United States
Department of
Agriculture

Forest Service

Pacific Northwest
Region

JUNE 1995

Umatilla National Forest
Forest Plan

Monitoring and Evaluation Report

FISCAL YEAR 1994

United States Department of Agriculture **Forest Service** Umatilla National Forest

2517 S.W. Hailey Avenue
Pendleton, OR 97801

Reply To: 1920-2-3

Date: June 19, 1995

Dear Reader:

The Umatilla National Forest has completed the fourth year of Forest Plan implementation. I am pleased to present to you the Fiscal Year 1994 Monitoring and Evaluation Report which documents the Forest's monitoring of Forest Plan implementation. I hope you find the report informative and useful in understanding the Forest's experience in monitoring and implementation.

Monitoring continues to be an important ingredient of the Forest management process. The intent of monitoring is to determine how well the Plan is being implemented and if goals, objectives, and Desired Future Conditions are being achieved. Monitoring and evaluation also help to identify corrections and adjustments needed to improve land management and to better serve the public.

In 1994, the Forest faced many challenges. Downsizing of personnel, adverse fire season, reduced budgets, shifts in programs, consultation with National Marine Fisheries Service, new timber sale direction, and lawsuits affected the Forest's ability to fully accomplish its programs. Although at a reduced level, monitoring of water, soils, social and economics, TES plants, and wildlife are some examples where the Forest has done well. The Forest will continue to face difficult times as we move forward into the future. However, I am confident the Forest will continue to make strides in monitoring as we place emphasis on customer service and meeting our obligations to the America people.

I appreciate your continued interest and involvement in the Umatilla's Forest Planning process. The process provides a direct way for you to be involved in the management of the Forest. Your comments are important to improving the Forest's monitoring program or other aspects of management. I invite you to call, write, or drop in to let us know your reaction to the Report and other matters of interest to you. Please contact Lyle Jensen, 503-278-3823, in the Planning section of the Supervisor's Office for assistance. The addresses and phone numbers of each District office and for this office are listed on the following page.

Sincerely,

JOHN P. KLINE
Acting Forest Supervisor

Enclosure

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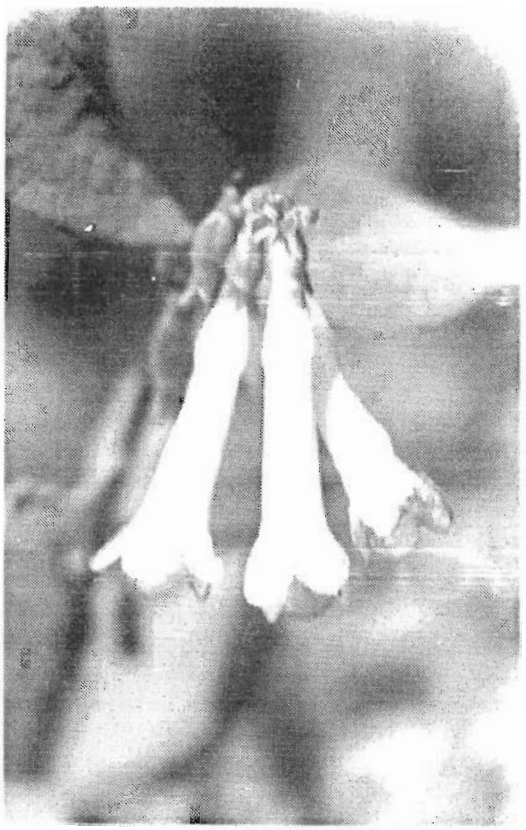

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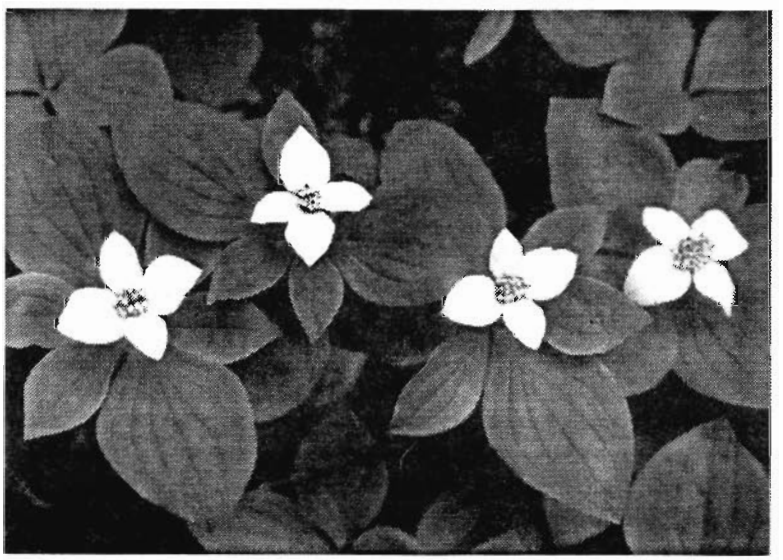

INTRODUCTION

The Umatilla National Forest Fiscal Year 1994 Monitoring and Evaluation Report is the fourth one prepared by the Forest in support of Forest Plan implementation. The Regional Forester approved the Forest Plan on June 11, 1990, and the Forest began implementing the Plan on August 6, 1990. Monitoring and evaluation is an important step in ensuring that Plan implementation occurs as intended and that objectives are being met. This report documents our progress.

MONITORING AND EVALUATION

Monitoring consists of gathering data, making observations, and collecting and disclosing information. Monitoring is the means to measure progress in Forest Plan implementation, to determine how well objectives of the Forest Plan are being met, and to determine if management standards and guidelines are appropriate for meeting the Forest's outputs and environmental protection. Monitoring is also used to determine how well assumptions used in the development of the Forest Plan reflect actual conditions.

Evaluation is the process of analyzing data, information, and products resulting from monitoring. Evaluation determines if planned conditions or results are being attained and when they are within Plan direction. When a situation is identified as being outside the limits of acceptable variability, changes may need to occur. Therefore, evaluation serves two major functions: it initiates a change in management practices and provides a means to adjust the Forest Plan to keep it dynamic and responsive to changing conditions.

The three types of monitoring are:

– *Validation Monitoring* – tests the validity in initial planning data and assumptions. "*Are the planning assumptions valid, or are there better ways to meet Forest Plans goals and objectives?*"

– *Implementation Monitoring* – determines if plans, projects, prescriptions, and activities are being implemented as designed and in compliance with Forest Plan goals, objectives, and management direction. "*Did we do what we said we were going to do?*"

– *Effectiveness Monitoring* – collects the information to determine if plans, projects, prescriptions, and activities are effective in meeting the intent of the Forest Plan. "*Are the management practices producing the desired results?*"

MONITORING STRATEGY

The Forest Supervisor signed the Umatilla Forest Plan Monitoring Strategy on December 5, 1991. The Strategy is an elaboration or clarification of the Forest Monitoring Plan in Chapter V of the Forest Plan. The Monitoring Strategy was revised July 1994. The focus of the revision was to incorporate changes in management direction and improvements suggested by employees and others. The 1994 Monitoring and Evaluation Report is based on the revised Monitoring Strategy.

The main purpose of the Umatilla's Monitoring Strategy is to ensure consistency in implementing the Forest Plan. As required by the National Forest Management Act (NFMA), Forest Plan implementation must be evaluated to determine the effects of management practices, how well objectives have been met, and how closely management standards and guidelines have been applied. Requirements set by the Forest Plan, the Regional Monitoring Strategy, and NFMA form the foundation of the Forest's Monitoring Strategy.

The Strategy defines the items to be monitored and contains the key monitoring questions, thresholds of variability (for change), proposed monitoring approaches, and assigned responsibilities.

Summary of Recommended Action

– 1994 Monitoring Report –

Umatilla National Forest

PG#	MI#	Monitoring Item (MI)	1993 Action	Change Practice	Further Eval.	Amend Forest Plan	Remarks
I. PHYSICAL RESOURCES							
1	1	**A. Air** Air Quality	CM				Continue Monitoring. Report finding from Three Trough Timber Sale in 1995.
2	2	**B. Soil** Soil Productivity	CP/FE		•		Soil protection practices are being implemented properly and are meeting standards. Subsoiling treatments are showing positive results. Continued evaluation of treatment effects is needed.
5	3	**C. Water** Water Quantity	FE		•		Long term precip. and stream flow data is becoming available but still needs evaluation. Umatilla Barometer Watershed report is forthcoming in 1995.
8	4	Water Quality	CP/FE	•	•		Effectiveness of most practices in meeting water quality goals has not been demonstrated. Collected data has not been evaluated. BMP monitoring and reporting is a continuing need.
11	5	Stream Temperature	CP/FE	•	•		Several Forest streams frequently exceed state standards during summer months. Trends need to be evaluated where long-term data is available.
14	6	Stream Sedimentation	FE		•		Need to complete analysis of sediment data.
16	7	Stream Channel Morphological Features	CP/FE	•	•		Desired level of pools/large wood lacking on some streams particularly in the south half of the Forest. Need common stream survey methods.
20	8	Fire Effects - Wildfire On Water and Soils	CM		•		Monitor Boundary Fire area for erosion and rehabilitation effectiveness in 1995.
II. BIOLOGIC RESOURCES							
21	9	**A. Vegetation Management** Riparian Vegetation	CP/FE	•	•		Forest needs to develop and institute standards and methods to monitor and evaluate riparian vegetation.
23	10	Level of Utilization	FE	•	•		Additional work is needed to establish a consistent method of assessing utilization of hardwoods in riparian areas. Intensify work on evaluating effectiveness of applied utilization standards in meeting DFC. More emphasis is needed on reporting results.

CM = Continue Monitoring CP = Change Practices FE = Further Evaluation AP = Amend Plan

Summary of Recommended Action (Continued)
– 1994 Monitoring Report –

PG#	MI#	Monitoring Item (MI)	1993 Action	Change Practice	Further Eval.	Amend Forest Plan	Remarks
25	11	Range Condition and Trend	FE	•	•		Limited data submitted. Better reporting and analysis of data is needed. Data is available.
26	12	Noxious Weeds: Invasive Vegetation	CP	•			Treatments of noxious weeds showing mixed results. Noxious Weed EA (completion in 1995). Should disclose alternative methods to improve effectiveness of treatments.
28	13	Silvicultural Harvest Method	FE	•	•		Changes in harvest methods from Forest Plan levels needs to be re-evaluated. Strengthen monitoring reviews of silvicultural prescriptions.
30	14	Created Openings	CM				Continue monitoring.
31	15	Stand Management – Regeneration	CM		•		Conduct review of the reforestation process.
33	16	Stand Management - Ponderosa Pine Regeneration	CM				Need to develop a process to track natural regeneration of ponderosa pine. Continue monitoring.
34	17	Stand Management – Precommercial Thinning	CM				Continue monitoring.
35	18	Fire Effects – Prescribed Fire	CM	•			Districts need to submit results and findings. Need to develop and implement standardized vegetation monitoring protocol.
40	19	Vegetation Management	CM				Continue monitoring.
41	20	**B. Plants** Threatened, Endangered, and Sensitive Species	CM	•	•		Further monitoring is needed to evaluate the responsiveness of plants to management. Additional protection or mitigation measures are likely to be needed to reduce potential impacts.
45	21	**C. Insect and Disease** Insect and Disease Control	CM				Continue monitoring.
47	22	**D. Fish** Anadromous and Resident Fisheries	FE	•			Need to report other available data. Complete habitat capability determinations.

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Summary of Recommended Action (Continued)
– 1994 Monitoring Report –

PG#	MI#	Monitoring Item (MI)	1993 Action	Change Practice	Further Eval.	Amend Forest Plan	Remarks
50	23	**E. Wildlife** Elk/Deer Habitat and Estimated Populations	CP/FE	•	•		HEI may not be directly tied to populations level fluctuations; further evaluation is needed.
54	24	Old Growth Tree Habitat	FE/AP		•		Old growht habitat condition surveys are needed in areas of mortality stands.
56	25	Dead and/or Defective Tree Habitat	CP/FE		•		Surveys were conducted with different techniques used. Analyses indicate shortages in habitat in the next 20 years due to high mortality on south half of the Forest.
58	26	Pileated and Northern Three-Toed Woodpecker Populations	CM				Informal monitoring occurred in 1994, on a project specific basis. Further monitoring and evaluation is needed.
59	27	Pine Marten	CM	•			Reduced levels of surveys in 1994. Improved monitoring methodology is needed.
60	28	Threatened/Endangered/Sensitive Wildlife and Fish Species	CM				Continue monitoring.
62	29	**F. Diversity** Plant and Animal Diversity	CM				Ecosystem/Watershed Analysis initiated with completion of Camas, which addressed several monitoring questions.
III. RESOURCES AND SERVICES TO PEOPLE							
66	30	**A. Forest Plan Implementation** Management Areas/Standards and Guidelines	FE		•		Limited on-the-ground monitoring occurred in 1994. Monitoring should focus specifically on implementation monitoring.
70	31	**B. Recreation** Primitive/Semi-Primitive Recreation and Roadless Areas	CM				Continue monitoring
71	32	Off-Highway Vehicle Use	CM	•			Need formal monitoring conducted; use incident (law enforcement) to track effectiveness of compliance.
72	33	Developed Sites	CP/FE	•	•		Some developed sites are in need of upgrading and/or expansion.
74	34	Wild and Scenic Rivers	NA				Added since 1993. Continue Monitoring.

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Summary of Recommended Action (Continued)
– 1994 Monitoring Report –

PG#	MI#	Monitoring Item (MI)	1993 Action	Change Practice	Further Eval.	Amend Forest Plan	Remarks
75	35	**C. Visual** Existing Visual Condition	CP/FE	•			Visual quality objectives were not met in one case. Need to complete viewshed management plans.
76	36	**D. Wilderness** Non-conforming Uses	FE	•			Need to strengthen incident reporting.
77	37	Limit of Acceptable Change (LAC) and Amount of Primitive Wilderness Resource Spectrum (WRS)	CP/FE	•	•		Information is available, however, results were not reported. No formal review of the monitoring item occurred.
78	38	**E. Range** Allotment Planning	AP	•		•	Adjustment of AMP schedule is needed. Planning efforts continue at Heppner RD to complete two AMPs. Other planning efforts reduce Forests ability to complete AMPs.
79	39	Range Outputs	CM				Continue monitoring.
80	40	Range Improvement	CM				Continue monitoring.
81	41	**F. Timber** Identification of Lands Suitable for Timber Management	FE				Continue monitoring.
82	42	Timber – Yield Projection	FE		•		Adjust empirical and managed yield table as needed.
83	43	Timber Offered for Sale	FE/AP		•	•	Timber offered was well below Forest Plan projections. Need to adjust Plan depending on ICBEMP process.
85	44	Availability of Firewood	CM				Continue monitoring.
86	45	**G. Lands and Minerals** Mineral Development and Rehabilitation (MDR) Accessibility	CM				Continue monitoring.
87	46	**H. Transportation** Forest Road System	CM	•			Transportation information inconsistent from year to year.
89	47	Open Road Density	CM				Road status information needs to be continuously updated.

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Summary of Recommended Action (Continued)
– 1994 Monitoring Report –

PG#	MI#	Monitoring Item (MI)	1993 Action	Change Practice	Further Eval.	Amend Forest Plan	Remarks
90	48	Trails	CM	•			Review of monitoring efforts is needed. No formal monitoring occurred in 1994.
92	49	**I. Fire Protection** Fire - Program Effectiveness	CM				Continue monitoring.
94	50	**J. Cultural and Historic Resources** Cultural Properties/Sites	CP	•			Lack of information prevents full evaluation. Formal monitoring reviews were not reported by all districts.
95	51	**K. Special Interest Areas** Effects of Forest Management Activities on SIA's	CM				Continue monitoring.
96	52	**L. Research Natuarl Areas** Research Natural Areas (RNAs)	CP	•			No formal monitoring was conducted. Noxious weeds are posing a threat to one RNA.
97	53	**M. Administrative** National Environmental Policy Act (NEPA)/National Forest Management Act (NFMA)	CP				Only two EAs were prepared in 1994 with no formal NEPA/NFMA compliance reviews. Forest NEPA White Paper needs updated.
IV. SOCIAL AND ECONOMIC							
98	54	**A. Population, Income, Employment, Payments, Social, and Forest Products** Changes in Income Levels, Populations, and Employment	CM		•		Threshold for Forest related employment and personal income has been exceeded. Further analysis of data is needed.
102	55	Payments to Counties	AP			•	Threshold has been exceeded. The Forest expects to adjust the Plan based on results from the ICBEMP.
104	56	Lifestyles, Attitudes, Beliefs, Values, and Social Organizations	FE		•		Further evaluation is needed. Review of ICBEMP issues could add insight into this area.
105	57	Forest Contributions to the Local Timber Supply	AP			•	Forest Plan adjustment is on hold awaiting completion of the ICBEMP and EEIS. Some additional analysis may be required
106	58	**B. Forest Budget and Costs** Forest Budget	FE		•		Adjustment of Forest Plan is likely. Further evaluation is needed when ICBEMP completed.
109	59	Costs/Values of Forest Plan	FE			•	Threshold has been exceeded. A potential area to be considered for Forest Plan changes.

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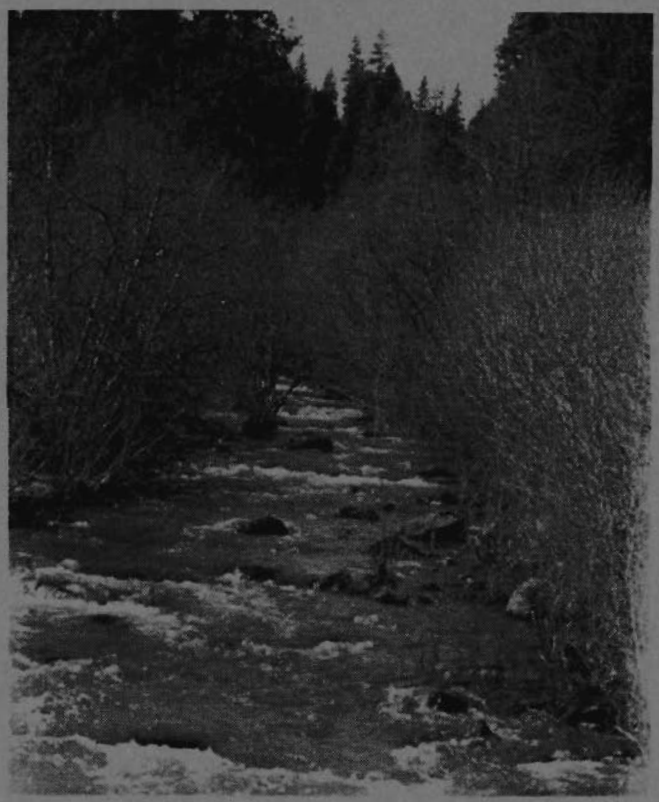
I. PHYSICAL RESOURCES



A. AIR

MONITORING ITEM (MI) 1: Air Quality

Forest Goals, Desired Future Condition, and Outputs: Maintain air quality at a level adequate for protection and use of natural forest resources and meet or exceed applicable federal and state standards and regulations. Manage prescribed fire smoke to minimize impacts to population centers, highways, and Class I airsheds.

Monitoring Question(s): 1. What mitigation measures were used to reduce smoke emissions from prescribed burning, and how well did the measures work? 2. Are management activities meeting State Implementation Plans (IMP's) and Forest Plan standards and guidelines? 3. What is the amount of fuel (tons) consumed by prescribed burning? 4. What are the total emissions from prescribed burning annually for all management activities?

Threshold of Variability: Deviation above State Implementation Plans.

Results/Findings:

In Calendar Year (CY) 1994, a variety of prescribed burning activities were used to accomplish management objectives, including site preparation, fuels reduction, range improvement, and wildlife enhancement. The Forest employed specific mitigation measures such as burning with higher fuel moistures, rapid ignition, and mop-up to reduce smoke emissions. Measures appear to have been effective with no reported intrusions into any Class I airsheds (wildernesses, population centers etc.) resulting from prescribed burning.

Based on fuel types and acres burned, tons of total suspended particulate and total tons fuels consumed have been estimated (see Table I-1). All prescribed burning was done in compliance with state smoke management plans. The Forest reporting of air quality is consistent with the reporting requirements and Memorandum of Understanding between the Region and both states, Oregon and Washington.

Table I-1
AIR QUALITY - CY 1991 to 1994
Umatilla National Forest

Year	Total Fuel Consumed (Tons)	Particulate Produced (Tons)
1991	178,811	2,593
1992	156,436	2,268
1993	66,852	969
1994	96,235	1,396

In May of 1994, the Heppner Ranger District in cooperation with the Intermountain Research Station (Fire Sciences Laboratory, Missoula, Montana) collected data on smoke emissions from the Three Troughs Underburn project. Results are not yet available; it is anticipated they will be reported in 1995.

Evaluation:

Thresholds have been met with all burn activities being reported to the states. As seen in Table I-1, the amount of prescribed burning and particulates produced was slightly higher than in 1993. The increase is attributed to the expanded natural fuel burning program implemented on the Heppner Ranger District. In the near term, the Forest anticipates that activity fuel will slowly increase while natural fuel burning will increase to accomplish ecosystem management objectives.

B. SOIL

MONITORING ITEM 2: Soil Productivity

Forest Goals, Desired Future Condition, and Outputs: Manage the soil resource of the Forest by using management practices that will maintain or enhance its productive properties.

Monitoring Question(s): 1. Are management practices/projects resulting in conditions that comply with Forest-wide Standards and Guidelines for the management of the soil resource? 2. Do Forest-wide Standards and Guidelines adequately protect long-term site productivity? 3. Is soil productivity maintained or enhanced over time?

Threshold of Variability: 1. Exceeding regional guidelines for soil compaction, displacement, puddling, and erosion. 2. Indication of long-term trends in reduction of site productivity due to nutrient or ocular measurement reductions.

Results/Findings:

In 1994, several soil monitoring efforts were undertaken by the Forest to ensure projects were in compliance with Forest Plan standards and guidelines. Projects and activities monitored include: timber sales (log skidding), soil and mining restoration, road construction, and grazing. No formal, systematic soil productivity sampling was conducted during the year.

A cut to length processor/forwarder mechanized harvest system was used on a portion of the Windy Springs Timber Sale, North Fork John Day Ranger District. The processor/forwarder operates on a slash mat created during tree processing; the machine carries the logs rather than dragging them, thereby minimizing soil impacts and exposure. Through field observations and measurements, the processor/forwarder operated within Forest Plan standards.

Two timber sales, West Patit and Huck Butte located on the Pomeroy Ranger District, were monitored by extensive walk-through surveys conducted by the Timber Sale Administrator. Prior to logging operations, minimum spacing (logging trails) and landing standards were established to comply with the Forest Plan. During operations, inspections revealed that in most cases standards and guidelines were being met. One exception was the Huck Butte Sale unit 18, inspection found skid trails to be out of compliance. The problem occurred when the skidder operator created additional trails (because of the steepness of the slope) to reduce time spent hauling logs to the landing. The purchaser also failed to adequately monitor the operator's work and correct the problem in a timely manner. The problem was corrected on subsequent units.

A feller buncher is being utilized on the West Patit Timber Sale (Pomeroy R. D.) in uneven-aged harvest units in combination with a skidder. Surveys in 1994 show that further evaluation is needed to adequately assess the impacts of the feller buncher operation. Observations made of skid trails were determined to meet Forest Plan standards and guidelines.

Review of timber sale inspection reports from three of the four districts (Heppner, North Fork John Day, and Pomeroy) indicate that contract provisions to protect soils are being implemented as designed and soil standards are being met.

In previous monitoring reports, many sites were identified as having compacted soils beyond acceptable levels, primarily as a result of past logging and road building activities. All districts have sought to comply with the soil productivity standards and guidelines by changing logging practices and several have applied subsoil treatments to areas where soils are compacted. To mitigate additional adverse impacts and restore site conditions, the sale purchaser is required to subsoil temporary roads, landings, and skid trails upon completion of the logging operations. Inspections in 1994 indicate subsoiling practices were being implemented as designed (see MI 30 for further discussion). In addition, some districts are now using soil probes and visual observations to determine the need for additional subsoiling treatments prior to planting.

In 1990, the Heppner Ranger District with support from the Forest Supervisor's Office implemented a subsoiling demonstration/monitoring project in cooperation with Dr. Michael Geist, Pacific Northwest Research Station, La Grande, Oregon, and Dr. Henry Froehlich, Oregon State University, Forest Engineering, Corvallis, Oregon. The project objective was to assess the effectiveness of site preparation using a subsoiler to improve reforestation success in compacted soils.

The Davis 31 harvest unit was selected for the demonstration site since it had sustained frequent multiple logging entries in which soils had become compacted. Trees were planted in 1992 and were monitored for survival for 3 years. Fertilizer packets were placed in certain ash soil locations to analyze the effects of fertilization. Survival percentages after three growing seasons are summarized in Tables I-2 and I-3.

Table I-2
PLANTED TREE SURVIVAL (%)[1]
With and Without Subsoil Treatments
Umatilla National Forest

Location	Year	Not Subsoiled (%)	Subsoiled (%)
Transition Soil	1992	57	85
	1993	35	83
	1994	35	82
Ash Soil	1992	75	85
	1993	55	83
	1994	52	83
Residual Soil	1992	70	78
	1993	67	78
	1994	62	78

[1] No fertilizer used with this treatment.

Table I-3
PLANTED TREE SURVIVAL (%)
With Fertilizer and Subsoil Treatments
Umatilla National Forest

Treatment	Year	Not Subsoiled (%)	Subsoiled (%)
No Fertilizer	1992	75	85
	1993	55	83
	1994	52	83
With Fertilizer	1992	57	73
	1993	37	73
	1994	35	73

Tree survival shows a clear and consistent advantage of site preparation with subsoiling. This is especially true in the transition and ash soil locations. Table I-3 shows tree survival was reduced by using fertilizer with or without subsoiling, however, reductions were most notable without subsoiling. Areas which have been subsoiled appear to have less vegetative competition. A link may exist between vegetation differences resulting in less favorable pocket gopher habitat, which in turn means less mortality. The use of fertilizer may have increased moisture stress or increased palatability to gophers, thereby causing mortality in trees.

In 1991, the La Grande Ranger District, Wallowa-Whitman National Forest, organized a subsoiling demonstration utilizing a harvest unit near Bowman Springs, Umatilla National Forest (administered by the Wallowa-Whitman). The site was revisited to monitor conditions after several years. Visually, it would be difficult to know the skid trails were subsoiled (with a true subsoiler, and not winged rippers) because vegetation has responded favorably. Measurements revealed a noticeable difference between treated and untreated compacted areas. Treated areas show less compaction and better vegetation response than areas which remained compacted. Areas of compaction were found to have less vegetation than non-compacted areas.

In 1994 streambank erosion along the North Fork John Day River was noted near dredge-tail pilings (left from historic mining activity). The Forest anticipates a restoration project will be implemented in 1995 (see MI 4, Water Quality for additional discussion on dredge tailings restoration project).

Limited examination of grazing allotments show soil impacts in localized areas from livestock use. While grazing impacts fall within standards for overall soil impacts, the effects on small areas is pronounced. The impacted sites are typically found in riparian areas and some driveways or trails which are prone to erosion.

Evaluation:

The monitoring that has taken place indicates management activities are largely staying within Forest Plan standards and guidelines. Monitoring also indicates positive progress towards limiting detrimental impacts. Adjusted timber sale logging practices are helping to minimize negative soil impacts. Soil effectiveness monitoring with detailed sampling methods, which can generate statistically valid results, remains time-consuming and difficult to achieve with limited funding and numerous conflicting priorities.

District personnel continue to document monitoring which has always taken place while administering contracts. Reporting of results is improving but remains incomplete. Individuals are taking more active roles in considering and evaluating site impacts during project planning and activity implementation.

Existing compacted soils continue to be a problem in some areas. Progress is being made in dealing with some of the more problematic sites through some restoration activities. The Heppner District has been the most active in subsoiling where monitoring shows the practice is enhancing tree survival. Early results are very encouraging, showing the net value of subsoiling in the successful establishment of planted trees by reducing soil compaction and altering vegetative competition. Continued monitoring of Davis 31 is needed to fully evaluate the effectiveness of the subsoiling treatments.

C. WATER

MONITORING ITEM 3: Water Quantity

Forest Goals, Desired Future Condition, and Outputs: Maintain favorable conditions of water flow. Provide high quantities of water to off-Forest users while maintaining or enhancing water quality. Do not substantially change the level of water discharge from the National Forest during the May 1 through September 30 period where detrimental to instream or off-Forest uses.

Monitoring Question(s): 1. What is the water yield from the Forest and key watersheds? 2. Are management activities significantly effecting the volume of water yields from Forest watersheds? 3. Are management activities significantly effecting the timing of water yield from Forest watersheds? 4. Are management activities significantly effecting the magnitude of summer low flows from Forest watersheds?

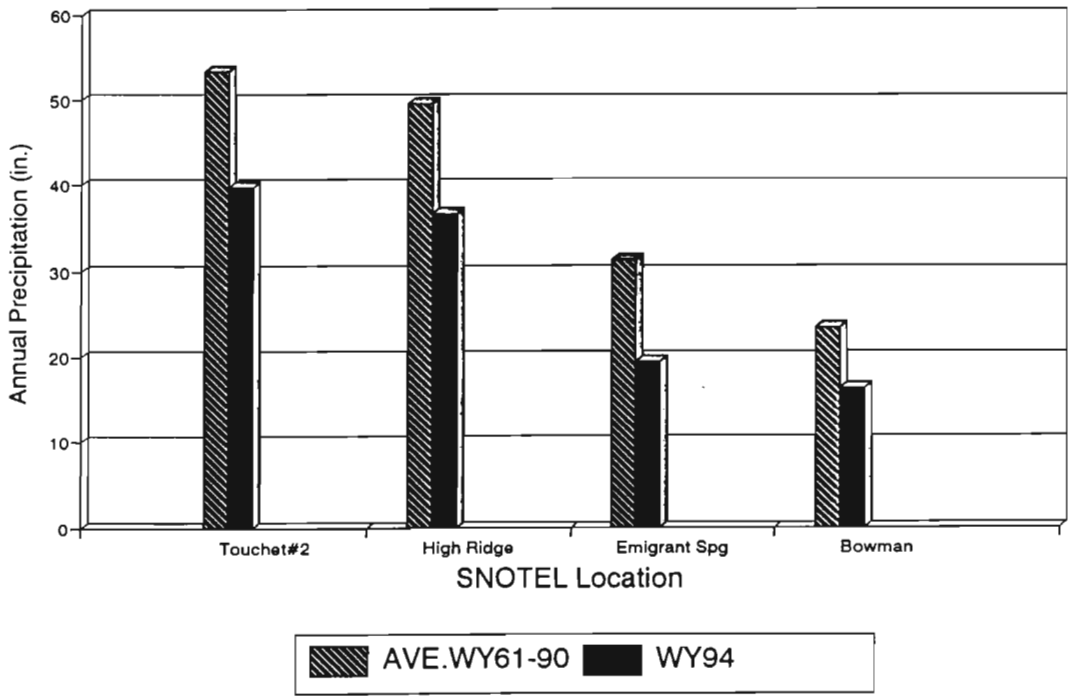
Threshold of Variability: 1. Decline in water yield in critical drainages not attributable to natural causes. 2. Decline in water yield or flow rate during critical late season periods not attributable to natural causes. 3. Change in timing of spring snowmelt which would cause detrimental impact to stream channel stability or harmful effects to downstream water users.

Results/Findings:

The 1994 water year (Oct. 1 - Sept. 30, 1994) was another record low for precipitation and streamflow. Results for the year include the following:

1. Precipitation, measured at high elevation sites across the Forest, was 70 percent of average (Figure A).

Figure A
ANNUAL PRECIPITATION
SNOTEL Sites on the Umatilla NF



2. Precipitation measured at low elevation sites (below the forest boundary), was among the lowest on record as shown in Table I-4.

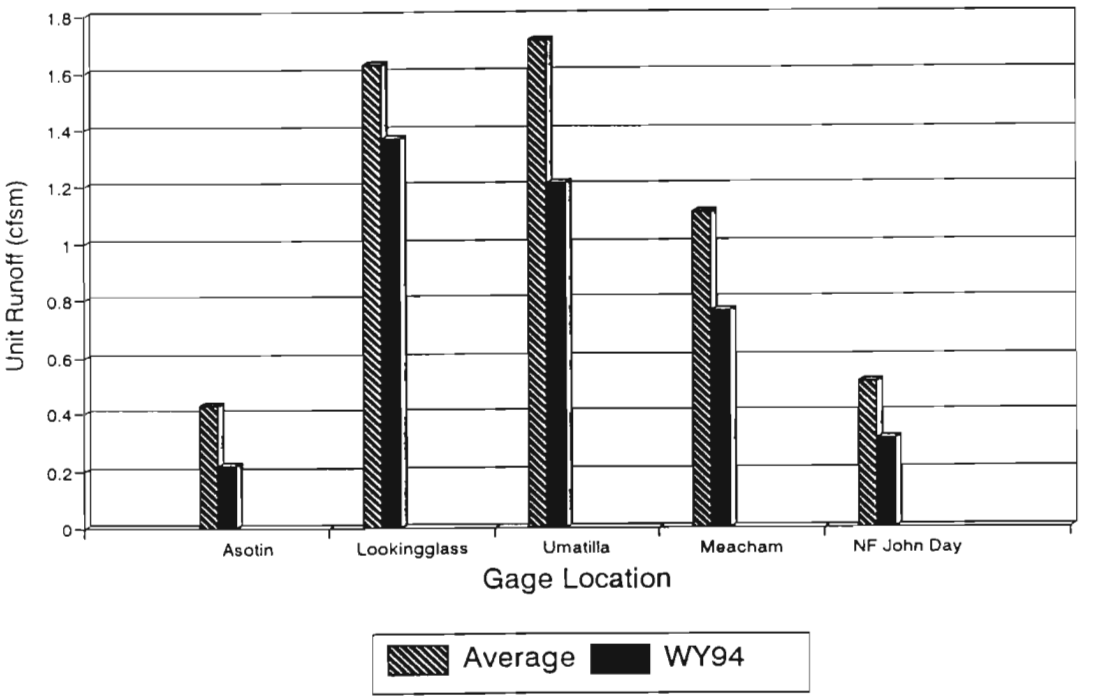
Table I-4
WATER YEAR 1994 - PRECIPITATION
Umatilla National Forest

Station Name	Total (in.)	Rank[1]	Average (Long Term)	Years of Record
Walla Walla[2]	34.16	8th	41.29	45
Pendleton	10.42	14th	12.39	57
Ukiah	14.21	13th	17.27	57

[1] Lowest water year on record
[2] Station located east southeast of the city of Walla Walla

3. Streamflow, measured at locations near the Forest boundary (Figure B), was 67 percent of average for the period of record. Unit runoff (cubic feet per second per square mile, or cfsm) expresses the unit area water production for selected locations, and show various influences on runoff including elevation, area, and vegetative cover.

Figure B
UNIT STREAM FLOW
USGS Gages on or near Umatilla NF



The Umatilla Barometer Watershed and, more recently, the South End Hydrologic Study were established, in part, to monitor water yields and water quality of small forested watersheds. Data has been collected for 28 years at seven locations in the Umatilla Barometer Watershed (including four small catchments in the High Ridge Evaluation Area). Two sites have been established for long-term monitoring for the South End Hydrologic Study. Four other locations on the Forest (Tucannon River, Cummings Creek, Mill Creek, and Desolation Creek) had continuous streamflow and water quality monitoring during 1994. The Forest is currently compiling and editing the backlog of data.

Results from the High Ridge Evaluation Area (Umatilla Barometer Watershed) from a mid 1970s harvest showed small or insignificant changes in total water yield, peak flow, timing, and low flow. A second harvest entry was completed in the mid 1980s. Under a cooperative agreement, Blue Mountain Natural Resources Institute and Forest Service Research will analyze and report on the Umatilla Barometer Watershed results since the mid 1980's.

Streamflow data was analyzed for the Camas Creek watershed analysis (report on file) without detection of significant change in water yield resulting from management activities.

Evaluation:

Long-term records of precipitation and streamflow are available from many Forest sites and nearby locations. Sites maintained by the Forest Service and other federal agencies provide information for predicting annual water supplies and characterizing year to year water yield information. Generally, most monitoring sites were not established for purposes of detecting water yield changes resulting from forest management activities. The sites are useful in evaluating other monitoring information such as stream temperature (MI 5) and riparian vegetation (MI 9). The low water year is reflected in the results.

The Forest needs to complete analysis of the backlog of water quantity monitoring data and keep current on future years monitoring.

MONITORING ITEM 4: Water Quality

Forest Goals, Desired Future Condition, and Outputs: Maintain or improve water quality in streams to meet or exceed demand for beneficial uses.

Monitoring Question(s): 1. Are Forest management activities or other factors affecting water quality parameters in Forest streams? 2. Has the Forest met its designated obligations and responsibility with respect to management of non-point source pollution? Did the Forest comply with the Clean Water Act as outlined in memorandum of understandings (MOU's) with the States of Oregon and Washington? 3. What is the long-term trend in water quality? 4. Are Best Management Practices and other measures implemented as designed to protect water quality? 5. Are Best Management Practices and other practices effective in meeting water quality goals?

Threshold of Variability: Exceeding or non-attainment of Forest Plan standards and guidelines for water quality.

Results/Findings:

Water quality monitoring documents baseline conditions, long-term trends, and compliance with state water quality standards. Methods include quantitative measurement of instream physical, chemical, and biological parameters, and a combination of quantitative and qualitative assessments of upland erosion, stream channel conditions, and aquatic biology.

The Forest operated 40 automated pumping samplers in streams for most of the major watersheds, including Asotin, Wenaha, Tucannon, Mill, Walla Walla, Umatilla, Lookingglass, Willow, and tributaries of the North Fork John Day (Desolation, Camas, Potamus and Wall). Daily composite samples were collected for suspended sediment (mg/l), turbidity (NTU), total dissolved solids (mg/l), and conductivity (mmhos). Baseline water quality data from the automated samplers are not yet developed.

In addition, 31 "grab samples" were collected on selected streams in the late summer during low flow. Stream samples were analyzed for dissolved oxygen (mg/l), colliform bacteria (total and fecal), and pH. Water samples were also collected from two lakes in late spring, to establish fish stocking suitability. Lake samples were analyzed for dissolved oxygen, conductivity, turbidity, total dissolved solids, and pH. Results from the grab samples reflect water conditions prevalent in 1994.

- Few of the dissolved oxygen samples met state standards with values ranging from 5.4 to 11.4 mg/l (values less than 9.5 in Washington and 9.0 in Oregon do not meet state standards). All samples tested for coliform (total and fecal) were within state standards. Several relatively high bacteria counts were found on the south end of the Forest. The highest fecal bacteria count, 194/100ml, was found on a tributary to Wall Creek (Swale Creek). All data is from single samples. Sites will be resampled to include five samples in a 30-day period. In 1995, emphasis will be on those with high coliform counts.

- One grab sample from the outlet of Langdon Lake had unusually low pH, high nitrates, and low dissolved oxygen. However, data is from a single sample which may have been contaminated. The site will be resampled in 1995.

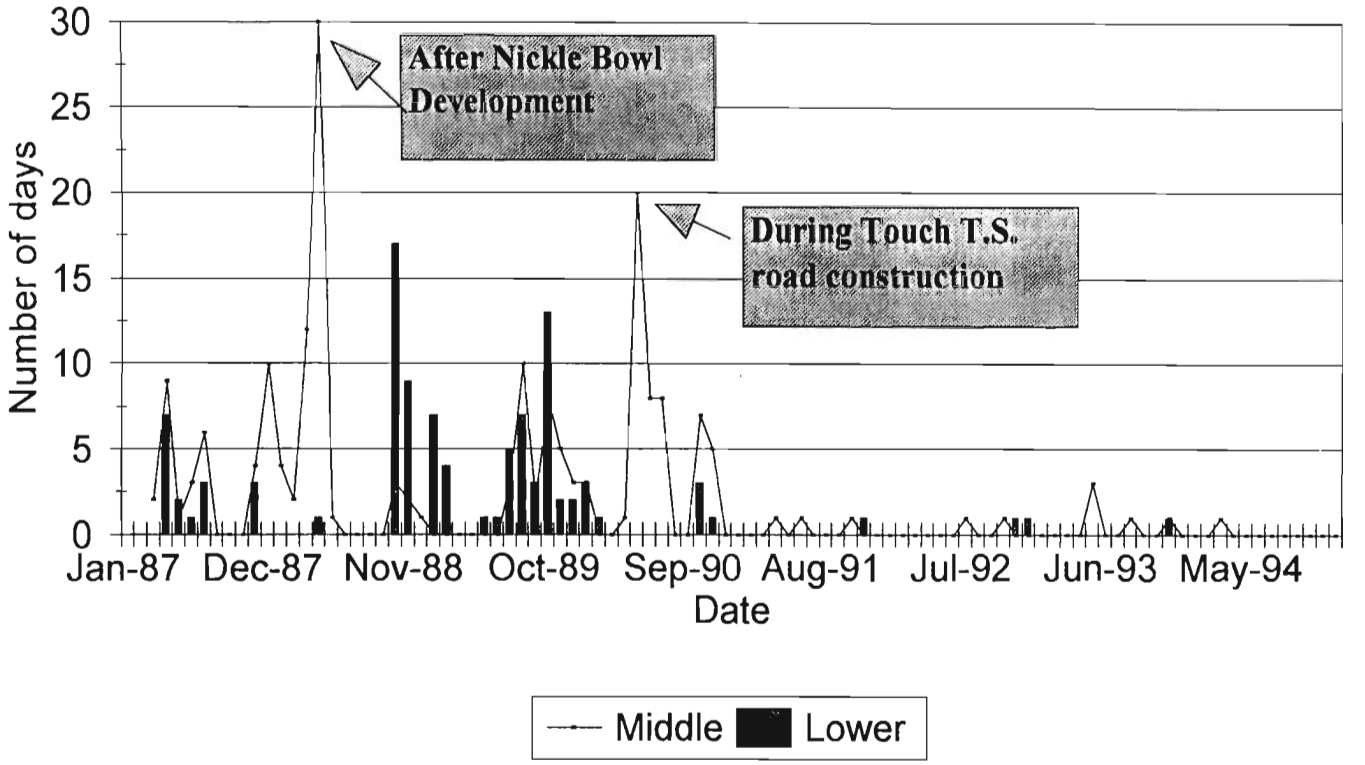
Monitoring of projects include Bluewood Ski Area, mining activities, and the North Fork John Day River Dredge Tailings Restoration Project. These projects represent just a sample of the various projects implemented on the Forest in 1994; they demonstrate the variety in types of impacts, methods for monitoring, and project results.

Water quality monitoring on the North Fork Touchet River has been ongoing since the late 1970s. Concerns were expressed about the development of the Ski Bluewood area on stream turbidity and water quality of the river. Figure C displays the most recent data for turbidity. During the development stages, a noted increase in turbidity was recorded. The primary reason for the increase was the addition of several new ski runs and road construction. As a result, restoration activities were undertaken following the creation of the new ski runs.

A number of mitigation measures including erosion control matting, contouring slopes, construction of sediment detention basins, hydromulching and planting of grasses, and others were employed to prevent soil erosion.

The trend for the past 4 years shows an improvement in the water turbidity for the river. Other mitigation measures are being proposed both for the ski area and Forest Road 64, a primary access road to the area. The proposed measures should produce additional improvements in water quality when implemented.

Figure C
N.F. TOUCHET TURBIDITY MONITORING
Days exceeding state standards



Monitoring of mining (active, abandoned and reclaimed) was conducted to detect adverse effects of mining operations and to document water quality improvements resulting from reclamation activities. Fourteen locations on Clear Creek, six on Granite Creek, and four on the North Fork John Day River were sampled for dissolved oxygen, pH, nitrate, and metals (including iron, zinc, and copper). Samples were collected during high flows, moderate flows, and low flows for purposes of detecting changes in concentrations at different flow levels. Of the parameters sampled, pH and metals are most likely to be affected by mining activities. Dissolved oxygen and nitrates are unlikely to be useful. Overall, sediment (which was not sampled) and metals from active and abandoned operations are more likely to impair beneficial uses. Preliminary results from analysis of the grab samples show pH values fell within the state standards and nitrates were within recommended levels. Results from metals testing are inconclusive at this time. Additional sampling is planned in 1995.

Monitoring of the North Fork John Day River Dredge Tailings Restoration Project (implemented in 1993) continued with results documented in a Forest Service technical bulletin (McKinney and Calame, 1994). Monitoring consisted of habitat surveys, channel cross sections, and instream sampling at three stations (above the project area, immediately below, and 3 miles below the project area). Water samples were

analyzed at a private, independent laboratory. Monitoring showed success with the pilot project. The 1994 high flow inundated the newly constructed floodplain as designed. In years of more substantial flows, increased deposition will occur. Results from water quality tests show no detection of heavy metals in any water samples except for a trace of iron (Calame and McKinney, 1994). The Forest is proposing restoring more sections of the dredged river bottom over the next 5 years.

Implementation monitoring of Best Management Practices occurred with timber projects and range management activities. Three of the four districts (Pomeroy, Walla Walla, and Heppner) reported on BMP results. No effectiveness monitoring of timber sales was reported for the Forest. Results are as follows:

- The Pomeroy District reported BMP implementation results on two timber sales and closure work on a third (Huck Butte, West Patit, and Driveway, respectively). BMPs implemented include erosion control on skid trails by waterbarring and grass seeding. Stream buffers on the Huck Butte and Driveway sales were modified with 75-foot buffers on intermittent streams, and 150-foot buffers for perennial streams. Other measures include road closures (scarify, waterbar, seed and barricade) on temporary roads. On Walla Walla District, the sale administrator reported on five active sales (Bluewood, Domino, Ninemile, Little Big Hole, and Touch). Best management practices included: designating skid trails, restricting equipment to trails, minimizing ground disturbance by using existing facilities (landings and skid trails), streamcourse protection with 50-foot buffers, and prohibiting equipment crossings and skidding through stream courses. Erosion control work included waterbarring, scarifying, and grass seeding.

- Controlling livestock distribution within allotments continues to be the most challenging element of livestock grazing on the Heppner Ranger District. Early in the year, common practices of salting away from water on ridgelines or other lightly used areas is effective. Periodic riding to disperse concentrations of cattle is also effective at this time of year. Mid-summer is the most difficult time to gain and maintain desired distribution. Cattle seek out riparian areas with relatively lush vegetation and readily available water. Riding and salting have shown limited success; areas had to be ridden daily or every other day to maintain good distribution.

Evaluation:

Monitoring of water quality on the Forest continues to be a "mixed bag." The Forest continues to collect information without completing the analysis and evaluation; sediment data is a classic example. Until more emphasis is applied to this item, the Forest will not be in a position to more fully address questions about the baseline conditions, effects of management practices, long-term trends, or compliance with state water quality standards.

Some water quality monitoring strides were made during the year. Initial sampling of dissolved oxygen, coliform, and other parameters was made with some indication of a universal dissolved oxygen and other localized "problems". Additional follow-up and more rigorous sampling will be needed to verify the initial observations. Specialized project monitoring including the ski area, dredge tailings, and mining restoration continues to show the effectiveness of current mitigation and restoration practices in improving water quality. Monitoring at the ski area has also pointed to the usefulness of monitoring in identifying needs for additional mitigation and rehabilitation and the effectiveness of treatments in improving water quality.

Monitoring of BMPs has not fully documented or reported the implementation of practices designed to reduce nonpoint sources of pollution. Also, effectiveness of practices in meeting state water quality goals has not been demonstrated. Monitoring project planning for selected projects is recommended for 1995. The sampling of the projects should focus on management activities with the highest risk to impact water quality. Monitoring activities should emphasize upland erosion and sediment transport to tributary streams, in addition to the traditional instream constituent sampling.

MONITORING ITEM 5: Stream Temperature

Forest Goals, Desired Future Condition, and Outputs: "Meet or exceed state water quality standards for stream temperature. Summer stream regimes are well moderated with limited day to night variation and are well within tolerance of aquatic organisms historically found in the systems.

Monitoring Question(s): 1. Is project implementation in riparian areas resulting in attainment of desired future conditions for stream surface shading and/or in-stream water temperatures? 2. What are the long-term changes and trends in stream temperatures? Are the long-term changes meeting Forest Plan objectives? 3. What are the cumulative effects of Forest management activities on stream temperatures?

Threshold of Variability: Non-attainment of Forest Plan standards and guidelines for stream surface shade and/or in-stream water temperatures. The numeric objective represents optimal temperature range for both bull trout and chinook salmon. Maintain the following temperatures for third to fifth order streams (interim objectives).

Results/Findings:

Water temperatures were measured at 115 locations on principal Forest streams in 1994. Daily peak temperatures for the summer season on four representative, mid-size streams illustrate general conditions across the Forest (Figure D). Stream temperatures peaked in the third week of July. Overall, stream temperatures recorded in 1994 were among the highest on record, reflecting the effects of the warm and dry climatic conditions during the year (Table I-5).

Figure D
1994 SUMMER STREAM TEMPERATURES
Average Daily Peak

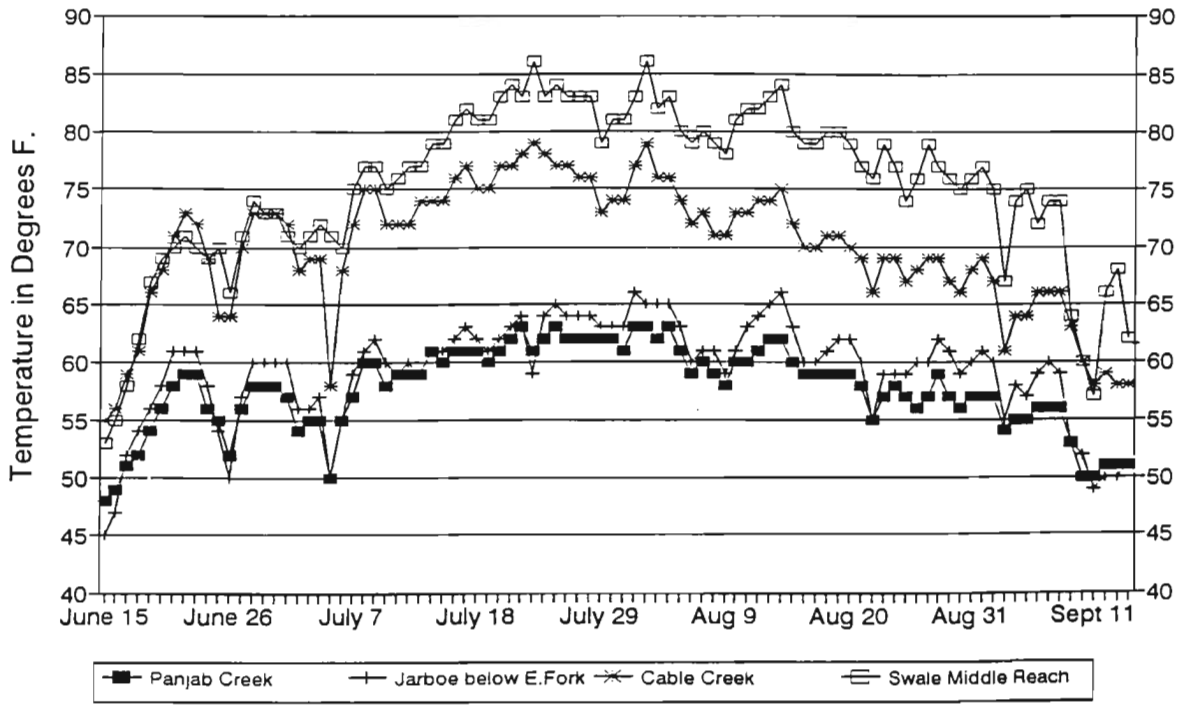


Table I-5
1994 WATER TEMPERATURE SUMMARY
Selected Sites

		1993		1994		
Stream/Location	Basin	Maximum Temp.	Days Above Standard	Maximum Temp.	7-Day Maximum Temp.[3]	Days Above Standard
Henry Cr @ FB[1]	John Day	73	34	74	72	57
Herron Cr @ FB	Umatilla (Willow)	58	0	64	63	0
Wall Cr @ FB	N.F. John Day	80	49	81	80	66
Swale Cr - Middle Reach	N.F. John Day	77	51	86	84	93
Frazier Cr @ FB	N.F. John Day	68	0	72	71	27
Cable Cr below FB	N.F. John Day	74	22	79	78	69
Desolation Cr @ NFJD	N.F. John Day	70	5	80	77	45
Umatilla River @ Corp	Umatilla	62	0	64	63	0
N. Meacham @ FB	Umatilla	66	0	72	71	40
Lookingglass @ FB	Grande Ronde	54	0	–	56	0
Jarboe Cr below E.F	Grande Ronde	61	0	65	64	0
Wenaha River near Mill Bar	Grande Ronde	69	1	75	73	54
N.F. Asotin (Middle Branch)	Snake River	57	0	60	60	0
Panjab[2]	Snake River (WA)	59	0	63	62	24

1 FB = Forest Boundary

2 Washington State standard 61°F. Oregon standard 68°F.
Maximum Temperature Range: South Half 65 - 80°F, North Half 60 - 75°F

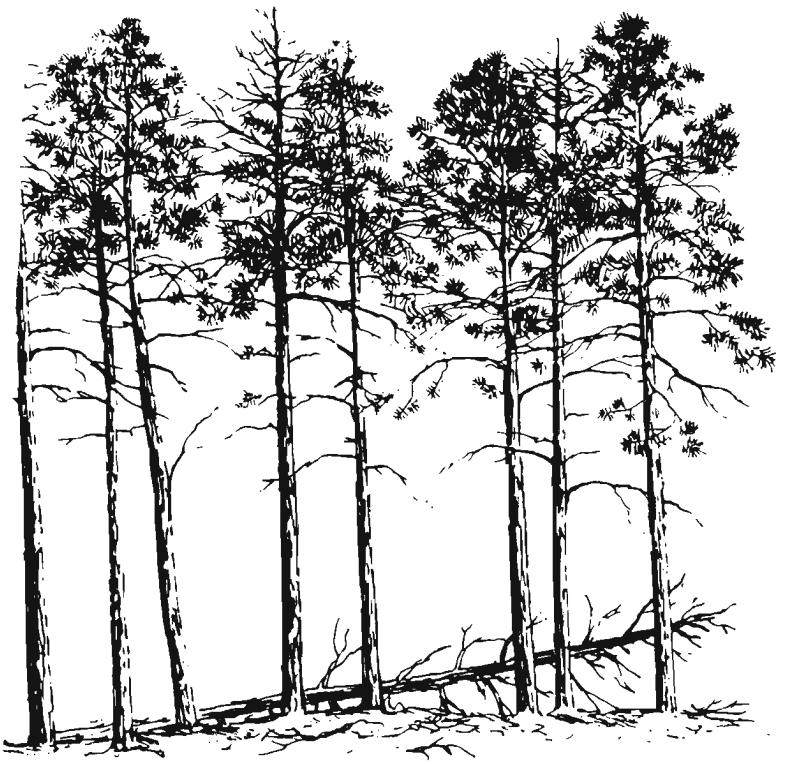
3 The 7-day maximum temperature is defined as an average of the seven warmest (consecutive) days. This is a proposed rule change in Oregon and is deemed to be an acceptable measure of average maximum temperature.

A comparison of stream temperatures across the Forest shows the effects of a climatic "gradient" from north to south. Streams are generally cooler on the north half of the Forest which has relatively lower average air temperatures and higher base flows, a reflection of a marine influence in the Columbia basin. In contrast, streams on the southern half of the Forest reflect a continental climate, typically warmer and drier in the summer months, and colder in winter. These are general conditions. Exceptions exist to the general rule for stream temperature such as Herron Creek, a cool tributary to Willow Creek and the Wenaha River, a warm tributary to the Grande Ronde River.

Evaluation:

Compared with 1993, 1994 maximum stream temperatures were generally higher (Table I-5). Most streams reported in the 1993 Monitoring Report are included in this report. The data shows that some streams are well buffered by climate and topographical conditions and did not exceed thresholds even in an extreme year (Herron, Umatilla, Lookingglass, Jarboe, and North Fork Asotin). Several streams which did not exceed thresholds in 1993 did so in 1994 (Frazier, N. Meacham, and Panjab), and others are warm under any climate (Henry, Wall, Swale, and Cable).

Years of data have been collected at some monitoring stations. The Forest is currently in the process of compiling data acquired from past water quality monitoring and organizing the information by subwatershed. It is expected summaries will become available sometime in 1995 or 1996. Additional analysis of data will be needed to evaluate long-term stream temperature trends and stream system relationships. Some stream temperature problems are obviously related to past management and some current practices. Where these situations are identified, restoration should be initiated and management practices adjusted.



MONITORING ITEM 6: Stream Sedimentation

Forest Goals, Desired Future Condition, and Outputs: Meet or exceed state water quality standards related to stream sedimentation. Produce high levels of anadromous and resident fish habitat.

Monitoring Question(s): 1. Are Forest streams meeting state water quality standards for sediment (NTU's)? 2. How are Forest management activities and/or natural events affecting the rate of stream sedimentation or potentially impacting beneficial uses? 3. Is stream sedimentation impacting critical components of stream habitat? 4. What is cumulative impact of changes in stream sedimentation on water quality and fish habitat?

Threshold of Variability: 1. Exceed State water quality standards for turbidity. 2. Measurements of in-stream sediment sensitive fish habitat parameters exceed values representative of natural functioning aquatic systems. Interim standards: Cobble embeddedness: within <20 to 35 percent embeddedness. The preceding embeddedness levels of 20 to 35 percent were rated as fair habitat, with less than 20 percent representing good habitat conditions (USDA, 1993b).

Results/Findings:

The Forest conducted approximately 174 miles of Level II Stream Surveys on various forest streams in 1994. Cobble embeddedness was collected during the surveys by visual observations by estimating cobble embeddedness (percentage) of the streams. The cobble embedded indicator of sediment is important because when embeddedness becomes excessive, salmonids are not capable of cleaning the redd gravels adequately during spawning thereby reducing egg and fry survival. Other beneficial uses can also be impacted by sediment. It should also be noted that 1994 was a low flow year which suggests cobble embeddedness values tend to be higher under low flow conditions. Results are as follows:

The Heppner Ranger District surveyed approximately 15 miles of streams. Data from the surveys indicate many of the streams have moderate to high embeddedness. Of the streams surveyed, approximately 68 percent exceed 35 percent embeddedness.

The North Fork John Day Ranger District in cooperation with Oregon Department of Fish and Wildlife conducted 65 miles of stream surveys. Results from the surveys were not available for the report.

The Walla Walla Ranger District surveyed approximately 45 miles of streams within the Grande Ronde River, Umatilla River, and Walla Walla River Subbasins. Results show the 1994 surveyed streams within the Grande Ronde subbasin had an average embeddedness of approximately 31 percent. Streams within the Umatilla River subbasin have an average of 13 percent embeddedness. The Walla Walla River subbasin streams average 23 percent embeddedness.

Within the Grande Ronde River subbasin, the surveys occurred primarily in the Phillips Creek drainage. The Phillips Creek area has one of the highest road densities and past timber harvest occurrence on the district. In the Walla Walla River subbasin, surveys occurred in the North Fork Touchet River, approximately 5 miles downstream from a ski resort and recent timber harvest activity. The ski area was known to be a major sediment producer 5 to 10 years ago, although sediment has been greatly reduced recently (refer to MI-4 for further discussion). Surveys in the Umatilla River subbasin were predominately in the North Fork Umatilla Wilderness or roadless areas.

Sediment samples were collected from 12 locations in the Tucannon River on the Pomeroy Ranger District. Samples were collected using a freeze-core sampler in which liquid carbon dioxide was used to freeze the samples. Analysis of the samples is still ongoing and is yet to be completed. Visual observations did reveal some samples were mostly gravel while others contained large portions of fine material. In some cases, samples which were collected only a few feet from one another showed high variability from gravel and cobble to fine material.

Evaluation:

Although sediment sampling was done at various locations on the Forest in 1994, limited analysis of the data was conducted. Extensive Level II stream surveys were also done but limited evaluation of the information was completed. Results from the various surveys further confirm the need to complete analysis of sediment data collected during the past several years. The Forest needs to begin addressing the monitoring questions, particularly the contribution of sediment from management activities and impacts to beneficial uses.

MONITORING ITEM 7: Stream Channel Morphological Features

Forest Goals, Desired Future Condition, and Outputs: Inherent (historic) channel forming/maintenance processes continue to operate without substantial long-term or watershed-wide modifications. Relatively large pools, persistent during the lowest of flows, are frequent and well distributed. Large woody debris is available to the channel to achieve or maintain the stream potential for fish habitat capability.

Monitoring Question(s): 1. Are management activities allowing channel forming processes to operate resulting in relatively large, well-distributed pools, and meeting stream potential for the fisheries habitat desired future conditions? 2. What are the trends in pool formations and large wood additions to stream complexity? 3. Is sufficient wood being produced or available to meet DFC's?

Threshold of Variability: 1. Non-attainment of expected stream channel pool frequency. The thresholds are (PACFISH interim criteria):

Pools per Miles

Wetted Width	5	10	15	20	25	50
Pools/mile	85	65	55	45	50	25

2. Non-attainment of expected in-stream large wood levels.

Large Woody Material
Total No. LWM — LWM >20" dbh

Mixed Conifer
105/mile at least 35' long and 12" dbh — 20/mile at least 35' long and 20" dbh

Lodgepole Pine
250/mile — 25/mile at least >12" dbh

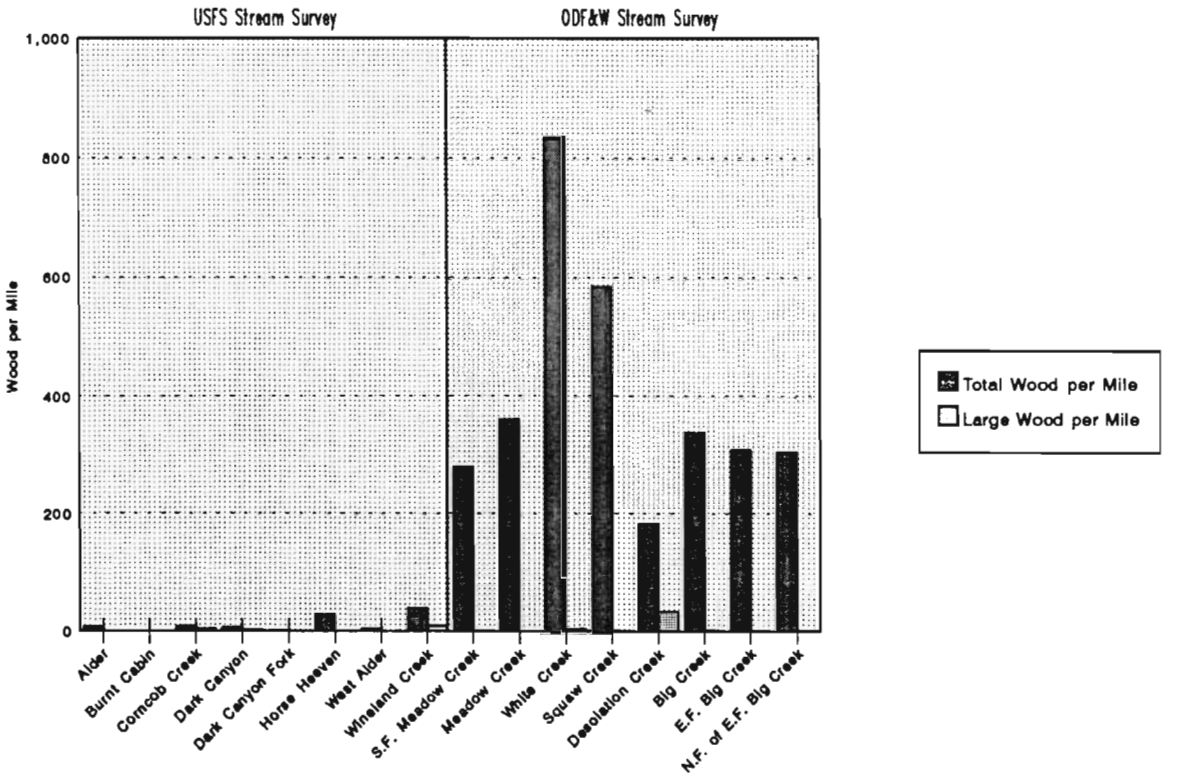
Results/Findings:

In 1994, approximately 174 miles of Level II stream inventory was completed on the Forest. Of the total miles surveyed, Oregon Department of Fish and Wildlife surveyed approximately 65 miles of streams on the North Fork John Day Ranger District. As part of the surveys, large wood levels and pool frequency were examined. Large woody material is defined as being (measured) 20" in diameter or greater and at least 35 feet long. Small woody debris and brush were also documented and added to the large wood to form a category-wood per mile.

Of the total inventory, 80 miles of stream inventory was done on the south half of the Forest. Figure E shows the streams surveyed by the Forest Service and Oregon Department of Fish and Wildlife. Since both agencies used two different survey techniques (USFS used "Hankin and Reeves" inventory procedures and ODF&W used "ODF&W Aquatic Inventory" process), they cannot be directly compared. Procedures are being developed to ensure comparability of data.

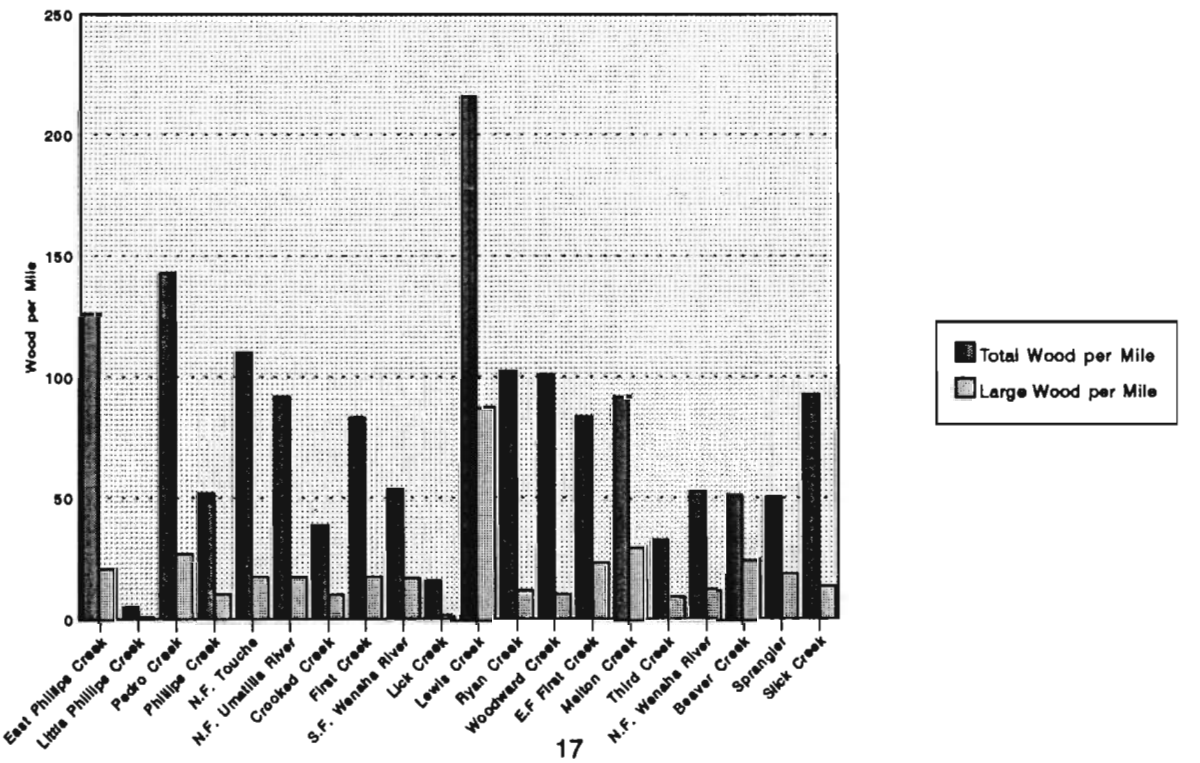
The range of frequency per mile (data collected by ODF&W) was from 0.7 large wood to 34 pieces per mile, with an average of 5.3 pieces per mile (Figure E). Range of frequency for large wood (data collected by USFS) went from zero large wood to 9.5 pieces per mile, with an average of 4.5 pieces per mile.

Figure E
SOUTH HALF - WOODY MATERIAL
Umatilla National Forest



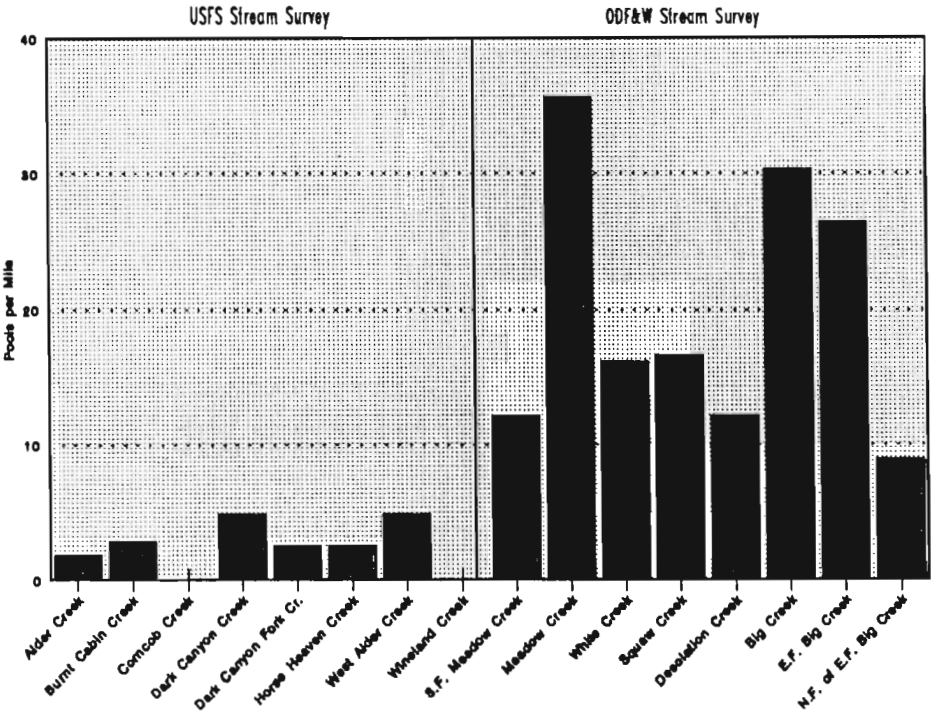
The north-end districts completed 94 miles of stream surveys in 1994. Large wood and pool frequency were also calculated for the north half of the Forest. The large wood ranged from 0.8 to 87 pieces per mile, with an average of 16 pieces per mile (Figure F).

Figure F
NORTH HALF - WOODY MATERIAL
Umatilla National Forest



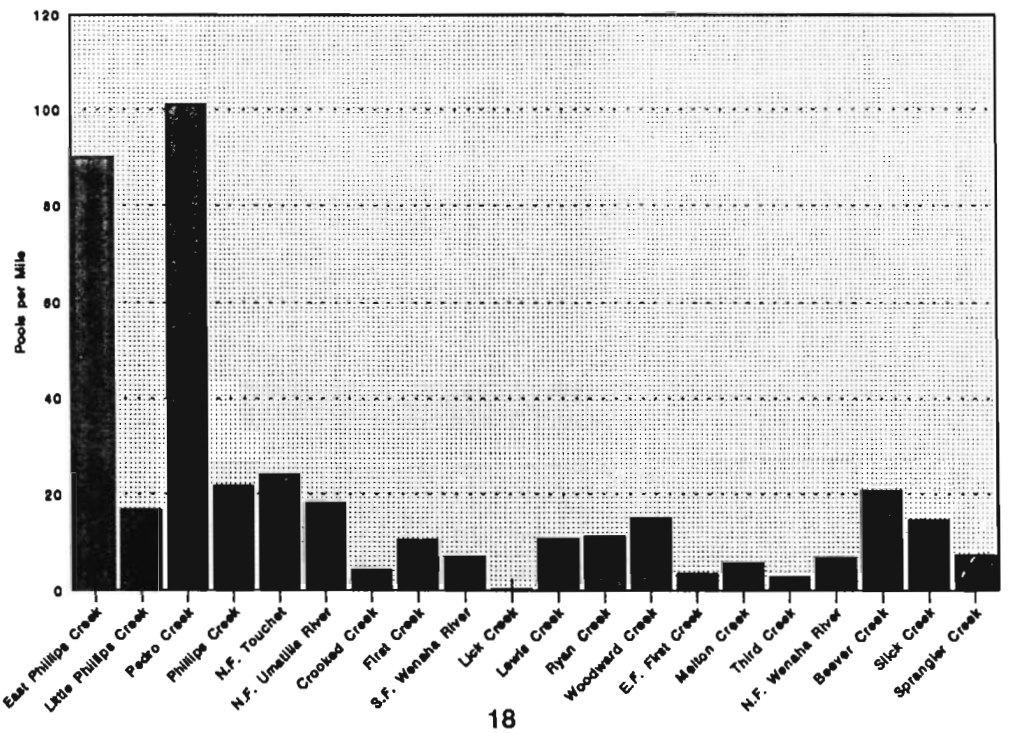
The range of frequency per mile for pools on the south half (data collected by ODF&W) is from .3 to 35 pools per mile, with an average of 20 pools per mile (Figure G). Range of frequency for pools (data collected by USFS) went from zero pools to 16 pools per mile, with an average of 3.3 pools per mile.

Figure G
SOUTH HALF - POOLS PER MILE
Umatilla National Forest



Pool frequency on the north-half ranged from 0.2 to a high of 101 pools per mile with an average of 20 (Figure H).

Figure H
NORTH HALF - POOLS PER MILE
Umatilla National Forest



Streamside and meadow campsites located along Desolation Creek and North Fork John Day River were reviewed for riparian vegetation and streambank condition. Twenty-two sites on the North Fork John Day River and 33 sites on Desolation Creek were reviewed. Most damage to riparian vegetation was caused by vehicles driving through the sites. Twelve sites including three meadow sites along the North Fork John Day River, and 17 sites including five meadow sites (one site was closed) along Desolation Creek were modified to reduce soil erosion and improve vegetative conditions. Boulders were placed in areas to block or redirect vehicles and entrances and "driveways" to be retained were graveled. Campsites located on streambanks were moved back from the stream and boulders were placed at strategic locations to discourage further use. To promote vegetation and channel recovery at the sites, areas were seeded and planted with native grasses and shrubs and french drains and/or culverts were placed in several intermittent drainages.

Evaluation:

The Forest continued to conduct Level II stream surveys and other monitoring in 1994. As with other monitoring of stream elements, the Forest has not yet evaluated the information. Much of the data collected from the surveys will help to support watershed analysis. However, the Forest needs some emphasis on evaluation in order to address the monitoring questions. In addition, reporting of information was misleading, since different survey methodologies were used, making reporting of results difficult. Common survey techniques need to be used.

MONITORING ITEM 8: Fire Effects – Wildfire on Water and Soils

Forest Goals, Desired Future Condition, and Outputs: "Provide and execute a fire use program that is responsive to land and resource management goals and objectives. Maintain or enhance ecosystem functions to provide for the long-term integrity (stability) and productivity of biological and physical communities."

Monitoring Question(s): 1. How many acres (percentage) of each subwatershed has sustained high intensity burns per 3-year period? 2. Is visibility accelerated erosion occurring within a subwatershed because of past burns?

Threshold of Variability: Five percent of subwatershed impacted by high intensity fires within 3-year period.

Results/Findings:

In 1994, the Forest experienced three large fires which affected several subwatersheds. Of the fires on the Forest, the Boundary Fire was the largest and impacted more subwatersheds than any other. The fire covered a total of 8,363 acres, of which 2,718 acres burned on the North Fork John Day Ranger District. The largest portion of the fire burned on the Wallowa-Whitman National Forest (adjacent to the Umatilla National Forest).

The Boundary Fire affected six subwatersheds with varying degrees of intensities. Of the six, only subwatershed 95C (totaling 8,400 acres) exceeded the threshold of 5 percent with high intensity burning. Approximately 18 percent of the watershed burned intensely, mostly within Squaw Creek and White Creek drainages. Other subwatersheds including 85H, 85C, 95B, 95E, and 96B burned with generally low intensities.

A rehabilitation plan has been developed for the fire, however, full implementation of the plan was delayed due to weather conditions. Mitigation measures which were employed include water barring of firelines and stabilizing slopes by felling trees along the contour.

In cooperation with Oregon Department of Fish and Wildlife, the Forest conducted 6 miles of stream surveys within White Creek and Squaw Creek drainages following the Boundary Fire. Analysis of the data is ongoing with results expected in 1995.

Other fires on the Umatilla included the Sharp Fire, 170 acres; Big Creek Fire, 80 acres; and Gabriel Spring Fire, 35 acres. The only other fire with any reportable intense burning was the Gabriel Spring Fire. Approximately one-third of the fire area burned intensely (only .005 percent of subwatershed 406I affected). The area affected is relatively flat with no major drainages crossing the fire location.

Evaluation:

The Forest will continue to monitor the Boundary Fire area in cooperation with the Wallowa-Whitman National Forest for evidence of erosion and effectiveness of rehabilitation measures.

II. BIOLOGIC RESOURCES

A. VEGETATION MANAGEMENT

MONITORING ITEM 9: Riparian Vegetation

Forest Goals, Desired Future Condition, and Outputs: ". . . vegetation will generally be dense and diverse . . . and be contributing to stable streambanks and complex fish habitat . . . A variety of dead and down tree habitat will be found . . . large diameter standing dead and live trees will provide a long-term supply of large woody material . . . Create . . . maintain a diverse, well distributed pattern of riparian habitat for all species of fish and wildlife within riparian areas."

Monitoring Question(s): 1. Are projects and activities in riparian areas being implemented as planned? 2. Is project implementation in riparian areas resulting in attainment of objectives and desired future conditions for riparian areas? 3. Are management activities in riparian areas resulting in stable or improving riparian vegetation condition and trends (and recovery) for attainment of desired future conditions and Forest Plan objectives? 4. Are the shrubs and grasses within riparian areas being improved to or maintained at satisfactory condition levels; are actual use levels (by ungulates) within Forest Plan utilization standards for riparian vegetation (emphasis on shrubs)?

Threshold of Variability: 1. Non-attainment of Forest Plan standards and guidelines for riparian area management. 2. Non-attainment of Forest Plan standards for stream surface shade. 3. Riparian vegetation trends moving away from the attainment of desired future conditions.

Results/Findings:

The Forest currently designs projects (involving riparian areas) to provide for recovery and enhancement of riparian areas. Projects are generally planned, designed, and implemented for specific purposes and contribute toward achievement of some broad scale objectives. Specific projects include exclusion fencing, planting of riparian vegetation, and monitoring utilization to ensure compliance with Forest Plan standards. In 1991, the Forest created a Forest Plan Implementation Checklist to be used by Interdisciplinary Planning Teams to monitor whether or not projects were implemented as planned. Although use of the checklist did occur in 1994, no results or findings were reported.

The Heppner Ranger District implemented planting projects along 4 miles of stream to supplement riparian hardwood vegetation and improve shading. Hardwood plantings were also conducted along streams adjacent to timber harvest units and along streams which had damaged stream banks. The Pomeroy Ranger District implemented two fish habitat restoration projects which consisted of planting hardwood shrubs along Pataha Creek and in a formerly grazed pasture along the Tucannon River. Plantings, exclusion of livestock and/or big game, and joint stream enhancement projects all incrementally move the riparian areas involved further toward the Desired Future Condition (DFC).

Riparian hardwood plantings within Wilson and Big Wall riparian pastures, Ditch Creek, Indian Creek, and Putman Timber Sale Unit #2 were monitored in 1994 for survival, growth, and utilization. Table II-1 illustrates the change from early summer to early fall, except for mortality which is shown as deaths since planting.

Table II-1
SURVIVAL, GROWTH AND UTILIZATION
Umatilla National Forest

Location	Mortality	Height	Width	Leaders	Utilization
BIG WALL	34%	+0.33"	+5.8"	+1.6	64%
WILSON	17%	-0.48"	+3.2"	+1.4	63%
DITCH (Vexar & Electric)[1]	14%	+2.30"	–	–	0%
DITCH (Vexar)	30%	+2.40"	–	–	6%

Location	Mortality	Height	Width	Leaders	Utilization
DITCH (Electric)	67%	+1.50"	–	–	30%
DITCH (None)	0%	+0.10"	–	–	42%
INDIAN	0%	-3.20"	–	–	81%
PUTMAN TS	27%	-1.67"	–	–	46%

1 Mitigation measures employed to protect plantings include vexar tubing and electric fencing.

In general, the Forest has not determined if management activities in riparian areas are resulting in stable or improving riparian vegetation condition and trends. In particular, the Forest is currently lacking a standardized set of monitoring protocols, as well as a consistent application of long-term monitoring procedures to answer monitoring questions. In most cases, the Forest is conducting riparian vegetation monitoring although it is usually done to address specific questions not related to Forest Plan monitoring.

As stated in previous monitoring reports, the impacts of big game and livestock use on shrubs is slowing the recovery of some riparian areas to achieve the desired future condition. The problem is especially pronounced on the Heppner Ranger District. Monitoring indicates in certain areas, recovery is being inhibited by big game browsing combined with livestock use. Under the circumstances, the ability to place riparian areas in a upward trend becomes difficult.

Results from permanent transect surveys conducted by the Heppner Ranger District have noted a distinct pattern occurring regarding shrub age and growth. Results show mature shrubs comprised 80 percent of the total shrub population, with a majority of the shrubs showing either dwarfed or hedged growth characteristics with large basal diameters. The remaining population was made up of 11 percent decadent and 8 percent juvenile shrubs. Results also indicate areas with greater diversity and abundance are showing signs of recovery. Average browse utilization was lower in areas with relatively high species variety and abundance than areas with lower abundance and variety where they appeared static. By evaluating the percent of leaders browsed and net height growth for the year, it appears utilization levels greater than 40-45 percent resulted in no height growth or a loss of height growth. Some variations were encountered in which areas with high abundance and variety appeared to be able to withstand higher utilization levels (50-55%) and still maintain net height growth gains. In contrast, areas with low shrub abundance and variety had net height growth losses at utilization levels beyond 30-35 percent. (Grass and sedges are showing an upward trend.)

Evaluation:

Alterations in management activities, including such actions as reducing cattle numbers, changing the season of use and/or the length of season, ensuring livestock pasture moves prior to meeting utilization standards, and increased permittee emphasis on protecting riparian areas has been effective in reducing the overall impacts to riparian vegetation. Reducing the amount of time in which cattle access riparian vegetation appears to be more effective than reducing the numbers of animals.

Riparian plantings of desirable shrub species currently appears to be relatively successful, although wildlife use and the dry conditions experienced in 1994 stressed individual plants. Good initial growth did occur indicating root systems are becoming well developed, although in some cases wildlife use appeared to inhibit net height gains by the end of the growing season. Significant width growth occurred and the number of main leaders increased.

It is recommended the Forest work in cooperation with the Regional Office and others to develop and institute standardized methods to evaluate and monitor riparian vegetation. Methods should be used in conjunction with the stream survey program, shrub utilization monitoring, and other related programs to evaluate the effectiveness of management activities in managing riparian resources.

MONITORING ITEM 10: Level of Utilization

Forest Goals, Desired Future Condition, and Outputs: All allotments implement the Forest Plan utilization standards through Allotment Management Plans (AMPs) or Allotment Operating Plans (AOP's).

Monitoring Question(s): 1. Are Forest Plan utilization standards being implemented through the AMPs (AOP's) and are they being enforced on the ground? 2. Are actual use levels within the Forest Plan utilization standards for riparian zones, for uplands, and for transitory range?

Threshold of Variability: More than 10 percent of the allotments reviewed experience utilization by any species of animal exceeding the Forest Plan or Allotment Plan standards by more than five percent as average of use in key areas of an allotment.

Results/Findings:

On all Districts, Forage and Browse Utilization standards are being implemented on each active grazing allotment through inclusion in the Annual Operating Plan. The standards to be applied are within the Forest Plan standards but have frequently been adjusted to comply with Endangered Species Act consultation requirements or other mitigation requirements designed to protect and enhance riparian resources.

The Heppner Ranger District monitored 23 pastures within five allotments for riparian hardwood utilization, usually including sampling pre-livestock use, during use and after livestock grazing. As in the recent past, observations indicate riparian shrub utilization standards are often being met or exceeded even in the absence of livestock use. This has resulted in a need to require increased permittee effort when the livestock are in a given pasture to ensure that the livestock use does not cause the standard to be exceeded. Riparian forage utilization monitoring was limited in scope this year as observations indicated that shrub utilization standards were more critical and were more likely to be met first. Therefore, most decisions regarding pasture moves were based on monitoring of riparian shrub utilization. Upland utilization monitoring was also limited but observations made showed utilization to be generally light (0-20 percent).

On the North Fork John Day Ranger District, utilization monitoring was conducted in riparian, upland, and transitory ranges. Most utilization on key areas sampled was within Forest Plan utilization standards. Forty-five shrub and 69 grass transects were read during the field season. Of the shrub transects read, 33 met standards. Of the 12 which did not meet standards, two were within a livestock exclosure subject only to big game use. In addition, two transects in sheep allotments were affected only by big game use and one transect was impacted by beaver activity. Of the 69 grass transects, 63 met standards. Only three transects significantly exceeded standards.

The Walla Walla Ranger District conducted utilization monitoring on five allotments. A total of 82 transects were read along with numerous occular estimates at key areas. In all cases, utilization standards were met with the exception of one species at one site.

The Pomeroy Ranger District monitored four allotments for utilization prior to livestock use, during use and following use. Ninety upland and transitory transect readings were taken with use on grasses falling within the 0-36 percent range essentially on all transects. Twenty-one riparian shrub transects also showed readings from 0 to 32 percent with most readings being low. With the exception of a few very small areas, utilization standards were met on the District.

Evaluation:

Forage and browse utilization standards are being consistently implemented through inclusion in Annual Operating Plans and Allotment Management Planning. Monitoring for compliance with the established standards is occurring through the joint efforts of both the Forest Service and the allotment permittees. Monitoring results indicate that upland areas consistently were well within standards. Transitory ranges were also at or below standards. In most cases, forage utilization in the riparian areas was also at or below designated standards. Most of the riparian shrub utilization monitoring was within standards. Where standards were exceeded, often the cause was big game use occurring either prior to livestock use or in the absence of livestock use.

Additional work needs to occur to establish a reliable and consistent method of assessing utilization on riparian hardwood vegetation. Work also needs to intensify on evaluating the effectiveness of the applied utilization standards on meeting desired future condition objectives for a given riparian area. Monitoring needs to continue at present, or slightly increased, with more emphasis placed on reporting results.

MONITORING ITEM 11: Range Condition and Trend

Forest Goals, Desired Future Condition, and Outputs: "Areas of suitable primary and secondary range, including riparian areas, are in satisfactory condition with a stable or upward trend . . ."

Monitoring Question(s): Are range vegetation conditions on suitable primary and secondary range being improved to and maintained at a satisfactory condition?

Threshold of Variability: By the year 2000, at least 85 percent of suitable primary and secondary range is in satisfactory condition with no more than 5 percent of the allotments classified as PD (other resource damage). Accomplishment will be monitored annually to determine the degree of attainment as each allotment management plan is updated and improved management implemented. By year 2000, no more than 5 percent of allotments are classified as PC indication riparian problem allotments.

Results/Findings:

Only limited analysis work was conducted on the Forest in 1994, including the re-reading of condition and trend transects and re-taking of permanent camera points.

The North Fork John Day Ranger District condition and trend transects were re-read on three allotments with results indicating an improvement in the meadow vegetative conditions on two transects and a stable trend in the third meadow (probably related to the heavy and increasing recreational use of the meadow). Throughout the District, observations by personnel indicate a significant upward trend in most riparian areas with increases in hardwood cover and reproduction and improving or stable trends in streambank stability. Although the sites are not at desired conditions, trends are generally upward.

An analysis and re-taking of permanent camera points on the District shows for most sites, hardwood cover is improving, herbaceous cover is increasing and, at some sites, converting to a composition more reflective of wetland species; conifer cover on some sites previously harvested or bug killed is beginning to reach the age where it is capable of providing shade to the stream; at some sites, streambanks show improved stability; and, at others, there is an increase in the amount of large woody debris present. For 1994, a total of 14 camera points were re-evaluated. Many of these consist of a complex of up to 10 individual photo points.

On Walla Walla Ranger District, two permanent camera points were re-taken in 1994. Evaluation indicates sites appear to be in stable or improving trend and are recovering from management applied when the land was under private ownership.

Two condition and trend transects were re-read on the Pomeroy Ranger District. Both show improved vegetation ratings since the previous reading moving from a rating of fair to excellent. Soil condition on one site remained stable at a good condition rating while the other improved from good to excellent (both sites are upland areas).

Evaluation:

Although data remains limited, a combination of permanent condition and trend transects and professional observation indicates upland range conditions throughout the Forest are at or moving toward the desired future condition. In the riparian areas, camera points combined with professional observation indicates an upward trend in terms of vegetative conditions on most sites. The Forest needs to initiate better reporting of data and analysis of monitoring results and findings.

MONITORING ITEM 12: Noxious Weeds: Invasive Vegetation

Forest Goals, Desired Future Condition, and Outputs: *Noxious weed infestations are controlled according to the managing competing and unwanted vegetation EIS, the Forest Plan, and applicable state laws and regulations.*

Monitoring Question(s): 1. Are noxious weed infestations being treated in accordance with the Managing Unwanted or Competing Vegetation EIS, Forest Plan direction, and applicable State/Forest Service Memorandums of Understanding's? 2. How much is the Forest using herbicides and prescribed fires (Regional Guide) to reduce noxious weeds? 3. Are noxious weed populations decreasing or remaining stable, and are they being prevented from infesting adjacent private lands? 4. Are the acres identified as infected by noxious weeds meeting the Forest target?

Threshold of Variability: Accomplished targets are at least 25 percent of identified infested areas.

Results/Findings:

In 1994, the Forest continued extensive noxious weed inventories on all four districts (Heppner, North Fork John Day, Pomeroy, and Walla Walla). Species encountered on the Forest include: Diffuse Russian and Spotted Knapweed, Tansy Ragwort, St. Johnswort, Dalmation and Yellow Toad Flax, Scotch and Musk Thistle, Common Burdock, Whitetop, Hound's Tongue, Leafy Spruge, Yellow Star, Canada and Bull Thistle. Seven hundred and seventy-three (773) sites with documented occurrence of noxious weeds (sites range in size from .01 acres to 185 acres and average in size about 3.6 acres). Documented occurrences are indicators of the current situation, but do not necessarily represent total populations across the Forest. Forest-wide, general trends of noxious weed populations appear to be on the increase.

During 1994, all Districts continued to treat noxious weeds using a variety of methods, according to the required procedures under the Managing Competing and Unwanted Vegetation FEIS and Mediated Agreement. Approximately 3,877 acres were treated on the Forest. Current control efforts, primarily based on hand pulling, continue to show mixed results, as follows:

1. The Heppner Ranger District has completed an inventory of the entire district, concentrating efforts on all roads, landings, and harvest units. Population levels appear stable with current control treatments generally appearing to be effective. Treatments appear to be keeping population levels of Knapweed and Tansy ragwort in check, although new sites were located. Bull and Canada thistle population levels continue to expand, especially in new harvest units. Handpulling is not feasible and/or effective for these species due to the rhizomatus nature and aggressive seed dispersal of the plants.

   Morrow County weed officials have expressed concerns regarding the existence of Tansy ragwort on National Forest land within the County. The concern is over the threat of the plant spreading from National Forest to adjacent private land. The Forest is treating known population (1 to 20 plants) sites in attempt to control the spread of the plant. Current control actions are keeping known weeds in check, however, two new sites were located in 1994.

   In 1994 the Heppner Ranger District released *Urophora stylata* (seed head fly) larvae in an attempt to curtail the spread of bull thistle in harvest units near Thompson Corral. The fly feeds on the seed head of maturing plants and reduces the amount of seed produced. It is unknown at this time if the treatment was successful in this test. Further monitoring is needed to determine the effectiveness of the treatment.

2. The North Fork John Day Ranger District inspected and treated (when necessary) noxious weed sites inventoried in 1992 and 1993. In 1994, a total of 81 new sites were located and treated. Approximately 80 percent of the district roads, trails, etc. have been inventoried. Weed population levels are increasing and current control efforts are not fully successful.

3. The Walla Walla Ranger District treated 5 acres of noxious weeds by hand pulling. Approximately 19 new sites were located on the district in 1994. One existing site inventoried in 1994 has expanded. Current control efforts (hand-pulling) are not efficient enough to contain the spread of weeds.

4. The Pomeroy Ranger District re-treated approximately 37 acres of Yellow Star Thistle, Knapweed, Toad Flax, and Canada thistle by means of hand-pulling and some mechanical treatment of Scotch thistle. Sixty acres of Yellow Star Thistle were treated with herbicides. The herbicide treatment proved to be extremely effective in reducing population levels of the plant but Yellow Star Thistle populations remained constant where hand-pulling was used. Knapweed levels were also found to remain the same or, in some instances, possibly increased where hand-pulling methods were used. Toadflax population levels have decreased. One Toadflax location has been monitored since 1990 in which population levels have declined from 49 plants in 1990 to zero plants in 1994.

As reported in the 1993 Monitoring Report, the Pomeroy Ranger District initiated a biological treatment to control Yellow Star Thistle by releasing European weevils into infested areas. The project was ultimately abandoned in 1994 primarily as a result of the time it took for the weevils to build colonies and populate the area.

The Hay Exchange program, initiated in 1993 by the Heppner Ranger District, was subsequently disbanded in 1994 due to budget constraints, limited success, and changes in workforce priorities. The objective of the program was to exchange weed free alfalfa for any type of hay transported onto the National Forest by hunters or other recreation users. Hay infested with Tansy ragwort has been the chief method of introduction of the plant east of the Cascades. The program may be brought back in the near future when budget and workforce priorities allow.

Evaluation:

The Forest moved toward completion of a comprehensive and integrated Noxious Weed Management EA in 1994 with approval of a decision expected in spring of 1995. The EA, coupled with current and on-going inventories, will provide support for an intensified noxious weed management program. The need for treatment continues to exceed available funding.

The use of hand-pulling as a treatment to control noxious weeds show mixed results. Results indicate the use of hand-pulling is not feasible or effective in controlling some populations of noxious weeds and may actually increase populations by either spreading seeds when pulled or by leaving parts of the plant (especially plants with rhizomatous root systems) in the soil after digging or cutting. The forthcoming NEPA decision provides for herbicide use on specific occurrences and should improve the overall treatment effectiveness.

Continued monitoring is required to assess trends in population and effectiveness of control efforts.

MONITORING ITEM 13: Silviculture Harvest Method

Forest Goals, Desired Future Condition, and Outputs: Ensure that Forest silvicultural treatments comply with management objectives contained in the Plan; evaluate assumptions used in Forest Plan.

Monitoring Question(s): 1. Are the harvest methods implemented on the ground as portrayed in the Plan? (Reported by silvicultural method and acres treated.) How much clearcutting is occurring? 2. Do silvicultural prescriptions and processes follow Forest Plan standards and guidelines?

Threshold of Variability: Variance from planned method of more than 25 percent on an annual basis, 15 percent on a decade basis. Compare actual levels by method to Table 4-1 of the Plan.

Results/Findings:

Use of silvicultural methods continues to evolve on the Forest in response to restoration and salvage requirements and implementation of direction for Snake River Chinook Salmon (northern part of the Forest). Table II-2 shows harvest methods completed and acres harvested in FY 1994. The total includes timber sales sold prior to 1994.

Table II-2
HARVEST METHODS - 1994
Umatilla National Forest

Silviculture Method	Planned Output (Acres)	Actual '94 Output (Acres)	Percentage (Actual/Planned)
Clearcut	4,000	195	5%
Shelterwood/Seedtree	2,600	3,999	154%
Overwood Removal	1,500	1,635	109%
Uneven-age	900	342	38%
Total	9,000	6,171	69%

Clearcutting continues to decline on the Forest. Clearcut acres are now well below levels established in the Forest Plan. This is in keeping with the new direction (1992) established by the Chief of the Forest Service to reduce clearcut acres on National Forests.

Shelterwood and seedtree cutting continues to increase on the Forest as a result of reductions in clearcutting and salvage harvest in areas damaged by the western spruce budworm. Many areas which were prescribed for clearcutting are being regenerated using shelterwood or seedtree methods.

In Fiscal Year 1994, a monitoring review was completed to determine if reforestation standards and guidelines were being met. Part of the evaluation included a review of district records, databases, and other record keeping processes related to silvicultural prescriptions. A summary of findings follows:

- All silvicultural prescriptions appear to have been prepared or approved by a certified silviculturist. Prescriptions vary widely in format, timing, and quality. Prescriptions generally meet the intent of the Forest Plan but did not specifically address all of the required elements identified in the Forest Plan.

- The prescriptions reviewed were all written since the Forest Plan was approved. None of the prescriptions have been fully implemented (units have yet to be harvested or sites prepared for regeneration). One finding was that little or no monitoring of prescriptions is being done after approval. In some cases, prescriptions appear to have been written or completed after the Environmental Assessment's Decision Notice was signed.

Evaluation:

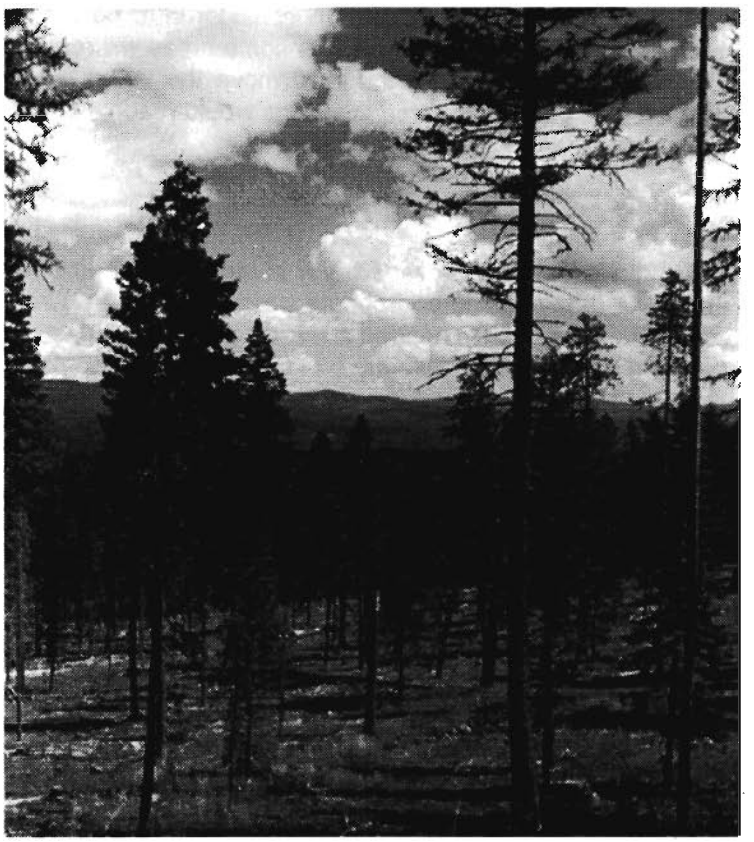
Clearcut acres can be expected to be below the threshold of variability until the Forest Plan is amended to reflect the policy change regarding clearcutting.

The forest health situation continues to influence the mix of harvest methods being used. Seed-tree and shelterwood harvests have increased substantially in areas of high mortality from insect attacks on the south-half of the Forest. The need to retain green tree replacements for future wildlife trees (snags) and other ecosystem requirements are reasons for the change. All will influence the need for continued monitoring and possible Plan adjustment.

When insect damaged stands are salvaged, live (green) trees are retained unless they have been seriously damaged. In all salvage operations, ponderosa pine, western larch, and other species resistant to defoliation by budworm or tussock moth are reserved from harvest. By doing so, it is expected future forests will be less susceptible to the current type of insect and disease problems.

Acres of uneven-aged management projected in the Forest Plan were clearly not met within the last 3 years (though they were in 1991). The reduction in unevenaged practices is also related to the recent forest health problem since uneven-aged management is often not successful in stands with high levels of insects and diseases. This will need to be re-evaluated to determine if the decade goal will be met.

The Forest needs to initiate and conduct formal monitoring reviews of silviculture prescription application and effectiveness after they are signed and implemented.



MONITORING ITEM 14: Created Openings

Forest Goals, Desired Future Condition, and Outputs: Achieve unit sizes that fall within the acceptable legal and desired ranges.

Monitoring question(s): Are unit sizes complying with direction in the Forest Plan, National Forest Management Act (NFMA), and Regional Standards?

Threshold of Variability: Maximum unit size exceeds size standard by more than 10 percent. Where exceptions allowed, unit sizes meet EA (Regional) requirements. Forest Plan standards and guidelines for dispersion.

Results/Findings:

The maximum size of created openings is 40 acres as outlined in the Forest Plan. However, when natural catastrophic situations occur, the Forest Plan allows the size limitation to be exceeded. On the Turner-Otter and Windy Springs Timber Sales located on the North Fork John Day Ranger District, a total of 16 units exceeded the 40-acre limit as a result of high insect damage and mortality. Respective environmental assessments and decision notices fully disclosed the need and justification to exceed Forest Plan requirements. As for the rest of the Forest, no other harvest area activity was found to exceed Forest Plan created opening standards.

A random sampling of 16 harvest units were examined as part of the reforestation monitoring effort. Monitoring was designed to determine whether minimum stocking and other standards from the Forest Plan were met. A key finding of the review is that:

- Thirty-one percent of the sampled stands are still considered to be created openings. All stands sampled were planted since 1987, which indicates some areas will require more than 10 years to produce sufficient number of trees tall enough to move the stand out of the created opening classification. The Forest Plan assumed tree seedlings would reach 4.5 feet in height in 10 years or less.

Evaluation:

Forest Plan standards and guidelines were exceeded only in two cases (Turner-Otter and Windy Springs Timber Sales) on the Forest. In these cases, appropriate procedures and documentation were used for approving the exceptions. No adjustments are needed at this time, however adjustments in the long term are likely to be needed as the Forest continues to take more of an ecosystem approach to forest management. An ecosystem approach (and historic patterns) suggests some stand treatment sizes and openings will be larger than 40 acres in the future.

Findings from the monitoring review of the reforestation program indicates a potential problem exists. Yield table assumptions may have been too optimistic in projecting when the 4.5 foot requirement would be met for portions of the Forest. (Refer to MI 42 for discussion on the recommendation for yield tables.) Reforestation practices also need to be examined for means of improving tree growth. (See MI 2 for discussion of soil treatments in improving reforestation.)

MONITORING ITEM 15: Stand Management – Regeneration

Forest Goals, Desired Future Condition, and Outputs: Ensure successful reforestation to at least minimal stocking consistent with Forest Plan standards and guidelines. Determine if level of planting with genetically improved stock is consistent with level assumed in the Plan and managed yield tables.

Monitoring Question(s): 1. How many acres and what percentage were successfully reforested using natural and artificial regeneration practices. 2. How many acres were stocked at least to minimum levels within three growing seasons after reforestations period begin as required by NFMA? How many reforested acres (and %) are certified as established? 3. How many acres have been reforested with genetic stock with a stocking certification level "SB" or higher?

Threshold of Variability: 1. Greater than a 15 percent deviation from Forest Plan levels (Table 4-1) for acres regeneration harvested during a 5-year period. 2. Greater than a 10-year lag between time of harvest and attainment of at least minimum stocking levels. 3. For genetically improved tree stock, more than 10 percent reduction from levels assumed in the Forest Plan over a 5-year periods.

Results/Findings:

For reporting purposes, natural regeneration is measured by adding the acres of site preparation for natural regeneration to the acres of certified natural regeneration without site preparation (National and Regional procedure). This process was used to monitor the amount of natural regeneration on the Forest in FY 1994. Artificial regeneration is accomplished by planting tree seedlings. Total natural regeneration acres for FY 1994 is 5,008 and artificial regeneration acres is 5,997 as displayed in Table II-3.

Table II-3
NATURAL AND ARTIFICIAL REGENERATION ACRES - FY 1994
Umatilla National Forest

Activity	Heppner	NFJD	Pomeroy	Walla Walla	Forest Total
Site Preparation for Natural Regeneration	1,100	-0-	244	196	1,540
Natural Regeneration Without Site Preparation	2,591	250	-0-	627	3,468 Total 5,008
Artificial Regeneration	1,584	2,333	569	1,511	5,997

Certification of regeneration is based on a site-specific determination; units must meet minimum stocking guidelines prior to certification. Currently the Forest performs regeneration examinations after the first and third growing season following regeneration. A staked row method is used to determine survival and growth of each seedling and overall area success. By using this method, the Forest certified a total of 10,502 acres (planted and natural regeneration) in FY 1994 as meeting or exceeding minimum stocking standards after 3 years. Certification represents acres which were reforested in 1992 and before.

Monitoring results for third year stocking conditions on the Heppner Ranger District show first time success rate (the percent of units stocked to Forest Plan standards with only one planting) was 7.5 percent. The success rate for all units planted in 1992, including replants, was only 39 percent. Many factors contributed to the poor success including moisture stress, caused in part by the drought; severe soil compaction and grass competition; browse damage by deer, cattle, and elk; porcupine damage; and feeding by pocket gophers.

In recent years, the Heppner Ranger District has attempted to improve survival and growth in plantations by identifying areas of severe soil compaction and treating areas with a mechanical subsoiler prior to planting. In 1990, a cooperative demonstration subsoiling and monitoring project (Davis 31) was undertaken. (Refer to MI 2 for discussion.) Results show clear and consistent increases in seedling survival when site preparation included subsoiling.

In FY 1994, the Forest planted 1,061 acres of genetically improved tree stock which met a certification level "SB" (SB signifies Subclass B. B means the female parent is known) or higher. This represents 18 percent of the total artificial regeneration acres (5,997) in 1994.

Evaluation:

Planned output for natural regeneration is 3,100 acres (Table 4-1, Forest Plan). In FY 1994, the Forest exceeded the Plan projection by 62 percent. The threshold of variability for this item is 15 percent during a 5-year period. This is the first year since the inception of the Forest Plan where thresholds have been exceeded for natural regeneration. This is partly attributed to the catastrophic insect infestations of lodgepole pine areas (in the late 1970's and 1980's) which had delayed natural regeneration. The areas are only now being certified as stocked. The Forest anticipates that the threshold may continue to be exceeded until lodgepole areas are certified as regenerated.

Planned output for artificial regeneration is 4,400 acres (Forest Plan Table 4-1). In 1994, the Forest exceeded the Plan output level by approximately 36 percent. The primary reason for the increase in planting is a direct result of restoring areas which were damaged and defoliated by the western spruce budworm. The threshold of variability for this item is 15 percent deviation from planned levels over a 5-year period. Several more years of accomplishment will be needed to test against threshold levels.

Genetic regeneration represents 18 percent of the total artificial acres (5,997) planted in 1994. Accomplishment is somewhat higher than levels assumed in the Forest Plan, but can be within Plan levels for the decade. Recommendation is to continue monitoring.

Low reforestation success rates at Heppner suggest that in addition to the subsoiling treatments, additional monitoring of the reforestation process may be needed. A review of the process encompasses monitoring of nursery stock, site treatments, the reforestation contract and its administration. Such a review could point to additional adjustments in practices.

MONITORING ITEM 16: Stand Management — Ponderosa Pine Regeneration

Forest Goals, Desired Future Condition, and Outputs: Increase the relative amount of ponderosa pine on the Forest; re-establish or change to more seral species on the Forest.

Monitoring question(s): How many acres were reforested with ponderosa pine by either natural or artifical regeneration practices?

Threshold of Variability: If after 10 years pine is reforested on less than 35 percent of the acres regenerated.

Results/Findings:

Currently, an effective method for measuring the total amount of ponderosa pine regeneration is not available since the amount of ponderosa pine natural regeneration is unknown. However, in 1994, the number of acres planted on the Forest with ponderosa pine totalled 2,448 which represents 41 percent of the total acres planted.

Evaluation:

The threshold states at least 35 percent of the total acres regenerated on the Forest shall be planted with ponderosa pine within 10 years. It appears the threshold will not be exceeded. Recommendation is to continue monitoring.

The Forest needs to develop a process which determines how much ponderosa pine is being naturally regenerated. The process should be included in the certification procedures currently being used.

MONITORING ITEM 17: Stand Management – Precommercial Thinning

Forest Goals, Desired Future Condition, and Outputs: *Accomplish the planned amount of stocking level control on the Forest.*

Monitoring Question(s): 1. How many acres were treated with stocking level control? 2. How many acres needing stocking level control were treated? (Relates to managed stand assumptions, and forest health questions.)

Threshold of Variability: 1. Greater than a 20 percent deviation from planned levels as indicated in the Forest Plan Table 4-1. 2. Fewer than 80 percent of the acres needing stocking level control actually received it.

Results/Findings:

The total amount of precommercial thinning accomplished on the Forest in 1994 was 2,301 acres. The planned amount is 2,900 acres (Forest Plan, Table 4-1). Thus, the 1994 accomplishment represents approximately 80 percent of planned output, which meets the threshold of variability for this item (20% deviation).

All of the acres needing stocking level control, as reported in the NEEDS Report (reporting system identifies projects in need of management action), were treated in FY 1994.

Evaluation:

Thinning results are within thresholds. The Forest anticipates an increase in thinning within the next several years: 1) to reduce stand densities in over stocked stands, 2) to reduce fire hazards, and 3) to emphasize the proportion of seral species in mixed stands with an overall goal of improving forest health. Recommendation is to continue monitoring.

MONITORING ITEM 18: Fire Effects – Prescribed Fire

Forest Goals, Desired Future Condition, and Outputs: Maintain or enhance ecosystem functions to provide for the long-term integrity (stability) and productivity of biological communities. Provide and execute a fire use program that is responsive to land and resource management goals and objectives. Use of prescribed fire will be expanding in project activities of all types and in reduction of natural fuels. Fire will be allowed to play a more natural role in the wildernesses.

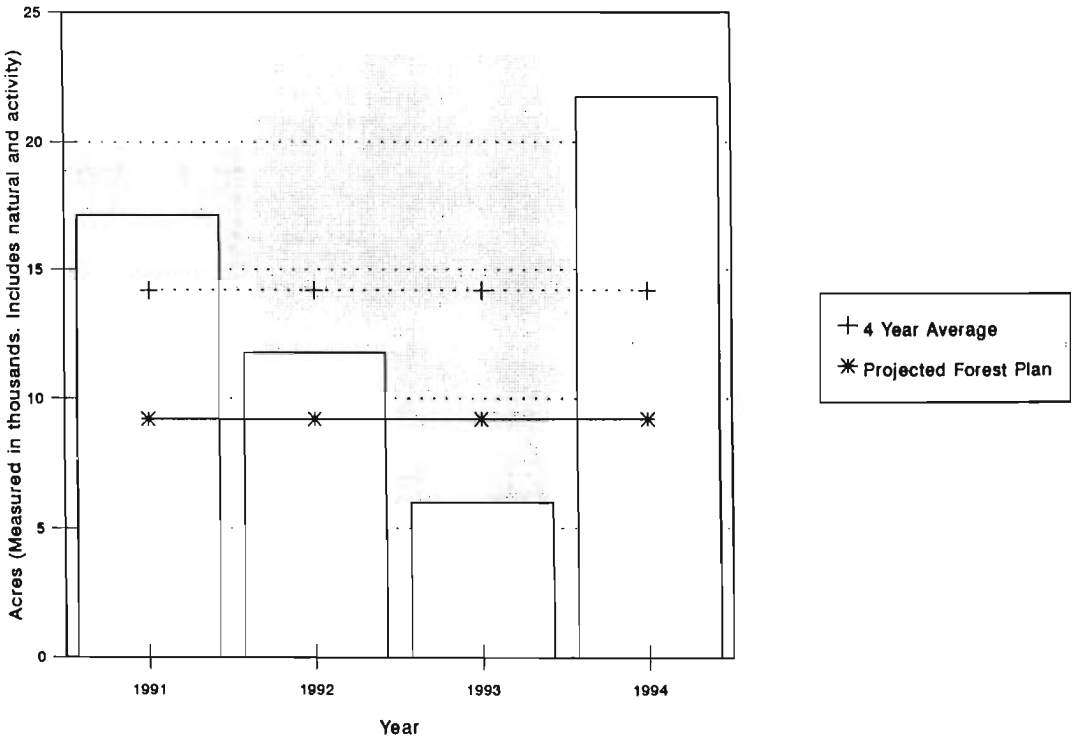
Monitoring Question(s): 1. Are the prescribed fire treatments meeting Forest Plan residue (materials left on site) and resource objectives? 2. What are the stand structure (overstory and understory) and species responses in the prescribed burned area?

Threshold of Variability: Prescriptions not being met by 20 percent or more of areas. Five percent of subwatershed impacted by high intensity fires within a 3-year period.

Results/Findings:

The 1994 prescribed fire program was used as a management tool to accomplish site preparation, range improvement, natural fuel reduction, and wildlife enhancement projects. Figure I shows the total prescribed fire acres from 1991 to 1994 along with the 4-year average and Forest Plan projection.

Figure I
TOTAL PRESCRIBED FIRE ACRES
1991 to 1994
Umatilla National Forest



In 1994, a total of six areas were monitored on the Forest to ensure prescribed fire treatments were meeting Forest Plan residue and resource objectives. The following are the results from the districts:

On the Heppner Ranger District, three different areas were analyzed for pre-burn and post-burn vegetative conditions. Species composition and cover percentages were recorded. Figures J, K, and L graphically display the results of Three Trough Plots 1993-1 & 2 and Big Rock Flat Plot 1993-4.

Figure J
THREE TROUGH PLOT 1993-1

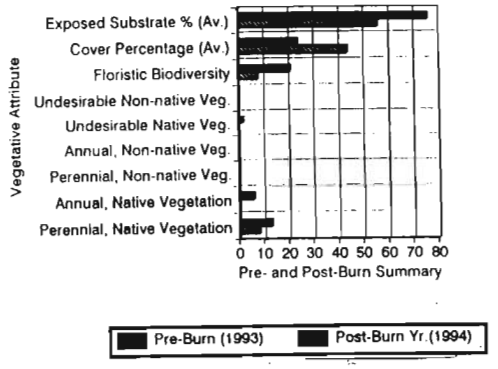


Figure K
THREE TROUGH PLOT 1993-2

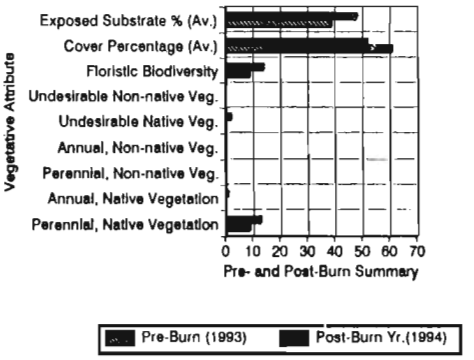
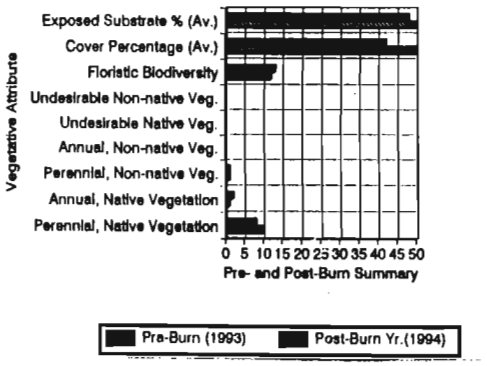


Figure L
BIG ROCK FLAT PLOT 1993-4



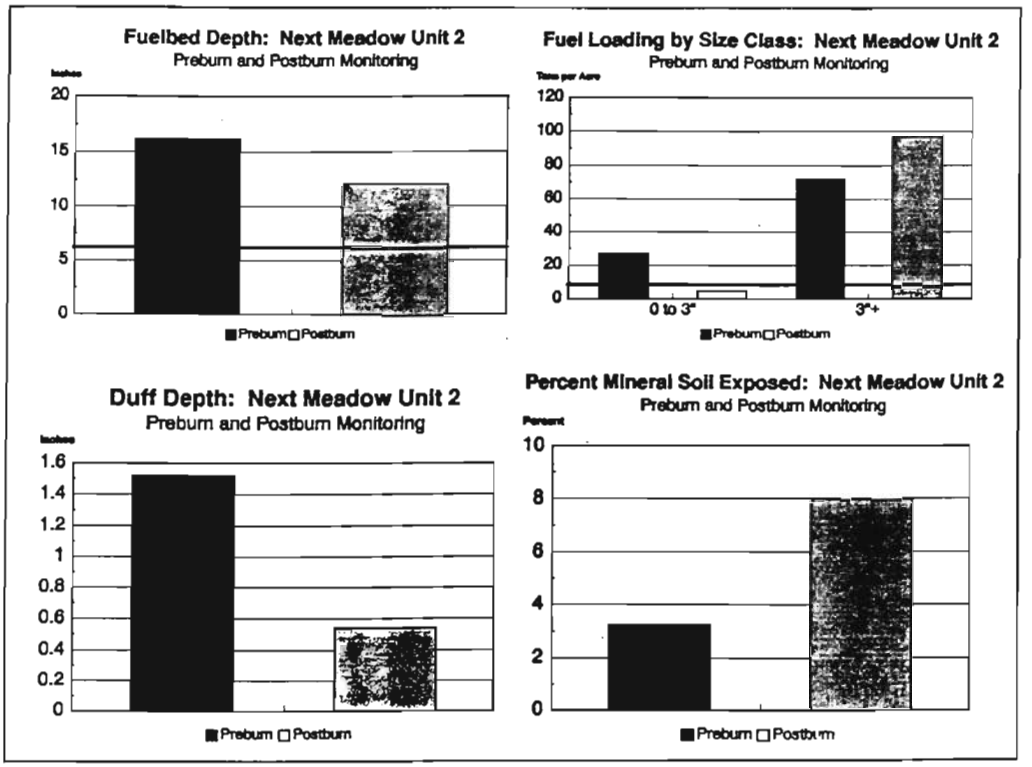
In summary, findings show an increase in exposed substrate which is normally expected when organic material is reduced by burning. Total vegetative cover percentage also showed a decrease from pre-burn to post-burn analysis. The floristic biodiversity (plant species composition) showed an overall increase from slight to substantial in the number of plant species in the post-burn analysis. In general, favorable vegetative responses to the burning prescription were recorded. Increases in the desirable species of perennial and annual native vegetation were observed. Only one undesirable native species (tarweed) and one non-native species (tall oatgrass) were found in single plots for the nine-total plots that were analyzed across three burn areas. Continued data collection in post-burn years will probably indicate a substantial increase in vegetative cover and a corresponding decrease in exposed substrate.

The North Fork John Day Ranger District is currently conducting pre and post-burn monitoring on one unit per year using a combination of photos and vegetation measurements. However, no results or findings were submitted for this report. In cooperation with Pacific Northwest Laboratory, the District is proposing to establish some permanent plots for measurement in the future.

In calendar year 1993, monitoring on the Walla Walla RD was initiated for the purpose of measuring fuel levels prior to and after the implementation of prescribed burning on two separate harvest units. One, Next Meadow Unit 2, was sampled during the post-harvest phase of operations and after the site was burned in the spring of 1994. The other site, Little Big Hole Unit 40, was sampled before harvest had occurred but has not been harvested to date.

The fuels objectives for Next Meadow Unit 2 (Figure M) were to reduce the 0 to 3 inch fuels by 50 to 90 percent and fuels larger than 3 inches by less than 50 percent. Forest Plan standards and guidelines indicate 0 to 3 inch loading levels in Management Area E2 to be 9 tons per acre with a 6 inch fuelbed depth. The postburn fuel loading was 5.1 tons per acre, a reduction from preburn levels of 81 percent. Fuels greater than 3 inches in size actually increased in loading from 72 to 98 tons per acre. This attributed to trees which had burned down or snags which were felled to meet unit mop-up standards. The fuelbed depth was reduced from 16 to 12 inches, primarily larger material, still above Forest Plan guidelines. (Forest Plan standards only address material less than 3 inches.) Duff levels were reduced by 66 percent and mineral soil exposure increased from 3 percent to 8 percent.

Figure M
FUEL OBJECTIVES NEXT MEADOW[1]
Walla Walla Ranger District



1 Horizontal line represents Forest Plan standards

At Pomeroy during FY 1994, post-burn fuel transects were taken on the Tail Timber Sale using camera points to record and document findings and one measurement plot located in unit 9. The objective of the burn was to create 200 to 300 planting spots, reduce competition for regeneration, increase forage, improve wildlife access, and retain the duff layer for soil protection. The results are displayed in Table II-4.

Table II-4
TAIL TIMBER SALE PRE/POST BURNING FUEL MEASUREMENTS
Umatilla National Forest

Size Class tons/acres	Original Fuel Loading tons/acres	Reduced Fuel Loading tons/ac	% Reduction
0 - .25	1.0	.7	30
.25 - 1	3.5	3.5	0
1 - 3	4.2	.7	83
Total 0 - 3	8.7	4.9.	44

Results show that treatment efforts were successful in reducing the fuel loading to a desirable level. Duff measurements taken after the burn showed the 0.6 inches remained. Based upon duff measurements, actual trees planted, and photos taken on the site, it can be concluded resource objectives were met.

Evaluation:

In 1994, prescribed fire program treatment acreage increased significantly when compared with the last several years results. This is primarily a result of a shift from "traditional" management activities to an ecosystem approach. The Forest anticipates that the use of prescribed fire will continue to increase as emphasis is placed on ecosystem management.

The Forest has made great strides in reporting monitoring results and findings for prescribed fire. For example, the Heppner Ranger District with the assistance of the Forest Botanist inventoried vegetative conditions before and after burning. This has allowed for better qualitative and quantitative analysis of pre and post vegetative conditions. By establishing a viable monitoring method, the Forest is in position to conduct more long-term trend monitoring. The need exist to establish this protocol across the Forest to ensure consistency in data collection.

The recommendation is to continue monitoring with emphasis of standardizing vegetation data collection procedures similar to those used on the Heppner Ranger District. It is imperative results and findings are reported by all districts. Only three districts reported results for 1994.

MONITORING ITEM 19: Vegetation Management

Forest Goals, Desired Future Condition, Outputs: Use management practices that best suit land management objectives. Use treatments that are practical in terms of preparation and administrative cost. Perform all activities in the most cost efficient manner consistent with resource management objectives. Use management strategies which minimize both cost and environmental impacts.

Monitoring Question(s): 1. Is the Forest meeting the intent of the Managing Competing and Unwanted Vegetation Final Environmental Impact Statement and Mediated Agreement? 2. Is the Forest reporting vegetation management project analysis results in project environmental assessments and environmental impact statements? 3. Is the Forest applying mitigation measures as outlined in Appendix E of the Forest Plan FEIS? How effective are the mitigation measures?

Threshold of Variability: Less than 80 percent of completed projects which fall under Managing Competing and Unwanted Vegetation FEIS requirements.

Results/Findings:

The requirements of the Final Environmental Impact Statement (FEIS) and the Mediated Agreement (MA) for Managing Competing and Unwanted Vegetation are continuing to be applied on the Forest during development and analysis of projects "involving the management of competing and unwanted vegetation." During the year, activities included preparing sites for planting by reducing logging residue; releasing young conifers from competing vegetation; managing fuel hazards and preventing wildfires; improving range conditions; controlling noxious weeds; improving wildlife habitat; maintaining recreation and administrative facilities; maintaining roadsides and utility corridors; and supporting the tree genetics and research program.

The results of an assessment of vegetation management activities, and their relationship to requirements from the FEIS/MA, are typically disclosed in a "Vegetation Management Plan". The Plan is prepared during the environmental assessment (EA) phase of project development and is stored with other EA documents and materials (typically a project file). The plan evaluates threshold levels for which vegetation management activities would be initiated; the need for vegetation management; the treatment methods being considered; evaluation of vegetation management strategies (prevention, early treatment, maintenance, correction, and no action); project design and scoping; effects of implementation; and action and monitoring. Although relatively few projects were developed in FY 1994, a vegetation management plan or closely-related vegetation management checklist was completed for those projects on all districts. Where monitoring has occurred, mitigation results are reported in other appropriate monitoring items.

Evaluation:

On National Forest land, the Forest will continue to monitor the effects of managing vegetation in eight specific activities: 1) Reforestation - site preparation and release; 2) Fire Management Program; 3) Range Improvement; 4) Noxious weed control; 5) Wildlife habitat improvement; 6) Recreation Management and Facilities Maintenance; 7) Rights-of-Way Maintenance; and 8) Genetics Program. Five specific methods of vegetation management explained in the FEIS (pages II-83 through II-109) may be used in the activities including: 1) herbicides, 2) prescribed burning, 3) manual work, 4) biological treatments, and 5) mechanical means.

B. PLANTS

MONITORING ITEM 20: Threatened, Endangered, and Sensitive Species

Forest Goals, Desired Future Condition, and Outputs: Conserve existing populations and habitats for sensitive plant species. Ensure that T/E/S plant species are protected and management standards are met.

Monitoring Question(s): Is adequate protection afforded the documented sensitive plant species of the Forest?

Threshold of Variability: Any deviation from recommended mitigation provided on the Biological Evaluation for the T/E/S survey site.

Results/Findings:

During FY 1994, the Botanical Resources Program of the Forest completed sensitive plant surveys on 54,543 acres, which brings the overall Forest survey total to more than 900,000 acres.

First-time surveys in the lower Wenaha River Canyon resulted in the addition of two new species to the list of sensitive plant species with documented occurrences on the Umatilla. Species newly added are: 1) Oregon Bolandra (*Bolandra oregana*), 6 populations, 252 plants, Pomeroy Ranger District; and, 2) Prickly Phlox (*Leptodactylon pungens hazeliae*), 1 population, 6 plants, Pomeroy Ranger District. One additional population of Mountain Grapefern (*Botrychium montanum*) was located during surveys on the North Fork John Day Ranger District.

At the conclusion of Fiscal Year 1994, the number of "active" sites of (presently-listed) sensitive plants species on the Forest stood at a population level of 560. Population levels are unequally distributed among 21 documented sensitive species. Additionally, 60 "inactive" sites for "delisted" species are retained in the GIS system (TEPO[1] layer and supporting database). Retention of delisted species has been necessitated by situations in which a species has been delisted one year only to be relisted the next.

Table II-5 shows the progress made in locating and documenting the occurrences of sensitive plant species on the Umatilla National Forest between 1982 and 1994.

Table II-5
SENSITIVE PLANT OCCURRENCES 1982-1994
Umatilla National Forest

Year	82	84	85	86	87	88	89	90	91	92	93	94
# Sites Added to TEPO	1	2	7	4	8	33	2	2	17	100	377	8

No surveys were conducted in 1983. In the "State Sensitive Status" column the abbreviations are as follows: HSO = Historically Sensitive in Oregon; PSO = Presently Sensitive in Oregon; HSW = Historically Sensitive in Washington; PSW = Presently Sensitive in Washington.

Species-encounter lists have been compiled as a required component of all sensitive plant species surveys conducted on the Umatilla National Forest since 1982. As the area that has been surveyed increases, the list of plant species also increased. Forest-wide, 18 species were added to the list in 1994, bringing the total number of plat taxa known to occur on the Forest to 1,230.

1 Threatened and Endangered Plant Occurrence layer established within GIS.

The current status of sensitive plant populations (numbers and sizes) are presented in Table II-6.

Table II-6
SENSITIVE PLANT POPULATIONS 1994
Umatilla National Forest

Sensitive Species	No. of Occurrences	Total Population	State Sensitive Status	State Occurrences: UMA
Allium campanulatum (Sierra Onion)	2	19	HSO;PSW	OR;WA
Allium dictuon (Blue Mountains Onion)	4	550	PSW	WA
Astragalus arthuril (Arthur's Milkvetch)	2	184	PSW	WA
Botrychium crenulatum (Wavy-leaved Grapefern)	1	1	PSO;PSW	OR
Not yet described but most similar to *Botrychium 'echo'* (Desolation Meadows Grapefern)	7	150	PSO	OR
Botrychium lanceolatum (Lance-leaved Moonwort)	25	1,197	PSO;PSW	OR
Botrychium minganense (Mingan Grapefern)	10	172	PSO;PSW	OR
Botrychium montanum (Mountain Grapefern)	10	252	PSO;PSW	OR
Bolandra oregana (Oregon Bolandra)	6	252	PSO;PSW	OR
Botrychium paradoxum (Two-spiked Grapefern)	1	1	PSO;PSW	OR
Botrychium pinnatum (Pinnate Grapefern)	21	5,977	PSO;PSW	OR
Cypripedium fasciculatum (Clustered Lady's Slipper Orchid)	2	26	PSO;PSO	WA
Dryopteris filix-mas (Male Fern)	35	275	PSO	OR;WA
Epipactis gigantea (Giant Helleborine Orchid)	1	608	PSW	OR;WA
Leptodactylon pungens hazellae (Prickly Phlox)	1	6	PSO;PSW	OR
Mimulus washingtonensis (Washington Monkeyflower)	341	2,036,103	PSO;PSW	OR
Orobanche pinorum (Pine Broomrape)	40	321	HSO;PSW	OR;WA
Ribes oxyacanthoides cognatum (Umatilla Gooseberry)	39	1,042	HSO;PSW	OR;WA
Spiraea densiflora splendens (Subalpine Spiraea)	7	183	PSW	WA
Thelypodium eucosmum (Arrow-leaved Thelypody or Blue Mustard)	4	697	PSO	OR
Trifolium douglasii (Douglas' Clover)	1	1,303	PSW	WA
TOTAL	560			

Sensitive plant populations monitored in 1994 included two species each for the Pomeroy, Walla Walla, and Heppner Ranger Districts. On the North Fork John Day Ranger District, a monitoring plot design was completed for four species of grapeferns. This information is presented in Table II-7.

Table II-7
SENSITIVE PLANT POPULATIONS AND TREND 1994
Umatilla National Forest

District	Species	Previous Population	Present Population	Trend
Pomeroy	• Douglas' Clover	1,303	1	Severe Decline (-99.9%)
	• Clustered Lady's Slipper Orchid	34	12	Decline (-65%)
Walla Walla	• Sierra Onion	11	8	Decline (-27.3%)
	• Subalpine Spiraea	183	185	Increase (+1.1%)
North Fork John Day	• Two-spike Grapefern	1	1	Stable
	• Lance-leaved Grapefern	678	678	Stable
	• Desolation Meadows Grapefern	136	136	Stable
	• Pinnate Moonwort	5,915	5,915	Stable
Heppner	• Washington Monkeyflower	495,000	225	Decline (-99.9%)
	• Arrow-leaved Thelypody or Blue Mustard	697	1,670	Increase (+139.6%)

Analysis of FY '94 monitoring data collected on sensitive plant species on the Forest shows the following:

- Sixty-five populations of sensitive plant species were monitored. The Forest-wide number of sensitive plant populations is 560. Thus, monitoring activities covered about 12 percent of the Forest's sensitive plant populations.

- During the year, 10 representative populations of the 21 different sensitive plant species that occur on the Forest were monitored. Monitoring activities covered about 48 percent of the total sensitive plant species known to occur on the Umatilla.

- As seen in Table II-7 (above), three of the ten species monitored showed a slight decline in population levels. Declines may be attributed to natural conditions or the time in which the monitoring was done. Four of the ten species monitored showed stable population sizes, and two of the ten showed slight increases in population. One of the ten species, Douglas' Clover (*Trifolium douglasii*), showed a severe decline in population.

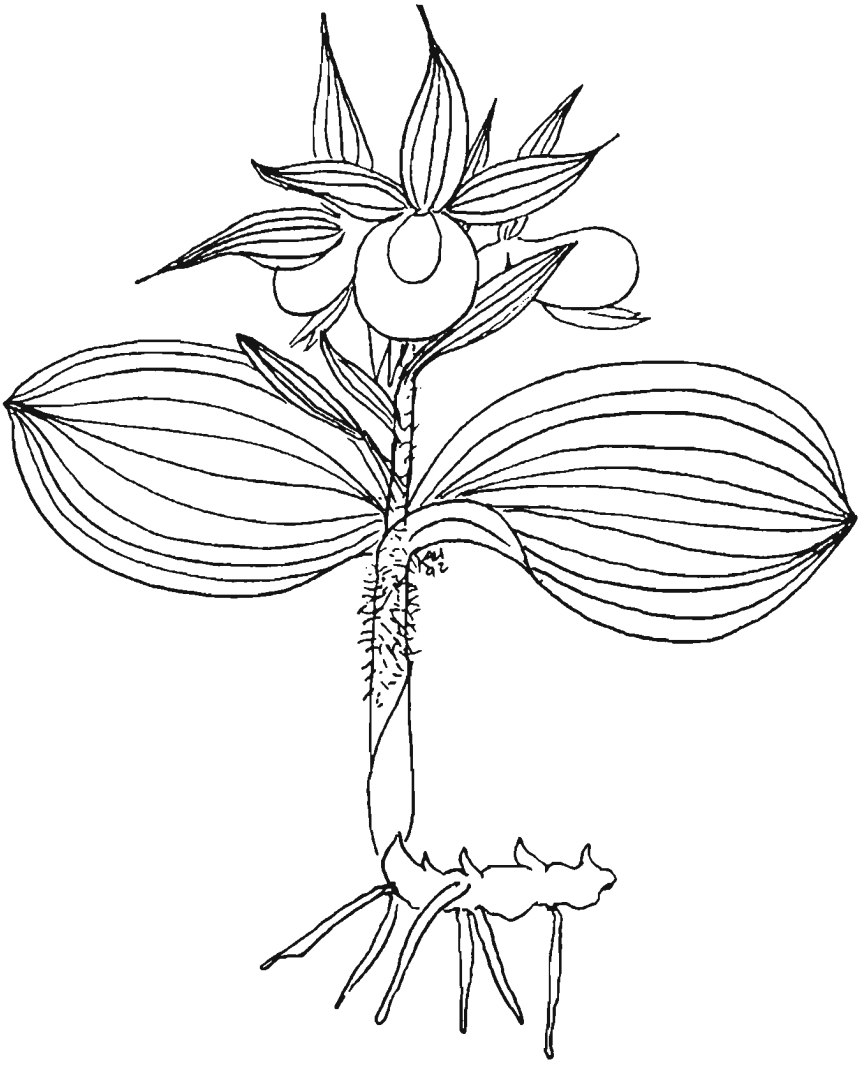
Arrow-leaved Thelypody
Thelypodium eucosmum
Heppner Ranger District

Evaluation:

Monitoring has indicated that management action is likely to be needed to protect at least two of the sensitive species. Douglas' Clover was once thought to have been extinct in Washington State. Management activities having potential impact on the population should be critically reviewed and modified to ensure the species does not become a Federal candidate. The severe decline detected for Douglas' Clover resulted from 2 years of successive grazing in one pasture on the Pomeroy Ranger District. The pasture is scheduled to be rested in 1995 which will enable the species to "rebound". Not all of the adverse impacts to the species is attributed to cattle. The population is "sandwiched" between heavily-used recreational horse corral (on Forest Service property) and agricultural land (privately-owned historic habitat for the plant). Further monitoring is needed to determine if the plant is truly at risk.

Arrow-leaved Thelypody or Blue Mustard located on the Heppner Ranger District has not been grazed by livestock for many years. Blue Mustard is a highly desirable plant for grazing animals, both wild and domestic. In the Bologna Basin, juniper branches have discouraged grazing or trampling of the plants; therefore, populations have had an opportunity to rebound from historic impacts of grazing. Unfortunately, growth of the protective junipers has also created an abnormal fuel load. Fire in this area would exhibit greater-than-normal intensity and would adversely affect the species.

During 1994, pastures in the Bologna Basin area was used for grazing. The District placed an electric fence around populated areas to protect them from cattle. This protective measure was apparently successful. In order to ensure protection of the plants, it is recommended that a permanent fence be built around the area and then deal with the removal of the junipers.



Clustered Lady Slipper Orchid
Cypripedium fasciculatum

C. INSECT AND DISEASE

MONITORING ITEM 21: Insect and Disease Control

Forest Goals, Desired Future Condition, and Outputs: "Protect resources and values from unacceptable losses due to destructive pests . . . Monitor levels and activity of forest pests . . . identify or predict when and where they will hinder the attainment of management area objectives."

Monitoring Question(s): 1. What are the current levels and activities and their trends of key insects and diseases? Are insect and disease organisms threatening land management objectives? 2. Are management practices mitigating the adverse effects of insects and diseases? Are they effective?

Threshold of Variability: Evidence of insect or disease populations at or above epidemic levels. (Note: Evaluated by Forest Pest Specialists given the agent's intensity and magnitude).

Results/Findings:

During Fiscal Year 1994, the Regional Office (Pacific Northwest Region) continued the annual aerial surveys to determine the extent and trend of forest pest damage. Table II-8 exhibits the annual pest survey results since 1990 along with the 5-year average. The information shows the total acres containing trees which have had some level of defoliation or have had some trees killed by forest insects (note: surveys are cumulative, which means wherever a tree is defoliated or killed by insects, the area containing the tree is delineated and mapped. Areas mapped may either be localized to a specific area or spread across a vast area or region).

Table II-8
ANNUAL PEST SURVEY ACRES 1990 to 1994
Umatilla National Forest

Insect	District	1990	1991	1992	1993	1994	5 YR AVG
Budworm (very low/low) impact levels	HP	25,273	65,163	6,046	0	0	19,297
	NF	180,300	226,540	7,437	0	0	82,855
	PM	41,718	77,018	51,670	0	0	34,081
	WW	117,742	231,682	241,992	0	0	118,283
	Total	365,033	600,403	307,145	0	0	254,516
Budworm (moderate/high)	HP	61,556	80,785	17,581	0	0	31,984
	NF	153,610	176,312	11,087	0	0	68,202
	PM	0	0	2,044	0	0	409
	WW	0	3,852	3,725	0	0	1,515
	Total	215,166	260,949	34,437	0	0	102,110
Douglas-fir Beetle	HP	13,228	404	6,468	197	20,090	8,077
	NF	76,571	9,115	19,321	723	4,373	22,021
	PM	3,758	1,277	862	87	243	1,245
	WW	4,147	1,786	3,116	1,255	2,081	2,477
	Total	97,704	12,582	29,767	2,262	26,787	33,820
Fir Engraver	HP	4,531	1,025	1,975	48	28	1,521
	NF	3,751	129	1,483	38	10	1,082
	PM	93,570	45,800	0	0	0	27,874
	WW	31,097	41,736	775	794	1,306	15,142
	Total	132,949	88,690	4,233	880	1,344	45,619
Mountain Pine Beetle	HP	46	278	414	604	36	276
	NF	128	147	96	1,035	71	295
	PM	234	127	3	14	115	98
	WW	54	1,139	37	184	0	283
	Total	462	1,691	550	1,837	222	952

HP - Heppner, NF - North Fork John Day, PM - Pomeroy, WW - Walla Walla

Results from the aerial survey show spruce budworm population levels have collapsed with no new reported acres detected. The most notable increase since 1993 is the Douglas-fir bark beetle. Most are near last years level. Other insects causing damage in 1994 included pine engraver beetle, Englemann spruce beetle, Douglas-fir engraver, and western pine beetle. Larch needle cast, a foliage disease, was also mapped in the aerial survey. The 1994 level of mortality is also below the 5-year average. The Douglas-fir beetle is 20 percent below, fir engraver 97 percent below, and Mt. Pine beetle 77 percent below the average. The Forest did not report results of local pest trapping.

Many different diseases are affecting the forest resources. Tree disease usually are slow-acting but may eventually cause mortality and decay levels on par with epidemic insect activity over the life of a stand. Observations made by field personnel and insect/disease specialists indicate dwarf mistletoe is increasing in severity as a result of fire exclusion and increased stand density. Indian paint fungus is prevalent across the Forest with varying degrees of severity. Root diseases are also found throughout the Umatilla. Root diseases include: Armillaria, Annosus, and Laminated. Armillaria and annosus root disease are both increasing in severity and distribution on the Forest.

- Armillaria is of particular concern within areas of increased stock density of susceptible hosts (primarily grand fir) on sites historically maintained in pine and larch by fire. Additionally, armillaria is most frequently severe on very disturbed sites; specifically in areas with compacted soils.

- Annosus is a growing problem in areas of past partial cutting where stumps were left untreated (typically after a tree is harvested the stump of the tree is treated with borax to neutralize the growth environment of the fungus).

- Laminated root rot is found on the Walla Walla Ranger District with isolated pockets located on the Heppner and North Fork John Day Ranger Districts. This disease is spread throughout root contacts. The disease is very destructive in nature because it can affect most conifirs, both young and old, on any given site.

- In addition, two small pockets of black stain root disease have been located on the Forest. One pocket is located on the Pomeroy Ranger District. The District has actively treated this area in order to prevent the spread of the disease. The site will continue to be monitored. The Zone Pathologist has identified a small infection center on the Heppner Ranger District.

Evaluation:

In summary, spruce budworm population levels have collapsed. No evidence of tussock moth was reported. Bark beetle findings show little change for the past several years with the exception of the Douglas-fir bark beetle where levels are increasing. Current methods to track levels of forest diseases is through observation and surveys conducted by Forest Service and Pest Management personnel. In order to obtain actual acres infected with disease, an intensive inventory is needed.

The Region is currently conducting the "Current Vegetation Survey" to sample forest vegetation throughout the Pacific Northwest Region. As part of the survey, an emphasis is being placed on forest insect and diseases. The project for the Umatilla will be completed in FY 1995. In the future, this may provide additional information to determine the severity and incidence of forest diseases and insects across the Forest. Recommendation is continue monitoring.

D. FISH

MONITORING ITEM 22: Anadromous and Resident Fisheries

Forest Goals, Desired Future Condition, and Outputs: Provide and maintain a diverse, well-distributed pattern of habitats for viable fish populations.

Monitoring Question(s): 1. Are the population trends for anadromous and resident Management Indicator Species stable to improving? 2. Are Forest Plan goals, objectives and desired conditions for anadromous fish being achieved? 3. Is fish habitat capability improving as projected in the Forest Plan?

Threshold of Variability: 1. A declining trend in population over a period of 5 or more years in a drainage for a specific species. 2. A decrease of 10 percent or greater in fish habitat capability in a subwatershed.

Results/Findings:

The Oregon Department of Fish and Wildlife (ODF&W) has established index streams on Clear Creek, Desolation, North Fork John Day River, and South Fork Wenaha River. No steelhead redd counts were conducted by the Department in 1994 due to high stream flow conditions. All of the North Fork John Day system index streams and South Fork Wenaha River index area were monitored for spring chinook. Results are shown in Tables II-9 and II-10

Table II-9
ODF&W CHINOOK REDD COUNTS 1992 - 1994
Umatilla National Forest

Stream	Redds/Mile		
	1992	1993	1994
Clear Creek	11.7	25.6	4.0
Granite Creek	16.5	19.8	14.5
N. Fork John Day River (Wilderness)	28.1	27.3	15.6
N. Fork John Day River (Lower)	11.4	16.1	7.6

Table II-10
ODF&W CHINOOK REDD COUNTS - 1994
Wenaha River Drainage
Umatilla National Forest

Stream	No. Redds	No. Carcasses	No. Live Fish
N.F. Wenaha River (Lower)	0	0	0
S.F. Wenaha River (Above Milk Creek. Milk Creek to Forks)	12	0	2
Wenaha River (Forks to Crooked Creek)	30	5	18
Wenaha River Tributaries: – Milk Creek – Butte Creek	 0 0	 0 0	 0 0

The number or redds were relatively stable in the late 1980's and have been increasing in Clear and Granite creeks since 1990. The number of redds in the North Fork John Day River have generally been increasing since 1985. However, redd counts in all index streams in 1994 were substantially lower than in the recent past. Survey results for the Wenaha River drainage prior to 1994 were not available for this report, therefore, no comparison can be made. One should recognize that fish populations fluctuate annually due to numerous factors outside of Forest control such as off-shore production (changes in ocean currents), passage problems (dams, etc.), and fishing levels. Habitat also has an important influence. Habitat results are seen in Monitoring Items 4 through 8, all of which indicate or show symptoms of habitat problems on parts of the Forest.

Additional spring chinook salmon spawning surveys were conducted by North Fork John Day Ranger District personnel in 1994. Camas, Hidaway, and North Fork John Day River were surveyed for chinook redds, carcasses, and number of live fish. Results are displayed in Table II-11.

Table II-11
CHINOOK REDD COUNTS 1992 - 1994
Umatilla National Forest

Stream	Redds			No. Carcasses			No. Live Fish		
	1992	1993	1994	1992	1993	1994	1992	1993	1994
Camas Creek	0	2	5	0	1	1	0	0	3
Hidaway Creek	0	0	0	0	0	0	0	0	0
N. Fork John Day River	5	21	2	4	4	9	0	5	0

Bull trout spawning surveys were conducted by Pomeroy and Walla Walla Ranger Districts in 1994 within the Tucannon and Grande Ronde River subbasins. Results are in Table II-12. Information from previous years was not available for this report, therefore, no comparisons were made.

Table II-12
BULL TROUT REDD COUNTS 1994
Umatilla National Forest

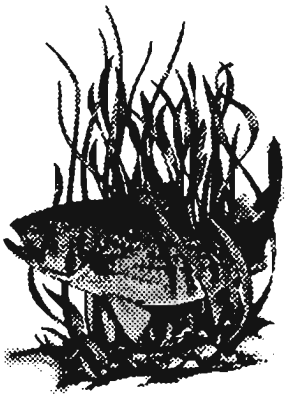
Stream	Reach	Redds/Mile
Tucannon	I II	5.5 28.3
Bear Creek	I	10
Lookingglass Creek	I II III IV	4 4 4 0
Eagle Creek	I	0
Little Lookingglass Creek	I II	0.4 0
Mottet Creek	I II	0 0

Information was not received for steelhead in the Umatilla River from surveys conducted by the Confederated Tribes of the Umatilla Indian Reservation and chinook salmon in the Tucannon River from the Washington Department of Wildlife and Fish.

The Forest did not develop baseline habitat capability estimates for streams that were inventoried during the year. The habitat capability and management objectives are an important part of the Columbia Basin Anadromous Fish Policy Implementation Guide (PIG) and Forest Plan ROD. In addition, 1994 consultation activities and conclusions with National Marine Fisheries Service were not reported.

Evaluation:

The Forest continues to have a fair to good inventory and monitoring program to determine current aquatic conditions. But the monitoring cycle is not being completed. Information and data needs to be analyzed and reported, which is currently not being accomplished. The effects of land management activities on habitat need to be addressed; current habitat capability needs to be estimated. The Forest needs to adjust practices to complete the monitoring process and address the questions so that appropriate and supportable management steps can be taken.



E. WILDLIFE

MONITORING ITEM 23: Elk/Deer Habitat and Estimated Populations

Forest Goals, Desired Future Condition, and Outputs: Maintain habitat capability to support potential big game populations identified in the Forest Plan.

Monitoring Question(s): 1. Are the populations being maintained as predicted in the Plan? 2. 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? 3. 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, open roads valid? 4. Are the assumptions relating elk habitat effectiveness to elk populations valid?

Threshold of Variability: 1. Elk habitat effectiveness indices, including discounts for open roads, is more than 10 percent below the objective in any given management area (by subwatershed) at any point in time. 2. Populations of a herd unit or winter range unit is more than 20 percent below state population index values as measured by total populations, bull/buck component, and cow/calf or doe/fawn ratios for a 3-year period.

Results/Findings:

Table II-13
ELK AND DEER POPULATIONS - 1994
Umatilla National Forest

	OREGON		WASHINGTON		
Elk and Deer	All Units	UMA	All Units	UMA	Total N.F.
Elk Pop. SMO Elk Pop Actual	21,080 20,600	16,570 16,275	5,700 3,482	4,486 2,750	21,056 19,025 -10%
Bull/Cow SMO Bull/Cow act.	11 7.1	11 7.1	15 15.1	15 15.1	- -
Calf/Cow SMO Calf/Cow act.	44 29.5	44 29.5	45 18.5	45 18.5	- -
Deer Pop. SMO Deer Pop. act.	45,100 38,400	35,493 30,336	4,100 4,000	3,227 3,148	38,720 33,484 -15%

The current status and trend for elk numbers for the Oregon and Washington portions of the forest are reflected in Table II-13 and Table II-14. Post season elk and deer population statistics have been summarized from state wildlife agency information. Elk populations on the forest collectively declined from last years level by about 4 percent. Forest-wide elk numbers are now about 10 percent below State Management Objectives (SMO) and have been below objectives for the last 4 years. Forest-wide population totals are within the 20 percent threshold of variability but individual units are showing numbers which are of concern.

Deer numbers, also shown in Table II-13, are at 85 percent of the SMOs. The two southern big game management units on the Forest, Heppner and Fossil, account for 56 percent of the deer SMOs for the Forest and, therefore, have a disproportionate effect on population totals across the Forest. Last year, reports indicated that these units had experienced excellent winter survival and Forest populations were at 100 percent SMO. This year, the reported numbers for these two units are 15 percent below SMO.

Table II-14
ELK MANAGEMENT OBJECTIVES BULL/CALVES - 1994
Umatilla National Forest

MGMT. UNIT	MGMT. OBJECTIVES			EST. 1994 POST SEASON POP		
Oregon*	Pop.	Bulls	Calves	Pop.	Bulls	Calves
Wenaha	4,250	15	40	1,700	13	23
Walla Walla	1,800	15	40	2,200	13	18
Mt. Emily	5,700	10	45	5,700	5	26
Oregon North Total	11,750	12.7#	42.1#	9,600	8.3#	23.6#
Ukiah	5,000	10	45	6,000	6	33
Desolation	1,150	10	45	1,400	6	27
Heppner	2,850	10	45	3,100	5	41
Fossil	300	10	45	500	14	37
Oregon South Total	9,300	10	45	11,000	6.1#	34.7#
Oregon Total	21,050	11#	44#	20,600	7.1#	29.5#

Washington**	Pop.	Bulls	Calves	Pop.	Bulls	Calves
Watershed	400	15	45	378	15	19
Touchet	500	15	45	397	21	17
Eckler	300	15	45	288	12	18
Tucannon	1,200	15	45	614	10	21
Wenaha	1,200	15	45	700	27	19
Lick Cr.	1,000	15	45	760	5	17
Mt. View	1,100	15	45	345	19	18
Washington Total	5,700	15	45	3,482	15.1#	18.5#

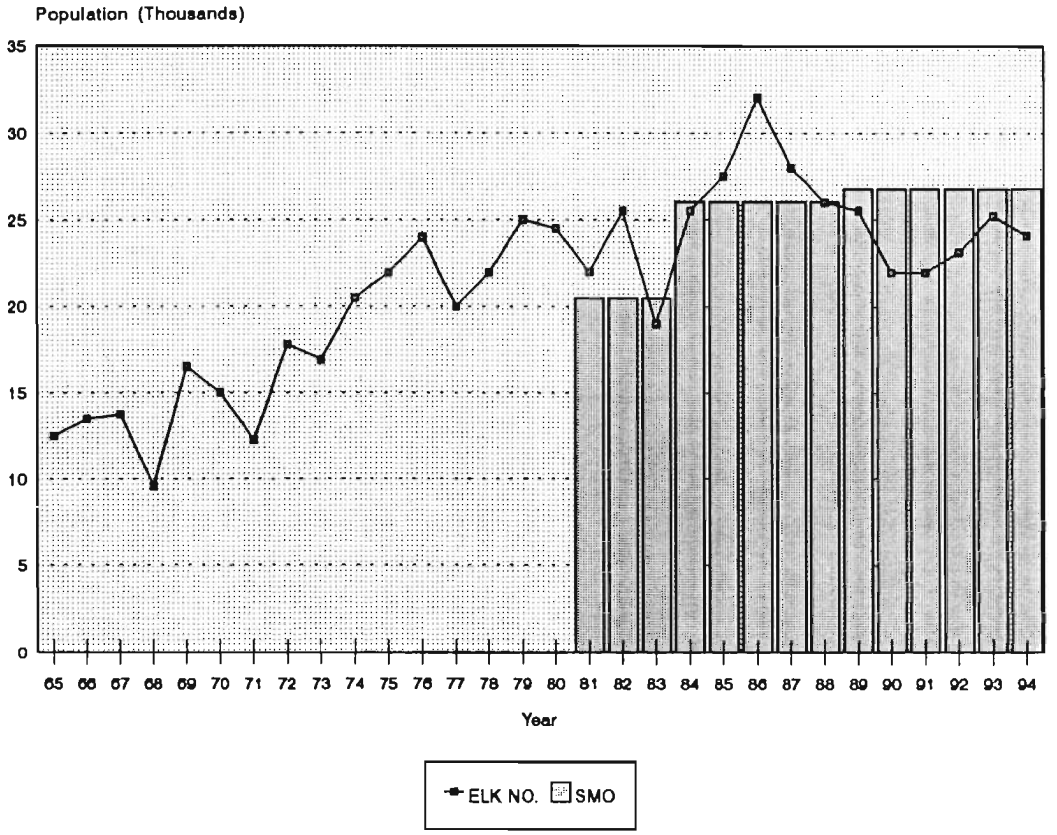
* Source: Big Game, Oregon Department of Fish and Wildlife, 1994
**Source: Pat Fowler, Wildlife Biologist, Washington Department of Wildlife
These figures were adjusted based on population estimates.

Elk populations on the south half of the Forest (Ukiah, Desolation, Heppner, and Fossil Big Game Management Units) are collectively showing populations 18 percent above SMO. Elk numbers on the northern end of the Forest are 18 percent below SMO in the Oregon units (Wenaha, Walla Walla, and Mt. Emily) and 39 percent below SMO in the Washington units (Wenaha, Touchet, Eckler, Tucannon, Watershed, Lick Cr., and Mt. View). Both state wildlife agencies have been modifying hunting seasons in order to improve bull/cow ratios. All areas on the Forest are showing an upward trend with the most marked improvement occurring in units where "spike only" hunting seasons have been instituted. The trend in poor calf survival continues in the units on the north end of the Forest with Washington having cow/calf ratios at only 41 percent of the SMO. Figure N displays the post season elk population since 1965 along with the SMO.

Elk and deer populations, examined at the forest level, showed a downward trend in 1994. An obvious difference exists in the population statistics between the north and south ends of the Forest. It is interesting to note the Forest has consistently raised concerns in the past over the loss of cover and the resultant poor Habitat Effectiveness Indexes on the south end of the Forest. On the surface it appears elk populations are not directly correlated to HEI changes. Further analysis leads one to the conclusion elk populations are regulated by many more factors than habitat parameters used in HEI.

The Washington Department of Wildlife, through a cooperative effort with the Blue Mountains Elk Initiative, has been conducting a calf mortality study on the north end of the forest. This study was conceived in an attempt to answer questions dealing with the consistent low calf recruitment. The study will need to complete at least one more year before any final conclusions can be made, however, preliminary data has raised questions regarding large carnivore predation on calf elk.

Figure N
POST SEASON ELK NUMBERS AND MANAGEMENT OBJECTIVES FOR ALL UNITS
Umatilla National Forest



All Districts reported standards and guidelines were met for habitat effectiveness in 1994. The Umatilla National Forest had a limited timber sale and harvest program in 1994. The compliance with the "Eastside Screens" required deferment of harvest in most remaining cover areas for the sales that were sold.

In 1994, no large-scale analysis of HEI was done on any of the district projects, primarily because of the absence of a timber sale program. However, the Pomeroy and Walla Walla Ranger Districts both reported good correlation between predicted and actual cover conditions after silvicultural treatments. Two subwatersheds, Upper North Fork Asotin and Lower Mottet (Tables II-15 and II-16), were randomly selected to test the effects of recent projects in meeting HEI standards by management area. The selected subwatersheds are located on the Pomeroy and Walla Walla Ranger Districts.

Table II-15
ESTIMATION OF HEI AND COVER CHANGES
Upper North Fork Asotin (Subwatershed 02E) - Pomeroy RD
Umatilla National Forest

Management Area	C4 – 3,980 Acres		
Management Standard	HEI 60/Sat. Cover 15%		
Year	Est. HEI	Sat Cover	Marginal Cover
1987	54	28	43
1994	54	23	43

Table II-16
ESTIMATION OF HEI AND COVER CHANGES
Lower Mottet (Subwatershed 06G) - Walla Walla RD
Umatilla National Forest

Management Area	E2 – 3,657 Acres		
Management Standard	HEI 45/Sat. Cover 10%		
Year	Est. HEI	Sat Cover	Marginal Cover
1988	46	59	16
1994	50	56	13

Results show HEI is below standards for the Upper N.F. Asotin subwatershed but also that harvest activities (between 1987 and 1994) did not change the HEI for the C4 management area. This may indicate too many open road miles exist and that closing additional roads may be needed to meet HEI standards. The Lower Mottet subwatershed was found to be within standards.

The primary factor causing loss of cover for big game on the Forest was related to insect activity. Monitoring Item 21 discusses the specific effects of insect and disease on the forest vegetation. The general results indicate that cover loss has subsided dramatically as pest levels have collapsed. The 1993 Monitoring Report described large areas on the southern districts that were cover deficient due to past harvest and spruce budworm activities. This condition has not changed, but it appears the situation has not deteriorated further.

Access and Travel Management Plans are now complete on all districts and implementation underway as funding allows. All districts selected alternatives which prescribe reduced open road densities. Monitoring Item 47 discusses the specific aspects of Access and Travel Management (ATM) implementation. The expectation is full implementation of ATM plans on the districts should help to raise big game habitat quality as measured by the Habitat Effectiveness Index (HEI) across the Forest. However, the effects on habitat changes in road densities resulting from the Access and Travel Management programs or specific projects were not reported this year.

Evaluation:

As stated in the first paragraph of this section, there are some major problems with the assumptions which link elk habitat effectiveness to elk populations. The Blue Mountains Elk Initiative has about completed the assembly of an Elk Vulnerability Model that is now in limited circulation for project level testing and analysis. Since humans (hunters) are the dominant mortality factor of adult elk populations on the Umatilla National Forest, intuitive logic would dictate that a model which interrelates habitat conditions with hunter effectiveness would more accurately predict population responses. As new tools such as this model along with research results from the Starkey Project become available, our understanding of elk responses to changes on the landscape will improve.

MONITORING ITEM 24: Old Growth Tree Habitat

Forest Goals, Desired Future Condition, and Outputs: Maintain the number, size, and distribution of old growth tree habitat to support viable populations of mature/old growth associated wildlife species, and to provide for diversity of vegetative conditions. Provide sufficient dedicated mature/old growth tree habitat to maintain no less than 149 pairs of pileated woodpeckers, 101 pairs of pine marten, and 53 pairs of northern three-toed woodpeckers.

Monitoring Question(s): 1. Are the dedicated old growth units suitable for pine marten, pileated and northern three-toed woodpecker habitat? Are the units being occupied/used by management indicator species as predicted? 2. Are the dedicated old growth habitat units identified as "capable" habitat progressing as predicated toward "suitable" old growth tree habitat? 3. Are the standards and guidelines (including the number, size, and spacing of units) being followed as required to meet habitat levels established for the management area? 4. Are sufficient numbers and diameter classes being left adjacent to the designated old growth habitat units as feeding habitat for pileated woodpeckers? 5. Are the dedicated old growth units being used by the indicator species, if they are suitable?

Threshold of Variability: 1. All designated sites meet the specifications identified in the Plan and the components that provide effective habitat fall below desired levels. 2. Estimated populations are more than 10 percent below the Plan objective for a 5-year period. 3. The inventoried old growth acreage remaining or the amount being converted in a 5-year period deviates from the planned amount by more than 10 percent.

Results/Findings:

Some old growth habitat monitoring was done on the Forest during 1994. Many of the old growth management areas (C1 and C2) have been examined in the past but only a small portion of the other inventoried old growth has been surveyed and habitat results reported.

The North Fork John Day Ranger District conducted the most extensive old growth tree habitat monitoring during the year. They inventoried the Camas Creek watershed in support of watershed analysis. Eighteen C1 units and 21 inventoried old growth stands and were surveyed for the presence of old growth associated wildlife species and to assess the stand condition. Randomly selected plots were used to determine type and size of trees, canopy layers and closures, and quantity of snags and down woody material in each stand. Each unit received a final score based on the relative health of the stand, quality of habitat. and size of units.

Review of the data indicated that half of the inventoried Camas C1 units were deficient in some aspect, either size (22%) or quality (28%). Because of many deficiencies, the other inventoried old growth did not provide much opportunity for substitution to an old growth management area. Most of the areas that were examined are of insufficient size. Most management areas (C1 units) were used by pileated, three-toed, or both woodpeckers.

Data was collected on approximately 453 trees (grand, Douglas-fir and subalpine) in the old growth units. The fir component in stands dominated by fir species was rated as mostly dead, a result of recent insect infestations. Mixed conifer stands were generally healthier with lower levels of fir mortality. Nearly 78 percent of the fir trees sampled were either dead or expected to be dead in 10 years. Ponderosa pine and western larch appeared to be healthy. The combination of dense fir and high tree mortality will likely provide canopy closure and forage for old growth dependent species in the short term. As the dead trees deteriorate through time, habitat suitability will be reduced (also see discussion under MI 26).

No formal old growth surveys were conducted on the other districts. Informal surveys of several units on Walla Walla and Pomeroy Ranger Districts indicated that indicators species were using the units. No feeding areas were surveyed during the year.

Evaluation:

Although the relationship of effects of management activities on old growth tree habitat and the associated species is understood, the effects associated with the insect and disease outbreak is at best speculative. Old growth habitat condition surveys should be conducted in other watersheds with a priority given to those which were heavily impacted by the outbreaks. Stands with high mortality currently providing old growth habitat should be mapped to gain a landscape perspective of future habitat availability.

In addition, data from surveys completed in the recent past needs to be analyzed.

MONITORING ITEM 25: Dead and/or Defective Tree Habitat

Forest Goals, Desired Future Condition, and Outputs: "Protect and maintain the number, size, and distribution of dead and/or defective trees (snags and logs) to meet habitat capability objectives . . ."

Monitoring Question(s): 1. 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? 2. Are sufficient numbers, size classes and distribution of green replacement trees and down logs being left following all management activities? 3. Are the management indicator species (primary cavity excavators) occupying the habitat as predicated and in the anticipated numbers? 4. Do current standards and guidelines meet the needs of the species?

Threshold of Variability: 1. More than 10 percent of the surveyed areas have less than 90 percent of the prescribed trees, snags, and logs present. 2. Expected primary cavity excavators are absent from more than 10 percent of the surveyed sites, or are 80 percent or less of predicted numbers.

Results/Findings:

During 1994, monitoring of dead and down tree habitat was more extensive than in 1993. All districts completed some field sampling of snag levels. Sampling techniques varied between districts based on the type of project implemented and the concerns addressed within differing projects.

Snags surveys were continued in 1994 on the Pomeroy Ranger District. These surveys consisted of one systematically located, one acre transect, with random starting point per 100 acres. Data from 536 transects was evaluated in 1994, representing 53,600 acres. Information collected included snag counts by size and decomposition stage as well as counts of down logs by decomposition class. Snag criteria was examined with respect to stratified combinations of any silvicultural disturbance, woodcutting activity, and plant association group. The evaluation concluded sufficient snags exist to meet 100 percent population requirements for all areas where adequate samples were taken. In some instances, outliers in the data and density may be skewed. Areas of disturbance from silvicultural prescriptions were generally deficient in survey transects and some combinations of activities and plant association groups had no transects occurring within them. Further analysis of the data is planned and specific areas will be identified for sub-sampling in 1995.

On the Walla Walla Ranger District, data collected on public wood cutting areas indicated an average of about 20 dead trees per acre of all size classes were present within 100 feet of the road. Retention of large snags (<18" dbh) was identified as a continuing problem.

The North Fork John Day Ranger District reinventoried two harvested helicopter units monitored in 1993 and 1994 to determine any loss of leave trees due to windthrow, etc. Findings revealed that no trees were lost.

The Heppner District accomplished two project level monitoring programs dealing with dead and/or defective tree habitat. As part of the Dry Swale/Ditch Salvage, monitoring losses of snags and wildlife trees through the various post sale activities was conducted to validate snag management prescriptions applied to the sale. Although the data has not been analyzed, units are estimated to be snag deficient. The data will be analyzed and reported in 1995 depending on budget and personnel limitations. A second monitoring effort dealt with the District's firewood areas and the effectiveness of the 16" diameter limit in preserving standing dead trees, greater than 20" dbh. Despite the imposition of a diameter limit, continued unauthorized cutting of larger material was observed. Most of the cutting occurred in the 16" - 20" diameter range. Rarely was removal of snags greater than 20" in diameter observed.

Monitoring was not conducted on the Forest in 1994 for snag use by cavity nesters using the Regional protocols. Reasons cited were lack of funding and personnel.

Evaluation:

In April of 1993, the Umatilla National Forest implemented a revised snag management policy that specifically addressed the need for retention of dead and/or defective tree habitat in salvage sale planning. Effectiveness monitoring of these implementation guidelines indicate that available dead and/or defective tree habitat at the current time may not be an issue as important as the retention of the future habitat. The impacts of the mortality associated with insect and disease outbreaks on the south end of the Forest may have its most significant negative effect on cavity nesters surfacing in about 20 years. The existing condition for these forested stands can be described as providing an overly abundant level of suitable habitat. Assuming normal deterioration rates on standing snags and assessing the heavy mortality within the understories of the forest means monitoring question number 2 needs to be a priority for the Forest during the next several years.

MONITORING ITEM 26: Pileated and Northern Three-toed Woodpecker Populations

Forest Goals, Desired Future Condition, and Outputs: Maintain sufficient mature/old growth tree habitat and adjacent feeding areas to provide for viable populations of pileated woodpeckers.

Monitoring Question(s): 1. Are pileated and three-toed woodpeckers using the provided C1 and C2 habitats and adjacent feeding areas as projected? 2. Are the "dedicated" old growth and "managed" old growth lodgepole pine concept providing suitable habitat, with snag sizes and distribution adequate to provide for viable populations of pileated and three-toed woodpeckers? 3. What are the trends in populations for each species?

Threshold of Variability: 1. Greater than a 10 percent variance from expectations in woodpecker occupancy, use, or production within a 5-year average. 2. The number of larger diameter dead lodgepole (over 12") is more than 10 percent below the objective in any given allocation zone at any point in time. 3. Populations are on a downward trend.

Results/Findings:

Systematic monitoring using Region 6 protocols for pileated and three-toed woodpeckers was not done on the Forest in 1994 due to funding and personnel limitations.

A few informal surveys were done on the Forest in 1994. On the North Fork John Day Ranger District, surveys were completed in order to determine species presence in conjunction with the Camas Creek Watershed Analysis. Recent foraging sign and audio (drumming and alarm calls) or visual sightings in old growth habitat were recorded. Evidence of foraging by pileated woodpeckers was noted in 20 of 34 surveyed stands and seen or heard in 20 stands (not always the same 20 where foraging was noted). Evidence of foraging by three-toed woodpeckers was very common (29 of 34 stands). Observations of black-backed woodpeckers were less frequent (9 observations), but several nest cavities were found.

The Pomeroy District began monitoring for pileated woodpeckers nests in the spring of 1994. One volunteer spent 5 days on the District, covering 320 miles of road without success in observing woodpeckers or locating nest sites.

Evaluation:

The Forest continues to expand efforts on this monitoring item to better address pileated populations and trends. Monitoring is needed to address the concern about the effectiveness of old growth management regime for meeting indicator species needs.

MONITORING ITEM 27: Pine Marten

Forest Goals, Desired Future Condition, and Outputs: Maintain viable populations of pine marten in the Forest.

Monitoring Question(s): 1. Are the dedicated old growth habitats, subalpine forest, and lodgepole pine areas suitable and utilized by pine marten as projected in the Plan? 2. Are the reproductive parameters and population demographics of pine marten indicative of a stable or improving habitat condition? Is the habitat providing for viable population of pine marten?

Threshold of Variability: 1. More than 20 percent of the identified pine marten habitat is unused within the expected distributional and use zones. 2. More than a 20 percent variance from accepted norms for reproductive parameters. More than 20 percent variance from anticipated distributions.

Results/Findings:

Monitoring for pine martin and other furbearer species continued in 1994 at a reduced level from 1993 due to reduced funding levels. Pomeroy, North Fork John Day, and Heppner Ranger Districts completed winter surveys. Techniques used included snowmobile survey routes and bait stations with motion activated cameras.

Results from the surveys show that no pine martin tracks were identified on the Forest in 1994. One pine martin was photographed at a bait station on the North Fork John Day Ranger District.

Evaluation:

The Forest knows no more about its pine martin population now than when it started its furbearer surveys in 1991. The current survey techniques being used do not adequately address the monitoring questions. New survey techniques are needed to deal with this issue.

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

Forest Goals, Desired Future Condition, Outputs: Protect, provide, and/or manage suitable habitat for the perpetuation and recovery of bald eagles, Snake River Chinook Salmon, and peregrine falcons. Participate in the re-establishment of four pairs of bald eagles, four pairs of peregrines in the Blue Mountain zone, and join in the multi-agency effort for the Snake River Chinook Salmon Recovery Plan, including any species listed in the future. Identify and manage any winter roosts sites for bald eagle or potential nest sites for peregrine falcon of bald eagles on National Forest lands. Identify and manage all winter feeding areas and food sources on Forest lands for use by bald eagles. Protect, provide, and/or maintain suitable habitat for all sensitive species occurring on the Forest.

Monitoring Question(s): Bald Eagles: 1. 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 Plan? 2. Are wintering populations stable or increasing? Peregrine Falcons: 3. Are nesting and associated foraging habitats being identified? 4. Are potential nest habitats identified and being managed to maintain suitability? Chinook Salmon: 5. Are terms and conditions as identified by NFMS being followed? Sensitive Species: 6. Are potential habitats being identified and/or protected to maintain identified species and to insure management standards are being met? 7. Are raptor nest sites being protected as outlined in the Forest Plan?

Threshold of Variability: 1. Any nest or roosting sites compromise as a result of Forest Service management activities. 2. Any delays in developing individual site management plans for reintroduction sites or for active nests. 3. Any T/E/S populations compromised as a result of Forest Service management activities.

Results/Findings:

Bald Eagles

Monitoring of wintering bald eagles along the North Fork John Day River continued. Actual numbers were down from 1993, but could reflect yearly fluctuations rather than a definite trend.

In May of 1994, the Heppner Ranger District discovered an active bald eagle nesting site near the North Fork John Day River. The District continued to monitor the site along with two young fledglings.

Peregrine Falcon

Heppner and North Fork John Day Ranger Districts continued annual aerial surveys in 1994 with no Peregrine Falcon aeries detected, although numerous Prairie Falcons were observed.

Chinook Salmon

The Forest has submitted consultation documents to the National Marine Fisheries Service for on-going activities in the Tucannon, Asotin, Wenaha, Lookingglass, Middle Grande Ronde, Upper Grande Ronde, and Wenatchee river basins. To date, the Forest has received only the Tucannon River (Pomeroy Ranger District) biological opinion (BO) from National Marine Fisheries Service. The terms and conditions identified by NFMS for the Tucannon River are being followed.

Sensitive Species

Wolverine - Snowmobile routes conducted for pine marten surveys were also used for the detection of wolverines on the Forest. No wolverines were detected. Prebles's Shrew - No monitoring was conducted in 1994. Goshawks - 9,500 acres were surveyed on the North Fork John Day Ranger District using Regional survey protocols. A nest was located and it successfully fledged one young. Ferruginous Hawks - No monitoring was done for this species in 1994. Townsend's big-eared bat - One survey was conducted in a proposed harvest unit on the North Fork John Day Ranger District. An echolocation detector was placed near a potential bat roost tree for one evening. No bats were detected and no droppings were located.

The current methodology for surveying sensitive species is through biological evaluations (BEs). The procedure to complete a BE requires a pre-field review of existing information, field reconnaissance of the project area, and an analysis of the potential direct and indirect and cumulative effects of the proposed project activity. Biological evaluations have been prepared on all districts for all proposed activities which may affect habitat for sensitive species.

Evaluation:

Continue monitoring to determine presence of species of concern and population/habitat trends for others.

F. DIVERSITY

MONITORING ITEM 29: Plant and Animal Diversity

Forest Goals, Desired Future Condition, and Outputs: Maintain native and desirable introduced or historic plant and animal species and communities. Provide all successional stages of terrestrial, aquatic, and edaphic plant associations in a distribution and abundance to assure species diversity and viability. A desired future condition is to establish the local needs of management indicator species, rate species, and the proportion of seral stages that allows for natural diversity. Continued long-term monitoring will be necessary to establish critical relationships and thresholds for the abundance of the various successional stages, their distribution, and specific species requirements for sensitive species.

Monitoring Question(s): 1. What is the present distribution and proportion of successional stages by plant associations? a) How do they compare to past distributions? b) What distribution and proportion is expected in the future? c) What are the long-term trends? d) Does the distribution, proportion, and absolute amount provide viable habitat for management indicator species, rare species, and biological diversity? 2. How has habitat capability been changed? 3. What is the present status of sensitive species? 4. What are the trends in overall species diversity on the Forest?

Threshold of Variability: There is no established thresholds for plant and animal diversity on the Forest. However, thresholds and requirements of individual management indicator species (pileated woodpeckers, pine martens, northern three-toed woodpeckers) have been established and will be monitored. Present proportions or acreages by successional stages can also be used to compare changes in plant diversity with the implementation of the Forest Plan. As monitoring activities accumulate information and data by individual planning basins (watersheds), trends in animal and plant diversity can be developed and evaluated.

Results/Findings:

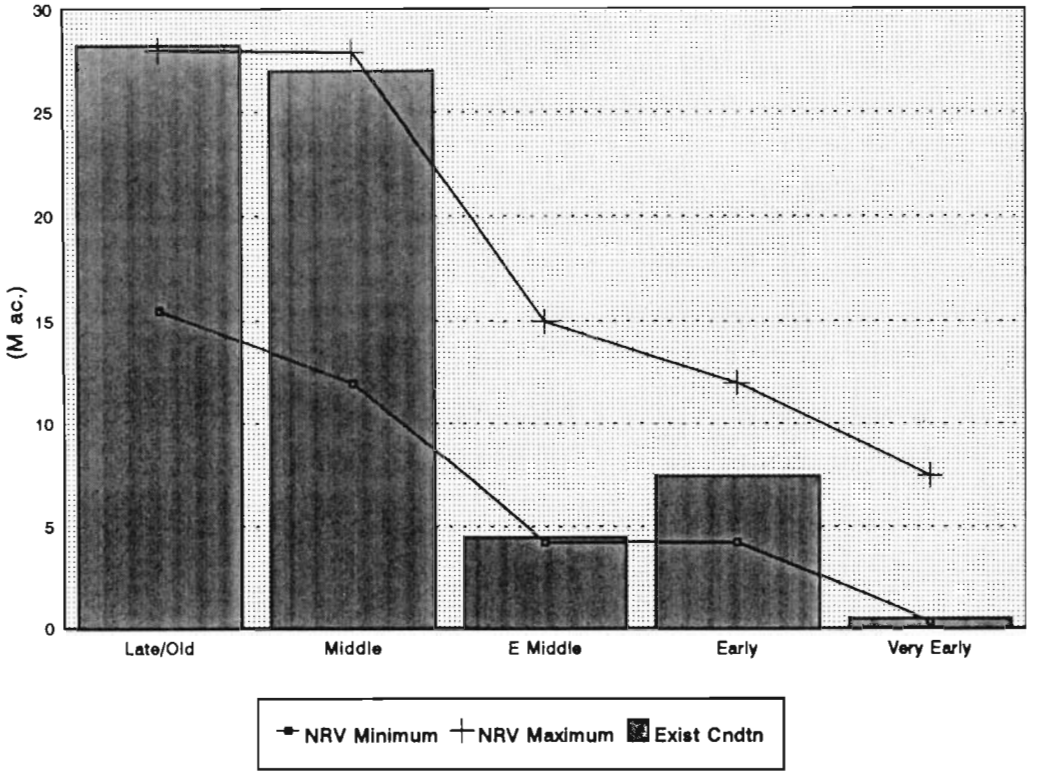
In 1994, a team of Forest specialists began a process of analyzing ecosystems at a watershed scale on the Forest to address issues involving forest sustainability, aquatic biodiversity/riparian resources, and terrestrial biodiversity. The Camas Ecosystem Analysis is the first to analyze changes in elements and processes in forest ecosystems. The Camas Analysis Area makes up approximately 10 percent of the total Umatilla National Forest acres (1.4 million acres). Although the information provided by Camas is very detailed and complex, only generalized information is being reported here.

Elements and processes within ecosystems are in constant change. In conditions unaffected by man, ecosystems maintain a Natural Range of Variability (NRV). Past management practices, fire suppression, and grazing prior to the 1930's have moved many elements and processes outside their NRV. Historically, the rate and scale of change has allowed native plant and animal species to gradually adapt to new conditions. Over the past 100-150 years, environmental change has accelerated due primarily to modern man's activities.

Changes in Plant Association Group (PAG) composition and structure were assessed for seven watersheds with the Camas drainage. Figures O, P, and Q show the comparison of Existing Conditions (EC), 1937 Conditions, and NRV, by PAG and Structural Stage for National Forest lands within Camas Analysis Area (not known elsewhere on the Umatilla National Forest). Some structural classes fall within the NRV but are at the extremes of the range. Because NRV is an estimate for predicting forest vegetation sustainability, concern arises when existing conditions fall at the extremes of the NRV even if they're within this broad reference range. The interim objective would be to manage structural stages toward the middle of the NRV and not assume existing conditions at the extremes of the range will assure the likelihood of sustainable forest vegetation.

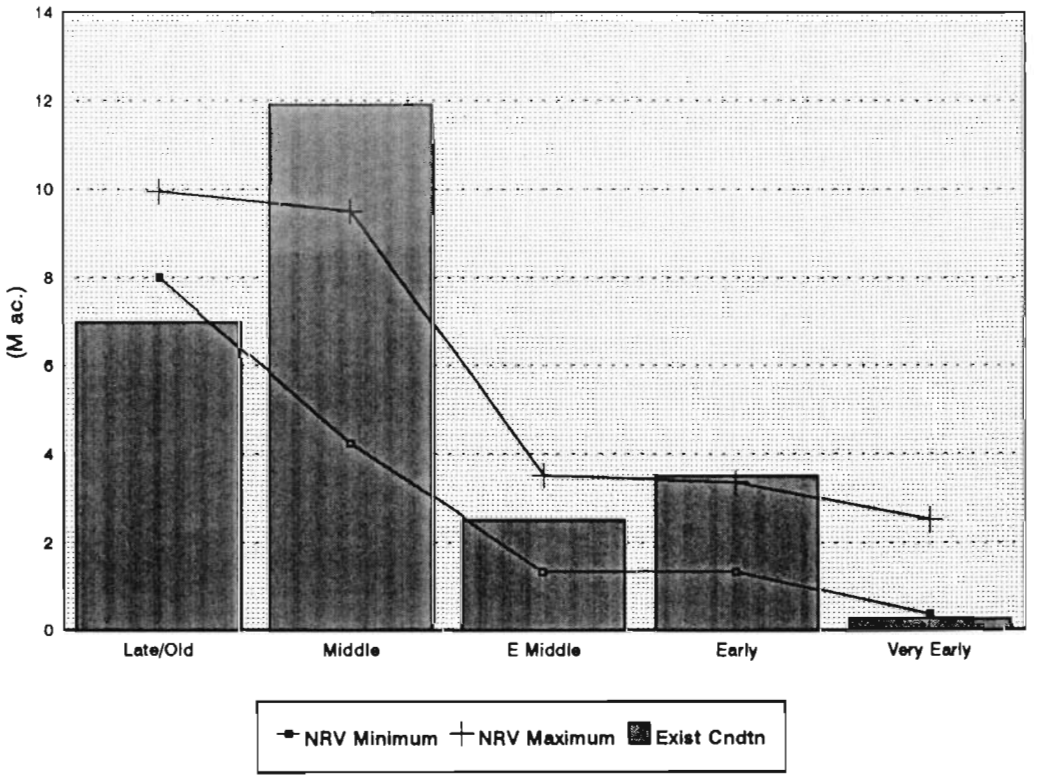
Upper Camas (Figure O), structural stage composition for late/old and middle structural stages are at the high end of expected NRV. However, many of these acres have been heavily defoliated by spruce budworm, have concentrations of other insects and disease, or have an unsustainable overstory species mix. Some salvage may be appropriate to help sustain or develop mid and late structural stages.

Figure O
UPPER CAMAS NRV VS. EXISTING CONDITION
Umatilla National Forest



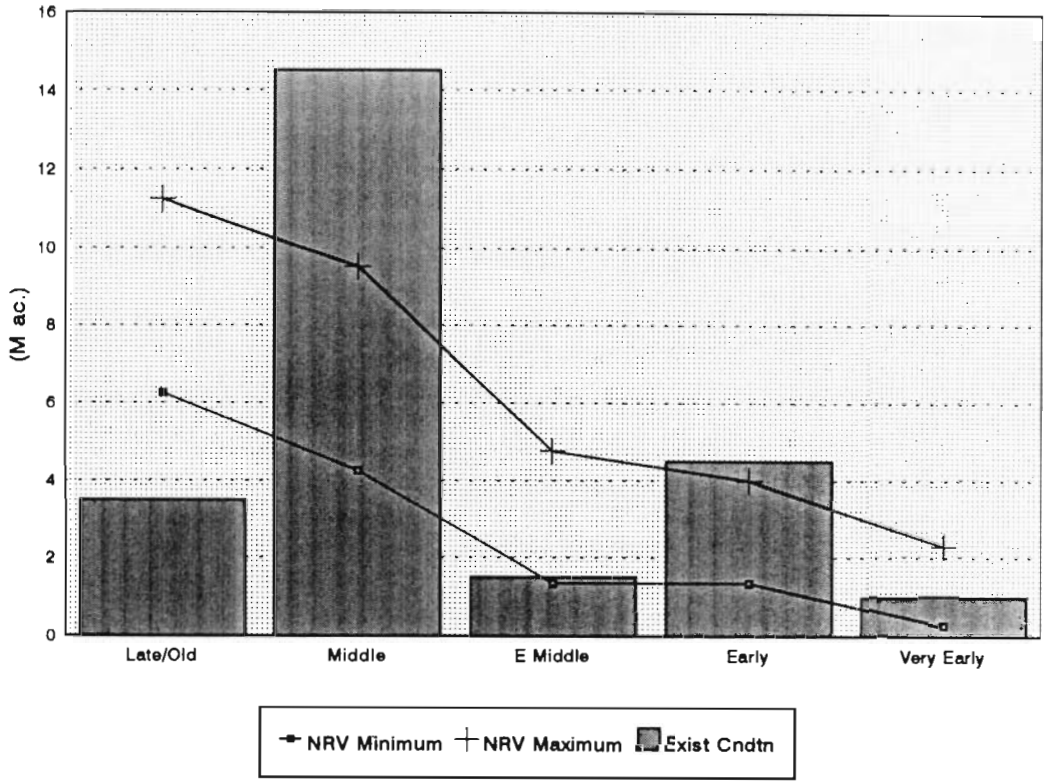
Middle Camas (Figure P), the middle structural stage exceeds the high range of expected values, while the late/old structural class is currently deficient. Some management activities may help to develop appropriate levels of late old structure in this case.

Figure P
MID CAMAS NRV VS. EXISTING CONDITION
Umatilla National Forest



Fivemile (Figure Q), late/old structure is much lower than the expected range, reflecting the loss of old growth ponderosa pine that once dominated this part of the drainage. The middle structural stage is above the range of expected values.

Figure Q
FIVEMILE NRV VS. EXISTING CONDITION
Umatilla National Forest



Changes within the last century (for selected species of concern) to vertebrate habitat have been significant within the Camas Ecosystem Analysis Area. Less old growth habitat is currently available for dependent species such as the pileated woodpecker, American marten, bald eagle and goshawk than was available in 1937. Based on comparison of 1937 and existing condition maps, habitat for pileated woodpeckers, northern three-toed woodpeckers, and goshawks has declined as much as 50 percent in less than 60 years. Table II-17 shows the changes in habitat availability within the Camas drainage from 1937 to 1994 (includes National Forest).

Table II-17
CHANGES IN HABITAT AVAILABILITY
Species of Concern - Old Growth
Umatilla National Forest

Species	1937 Acres	1994 Acres	Change Acres	% Change
Pileated Woodpecker	54,412	19,436	34,318	-63
American Marten	21,414	18,286	3,128	-14
Northern Three-toed Woodpecker	71,470	15,482	55,988	-78
Primary Cavity Excavators	111,698	74,398	37,300	-33
Northern Goshawk	73,856	25,136	48,720	-65

Plants:

The ecological distributions and habitat affinities of species within the plant association groups selected for the Camas Analysis Area are displayed in Table II-18. If species common to both steppe and riverine groups are merged to obtain a "Meadowland" group, 182 species occur in this group and its Floristic Biodiversity Index is 28 percent. This portion of the analysis indicates that the greatest floristic richness in the Camas Ecosystem Analysis Area is within the non-forested, steppe, and riparian plant association groups.

Table II-18
PLANT SPECIES BY PLANT ASSOCIATION GROUPS
Umatilla National Forest

PAG	Number Species Associated with PAG	Floristic Biodiversity Index (%)[1]
Ponderosa Pine	314	49
Warm Grand Fir	325	51
Cool Grand Fir	269	42
Lodgepole Pine	222	35
Subalpine Fir	264	41
Steppe[2]	375	59
Riverine[3]	422	66
Meadowland	182	28
All Groups	640	100

[1] % of all species found within Camas Ecosystem Area associated with PAG.
[2] Shrub, grassland, and scab flat areas.
[3] Riparian areas.

Coefficients of floristic similarity were obtained by querying the Camas Watershed Floristic Biodiversity Matrix for common species between any two plant association groups. Results show the greatest similarity in floristic composition occurs between the ponderosa pine (PIPO) and warm grand fir PAGs. Ninety-one percent of the plants found in the PIPO PAG are also found in the warm grand fir PAG. Another similarity having a relatively high value is PICO:ABLA2 (Lodgepole pine:Subapline fir), which accounts for 77 percent.

Table II-19
FLORISTIC BIODIVERSITY OF VASCULAR PLANT SPECIES
Umatilla National Forest

District	Heppner	North Fork John Day	Walla Walla	Pomeroy
No. of Native Vascular Plant Species Known	732	780	751	684
Percent of District Species Native to North America	86%	88%	86%	84%

Although Table II-19 indicates that all districts support approximately the same percentage of native plant species, it does not accurately display the land-base area occupied by non-native species, including noxious weeds. This table provides some baseline information for determining floristic biodiversity of vascular plant species across the entire Forest.

Evaluation:

Currently, the Forest is continuing ecosystem analysis on several key watersheds. Information obtained from watershed analysis and results from ICBEMP will enhance the Forests ability to address this monitoring item in greater detail in the future. Continue monitoring.

III. RESOURCES AND SERVICES TO PEOPLE

A. FOREST PLAN IMPLEMENTATION

MONITORING ITEM 30: Management Areas/Standards and Guidelines

Forest Goals, Desired Future Condition, and Outputs: The future condition of the Forest will reflect the results achieved through implementation of the Forest Plan in meeting management goals and objectives. The Forest will continue its fundamental stewardship role in multiple use management by providing a balanced variety of natural resource based products and services to the public. The Umatilla will continue to feature a mosaic of large grasslands and forested areas containing elements of both the natural and human influenced forest conditions. A diversity of recreation opportunities in a variety of forest settings will continue to be provided.

Monitoring Question(s): 1. Are project plans and their implementation consistent with the intent of Forest Plan management area direction (standards and guidelines)? 2. Are the management areas, through project implementation, bringing about the desired future condition on those areas of land where they are applied? 3. Are Forest Plan standards and guidelines being implemented as designed? 4. Do the Forest Plan standards and guidelines achieve the stated goals, objectives, and DFC's of the Plan?

Threshold of Variability: Noncompliance or (identified needs for) changes to the management areas and associated standards and guidelines.

Results/Findings:

The number of NEPA documents prepared on the Forest continued to decrease in FY 1994. Only two environmental assessments were prepared, one for a Wild and Scenic River management plan and the other for an off-highway vehicle complex. Only small (less than 1 mmbf each) timber sale analysis were prepared and all were documented with categorical exclusions (see Monitoring Item 57). The number of active timber sales has also declined as sold sales were harvested and closed. With the reductions in activities, a parallel reduction occurred in the number of projects monitored during 1994.

Several projects were reviewed on the Forest to verify if project plans and their implementation were consistent with the Forest Plan. Findings from Heppner and Pomeroy Ranger Districts show in most cases Forest management area direction and standards and guidelines are being met. In addition, a formal monitoring review of the Umatilla's reforestation program was conducted in FY 1994 to evaluate if the Forest Plan standards and guidelines for reforestation were met.

The Wilson Timber Sale was one of the first sales on the Heppner Ranger District implemented under the direction of the Forest Plan. The project was originally planned in 1984. An EA supplement was prepared in 1991 with the intent of bringing the sale into compliance with Forest Plan standards and guidelines. All harvest units in the sale are within Management Area E1, which has a timber and forage production emphasis. Most of the harvest units are upstream of some of the District's most important fish and riparian resources in and along Wilson and Wall creeks.

During the course of many monitoring reviews on this sale, concerns were expressed that even rigid adherence to the EA Supplement might not fully meet the intent of the standards and guidelines. It was the consensus of most of the personnel reviewing the sale that greater emphasis should have been given during the planning and layout of the sale to the protection of Class III and Class IV streams. The Forest-wide Standards and Guidelines for fish habitat requires that 80 percent surface shade be left along Class III streams to prevent water temperature increases. Post logging monitoring indicated that even where buffers were left along some Class III streams, the surface shade had been reduced well below 80 percent. Monitoring and feedback since that time has shown the need for greater protection of Class III and IV streams. More recent timber sales have included no-cut buffers along Class III and IV streams that will retain virtually all existing shade. Future timber sales planned on the District are expected to be fully consistent with Forest Plan management area standards and guidelines.

The biologist's report for the EA Supplement in 1991 recommended that several stream reaches be changed from Management Area E1 (Timber and Forage) to Management Area C5 (Riparian/Fish Habitat). The "normal" procedure is to adjust the Forest Plan through site specific Plan amendments. However, no action was taken at that time to make the appropriate changes. During field reviews in 1994, biologists identified additional areas to be changed from E1 to C5. This information is being included in the Wall Creek watershed analysis which is expected to be completed in 1995. The Wall Creek watershed analysis will take a comprehensive look at riparian area designations and will recommend changes in management area designations, as appropriate. The Forest Plan amendment procedure may also need review to insure that needed adjustments are not overlooked.

During the road construction and reconstruction phase of the Wilson sale area, a small section road was constructed in a wet area. This wet area twice contributed to the road's failure, twice. In both cases a section of the road broke off and slid down towards Wilson Creek. In the first incident it is unclear if the slide actually reached Wilson Creek since it occurred during the winter months which made it difficult to monitor. After the slide occurred, the road was reconstructed; however, the contractor responsible for correcting the problem did not use appropriate reconstruction techniques which led to the road sliding out again. In this instance, the slide did not reach Wilson Creek. Eventually, the problem was mitigated with the correct design, proper implementation, and appropriate materials. The field review revealed the importance of recognizing potential problems in the field and in designing, locating, and using the correct procedures in executing road projects.

Some units were not implemented consistently with the project plan. The turnover in personnel and lack of documentation during the sale layout made it difficult, if not impossible, to determine what exactly happened when problems occurred. The inconsistencies appear to have come from several circumstances: Stream classifications were not well understood by many in 1991. This was exacerbated by the fact that the Wilson Timber Sale was laid out near the end of a 7-year drought which could have caused mistakes in identifying stream classes. There appear to have been differing expectations and interpretations of what was intended in the EA Supplement. Pressures to complete other projects hindered District specialists from doing a thorough job of monitoring project layout. In response to findings, the District initiated a process of preparing a project implementation plan to specify how (intent) the project EA or EIS decision is to be carried out and to provide a mechanism to track what was done during project implementation.

Other standards and guidelines monitored and findings on the Wilson Timber Sale were:

a. Management of big game habitat was designed through the EA Supplement to be consistent with standards and guidelines. Field reviews indicate that the big game habitat management was consistent with the EA Supplement.

b. The number of snags, wildlife trees, and down woody material met or exceeded the numbers recommended in the EA Supplement.

c. Visual quality objectives appear to have been met through the silvicultural prescriptions and unit layout.

d. Compliance with silvicultural prescriptions was good, both in even-aged and uneven-aged management units.

In summary, the implementation monitoring results from the Wilson Timber Sale brought out several key points. Monitoring occurs at many key junctures in the life of a project. This provides a number of opportunities to identify and correct problems. Problems can be corrected or avoided more efficiently and with greater probability of success if they are found early in the process (during planning and layout) rather than later (after the contract has been awarded). Despite some problems, the monitoring and corrective actions taken allowed completion of the timber sale in a way that reflects good land stewardship and adherence to Forest Plan standards and guidelines. The long life spans of timber sales and the frequent turnover of personnel add further emphasis to the need for careful documentation and monitoring throughout the life of the project.

The Pomeroy District reviewed three timber sales (Huck Butte, Driveway, and West Patit) using the Forest Plan Implementation Checklist and the Terms and Conditions from National Marine Fisheries Service (NMFS) Biological Opinion. The following items were monitored:

- Eight units of the Huck Butte sale and ten units of the West Patit sale were reviewed to verify the number of snags (both soft and hard) left. Findings revealed that all non-hazard snags were left on the Huck Butte sale, and approximately half were taken on the West Patit sale. The West Patit sale is a Tree Measurement Sale which means the volume taken was paid for by the purchaser. All sales with units in C3 Big Game Winter Range adhered to the requirements and intent of the Management Area.

- Best Management Practices (BMPs) were reviewed in all C5 Riparian and Fish Habitat areas. BMPs were being implemented as prescribed in the EA's and sale contracts. After discussions with Forest and District fisheries biologists during the summer of 1994, changes were made in road closure and treatment practices using updated technologies and methods. The changes were also made in response to consultation with NMFS.

- Additional changes were made in the logging plans for Huck Butte and West Patit sales. Skid trail locations were changed to avoid Class IV channels and cross swales only when necessary. Post harvest monitoring indicated that in some cases the additional landings and skid trails necessitated by these changes caused more disturbance than the original plan. On Huck Butte sale, documentation showed the timber sale administrator had consulted with the District Fisheries Biologist and Hydrologist to determine where debris cleanout was necessary.

Monitoring verified that no operations occurred in designated flood plains, riparian areas, or aquatic habitats. Operations that removed trees from swales and Class IV channel areas were limited to only that which were necessary and permitted. Roads were maintained to the standards stated in the sale contracts and EAs.

In FY 1994, a monitoring effort was undertaken by the Forest to evaluate whether the Forest-wide Standards and Guidelines for reforestation were being met. Two separate activities within the reforestation program were reviewed:

- Ranger District records, data bases, and other record-keeping processes were reviewed.

- A random sample of 16 harvest units were examined in the field to determine whether minimum stocking and other standards from the Forest Plan were being met. Seventy-five percent of the plots were located on the south half of the Forest in response to concerns about possible lower reforestation success.

The following are the conclusions from the monitoring review:

1. Silvicultural Prescriptions. All silvicultural prescriptions were prepared or approved by a certified silviculturalist. Prescriptions met the intent of the Forest Plan but did not specifically address all the required elements identified in the Forest Plan.

   A noted concern was that little or no monitoring of prescriptions occurred after they were approved. In some cases, prescriptions appear to have been written or completed after the Decision Notice was signed.

2. Reforestation Examinations. All Districts met the Forest Plan staked-tree survey requirements for the first and third growing seasons. The Districts were unable to locate the stakes for the fifth year survey. Minor differences in staked rows allocations reflect local needs.

   Plantation exam procedures (intensity, plot size and information collected) vary between Districts.

3. Reforestation Data Bases. Tracking mechanisms also vary between Districts. All the Districts continue to use the reforestation TRI cards. However, the information tracked on reforestation TRI cards varies. North Fork John Day begins recording information on the TSI cards once the unit is "certified" while the other Districts record information on the Reforestation TRI cards when the unit is "established".

   The Districts use a varied mix of paper-based data, spreadsheets (Excel), and electronic data bases (DG, Paradox, and R-Base). Although the data tracked varies, all of the Districts track cultural practices, dates, and stocking levels.

4. Corporate Data Base Needs. All of the Districts would like more support from the Forest to achieve a corporate data base. Some common themes are the data base must be user-friendly, meet upward reporting need, and provide useful information for project level work. A concern is that District work is not currently supported by existing corporate reporting and that proposed changes are not happening.

The following conclusions were derived from the field review and random sampling of 16 harvest units:

- Minimum stocking standards are being achieved; 15 of 16 stands met these standards.

- Eighty-eight percent of the sampled stands had their site preparation treatments completed within 2 years of timber harvest.

- Eighty-seven percent of the sampled stand were planted within 1 year of site preparation.

- Eighty-one percent of the sampled stands have 50 percent or more of their tree composition consisting of early successional species.

- Seventy-five percent of the sampled stands have a diverse tree composition, which the Forest Plan defines as no more than 80 percent of stand composition consisting of a single species.

All of the above findings indicates that existing Forest Plan standards and guidelines are attainable, and that they are compatible with the actual practice or current range of reforestation practices being used on the Forest. The results of this monitoring effort indicates that there are apparently no major problems with the reforestation program.

Evaluation:

The Forest completed only limited on-the-ground monitoring related to management areas and standards and guidelines this FY. This reduction corresponds to the reduction in NEPA analysis and timber harvest that occurred in FY 1994. With this limited activity, the monitoring question about meeting the intent of management area direction through implementation of projects cannot be effectively evaluated.

The Forest recognizes that changes will have to be made to the Forest Plan to respond to new issues and new information. Changes in old growth networks, elk habitat relationships, riparian allocations and management, water quality and fisheries guidelines are all likely. Major adjustments to the Forest Plan will be made through the Interior Columbia Basin Ecosystem Management Project's Eastside EIS, which will be completed in FY 1996.

Interim adjustments are being made through non-significant Forest Plan amendments. In May, 1994 the Regional Forester signed an EA which amended the Forest Plans on nine Eastside National Forests. The Umatilla will follow the updated direction provided in the amendment (and others as they are developed) until the Eastside EIS is completed.

In the interim, monitoring should focus on the planning and implementation of individual projects. Are these project plans meeting Forest Plan standards and guidelines (including those in the interim Forest Plan amendments), and are they consistent with the intent of management area direction? Questions addressing progress toward meeting Forest Plan Desired Future Conditions should be deferred until the Eastside Strategy provides the information necessary to re-define these objectives.

B. RECREATION

MONITORING ITEM 31: Primitive/Semi-Primitive Recreation and Roadless Areas

Forest Goals, Desired Future Condition, and Outputs: Nearly 30 percent of the Forest remains available in an unroaded status to provide smi-primitive and primitive opportunities (DFC). The Forest will continue to meet demand for primitive and semi-primitive opportunities found in wildernesses, unroaded, and other areas (50 yr. DFC).

Monitoring Question(s): 1. Are the identified roadless areas or parts thereof managed as the Forest Plan allocated or prescribed? 2. Are the primitive and semi-primitive recreation opportunities available as shown in the Plan?

Threshold of Variability: Greater than 10 percent of management area acres (of primitive/semi-primitive recreation opportunity) not in compliance with Forest Plan direction.

Results/Findings:

All 22 roadless areas continue to be managed in accordance with the Forest Plan. During 1994, no harvest activities occurred in any of the roadless areas. As described in the 1993 Monitoring Report, approximately 92 acres of planned harvest from the Teal Timber Sale are within the Upper Tucannon Roadless Area. But to date, none of the units have been harvested in this area.

In 1994, the Forest provided forest users with primitive (wilderness areas) and semi-primitive opportunities in all roadless areas as described in the Forest Plan (see Table III-1 for use of undeveloped areas). However, a concern was expressed about the Chase-Spangler Trail Network EA, that an ATV trail would adversely affect the roadless character. This concern was corrected with design and location to offset any adverse visual appearance.

Evaluation:

Recommendation is to continue monitoring.

MONITORING ITEM 32: Recreation – Off Highway Vehicle Use (OHV)

Forest Goals, Desired Future Condition, and Outputs: "Manage for a broad spectrum of recreation opportunities and experiences . . . roads, trails, and facilities needed to accomplish land and resource management . . . objectives . . . road closures will respond to elk habitat requirements, dispersed recreation needs, and soil, water, and economic criteria. Conflicts between OHV use and big game and other recreation users will require some adjustments in OHV use . . . Priority will be on preventing conflict among users."

Monitoring Question(s): 1. What areas and facilities are available for off highway vehicle (OHV)? 2. How much and where is OHV use occurring? How well are access and travel management plans working for OHV's? 3. How are OHV use(s) affecting other Forest resources? 4. How much conflict between recreation users is occurring? Where?

Threshold of Variability: 1. Less than 100,000 acres of semi-primitive motorized recreation opportunity spectrum. 2. Resource effects which are beyond limits of acceptable change or judged to be unacceptable. 3. User conflicts which are recurrent. 4. Safety hazards which pose threat greater than appropriate for recreation opportunity spectrum objectives.

Results/Findings:

The availability of areas and facilities for off highway vehicle use varies between each of the districts. The following is the most current information as of FY 1994:

- The Pomeroy district provides 26.9 miles (trails/roads) to OHV use under their 1993 MATM Plan.
- Based on the MATM plan, the Walla Walla Ranger District has 123 miles of trails and about 500 miles of "restricted" roads on which various classes of OHV can travel. Cross country travel is limited to within 300 feet of a road.
- The North Fork John Day District is providing 100 miles of trails specifically designated for OHV use within the Winom-Frazier OHV Complex with an additional 22-mile expansion identified under the Camas OHV Environmental Assessment (currently under appeal). An additional 27 miles of OHV trails are located throughout the District.
- The Heppner Ranger District currently has no facilities available for OHV users. The area west of Forest Road 22 is available for cross-country travel. East of Road 22, travel is restricted to designated routes only. At the present time only one route has been designated.

The North Fork John Day Ranger District has initiated a monitoring program for OHVs. They have installed four trail counters to monitor use levels and started a program of compliance checks and OHV decibel monitoring. No results or findings were available for this report. General observations on the Heppner Ranger District indicates OHV use is minor to moderate. Other observations made by the remaining districts indicate OHV use is occurring off designated trails or roadways, but the extent is not known. Since quantifiable information is unavailable, monitoring of OHV use is not adequately addressed and current use largely unknown.

General observation regarding resource damage across the Forest suggests that impacts vary from limited to minor. In some areas, erosion and increased sedimentation has occurred. Conflicts between recreationists are also relatively unknown since most information is not formally reported. However, field contacts and visitor registration forms at trailhead and campgrounds tend to indicate very little conflict between recreation users at this time.

Evaluation:

The Forest currently lacks monitoring protocols and priority to effectively track the amount of OHV use, resource impacts, and recreation conflicts. Systematic and formal monitoring is required to determine the effectiveness of MATM plans and management.

MONITORING ITEM 33: Recreation — Developed Sites

Forest Goals, Desired Future Condition, and Outputs: "Manage for a broad spectrum of recreation opportunities and experiences on the Umatilla National Forest . . . Winter sports, growing in popularity, will be accommodated . . ."

Monitoring Question(s): 1. How much use and what occupancy rate is occurring at each recreation site? 2. How much overnight camping capacity is available at Forest campgrounds managed at different development Levels 1 through 5? 3. Are recreation sites adequate to meet demand and to provide customer satisfaction?

Threshold of Variability: 1. Greater than 60 percent occupancy rate at any site for three consecutive years. 2. Frequent or recurring customer complaints at given recreation sites. 3. Significant damage to site facilities and environment due to heavy use.

Results/Findings:

In 1994, the Forest's total reported use was 1,004,224 Recreation Visitor Days (RVDs), down approximately 10 percent from 1993. Approximately 229,910 RVDs occurred at the Forest's developed sites. Campground and occupancy rate for the Forest varies from a low of 21 percent to a high of 97 percent (occupancy rate vary throughout the year and from site to site and during peak recreation use periods such as hunting season). Penland Lake, Bull Prairie, North Fork John Day River, Olive Lake, Umatilla Forks, Jubilee Lake, Tucannon, and Teal Spring occupancy rates are at or approaching levels which warrent expansion or improvement (above threshold). Table III-1 shows the approximate total number of visitor days at various sites or locations on the Forest in 1994.

Table III-1
RECREATION VISITOR DAYS - 1994
Umatilla National Forest

Site or Area	Heppner	North Fork John Day	Pomeroy	Walla Walla	Forest Total
General Undeveloped	166,981	75,198	120,032	206,948	517,107
Wilderness	0	10,713	86,855	4,634	102,202
W&S River S.A.	0	10,178	NA	14,421	24,599
Trailhead	—	13,678	35,510	—	49,188
Subtotal Undeveloped	166,981	122,300	254,030	231,002	774,313
Campgrounds	34,340	30,281	29,362	42,605	136,588
Rec. Residences	0	2,698	11,880	23,275	37,853
Ski Areas	0	0	0	55,270	55,270
Interpretive Site	—	122	—	78	200
Subtotal Developed Sites	34,340	33,101	41,242	121,228	229,911
Total RVD	201,321	155,401	295,272	352,230	1,004,224

The Forest continues to provide a broad spectrum of recreation sites for outdoor activities. Campsite development scales range from minimal facilities (outhouse, no potable water, dusty roads and a few picnic tables and fire rings) to highly modified campgrounds with flush toilets, paved parking spurs, etc. Hookups for RVs are not provided. The largest capacity is on the lower end of the development scale. Limited funding is available for operation, maintenance, and improvement of the sites. Consequently, all sites are operated at a reduced service level, and substandard facilities are evident. Many people appreciate the remote, rustic settings, basically free from crime and other threats with minimal preventative measures.

An "Accessible Recreation Transaction Plan and Survey was completed to determine what work will be necessary to bring the sites into compliance with the Americans with Disabilities Act standards. The survey identified a need of $895,455 to provide minimum accessibility at all sites, or $1,455,370 to provide maximum accessibility. Several fully accessible vault toilets have been installed at various sites around the Forest.

Evaluation:

For several years, the Forest has reported use at certain sites exceeding thresholds and some facilities are substandard. Further evaluation is needed to determine if sites and facilities can continue to meet the needs within limited budgets or if program changes are required.

MONITORING ITEM 34: Wild and Scenic Rivers

Forest Goals, Desired Future Condition, and Outputs: Maintain, protect, and enhance Wild and Scenic Rivers condition and values.

Monitoring Question(s): 1. Have the free-flowing characteristics of eligible/suitable and designated rivers been protected and enhanced consistent with the Forest Plan standards and guidelines? 2. Are the identified river values being protected and/or enhanced to the extent practicable for all designated rivers (according to management plans or Forest Plan S&G's) and potential classification maintained for all eligible/suitable rivers?

Threshold of Variability: Exceeding River Management Plan or Forest Plan standards and guidelines. Modification exceeding the eligibility or current classification.

Results/Findings:

Wild and Scenic River Determination of Eligibility Reports for 14 streams are currently being written by the Forest. Much of the field examination has been completed and documented.

In 1994, the North Fork John Day Ranger District implemented a Corridor Restoration Project. The project improved soil conditions in developed and dispersed recreation sites along the North Fork John Day River. The project met all compliance requirements as outlined in the North Fork John Day Wild and Scenic River Management Plan.

In December of 1993, the Wallowa and Grande Ronde Rivers Final Management Plan/Environmental Assessment was approved by the following agencies: U. S. Department of Interior Bureau of Land Management, Vale District Baker Resource Area; U. S. Department of Agriculture Forest Service, Wallowa-Whitman and Umatilla National Forests; Washington State Shoreline Program, Asotin County; and Oregon State Parks and Recreation Department, Scenic Waterways Program. The Bureau of Land Management is the lead agency for conducting monitoring of the Wallowa and Grande Ronde Rivers. Monitoring efforts did occur in 1994; however, the Forest was unable to obtain any results for this report.

Evaluation:

The Forest is currently maintaining the free-flowing characteristics of eligible/suitable and designated rivers as outlined in the Forest Plan and the Wild and Scenic River Management Plans. The Districts have followed the rules and regulations for interim management of Study Rivers. The free-flowing characteristics identified for determining eligibility have not been modified; all outstanding remarkable values (as initially identified) have been protected, no management activities have taken place in the river corridor which would affect the eligibility or classifications.

Wild and Scenic River monitoring in 1994 was limited in scope. Future monitoring information needs to be sufficient to fully address this monitoring item.

C. VISUAL

MONITORING ITEM 35: Existing Visual Condition

Forest Goals, Desired Future Condition, and Outputs: Manage the Forest to provide pleasing settings emphasizing a natural to slightly altered appearance, often using vegetation management practices. Many management areas will remain substantially unchanged, except for subtle vegetational changes.

Monitoring Question(s): 1. Are visual quality objectives being met during project execution for the various management areas? Are the areas of retention/partial retention VQO being maintained? 2. What are the effects of land use and management activities on the visual resources? 3. Are location, shape, and size of timber regeneration units meeting Forest Plan standards and guidelines?

Threshold of Variability: 1. Greater than 10 percent of the analysis area not in compliance with VQO. 2. Less than 350,000 acres of the Forest meets Retention or Partial Retention VQO.

Results/Findings:

A Forest Plan management intent is to meet visual quality objectives (VQOs) for various management areas through design and project execution. Several districts conducted post project monitoring reviews to test project VQO results.

At Heppner, monitoring conducted after project implementation has indicated visual quality objectives, for the most part, are being met. Two implementation monitoring checklists were completed, one for the Tupper Timber Sale and the second for the Bull Prairie Campground Hazard Tree Salvage. On the Tupper Timber Sale, visual objectives were "exceeded" based on expectations. The selected project alternative required tree transplanting within the foreground to maintain visual quality objectives. However, post project monitoring indicated mitigation measures were not needed to meet objectives. Observations indicated that little or no evidence of logging occurred. Only the relocation of trail signs to be more visible to the public was needed.

Post implementation monitoring of the Bull Prairie Campground Hazard Tree Salvage Sale, found visual quality objectives were negated. Observations showed that slash was piled within 10 feet of a trail and in many instances piles were large. When burned, piles of large, charred material remained and circles of burned ground were visible from the trail. In one case, a slash pile was located under a cluster of trees. When the pile was burned, the fire damaged the trees. In some areas along the trail, stumps were visible from across the lake. Findings revealed that modified logging standards to meet visual objectives, as outlined in the Decision Memo, were not followed.

The Pomeroy District conducted on-the-ground monitoring of visual resources for the Huck Butte Timber Sale, which was logged in 1994. The project was designed to harvest roadside timber while meeting visual quality objectives of partial retention in the foreground and modification in the middleground. Monitoring results revealed that harvest units were implemented as designed and were successful in meeting visual quality objectives. The sale area is along Forest Road 40 in an A4 Management Area. The Powell Wood Timber Sale, consisted of 11 acres, also located along Forest Road 40, and was planned to enhance the visual quality near the road. The project was designed to remove wind-thrown and partially tipped-over trees in the foreground of the viewshed. The sale will be harvested in 1995 and monitored to verify if visual objectives were met as designed.

Restoration of Oregon State Highway 204 viewshed within the Walla Walla Ranger District was completed with tree planting in the blowdown area. (A windstorm several years ago impacted portions of Oregon State Highway 204 Viewshed which resulted in large number of blown-down trees).

Evaluation:

Three on-the-ground reviews of projects conducted on two districts indicated that standards are generally met for visual quality in sensitive areas. Some implementation problems were also identified.

No VQOs or viewshed corridor plans were revised or developed in 1994. The Forest still needs to complete viewshed management plans, particularly for key areas where spruce budworm has had an effect.

D. WILDERNESS

MONITORING ITEM 36: Wilderness – Nonconforming Uses

Forest Goals, Desired Future Condition, and Outputs: ". . . measures to increase the amount of primitive recreation opportunity to desired levels . . ."

Monitoring Question(s): 1. Is the location, kind and amount of nonconforming uses acceptable and are wilderness standards being met? 2. What is the effect of grazing by wild and domestic animals? What is the effect of mining on the wilderness resource? 3. Are the effects of prior existing rights (mining, grazing, water rights, etc) minimized?

Threshold of Variability: 1. Refer to LAC standards and guidelines for each wilderness. 2. Any increase of nonconforming uses.

Results/Findings:

In Fiscal Year 1994, numerous monitoring trips were made into the Wenaha-Tucannon Wilderness. In general, findings indicate that non-conforming uses in this wilderness remain unacceptable. Although progress has been made, significant problems still exist. Monitoring results document the following nonconforming and unacceptable wilderness uses: chain saw use, garbage, building of structures, mountain bike use, and snowmobile use. The most cited nonconforming use was the storing of camp caches and garbage. Caches were removed from 13 sites. Two of the caches contained an estimated 10 loads of garbage.

In September 1994, a monitoring trip was made from Crooked Creek to Trapper Creek in the Wenaha-Tucannon Wilderness to monitor grazing by wild and domestic animals. No evidence of cattle use was observed. One area at the mouth of Crooked Creek showed some old evidence of light use by cattle; however, the effects of prior use had been minimized since cattle have been removed from this area.

Review of reports for the North Fork Umatilla Wilderness revealed 12 incidents of mountain bike use (tracks), six vegetation damage sightings, and eight littering (campsites, trails) incidences. No grazing was reported other than occasional rim or fringe use. Nonconforming items removed include a metal spring box, metal guard rails (barricades), and metal snow gauge.

The North Fork John Day Wilderness is a low use wilderness. Non-conforming uses exist but are minimal. Authorized grazing is occurring in the Moon Meadows and Kelsey Creek areas. Observations made by district personnel indicate the effects of grazing are within standards. Overall, domestic grazing in the Wilderness has been reduced. No specific monitoring of mining operations were reported in the Wilderness although this is an important consideration (see MI 45, mineral development).

Evaluation:

Documentation and reporting of wilderness non-conforming uses has improved over the past several years. Baseline conditions as prescribed in R6 Supplement 2300-90-11 of Forest Service Manual 2322.03 have not been documented for the recognized nonconforming uses. A need still exits to strengthen incident reporting across the Forest to accurately track non-conforming uses in wilderness areas.

MONITORING ITEM 37: Limit of Acceptable Change (LAC) and Amount of Primitive Wilderness Resource Spectrum (WRS)

Forest Goals, Desired Future Condition, and Outputs: "...measures to increase the amount of primitive recreation opportunity to desired levels." The Forest continues to meet demand for primitive and semi-primitive opportunities. (50 yr DFC)

Monitoring Question(s): 1. What is the general condition of the wildernesses? 2. What effect is visitor use having on the wilderness resource? 3. Are standards being met for the WRS classes designated for each wilderness? 4. Is fire allowed to play its natural role? What effect is prescribed fire having on the wilderness values?

Threshold of Variability: 1. Refer to LAC standards and guidelines for each wilderness. 2. Any reduction of amount of planned primitive WRS.

Results/Findings:

Ongoing administrative reviews and observations suggest wilderness conditions are generally good. Some exceptions have been noted. Large scale tree mortality throughout the North Fork John Day Wilderness continues. Most trails are cleaned out once a year but little maintenance occurs due to funding limitations. Use on main trails and trailheads is deteriorating facilities beyond acceptable limits. Also, continued intrusions by motor vehicles during hunting and mushroom season is of concern. In the Wenaha-Tucannon Wilderness, certain identified sites and areas are in degraded condition due to over-use and garbage and camp caches still remain as problems. To mitigate problems, funds and personnel must focus priorities on specifically identified situations and make increased efforts at correcting user behavior.

The Limits of Acceptable Change (LAC) site and trail surveys were completed for the North Fork John Day Wilderness and information is available for analysis. Results from the survey were not provided for this report. LAC surveys in the North Fork Umatilla Wilderness are in the process of being completed. Surveys have yet to be conducted (initiated in 1992) on the Wenaha-Tucannon Wilderness.

Prescribed Natural Fire Plans were completed and approved for all three wildernesses. The plans provide guidelines and direction in implementing prescribed natural fire in the Forests wildernesses. The guidelines provide the framework for perpetuation of natural ecosystems and processes within wildernesses. During 1994, the Forest experienced 43 fires in the wildernesses which were suppressed due to lack of personnel to monitor them (as prescribed fires) and the extreme fire weather conditions.

Evaluation:

The LAC process still needs to be completed on the North Fork Umatilla and Wenaha-Tucannon wildernesses. Information from the completed LAC survey from the North Fork John Day Wilderness should be reported in FY 1995 in order to provide results to adequately address this monitoring item. Until information is supplied and LAC are completed, this monitoring item cannot be adequately addressed. The LAC process is intended to provide a comprehensive framework for prioritizing management actions toward specific substandard situations. However, funding levels are not adequate to fully implement LAC. In the meantime, temporary short-term solutions are being used.

E. RANGE

MONITORING ITEM 38: Allotment Planning

Forest Goals, Desired Future Condition, and Outputs: All allotments have developed and implemented Allotment Management Plans that fully meet the standards and guidelines of the Forest Plan by the end of the first decade.

Monitoring Question(s): 1. Are allotments containing significant areas of unsatisfactory condition range and/or allotments, classified as PC or PD, receiving priority emphasis for development and implementation of Allotment Management Plans? 2. Do AMP's fully meet Forest Plan standards and guidelines? 3. Are AMP's being implemented on the ground in a manner that meets Forest Plan direction?

Threshold of Variability: 1. AMP planning schedule as developed (and amended) by the Forest Supervisor, varies by more than 2 years for 10 percent or more of the plans. 2. Any approved AMP's that fail to contain objectives and standards that fully implement the Forest Plan. 3. More than 5 percent of the Annual Operating Plans and annual budget requests, KV Sale Area Improvement Plans, etc., are not supported by standards or development schedules from Allotment Management Plans.

Results/Findings:

Forestwide, allotment management plans were not completed for any allotments in 1994. Planning efforts are in progress on two allotments on the Heppner Ranger District with a decision expected in 1995. The Forest is now hopelessly behind the Forest Plan schedule for preparing AMPs, without the apparent ability to complete the planning work load.

All districts used Annual Operating Plans (AOPs) that included Forest Plan standards and guidelines. The AOPs are currently the administrative tool used to meet Forest Plan direction for managing livestock on the Forest. Beginning in 1995, emphasis for planning will be shifted to allotments where Term Grazing Permits are expiring. Permit reissuance and allotment requirements will be examined through the NEPA process.

Evaluation:

The Forest has not completed the development of Allotment Management Plans according to the Forest Plan schedule. The Forest needs to re-evaluate the allotment planning schedule and amend the Plan to assure that standards and guidelines are implemented through AOPs.

A policy change, to be initiated in 1995, requires development of NEPA documents and decisions prior to issuance or re-issuance of grazing permits. This change will result in a significant workload increase and will hinder accomplishment of allotment management planning.

MONITORING ITEM 39: Range Outputs

Forest Goals, Desired Future Condition, and Outputs: After meeting basic plant and soil requirements, provide forage for utilization by wildlife and permitted domestic livestock.

Monitoring Question(s): Are the outputs for permitted domestic livestock (Animal Unit Months [AUM's]) being achieved as projected in the Forest Plan?

Threshold of Variability: Annual outputs (AUM's) for permitted domestic livestock increase more than 3 percent above or fall more than 10 percent below Forest Plan levels.

Results/Findings:

An estimated 48,915 AUMs were produced during FY 1994 on the Forest (Table III-2). Actual use is approximately 84 percent of the Forest Plan predicted level and permitted use is about 95 percent of the Forest Plan level (actual use is often lower than permitted use due to non use requested by permittees or required for resource protection). The 1994 actual use also represents an increase from the last several years (8 percent increase over 1993) due to more favorable forage conditions, lower non use and less need for early removal of livestock from the allotments in order to meet utilization standards.

Table III-2
GRAZING USE - 1994
Umatilla National Forest

District	Actual (AUMs)	Permitted (AUMs)
Heppner	13,566	16,242
North Fork John Day	20,807	22,508
Pomeroy	6,091	6,726
Walla Walla	8,461	9,668
Forest Total	48,915	55,144

Forest Plan predicted permitted use level approximately 58,000 AUM's

Evaluation:

Based on permitted use, thresholds are being met. Recommend continue monitoring.

MONITORING ITEM 40: Range Improvements

Forest Goals, Desired Future Condition, and Outputs: Allotment Management Plans, based on the Forest Plan, provide for a full development schedule (using all available funding sources) that contributes to satisfactory range conditions.

Monitoring Question(s): 1. Are range improvements planned in Allotment Management Plans, or other development plans such as Sale Area Improvement Plans or Annual Operating Plans, being accomplished? Are these improvements contributing to meeting Forest Plan objectives?

Threshold of Variability: Accomplishment of annual range improvement targets falls more than 10 percent below the assigned output.

Results/Findings:

All Districts fully achieved assigned targets for both structural and non-structural improvements. Table III-3 shows the range improvements accomplished on the Forest in 1994.

Table III-3
RANGE IMPROVEMENTS - FY 1994
Umatilla National Forest

	Non-Structural Improvements (Acres)	Structural Improvements (Structures)
Forest Total	2,010	33

Evaluation:

Results are consistent with assigned targets. Continue to monitor.

F. TIMBER

MONITORING ITEM 41: Lands Suitable for Timber Management

Forest Goals, Desired Future Condition, and Outputs: Examine lands to determine suitability for timber production with greater resolution. Add or subtract land into the timber suitability base as confirmed by on-the-ground determinations, or more accurate estimates.

Monitoring Question(s): 1. Have lands identified as unsuitable for timber production become suitable? (Identified in the Plan as unsuitable incorrectly or become suitable due to changes in management practices.) 2. Should lands identified as suitable in the Plan be more accurately classed as unsuitable?

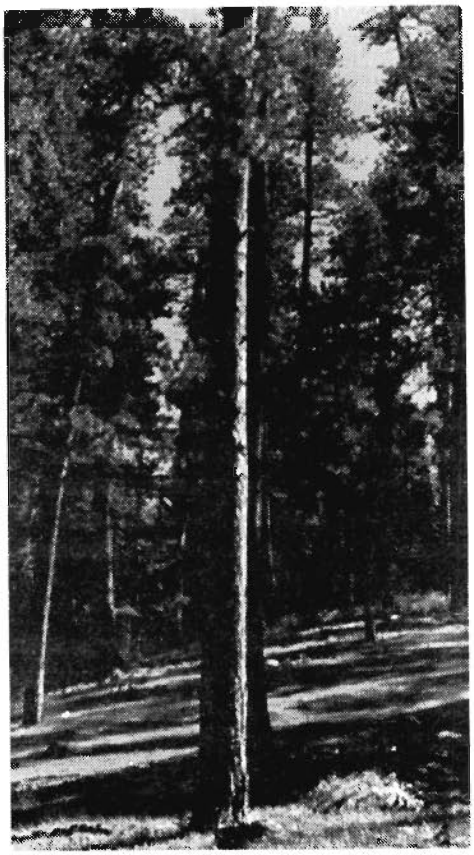
Threshold of Variability: More than a 5 percent change in the suitable land base.

Results/Findings:

Typically, as Districts complete environmental analysis for proposed projects, suitability for timber management is evaluated for the area. Results of the evaluation are disclosed in a decision document for the project and are incorporated in the Districts' Geographical Information System. However, no decision documents were approved during FY 1994 which specifically disclose suitability changes.

Evaluation:

Continue monitoring on a project basis.



MONITORING ITEM 42: Timber – Yield Projections

Forest Goals, Desired Future Condition, and Outputs: Determine if yield projection assumptions are consistent with actual managed stand growth and if empirical yield projects are consistent with most recent inventory.

Monitoring Question: 1. How does actual growth in a managed stand compare to that modeled in the managed yield tables? 2. How do projected yields based on new inventory data compare to the empirical yield tables used in the Forest Plan?

Threshold of Variability: Deviations likely to affect timber yields by more than 15 percent.

Results/Findings:

No changes in the Forests empirical and managed yield tables occurred during FY 1994. No revisions or updates are contemplated until a major Forest Plan adjustment is initiated, or unless new yield tables are needed to meet information requests from the Interior Columbia Basin Ecosystem Management Project.

Once the Current Vegetation Survey is finished (expected in 1995), comparisons can be made with the empirical tables developed using previous inventory data. Managed stand surveys were completed during FY 1991 and the data is available for analysis. However, extensive analysis of the managed-stand data is not anticipated to occur until new managed yield tables are required.

Evaluation:

Use the data collected in vegetation surveys to adjust empirical and managed yield tables, as needed.

MONITORING ITEM 43: Timber Offered for Sale

Forest Goals, Desired Future Condition, and Outputs: Provide for production of wood fiber consistent with Forest Plan objectives.

Monitoring Question(s): 1. Is the Forest offering the volume of timber necessary to achieve the estimated TSPQ stated in the Plan? 2. Is the Forest offering the volume of chargeable timber established by the Plan's ASQ? 3. What is the level of ponderosa pine sawlog timber being offered?

Threshold of Variability: 1. Greater than a 10 percent +/- deviation from planned volume of Total Sale Plan Quantity. 2. Deviation greater than +5 percent or -20 percent of planned Allowable Sale Quantity. The 5 percent threshold mentioned above applies only to the running average measured annually. 3. Greater than 25 percent +/- deviation from planned volume of ponderosa pine sawlogs.

Results/Findings:

The amount of timber offered for sale in FY '94 was drastically below Forest Plan projections. Only 5 percent of the Total Sale Program Quantity and 0.9 percent of the Allowable Sale Quantity was offered for bid. Table III-4 shows the timber offered for sale for FY 1994.

Table III-4
TIMBER OFFERED - FY 1994
Umatilla National Forest

	Planned Output (MMBF)	Actual Output (MMBF)	Planned Output (MMCF)	Actual Output (MMCF)
Allowable Sale Quantity	124	1.1	22.2	0.1
Ponderosa Pine (included in ASQ)	(24)	(.02)	(4.2)	(.003)
Chip Material	20	1.9	3.6	.33
Firewood	15	5.5	2.6	1.00
Timber Sale Program Quantity	159	8.5	28.4	1.53

Refer to Table 4-1 of the Forest Plan, p. 4-17; planned output is based on the first decade after Plan implementation.

Several factors have effected the amount of timber offered for sale this year. Although consultation with the National Marine Fisheries Service (NMFS) was initiated soon after the listing of the Snake River spring/summer and fall chinook salmon in 1992, little progress has been made in this process; most of the planned timber sales on both the Pomeroy and Walla Walla Ranger Districts have been delayed.

After the listing of the salmon, Pacific Rivers Council filed a lawsuit regarding consultation on the Forest Plans for the Umatilla and Wallowa-Whitman Forests. When the salmon was listed, the Forest Service had determined that if individual projects were consulted with NMFS, it would not be necessary to consult on the Forest Plans. In October 1993, Judge Marsh ruled that consultation was necessary on Forest Plans as well as individual projects. As a result of that ruling, ongoing projects could still continue, but proposed projects could not.

The Pacific Rivers Council appealed this ruling and requested a permanent injunction on all ongoing "may effect" activities on both Forests. In October 1994, Judge Marsh granted an injunction that halted all ongoing "may effect" activities with the exception on the removal of down timber and some winter grazing. Until consultation with the NMFS can be completed on existing and planned timber sales, virtually no timber will be harvested on those portions of the Pomeroy and Walla Walla Districts within the Snake River Basin.

Another item contributing to the reduction in the amount of timber offered was the continuation of the interim management direction for timber sales on the east side of the Cascade Mountains. In May 1994, Regional Forester John Lowe signed a Decision Notice for the Continuation of Interim Management Direction Establishing Riparian, Ecosystem and Wildlife Standards for Timber Sales. This direction was designed to restrict timber harvest in certain areas or provide for certain requirements so as to assure that the full array of planning options are preserved while items of new information are being assessed and the need for new management direction evaluated through the preparation of the Eastside EIS. The time necessary to complete this review process and the additional temporary restrictions have delayed preparation of many timber sales. When the Eastside EIS is completed, the amount of timber offered for sale is expected to be well above the 1994 level, but may not reach the levels stated in the Forest Plan.

Evaluation:

The Forest anticipates an adjustment in Total Program Quantity and Allowable Sale Quantities based on results from the ICB Ecosystem Management Project. The Forest also expects to produce a much higher timber output level in FY '95 as some of the barriers to project accomplishment are reduced or removed.

MONITORING ITEM 44: Availability of Firewood

Forest Goals, Desired Future Condition, and Outputs: To provide fuelwood necessary to meet local demand.

Monitoring Question(s): 1. How much firewood is being provided? 2. Is sufficient fuelwood being offered to the interested public?

Threshold of Variability: Estimated demand exceeds supply by more than 10 percent.

Results/Findings:

The Forest Plan predicted an annual average firewood output of 15 MMBF (Million Board Feet). In 1994, actual output was 5.5 MMBF, 36 percent of Forest Plan projection. Since 1989, the number of charge permits issued on the Forest has declined by 51 percent. The Forest has noted several factors which contribute to this decline. 1994 was warmer than the previous year. Accessibility to wood cutting areas was restricted (primarily a result of Forest road closures and higher fire danger); woodcutters are having to travel greater distances to obtain wood due to remoteness of available sites. Table III-5 shows the firewood program from 1989 to 1994.

Table III-5
FIREWOOD PROGRAM - CHARGE PERMITS ISSUED 1989-94
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

Some Districts are making additional areas available for firewood gathering opportunities for the public by allowing cutting in closed timber sale areas prior to prescribed burning. In addition, some forest roads that were closed on the District are being opened to allow some firewood removal.

Evaluation:

As stated in prior monitoring reports, the Forest still anticipates a surplus of firewood for the next several years, particularly on the south-end districts. This surplus is due to the high level of insect-killed timber. Firewood demand is projected to continue to level off or decline slightly for the next few years. Current demands for firewood are being met across the Forest. Recommend continue monitoring.

G. LANDS AND MINERALS

MONITORING ITEM 45: Mineral Development and Rehabilitation (MDR) Accessibility

Forest Goals, Desired Future Condition, and Outputs: To provide for exploration, development, and production of a variety of minerals in coordination with other resources.

Monitoring Question(s): 1. Are the standards and guidelines being implemented correctly? 2. Are the standards and guidelines for mineral operations "reasonable" and effective in meeting Forest Plan goals? 3. Is vehicle (potential) access to mineral (mining claims) or energy (gas and oil) lease sites being restricted?

Threshold of Variability: Projects judged to have unacceptable deviation from stated objectives, or projects not in compliance with standards and guidelines. Reduction in lands open to mineral activities is greater than 2 percent.

Results/Findings:

Mineral activities primarily occur on the North Fork John Day Ranger District with very little occurring elsewhere on the Forest.

During 1994, the North Fork John Day Ranger District had 30 claims under Plans of Operation or Notices of Intent for the 1994 season. In addition, 21 claimants filed Notices to Operate during the 1994 field season. Of the claimants who filed notices to operate, 16 conducted mining operations. The remaining claimants only conducted exploration related work on their claims. The District received two new plans of operation during 1994. One plan was submitted late in the year and is on hold until the site becomes accessible. The other plan is on hold waiting for the claimant to make changes to their plan. All claims mentioned above were monitored for compliance. Monitoring findings show all of the claimants followed their Plan of Operation. Results are as follows:

- Total acres disturbed from mining operations accounted for 10.5 acres. Of the total, 7.5 acres were from 15 working claims (averaging in size 0.5 acres) and the remaining balance coming from one claim having 3 acres of disturbance.

- All 10.5 acres were reclaimed.

- All 21 claimants were found to have completed their seasonal reclamation.

In 1994, the Heppner Ranger District processed one Notice of Intent for locatable mineral exploration which was limited to geochemical sampling and two contracts for the sale of common variety minerals.

The only vehicle access restriction to any claim occurred on the Heppner Ranger District during elk calving season. In some cases, the claimant was issued a permit for the purpose of accessing claims on closed roads. The restrictions did not prevent the claimant from completing the exploration activities.

Evaluation:

The mineral inspections and reclamation reviews indicate standards and guidelines are being met. Continue monitoring active claims and permits for compliance with operating plans (the North Fork John Day Ranger District has proposed five sites be reclaimed in 1995). Continue monitoring access to mineral claims and oil/gas leases.

H. TRANSPORTATION

MONITORING ITEM 46: Forest Road System

Forest Goals, Desired Future Condition, and Outputs: Provide and manage the road system needed to accomplish the land and resource management and protection objectives of the Forest.

Monitoring Question(s): 1. Are the total miles and those useable by passenger cars and high clearance vehicles within Forest Plan projections? 2. Is the Forest providing and managing the Forest road system to accomplish land and resource management objectives as outlined in the Forest Plan?

Threshold of Variability: Any variance from existing standards and guidelines and MATM Plans.

Results/Findings:

Fiscal Year 1994 was the third year for implementing the Transportation Management System (TMS). The system is a data base which provides transportation information, including Road Management Objectives and road use status. Basic data from TMS is shown in Table III-6.

Table III-6
FOREST ROAD SYSTEM - 1994
Umatilla National Forest

Road System	Maintenance Level	Actual Road Miles
Closed Road	1	2,466
High Clearance	2	2,073
Passenger Car	3	569
Passenger Car	4	180
Passenger Car	5	147
Total Open		2,969
Total Road		5,435

In the 1993 Monitoring Report, problems with the transportation information system were identified including collection and storage of data. Since the 1993 report, the TMS has undergone a major update. This has allowed the information to be more accurately reported.

Total passenger car accounted for 896 miles or about the level projected in the Forest Plan. High clearance mileage totalled 2,073 miles or approximately 73 percent of Plan projections. During the last several years, the Forest has had a relatively assertive road closure program primarily in response to District MATM Plans. Since Fiscal Year 1991, data from TMS indicates the Forest has closed an additional 402 miles from Forest Plan levels (FEIS Table III-33, Current Road Miles and Management p. 78). This represents a 20 percent change from 1990 levels. The data also shows changes in mileage of road type. Passenger car miles has decreased from 1990 levels by approximately 20 percent (219 miles) and high clearance vehicle mileage has decreased by 22 percent (599 miles).

The Forest has reported approximately 5 percent less total roads than it did in 1993. The road miles reported in the 1993 Monitoring Report included other jurisdictions (i.e. county) where in 1994 only Forest Service administered roads were reported. The decrease in the total road is also a result of some roads being obliterated. Another difference between 1993 and 1994 involved maintenance levels. Since 1993, maintenance levels 2 and 5 have increased. This is most likely a result of budget levels and resource needs which may change the maintenance level. However, for the last several years, information remains inconsistent from past years monitoring. This makes comparison of information difficult.

Evaluation:

Projected decreases in funding (and personnel) may delay full implementation of MATM plans. Forest road information needs to be updated with current, accurate information before effective analysis can be made. Change in practices is warranted for the reporting of road information.

MONITORING ITEM 47: Open Road Density

Forest Goals, Desired Future Condition, and Outputs: Maintain the densities of roads and access that meet the objectives to serve the public and for integrated resource management on the Umatilla National Forest.

Monitoring Question(s): 1. Are open road densities within planned access and travel management levels? 2. Are standards and guidelines being met for management areas where motorized use is (or may be) a concern?

Threshold of Variability: +/- 10 percent of planned access and travel management direction (by district) on an area basis.

Results/Findings:

As districts continue implementing Motorized Access and Travel Management (MATM) programs, open road densities should be reduced. Two of the four districts (North Fork John Day and Heppner Ranger Districts) have fully implemented their MATM plans. Pomeroy and Walla Walla Ranger Districts are still in the process of completing their MATM programs. The Heppner Ranger District has an estimated road density of approximately 1.5 mi/sq. mi. The Walla Walla Ranger District's MATM is not fully implemented due to lack of closure devices and funding. Their road density is estimated to be 1.4 mi/sq mi. The Pomeroy Ranger District has decreased road densities from 2.0 mi/sq mi. to about 1.5 mi/sq mi. The District anticipates road densities will continue to decline as more roads are closed.

District MATM programs are generally being reviewed and several updated annually, which has resulted in additional road closures to protect sensitive areas or resources from damage. The modifications to the MATM has also included the opening of short road segments to provide access to popular dispersed camping sites. All modifications to the MATM have been in accordance with meeting objectives for access.

As part of the MATM program, use on closed roads has been monitored by a permit system during FY 1994 for the Heppner and Pomeroy Districts. At Heppner, monitoring indicates 89 permits or 822 trips were issued for travel on closed roads for administrative use, commercial activities, and access for Special Use permittees. At Pomeroy, permits are not customarily issued for motorized use of roads and trails within any management area if the closure objectives will not be met. Three permits were issued during 1994 which were not in accordance with the management area objective. Permission was given to the Washington State Department of Fish and Wildlife on two occasions for their activities, and the third occurrence was for administrative personnel to control an escaped fire.

Evaluation:

Progress is continuing to be made in meeting MATM planned requirements. Open road densities continue to be below Forest Plan projections. However, as road status changes, TMS should be updated on a continual basis. This is not always being done. Monitoring results are dependent on quality data. In order to ensure that road densities are within planned levels, data updates are needed before an adequate evaluation can occur.

Review of permits for use of closed roads suggest that a more consistent approach may be needed across the Forest, assuming that Districts are attempting to meet common objectives.

MONITORING ITEM 48: Trails

Forest Goals, Desired Future Condition, and Outputs: Provide and manage roads, trails, and facilities needed to meet user needs and future demand, and to accomplish land and resource management and protection objectives on the Forest. Existing trails will be retained and reconstructed. (DFC)

Monitoring Question(s): 1. What is the amount, type, and condition of trails managed? 2. How much trail construction and reconstruction has been accomplished? 3. Have any trails been abandoned or obliterated without replacement? Any planned? 4. Do existing trails meet appropriate trail management objectives? 5. Are the user needs being met? 6. What changes have occurred as a result of project activities?

Threshold of Variability: 1. Less than 80 percent managed at standard service level. 2. Less than 80 percent of trail target accomplishment. 3. 10% of trails on the system lost to resource development activities. 4. High level of user complaints or expressed concerns about trails.

Results/Findings:

In 1994, the Forest offered approximately 1,432 miles of trails to recreation users. The amount and type of trails are displayed in Table III-7.

Table III-7
TRAIL SYSTEM MILES - 1994
Umatilla National Forest

District	Horse/Hiking	Sking/Snowmobile	ATV/Motorcycle	Wilderness
Heppner	24	117	15	–
NFJD	76[1]	53	107	133
Walla Walla	95	168	137	30
Pomeroy	49	126	29	273
Total	244	464	288	436

[1] Non-motorized

Approximately 6 miles of trails were constructed or reconstructed on the Forest in 1994.

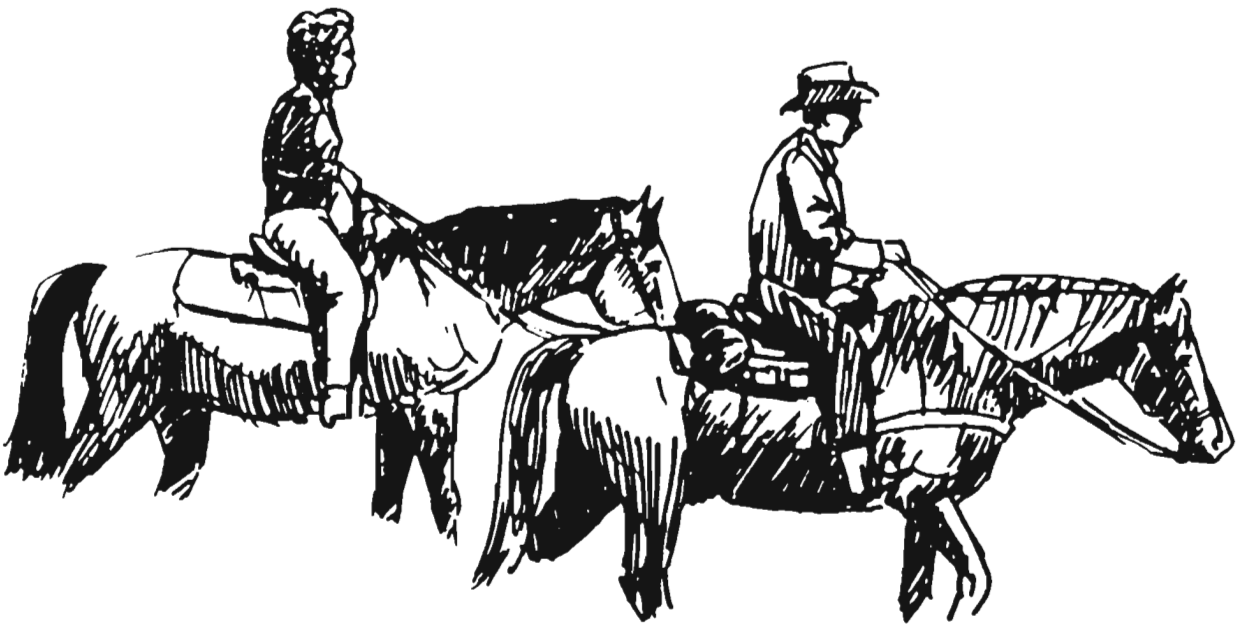
For the majority of the Forest, no system trails were abandoned or obliterated in 1994. However, the Walla Walla Ranger District deferred maintenance on approximately 30 miles of non-system trails and will be monitored on approximately 5-year intervals. The Forest does not anticipate any trails will become abandoned or obliterated in the near future. In 1994, the Forest did not note any changes to any trail as a result of project activities.

From information received (for the '94 Monitoring Report), it appears existing trails are meeting management objectives on the Heppner and Pomeroy Ranger Districts. The North Fork John Day Ranger District stated otherwise. The District estimates approximately 50 percent of the trails do not meet management objectives due to the backlog of maintenance. It is unclear if the Walla Walla Ranger District is meeting trail management objectives or not. However, the District did state approximately 30+ backlog miles of trail are in need of maintenance.

In most cases user needs are only partly being met. The Heppner District reported horses/hiking trails are adequate but are in need of maintenance (i.e., clearing, drainage). In addition, OHV trails are inadequate on the east end of the District, but the extent is unknown. The North Fork John Day Ranger District reported user needs are partially being met since a high backlog of trail maintenance needs exists. As for Pomeroy and Walla Walla Ranger District, it is unknown if trail user needs are being met at this time.

Evaluation:

From the results provided and lack of supporting information and review, this monitoring item cannot be adequately evaluated. A change in practices is warranted. The Forest needs to initiate more consistent reporting and review before a thorough evaluation can be made.



I. FIRE PROTECTION

MONITORING ITEM 49: Fire – Program Effectiveness

Forest Goals, Desired Future Condition, and Outputs: Provide and execute a fire use and protection program that is cost efficient and responsive to land and resource management goals and objectives. The use of confine and contain strategies will result in a more cost-effective fire management program. The general fuel hazard level is slowly being reduced through the combination of activities.

Monitoring Question(s): 1. Are fire programs (i.e. prevention, detection, suppression) meeting the standards as required by the National Forest Management Act? Are these programs being effective? 2. What is the number of fires, by cause and acres burned, plus the actual expenditure of EFFS dollars.

Threshold of Variability: Cost effective plans for the prevention of human caused fires will be aimed at specific risks. +25% increase in Most Efficient Level (MEL) in any year; or greater than 10 percent increase in MEL of 5-year average. 20% departure from the Fire Management Action Plan.

Results/Findings:

The 1994 fire season (Calender Year) was one of the busiest in recent years, beginning in March and ending in November. The Forest experienced 246 fires, burning a total of 5,793 acres at a cost of $3,972,121. Table III-8 exhibits the total number of human and lightning caused fires and acres burned. Table III-9 shows actual expenditures of EFFS (Emergency Fire Suppression and Rehabilitation Funds allocated by Congress) in FY 1994.

Table III-8
LIGHTNING, HUMAN CAUSED FIRES AND
ACRES BURNED 1991-1994
Umatilla National Forest

Fire Cause	1991	1992	1993	1994
Human Caused:				
Total Number of Fires	52	53	71	45
Total Acres Burned	29	3,156	635	153
Lightning Caused:				
Total Number of Fires	93	137	20	201
Total Acres Burned	49	278	3	5,639
Forest Totals:				
Number of Fires	145	190	91	246
Acres Burned	78	3,435	638	5,793

TABLE III-9
ACTUAL EXPENDITURES OF EFFS - FY 1991 to 1994 ($94)
Umatilla National Forest

YEAR	1991	1992	1993	1994
Total Expenditure	$601,468	$1,598,834	$1,133,858	$3,972,121

As a whole, the total number of fires in 1994 represents 166 percent of the 10-year (1984-93) average of 148. When comparing the total number of lightning fires in 1994 to the 10-year lightning fire average (same period), the 1994 level was 202 percent above the average. Human-caused fires was 8 percent below the human-caused average.

The total acres burned in 1994 was 1,650 percent above the base average (1988-92) of 351 acres. This increase is largely due to the extreme fire conditions experienced in 1994 and the large amount of insect and disease killed forest areas found on the southern portion of the Forest. Two fires, Boundary and Sharp, accounted for the majority of the acres burned in 1994, which together amounted to 2,888 acres, or 49 percent of the Forest total.

Evaluation:

The fire program is within the established threshold. Recommendation is continue monitoring.

J. CULTURAL AND HISTORIC RESOURCES

MONITORING ITEM 50: Cultural Properties/Sites

Forest Goals, Desired Future Condition, and Outputs: All inventoried cultural properties determined eligible or potentially eligible for the National Register of Historic Places (NRHP) shall retain those characteristics which (may) qualify the property for inclusion on the NRHP.

Monitoring Question(s): 1. Are the NRHP characteristics of unevaluated and eligible cultural resource properties being protected? 2. Is appropriate stabilization or rehabilitation of damaged sites eligible for inclusion in the NRHP being undertaken? 3. Are the appropriate processes and consultation with SHPO being accomplished as directed in the Forest Plan and agreements.

Threshold of Variability: No acceptable variability (Federal law and regulation).

Results/Findings:

As prescribed in the Forest Plan standards and guidelines, the Heritage Resources program is intended to meet laws and regulations in four areas: inventory, evaluation, protection, and enhancement. During FY 1994, only two districts, North Fork John Day and Walla Walla reported monitoring results.

All known heritage resource sites which have been recommended as eligible or potentially eligible to the NRHP have been protected from any disturbance related activities on the North Fork John Day Ranger District. The Walla Walla Ranger District reported similar results except that a structure was burned down at one site sometime between late 1993 and early 1994.

The Fremont Power House, located on the North John Day Ranger District, was damaged several years ago by snow. The site has been determined eligible and is listed on the NRHP. The building is continuing to degrade since allocation of funds to restore the building is lacking. This will continue to be the case until funds become available.

Of the two Districts reporting, each has reported to the Forest Archeologist on the planning and completion of all projects and operations with information transferred to the Oregon State Historic Preservation Office.

Evaluation:

Only two of the four districts reported any results, thus making it impossible to fully address this monitoring item. Complete, Forest-wide documentation and reporting of monitoring results and findings is needed.

K. SPECIAL INTEREST AREAS

MONITORING ITEM 51: Effects of Forest Management Activities on SIA's

Forest Goals, Desired Future Condition, and Outputs: Protect, manage, preserve, and interpret areas of significant cultural, historical, geological, botanical, or their special characteristics for educational, scientific, and public enjoyment purposes.

Monitoring Question(s): 1. Are the provisions and conditions for the special interest areas including scenic areas being met? 2. Are management activities affecting the qualities of the SIA; are the standards and guidelines for the area effective in meeting objectives for the SIA?

Threshold of Variability: 1. Any SIA principal quality compromised as a result of Forest Service management activities or public use. 2. Any delays in developing management plans for individual areas. 3. Any deviations outside the management area A-8 and A-9 standards and guidelines.

Results/Findings:

During Fiscal Year 1994, several opportunities allowed two Special Interest Areas to be monitored. One area, the Teal Spring Campground located on the Pomeroy Ranger District, was monitored as part of a sensitive plant survey. The area was designated a Special Interest Area because it supports a relatively large assemblage of plant species which were historically considered to be "sensitive." In the Teal Spring SIA, the species of interest are Dusty Maiden (Chaenactis douglasii glandulosa), Wenaha Currant (Ribes wolfii), Pennell's Blue Mountain Penstemon (Penstemon pennellianus), and Bracted Lousewort (Pedicularis bracteosa pachyrhiza). Several management activities have occurred in the area including hazard tree removal, installation of improved restroom facilities, and improvements to the campground road. The survey showed that all originally-sighted populations of the species of concern were present within the SIA.

The Woodward Campground Special Interest Area was designated because it supports an unusual concentration of four different species of Coral Root Orchids. One species, Corallorhiza trifida (Yellow Coral Root), was historically listed as "sensitive." During 1994 this SIA was intensively monitored. Survey results have indicated that the Corral Root populations are doing well. The campground has been the site of severe "blowdown" problems, hazard tree removal, and heavy recreational use. The species of concern are present and do not appear to be threatened by any management activities.

Evaluation:

Continue monitoring when project activities occur.

L. RESEARCH NATURAL AREAS

MONITORING ITEM 52: Research Natural Areas (RNA)

Forest Goals, Desired Future Condition, and Outputs: Manage areas for research, observation, and study of undisturbed ecosystems.

Monitoring Question(s): 1. Are provisions and conditions for Research Natural Areas being met? 2. Are management activities affecting the integrity of the RNA's?

Threshold of Variability: Any deviation from RNA management intent and standards and guidelines.

Results/Findings:

Formal monitoring was not conducted in the two established and six proposed RNAs during the year. Monitoring protocols and plots have yet to be established in the existing and candidate areas to effectively answer the monitoring questions. Because of lack of funding and personnel to accomplish the job, the goal of gaining "established" status for the Forest's Proposed Research Natural Areas has not been attained.

The Rainbow Creek RNA was visited during FY 1994 because a sensitive plant survey crew was conducting a survey on a trail which passes through it. At the eastern boundary, a persistent and constantly-enlarging patch of Dalmatian Toadflax was discovered. The establishment of this noxious weed within the RNA poses a threat to the floristic biodiversity of the area. The protected elements (Western White Pine and Western Larch) showed no increases in mortality or regeneration. The white pines within the Rainbow Creek RNA are infected with moderate levels of white pine blister rust.

Reports of increased levels of grazing on the Proposed Birch Creek Cove RNA have been received by the Forest Botanist. The fragile wetland within the RNA should be monitored to assess the effects of grazing on the protected elements as well as the effects of increased mortality in fir stands.

Evaluation:

Lack of funding and personnel have reduced the possibilities to ensure if provisions and conditions for RNAs are being fully met. The Forest needs to establish monitoring protocols and plots to determine if management activities are affecting the integrity of RNAs.

M. ADMINISTRATIVE

MONITORING ITEM 53: National Environmental Policy Act (NEPA)/National Forest Management Act (NFMA)

Forest Goals, Desired Future Condition, and Outputs: Comply with the NEPA and NFMA requirements, including cumulative effects analysis, during project-level decision-making.

Monitoring Question(s): 1. Are project-level decisions made using appropriate NEPA/NFMA procedures including analysis of cumulative effects? 2. Are project level decisions tiered to, and in accord with, the Forest Plan?

Threshold of Variability: Failure to use appropriate procedures defined in Forest NEPA "White Paper" (including documentation) or to meet Plan requirements for Plan implementation projects (100% of projects must meet these requirements).

Results/Findings:

During 1994, only two environmental assessments (EAs) were prepared for Forest projects. The first was the Grande Ronde Wild and Scenic River Management Plan, which was a joint effort between the BLM Vale District, and Umatilla and Wallowa-Whitman National Forests. The Decision Notice for this project was signed December 1993. The second was the Camas Off-Highway Vehicle Trail Complex. The Decision Notice for this project was signed May 1994. The number of EAs written for projects on the Forest has been declining for several years. Although a number of reasons have contributed to this temporary slow-down, two are especially significant including: an ineffective consultation process for endangered Snake River salmon and applications of the Interim direction ("screens") for timber sales.

Because only two EAs were prepared in 1994, no formal reviews were made of NEPA/NFMA compliance on the Forest.

Although the number of EAs prepared on the Forest has declined, the number of decision memos prepared has increased. Last year 45 decision memos were written; this year over 75 were prepared. These memos are used to document routine actions which fall within certain categories and meet other criteria. In 1994, the majority of the decision memos were used to document small restoration projects. An informal review of several projects documented with decision memos was conducted by the LMP staff to assure handbook direction was being followed. It was found all requirements were being met.

In November 1993, the Forest Service adopted revised procedures for notice, comment, and appeal for National Forest System projects. The new rules were designed to provide opportunity for comment prior to the final decision and would provide for prompt administrative review of appeals. Several informal reviews found the rules are being properly implemented by all districts.

Evaluation:

No formal NEPA/NFMA compliance reviews were conducted during 1994, however, the Forest anticipates an increase in ecosystem restoration projects, range permit reissuance, timber sales, and other projects in 1995 which will necessitate preparation of a greater number of EAs. Formal monitoring of NEPA documents by the Forest should reflect the projected increase in NEPA analysis. Much of the direction in the Forest NEPA "White Paper" is outdated and the document needs to be revised.

IV. SOCIAL, ECONOMIC, BUDGET

A. SOCIAL AND ECONOMIC

MONITORING ITEM 54: Changes in Income Levels, Populations, and Employment

Forest Goals, Desired Future Condition, and Outputs: Promote economic and community development within the zone of influence

Monitoring Question(s): 1. What changes are occurring to local income, per capita income levels and employment as a result of Forest operations? 2. What changes are occurring in population levels within the zone of influence as a result of Forest operations?

Threshold of Variability: Plus or minus 15 percent for each factor in 3 years.

Results/Findings:

Jobs associated with the specified Forest management activities are shown in Table IV-1. The Forest Plan projected an increase of 375 Forest-related jobs per year (total of 3,943 jobs) for the first decade. Forest-related jobs and income are primarily associated with four activities: (1) harvesting and processing of sawtimber; (2) harvesting and processing of other types of timber such as roundwood and fuelwood; (3) ranching/livestock grazing; and (4) recreation use, including both developed and dispersed recreation.

Based on the 3-year average (from 1992-94), total estimated Forest-related employment has been 24 percent less than projected in the Forest Plan. The largest decrease has occurred in employment related to sawtimber and other timber harvesting and processing. Estimated 3-year average employment for timber related activities is about 83 percent of the Forest Plan projection. For 1994, timber related employment dropped significantly and was only about 34 percent of the anticipated level. Three-year average employment associated with livestock grazing and recreation is 18 percent and 28 percent less than expected.

Table IV-1
JOBS RELATED TO SELECTED FOREST ACTIVITIES[1]
(jobs per year)[2]

Activity[3] [4]	Forest Plan	1992	1993	1994	3 year average (1992-94)	Percent change from Forest Plan
Sawtimber	882	1,394	866	346	869	- 1.5%
Other timber	285	116	126	48	97	-66%
Livestock	17	13	14	15	14	-18%
Recreation	2,759	1,917	2,054	2,206	1,999	-28%
Totals	3,943	3,440	3,060	2,435	2,979	-24%

Change in non-agricultural wage and salary employment from 1990-93 is displayed in Table IV-2 for the 10 counties within the Forests area of influence. All counties show an overall increase in total wage and salary employment. All of the Oregon counties, except Umatilla, show decreasing employment in manufacturing (which include lumber and wood manufacturing). Umatilla County shows a 4.3 percent increase in lumber and wood manufacturing employment. In general, the Oregon counties show a strong increase in employment in non-manufacturing, including services and government employment. All employment sectors (except lumber and wood manufacturing) increased for Washington counties. Columbia County shows the only decrease at 23.2 percent in manufacturing employment.

Table IV-2
PERCENTAGE CHANGE IN EMPLOYMENT BY CATEGORY 1990-93
Umatilla National Forest

County[1]	Total Wage and Salary[2]	Total Manufacturing	Lumber and Wood[3]	Non-Manufacturing	Services[4]	Government[4]
Oregon						
Grant	+4.7	-8.6	-8.8	+8.7	+32	+10
Morrow	+8.8	-16.3	-16.7	+24.5	+89.8	+11.8
Umatilla	+9.7	-1.2	+4.3	+12.2	+21.0	+8.2
Union	+1.8	-4.5	-10.5	+3.1	-2.3	+2.0
Wallowa	+1.3	-11.5	-21.4	+4.6	0.0	+8.9
Wheeler	-5.6	-64.3	N/A	-2.3	+86.7	+14.6
Total	**+6.7**	**-3.4**	**-8.2**	**+9.6**	**+15.7**	**+7.3**
Washington						
Asotin	+14.4	+3.5	N/A	+15.3	+19.0	+9.5
Garfield	+6.1	N/A	N/A	+6.1	0.0	+9.8
Columbia	-2.7	-23.2	N/A	+9.7	+14.3	+10
Walla Walla	+5.7	+6.5	N/A	+5.6	+14.7	+7.5
Total	**+6.5**	**+2.9**	**N/A**	**+7.3**	**+15.4**	**+8.1**

1 – State of Oregon, Employment Department, workforce analysis by county, 1990, 1993. Labor Force and Employment in Washington State, May 1992, 1994.
2 – Non-agricultural wage and salary employment only.
3 – Lumber and wood manufacturing included in total manufacturing.
4 – Service and government employment included in total non-manufacturing.

Table IV-3 shows personal income per year associated with the Forest related activities. The Forest Plan projected annual personal income of $81.2 million (1994$) from these activities. Based on the job estimates discussed above, average annual personal income derived from Forest-related activities during the period 1992-94 was 32 percent less than Forest Plan projections. Sawtimber and other timber production accounted for the largest differences generating about 63 percent less income than projected.

Table IV-3
PERSONAL INCOME DERIVED FROM
FOREST-RELATED ACTIVITIES[1] [2] (1994 $MM)
Umatilla National Forest

Activity	Forest Plan[3]	1992	1993	1994	3 year average (1992-94)	Percent change from Forest Plan
Sawtimber	31.3	36.7	22.8	9.1	22.9	-27%
Other timber	8.8	3.0	3.3	1.2	2.5	-72%
Livestock	0.3	0.2	0.2	0.2	0.2	-33%
Recreation	40.8	28.4	30.5	30	29.6	-27%
Totals	81.2	68.3	56.8	40.5	55.2	-32%

1 – Estimated jobs and personal income associated with sawtimber production, other timber production, livestock grazing, and recreation use for the Forest Influence Zone (Forest Plan FEIS, Appendix B, p. 46).
2 – See Forest Plan FEIS, Appendix B, pp. 46-50 for discussion of methodology used to estimate job and personal income effects.
3 – Timber data from Timber Sale Program Information and Reporting System, (TSPIRS), Employment, Income, and Program Level Account; Umatilla National Forest, 1992, 1993, and 1994.
4 – Based on outputs listed in Forest Plan FEIS, Table II-6, p. II-87, 92, 94; Table II-8, p. 109 to 110, Alternative F/M.

The period from 1987 to 1989 was identified in the 1991 Monitoring Report as the base period for comparing changes in per capita income levels. The 1992 per capita income levels for each county (the most recent information available) was compared to the average per capita income levels during the base period. Table IV-4 shows the per capita income levels for each county within the area of influence for the Forest along with the percentage change from the base period.

Table IV-4
PER CAPITA INCOME LEVELS[1] [2]
Percentage change (from Forest Plan base)
Umatilla National Forest

County	1991	1992	3-Year Average 1987-89	% Change 1992/Base
Asotin	16,132	17,010	13,122	+30%
Columbia	17,191	18,757	15,541	+21%
Garfield	18,378	19,236	16,124	+19%
Grant	15,243	16,474	13,148	+25%
Morrow	14,253	14,731	13,656	+8%
Umatilla	14,745	15,361	12,807	+20%
Union	14,994	15,839	13,207	+20%
Walla Walla	15,431	16,610	13,410	+24%
Wallowa	17,203	17,782	14,352	+24%
Wheeler	15,112	15,780	12,613	+25%

1 – Sources: Per Capita Personal Income for Washington State and Counties, 1969-1992. Washington State Employment Security Department, Labor Market and Economic Analysis Branch. Table V-B. Per Capita Personal Income 1983-1993. State of Oregon Employment Department, Workforce Analysis Section. September, 1994.
2 – Measured in nominal dollars.

Table IV-5 displays each county population within the influence of the Forest. Since 1990, five of the six counties in Oregon grew in population except for Grant County which remained stable. The six county total population grew 6.9 percent within the last 4 years. The State of Oregon as a whole, grew 8.3 percent. The four counties in Washington also increased in population levels by 7.9 percent. Washington State grew 9.6 percent in population since 1990. Total population growth for all 10 counties was 7.3 percent.

Table IV-5
AREA POPULATION[1]
Umatilla National Forest

County	1980	1990	% Change 1980 to 1990	1994	% Change 1990 to 1994
Oregon:[2]	2,633,149	2,847,000	+8.1%	3,082,000	8.3%
Grant[2]	8,210	7,900	-3.8%	7,900	0.0%
Morrow[2]	7,519	7,600	+1.1%	8,600	13.2%
Umatilla[2]	58,861	59,000	+.24%	64,000	+8.5%
Union[2]	23,921	23,600	-1.3%	24,500	+3.8%
Wallowa[2]	7,273	6,950	-4.4%	7,200	+3.6%
Wheeler[2]	1,513	1,400	-7.5%	1,550	+10.7%
County Total	107,297	106,450	-.79%	113,750	+6.9%
Washington:	4,132,156	4,866,692	+17.8%	5,334,400	+9.6%
Asotin	16,823	17,605	+4.6%	18,900	+7.4%
Columbia	4,057	4,024	-.81%	4,150	+3.1%
Garfield	2,468	2,248	-8.9%	2,350	+4.5%
Walla Walla	47,435	48,439	+2.1%	52,600	+8.6%
County Total	70,783	72,316	+2.2%	78,000	+7.9%
Ten County Total	178,080	178,766	+0.4%	191,750	+7.3%

1 - Sources: Oregon Population by County. Mid Columbia Region Labor Trends. State of Oregon Employment Division, Department of Human Resources. December, 1992. 5 p. Oregon Population Increase Slows. News Release. Portland State University, Office of Public Relations. November, 1994. Population Components of Change by County. Washington State Employment Department, Labor Market and Economic Analysis Branch. April, 1994. Table 3. 4 p.
2 - 1994 population is preliminary.

Evaluation:

Forest-related employment and personal income were outside the 15 percent threshold. This difference is primarily attributed to the declines in timber harvesting (See MI 43). The difference between Forest Plan and current job and personal income estimates is partly a reflection of more recent information and realistic modeling assumptions. Forest Plan estimates generated $252,120 (1994$) of personal income per million-board feet of sawtimber harvested. In 1994, this estimate was revised to $350,000 (1994$), representing a 39 percent increase over the Forest Plan projected value.

Total non-agricultural wage and salary employment in all counties within the area of influence is within the 15 percent threshold. Per capita income and population levels are also within the threshold of 15 percent.

The data will be further analyzed and used if the adjustments in the Forest Plan are necessary. Possible Forest Plan changes may result when the Interior Columbia Basin Ecosystem Management Project and Eastside Environmental Impact Statement are completed.

MONITORING ITEM 55: Payments to Counties

Forest Goals, Desired Future Condition, and Outputs: Promote community and economic development in the 10 county zone of influence.

Monitoring Question(s): What changes are occurring in the levels of payments to local counties (consider the 10 county area) surrounding the Umatilla National Forest operations?

Threshold of Variability: Failure to meet Plan predicted or anticipated payment levels by 20 percent.

Results/Findings:

Table IV-6 exhibits payments to the counties within the Forest's area of influence for the period 1990 to 1994 and shows payments projected by the Forest Plan. Payments are 25 percent of Forest sales and use receipts from timber, land uses, recreation, power, minerals, and grazing. Receipts deposited for improvements on National Forest System land from timber sale improvement, the value of timber purchaser road construction, and salvage sale funds are also used as a basis of payment.

As in past years, timber sale receipts dominated the payments to counties picture. Timber receipts are based on the actual amount of timber harvested and the dollar value of timber logged from the Forest. Additionally, payments to the counties are both proportional to the National Forest System (NFS) land in the county and based on the total revenue generated for the Forest as a whole.

For 1994, the Forest Plan projected payments of approximately $7,647,600 (1994$). Actual payments were $2,513,000, a 67 percent decrease from Plan projections. In comparison with Forest Plan projections, the 4-year average (1991-94) of total Forest payments was 51.3 percent lower than projected.

Table IV-6
PAYMENTS TO COUNTIES (1994$ MM[1])
Umatilla National Forest

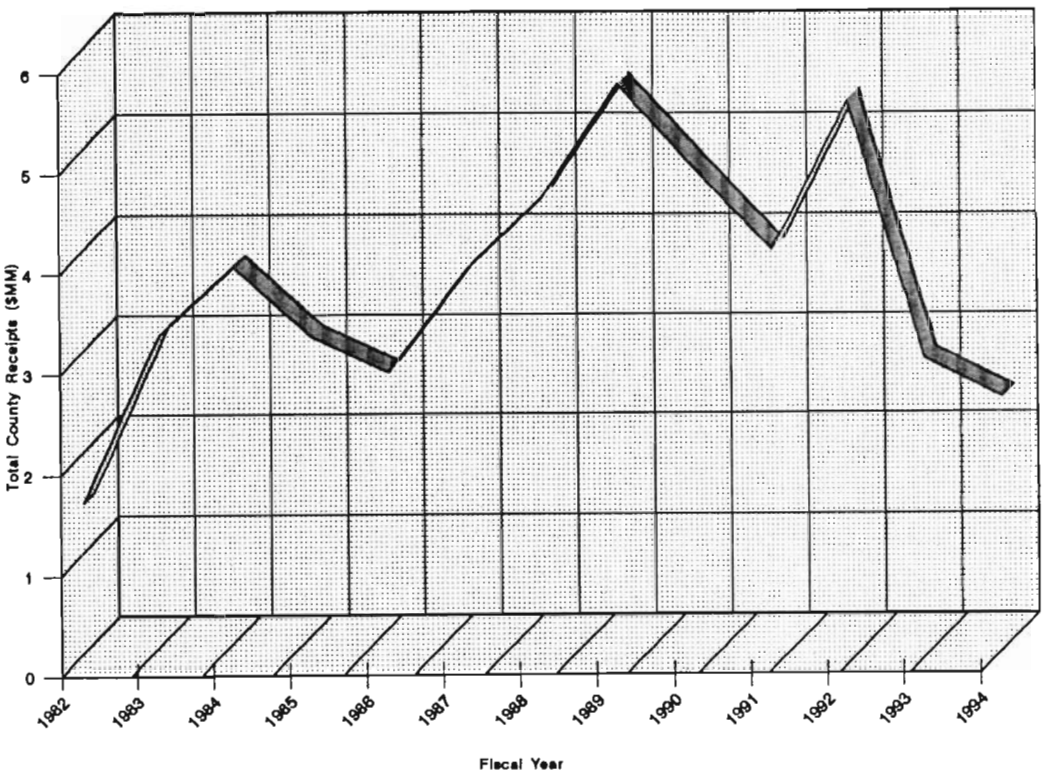
County	1991	1992	1993	1994	4 Year Average	Forest Plan Projection
Asotin	153.2	209.5	111.2	96.1	142.5	305.6
Columbia	454.3	621.0	329.8	285.0	422.5	840.4
Garfield	271.9	371.7	197.4	170.6	252.9	534.8
Grant	882.6	1,206.5	640.8	553.8	820.9	1,680.8
Morrow	408.2	557.9	296.3	256.1	379.6	764.0
Umatilla	1,066.4	1,462.5	776.7	671.4	994.3	2,062.8
Union	284.3	398.3	211.5	182.8	269.2	534.8
Walla Walla	6.9	9.5	5.0	4.3	6.4	7.6
Wallowa	351.8	480.9	255.4	220.8	327.2	687.6
Wheeler	114.9	157.1	83.4	72.1	106.9	229.2
Total	3,994.5	5,474.9	2,907.5	2,513	3,722.4	7,647.6

1 - MM = Million.

Sources: Land and Resource Management Plan. Umatilla National Forest. 1-6 p; 4-18 p. 25% Payments to Counties FY 1994. Umatilla National Forest, Budget and Finace Section. 25% Payments to Counties FY 1976-1993. Umatilla National Forest, Budget and Finace Section. May, 1994.

Figure R exhibits the long-term trend for receipts returned to the 10 county area since 1982. Receipts to counties have varied from a low of $1,485,600 in 1982 to a high of $5,690,500 in 1989. The 13-year average is $3,664,415 (1994$).

Figure R
TOTAL RECEIPTS TO COUNTIES
Long-Term Trend from 1982-94 (1994$)



Evaluation:

The threshold for this item has been exceeded. The Forest Plan projected payments to counties has not been realized, primarily because actual timber outputs have been significantly less than projected. It is anticipated that receipts and payments to counties will continue to be less than Forest Plan estimates in the short term. A continuation of the payments trends suggest that the Forest Plan needs to be adjusted. The Forest expects to wait until completion of the ICBEMP, which should firm-up future ecosystem based management direction and provide additional information to help the Forest address the monitoring question. Continue monitoring until completion of the Eastside EIS.

MONITORING ITEM 56: Lifestyles, Attitudes, Beliefs, Values and Social Organizations

Forest Goals, Desired Future Condition, and Outputs: Promote human resources, civil rights, and community development within the zone of influence of the Forest.

Monitoring Question(s): 1. What changes are occurring in local attitudes toward Forest programs and activities? 2. How are local lifestyles changing? 3. How are social organizations being effected by the Forest?

Threshold of Variability: Established trend toward Forest-Community conflicts or identification of issues and problems and major changes in lifestyles influenced by the Forest.

Results/Findings:

During 1994, techniques used to monitor changes in lifestyles, attitudes, beliefs, and values were similar to those used in the past and involve informal methods such as interviews of key contacts and opinion leaders, stakeholders, sensing walk-in customers, telephone and written inquiries, observations and comments by employees and meeting attendees. Other methods include reviewing newspaper and magazine articles, videotaping documentaries, specials, and news spots, and recording radio spots for review and assessment.

Most of the uncertainties discussed in last years report continued throughout the year. Public issues and concerns (and legal issues and administrative requirements) continued to influence how lands and resources are being managed. Ecosystem management, job loss, water, fish (particularly salmon), timber supply, livestock grazing, threatened wildlife, community impacts, home rule, recreation, county of dominance and restoration are a few of the buzz-words in the atmosphere of public dialogue. Each is a reflection of the attitudes, beliefs and values (and lifestyles) inherent in the communities and area influenced by the Forest.

The ICBEMP has identified public issues and concerns related to the shift to ecosystem management and other possible adjustments to public land management. In general, most of the public comment that was documented and reported was similar to that reported in the Forest Planning process.

Evaluation:

The Forest needs to review the background of public input obtained from projects to assess possible lifestyle, attitude, beliefs, and value changes related specifically to the Forest. Continue monitoring.

MONITORING ITEM 57: Forest Contributions to the Local Timber Supply

Forest Goals, Desired Future Condition, and Outputs: Promote community and economic development within the Forest zone of influence.

Monitoring Question(s): What changes are occurring in the contributions of the Forest to the local forest products industries within the zone of influence?

Threshold of Variability: 20% change in Umatilla National Forest new materials outputs below Plan estimates.

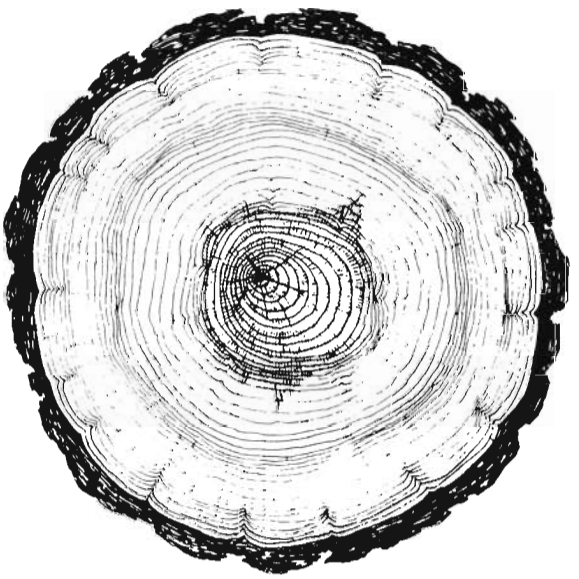
Results/Findings:

The Forest continues to have a reduction of timber sale outputs since 1991. In 1994, the total amount of wood products offered for sale from the Forest was 8.5 MMBF or 5.4 percent of Forest Plan projections. The Total Sale Program Quantity (TSPQ) for the Forest is 159 MMBF. For additional discussion, refer to Monitoring Item 43, Timber Offered for Sale.

The Forest expects timber outputs to increase to a sustainable level near 50 MMBF within the next several years. However, the Forest will still be well below Forest Plan projections. With production well below projected levels (including adjacent National Forests) for the last several years, raw material shortages are appearing and affecting local timber industries.

Evaluation:

Adjustments to the Forest Plan would normally be considered given continued low timber output levels substantially below Plan projections. However, any adjustment is currently on hold until the ICBEMP and Eastside EIS are completed and results can be integrated into the Forest Plan.



B. FOREST BUDGET

MONITORING ITEM 58: Forest Budget

Forest Goals, Desired Future Condition, and Outputs: Full funding of all resource programs and activities including monitoring.

Monitoring Question(s): Are the annual programs and budgets needed to implement the Forest Plan being realized?

Threshold of Variability: Budget more than 20 percent different from Forest Plan level.

Results/Findings:

The Forest budget is monitored by comparing the Forest Plan projections against yearly expenditures. Table IV-7 shows a comparison of projected with actual expenditures for 1994. The Forest Plan projected first decade expenditures to average $31,675,000 (1994$) per year. Actual expenditures for the same activity categories for the period 1991 to 1994 averaged $25,988,031 (94$), which represents 82 percent of Forest Plan projections. Since 1991 expenditures have decreased by 19 percent with the exception of 1992 where a slight increase occurred (see Figure S).

Table IV-7
FOREST EXPENDITURES/BUDGET – FY 1994
Umatilla National Forest

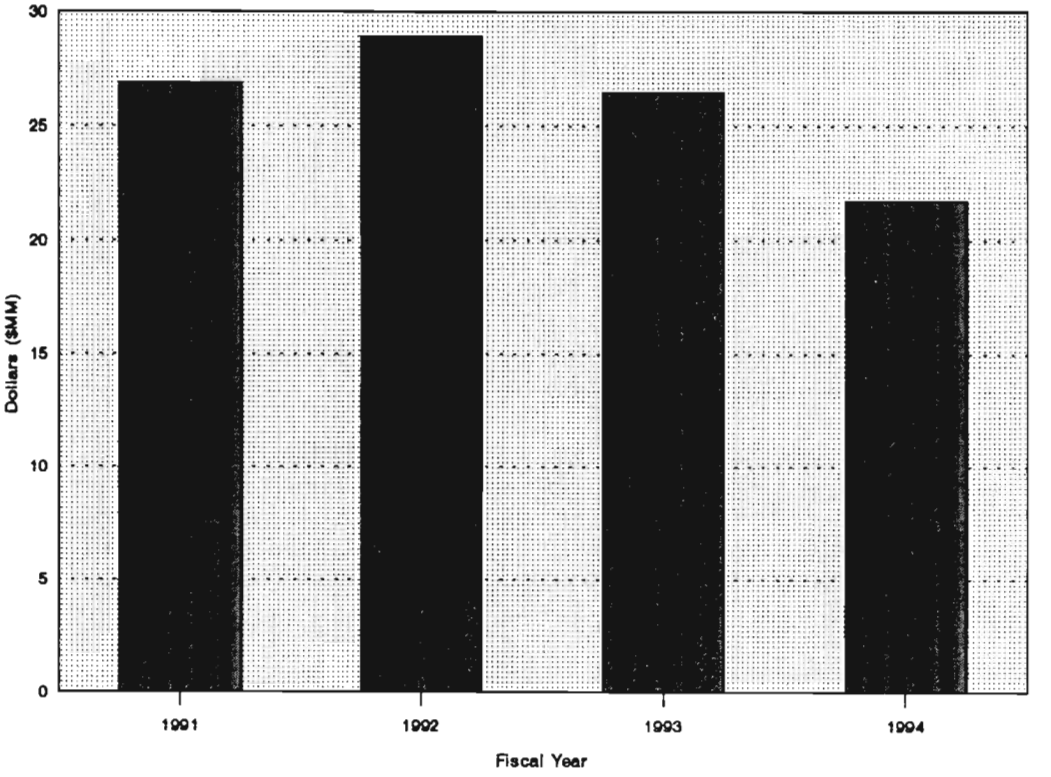
FUND CODE	1994 EXPENDITURES ($M)	FOREST PLAN (1994$) ($M)	ACTUAL AS % FOREST PLAN
Appropriated:			
Minerals & Geology Management[1]	141	191	74%
Real Estate Management	44	111	40%
Land Line Location	151	195	77%
Facility Operations	216	266	81%
Cooperative Law Enforcement	5	22	23%
Law Enforcement[2]	46	0	–
Road Maintenance	896	1,390	64%
Trail Maintenance	301	421	71%
Timber Sale Administration[3]	2,301	5,021	46%
Reforestation/TSI/Genetics	1,756	982	179%
Recreation & Wilderness Management	665	1,406	47%
Wildlife Operations & Improvements	171	548	31%
Anadromous & Inland Fish Operations	943	472	200%
Range Vegetation Management	364	435	84%
T&E Species Operations	128	56	229%
Soil, Water, and Air Management	393	367	107%
Cultural Resource Management	122	118	103%
General Administration[4]	2,120	2,842	75%
TOTAL NATIONAL FOREST SYSTEM	10,763.0	14,843.0	73%

FUND CODE	1994 EXPENDITURES ($M)	FOREST PLAN (1994$) ($M)	ACTUAL AS % FOREST PLAN
Construction:			
Recreation Facilities	150	288	52%
Other Facilities	279	394	70%
Road Construction	488	2,957	17%
Trail Construction	128	636	20%
TOTAL CONSTRUCTION	1,045.0	4,275.0	24%
Other Funds:			
Forest Fire Protection[5]	1,708	1,440	119%
Range Betterment	31	39	79%
Brush Disposal	595	1,142	52%
Timber Purchaser Road Construction[6]	547	2.983	18%
Purchaser Election Timber Roads	0	746	–
Timber Salvage Sales	2,857	1,816	157%
KV-REF/TSI/Other	2,714	3,527	77%
CWFS-Other	395	843	47%
Rural Development	19	0	–
Federal Highway Administration	4	0	–
L&WCF 15% Fee Collection	4	0	–
Watershed Assessment	944	0	–
Resource Management, Timber Receipts	20	0	–
Hazardous Waste	4	0	–
Quarters Maintenance	106	0	–
Pest Management	0	21	–
TOTAL OTHER FUNDS	9,948.0	12,557.0	79%
GRAND TOTAL	21,756.0	31,675.0	69%

M = thousand
1 – Includes Minerals & Geology Resource Coordination, GM113.
2 – NFLE only.
3 – Includes Fund Codes: NFHA, NFSE, NFSP, NFTP, and all work activity ET113 (Timber Support), except FFFP and SSSS.
4 – Includes GA for Fund Codes: NFGA, BDBD, CWFS, CWKV, and SSSS.
5 – Includes all activities in FFFP except PF2 which is included with brush disposal.
6 – Purchaser credit from TSA451-01, 10/11/94.
Source: Budget and Finance Section - Umatilla National Forest.

During 1994, only a few programs were funded (expenditures) at a rate equal to or higher than the Forest Plan estimate including the following: Anadromous and inland fish, threatened and endangered species, reforestation/timber stand improvement/genetics, cultural resources, forest fire protection, and timber salvage programs. Aside from total expenditures in a given category, activity expenditures as a percentage of the total yearly budget give an indication of change in program emphasis. Most major programs were funded at a lower level than the Forest Plan budget projections.

Figure S
EXPENDITURES FY 1991-94 (1994$)
Umatilla National Forest



Evaluation:

In FY-1994, actual expenditures were 69 percent of Forest Plan projections, which means the threshold of 20 percent has been exceeded for this monitoring item for the first time. Budget levels are anticipated to continue to decline for the next several years. Recommend continue monitoring.

MONITORING ITEM 59: Costs/Values of Forest Plan

Forest Goals, Desired Future Condition, and Outputs: Achieving economic efficiency in implementation of the Plan.

Monitoring Question(s): 1. Are the major costs and values used and projected in the Forest Plan analysis in line with actual implementation costs, and present values being realized? 2. Are the values used in the plan analysis being proven out in experience?

Threshold of Variability: 1. 20% difference between actual expenditures and those projected in the Plan. 2. 20% difference between actual resource values and those projected in the Plan.

Results/Findings:

In past monitoring reports, only costs and values for the timber program have been displayed. For this report, an initial review of recreation values was conducted.

In Table IV-8, timber costs and values are addressed. The table displays Forest Plan projections of commercial timber outputs, revenues, and costs with actual totals for the period from 1991 to 1994. The general trend since the mid-1980's has been characterized by increasing costs per MBF of harvested timber. Due to changes in accounting codes and expenditures tracking, the projected cost per MBF in the Forest Plan may not be exactly comparable with the costs obtained from the Timber Sale Program Information Reporting Systems (TSPIRS).

Average revenue per mbf during the period 1992-94 was $207. This is a 19 percent increase above Forest Plan projections. The average cost per mbf of harvested commercial timber was $145 for the period 1992-94. This represents a 142 percent increase in cost over Forest Plan projections.

Table IV-8
COMMERCIAL TIMBER OUTPUT, REVENUE, AND COSTS[1]
Umatilla National Forest

Fiscal Year	Harvested Volume (MMBF)	Revenue[2] (MM$)	Average revenue per mbf (1994 $)	Average cost per mbf (1994 $)
1994	20.1	$6.4	$316	$211[3]
1993	81.1	$12.1	$154	$133[3]
1992	134.8	$19.4	$152	$92[3]
1991	146.8	$16.5	$123	$67[3]
Forest Plan	159[4]	$18.1	$174	$60[5]

1 – Commercial timber data from Timber Sale Program Information and Reporting System (TSPIRS), Statement of Timber Sale Revenues and Expenses, Umatilla National Forest, 1992, 1993, 1994.
2 – Total commercial revenue (nominal dollars), TSPIRS Statement of Timber Sale Revenues and Expenses for specified year.
3 – Total direct expenses, TSPIRS Statement of Timber Sale Revenue and Expenses for specified years.
4 – Includes Timber Sale Program Quantity (TSPQ) harvest totals for the first decade.
5 – Derived from Management Information Handbook activity codes for variable timber costs in Forest Plan, Appendix A. Due to changes in accounting codes and expenditure tracking, is not directly comparable to above cost figures.

Recreation values represent the estimated market price of the specified recreation activity in terms of recreation visitor days or wildlife and fish user days (see accompanying table for definitions). The values used in the Forest Plan analysis can be compared with the most recent agency approved values from the 1990 RPA (Forest and Rangeland Renewable Resources Planning Act of 1974) in Table IV-9.

For the listed activities, the 1990 RPA figures are on average 51 percent higher than the values used in the Forest Plan analysis (1994 constant dollars). Cold-water and anadromous fishing are 355 percent and 98 percent higher, respectively. Small game, waterfowl, and upland game hunting are higher by 106, 71, and 77 percent respectively. Big-game hunting decreased by 5 percent.

Table IV-9
COMPARISON OF RECREATION VALUES USED
IN FOREST PLAN AND RECENT ESTIMATES
Umatilla National Forest

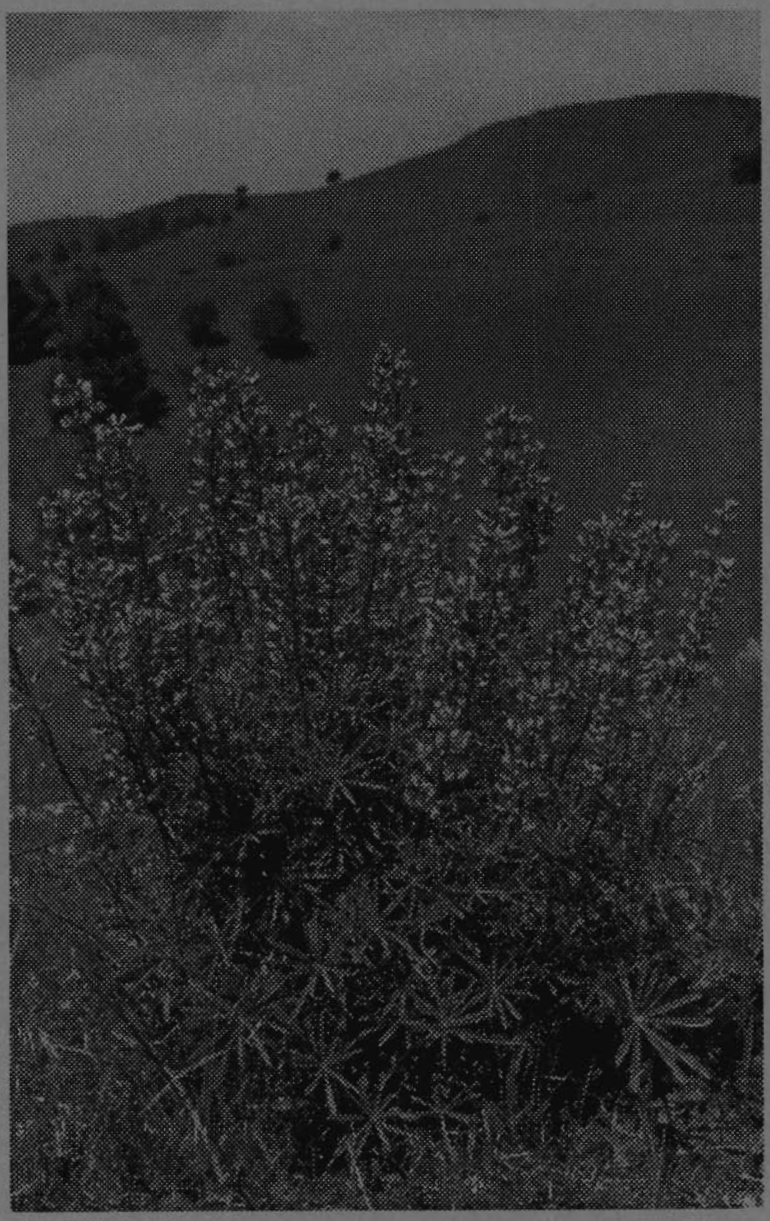
Value used in Forest Activity	1990 RPA Values[3] per RVD or WFUD[2]	Plan Analysis[1] (1994$ WFUD)[2]	1994$ per RVD or Percent Change
Fishing:			
Anadromous	$46	$91	+98%
Cold water	$20	$91	+355%
Hunting:			
Big game	$43	$41	-5%
Small game	$18	$37	+106%
Waterfowl	$34	$58	+71%
Upland game	$34	$60	+77%
Boating:			
Motorized	$6	$6	0%
Non-motorized	$9	$8	-11%
Other:			
Motorized travel	$11	$11	0%
Camping	$8	$8	0%
Picnicking	$9	$8	-11%
Hiking	$14	$13	-7%
Wilderness	$23	$25	+9%
Wildlife viewing	$35	$46	+31%

1 – The values used in the Forest Plan analysis are based on values developed in the FEIS for the 1985-2030 Resources Planning Act Program. October 1986. See Appendix F, Development of Benefit Values and Costs, PP. F-1 to F-16.
2 – RVD's are Recreation Visitor Days, which equals one person engaged in the specified activity for 12 hours. WFUD's are Wildlife-Fish User Day's which is a similar concept to recreation visitor days except applied to hunting and fishing activities.
3 – Source: Resource Pricing and Valuation Procedures for the Recommended 1990 RPA Program, Appendix B in The Forest Service Program for Forest and Rangeland Resources: May 1990.

Evaluation:

Most of the criteria are beyond the established thresholds. The changed costs and values are an integral part of several concerns that have been submitted to the Regional Forester as potential issues to be considered in a Forest Plan adjustment. Information and data will be further evaluated if the Forest Plans are changed. The new cost and values may be used in the Forest Plan adjustments. Major changes are currently on hold until the ICBEMP Assessment and Eastside EIS are completed.

V. ACCOMPLISHMENTS



V. ACCOMPLISHMENTS

In FY 1994, the Forest accomplished various resource programs which relate to monitoring. Forest objectives or planned average annual scheduled outputs and effects may not always be accomplished in any given year. Changes in budgets, data, assumptions or other items used in the development of the Plan could affect accomplishment of outputs and activities. Table V-1 identifies each resource area, unit of measure, Forest Plan projection, Regional assigned targets, actual Forest output, and percentage of actual output to the Forest Plan.

Table V-1
FOREST ACCOMPLISHMENTS – FY 1994
Umatilla National Forest

Resource	Unit of Measure	Forest Plan[1] Projection	Region Assigned Target	Actual Forest Output	% Actual to Forest Plan
Recreation Recreation Resource Administration/Maintenance	MPAOT[2]	255	298	294	115%
Trail Construction/Reconstruction	Miles	30	7.8	6.8	22.7%
Trail Maintenance	Miles	400	N/A	N/A	–
Range Noxious Weed Control	Acres	N/A	2,501	752 3,125 (KV)[3]	–
Nonstructural Improvement	M Acres	N/A	1,010	600 1,510 (KV)	–
Structural Improvement	Structure	N/A	28	20 13 (KV)	–
Permitted Grazing	M AUM's[4]	58.0	N/A	48.9	78%
Water and Soil Watershed Improvement	Acres	454	179	180 51 (KV)	51%
Soil Inventory	M Acres	NA	7,500	6,893	–
Minerals Leases and Permits	Cases	240	402	404	168%
Fire Fire Protection	M Dollars	–[5]	1,384	1,372	–
Fuel Treatment Natural Activity	 M Acres M Acres	 3.4 5.8	 4.56 4.35	 16.3 5.45	 479% 94%
Timber Total Timber Offered - TSPQ	 MMCF[6] MMBF[7]	 28.4 159	 10.8 62.0	 1.5 8.5	 5.3%
Reforestation[8]	M Acres	7.5	7.2	11.0	147%
Timber Stand Improvement[9]	M Acres	2.9	2.5	2.5	86%
Lands Property Boundary Location	Miles	37.5	25.2	27.3	72.8%

Resource	Unit of Measure	Forest Plan[1] Projection	Region Assigned Target	Actual Forest Output	% Actual to Forest Plan
Fish Anadromous Fish Habitat Investment	Acres	NA	67	32 35 (KV)	–
Anadromous Fish Habitat Structural Improvement	Structure	NA	105	26 20 (KV)	–
Anadromous Fish Habitat Inventory	M Acres	NA	3.2	3.2	–
Inland Fish Habitat Investment	Acres	NA	35	60 (KV) 30 (Cont)[10]	–
Inland Fish Habitat Investment	Structure	NA	25	2 15 (KV)	–
Transportation Local Roads: Construction/Reconstruction Arterial/Collector Reconstruction	 Miles Miles	 92/61 33	 7.5 NA	 0.1 NA	 .07% –
Timber Purchaser/Construction	Miles	NA	NA	NA	–
Wildlife Habitat Nonstructural Improvement	M Acres	10.0	0.8	0.1 0.6 (KV)	7%
Habitat Structural Improvement	Structure	75	46	15 20 (KV)	47%
Inventory	Acres	NA	6,000	6,000	–
Threatened/Endangered and Sensitive Species Habitat Investment	Acres	NA	74	2	–
Habitat Investment	Structure	NA	5.0	5.0 (KV)	–
Habitat Inventory	M Acres	NA	20	58.3	–

1 LRMP - Umatilla National Forest; Table 4-1, projected resource outputs and effects expressed as an annual yield/decade, pp. 4-15 to 4-18. FEIS, Table II-6 Recreation, Wildlife, and Fish Related Quantifiable Resource Outputs, Environmental Effects, Activities and Costs by Alternatives, pp. 11-87 to 11-96.
2 MPAOT = Thousand Persons At One Time
3 KV = Knutson-Vandenberg
4 AUM = Animal Unit Months
5 Forest Plan projected an annual $1,880 (1994$) per 1,000 acres. Changes in funding and processes during the past several years has made it difficult to accurately compare Plan projection to actual output.
6 MMCF = Million Cubic Feet
7 MMBF = Million Board Feet
8 25 acres contributed; 5,011 acres KV
9 Includes appropriated and KV target and output
10 Contribution made by others

Evaluation:

Since implementation of the Forest Plan, funding levels and programs have changed significantly which has made it extremely difficult to compare projected to actual outputs. During the next several years, it is anticipated budget levels will decline. The decline in funding directly affects the Forests ability to accomplish certain objectives outlined in the Forest Plan. Further evaluation is needed to fully analyze the changes that have occurred and those that are expected.

VI. FOREST PLAN AMENDMENTS

VI. FOREST PLAN AMENDMENTS

This section contains discussion on current Forest Plan amendments, updates, and proposed amendments.

In FY '94, two environmental analyses which included site-specific project plan amendments were approved. Forest amendment number 7 was part of the decision for the Grande Ronde Wild and Scenic River. This amendment delineates river corridor boundaries, identifies appropriate management practices, and provides for monitoring.

Forest amendment number 8 was part of a decision signed by Regional Forester John Lowe on May 20, 1994. This amendment provides for the continuation of the interim management direction for timber sales on the east side of the Cascade Mountain. This direction was designed to restrict timber harvest in certain areas so as to assure that the full array of planning options are preserved while the various items of new information are being assessed and the need for new management direction evaluated through the preparation of the Eastside EIS.

To date, ten amendments and one update have been made to the Forest Plan. Table VI-1 contains a brief summary of each. Table VI-2 includes a list of amendments that are expected to occur within the next 2 years.

Table VI-1
SUMMARY OF CURRENT FOREST PLAN AMENDMENTS AND UPDATES
Umatilla National Forest

Amend. No.	Document	Date	Notes
1	Decision Memo	3/8/91	Corrects wording, phrases, and miscellaneous errors in the Plan.
2	Decision Memo	3/8/91	Corrects the Forest Plan to permit existing motorized use to continue on a trail in the A1 Management Area.
3	Decision Notice	6/22/92	Exempts the Turner Otter project from certain standards, to facilitate salvage and restoration projects.
4	Decision Notice	9/4/92	Exempts the Windy Springs salvage and rehabilitation project from certain standards, to facilitate restoration work.
5	Decision Notice	5/6/93	Exempts the Indianberry Salvage and rehabilitation project from certain standards, to facilitate restoration work.
6	Decision Notice	9/7/93	Changes were made to further clarify the management objectives for the North Fork John Day Wild and Scenic River and to define boundaries.
7	Decision Notice	12/13/93	Changes were made to further clarify the management objectives for the Grande Ronde Wild and Scenic River and to define boundaries.
N/A	N/A	3/30/94	Updates the Forest Plan by adding Appendix D (Prescribed Natural Fire Implementation Process) to clarify the national implementation intent. Because this appendix only provides updated direction and will result in no new environmental effects, no NEPA documentation was required.
8	Decision Notice	5/20/94	Implementation of Eastside Interim Direction EA - Amends the Forest Plan to implement short-term direction needed to maintain options for old growth related and other species while a complete analysis is developed as part of the Eastside EIS.

Amend. No.	Document	Date	Notes
9	Record of Decision	2/6/95	East End Salvage and Restoration Projects FEIS - Changes a corridor along the Blue Mountain Scenic Byway from A-1 to A-4 to allow greater flexibility in managing the area as a scenic travel corridor. Also reallocates 148 acres of existing old growth habitat as C1 to replace an unsuitable stand currently allocated as C1.
10	Decision Notice	2/24/95	Interim Strategies for Managing Anadromous Fish Producing Watersheds on Federal Lands in Eastern Oregon and Washington, Idaho, and Portions of California EA (PACFISH). By amendment, adds to the Forest Plan "interim" management direction intended to arrest and reverse the decline in anadromous fish habitat on the Umatilla NF (as well as 14 other Forests) until longer term options are developed in the Eastside Strategy.

Table VI-2
UPCOMING (PROPOSED) AMENDMENTS
Umatilla National Forest

Document	Expected Date	Notes
Oil and Gas Leasing FEIS	7/95	Amends the Forest Plan by identifying lands administratively available for leasing and the stipulations that will apply to those leases.
Wenaha Wild and Scenic River EA	9/95	Will develop a management plan and provide a boundary description for the Wenaha Wild and Scenic River.
Policy Implementation Guide (PIG) Numeric Standards EA	Postponed (see below)	Will amend the Forest Plan to further define and clarify numeric objectives for future riparian and aquatic habitats. Direction to implement this amendment is found in the Forest Plan ROD.
Eastside Strategy EIS	11/95	The President has directed the Forest Service to develop a scientifically sound and ecosystem-based strategy for management of eastside Forests. When completed, forest plans will be amended as necessary to implement the management strategy selected in this analysis.

POLICY IMPLEMENTATION GUIDE (PIG) NUMERIC STANDARDS EA

In 1994, the Umatilla began preparing an EA that would amend the Forest Plan by adding new and clarifying existing direction for riparian and stream related areas. This project was undertaken to respond to a commitment the Forest Service made in 1991 when it agreed to implement the Columbia River Basin Anadromous Fish Habitat Management Policy Implementation Guide (PIG). The planned Forest Plan amendment was going to add aquatic and riparian numeric values or objectives to help define desired aquatic habitat for anadromous fish.

The adoption of PACFISH is viewed as part of the ongoing process to meet the obligations made in the the PIG. However, after a review of the direction in the PACFISH Forest Plan amendment, specifically the Riparian Management Objectives, the Forest decided that the interim criteria were similar to the standards proposed in the PIG EA and that this EA was no longer needed at this time. Consequently, plans to continue with the PIG EA have been postponed.

After the completion of the Interior Columbia River Basin EIS, the Forest will review the new management direction provided by this plan. If additional direction is still needed to adequately describe the desired future conditions for riparian habitat in the Umatilla National Forest, the PIG EA will be used to add this direction through a Forest Plan amendment.