PACFISH projects. BAs were prepared for INFISH projects.
W-W	26	Salmon Summit Action Plan Commitments	CM				About 110 miles of stream were surveyed. Over the past 3 years surveys showed that about 86% were at PFC or in an increasing trend.
DEF	27	Old Growth	FE/AP				Not reported in FY 98.
DEF	28	Dead and Defective Tree Habitat and Primary Cavity Excavators	CP/FE AP				Not reported in FY 98.
DEF	29	Pileated Woodpecker	FE				Not reported in FY 98.
DEF	30	Goshawk Populations	CP				Not reported in FY 98.

Report Section	MI#	Monitoring Item (MI)	1997 Action	1998 Recommended Action			Remarks
				Change Practice	Further Eval.	Amend Forest Plan	
DEF	31	Pine Marten Populations	FE				Not reported in FY 98.
DEF	32	Elk Habitat/Populations	CP/FE AP				Not reported in FY 98.
DEF	33	Bald Eagles	CP				Not reported in FY 98.
DEF	34	Peregrine Falcons	CM				Not reported in FY 98.
DEF	35	Sensitive Species	CM				Not reported in FY 98.
DEF	36	MacFarlane's Four-O'Clock	CM				Not reported in FY 98.
DEF	37	Greenman's Lomatium	CM				Not reported in FY 98.
W-W	38	Minerals	FE/AP		X	X	The ongoing concern of possible conflicts between the mining law and short-term S&Gs and objectives has been submitted to the Regional Forester as a potential issue to be addressed during Plan adjustment.
W-W	39	Wilderness	CM				Wildernesses are generally being managed according to management direction and provisions of the Wilderness Act.
W-W	40	Wild and Scenic Rivers	CM				Wild and Scenic Rivers are generally being managed to meet direction and the law. Some monitoring and enhancement projects were started on the Imnaha River.
W-W	41	Recreation Setting	CM				The Forest is offering a wide range of opportunities to the general satisfaction of users.
W-W	42	Off-Road Vehicle Use	CM		FE		ORV use is slowly increasing. Current standards and guidelines will be reviewed by an ID team.
DEF	43	Visual Resource Objectives	CM				The Hat Point Road had some visual enhancement projects in FY 98.
DEF	44	Cultural and Historic Resource Sites	CM				Not reported in FY 98.
COORD	45	Budget					Deferred for FY 98.
COORD	46	Costs and Values	FE/AP				Deferred for FY 98.
COORD	47	Community Effects					Deferred for FY 98.
DEF	48	Adjacent Lands					Deferred for FY 97 and FY 98.

W-W MONITORING ITEM 2
Forest Plan Standards and Guidelines

Purpose: To determine if applicable S&Gs from the Forest Plan are correctly and consistently implemented on individual projects.

As indicated in the 1997 monitoring report, standard and guide (S&G) checklists are no longer required for project-level EAs, EISs, or Decision Memorandums. Seven years of monitoring have indicated that project-level planning teams understand Forest Plan S&Gs. Questions still arise concerning the intent of particular direction, primarily interim direction. These questions are answered by Forest and Regional Office staff and are sent to all units for consistent understanding of varied situations.

Some field monitoring of S&Gs was conducted by Tri-Forest Monitoring Teams during 1998. These field reviews focused on implementation monitoring of prescribed fire projects. More information on these Tri-Forest reviews may be found under the Special Focus Item in Section C of this report.

Recommended Action:

Continue to monitor.

W-W MONITORING ITEM 10
Vegetation Management

Purpose: To determine if vegetation management is effective in achieving resource management goals and to determine if there is a reduction in the need for vegetation treatments, particularly application of herbicides and prescribed burning.

The final version of the Forest's "Monitoring Guide for Vegetation Management Activities" was approved and published in June 1993. The guide initiates a process to assure compliance with Forest Plan goals and the Vegetation Management Final EIS and its associated Mediated Agreement.

Accomplishment data has been collected as required by the guide for the past 6 years and is displayed in the following tables. Table W-1 displays treatment methods by activity type. Table W-2 compares the herbicide and prescribed fire activities to the total program, revealing an increase in herbicide use and a decrease in prescribed fire activities from 1992 to 1998. Herbicide treatments will probably continue at a low level for the next few years while a backlog of difficult non-stocked sites are reforested and a more intensive noxious weed control program is conducted. The level of prescribed fire activity is uncertain based on the perceived need to increase this activity Forest-wide for ecosystem management needs, but at the same time follow the Environmental Protection Agency's recommended Air Quality Standards.

Table W-1
ACRES TREATED BY VARIOUS VEGETATION MANAGEMENT METHODS
Wallowa-Whitman National Forest

Activity	Manual	Mechanical	Biological	Rx Fire	Chemical	Total
Silviculture						
REF Site Prep	1,220	491	0	122	362	2,195
TSI Release	1,488	116	0	0	0	1,604
Tree Genetics	0	189	0	100	78	367
Research	0	0	0	0	0	0
Facilities Mtnc.						
Rec Sites	18	0	0	0	0	18
Admin Sites	1	0	0	0	0	1
Range Improvement	15	0	0	0	0	15
Noxious Weeds	176	2	65	0	1,480	1,723
Wildlife Habitat Improvement	10	0	0	1,697	0	1,707
Right-of-way mtnc.						
Roads	85	5	0	0	0	90
Trails	95	13	0	0	0	108
Special Uses	25	0	0	0	0	25
Easements	0	0	0	0	0	0
Utility Corridors	100	100	0	0	0	200
TOTAL ACRES	3,233	916	65	1,919	1,920	8,053
% by Treatment	40	11	1	24	24	100

Table W-2
ACRES TREATED WITH HERBICIDES AND PRESCRIBED FIRE
Wallowa-Whitman National Forest

Fiscal Year	Total Acres Treated	Treated with Herbicides		Treated with Prescribed Fire	
		Acres	% of Total	Acres	% of Total
1992	29,925	721	2	17,455	58
1993	9,698	972	10	5,525	57
1994	9,945	1,338	13	5,201	52
1995	9,089	1,654	18	2,781	31
1996	8,974	1,773	20	3,643	41
1997	8,658	1,804	21	4,014	46
1998	8,053	1,920	24	1,919	24

Recommended Actions:

Continue to monitor according to the procedure outlined in the Forest's "Monitoring Guide for Vegetation Management Activities."

Analyze the goals and objectives of prescribed fire in ecosystem management in light of the recommendations in the "Eastside Forest Ecosystem Health Assessment," and the "Blue Mountains Ecosystem Restoration Strategy."

W-W MONITORING ITEM 11
Transportation

Purpose: To verify that progress is being made toward meeting the open road density guidelines established in the Forest Plan.

Comments on Wallowa-Whitman 1998 Forest Plan Monitoring Road Densities

About the Data

This is the first time that the transportation database (Infra Travel Routes) has been linked with the transportation layer on a Forest-wide basis. There are many areas where a significant number of the GIS segments did not link up with the database, so we do not know whether or not the segments are open or closed roads. Two densities are calculated: first for the roads that are linked that we know are open; then separately for the "Unlinked" roads. These two densities are added to give the largest "Possible Density." The actual density will probably be somewhere between these two extremes. The quality of the data should improve during the next year as the data are improved and the link is improved.

What Are the Forest Plan Densities?

The Forest Plan density for Management Area 1 (MA 1, Timber Production Emphasis)(for subwatersheds) is no greater than 2.5 miles of open road per square mile of National Forest land.

The Forest Plan density for MA 3 (Wildlife/Timber, winter range)(for subwatersheds) is no greater than 1.5 miles of open road per square mile of National Forest land.

The Forest Plan density for MA 1W and 3A (Timber, winter range; Wildlife/Timber, summer range)(for subwatersheds) is no greater than 1.5 miles of open road per square mile of National Forest land during the winter. If snow provides this level of closure in the winter, no additional closures are needed.

Densities are not prescribed for the other management areas.

What Do the Data Show?

In this report, the number of calculations is simplified from what is actually required by the Forest Plan. For the Forest Plan, calculations were to be made by subwatershed and by Management Area. For this Tri-Forest report, however, the decision was made to use a much larger area (the subbasin) as the unit for calculations. The effect is that the subwatersheds with high densities will get lumped with those with low densities, and the magnitude of the worst case subwatersheds will not be evident.

MA 1: For the entire Forest, the average open road density is 2.45 miles per square mile for all MA 1 for the linked open roads. When the roads that are not linked are included, the average is 3.07 miles per square mile. The actual is probably somewhere between. In several of the individual subbasin reports, the MA 1 road densities exceed the 2.5 miles per square mile. This shows that in MA 1, some roads need to be closed to bring the actual densities to Forest Plan standards.

MA 3: For the entire Forest, the average open road density is 1.43 miles per square mile for all MA 3 for the linked open roads. When the roads that are not linked are included, the average is 1.97 miles per square mile. The actual is probably somewhere between. In several of the individual subbasin reports, the MA 3 road densities exceed 1.5 miles per square mile. This shows that in MA 3, some roads need to be closed to bring the actual densities to Forest Plan standards.

MA 3A: For the entire Forest, the average open road density is 0.98 miles per square mile for all MA 3A for the linked open roads. When the roads that are not linked are included, the average is 1.28 miles per square mile. The actual is probably somewhere between. In the individual subbasin reports, the MA 3A road densities do not exceed 1.5 miles per square mile. This does not mean that they do not exceed the standard in some of the subwatersheds.

Recommended Action:

Continue to monitor.

Work on standardizing this report with the Umatilla and Malheur National Forests.

W-W MONITORING ITEM 23
Fisheries Habitat

Purposes: Ensure that Forest Plan targets for anadromous fish are being met. Determine if stream temperature and habitat restoration projects are effective in meeting aquatic habitat objectives as stated in the Forest Plan, Policy Implementation Guide, and Salmon Summit.

A total of 4.3 acres of riparian habitat were planted and 1,262 fisheries habitat structures were placed in streams. This compares with the Forest Plan average annual projected output of 250 acres and 500 structures of fish habitat improvement work The reduction in available funds for fisheries construction work, and the need to utilize the fisheries workforce to complete consultation on Snake River summer steelhead and bull trout, resulted in postponement of some planned anadromous habitat work and reduced accomplishments.

Fish Habitat Projects

Stream Structure Maintenance: 15 structures were repaired.

Stream Structure Monitoring: 265 stream structures were monitored across the Forest. Monitoring indicated that 220 structures were functioning properly, 44 were partially functional, and one was non-functional.

Riparian Fencing: 103.5 acres of riparian area were fenced for protection from livestock. More than 40 miles of riparian fence were checked and maintained.

Inventory of Fish Habitat and Fish Distribution

Stream Inventory: The Forest surveyed 77.2 miles of stream habitat using the Region 6 Hankin and Reeves methodology.

Species Distribution Inventory: Forest biologists conducted species inventories on 16.5 miles of stream habitat to determine species composition, distribution, and relative abundance. The primary purpose of the work was to assess bull trout distribution and abundance .

Recommended Action:

Continue to monitor.

W-W MONITORING ITEM 24
Anadromous Fisheries Consultation (chinook salmon & summer steelhead, Snake River drainage)

Purpose: To ensure that projects are being implemented under the terms and conditions of the Section 7 Biological Opinion (BO) agreed to with the National Marine Fisheries Service (NMFS) that result in a project being "not likely to adversely affect" listed species. To determine whether the prescribed modifications are effective in actually meeting the "not likely to adversely affect" criteria.

Timber Sales

La Grande Ranger District monitored four active timber sales and Wallowa Mountain Zone monitored two.

Snake River Fall Chinook Protection (Hells Canyon NRA)

Monitored redd sites for chinook as affected by jet boats and grazing on the Snake River in Hells Canyon NRA in compliance with the BO. The compliance report is available upon request from Wallowa Valley Ranger District.

Prescribed Fires

Minam Backbone Burn: An interdisciplinary team (including NMFS and USFWS) visited the project area and reviewed the prescribed fire area. Results were in compliance with the project design described in the Biological Assessment (BA) submitted to NMFS and USFWS.

Road Flood Repair

Forest Service fisheries and hydrology personnel monitored the Gumboot road repair and reconstruction to ensure the terms and conditions of the BO were met. Compliance was achieved for temperature, turbidity, and redd protection. Reports are being prepared for submission to NMFS and USFWS.

Reconstruction of the Hat Point flood-damaged road was monitored by fisheries and hydrology personnel to ensure the mitigation measures agreed upon with NMFS and USFWS were implemented.

Detailed reports are being prepared for submission to NMFS and USFWS in accordance with the terms and conditions in the BOs and BAs for Snake River chinook salmon, summer steelhead, and bull trout.

Recommended Action:

Continue to monitor.

W-W MONITORING ITEM 25
Columbia River Basin Anadromous Fish Habitat Management Policy Implementation, PACFISH Requirements, and INFISH Requirements

Purpose: To ensure the actions identified in the PIG for the Columbia River Basin Anadromous Fish Habitat Management Policy, and the Standards and Guidelines for PACFISH and INFISH are being implemented as planned.

Desired Future Conditions (DFCs)

The Columbia River Basin Anadromous Fish Policy Implementation Guide (PIG) objectives were established in 1993. All DFCs for streams in anadromous fish habitat have been established. All Section 7 watersheds on the Forest require consultation for chinook salmon, summer steelhead, or bull trout. The biological assessments for each of these Section 7 watersheds describe baseline conditions and set standards for recovery.

Stream Inventory

Stream inventory required by the PIG is 98 percent complete for anadromous fish. Stream inventory using a Level II, Region 6 survey protocol was completed on 77.2 miles of anadromous and inland fish streams in FY 98. Approximately 2,200 miles of survey have been completed since 1989. These data reside in the Forest and Regional database, accessible to biologists across the Region.

PACFISH Requirement

Eleven Section 7 BAs for Snake River summer steelhead and chinook salmon were prepared to ensure the protection of anadromous fish and aquatic resources. They include: North Fork John Day River, Upper Grande Ronde River, Catherine Creek, Upper Main Grande Ronde River, Middle Grande Ronde River, Wallowa River, Minam River, Lostine River, Imnaha River, Big Sheep Creek, and Snake River.

INFISH Requirement

Section 7 bull trout BAs are being developed for Pine Creek, Upper Powder River, and North Powder River in the inland area of the Forest. In addition, Section 7 bull trout watershed BAs will be prepared for all of the watershed listed above for PACFISH.

Recommended Action:

Coordinate future monitoring with the Malheur and Wallowa-Whitman National Forests.

W-W MONITORING ITEM 26
Salmon Summit Action Plan Commitments

Purpose: To ensure that commitments identified in the Salmon Summit Action Plan are being implemented in a timely manner.

Riparian Acquisition Opportunities

No riparian parcels were acquired in 1998. The acquisition program is actively seeking and acquiring parcels in areas identified by the inventory that would benefit fish. The need to combine desirable parcels, willing sellers, and funding results in variable annual acquisition of lands. A number of parcels have been identified.

Livestock Management

The Forest has 79 active allotments that include riparian areas directly adjacent to anadromous fish habitat. One allotment is in the North Fork John Day River drainage and 78 are in the Snake River drainage. All of the Snake River allotments are administered to ensure that they are not likely to adversely affect endangered salmon as required by the Endangered Species Act (ESA).

Mining Management

The two mining operations that may affect salmon habitat were inactive in 1998.

Proper Functioning Condition (PFC) Analysis

PFC analysis was conducted on 109.5 miles of stream in the summer of 1998. A total of 239 miles of PFC analysis has been completed on managed streams across the Forest. Monitoring is primarily on fish-bearing perennial streams. The majority (85.6 percent) of the streams were either at PFC or Functional-at-risk (FAR) with an upward trend. Stream reaches that are PFC and FAR with an upward trend do not require a change in management. The remainder of stream reaches (14.4 percent) may require management changes to start them on an improving trend.

Table W-3
RESULTS OF PROPER FUNCTIONING CONDITION ANALYSIS
Wallowa-Whitman National Forest 1996-1998

PFC Category	Miles Analyzed	Percent of Sample
Non-functional	4.40	1.8
Functional-at-risk with downward trend	24.85	10.4
Functional-at-risk with no apparent trend	5.35	2.2
Functional-at-risk with an upward trend	50.80	21.2
Proper Functioning Condition	154.68	64.4
TOTAL MILES	**240.08**	**100.0**

Diversion Screening and Constructed Barriers

The Forest has completed an inventory of existing diversions requiring screens. A total of 24 diversions were identified in 1994, and five needed screens to meet anadromous fish protection requirements. All these diversions except Temperance Creek have been eliminated or screened. The main diversions on Temperance Creek are not being utilized at this time. Future irrigation of the fields will depend upon designation of water rights, construction of a new head gate system, fish screen installation, and ditch repair. The fish screen is presently at the site but has not been installed. Consultation is on hold, pending the outcome of water rights designation. It is anticipated that the project will occur in FY 2000 or 2001.

Recommended Action:

Continue to monitor.

W-W MONITORING ITEM 38
MINERALS

Purpose: To determine whether standards and guidelines (S&Gs) for minerals operations are responsible and effective in providing resource protection. To determine whether the S&Gs are being implemented correctly.

All Notices of Intent (NOI) and Plans of Operation (POO) were monitored. POOs were monitored for compliance and for water quality, where appropriate, throughout the mining season. NOIs were monitored for compliance. Sporadic and weekend assessment operations were monitored at least once. Based on this monitoring, approximately 90 percent of the operations met resource objectives. In cases where resource objectives were not being met, the operator was notified of needed corrective actions. The three areas where resource objectives were not initially met included: garbage on the claim work area; in-stream noncompliance; and petroleum spills. All were resolved through actions taken by the operator.

Another level of monitoring includes S&G implementation monitoring as described in W-W Monitoring Item 2. For 1998, this monitoring occurred on a very informal basis. This level of monitoring continues to show that there are several S&Gs that cannot be met in the short term during some placer operations. These standards include:

- Limiting detrimental soil conditions.
- Maintaining riparian and streamside vegetation.
- Giving preferential considerations to riparian-dependent species.
- Maintaining old-growth qualities, including solitude.

Although these S&Gs may not be met in the short term, for some activities reclamation plans are developed and implemented with the intent of meeting resource objectives in the long term.

Concern continues regarding insufficient resource specialist availability to accomplish the POO analysis workload. This issue was exacerbated by the increased workload associated with the listing of bull trout and compliance with Section 7 of the Endangered Species Act.

There appear to be conflicts between certain S&Gs and allowing reasonable mining operations under the mining law.

Recommended Action:

The concern about possible conflicts between S&Gs and the mining law has been submitted to the Regional Forester as a potential issue to be addressed in a Forest Plan adjustment. Further evaluation will be needed. The adjustment process is currently on hold until the ICBEMP is completed. Future monitoring should be coordinated with the Umatilla and Malheur National Forests.

W-W MONITORING ITEM 39
Wilderness

Purpose: To summarize the physical/biological, managerial and social setting of each Wilderness Resource Spectrum to assure their maintenance is consistent with the standards for wilderness management.

Air Quality

The most significant impact is occurring due to local haze caused by agricultural burning, prescribed fire, and wildfire smoke on a seasonal basis. The Forest restricts any impacts to visual quality caused by prescribed burning, and does no management ignited projects that could impact the Hells Canyon and Eagle Cap wildernesses Class I areas. Monitoring was begun in 1998 to determine effects of air quality on lichens. This monitoring will establish a baseline for comparison of sites within the canyon compare to other site samples in the Pacific Northwest.

Soils

Visual observations revealed that soil displacement and erosion resulting from human activity are occurring at a rate that approximates natural processes. Some evidence of disturbance also occurs in areas within the Hells Canyon Wilderness having high levels of livestock traffic.

Water Quality

Surveys were conducted on 15 lakes in the Eagle Cap Wilderness, those survey results will be available in 1999. Additionally, a long-term water temperature study on the Imnaha River and a water quality and flow data station on the Minam River are in place. A sediment and channel study is also underway in the Imnaha drainage of the Twin Lakes Fire area to monitor the movement of sediment on slopes. No conclusive results are available at this time. Streams and riparian areas appear to be in good to excellent condition in all wildernesses on the Forest.

Vegetation

In the Eagle Cap Wilderness, 96 acres were burned to reduce fuel loading as part of the Minam/Backbone Management Ignited Fire project. Also, Tenderfoot Basin photo point monitoring occurred for the 60th year. Results will be published in 2000. Standley-Sturgill sampling and photo point monitoring was conducted for the 90th year with results also to be published in 2000, and benchmark plots were established. In Hells Canyon, ungulate impacts were sampled on 32 sites. The summary of findings will be available later in 1999. Generally, natural ecological processes operate freely and maintain a mosaic of native vegetation. Some popular campsites have more than 400 square feet loss of ground cover. These human impacts are small, localized, and appear to be decreasing. Noxious weed infestations continue to be a major concern in all wildernesses on the Forest.

Scenery

Scenery is excellent within each of the wilderness areas. Fires have created a more diverse mosaic of vegetation. Some isolated developments outside of, but visible from, wildernesses offer less appealing scenery than desired by some visitors.

Livestock

Livestock grazing is permitted within all or portions of each wilderness, except the Baldy Unit of the North Fork John Day Wilderness. The Catherine Creek Allotment Plan, of which a small portion lies within the Eagle Cap Wilderness, moved forward but was not completed in 1998.

Fish and Wildlife

Natural ecological succession is occurring.

Evidence of Human Activity

Based on total acres, there is minimal evidence of human activity, and mostly at the more popular sites. Additionally, there is evidence of human activity in Hells Canyon, Monument Rock, and North Fork that predates their designation as wilderness. Red's Horse Ranch in the Eagle Cap Wilderness was maintained by volunteers in 1998.

Social Setting

In Eagle Cap Wilderness, monitoring of visitor use and compliance with Limits of Acceptable Change Standards occurred through data collected from the Visitor Permit System and by measuring trail encounters and occupied campsites. These data have not been analyzed, but a carrying capacity was determined and an Analysis of Visitor Use during 1995-1997 was prepared. Encounters with other users in the Hells Canyon Wilderness are rare and considered low by Regional standards, except during fall and spring hunting seasons. Still, they continue to be within Regional standards. All wildernesses, except perhaps some portions of Eagle Cap, appear to be within Regional standards on encounters.

Managerial

Signing of regulations and orders occurs at trailheads outside the wilderness. Around Eagle Cap Wilderness, additional signs marking the wilderness boundary were installed in 1998 to aid boundary location for snowmobiles. Wilderness education continues at schools and hunter safety classes. A wilderness education group on the Forest is conducting 8-hour workshops for teachers, with the wilderness box. These sessions are in partnership with Eastern Oregon University. Backcountry horsemen, 4-H clubs, Boy Scouts, and law enforcement officers have attended presentations. Four rangers and two trail crews worked in the Eagle Cap Wilderness in 1998. Many mainline and some secondary trails were maintained , and erosion control and drainage repair work caused by floods were also completed.

Recommended Actions:

Continue to monitor.

Increase presence in the wilderness as budgets allow.

Complete wilderness boundary marking and management plans for each wilderness.

Continue efforts to monitor and control noxious weeds.

W-W MONITORING ITEM 40
Wild and Scenic Rivers

Purpose: To determine if designated rivers and associated river corridors are being managed in accordance with the Wild and Scenic River Act.

Portions of the Imnaha, Minam, and Lostine Rivers and East Eagle Creek in the Eagle Cap Wilderness are managed and protected as wild rivers consistent with both the wilderness and wild and scenic river designation and direction. In 1998, the only human activity occurring within the wild segments of these river corridors was wilderness recreation use. No enhancement projects were implemented.

On the recreation section of the Lostine River, the following action items for management of recreation sites and activities served to protect and enhance the outstandingly remarkable values of the wild and scenic river corridor: 1) provided full-time volunteer hosts for visitor information and maintenance of facilities; and 2) removed hazard trees from roadside and recreation sites.

For the Imnaha River recreation and scenic segments, baseline photo documentation of the river corridor for visual objectives and continued monitoring were established. Six streambank projects are underway on privately-owned land adjacent to the river. These projects use materials and methods compatible with the outstandingly remarkable scenic value of the river. Several federal agencies, including the Forest Service and the Corps of Engineers, are working together to restore the river to the extent possible at a location where violations of the Clean Water, Section 7 of the Wild and Scenic Rivers Act, and the Endangered Species Act allegedly occurred.

Volunteers and agency personnel have completed riparian enhancement projects on the Imnaha River. Native plantings were used to enhance riparian areas while relocating recreational use to places more compatible with the resource. Fuel loading was reduced and visuals were enhanced through fall burning projects; cultural resource inventories were conducted (monitoring of cultural sites is a high priority); and two temperature monitoring stations produced data that will be available later in the year. A watershed analysis is presently underway.

Recommended Action:

Continue to seek partnerships to help with implementation of the plans.

Continue to monitor.

Implement enhancement projects as budgets allow.

W-W MONITORING ITEM 41
Recreation Setting

Purpose: To determine whether Forest settings with desirable recreation attributes are being managed to provide high quality and stable opportunities for outdoor recreation. To monitor recreation developments in order to ensure that they are maintained to a standard which provides for customer satisfaction.

Overall, the results of monitoring are acceptable. The Forest appears to be providing a wide range of recreation opportunities to the general satisfaction of users. Use is growing incrementally; however, by far, the majority of recreationists are not negatively impacted by the number of other visitors to the area.

The majority of concerns expressed by recreationists in 1998 can be attributed to the fee demonstration program, which requires recreationists to pay for parking at certain trailheads on the National Forest. Most respondents are not as much concerned about the need to pay as that they want to see results of their payment through trail clearing, trailhead maintenance, and other recreation related improvements and maintenance.

Additionally, some concern has been expressed about the level of development and maintenance of facilities at certain campgrounds, such as Hurricane Creek and Bear Creek on the Eagle Cap Ranger District. Poor design, inadequate capacity and setting, and a need for additional resource protection measures were specified.

Many positive comments were received about recreation sites. Most centered on the scenery, the increased trail maintenance, the friendliness of Forest Service workers, the obvious resource protection measures being taken, and the upkeep and location of the sites themselves.

Recommended Actions:

Continue to monitor.

Continue to assess the adequacy of facilities and upgrade/adjust as budgets allow.

W-W MONITORING ITEM 42
Off-Road Vehicle (ORV) Use

Purpose: To determine if Forest settings with desirable recreation attributes are being managed to provide high quality and stable opportunities for ORV use. To determine if conflicts exist with other recreation or other resource management objectives.

Off-road vehicle use is occurring at various levels and in various ways across the Forest. Off-road vehicle use is increasing, and many technological advances have been made in the vehicles that enable access to areas of the Forest not previously accessed by ORVs. Although reports are isolated of ORV use not meeting the intent of the standard and guides, concern about use and effect on the resources is significantly increasing.

Problems identified include construction of user trails in locations that cause serious resource damage, including meadows; use of ORVs in areas containing prehistoric sites (damage, if any, is unreported); and encroachment by ORVs into non-motorized areas such as wildernesses.

A task group of recreation specialists and wildlife biologists is reviewing the current standards and guides, and will make recommendations for changes if necessary in 1999. Any changes made could result in an amendment to, or a revision of, the existing Forest Plan.

Recommended Action:

Continue to monitor

Continue efforts of the task group to determine if standards and guides need adjusting.

W-W MONITORING ITEM 43
Visuals

Purpose: To determine if visual resource objectives for treated acres and created opening size are being met.

No unit reported any project/activities within which Forest standards for Visual Quality Objectives (VQOs) were not met.

The 1995 Salt Creek Fire, a recent insect infestation, and flooding have created a need to conduct visual quality improvement projects along Forest Service Road #4240 (Hat Point Road). The objective of the visual restoration project was to remove selected trees to enhance visual quality. Removal of the identified trees has been completed, with final cleanup underway in 1999.

Additionally, the Hells Canyon National Recreation Area has emphasized protection of aspen groves along Hat Point Road to enhance visual quality. Buck and pole enclosures were built to protect the grove from grazing impact. These enclosures continue to be monitored and maintained.
Progress is being made in completing viewshed management plans for Level I corridors, with completed plans for about 40 percent of the 42 Level I viewsheds.

Recommended Actions:

Continue to monitor.

The following table provides a summary of selected Forest accomplishments and resource outputs for fiscal year 1998. Where possible, these are compared to Forest Plan estimates; but in many cases the unit of measure has changed since the Forest Plan was completed and direct comparison is no longer possible.

Table W-4
FOREST ACCOMPLISHMENTS - FY 1998
Wallowa-Whitman National Forest

RESOURCE ACTIVITY/OUTPUT	UNIT OF MEASURE	FOREST PLAN PROJECTION (avg/year)	ACTUAL FY 98 FOREST OUTPUT	% ACTUAL TO FOREST PLAN
FIRE				
Natural Fuel Treatment	Acres	22,400	9,594	43
Activity Fuel Treatment	Acres		222	NA
FISH				
Stream Restored/Enhanced	*	250 acres	4.3	2
Stream Restored/Enhanced	*	500 structures	1,262	252
RANGE				
Permitted Grazing - Sheep & Goats	*		22,600	NA
Cattle & Horses	*		105,000	NA
Total Livestock	*AUMs	186,000	127,000	68
Non-structural Improvements	Acres	Not Specified	16	NA
Structural Improvements	Structures	Not Specified	36	NA
Noxious Weed Treatment	Acres	400	1,467	367
RECREATION				
Trail Construction/Reconstruction	Miles	4	10.1	253
Developed Recreation Capacity	M PAOTs	661	2,063	312
ROADS				
Construction			1	NA
Reconstruction	Miles		61.3	NA
Construction/Reconstruction Combined	Miles	249	62.3	25
Obliteration	Miles	Not Specified	51.3	NA
THREATENED, ENDANGERED, and SENSITIVE SPECIES				
Aquatic Habitat Restored/Enhanced	Miles	Not Specified	2	NA
Terrestrial Habitat Restored/Enhanced	Acres	Not Specified	150	NA
TES Habitat	Structures	Not Specified	12	NA
TIMBER				
Total Program Sale Quantity	MMBF	205	40	20
Reforestation	Acres	14,300	5,636	39
Timber Stand Improvement	Acres	7,400	4,481	61
WILDLIFE				
Habitat Restored/Enhanced	Acres	1,000	26,682	2,668
Habitat Structures	Structures	Not Specified	747	NA
WATER				
Watershed Improvements	Acres	1000	508	51

* Unit of measure changed between FY 90 Forest Plan and FY 98 Accomplishment Report.