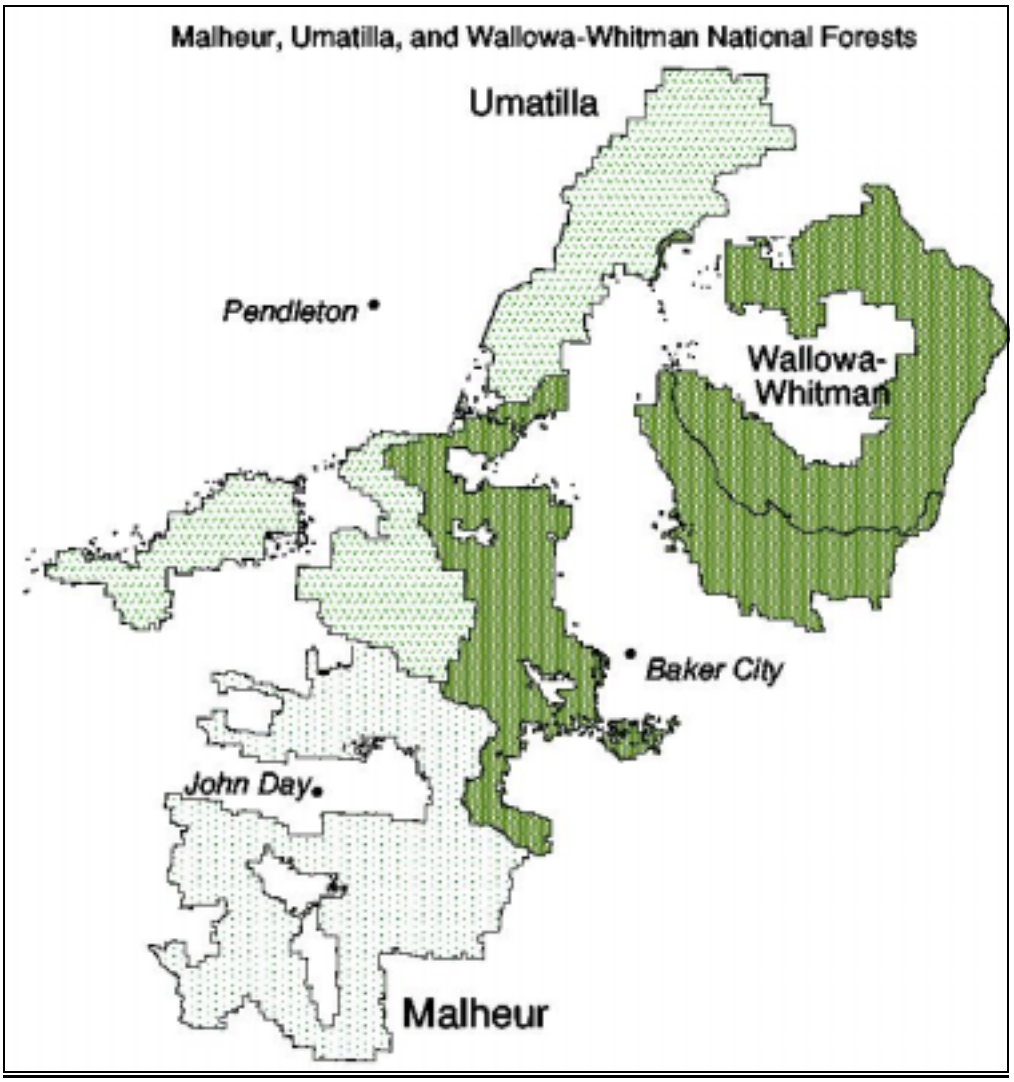
Blue Mountains National Forests

COORDINATED MONITORING ITEMS



SECTION C

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

During the year the Forest Service across the entire Northwest Region was in the process of transitioning to a new Smoke Management Information System (a subsection of the FASTRACS fuels management data base). This transition has been generally successful but has required additional interaction between the Forest and Smoke Managers in each of the States.

Malheur

The reporting obligations to the Oregon State Implementation Plan (SIP) and the Northeast Oregon Smoke Management Memorandum of Understanding during calendar year 2000 were met.

A prescribed fire ban from May 12 to June 12 and record dry conditions during the fall period limited accomplishment of planned prescribed burning.

Table C-1
EMISSIONS TREND
Malheur National Forest

Year	Acres Treated	PM 10	BD Acres	Natural Fuels Acres
1993	6,133	889	5286	847
1994	8,117	456	3658	4,432
1995	11,218	1635	6681	4,537
1996	18,019	1930	5684	12,335
1997	32,142	3553	9392	22,750
1998	36,124	1882	9159	26,965
1999	26,555	1084	4582	21,973
2000	7,759		4,051	3,708

Umatilla

The Umatilla National Forest met the reporting requirements for both the Oregon and Washington State Implementation Plans (SIP). Within the Oregon portion, the Forest complied with the reporting obligations of the Northeast Oregon Smoke Management Memorandum of Understanding.

Evaluation:

The declining trend in particulate production from the early 1990's to current levels is a result of a decline in the quantity of activity fuels (such as from harvest operations) requiring treatments. Activity fuel burning often consumed relatively greater amounts of fuel per acre and resulted in greater quantities of emissions. The current variation in emissions produced is often a result of weather conditions reducing the number of available days to burn within prescription parameters. During calendar year 2000 the number of available burning days was also reduced due to a moratorium on prescribed fire from early May until middle of June.

Figure C-1
TOTAL FUEL CONSUMPTION
Umatilla National Forest

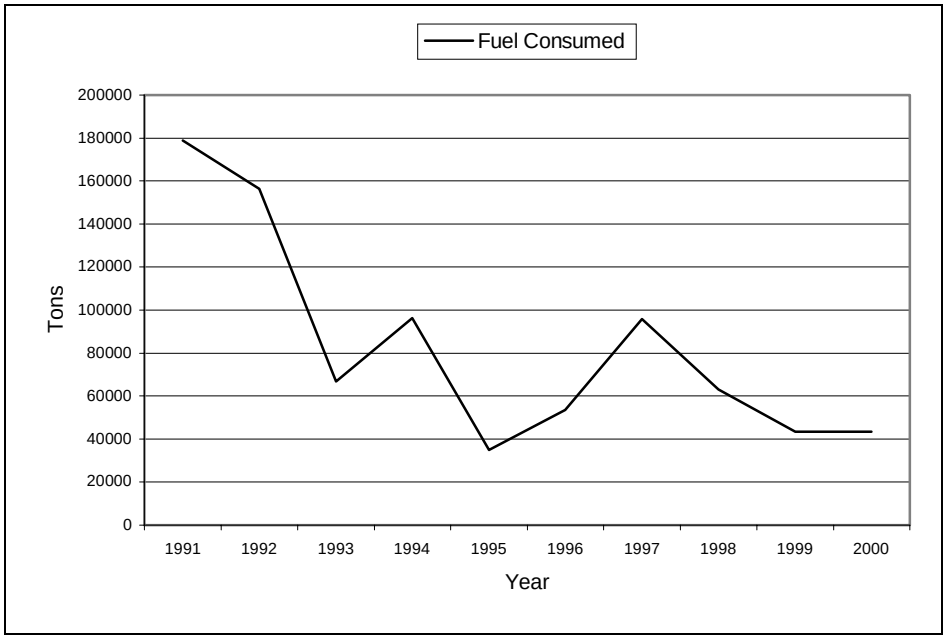
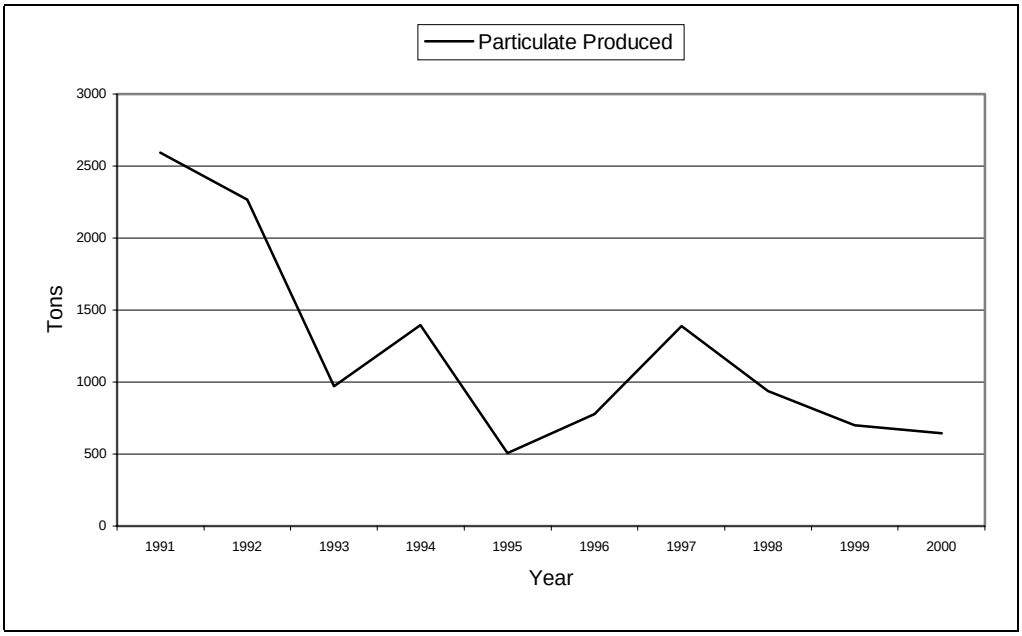


Figure C-2
PM10 EMISSIONS
Umatilla National Forest



Wallowa-Whitman

The Wallowa-Whitman did not submit a report on this item.

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

Malheur

The Malheur did not record any impacts to any Special Protection Zones.

Umatilla

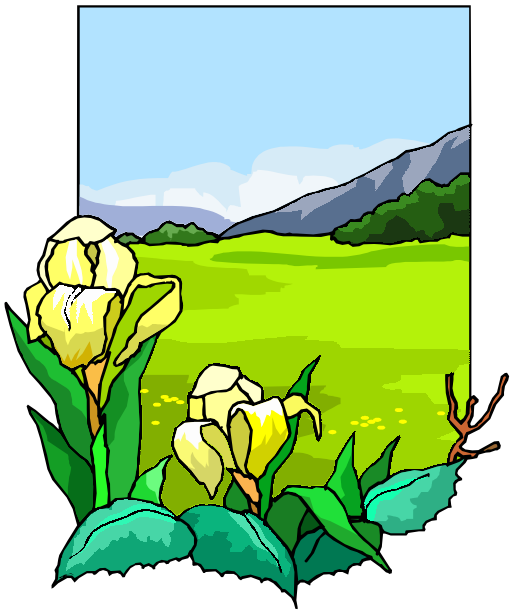
The Forest is not aware of any smoke intrusions into La Grande or other population centers in Northeast Oregon or Southeast Washington during the last calendar year as a result of prescribed burning. Smoke intrusions did occur in La Grande during the month of August 2000 as a result of wildfire smoke.

Wallowa-Whitman

The Wallowa-Whitman did not submit a report on this item.

Recommended Action:

- The Umatilla National Forest needs to continue to provide support for the "real time" air quality monitoring network within Northeast Oregon maintained by the Oregon Department of Environmental Quality.
- The Forests will be involved as a user in the process of review and potential update of the Oregon Smoke Management Plan. This process should be initiated within the calendar year 2001 by the Oregon Department of Forestry.



Fire Managed for Resource Benefits
Malheur 36, Umatilla 18, Wallowa-Whitman 22

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

Malheur

The Fire Plan to allow use of wildland fire for resource benefit (formerly prescribed natural fire) has not been updated. New Fire Management Plan guidelines and Forest Service Manual (FSM) direction were issued. As this was not on the Forest's program of work schedule the planning process was not instituted in FY2000.

Activity fuels are being treated as identified in NEPA project analysis.

Non-activity fuels are being treated as identified in the Forest Plan based on project level analysis and implementation.

Umatilla

During calendar year 2000, the Umatilla National Forest experienced three natural ignitions within wilderness areas on the Forest. All of these fires were suppressed using an appropriate suppression response, as the Forest does not have a currently approved plan for Fire Managed for Resource Benefits (FMRB).

The average level of activity fuels needing treatment is less than the level predicted in the Forest Plan. As the level of harvest activity is not reaching predictions in the Forest Plan, the corresponding amount of activity fuels is also reduced.

The non-activity fuels are being treated on forested lands at an average level greater than envisioned by the Forest Plan. Additional national direction in the form of either, Protecting People and Sustaining Resources in Fire-Adapted Ecosystems -- Cohesive Strategy (Oct. 2000), or the National Fire Plan (Oct. 2000), will likely result in continuing to exceed the levels predicted in the Forest Plan.

Wallowa-Whitman

The Wallowa-Whitman did not submit a report on this item.

Recommended Action:

- The Forests should reassess and update Fire Management Plans to utilize Fire Managed for Resource Benefits techniques.

Wildland Fires

Malheur none, Umatilla 49, Wallowa-Whitman none

Questions: How many acres are being burned outside their normal disturbance regime? How is this changing over time? Are National Forest Management practices reducing suppression costs over time?

Malheur

Table C-2
LIGHTNING, HUMAN CAUSED FIRES AND ACRES BURNED
Malheur National Forest

Fire Cause	Number of Fires	Acres Burned
Human	10	5
Lightning	50	428
Total	60	433

Umatilla

As shown in Table C-3, the FY2000 fire season was below the average for number of fires but above the average for acres burned. The majority of the acres burned were from human caused fires. The total number of fires in FY2000 represents 36 percent of the 10-year average (lightning caused fires were 30 percent and human caused fires were 50 percent of their respective 10-year averages). Total acres burned were 269 percent of the base period average (1991-1995).

Being able to track and define the number of acres burned outside of their normal fire regime is the desired monitoring item. Additional analysis and data collection is still needed to adequately portray this relationship.

In reviewing the total number of fires and acres burned in FY2000, the number of fires is obviously low. In fact this is the lowest number of fires on the Forest in any single fire season in our records. The primary reason for this decline appears to be nothing more than luck. Although the majority of the acres burned were human caused, the number of fires was low which would reflect the impact on forest users of the many prevention messages and efforts put forth by the Forest and all of the associated cooperators. The decline in lightning fires appears as the most significant change and is where luck really enters into the situation. By a quirk in weather patterns, the Forest did not receive the amount of lightning that would be expected in a “normal” fire season. This is an interesting anomaly but is unlikely to be a trend.

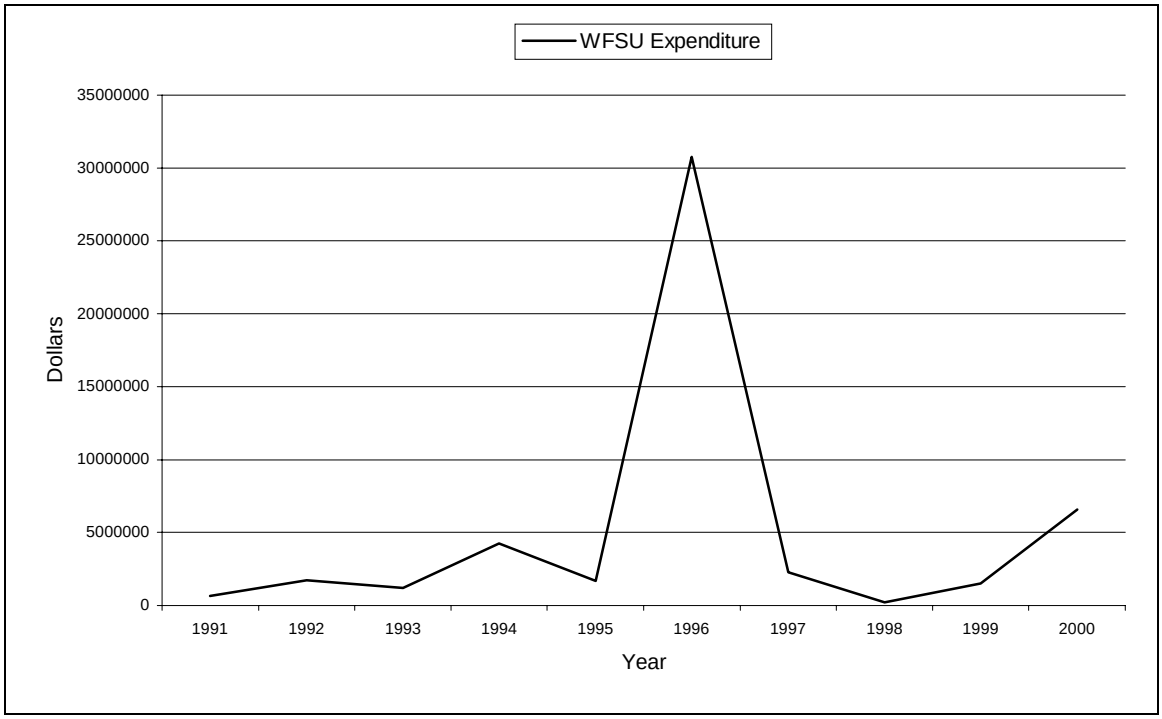
The amount of acres increased relative to the past few years but does not exceed the longer-term average annual acres burned. What is unusual is the ratio of fires that required the use of an Incident Management Team, with about six percent (three fires) requiring such a management effort. This rate of fires that “escape” initial attack resources is high and is likely a direct relationship to the extreme burning potential that existed during the FY2000 fire season.

Table C-3
LIGHTNING, HUMAN CAUSED FIRES AND ACRES BURNED – TREND
Umatilla National Forest

Fire Cause	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Human Caused:										
Number of Fires	52	53	71	45	16	32	45	31	51	21
Acres Burned	29	156	635	153	7	8,289	3,281	226	170	3,200
Lightning-Caused										
Number of Fires	93	137	20	201	82	97	70	87	124	28
Acres Burned	49	278	3	5,637	131	64,228	37	195	86	615
Forest Totals:										
Number of Fires	145	190	91	246	98	129	115	118	175	49
Acres Burned	78	435	638	5,793	138	72,517	3,318	421	256	3,815

Figure C-3 shows the trend in actual expenditures of WFSU (Wildfire Suppression and Rehabilitation Funds) per fiscal year.

Figure C-3
ACTUAL EXPENDITURES OF WFSU – TREND
Umatilla National Forest



Evaluation:

The Forest, as directed by the National Fire Plan, will begin implementation of the Forest's National Fire Management Analysis System's (NFMAS), Most Efficient Level (MEL) in fiscal year 2001. MEL is defined as the lowest level of cost (wildfire suppression and the supporting organization costs) plus loss (resource values lost due to impact from wildfire). The MEL of preparedness resources will result in an increase in the quantity of resources available for fire suppression. Over a period of time with the use of additional suppression resources and an

aggressive fuels management program, we will work to reduce the amount of acres burned by wildfire on an average annual basis.

The use of an aggressive fuels management program, an additional portion of the National Fire Plan, will aid in reducing fuel loading over a large number of acres and aid in reducing the amount of wildland fire acres that burn “outside of the normal disturbance regime”, in terms of fire intensity. The greatest likelihood for reducing the area of wildland fire that burn “outside of the normal disturbance regime will be in the Dry Forest Potential Vegetation Group.

Wallowa-Whitman

The Wallowa-Whitman did not submit a report on this item.

Recommended Action:

- Fire programs are within established thresholds, continue monitoring.

Forage Utilization
Malheur 21, Umatilla 10, Wallowa-Whitman 13

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

As in previous years, in FY2000 Forest Plan utilization standards have been replaced for the most part by monitoring required to fulfill the terms and conditions of the various Biological Opinions issued as part of the ESA process to manage listed species. This implementation monitoring protocol has been developed and approved by the Interagency Implementation Team (IIT). Implementation of these standards has required a modification in the way that monitoring is conducted. This process is continuing to evolve with further changes expected in 2001, with the addition of effectiveness monitoring. The utilization standards and monitoring requirements from the IIT are being incorporated into the Annual Operating Plans for each allotment on each Forest. Table C-4 portrays the results of the "trigger" stubble height monitoring, that is, the stubble height that determines when the livestock should be removed from a given pasture or use area.

Table C-4
UTILIZATION MONITORING BY FOREST - FY2000
Malheur*, Umatilla, Wallowa-Whitman National Forests

	MALHEUR*	UMATILLA	WALLOWA-WHITMAN**
Total number of pastures within active allotments	200	129	499
Total number of pastures monitored	103	77	226
Percent of total pastures monitored	52%	60%	45%
Total number of monitoring data collections	124	111	331
Total number of these within riparian areas	117	103	242
Number of monitored pastures meeting standards	91	76	211
Percent of monitored pastures meeting standards	88%	99%	93%
Number of monitored pastures exceeding standards	12	1	15
Percent of monitored pastures exceeding standards	12%	1%	7%
Number of monitored pastures uncertain	0	0	0
Percent of monitored pastures uncertain	0	0	0

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

Priorities for monitoring were altered in 1999 with the adoption of the Interagency Implementation Monitoring Module developed to respond to the Biological Opinions of ESA listed fish species. This meant that a greater priority was placed on those pastures which "may affect" the listed species and a greater number of monitoring items were required than in the past. For this reason, some numbers and percentages may vary from what was reported in the past due to the differing emphasis.

Table C-5 is a brief summary of the results of the end of season residual stubble height monitoring as required by the IIT Implementation Monitoring Module.

Table C-5
INTERAGENCY IMPLEMENTATION TEAM MONITORING RESULTS
Malheur*, Umatilla, Wallowa-Whitman National Forests

Forest	Pastures Monitored	Standards Met
Malheur*	20	20
Umatilla	74	73
Wallowa-Whitman	142	132

* Data from Prairie City Ranger District only.

Evaluation:

Some pastures are not receiving adequate utilization monitoring, particularly the lower priority allotments or pastures. This situation is a direct result of continuing insufficient funding in the range program.

Recommended Action:

- Continue to emphasize utilization monitoring based on requirements from the IIT Implementation Monitoring Module as funding and priorities permit. Permittees will be requested to voluntarily conduct stubble height (utilization) monitoring.
- Continue to emphasize effectiveness monitoring to validate utilization standards with special emphasis on riparian areas in concert with the forthcoming IIT Effectiveness Monitoring Module.

Allotment Management Planning
Malheur 19, Umatilla 38, Wallowa-Whitman 16

Question: Are Range Analyses, AMP-level NEPA decisions, and Allotment Management Plans (AMPs) being completed according to the Forest Plans' schedules as revised by the 1995 Rescission Bill?

The Forest Plans developed schedules to emphasize allotment management planning on the high resource priority allotments. The 1995 Rescission Bill (Public Law 104-19) required the Forests to develop a new schedule to complete all AMP NEPA within a 15-year timeframe. All three Forests are currently behind schedule but have planning efforts on-going to bring the planning in line with the Rescission Bill.

Table C-6
STATUS OF RANGE AMPs AND EAs BY FOREST
Malheur*, Umatilla, Wallowa-Whitman National Forests

	MALHEUR*	UMATILLA	WALLOWA-WHITMAN
Number of Range Inventory and Analyses completed in FY2000	None	None	None
Number of NEPA decisions completed in FY2000	None	None	None
Number of allotments covered by these decisions	N/A	N/A	N/A
Number of AMPs completed in FY2000	None	None	None
Number of allotments covered by these AMPs	N/A	N/A	N/A
Cumulative number of AMPs that are Forest Plan sufficient	9	7	28
Number of Active Allotments	43	34	117
Percent of Active Allotments with AMPs that are Forest Plan sufficient.	21%	21%	24%

* Data for Prairie City and Emigrant Creek Ranger Districts only.

A total of 19 allotments on the Wallowa-Whitman were in various stages of planning in FY2000. Ten allotments are included in the Upper Grande Ronde Range Planning Area (RPA) document, which remains delayed by the ESA consultation process, as does the Catherine Creek allotment. Marr Flat was put on hold until the Hells Canyon Comprehensive Management Plan is completed. The South Burnt RPA (5 allotments) is ready for draft and should be out early in 2001. The Lower Joseph RPA (11 allotments) is scheduled for completion in 2002. The major delay at present involves the completion of ESA required consultation. If this delay can be resolved, these efforts should bring the Wallowa-Whitman on track with the Recession Bill requirements.

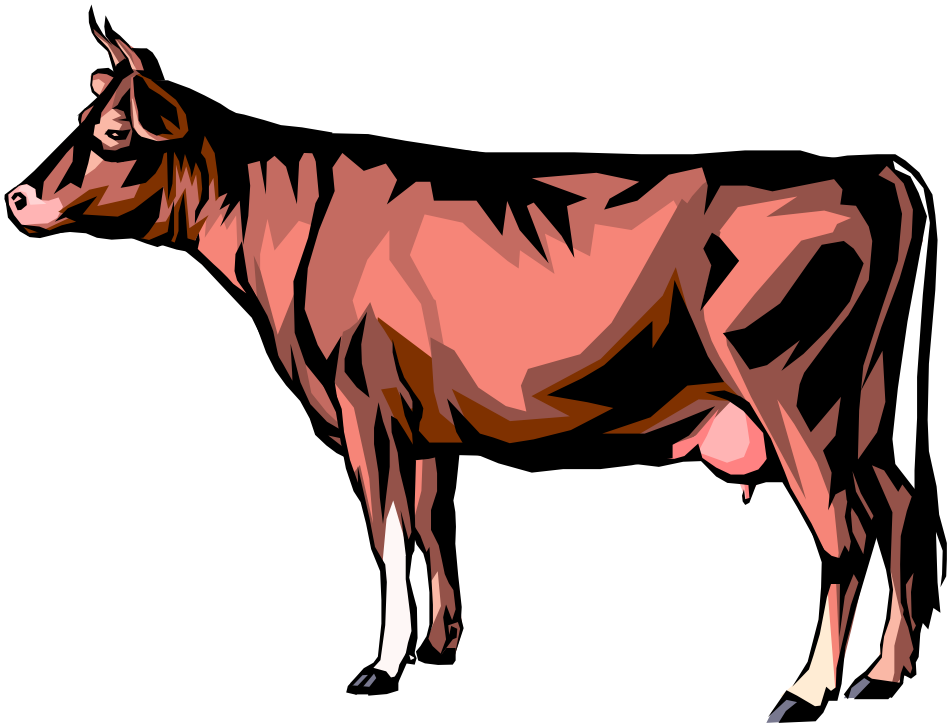
The Umatilla received no funding for additional range inventory or NEPA planning efforts in FY2000. Jim Creek and Spring Mountains Allotments are scheduled for completion in 2001.

Evaluation:

Although results show progress in analysis and planning, significant changes in program emphasis, including ESA consultation efforts, continue to cause overall accomplishments to remain low. The threshold of variability was exceeded on the three Forests but current efforts should allow all three Forests to be on track with the Recession Bill requirements within a few years.

Recommended Actions:

- Continue to update the Allotment Management Planning Schedule to reflect the requirements of the Rescission Bill as well as the actual budgets and accomplishments.
- Continue to pursue adequate funding to accomplish allotment management planning in a timely manner.
- Continue to implement the Forest processes for larger-scale analysis for multiple allotments, providing greater efficiencies and accomplishments.
- Continue to strive for a streamlined and timely ESA consultation process.



Vegetation Management and Noxious Weeds
Malheur 22, Umatilla 12/19, Wallowa-Whitman 10/17

Questions: Are treatments for competing and unwanted vegetation effective in achieving resource management goals? (See Chapter V, page 1 of the R6 Guide for Vegetation Management for a list of goals.) Are noxious weeds being inventoried and managed in accordance with the Regional FEIS for Competing and Unwanted Vegetation, Forest Plan direction, and applicable NEPA decisions? Are treatments effective at meeting objectives defined in the NEPA decisions and/or in associated treatment plans? What are the trends in noxious weed populations?

Both the Umatilla and Wallowa-Whitman Forests have approved Noxious Weed EAs. These EAs incorporated provisions from the Region 6 FEIS for Managing Competing and Unwanted Vegetation, its Mediated Agreement, and the Forest Plans. The Wallowa-Whitman completed its programmatic Noxious Weed EA and Integrated Management Plan in 1992, and in 1994 completed an update to this decision to incorporate additional inventoried sites. The Umatilla's EA was prepared in 1995. The Umatilla and Wallowa-Whitman have suspended work on the joint noxious weed EIS due to the Regional decision to complete a Region 6 analysis.

All three Blue Mountain Forests treated noxious weed infestations this year, and inventoried new sites. New sites probably represent some increased spread of weeds, as well as older sites that have only recently been inventoried. Table C-7 summarizes the existing inventory for the three Forests and the type of noxious weed treatment conducted in FY2000. The table is incomplete because the Forests are still waiting on the completion of a national corporate database; results should be reported more consistently in the future when this database is finally completed.

Table C-7
NOXIOUS WEEDS - INVENTORY AND TREATMENT
Malheur**, Umatilla, and Wallowa-Whitman National Forests

	Gross or Net Acres*	MALHEUR**	UMATILLA	WALLOWA -WHITMAN
Total acres of inventoried noxious weeds	Gross Net	- -	27,541 -	17,383 -
Acres newly-inventoried in FY2000	Gross Net	- 0.25	106 -	0 -
Acres currently NEPA-approved for treatment	Gross Net	- -	4.341 -	3,989 -
METHODS OF TREATMENT Manual	Gross Net	- 15	5,062 9	922 -
Mechanical	Gross Net	- 0	0 -	0 -
Biological ***	Gross Net	- 0	779 35	363 -
Cultural	Gross Net	- 1	0 -	0 -
Chemical	Gross Net	- 0	7.853 27	1,490 -
TOTAL	Gross Net	- 16	13,694 71	2,775 -

* Gross acres are the total acres considered to be "infested". Within the gross acres, the net acres are the land base actually occupied by noxious weeds. For example, a 10-acre (gross) infestation may be occupied by widely-scattered individuals that occupy only 5% (0.5 net acres) of the area.
** Partial Forest report, data is from Emigrant Creek and Prairie City Ranger Districts.
*** Biological controls released in past years are not reflected here, even though biological agents may still be active and providing on-going treatment.

Malheur

The goal of managing competing vegetation is typically not an objective of the prescribed fire and fuels treatment program. Disposal of the residues following an activity to remove competing vegetation, such as non-commercial thinning, does not fall within the scope of the fuels treatment program. Treatment may be done by prescribed burning, mechanical rearrangement, or a combination such as piling residue and burning the piles. A total of 7,759 acres were treated on the Forest during FY2000.

Umatilla

Little if any of the acres treated by prescribed fire are for the vegetative management objectives of eliminating and/or reducing unwanted vegetation. The vast majority of acres burned by prescribed fire are to reduce fuel available to a wildland fire. In some of these cases, certain plant species are more likely to be resistant or respond more favorably to prescribed fire than others, so there can be an indirect effect on plant populations. In the use of prescribed fire for wildlife habitat, fire is a tool to stimulate growth and vigor to plant species desired for either browsing or grazing by wildlife.

Table C-8
ACRES TREATED BY VARIOUS VEGETATION MANAGEMENT METHODS
Umatilla National Forest

Activity	Manual	Mechanical	Biological	Rx Fire	Chemical	Total
Silviculture						
REF Site Prep	0	1,027	0	548	0	1,468
TSI Release	390	0	0	0	0	390
Tree Genetics	0					
Research	0	0	0	0	0	0
Facilities Mtnc.						
Rec Sites	0	0	0	0	0	0
Admin Sites	0	0	0	0	0	0
Range Improvement	0	0	0	0	0	0
Noxious Weeds						
Net	9	0	35	0	27	71
Gross	5,062	0	779	0	7,853	8,638
Wildlife Habitat Improvement	0	0	0	515	0	515
Right-of-way mtnc.						
Roads	0	0	0	0	0	0
Trails	0	0	0	0	0	0
Special Uses	0	0	0	0	0	0
Easements	0	0	0	0	0	0
Utility Corridors	0	0	0	0	0	0
TOTAL ACRES	5,461	1,027	814	1,063	7,880	16,245
% by Treatment	34	6	5	7	48	100

Wallowa-Whitman

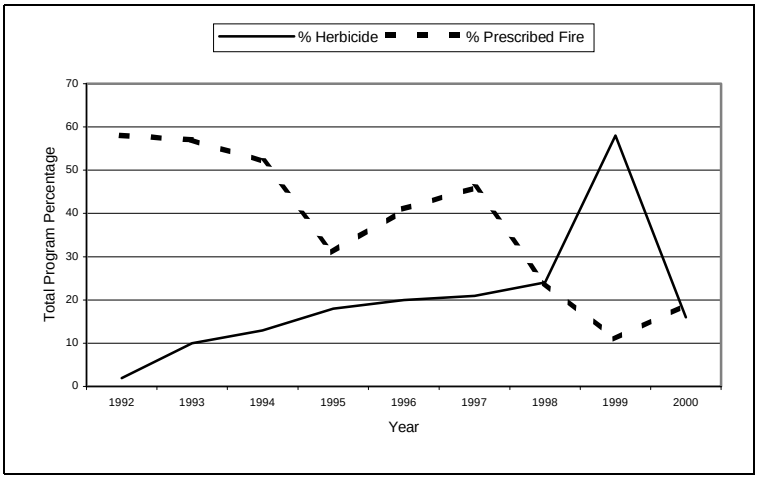
The final version of the Forest's "Monitoring Guide for Vegetation Management Activities" was approved and published in June of 1993. The guide initiates a process to assure compliance with Forest Plan goals and the Vegetation Management Final EIS and its associated Mediated Agreement.

Table C-9
ACRES TREATED BY VARIOUS VEGETATION MANAGEMENT METHODS
Wallowa-Whitman National Forest

Activity	Manual	Mechanical	Biological	Rx Fire	Chemical	Total
Silviculture						
REF Site Prep	10	0	0	157	264	431
TSI Release	3,040	2,838	0	1,963	0	7,841
Tree Genetics	0	56	0	0	19	75
Research	0	5	0	0	0	5
Facilities Mtnc.						
Rec Sites	9	0	0	0	0	9
Admin Sites	0	0	0	0	2	2
Range Improvement	0	0	0	0	0	0
Noxious Weeds	922	0	363	0	1,490	2,775
Wildlife Habitat Improvement	0	0	0	0	0	0
Right-of-way mtnc.						
Roads	10	0	0	0	0	10
Trails	90	0	0	0	0	90
Special Uses	0	0	0	0	0	0
Easements	0	0	0	0	0	0
Utility Corridors	0	0	0	0	0	0
TOTAL ACRES	4,081	2,899	363	2,120	1,775	11,238
% by Treatment	36%	26%	3%	19%	16%	100%

Figure C-4 shows the percentages of herbicide and prescribed fire activities to the total program, revealing an increase in herbicide use, and a decrease in prescribed fire activities from 1992 to 2000. Herbicide treatments are anticipated to increase slightly but will continue at a relatively low level for the next few years while a backlog of difficult non-stocked sites are reforested and a more intensive noxious weed control program is conducted. The level of prescribed fire activity is uncertain based on the perceived need to increase this activity Forest-wide for ecosystem management needs, but at the same time follow the Environmental Protection Agency's recommended Air Quality Standards.

Figure C-4
PERCENT OF TOTAL ACRES TREATED WITH HERBICIDES AND PRESCRIBED FIRE
Wallowa-Whitman National Forest



Treatment Effectiveness:

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

Noxious Weeds Trends:

It is difficult to accurately determine trends in noxious weeds populations. While more infestations are reported each year, it is generally unknown whether these are new sites or simply established sites that have only recently been found and reported. However, the Noxious Weed Coordinators for the Forests have professional opinions on weed trends as discussed below.

Approximately 25 weed species are currently tracked on the Umatilla National Forest. Those of greatest concern include musk thistle, diffuse/spotted knapweed/Russian knapweed, yellowstar thistle, leafy spurge, sulfur cinquefoil, yellow toadflax, dalmation toadflax, and tansy ragwort. Other weed species are too common and widespread to inventory and treat due to budgetary and workforce constraints. In FY2000, field survey crews inventoried 106 acres of new noxious weed sites on the Forest. No new species were reported. Current inventories indicate there are approximately 6,500 noxious weed sites present on the Forest, covering nearly 27,541 gross acres. Weed density is low to moderate in most infestations. The net size of inventoried weed sites ranges from less than 0.1 acres to over 500 acres. Focal points for the expansion and spread of noxious weeds on the Forest generally coincide with highly disturbed or heavily traveled areas such as transportation corridors, areas of high recreation usage, rock and gravel pits, log landings, and timber harvest units.

On Heppner Ranger District, all known populations of knapweed, St. Johnswort, scotch thistle, Dalmation toadflax, hound's tongue, common burdock, scotch broom, and tansy ragwort were hand-pulled or chemically treated with herbicides during FY2000. In general, weed populations on the District appear to be stable and under control. Post-treatment surveys indicate hand pulling has kept populations of knapweed and tansy ragwort in check, although four new small (<10 plants) infestations were located in FY2000. There is concern that tansy ragwort, a Class "A" noxious weed in Oregon, will spread from National Forest to private lands within Morrow County. Canada thistle continues to spread, especially in newly disturbed area, as hand-pulling is not feasible or effective due to the species rhizomatous rooting characteristics. During the 2001 field season, a field crew will be in place to treat 100 percent of inventoried populations.

Five years of aggressive weed treatment activities on the North Fork John Day Ranger District has also been extremely effective in containing and controlling the spread of noxious weeds. Plant count monitoring in summer FY2000 revealed a 16 percent reduction in the density of inventoried weed populations from the previous year, with the average number of plants per site declining from 262 to 220. No weeds were detected on 25 previously infested sites. Declines were even more significant for knapweed species, where the number of plants present in 38 spotted knapweed infestations and 86 diffuse knapweed sites was reduced by 49 percent and 30 percent, respectively.

The noxious weed situation on the northern end of the Forest is more problematic due to extensive yellowstar thistle and knapweed infestations on Pomeroy Ranger District and the eastern portion of Walla Walla Ranger District (e.g., Tiger Canyon, Mill Creek area). Many of these sites are not NEPA-cleared for chemical treatment, and manual treatments have not been very effective in containing the spread or density of these highly invasive species. Other

treatments are being evaluated, including sheep grazing, prescribed fire, mowing, and competitive grass seedings.

The Wallowa-Whitman reports that noxious weeds are increasing in many areas. Sites are increasing rapidly in the remote backcountry with yellow starthistle and rush skeletonweed (among other species) being found in many new areas. Noxious weed spread is especially associated with road use. Many noxious weed infestations appear to be moving onto the National Forest from adjacent lands. Primary species that have been observed to be increasing include yellow starthistle, several varieties of knapweeds, rush skeleton weed, leafy spurge, purple loosestrife, scotch thistle, goatweed, and white top. Where effective treatment actions are employed, containment and control is often achieved.

Recommended Action:

- Continue to monitor on the Wallowa-Whitman according to the procedure outlined in the Forest's "Monitoring Guide for Vegetation Management Activities".
- Analyze the goals and objectives of prescribed fire in ecosystem management in light of the recommendations in the "Eastside Forest Ecosystem Health Assessment," and the "Blue Mountains Ecosystem Restoration Strategy".
- Continue to build an aggressive prevention, inventory, treatment and monitoring program for noxious weeds.
- Continue to support national development of a corporate noxious weed data base. Maintain and update noxious weed GIS map coverages.
- Increase emphasis on cooperative agreements and partnerships for weed inventory and control activities, including working with counties, private landowners, watershed associations, and volunteer organizations.
- Initiate work on a Regional EIS for the treatment of newly inventoried and high risk noxious weed sites.
- Continue to promote an integrated approach to weed management, including the use of a broad array of treatment methods such as prescribed fire, chemical applications, mowing, hand-pulling, sheep grazing, and competitive grass seedings.
- Provide support to a new research initiative at the Pacific Northwest Research Station (La Grande, Oregon) involving invasive species and noxious weeds.
- Review the Mediated Agreement to determine if it is still applicable to the fuels treatment program.

Insects and Diseases
Malheur 29, Umatilla 21, Wallowa-Whitman 3

Question: What are the current levels and trends of key insects and diseases on the Forests?

Key Insects:

The annual aerial insect detection survey flights conducted cooperatively by the Pacific Northwest Region of the Forest Service, and the states of Oregon and Washington provide data on the extent of insect infestations on all lands covered by the survey flights. Acres infested by key insects on National Forest lands, and mapped during the FY2000 survey flights are shown in the following table.

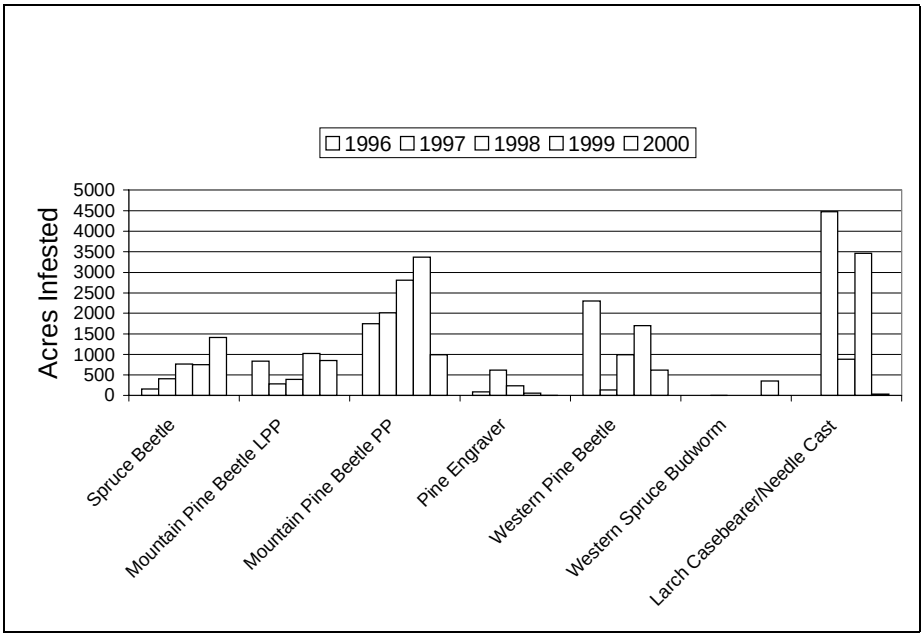
Table C-10
FOREST SERVICE ACRES OBSERVED BEING INFESTED BY KEY INSECTS DURING THE 2000 AERIAL INSECT DETECTION SURVEY[1]
Malheur, Umatilla, Wallowa-Whitman National Forests

Key Insect	Malheur NF	Umatilla NF	Wallowa-Whitman NF
Douglas-fir Beetle	207	2,806	25,185
Spruce Beetle	29	480	901
Fir Engraver	529	1,085	816
Mountain Pine Beetle, LPP[2]	322	322	209
Mountain Pine Beetle, PP[3]	622	183	193
Mountain Pine Beetle, WWP[4]	0	55	24
Mountain Pine Beetle, WBP[5]	82	0	973
Pine Engraver	0	0	7
Western Pine Beetle	143	42	71
Western Pine Beetle, Pole-Size PP[3]	194	126	41
Western Spruce Budworm	354	0	0
Douglas-fir Tussock Moth	0	82,073	129,167
Larch Casebearer/Larch Needle Cast	0	26	9

[1]Not all acres were equally infested by insects. [2]Lodgepole pine. [3]Ponderosa pine. [4]Western white pine. [5]Whitebark pine.

As indicated in the Table C-10, and the following graphs (note change in scale for acres infested between graphs), current population levels of most key insects in the Blue Mountains Province are relatively low, with a few exceptions. Douglas-fir tussock moth populations (Figure C-6) reached outbreak status on the Pine Ranger District and portions of the Walla Walla and Pomeroy Ranger Districts in 2000. The high tussock moth populations in certain areas may have a heavy impact on resources over the next couple of years due to current increased trend of Douglas-fir beetle populations (Figure C-7) in those areas, notably the northern halves of the Wallowa-Whitman and Umatilla National Forests. Although populations declined from last year, fir engraver levels (Figure C-7) also will likely increase in stands with tussock moth-weakened host trees in the near future.

Figure C-5
FIVE YEAR TREND OF INSECT OCCURRENCE ON NATIONAL FOREST LANDS
Malheur, Umatilla, Wallowa-Whitman National Forests



The trend of most insects in the Blue Mountains has been downward from 1996 to 1998. The largest increases in population trends from 1998 occurred in Douglas-fir beetle, Douglas-fir tussock moth, and larch casebearer. Larch casebearer declined in FY2000, causing insignificant, spotty, mostly light defoliation of some larches. Spruce beetle levels doubled in acres infested over last year, but populations were still quite low in FY2000. Western spruce budworm reappeared on 354 acres on the Malheur National Forest in FY2000 after having been absent since about 1993. However, defoliation from budworm was very light, but still bears monitoring in 2001.

Figure C-6
FIVE YEAR TREND DATA OF DOUGLAS-FIR TUSSOCK MOTH OCCURRENCE ON NATIONAL FOREST LANDS

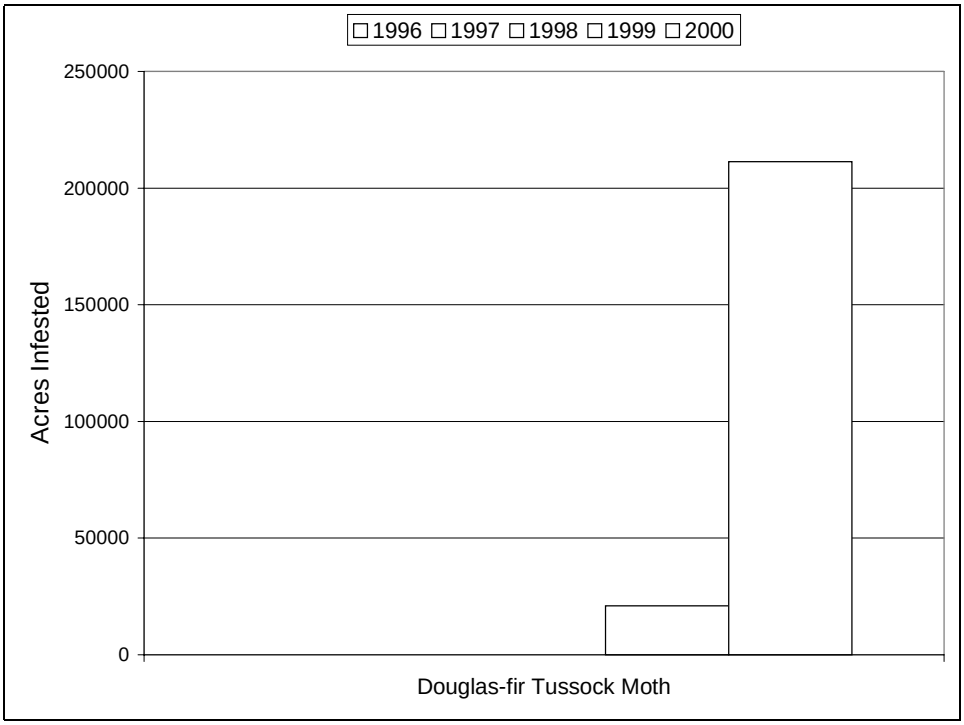
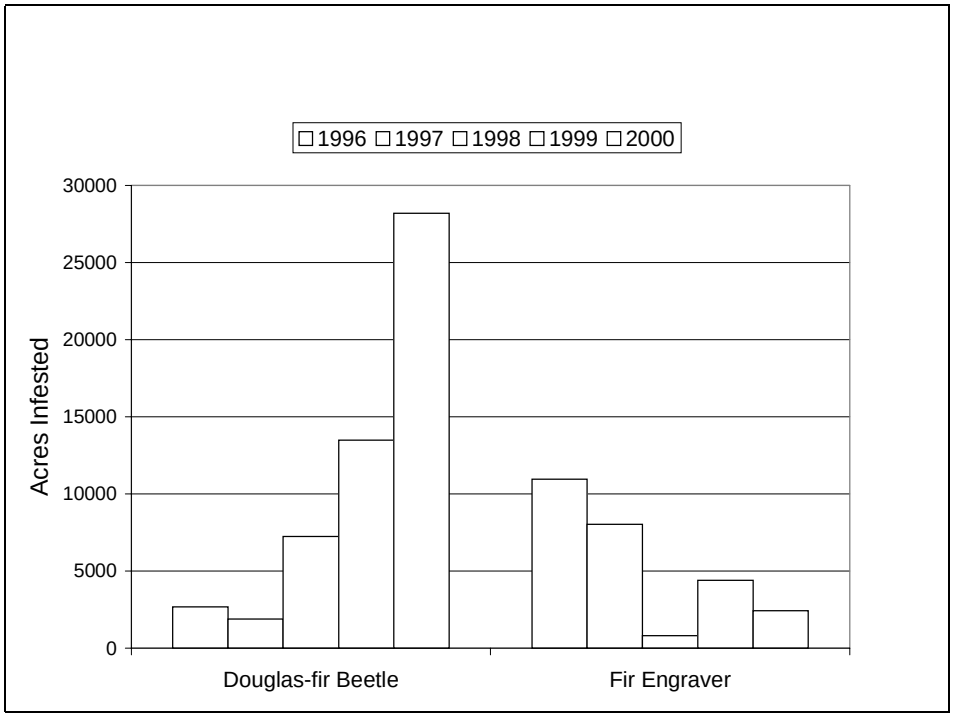


Figure C-7
FIVE YEAR TREND DATA OF DOUGLAS-FIR BEETLE AND FIR ENGRAVER OCCURRENCE ON NATIONAL FOREST LANDS



Forest Diseases

Unlike forest insect damage, and with a couple of exceptions, tree diseases generally do not cause periodically cyclic epidemic tree damage or mortality. The players change in different host species and age classes, but they generally result in slowly increasing decay, damage, defect and/or mortality as stands age. Stands generally become increasingly stocked with shade-tolerant species and the causal organisms steadily spread

Most forest diseases are not identified by aerial observers, so there is no annual tabulation of incidence/severity. Risk-rating models can be used to estimate current risk and expected incidence of both insects and diseases based on specific stand attributes. Most data on forest diseases comes from stand exams and personal observations by silviculture staff and pest management specialists. Incidence of tree diseases included in stand examination records have not proven to be a good monitoring tool because of infrequent and discontinuous examinations, and non-standardized procedures. Quality of disease detection and assessment has also proven to be variable. Training of field crews has been done by the Service Center staff, but has diminished due to reduction in stand examinations on all Districts and Forests.

On a large scale, the Region 6 Current Vegetation Survey (CVS) probably represents the best consistent periodic (10-year) assessment, and thus long-term monitoring tool that is available for forest diseases. However, wide spacing of plots does not make this system conducive for monitoring project level work. CVS plots were used from Region 6 to provide data for the National Risk Map that was completed in 2000.

Twelve years of insect and disease biological evaluations and site visits by the Blue Mountains Service Center Pathologist and Entomologist to many vegetative management projects, recreation sites, seed orchards, progeny test plantations throughout the province has resulted in a good compilation of past, current, and predicted future disease assessments. While these assessments are documented in site visit reports, they have not been compiled into a GIS layer.

Laminated root rot (*Phellinus weirii*) is common in mixed conifer stands in the Mt. Emily area on the Walla Walla and LaGrande Districts. Discontinuous disease centers are known on the Pomeroy and Heppner Districts and minor levels are known on the Wallowa Valley and Long Creek (now Blue Mountain) Districts. Spread is occurring in cases where seral larch and pines are lacking on Douglas-fir and true fir dominated sites.

Annosus root disease (*Heterobasidion annosum*) is found throughout the grand fir series communities, especially where large diameter firs were harvested over 25 years ago. Ponderosa pine is also affected by a different strain of the causal annosus pathogen. Damage to pine is most common on poor productivity pine communities, most common on the southern Malheur National Forest, but also on the Unity, North Fork John Day (NFJD), and Heppner Districts. Annosus in fir is increasing, while the disease in pines is stable or decreasing.

Armillaria root disease (*Armillaria ostoyae*) is found throughout most mixed conifer communities at endemic levels. Many scattered severe cases of armillaria are known in the province and are related to a combination of high host density, site disturbance, and genetic virulence of the pathogen. Most notable are cases on the northeastern portion of the Walla Walla District and at least two areas on the Prairie City District. The armillaria in the Reynolds and Clear Creek drainages is legendary and includes several of the largest known individual clones of the disease in existence, the largest being 2,800 acres. Armillaria root disease is spreading and intensifying throughout affected stands as well as showing up in previously uninfected stands. Stand succession to fir dominance promotes spread and intensification, while stand conversion back to early seral dominance keeps this disease in check.

Blackstain root disease (*Leptographium wageneri*) is localized in a few areas in the province. Abel's Ridge (Pomeroy District) has an infected plantation we have monitored for about 10 years. Minor disease incidence has been found on the Heppner and Wallowa Valley Districts. The most severe incidence of blackstain is on the southeastern portion of the Burns (now Emigrant Creek) District of the Malheur National Forest in ponderosa pine. Several research projects have been initiated in this area, which are designed to identify best management practices. This disease may increase with certain management disturbances, while stocking level control is crucial to maintain stand health and limit bark beetle activity in pine communities. This disease is increasing in incidence and severity.

White pine blister rust is an exotic disease, which causes severe losses in five-needle pines. Western white pine and whitebark pines are hosts in this province. Due to blister rust, selective harvesting (including preemptive sanitation), and poor regeneration success of pines; western white pine has diminished as a stand component throughout much of the province. The Pomeroy District probably has done most recent white pine restorative activity, including seed collection from phenotypically resistant stock for screening, and planting rust resistant stock. Whitebark pine is especially susceptible to rust and often has dramatic levels of infection where *Ribes* (species of currents and gooseberries) also occur on-site. Surveys in 1997 indicated that whitebark pine in the Wallowa, Seven Devil and Elkhorn Ranges have high levels of rust, while those stands in the Strawberry Mountains are relatively clean. Incidence of infection seemed to be closely correlated with occurrence and proximity of *Ribes.* There has been one recent restoration project on the Baker District at Marble Point. While numerous other opportunities exist, restoration in the whitebark pine type is hampered by poor access, management restrictions due to potential lynx habitat, restricted activity in Designated Wilderness, and limited funding. In some high hazard stands, the long-term viability of whitebark pine is questionable due to continued rust-caused mortality and subalpine fir intrusion, and is reliant upon natural selection and propagation of resistant hosts.

Comandra blister rust (*Cronartium comandrae*) until recently was considered a minor disease in northeastern Oregon. In FY2000, a several hundred acre long, ongoing, severe infestation was discovered on the Baker Resource Area, Vale District, Bureau of Land Management, near Mormon Basin. Inspection of nearby similar stands on the Wallowa-Whitman National Forest indicate much lower levels of infection and damage, but this infection had previously not been recognized.

Several stem decays are common in the province and contribute to defect and breakage of conifers, especially grand fir. Levels of decay are believed to be slowly and steadily increasing as more grand fir stands progress to later successional stages. An active hazard tree treatment program on several Districts is used to address this condition in recreation sites. There are a number of birds and mammals that use and are dependent upon trees with stem decay for shelter and nesting sites. Several Districts have introduced (inoculating) stem decay fungi into trees in instances where numbers of wildlife trees are deficient.

Dwarf mistletoes infect four species of conifers in the Blue Mountains Province: Douglas-fir, western larch, ponderosa pine, and lodgepole pine. Lodgepole mistletoe incidence dropped with mountain pine beetle-caused mortality 20 years ago, but is slowly increasing. Larch dwarf mistletoe is probably decreasing due to the lack of unevenage larch stand structure. Western dwarf mistletoe, which infects ponderosa pine, has been reduced or eliminated in cases where active sanitation has occurred, but is steadily increasing where uneven-age management is being applied and infected trees occur in the overstory. Douglas-fir dwarf mistletoe is increasing due to fire suppression and the wide-spread development of fir understory in dry fir communities and spread into communities once kept primarily to ponderosa pine as a result of ground fire.

Hardwoods are receiving much more attention than in the past. It is clear that aspen clones have been decimated and fragmented from historical conditions. A number of insects and diseases of aspen contribute to mortality of stems. Several species of leaf and shoot blights occur in certain

years when weather conditions favor their development. Oftentimes the stems prematurely lose their leaves, while in some cases wholesale mortality of young sprouts has been noted.

Question: Are destructive insects and diseases remaining below potentially damaging levels following management activities?

Vegetation management treatments nearly always include strategies to reduce the impacts of forest pests. Many district projects are reviewed by the Blue Mountains Service Center Pathologist and Entomologist for assistance in developing treatment strategies and to document treatment needs in controversial cases.

In the past, some types of management action resulted in a subsequent increase in pest activity. Management techniques and strategies have evolved as a result of ongoing monitoring and a substantial effort has been made to modify cultural practices to eliminate or reduce any adverse impacts associated with management. Borax stump treatment is now widely practiced to reduce annosus root disease spread. Soil disturbance mitigation will continue to reduce armillaria root disease occurrence in the future. Current insect and disease research, such as that being done with blackstain root disease on the Malheur National Forest, will help define those management strategies that reduce long-term pest impacts.

Other practices, primarily associated with policy, may allow future pest increases. Increases in shade-tolerant species associated with unevenage management will likely result in a number of insect and disease impact increases. Dwarf mistletoes will continue to spread and intensify with retention of large infected individuals. Some areas where silvicultural treatments are not allowed may host insect or disease epidemics and may eventually be at extreme risk to wildfire.

Insect outbreaks are sometimes inevitable though every effort is taken to prevent their occurrence. The inability to respond quickly enough to insect outbreaks oftentimes contributes to the level to which they sometimes build after disturbances like wind events that cause blowdown, or wildfires. Certain insects like the tussock moth increase at an explosive rate, but we have a reliable Early Warning (pheromone) System in place to help detect increases and to provide us with lead time to prepare for an outbreak. The Tussock Moth Early Warning System prompted a large-scale sampling effort in critical resource areas on the three Forests during 1999 and 2000. Intensive larval and cocoon sampling on the Malheur, Umatilla, and Wallowa-Whitman NFs helped identify the areas on the Umatilla and Wallowa-Whitman NFs where populations were highest or would be in outbreak in 2000. Portions of over 250,000 acres of high value areas with critical resource concern were sampled for tussock moth populations in FY2000. In addition, suppression treatment of tussock moth populations with the viral insecticide, TM BioControl-1, occurred on over 39,000 acres of critical resource areas of concern on the Wallowa-Whitman and Umatilla National Forests in June and July of 2000 (Table C-11). Treatments effectively reduced tussock moth populations on areas treated. While damage from these outbreaks usually cannot be avoided entirely even with treatment, it can be limited to some extent by prompt action.

Table C-11
DOUGLAS-FIR TUSOCK MOTH INFESTED ACRES BY ANALYSIS UNIT TREATED WITH TM BIOCONTROL-1
Wallowa-Whitman and Umatilla National Forests

National Forest	Ranger District	Analysis Unit	Acres Treated
Wallowa-Whitman	Pine	Eagle	10,378
Wallowa-Whitman	Pine	Pine	15,204
Wallowa-Whitman	Pine	Imnaha	7,845
Umatilla	Pomeroy	Spangler	3,912
Umatilla	Walla Walla	Mill Creek	2,263
Total			39,602

Douglas-fir beetle populations, though widespread on the northern portion of the Wallowa-Whitman NF, have been largely prevented from damaging several high value old-growth, and late and old structure stands on the Pine Ranger District through aggressive treatments with bark beetle pheromones. Treatment in stands will occur again in 2001. In addition, other bark beetle pheromone treatments in stands within the Galena Watershed on the Malheur National Forest the past two years have dramatically reduced new attacks on Engelmann spruce by spruce beetle, and on Douglas-fir by Douglas-fir beetle. These treatments will also occur again in 2001.

Recommended Actions:

- Continue pheromone treatments of bark beetles in the Galena Watershed and on the Pine Ranger District in 2001 as funds are available.
- In stands severely damaged by Douglas-fir tussock moth, closely monitor trees that are defoliated 75 percent or more for attack by bark beetles. These trees will likely harbor increasing bark beetle populations over the next 2 or 3 years. Where permitted, remove through salvage, any “green” trees that are currently infested with bark beetles to prevent further buildup of beetle populations within these heavily defoliated stands and thereby avoid excessive losses of high-value large-tree stand components.
- To lower wildfire risk, sanitize and remove dead and severely damaged understory Douglas-fir and grand fir components of stands heavily defoliated by tussock moth, and thin remainder of stand to recommended spacing/stocking levels following Cochran et al (1994) guidelines, where permissible.
- Increase the insect and disease management program in recreation sites. This should involve hazard tree identification and mitigation as an interim measure, with eventual pest management involvement in an expanded recreation site vegetation management planning process.
- Continue to use insect and disease specialists in identifying and documenting pest management issues, and providing technical assistance in proposed projects.
- Monitor budworm defoliation in 2001 and request pest management assistance to evaluate defoliation and potential damage, and to discuss management options, if defoliation increases and threatens resources in areas of critical resource concern.

Timber Offered for Sale
Malheur 27, Umatilla 43, Wallowa-Whitman 4

Questions: Are the Forests offering the Allowable Sale Quantity (ASQ) and Total Sale Program Quantity (TSPQ) estimated in the Forest Plans? Of the offered volume in the fiscal year, how much was actually awarded? How many sales and how much volume received no bids, and what were the reasons given for no bids?

Malheur

The Malheur did not submit a report on this item.

Umatilla

In FY2000, local outlets for salvage material decreased and the market suffered a severe decline in wood product value. Although all sales received bids and all offered volume was awarded, a number of small sales were advertised several times.

Table C-12
TIMBER VOLUME OFFERED – TREND
Umatilla National Forest

	VOLUME OFFERED FOR SALE			
	MMBF		MMCF	
FISCAL YEAR	ASQ	TSPQ	ASQ	TSPQ
1994	1	9	<1	2
1995	5	22	1	4
1996	19	45	4	8
1997	37	82	7	15
1998	38	62	7	12
1999	17	26	3	5
2000	1	17	<1	3
Forest Plan Projected Output	124	159	22	28

Table C-13
TIMBER VOLUME OFFERED FOR SALE
Wallowa-Whitman National Forest

VOLUME OFFERED FOR SALE				
	MMBF		MCF	
Fiscal Year	ASQ	TSPQ	ASQ	TSPQ
1991	33	53	66	106
1992	66	79	132	138
1993	8	23	16	46
1994	17	29	34	58
1995	39	54	78	108
1996	44	53	86	103
1997	40	49	79	97
1998	32	40	62	78
1999	24	30	49	66
2000	20	33	40	64
Forest Plan Project Output	141	205		

The Wallowa-Whitman National Forest had an 83 percent accomplishment rate for offered and sold forest products in FY2000. The shortfall was associated with two timber sales, which were appealed due to concerns related to the environmental analysis, and resulted in the line officer withdrawing the decisions. The Forest plans to offer these two projects in FY2001.

Recommended Actions:

- Continue to update vegetation data and other relevant information in preparation for Forest Plan revision.
- Adjust Forest Plan ASQ and TSPQ levels upon revision of the Forest Plans.
- Continue to implement the Regional Forester's Forest Plan Amendment #2, and PACFISH and INFISH guidelines until ICBEMP is implemented or Forest Plans are revised.

Timber Suitability
Malheur 23, Umatilla 41, Wallowa-Whitman 9

Questions: Have any lands identified as unsuitable for timber production in the Forest Plan been reclassified as suitable? Have any lands identified as suitable for timber production in the Forest Plan been reclassified as unsuitable? What are the trends?

Malheur

The Forest did not submit a report on this item.

Umatilla

The Forest did not submit a report on this item.

Wallowa-Whitman

The current Forest Plan is based on the following classification for land suitability:

- 1,411,925 acres classified as forested lands.
- 1,090,072 acres classified as tentatively suitable forested land.
- 820,500 acres classified as suitable forested land.

A map of existing vegetation (EVG) has been installed in the geographical information mapping system (GIS). All forest land has been mapped, and the associated stand data is stored in a database.

The Forest has issued direction found in the Timber Resource Planning Handbook, FSH 2409.13, outlining steps for field examination crews to use in identifying and recording land suitability.

The level of re-evaluation of land suitability and the level of recording of this data in the EVG database is unknown at this time.

Recommended Action:

- Continue to monitor and emphasize need for re-evaluation of land suitability during project level planning.
- Continue to update total acreage of suitable forest land as new information is obtained.
- Determine the area of verified classification recorded in the EVG database through queries to that database.

Harvest Methods and Acres

Malheur 26/28, Umatilla 13/14, Wallowa-Whitman 5/7

Questions: How does the Silvicultural harvest method implemented on the ground compare to the predictions from the Forest Plans? Is clearcut acreage going down per the Chief's 1992 direction to reduce clearcutting by 25%? Are harvest unit size and dispersal meeting Forest Plan Standards and Guidelines? What has the trend been over the life of the Plan?

The following table displays the Silvicultural harvest methods implemented on the ground compared to Forest Plan projections. The Malheur National Forest did not submit a report for this item.

Table C-14
SILVICULTURAL HARVEST METHODS (IN ACRES) FOR FY2000
Malheur, Umatilla, and Wallowa-Whitman Forests

SILVICULTURAL METHOD	MALHEUR	UMATILLA	WALLOWA-WHITMAN
Clearcut			
Forest Plan Estimate (acres/year)	3,330	4,000	4,300
Actual FY2000 Harvest (acres)	-	0	0
Percentage (actual/planned)	-%	0%	0%
Shelterwood/Seed Tree			
Forest Plan Estimate	5,084	2,600	8,500
Actual FY2000 Harvest	-	1,357	366
Percent (actual/planned)	-%	52%	4%
Overwood Removal			
Forest Plan Estimate	6,301	1,500	1,200
Actual FY2000 Harvest	-	0	691
Percent (actual/planned)	-%	0%	58%
Uneven-age/Selection			
Forest Plan Estimate	6,424	900	6,500
Actual FY2000 Harvest	-	392	368
Percent (actual/planned)	-%	44%	6%
Commercial Thinning			
Forest Plan Estimate	6,778	NA	3,900
Actual FY2000 Harvest	-	0	5,011
Percent (actual/planned)	-%	NA	128%
Salvage/Sanitation			
Forest Plan Estimate	3,956	NA	0
Actual FY2000 Harvest	-	181	1,719
Percent (actual/planned)	-%	NA	NA
Special Cut			
Forest Plan Estimate	0	NA	
Actual FY2000 Harvest	-		NA
Percent (actual/planned)	NA		
TOTAL			
Forest Plan Estimate	31,873	9,000	24,400
Actual FY2000 Harvest	-	1,930	8,155
Percent (actual/planned)	-%	21%	33%

Umatilla

Table C-14 shows that FY2000 silvicultural harvest levels were far below Forest Plan projections for all harvest methods. Excluding the salvage/other category, total harvest acreage for FY2000 was only 19 percent of Forest Plan estimates. When comparing FY2000 harvest levels with those of 1999, harvest levels in FY2000 were down substantially at only 31 percent of the 1999 harvest level.

Silvicultural prescriptions implemented in FY2000 were designed to meet Forest Plan standards and guidelines, including riparian management objectives. As stated in previous monitoring reports, regeneration treatments have shifted away from clearcutting and toward other harvest methods such as shelterwood and seed tree. This shift represents national and regional direction based on evolving societal expectations about how the National Forest System should be managed.

Figure C-8[1] displays actual harvest levels since 1990. It also displays the Forest Plan projection (solid gray line) along with a threshold zone of ± 25 percent (the dashed horizontal lines). For the first several years of Forest Plan implementation, harvest levels were outside the threshold. After its peak in 1992, the harvest level declined precipitously and has remained well below projected Forest Plan levels since 1993.

There are many reasons for the decline in timber harvest levels, including restrictions related to critical habitat areas for threatened and endangered species, changing societal expectations with respect to public land management, and a timber sale screening process that was implemented on every national forest in eastern Oregon and eastern Washington in 1993. When considering all national forest lands located in eastern Oregon and eastern Washington, timber harvest levels declined by 72 percent between 1990 and 1995, and that trend is clearly portrayed in the Umatilla National Forest data shown below.

Figure C-8
SILVICULTURAL HARVEST METHOD, 1990-2000
Actual Harvest Compared With Forest Plan Projection and Threshold
Umatilla National Forest

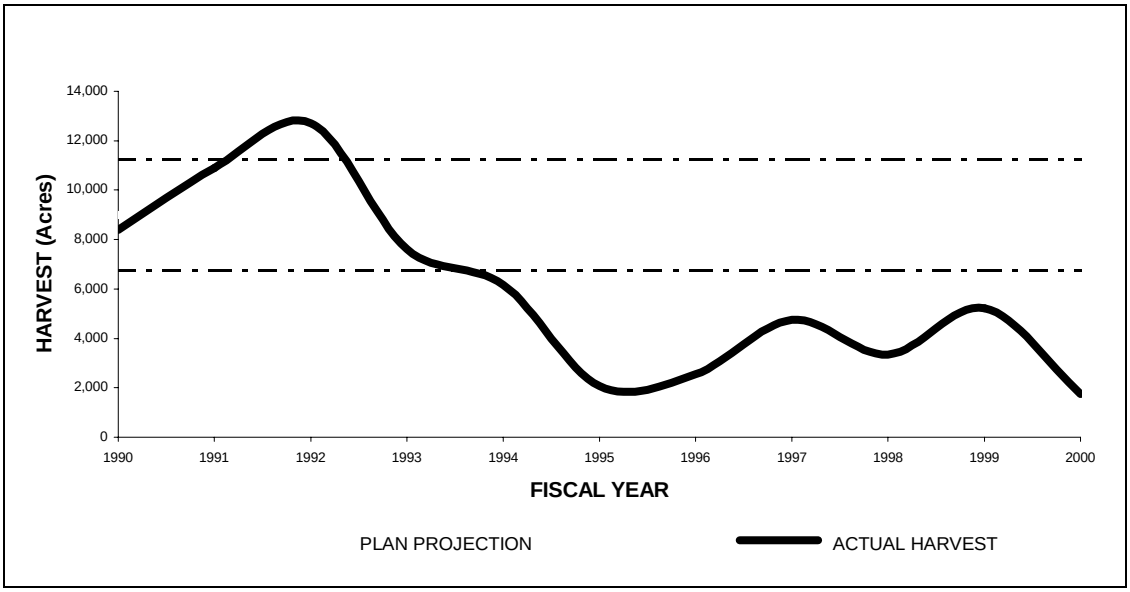


Table C-15 displays the trend in clearcut acres for the Umatilla National Forest since 1993. The Chief of the Forest Service announced in 1992 that clearcutting was to be reduced on national forests by at least 25 percent from 1988 levels. Since the Chief's announcement, the Umatilla National Forest has been reducing the amount of clearcutting. As was reported for previous fiscal

[1] Source: "Annual reforestation and timber stand improvement accomplishment report; table 20 – regeneration and intermediate harvest acres" for fiscal years 1990 to 2000.

years, the Forest has reduced clearcutting acreage substantially since the early 1990s. For FY2000, the clearcutting acreage represents 0 percent of the 1988 base level, reflecting the fact that no clearcut harvest occurred last fiscal year.

Wallowa-Whitman

Clearcutting as a harvest prescription has essentially been eliminated. In rare instances it may be used to create an Evaluation Plantation for genetically superior growing stock. With the shift to ecosystem restoration, the predominant harvest prescription will be thinning.

Table C-15
CLEARCUT ACRES - FISCAL YEARS TREND
Malheur, Umatilla, and Wallowa-Whitman National Forests

YEAR*	MALHEUR	UMATILLA	WALLOWA-WHITMAN
1988 Base		3,299	
Forest Plan Projection	3,330	4,000	3,900
1993	3,095	1,470	700
1994	972	195	286
1995	992	109	80
1996	265	895	4
1997	220	2,635	0
1998	392	1,348	0
1999	65	1,352	1
2000	-	0	0

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

Recommended Actions:

- Trends in harvest methods and acres treated by different methods need to be evaluated and adjusted during Forest Plan revision.
- Continue to emphasize harvest methods other than clearcuts where appropriate.

Reforestation

Malheur 24/25, Umatilla 15, Wallowa-Whitman 8

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

Table C-16 displays acres of reforestation accomplished by treatment method as compared to assumptions made in the Forest Plans. The Malheur National Forest did not submit a report on this item.

Table C-16
REFORESTATION ACCOMPLISHMENT (IN ACRES) FOR FY2000
Malheur, Umatilla, and Wallowa-Whitman National Forests

	MALHEUR		UMATILLA		WALLOWA-WHITMAN	
Activity	Forest Plan Avg/Year	FY2000 Accomplish-ment	Forest Plan Avg/Year	FY2000 Accomplish-ment	Forest Plan Avg/Year	FY2000 Accomplish-ment
Site Prep for Natural Regeneration	7,212	-	Not Available*	1,468	1,700	259
Natural Regeneration without Site Prep	0	-	Not Available*	3,986	8,000	2,706
Artificial Regeneration (Planting)	5,460	-	4,400	5,498	4,800	1,492

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

Umatilla

Table C-17 displays natural and planted regeneration acres for FY2000. For reporting purposes, natural regeneration includes the following items: site preparation for natural regeneration, and certification of natural regeneration without site preparation (as specified by national and regional protocols).

Table C-17
REFORESTATION ACCOMPLISHMENT (IN ACRES) FOR FY2000
Umatilla National Forest

REFORESTATION ACTIVITY	Heppner	NFJD	Pomeroy	Walla Walla	Forest Total
Site Preparation for Regeneration					
• Natural	0	76	0	0	76
• Artificial (planting/seeding)	480	540	0	372	1,392
Natural Regeneration Without Site Preparation (Certification)	94	2,409	0	1,483	3,986
Artificial Regeneration (planting)	549	3,870	661	418	5,498

Certification of regeneration is based on site-specific information, units must meet minimum stocking guidelines prior to certification. Currently, the Forest performs regeneration

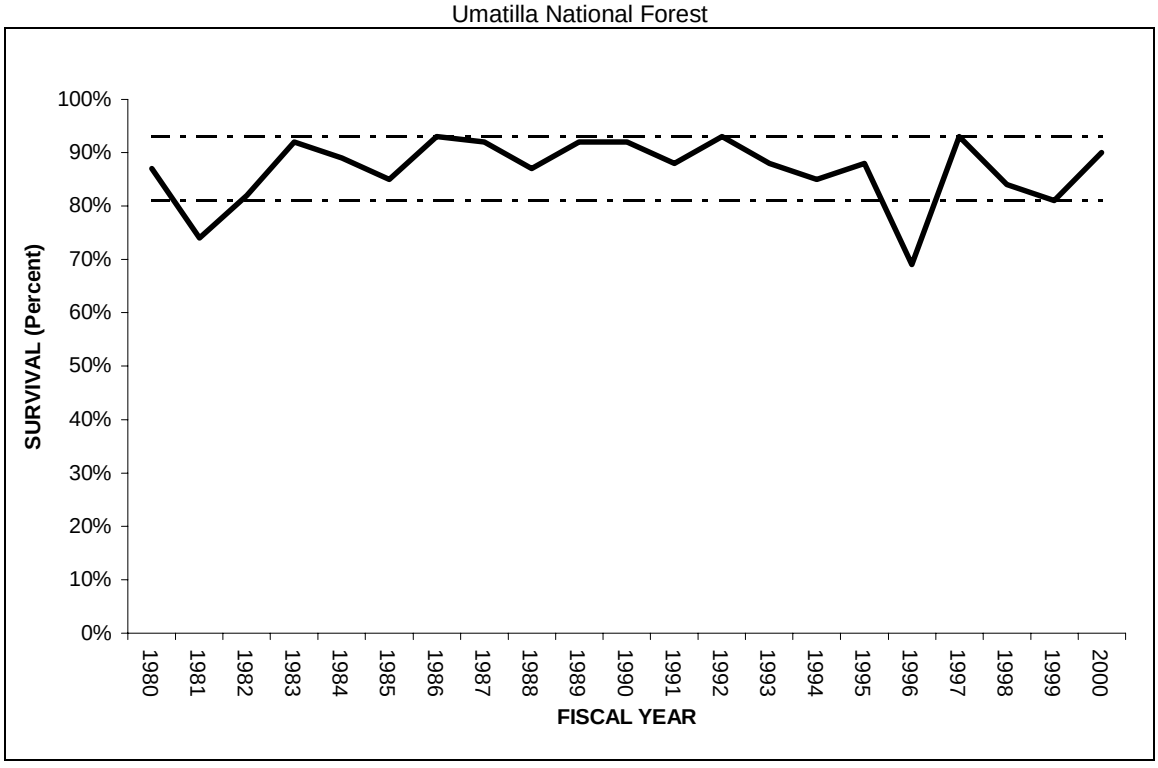
examinations following the first and third growing seasons after tree planting, and following the third and fifth growing seasons after completing a natural regeneration treatment such as site preparation. In FY2000, the Umatilla National Forest certified that a total of 5,745 acres (planted and natural regeneration combined) met or exceeded minimum stocking standards either 3 years (planting) or 5 years (natural regeneration) after treatment.

For artificial regeneration, a staked row method is used to determine survival and growth of planted seedlings. Results from the stake-row survey are used for both Forest Plan monitoring and for silvicultural reporting required by the National Forest Management Act of 1976. Staked rows are installed at the time of planting or shortly thereafter and are measured at the end of the first and third growing seasons. Two charts display historical survival percentages for the first and third year surveys; a third chart summarizes the acreage with satisfactory stocking. In addition, each chart shows an average (the horizontal gray line) and one standard deviation (the dashed lines) to provide a measure of variability.

Figure C-9 shows that first-year survival rates have been relatively consistent through time. Only two significant variations occurred – in 1981 and 1996. It's unknown what occurred in 1981, but the 1996 deviation was related to four large wildfires that burned in late summer and fall of 1996. The Tower and Wheeler Point fires burned across many reforestation units and, as would be expected, the small, vulnerable seedlings were either consumed by the flames or died afterward as a result of heat damage.

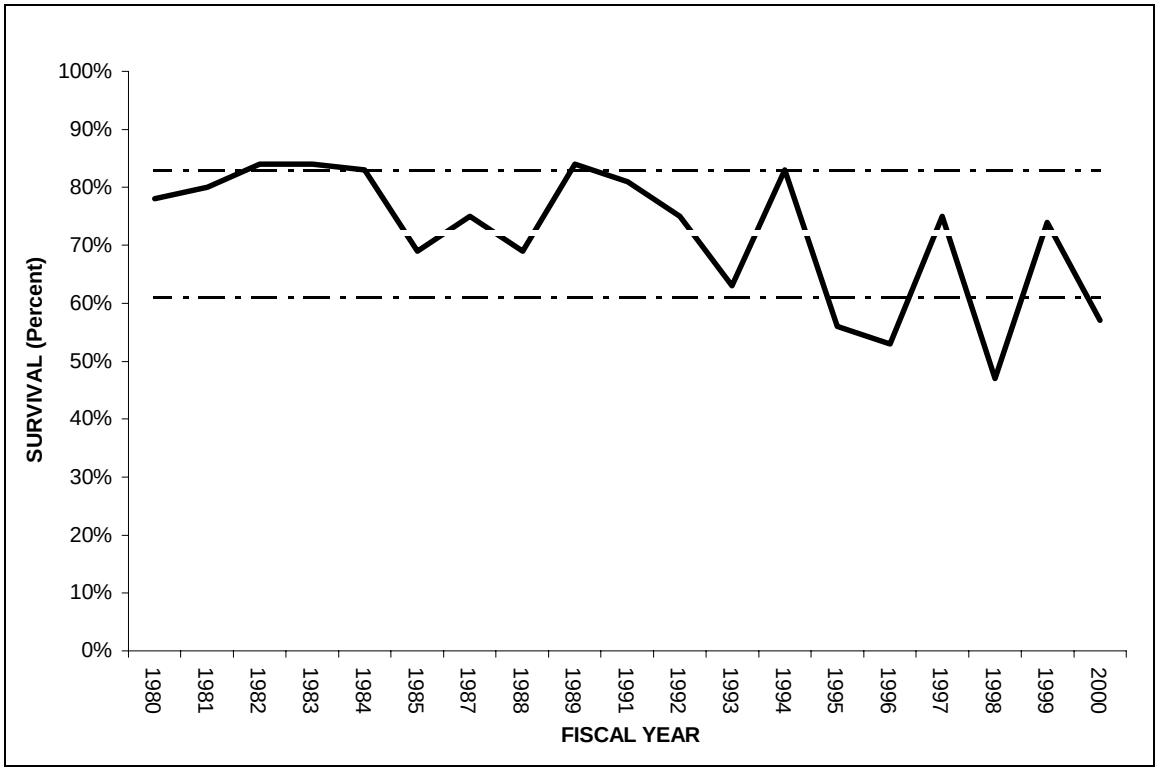
The third-year chart paints a different picture than first-year survival[2]. Although many of the first-year survival figures occur close to the mean, the third-year figures exhibit more variability. This difference indicates that much of the variation in seedling survival occurs between the first and third growing seasons.

Figure C-9
FIRST YEAR SEEDLING SURVIVAL, 1980-2000
Umatilla National Forest



[2] Years 1986 and 1990 were excluded since the data was not available.

Figure C-10
THIRD YEAR SEEDLING SURVIVAL, 1980-2000
Umatilla National Forest



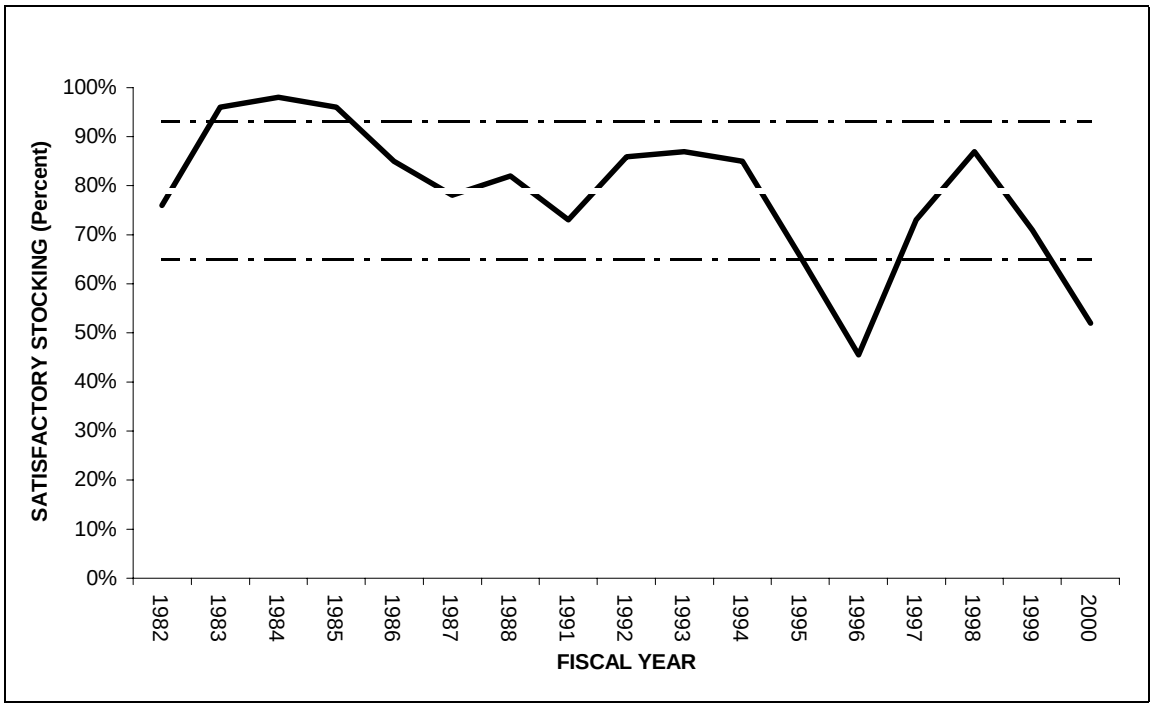
There are many factors that may be contributing to lower seedling survival rates by the third year. Environmental conditions are probably the most significant ones (drought, frost damage, etc.), followed by animal damage caused by gophers, other small mammals, and browsing ungulates such as elk and deer. The Forest continues to try to improve long-term seedling survival by implementing animal damage control programs and other mitigation measures.

Figure C-11 shows the percent of acres satisfactorily stocked from 1982 to 2000[3]. The acreage with satisfactory stocking is believed to best represent on-the-ground conditions because it accounts for both natural and artificial regeneration. Trends in this figure show that satisfactory stocking was considerably above average in the early 1980s, and substantially below average for 1996. Once again, the 1996 situation reflects the impact of wildfires occurring in late summer and fall of that year.

Figure C-11 shows that for the most part, the Forest has successfully met the requirements of the National Forest Management Act of 1976, as implemented by the Code of Federal Regulations, which states that "when trees are cut to achieve timber production objectives, the cuttings shall be made in such a way as to assure that the technology and knowledge exists to adequately restock the lands within 5 years after final harvest" (36 CFR 219.27(c) (3)).

[3] Fiscal years 1989 and 1990 were excluded due to missing data.

Figure C-11
SATISFACTORY STOCKING PERCENTAGE, 1982-2000
Umatilla National Forest



Wallowa-Whitman

First year survival, 68 percent, is significantly below the Forest's historic average. This result can be attributed to a truckload of seedlings delivered still frozen which required additional handling and increased the risk of plant moisture stress during planting. In addition, the summer of 2000 will go down as one of the worst fire seasons across the West in decades. The Wallowa-Whitman National Forest experienced extremely hot temperatures and dry soils throughout July, August, and September, with no measurable amount of precipitation occurring until well into October. These severe conditions increased drought-induced stress and mortality throughout the growing season.

Third year survival on seedlings planted in 1998 was 61 percent, not surprising considering that the summers of 1998, 1999, and 2000 were hot and dry, with little moisture throughout late July, all of August and September, and well into October for 2000. In reviewing the Plantation Survival and Growth Report from 1998, it was noted that the lack of root mass and poor overall height and caliper on one year old Douglas-fir container stock was a concern at that time. Also, flood damage on the northend of the Forest created access problems, which along with lingering snow depths at the higher elevations prevented planting many units until the second week of June, well beyond the normal planting window. There was a concern at the time of first year surveys that continued losses could be attributed to this initial lateness of planting and further compounded by additional environmental stresses in subsequent years, such as the past three droughty summers we have just experienced.

An area is stocked to a satisfactory level when trees per acre meet or exceed the minimum standards defined in the silvicultural prescription. Units are supposed to be satisfactorily

restocked within five years of final harvest. Tables C-18 indicates stocking status on acres harvested 5-7 years ago on the Wallowa-Whitman National Forest.

Table C-18
STATUS OF REFORESTATION AFTER FINAL HARVEST
Wallowa-Whitman National Forest

Year of Harvest	Revised Final Harvest Acres	Adequately Stocked		Not Adequately Stocked		Not Adequately Stocked - No Further Treatment	
		Acres	%	Acres	%	Acres	%
1993	4,627	3,838	83	789	17	0	N/A
1994	3,514	3,044	87	455	13	15	<1
1995	1,135	868	76	267	24	0	N/A

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

On the Wallowa-Whitman, many of the acres considered not adequately stocked are associated with wildfire areas of the 1990's. Many of the areas burned over by wildfires and then subsequently salvaged were planted with grass seed as part of the planned rehabilitation efforts to control potential erosion. The resultant thick sod of grass adversely affected the survival of planted seedlings. These areas may need up to 20 years to adequately restock themselves naturally. Since some of these areas would not have been harvested had the wildfires not occurred, the Forest Service cannot justify attempting to reforest them every year.

Recommended Action:

- The Forests need to re-examine some of the assumptions in the Forest Plans related to total anticipated acres of reforestation through the remaining portion of the decade. With the adoption of an ecosystem management approach, there is a new trend toward less regeneration harvest and a resulting downward trend in reforestation.

Minerals
Malheur 33, Umatilla 45, Wallowa-Whitman 38

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

Malheur

All inspected operations met Forest Management Goals and Forest Plan Management Area Standards and Guidelines. Mining activities on the Forest were about the same as last year due to the low market price of precious metals. This year an effort was made to physically survey, locate by GPS, identify the type of mining, map, and record each claim on a GIS layer. By this accomplishment we can precisely identify the stream reaches to monitor to insure that mitigation measures associated with mining activities are effective. In prior years not all site locations were precisely known.

There were one hundred and twelve claims on the Forest last year, of which 31 percent are placer, and 69 percent lode. All sites were visited and all proposed operations were reviewed by Forest resource specialists for compliance. No heritage sites associated with areas of mining activity were found. There were 108 active operations on the Long Creek (now Blue Mountain) Ranger District and 4 on the Burns (now Emigrant Creek) Ranger District. There was no mining activity on the Prairie City or Bear Valley Ranger Districts, and there were no oil or gas leases on the Forest.

Rehabilitation was an on going process and met Standards and Guidelines on all inspected operations that had work activity. There are abandoned claims that need rehabilitation when funds become available. This year funding was available to start the rehabilitation process on two sites. They currently are in the Preliminary Assessment and Site Investigation phase. While rehabilitation of all mining operations is of prime concern, there are some claims in which a land form change brought about by some operations may have improved the area, and thereby be allowed to remain after the claim is closed. Rehabilitation work was checked for effectiveness and compliance with standards, techniques used, and ways in which to improve future operations.

Umatilla

Most Forest mineral activity occurs on the North Fork John Day Ranger District. There appears to be an increasing demand for landscaping and building types of mineral materials. In FY2000, the North Fork John Day Ranger District had 87 claims under Plans of Operation (POO) or Notices of Intent (NOI). Some of these claims had little or no work done on them. Twenty-seven claimants filed or phoned NOIs that they were going to operate during the 2000 field season.

All but three active claims were monitored for compliance at least once during the year. These three claims were not monitored due to the extreme fire season experienced in 2000 and the Minerals Technician involvement in suppression activities.

The average disturbance for claims that were monitored was less then 0.05 acre, totaling approximately 1.2 acres for the 24 active claims. All 1.2 acres were reclaimed and met objectives for reclamation.

The North Fork John Day Ranger District received two proposed POOs during the 2000 field season. The work proposed in one of these POOs fell under a NOI, and the operator was informed that he could do some exploration work. The other POO will be processed during the winter of 2001, depending on endangered species consultation timelines. The District is also

working on an EIS for all of the active mining claims located within the Umatilla National Forest portion of the Granite Watershed. It is our hope to have this completed in the year 2001.

Minerals inspections and reclamation reviews indicate that standards and guidelines were being met. One abandoned claim will be reclaimed in FY2001.

Wallowa-Whitman

All current NOIs and POOs were monitored during the mining/field season. POOs were monitored for compliance and water quality where appropriate. NOIs were monitored for compliance. Sporadic and weekend assessment operations were monitored at least once. Based on this monitoring, approximately 90 percent of the operations met resource objectives. In cases where resource objectives were not being met, operators were notified and needed corrective actions were discussed directly with them. Specific problems in FY2000 involved occupancy not covered under POOs, and suction dredging by new (previously unknown) operators who were unaware of or had not agreed to the Forest's Suction Dredging Mitigations.

At an informal level, field administrators monitor standard and guidelines (S&Gs) implementation. This level of monitoring continues to show that there are several S&Gs that cannot be met in the short term during some placer operations. These standards include:

- Limiting detrimental soil conditions.
- Maintaining riparian and streamside vegetation.
- Giving preferential considerations to riparian-dependent species.
- Maintaining old-growth qualities, including solitude.

Although these S&Gs may not be met in the short term, for all mining activities which require POOs, reclamation plans are developed and implemented with the intent of meeting resource objectives in the long term. Reclamation bonds are required for all POOs to ensure completion of reclamation requirements.

Evaluation:

There is continued concern regarding insufficient resource specialist availability to accomplish the workload of environmental analysis for POOs (new proposals, amendments, or those in need of updating). This issue was compounded by the increased workload associated with the listing of bull trout and Mid-Columbia steelhead, and the required compliance with Section 7 of the Endangered Species Act. Some POOs submitted in 1997 and 1998 still have not been approved.

Recommended Action:

- Possible conflicts between Forest Plan S&Gs and the mining law are an issue which needs to be addressed in a future Forest Plan revision.
- Coordinate mining administration across the Blue Mountains Forests for consistency between the Forests.
- Continue monitoring active claims and coordinate reporting among the Forests.

Roads
Malheur 34, Umatilla 46/47, Wallowa-Whitman 11

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

Malheur

During FY2000, the following road changes were recorded.

Table C-19
ROAD ACTIVITIES FY2000
Malheur National Forest

Activity	Miles
Obliterated	0.0
Decommissioned	61.7
Closed	38.0
Constructed	0.0
Reconstructed	37.1

Table C-20
2000 ROAD CLOSURE EFFECTIVENESS SUMMARY
Malheur National Forest

	Barrier Type					
	Earth Barrier		Natural		Gate/Guardrail	
District	No. Rds.	% Effective-ness	No. Rds.	% Effective-ness	No. Rds.	% Effective-ness
Burns	1	100	1	100	18	100
Blue Mountain	70	95	60	90	110	80
Prairie City	10	70	10	95	20	60
Total	81	97.5	71	95	148	90

Umatilla

During FY2000, the following road changes were recorded.

Table C-21
ROAD ACTIVITIES FY2000
Umatilla National Forest

Activity	Miles
Obliterated	0
Decommissioned	19.41
Closed	30.30
Constructed	0
Reconstructed	20.79

The desired future condition described in the Forest Plan for the Forest road system is a density of open roads averaging about 2.0 miles per square mile, Forest-wide. Currently about 78 percent of the watersheds (5^{th} field HUC) across the Forest are meeting the 2.0 miles per square mile condition (Table C-22). Overall road density conditions in the 11 watersheds which exceed the Forest Plan recommendation should not be evaluated solely on their miles per square mile

figure, as road density numbers can fail to tell the whole story. Some watersheds which are partly outside the Forest boundary may give numbers of road densities that appear high.

Table C-22
OPEN ROAD DENSITIES
Umatilla National Forest

HUC5 Watershed	Miles of Open Road	Open Road Density	Approx Miles To Close
Alder Creek	31.9	4.0	2.0
Big Creek	33.5	0.6	0
Bridge Creek/Pine Creek	7.2	0.4	0
Butter Creek	16.3	1.4	0
Cabin Creek/Gordon Creek	30.4	2.1	0.1
Cable Creek	15.9	0.6	0
Deerlick Creek/Wilkins Creek	21.1	2.2	0.2
Desolation	114.7	1.1	0
East Birch Creek	32.2	1.4	0
Fivemile Creek	76.1	1.8	0
Galena	1.4	0.3	0
Grande Ronde River/Hilgard	5.4	7.0	5.0
Grande Ronde River/Rondowa	107.7	1.5	0
Granite Creek	50.3	0.7	0
Hidaway Creek	20.6	0.9	0
John Day River/Bologna Canyon	26.9	1.5	0
Kahler Creek	70.1	2.7	0.7
Little Wall Creek	69.0	2.2	0.2
Lone Rock Creek	61.8	3.2	1.2
Lookingglass Creek	122.8	1.6	0
Lower Grande Ronde R/Menatche Creek	21.5	0.5	0
Mallory Creek/Ditch Creek	97.5	2.0	0
Meacham Creek	91.7	0.7	0
Meadow Brook	36.5	1.1	0
Meadow Creek	2.8	4.6	2.6
Middle Fork Granite to Big Creek	46.7	1.8	0
Mill Creek	19.7	0.4	0
No Fork Asotin Creek/Charley Creek	67.4	1.0	0
No Fork John Day/Cupper Canyon	6.8	1.2	0
No Fork John Day/Matlock Creek	56.6	1.8	0
North Fork John Day River	79.0	0.8	0
North Fork Walla Walla River	14.0	0.9	0
Owens Creek	24.6	1.3	0
Phillips/Willow Creek	75.2	2.0	0
Potamus Creek	82.1	1.8	0
Rhea Creek	2.9	0.3	0
Skookum Creek	113.7	2.2	0.2
So Fork Asotin Creek/George Creek	54.2	1.7	0
South Fork Walla Walla River	25.6	0.5	0
Squaw Creek	2.9	1.2	0
Touchet River	28.5	0.6	0
Tucannon River	129.1	1.1	0
Umatilla River	131.2	1.2	0
Upper Camas Creek	108.8	1.7	0
Upper Grande Ronde River	0.2	3.0	1.0
Upper North Fork John Day River	5.2	0.1	0
Upper Rock Creek	5.3	1.7	0
Wall Creek	169.3	2.6	0.6
Wenaha River	84.3	0.3	0

Configuration of the watershed and the roads within it may be such that a high density number results. When taken in context of the entire watershed, not just within the Forest boundary, these numbers will be lower. The Umatilla National Forest has an active and ongoing road closure program.

Table C-23
2000 ROAD CLOSURE EFFECTIVENESS SUMMARY
Umatilla National Forest

	Barrier Type					
	Earth Barrier		Natural		Gate/Guardrail	
District	**No. Rds.**	**% Effective-ness**	**No. Rds.**	**% Effective-ness**	**No. Rds.**	**% Effective-ness**
Heppner	209	50	370	30	47	90
Pomeroy	-	-	-	-	127	77
Total	209	50	370	30	174	80

Wallowa-Whitman

During FY2000, the following road changes were recorded. These road activity miles are as reported in Road Accomplishment Reports. The decommissioned miles include some miles which were contracted in FY2000 but were not actually accomplished in FY2000.

Table C-24
ROAD ACTIVITIES FY2000
Wallowa-Whitman National Forest

Activity	Miles
Obliterated	0
Decommissioned	59.1
Closed	5.6
Constructed	2.8
Reconstructed	36.5

Road closure effectiveness is based on a sample and does not represent overall total effectiveness. An important part of making sure that any type of closure is working is annual monitoring, mitigation of problem areas, learning from what does and does not work, and keeping databases up to date with what is on the ground. Monitoring this year identified locations where the roads were closed on one end only, and where the database showed something different than what was on the ground.

Table C-25
2000 ROAD CLOSURE EFFECTIVENESS SUMMARY
Wallowa-Whitman National Forest

	Barrier Type					
	Earth Barrier		Natural		Gate/Guardrail	
District	**No. Rds.**	**% Effectiveness**	**No. Rds.**	**% Effectiveness**	**No. Rds.**	**% Effectiveness**
Baker	42	90	7	100	6	83
Wallowa Valley	14	50	-	-	-	-
Total	56	80	7	100	6	83

Recommended Actions:

- Continue the commitment to annually monitor a portion of the closures on each District (partly for the purpose of Forest Plan monitoring but mostly to make needed changes), fixing and modifying the transportation system on the ground, and modifying databases to match actual on the ground conditions.

Off Highway Vehicle (OHV) Use
Malheur 5, Umatilla 32, Wallowa-Whitman 42

Questions: What facilities and areas are available for OHV'ers? How much and where is OHV use occurring? How are OHV uses affecting other Forest resources?

Malheur (Prairie City Ranger District)

A cooperative effort between the Umatilla, Malheur, and Wallowa-Whitman National Forests produced a publication with information regarding OHV use. Roads with restrictions are indicated. Many areas are available for use by OHV's on the Prairie City District, as well as 26.2 miles of trails that are specifically signed as open to these vehicles. These six trails are posted at the trailheads. The fall hunting seasons tend to have the highest period of use on the District. No formal evaluations of impacts have been implemented. No comments have been received regarding trail systems shared by stock, bicycles, and pedestrians.

Umatilla

OHV use across the Forest is managed by each district to address specific resource concerns and have a program which fits the local terrain.

Heppner Ranger District - The District Access and Travel Management Plan (ATM), developed with the assistance of a public working group, allows for OHV use as follows:

- Summer Range OHV use is restricted to open roads and seasonally open roads, during their open season, no cross-country travel is allowed.

- General Forest and Winter Range OHV use allows use of all open roads and seasonally open roads, during their open season, with the exception of Forest Road 21 west. Cross-country travel is restricted east of the Sunflower Flat Road (Forest Road 22) and unrestricted west of this road.

The District developed this system, with input from the public, to be understandable, implementable, and enforceable. A clear boundary to the OHV use areas is necessary, and using Forest Road 22 as a boundary provides that distinction. Due to the open nature of the vegetation west of Forest Road 22, OHV use would be difficult to restrict and declining budgets do not permit the level of enforcement needed to enforce use restrictions in this area.

In general the OHV use policy works well. It has allowed for increased access for disabled forest visitors. During most of the recreational season there are very few violations and most of the use is without resource damage. Use is heaviest during hunting seasons, and this is when most of the OHV violations occur. The majority of OHV associated resource damage occurs due to the illegal use of OHVs, and often occurs in areas where violations in use of other classes of vehicles occurs.

North Fork John Day Ranger District - There are approximately 120 miles of OHV trails on the District and most of the Level II and III roads are open to OHV's. All cross-country travel by OHV's is prohibited. There are quite a number of off road travel violations happening during the elk hunting season, but the resource damage is minor. Additional law enforcement is the only apparent solution to the problem.

Pomeroy Ranger District - Currently, the entire non-wilderness portion of the District (274.6 square miles) is open to off-road motorized use, with the exception of the seasonal area closures (Asotin winter range/elk calving closure and the Hogback hunting season closure). About 21 miles of system roads and trails are available for various OHV use, with about 13.5 miles suitable for ATV travel. The District plans to implement district-wide area closures, as prescribed by the Access and Travel Management Plan, in FY 2001. This will remove the entire non-wilderness portion of the District from the available off-road use base. Specific areas for ATV use are being evaluated to help offset this lost availability.

Wallowa-Whitman

The distribution, type, and season of off-road vehicle use are variable across the Forest. In general a majority of the use has been noted on the southern units, around Baker, Pine, Unity, and La Grande. Attributes that these Ranger Districts have in common include; a more moderate topography, open forest canopies, and/or close proximity to larger cities or highways. Seasonally use begins in early summer with local and regional riders, and peaks with fall hunting use. The type of use/users can be categorized into five main groups;

- Distance riders seeking miles of open roads/trails for day and extended trips.
- Day users going cross country looking for antlers, berries, exploration areas, etc.
- Extreme Riders seeking challenging settings in rough terrain, hill climbing, and wetlands.
- Administrative and Permittees Users such as private land owners, Forest Service employees, special use permittees, and grazing permit holders.
- Spring through fall hunters seeking and retrieving game on road and cross country.

ORV use is recognized as one of the fastest growing sports, with an observed increase throughout the Forest in the number of all terrain vehicles (ATV), especially in hunting camps. In an attempt to meet this demand, several active partnerships are ongoing with the State ATV allocation committee to designate and develop a more extensive ORV trail system in the Blue Mountains (i.e. Back Country Discovery Route). Unfortunately, the users are quickly branching out into new areas each year, some of which are not conducive to ORV use. Seeking a balance between areas, roads and trails open to ORV, or prohibiting use in areas with social or ecological concerns, will be the challenge for the Forest in the next few years. Issues include topics such as wildlife, fisheries, water quality, noxious weeds, balancing recreation opportunities, safety, and limitations on access.

A Tri-Forest OHV Team was formed in April 2000 to address the recreational use and develop a Tri-Forest strategy for the Malheur, Umatilla and Wallowa-Whitman National Forests. The elements of the strategy were developed and the work will be continued next year.

Some of the inconsistent elements in ORV management across the Blue Mountain Forests which were identified include:

- Cross Country Travel
- Use of Maintenance Level I (closed) & 2 Roads
- Use of Highway Safety Act on Maintenance Level 3-5 roads.
- Signage
- OHV Development between Ranger Districts
- Philosophies

Recommended Actions: (Malheur)

- Follow through on plans to develop a long-term Tri-Forest strategy for use of OHV's and make information available to users via district office printed information and website.
- Encourage the "Tread Lightly" guidelines.
- Continue to monitor use and administer existing user systems.
- Continue to seek partnership opportunities with State ATV allocation committee, and local ATV dealers and organizations.

Socio-Economics
Malheur 37-41, Umatilla 54-59, Wallowa-Whitman 45-47

The coordinated socio-economic monitoring items are briefly addressed below given the status of available information.

Annual Programs and Budgets

The Forest Service has continued to implement a new budget reporting process (FFIS). Budget and program data, and information previously used to analyze this monitoring item is not readily available and not expected to be available for some time due to the need to reprogram queries and higher priority reporting needs. Reporting on this monitoring item therefore has been delayed and will be reported with the five-year review report.

Costs and Values

Information for this item is also, in part, derived from information based on the new budget process. RPA (Forest and Rangeland Renewable Resources Act Planning) non-market values used to answer this monitoring item continue to be reviewed and developed by the Washington Office. No date has been given for the release of the RPA data (a component of this monitoring item).

Payments to Counties

Payments to counties based on annual receipts from the Blue Mountain forests have continued to significantly decline over the past several years. The projected payments from the combined Blue Mountains Forest Plans total approximately $24 million (2001 dollars). Actual payments in FY2000 based on the percentage of acres of each county within the proclaimed forest boundaries totaled just under $1.6 million, about 15 times less than projected. Less than one percent of these payments to counties were historically made to Idaho and Nez Perce counties in Idaho, based on the portion of the Hells Canyon National Recreation Area occurring in those counties. This portion of receipts has also significantly declined beyond the threshold of change identified for this monitoring item (+/-15 percent).

In response to this decline, the Secure Rural Schools and Community Self-Determination Act (Public Law 106-393) was signed into law on October 30, 2000. Counties now have the option of continuing to receive payments under the 25 Percent Fund Act or electing to receive their share of the average of the three highest 25 percent payments made to the state during the fiscal year 1986 through fiscal year 1999. Implementation of the new legislation is underway with the establishment of Resource Advisory Committees to make recommendations for funding special projects under the Act. Figure C-12 illustrates the change in payments to counties from 1986 to 2000.

Employment and Income

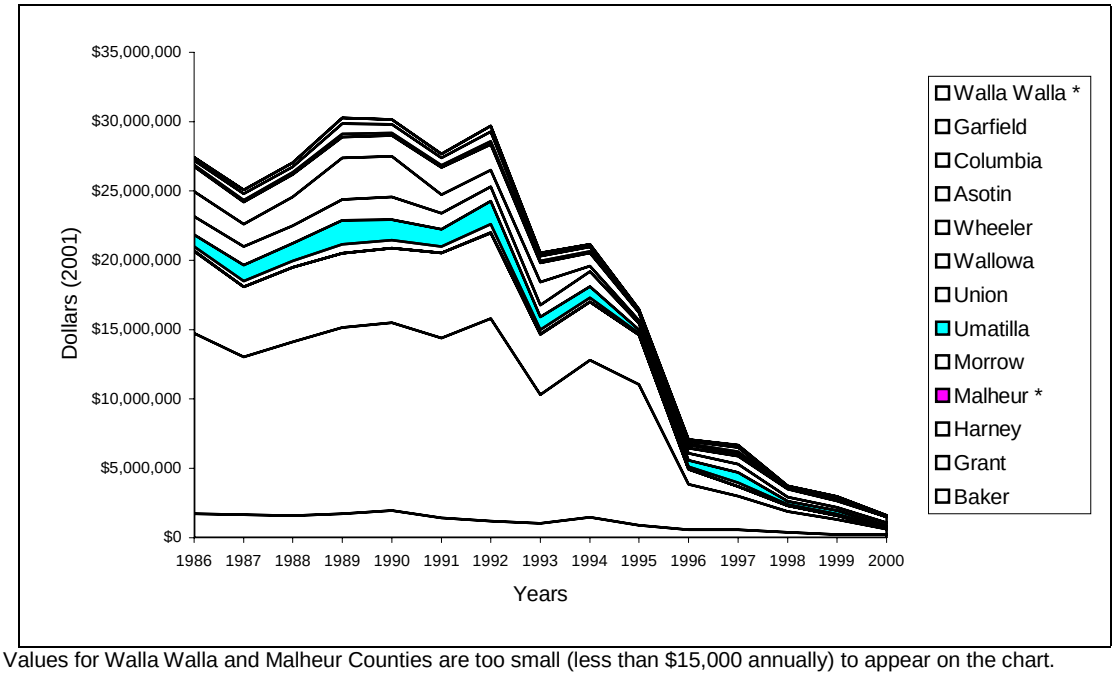
Employment and income changes were assessed as part of the Blue Mountains LUCID (Local Unit Criteria and Indicators Development) Pilot Test. LUCID is a research project sponsored by the Inventory and Monitoring Institute of the Forest Service to identify criteria and indicators for assessing social, ecological and economic sustainability. The purpose of the project was to further develop and refine potential criteria and indicators and to test the feasibility of monitoring sustainability at the local level. The Blue Mountains LUCID Pilot test was one of six projects sponsored across the nation.

Criteria and indicators were developed for the entire Blue Mountains area encompassing all or portions of 12 counties in eastern Oregon and Washington across 22 million acres. The focus of

the assessment portion of the test was limited to Wallowa County due to the limited time for data collection, and analysis and assessment work in progress by local stakeholders, primarily Wallowa Resources, a community-based nonprofit organization dedicated to sustaining Wallowa County's economy and ecosystems.

Based on the criteria and indicators evaluated, initial findings of the test verified that employment and income related to timber harvesting continues to significantly decline across the area as reported in previous monitoring reports. Further evaluation of range and recreation employment and income is needed. Other preliminary findings indicate the highest degree of change outside the standards is occurring related to timber employment, reliance on forage from NFS lands, harvest of special forest products, Forest Service contracts received by local residents, and changes in total employment. Preliminary findings reveal that average wages continue below statewide benchmarks for rural areas, and per capita income is 72 percent of the national average.

Figure C-12
PAYMENTS TO COUNTIES
Malheur, Umatilla, and Wallowa-Whitman National Forests



* Values for Walla Walla and Malheur Counties are too small (less than $15,000 annually) to appear on the chart.

Recommended Action:

- The results of the LUCID Pilot Test are being carried forward to further refine and focus the criteria and indicators for assessing key elements of sustainability for the Blue Mountains Demonstration Area. This area includes 15 to 20 communities directly affected by activities across the three forests. Results of this process will be reported in subsequent monitoring reports. The recommended course of action at this time is to continue monitoring and report FY2001 results in next year's report.

Cultural and Historic Site Protection
Malheur 8, Umatilla 50, Wallowa-Whitman 44

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

Malheur

One hundred sixteen archaeological and historic sites were monitored in FY2000. This is 4 percent of the approximately 3,000 known National Register of Historic Places (NRHP) eligible and undetermined sites on the Forest. Sixteen (14 percent) of the monitored sites showed some degree of impact from human activities or natural processes. None of these impacts were significant enough to adversely affect those aspects of the sites that make them eligible for the NRHP. These results are broadly similar to those reported in previous years. The increase in the number of impacted sites, particularly those showing grazing effects, needs to be watched, but it is believed to be the result of the nature of the sites monitored. All nine sites with reported grazing impacts have undeveloped or obsolete water sources (generally springs) within their boundaries. These conditions caused cattle to congregate in numbers large enough to expose soil and sediment. The two sites with reported impacts due to natural erosion were dendroglyphs where the trees had died due to natural processes. The recreation impacts were due to vehicle use at undeveloped campsites. The timber impacts were the result of road construction or reconstruction. In most cases the soil disturbance was limited to the upper 20cm of matrix and was located on parts of the sites that had been previously disturbed through natural or historic processes. This was the first year since consistent tracking began that the number of monitored sites dropped below 5 percent of the total number of known sites.

Table C-26
NATIONAL REGISTER ELIGIBLE OR UNDETERMINED SITES
Malheur National Forest

Year	# of sites monitored	# of sites impacted	# of sites adversely effected	Effect = timber harvest	Effect = wildfire / suppression	Effect = grazing	Effect = looting vandalism	Effect = recreation	Effect = natural erosion
2000	116 (4%)	16 (14%)	0	3	0	9	0	2	2
1999	170 (6%)	13 (8%)	0	7	1	2	0	3	0
1998	203 (7%)	13 (6%)	0	4	0	3	2	4	0
1997	232 (8%)	29 (13%)	18	4	18	4	1	1	1

Umatilla

Sixty projects, involving 17,855 acres of land, conducted on the Umatilla National Forest during FY2000 required consultation under the National Historic Preservation Act. During the review process it was necessary to survey 67 acres of previously unsurveyed ground, with no heritage properties being discovered. Twenty-one previously discovered heritage properties were located within project areas with the potential for effects, and these properties were monitored for disturbance. None of the sites suffered any impact from either project activities or looting/vandalism, however all the sites did show some signs of natural weathering.

One project of special interest is the ongoing restoration work at the Fremont Powerhouse Administrative Site, located approximately five miles southwest of Granite, Oregon on the North Fork John Day Ranger District. This historic property was constructed in 1908 and is one of the earliest examples of hydroelectric power generation in northeastern Oregon. The powerhouse was initially constructed to supply cheap electric power to the mines in the area. Water was transported through an eight-mile long wood and steel pipeline from Olive Lake. The powerhouse

last produced power in October 1967. In 1989, the Powerhouse Administrative site was evaluated and listed on the National Register of Historic Places.

During the winter of 1993 the roof of the powerhouse collapsed beneath a heavy load of snow and ice (Figure C-13). All four walls and an attached brick building were heavily damaged when the roof collapsed. District employees conducted clean-up efforts that spring and a chain-link fence was constructed around the structure for public safety.

Figure C-13
DAMAGE TO FREMONT POWERHOUSE
Umatilla National Forest

Permanent repairs to the powerhouse were not initiated due to lack of funding until 1999. At that time a meeting occurred with representatives of the Oregon National Guard and the Forest Service. Based on the results of that meeting, the National Guard selected restoration of the Powerhouse as one of its statewide projects. With the Guard supplying the manpower and equipment, and the Forest Service the supplies, work commenced in June 1999.

The project began with the National Guard removing all the debris from the structure's interior. Material was carefully sorted and anything useable in the restoration efforts was saved. Scaffolding was erected around the structure's perimeter and the walls lowered to a point where the existing blocks were in good enough condition to incorporate into the rebuilt structure. Molds were built to replicate the existing blocks and more than 200 new blocks were poured. The original structure was built with only the hollow blocks, which to some extent led to the roof and walls failure. To make the rebuilt structure stronger, rebar and concrete were used in the rebuilt walls. Once the walls were completed, trusses were constructed, placed on top of the walls, and a roof built (Figure C-14). All the work was completed using salvaged materials or like-kind new materials to maintain the historic nature of the structure.

At the same time the walls and roof were being reconstructed, the National Guard was using a portable machine shop to clean and refurbish the equipment in the Powerhouse that was used to generate electricity. Generators, transformers, gauges, a wood stove, and metal hand railings were salvaged, cleaned, rebuilt if needed, and painted. Metal parts that were missing were fabricated as needed. The interior reconstruction of the structure also included rebuilding damaged windows, an office, and a small shop area.

The National Guard has also been involved in restoring several of the administrative site's out buildings. With funds provided by a State Historic Preservation Office grant, the old caretakers house is being completely restored. This work involves establishing a foundation under the building, replacing damaged floors, installing new plumbing and wiring, and refinishing the interior walls.

Much work has been completed in restoring the Powerhouse Administrative site during the last two years. Final restoration work on the Powerhouse itself and the caretakers' house is planned for 2002.

Figure C-14
PARTIALLY RESTORED FREMONT POWERHOUSE
Umatilla National Forest

Wallowa-Whitman

The Wallowa-Whitman did not submit a report on this item.

Recommended Action:

- Work with the range staff to develop plans to reduce grazing impacts to sites with water sources heavily used by cattle (exclosures, trough placement, etc).
- Work with recreation staff to develop plans to protect sites from the effects of motor vehicle use at undeveloped recreation sites (road closures, barricades, exclosures, etc).
- Prioritize sites for monitoring based on site significance and susceptibility to impacts.

Wild and Scenic Rivers
Malheur 7, Umatilla 34, Wallowa-Whitman 40

Questions: Have the free-flowing characteristics of Eligible/Suitable and Designated Rivers been protected and enhanced consistent with the Forest Plan Standards and Guidelines? 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 standards and Guidelines) and potential classification maintained for all eligible/suitable rivers?

Malheur (Prairie City Ranger District)

Monitoring of this element was achieved by field observations, public comments, field studies, and inventories. Values identified in the monitoring sections of the 1993 River Management Plans were evaluated.

North Fork Malheur Scenic River

- Scenic values are important in all activities within the corridor. Existing old growth characteristics are being maintained.
- Riparian areas located within the corridor in each of the four grazing allotments were inspected and standards were met. However, 9 out of 19 comment cards received in FY2000 had negative comments about cattle grazing in the scenic corridor. A complaint was received about cattle congregating at a trailhead, and cattle damage to the river trail, streambanks, and channel within one allotment. Field visits to these sites by Forest Service staff and the allotment permittees resulted in the decision to rest the affected allotment unit in FY2001 and reduce the number of cattle in the unit in FY2002.
- Water temperature data was collected at five representative streams which influence the river (Table C-27). Data was collected from late May/early June to mid October. Days exceeding the 7-day maximum standard and the maximum single day reading are displayed.

Table C-27
STREAM TEMPERATURES –NORTH FORK MALHEUR SCENIC RIVER *
Prairie City Ranger District, Malheur National Forest

Stream (monitoring location)	Max temp	Standard	Days exceeding standard	Distance from Wild and Scenic boundary
Upper NF Malheur River (below Elk Creek)	64.1	50	105	Within
Middle NF Malheur River (just above Crane Creek)	76.2	50	127	Within
Lower NF Malheur River (2 miles below Crane Creek)	73.9	64	72	Within
Lower Crane	68.6	50	124	200 feet
Elk Creek	55.3	50	84	300 feet

* All temperatures are in Fahrenheit.

Malheur Scenic River

Scenic values were maintained and enhanced during the reconstruction of the Malheur River Ford and Trailhead. This project was designed and reviewed by the District Landscape Architect. The project entailed moving the trailhead sign and trail out of the meadow, locating a new toilet in an uphill location, adding rock barriers for parking control and meadow protection, providing facilities for recreational use, and adding barrier-free site access. Inspections of riparian areas located within the corridor in each of the three grazing allotments showed that standards are being met. Water temperature data was collected at two sites, following the protocol used on the North Fork Malheur Scenic River. The results are displayed in Table C-28.

Table C-28
STREAM TEMPERATURES - MALHEUR SCENIC RIVER*
Prairie City Ranger District, Malheur National Forest

Stream (monitoring location)	Max temp	Standard	Days exceeding standard	Distance from Wild and Scenic boundary
Malheur River (Malheur Ford)	77.9	64	83	Within
Lower Summit Creek	80.1	64	84	2.5 miles

* All temperatures are in Fahrenheit.

<u>Umatilla</u> (North Fork John Day Ranger District)

The free-flowing characteristics of Eligible/Suitable and Designated Rivers on the North Fork John Day Ranger District have been protected and enhanced, consistent with the Forest Plan Standards and Guidelines. The free-flowing characteristics of the North Fork John Day River and the main stem Desolation Creek have been protected; no implemented or proposed management activities will impact these characteristics. The free-flowing characteristics of South Fork Desolation Creek and North Fork Desolation Creek will be enhanced by the culvert replacement projects planned for both creeks. An environmental assessment has been completed for these projects. These projects will involve the replacement of existing culverts at two locations with bottomless arches to facilitate fish passage and unrestricted stream flow. Implementation of these projects is planned for the summer of 2001.

The identified river values are being protected and/or enhanced to the extent practicable for all designated rivers (according to management plans or Forest Plan standards and Guidelines) and potential classification maintained for all eligible/suitable rivers.

The North Fork John Day River has been designated and has a management plan. River values along the majority of the 54.1 designated river miles will be protected as there are no new proposed management activities, the current condition will be maintained. Approximately 10.5 miles of the river are within the Tower Fire area and will be enhanced by projects proposed in the Tower Fire Recovery Projects DEIS, published in November 1999. Scenic values will be enhanced by repairing unsightly damage to two road stream crossings; as well as by commercial thinning which will promote the development of large diameter trees, multi-age stands, and increased vigor of large trees, thereby prolonging their lives. Repairing roads and stream crossings, thereby allowing better access to popular recreation areas, will enhance recreational values.

Desolation Creek, South Fork Desolation Creek, and North Fork Desolation Creek have been determined to be eligible for inclusion into the Wild and Scenic Rivers program. The potential classifications for these waterways will be maintained and/or enhanced. These streams have been identified as having values of fisheries, wildlife, recreation, botanical/ecological, and hydrologic. Recreational values along Desolation Creek will be enhanced by a proposed project which is currently being planned for implementation in 2001. This project involves the "hardening" of dispersed campsites along the stream and its tributaries which have been identified as contributing to water quality resource concerns. Hardening will help to mitigate effects to water resources as well as keep them available and more useable to the recreating public. Fisheries and hydrologic values along South Fork Desolation were enhanced by a recently completed project which relocated about four miles of the South Fork Desolation Trail away from the riparian area, as well as by the above mentioned culvert replacement project. Wild and Scenic values associated with North Fork Desolation Creek will also be protected and enhanced. Some commercial thinning is proposed in the Upper Desolation Vegetation Recovery EIS which will promote large diameter trees and multi-aged stands, which are desired

characteristics for this area as identified in the Forest Plan. There is also a rehabilitation project being planned for Desolation Meadow which will enhance the fisheries, botanical/ecological, and hydrologic values of North Fork Desolation Creek.

Wallowa-Whitman

North Fork John Day Wild and Scenic River

The Wild and Scenic portion of the river includes both wild and recreational classifications. Management within the river corridor maintained these classifications to appropriate standards. Free flowing conditions and water quality continued to be maintained at the same level as were present in 1988 when the river corridor was designated. The Outstandingly Remarkable Values for this river are Scenery, Recreation, Fisheries, Wildlife, and Historical Resources. None of these values were affected by management activities in FY2000. No projects identified in the river management plan were implemented in FY2000.

North Powder Wild and Scenic River

The Wild and Scenic portion of the river is classified as scenic. Management within the river corridor maintained this classification to appropriate standards. Free flowing conditions and water quality continued to be maintained at the same level as were present in 1988 when the river corridor was designated. The Outstandingly Remarkable Values for this river are Scenery and Recreation. Neither of these values was affected by management activities in FY2000. A motorized closure order was developed for Forest Road 7301-200 where unauthorized ATV use was occurring.

Imnaha Wild and Scenic River

The Outstandingly Remarkable Values for this river are Scenery, Recreation, Fisheries, Wildlife, Historical/Prehistoric, Vegetation/Botanical, and Traditional Values/Lifestyle Adaptation. There were no reductions in these values related to management activities in FY2000. Fisheries was enhanced by a special project utilizing native plantings and fencing, the relocation of campsites out of the riparian zone, and eliminating grazing from critical riparian areas. Vegetation/Botanical was enhanced by fencing a McFarlane Four O'Clock botanical site.

Other projects include some streambank stabilization projects to repair flood damage on privately owned lands adjacent to the river. Several federal agencies continue to work on Clean Water Act and Endangered Species Act violations resulting from channelization of over two miles of the river. The Crazyman Trail relocation project to repair 1997 flood damage, which began in FY1999, continued in FY2000.

For the past five years, the Forest Service and volunteers have completed riparian enhancement projects on the river. The objective was to utilize native plantings to enhance the riparian area while relocating recreation use. During FY2000, one campsite and one road were closed. Several riparian areas were also planted with native stock, and one area was fenced. This project has proven very successful.

Joseph Creek Wild and Scenic River

The Outstandingly Remarkable Values for this river are Scenery, Recreation, Geologic, Fisheries, Wildlife, and Cultural Resources. No activities occurred which resulted in adverse impacts. The lower Joseph Creek watershed analysis is being implemented.

Lostine River

The segment classified as wild is within the Eagle Cap Wilderness. The only human activity during FY2000 was wilderness recreation use. The recreation segment was managed to protect and enhance the Outstandingly Remarkable Value by providing full time volunteer hosts for visitor information and facility maintenance, removing hazard trees from roadside and recreation sites, and the start of the Lostine Trailhead Reconstruction Project.

Minam River

The entire designated length of the Wild and Scenic river lies within the Eagle Cap Wilderness and is classified as wild. The only human activity during FY2000 was wilderness recreation use.

Dutch Flat Wild and Scenic Study River

The upper portion of Dutch Flat Creek was recommended to be included in the National Wild and Scenic River System as a Wild River. No new or ongoing management activities occurred in FY2000 which would preclude the future classification of this river as a wild river. Free flowing conditions and water quality are being maintained at a level that would not preclude future designation. The Outstandingly Remarkable Values of Scenery, Recreation, Geology, and Hydrology were identified. These values were not affected by activities in FY2000.

Recommended Actions:

- Continue to find alternate sources of funding and develop new partnerships to fully implement Wild and Scenic River management plans.
- Implement enhancement projects identified in Wild and Scenic River management plans as budgets allow.
- Monitor segments within wilderness areas to insure protection from non-acceptable uses.

Dead and Defective Tree Habitat
Malheur 12, Umatilla 25, Wallowa-Whitman 28

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

Malheur (Emigrant Creek Ranger District)

A pre-implementation (baseline) analysis of dead and defective tree habitat was conducted for the Silvies Canyon Watershed. The analysis was conducted through a combination of walk-through evaluations, transects, and general knowledge of stand conditions. Snag, down wood, and replacement tree habitat components were analyzed. Current patterns of snags and down wood are highly variable across the watershed. These patterns are typically associated with environmental gradients, forest composition, successional stages, and past forest management. The watershed was broken into several analysis units to help display these patterns.

Snags: The analysis resulted in an estimate of current overall snag density capable of supporting about 40 percent potential population level (PPL), which equates to one hard snag per acre. Soft snags were also present in most forest stands but were not quantified.

Burnt Area – Predominantly a low elevation dry pine community. There are an average of 1.5 snags per acre (60 percent PPL) in surveyed forested stands. About 15 percent of the surveyed stands met 100 percent PPL, the remaining stands met 40-60 percent PPL. On average, old harvest units have enough snags to support about 20 percent PPL.

Myrtle Canyon – Mixture of ponderosa pine and mixed conifer stands. There has been little to no harvest in this area. Past and ongoing insect and disease outbreaks have contributed to a snag density capable of supporting 100 percent PPL.

Silvies Canyon – This area has had limited timber harvest. An ongoing fuels management project is occurring in the area. A 1992 survey of two designated old growth areas determined that preburn snag densities were capable of supporting 80-100 percent PPL, which is likely the case for the entire canyon. Informal post-burn monitoring indicates that overall snag density was maintained.

North End – Snag densities are expected to be similar to the Burnt Area but snag species compositions reflect the higher abundance of true fir and Douglas-fir.

New Forest Areas – Much of the area south of Silvies Canyon is “new” forest created by conifer encroachment into historic sagebrush/shrub communities. Snags are present in these areas but the majority are typically small diameter and less suitable for nesting structures.

Down wood: Qualitative observations indicate that fair to good numbers of logs are present. It is estimated that down wood levels meet Forest Plan standards for most ponderosa pine sites (3-6 pieces per acre) but may be deficient in mixed conifer stands (15-20 pieces per acre). Ongoing tree mortality should increase dead and down woody material densities in most stands.

Burnt and North End Areas – The analysis indicated there are an average of about four pieces per acre in surveyed forested stands. Approximately 67 percent of the surveyed stands met Forest Plan standards, the remaining were slightly below the lower limit.

Myrtle-Silvies Canyon Area – Past and ongoing insect and disease outbreaks have contributed to an abundance of down wood. It is likely that down wood densities met or exceed Forest Plan standards.

New Forest Areas – Down wood is present but the majority is smaller diameter, remnant old structures are not abundant.

Replacement Trees: Malheur National Forest's Green Tree Retention Marking Guidelines (GTRMG) are incorporated into all silvicultural prescriptions. Post treatment snag and large wood monitoring of the Badger Timber Sale indicates sufficient green trees of all sizes were retained on site to meet guidelines.

Post-implementation monitoring was conducted on several timber sales through informal walk through stand evaluations. These sales were based on the 1993 Forest Plan standard of 40 percent PPL (0.95 snags/acre). The current amended Forest Plan standard is 100 percent PPL (2.39 snags/acre).

Harvest units in the Elk and Perry Rattler Timber Sales were evaluated. All units appeared to be below the planned 40 percent PPL snag level, most units were estimated to be at or near 20 percent PPL. Sufficient green trees were retained in most units to provide for future recruitment of snags. To partially offset the snag deficiency, new snags were created in units where the remaining overstory could support snag creation while maintaining overall stand integrity. Green trees were girdled at four to five feet above ground level or top girdled. This project may move treatment units to the originally planned 40 percent level, but does not provide snags at the desired 100 percent level. Surrounding forest stands appear to have greater snag densities.

Umatilla

Data for dead standing tree (snag) and down wood surveys in two salvage timber sales on the Walla Walla Ranger District shows snag standards and guides from the "Eastside Screens" (Regional Forester's Forest Plan Amendment #2, June 1995) and Interim Snag Guidance for Salvage Operation (Umatilla NF, April 14, 1993) were addressed. Pre-harvest and post-harvest data were collected from the same 1+ acre plot within each unit. Data presented is not a statistical sample, but represents an "average" condition with the unit. The following tables show the pre-treatment and post-treatment dead wood data sets for the District's Grande Ronde Salvage Timber Sale and the Curley Salvage Timber Sale.

Table C-29
DEAD STANDING WOOD DENSITIES
GRANDE RONDE SALVAGE TIMBER SALE
(snags/acre)
Umatilla National Forest

Harvest Unit	"Eastside Screens" Standard		Pre-treatment Sample Results		Post-Treatment Sample Results	
	Total	>20" dbh	Total	>20" dbh	Total	>20" dbh
06	1.80	0.14	25.2	7.7	8.7	1.9
13	"	"	29.8	0.4	6.1	0.9
14	"	"	21.3	0	5.5	0
15	"	"	21.3	3.8	2.8	0
Sale Average	1.8	0.14	24.4	3.0	5.8	0.7

Table C-30
DEAD STANDING WOOD DENSITIES
CURLEY SALVAGE TIMBER SALE
(snags/acre)
Umatilla National Forest

Harvest Unit	"Eastside Screens" Standard		Pre-treatment Sample Results		Post-Treatment Sample Results	
	Total	>20" dbh	Total	>20" dbh	Total	>20" dbh
02	1.8	0.14	14.0	0	37.0	0
04	"	"	28.5	0	15.5	0.5
07	"	"	21.5	5.4	11.0	2.2
08	"	"	23.7	7.3	26.0	8.6
09	"	"	6.5	2.6	5.2	3.9
11	"	"	7.5	2.2	13.0	6.4
Sale Average	1.8	0.14	17.0	2.9	18.0	3.6

In a couple of instances, the data indicates there were more snags following salvage harvest than there were before harvest. This is primarily because of on-going tree mortality that has taken place over a 3-5 year period between marking of the unit and its actual harvest.

Table C-31
DEAD DOWN WOOD DENSITIES
GRANDE RONDE SALVAGE TIMBER SALE
(numbers and linear length/acre)
Umatilla National Forest

Harvest Unit	"Eastside Screens" Standard		Pre-treatment Sample Results		Post-Treatment Sample Results	
	# Logs	Linear Length	# Logs	Linear Length*	# Logs	Linear Length
06	15-20	100-140 ft	58	580+ ft	18	180+ ft
13	"	"	22	220+ ft	9	90+ ft
14	"	"	24	240+ ft	25	250+ ft
15	"	"	29	290+ ft	17	170+ ft
Sale Average	15-20	100-140 ft	33	330+ ft	17	170+ ft

Table C-32
DEAD DOWN WOOD DENSITIES
CURLEY SALVAGE TIMBER SALE
(numbers and linear length/acre)
Umatilla National Forest

Harvest Unit	Eastside Screens Standard		Pre-treatment Sample Results		Post-Treatment Sample Results	
	# Logs	Linear Length	# Logs	Linear Length*	# Logs	Linear Length
02	15-20	100-140 ft	17	170+ ft	12	120+ ft
04	"	"	14	140+ ft	8	80+ ft
07	"	"	5	50+ ft	13	130+ ft
08	"	"	18	180+ ft	33	330+ ft
09	"	"	26	260+ ft	5	50+ ft
11	"	"	30	300+ ft	33	330+ ft
Sale Average	15-20	100-140 ft	18	180+ ft	17	170+ ft

* Screens use a 6 foot log length to count as a log while the District used a 10 ft minimum length to count as a log. The linear length figures actually represent the minimum present. In reality, total downed log length is usually 2.0-2.5 times the length shown as many downed logs were longer than 30 feet.

As with snags, the length of downed logs after harvest exceed those present before harvest. This reflects the on-going blowdown of standing trees, portions of harvested trees that did not meet merchantability standards (cull), and the intent of the District to meet "Eastside Screens" linear length criteria.

The purpose of the surveys for the two salvage timber sales was to determine both the effectiveness of District marking guidelines and the effect(s) of harvest operations on dead wood retention. Both sales exceeded the standards set by the "Screens."

While the required densities were met there is a concern that a significant portion of the "hard" snags and down wood are being taken during harvest, leaving mostly "soft" wood and minimal amounts of "hard" wood. If this were the case, in the future there could be fewer good snags and less down wood.

Table C-33
DEAD STANDING TREE (SNAG) DENSITIES IN THE UMATILLA AND MEACHAM WATERSHEDS
Umatilla National Forest

LMRP, Umatilla NF Guidelines		**Umatilla-Meacham Watershed CVS Data**	
Working Group	**Density**	**Potential Vegetation Group**	**Density**
Ponderosa pine	0.75 snags/ac. >10" dbh 1.36 snags/ac. >12" dbh 0.14 snags/ac. >20" dbh 2.25 snags/ac. Total	Dry Forest	0.7 snags/ac. >10" dbh 2.6 snags/ac. >12" dbh 1.2 snags/ac. >20" dbh 4.5 snags/ac. Total
South Associated (Mixed conifer)	0.75 snags/ac. >10" dbh 1.36 snags/ac. >12" dbh 0.14 snags/ac. >20" dbh 2.25 snags/ac. Total	Moist Forest	7.6 snags/ac. >10" dbh 13.5 snags/ac. >12" dbh 5.0 snags/ac. >20" dbh 26.1 snags/ac. Total
North Associated (Grand fir)	0.30 snags/ac. >10" dbh 1.36 snags/ac. >12" dbh 0.14 snags/ac. >20" dbh 1.80 snags/ac. Total		
Lodgepole pine	1.21 snags/ac. >10" dbh 0.59 snags/ac. >12" dbh 1.8 snags/ac. Total	Cold Forest	5.8 snags/ac. >10" dbh 27.4 snags/ac. >12" dbh 33.2 snags/ac. Total
Subalpine Zone	1.21 snags/ac. >10" dbh 0.59 snags/ac. >12" dbh 1.8 snags/ac. Total		

Snag and down wood habitat was assessed using the USFS current vegetation survey (CVS) data from 1993-1995 for the Umatilla and Meacham watersheds. The CVS inventory is a permanent plot grid system at 3.4 mile and 1.7 mile intervals that samples vegetative conditions across the National Forest. Each plot collects a variety of vegetative information including plant association, live trees, dead trees, down wood, along with the diameters and heights for each species tallied. The data included 311 forested points/subplots in the watershed. Dead standing trees were tallied by two-inch diameter classes, then divided by the total number of plots sampled to arrive at an average DST density for each diameter class. Potential vegetation groups (PVG) and size classes were stratified, and summed by size class groups for comparison with the Forest Plan standards and guidelines. As noted by the results on Table C-33, snag densities appear to meet or exceed Forest Plan standards. However, DST densities are relatively lower in the dry forest group when compared to densities in the other forested groups. In addition, it would be wrong to assume snag distribution is even across the watershed. In "natural" settings, snag

distribution is random and uneven across the landscape. Tree mortality generally occurs in groups, clumps, or patches.

CVS data also analyzed the potential for recruitment of dead trees throughout the life of the unit. As identified in current Forest Plan direction, "green" replacement trees (GRT) densities are based on the Regional Forester's Forest Plan Amendment #2 (6/95) and Interim Snag Guidance for Salvage Operation (4/93). Forest interim guidelines for replacement trees as noted by the results on Table C-34, exceed Forest Plan standards. However, GRT densities were significantly lower in the dry forest group when compared to densities in the other forest groups.

Table C-34
"GREEN" REPLACEMENT TREE DENSITIES IN THE UMATILLA AND MEACHAM WATERSHEDS
Umatilla National Forest

LMRP, Umatilla NF Guidelines		**Umatilla-Meacham Watershed CVS Data**	
Working Group	**Density**	**Potential Vegetation Group**	**Density**
Ponderosa pine	7.5 trees/ac. >10" dbh 13.6 trees/ac. >12" dbh 1.7 trees/ac. >20" dbh 22.8 trees/ac. Total	Dry Forest	6.1 trees/ac. >10" dbh 17.4 trees/ac. >12" dbh 10.0 trees/ac. >20" dbh 33.5 trees/ac. Total
South Associated (Mixed conifer)	5.6 trees/ac. >10" dbh 9.1 trees/ac. >12" dbh 1.1 trees/ac. >20" dbh 15.8 trees/ac. Total	Moist Forest	13.1 trees/ac. >10" dbh 36.0 trees/ac. >12" dbh 16.3 trees/ac. >20" dbh 65.4 trees/ac. Total
North Associated (Grand fir)	1.5 trees/ac. >10" dbh 6.8 trees/ac. >12" dbh 1.1 trees/ac. >20" dbh 9.4 trees/ac. Total		
Lodgepole pine	10.1 trees/ac. >10" dbh 4.3 trees/ac. >12" dbh 14.4 trees/ac. Total	Cold Forest	14.2 trees/ac. >10" dbh 58.0 trees/ac. >12" dbh 72.2 trees/ac. Total
Subalpine Zone	13.9 trees/ac. >10" dbh 5.3 trees/ac. >12" dbh 19.2 trees/ac. Total		

Down wood densities were not calculated from CVS in the Umatilla and Meacham watersheds.

Wallowa-Whitman

All sales were screened to meet direction in the Eastside Screens. This direction requires that snags be retained at 100 percent population levels of primary cavity excavators. Approximately 1,800 acres, covering 4 timber sales were surveyed. Of the acres surveyed, about 1,200 acres met the 100 percent level. The 100 percent snag level is not being met in some areas due to past timber sale activity and firewood cutting. KV funding to create snags was not available on projects deficient in snags. The threshold of variability is exceeded on those timber sales.

No estimates for down logs or green tree replacements were given. No surveys were conducted for use by primary cavity excavators due to lack of funds.

Recommended Action:

Umatilla

- Each District will continue to monitor dead wood densities with emphasis on review of post-harvest densities, including trees greater than 20 inches (dbh), number of down logs, and green tree retention. Monitoring wildlife use of dead wood is an ongoing need.
- Tentative results suggest that additional work in the operations process is in need to improve snag selection and replacement in harvest units in order to minimize the loss of snags.
- More attention should be given to monitoring prescribed burning with emphasis on review of post-burn densities, including trees greater than 20 inches, number of down logs, and green tree retention.
- Increase snag densities when marking units to offset anticipated losses from harvest treatments and follow up activities.
- Continue to monitor dead standing trees and green replacement trees at the watershed scale.

Wallowa-Whitman

- Obtain funding to provide for snag level surveys over large analysis areas and track these through the post-sale process.
- Obtain funding to sample for primary cavity excavators to determine baseline populations and trends.
- Obtain proper funds to create snags where deficiencies exist.
- Implement mitigation measures in the Forest Fuelwood EA, such as road closures.

Old Growth Habitat
Malheur 14, Umatilla 24, Wallowa-Whitman 27

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

Malheur (Emigrant Creek Ranger District)

Six designated old growth (DOG) areas in the Silvies Canyon EIS area were assessed for habitat suitability and capability to support Forest MIS. These areas were primarily set aside for management of the pileated woodpecker. These areas were assessed against the 1984 old growth definition and Forest Plan standards, the 1992 old growth definitions, and replacement old growth standards.

1984 old growth definition and Forest Plan standards:

Three DOG areas met Forest Plan standards and old growth validation standards for pileated woodpeckers.

The remaining three met five of the Forest Plan standards and old growth validation standards for pileated woodpeckers. While they lacked the recommended level of large trees per acre, overall habitat evaluation criteria were met.

1992 old growth definitions:

All but one DOG area met the minimally acceptable number of large trees per acre.

All DOG areas met the minimally acceptable number of snags per acre, and the amount of down woody material.

All DOG areas exceed the highest number of contiguous acres needed to maintain the ecological integrity of an old growth stand.

Several DOGs did not meet standards for numbers of lower tree layers and percent canopy cover for the shrub and herbaceous component.

Replacement old growth:

Replacement old growth (ROG) areas have not been identified for three DOG areas. Adjacent habitat is available that may function as ROG.

ROG areas have been identified for five DOGs. Management strategies have been used and are proposed to improve stand vigor and development rates.

Umatilla

Inventory of designated old growth areas for MIS use and stand condition, generally occurs during the project evaluation process. NEPA documentation contains old growth habitat evaluations and recommended habitat improvement actions.

The evaluation of old growth habitat in the Umatilla and Meacham watershed in FY2000, show gross acres of late and old forest habitat have declined across both watersheds when compared to historic conditions. While some declines occurred between 1936 and 1958, the greatest reduction in old forest habitat occurred after 1958 (Table C-35). Old forest habitat types that have declined since 1936 include ponderosa pine (single-stratum) and grand fir (multi-strata). Changes are the result of natural events such as insect and disease epidemics, drought, wind-throw, and wildfire; and the harvest of large overstory trees since the 1940's. Other changes in old forest structure include the reduction in patch size and arrangement of old forest stands from historical conditions. Present day, old forest habitat occurs in small patches, interior habitat is small, patches are widely scattered and rarely connected to similar habitats. They occupy less than 18 percent of the forested area in the Umatilla and Meacham watersheds.

Table C-35
CHANGES IN OLD FOREST HABITAT IN THE UMATILL AND MEACHAM WATERSHEDS FOR 1936, 1958, AND 1999.
Umatilla National Forest

Forest Structure	Umatilla Watershed						Meacham Watershed					
	1936		1958		1999		1936		1958		1999	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
Old Forest Single-Stratum	20,471	28%	6,454	9%	2,302	3%	9,527	13%	12,854	17%	1,467	2%
Old Forest Multi-Strata	21,087	29%	29,901	42%	9,907	14%	19,591	26%	12,736	17%	3,963	5%
Total Old Forest	41,558	57%	36,355	51%	12,209	17%	29,118	39%	25,590	34%	5,430	7%

Additional data on old forest habitat in the Umatilla and Meacham watershed was available from inventories conducted by the Audubon Society volunteers in the spring of 1992. These inventories examined the status of Forest Plan Old Growth Management Areas (C1). Eight of the 15 areas surveyed occurred in the Umatilla and Meacham watershed. Surveys included habitat condition and presence of pileated woodpeckers. Average size of the 15 designated areas was 370 acres. Of the areas surveyed, two were smaller than the 300-acre minimum size requirement for the management area (C1) and four contained less than 300 acres of LOS. Despite limited harvest entry, all but one of the surveyed stands were characterized by the group as either “fragmented” or “linear”, reflecting the characteristic vegetative pattern of the analysis area. Generally, LOS stands occurred along riparian stringers or as upland patches of old forest, and are in the roadless areas and wilderness. Interior habitats were limited in many stands. All areas surveyed were dominated by grand fir or Douglas-fir. Survey notes did not mention spruce budworm mortality in the designated areas.

Recommendation with the intent to improve LOS in the Umatilla and Meacham watersheds included focusing restoration on increasing the amount of old forest habitat and expanding the size of old forest patches. The objective for LOS management in the Umatilla and Meacham watersheds was to maintain 40 percent of the forested vegetation in the old forest stage (single stratum and or multi-strata). This involves maintaining existing old forest stands to prevent further reductions of LOS in the watersheds. Forested stands adjacent to existing LOS stands should move toward an old forest condition to increase old forest patch size.

Wallowa-Whitman

Approximately 1,425 acres in Forest Plan management area 15 were surveyed during 2000. Of those surveyed acres, 600 acres (42 percent) met the old growth standards in the Forest Plan. The Forest-wide one-acre survey technique (originated by Pine Ranger District) was followed. Since 1990, a total of about 35,175 acres of designated old growth areas have been surveyed. Only about 32 percent of these acres have met the Forest Plan old growth definition. Stands that did not meet standards were mainly deficient in large diameter trees, snags, and down logs. Many have had some partial timber harvesting in the past. In most cases, replacement stands are unavailable. Firewood cutting and roads have reduced the value of some old growth stands, and wildfire has destroyed some designated old growth stands.

Evaluation:

Because only about 32 percent of the allocated old growth meets the Forest Plan definition and replacement stands are not available, management requirements for old growth are not being met. Results indicate the threshold of variability has been greatly exceeded.

Recommended Action:

- Continue to implement the Eastside Screens to maintain all existing late and old structure in all allocations and maintain options for old growth management in the future.
- Continue the evaluation of designated old growth areas at the project and watershed scales, to provide recommendations to improve habitat quantity and quality.
- During Forest Plan revision, review and adjust standards and guidelines for old growth and late and old structure management. Consider new science findings concerning fragmentation, connectivity, ICBEMP recommendations, new definitions, impact of large stand replacement fires, and old growth patch sizes.

Elk/Deer Habitat
Malheur 13, Umatilla 23, Wallowa-Whitman 32

Questions: Are the standards and guidelines being followed as required to meet habitat effectiveness index (HEI) levels established for the subwatershed and (aggregated to the) management area? Are the assumed interrelationships between cover spacing, cover quality, and open roads valid?

Malheur

The Forest did not submit a report on this item.

Umatilla

To meet the needs for elk/deer, Forest Plan standards and guidelines are applied in the project level analysis area. However, HEI is not always used to analyze habitat effectiveness. As mentioned in previous monitoring reports, the HEI model as described in the Forest Plan has problems and is no longer a useful tool to evaluate elk habitat. Key elk habitat components, such as forage, cover (satisfactory and marginal), road density, and their interrelationships are used to evaluate the project in the analysis area. A continuing need is to conduct follow up monitoring of changes in elk (and deer) habitat resulting from activities and other disturbance events across the Forest. The relationship between habitat quality across the Forest and elk populations needs exploration.

The most problematic habitat component during analysis has been meeting cover objectives when the project encompasses areas of high mortality from past insect and disease infestations. In addition, the expected increase in thinning activities across the Forest will reduce stand densities and allow for more tree-sustainable forest conditions. Thinning overstocked stands will change the composition of cover, by moving satisfactory cover to marginal cover. Generally, a reduction in road densities, through implementation of District Access and Travel Management Plans, will compensate for poor cover quality in an area. The quantity and quality of elk cover remains a point of debate as indicated by recent research showing that thermal cover may not be a critical component for elk as previously thought (Cook, et.al., 1998).

Wallowa-Whitman

Of the 10 reported projects that appeared to have the potential to affect elk HEI (Habitat Effectiveness Index), 7 projects met or exceeded the HEI objective of 0.5. High road densities and low hiding cover were the major cause of not meeting HEI objectives in the two projects. Road closure effectiveness has been variable. Where road closures are not effective, elk habitat suitability is lower than the calculated values for the affected planning area. All planning analysis areas exceeded the open road density requirements of 1. 5 and 2.5 miles per square mile, averaging 3.5 miles. This is well above Forest Plan standards.

Post-season elk numbers for 2000 for the Wallowa-Whitman units were about 78 percent of the management objective, which is about 17,200 elk. This is well under the established threshold. Summarizing all ten units, bulls per 100 cows averaged 11. This figure is below management objective of 12 percent, but is an improvement from previous years. Calves per 100 cows averaged 23 percent, well below the objective of 43 percent. ODFW feels high cougar populations are affecting calf survival and hence population numbers.

Recommended Action:

- Elk and deer habitat evaluation and monitoring is in need, particularly where large-scale insect infestations and fire have occurred and have likely affected overall habitat quality.

- Set standards for each component of the HEI model (cover, road densities, spacing, and forage) by subwatershed and them implement them.
- Continue reviewing the utility of HEI and change Forest Plans as needed during the Forest Plan revision process.
- Emphasize the need to meet open road densities both during project activity and after projects. Where densities can not be met, emphasize the need to provide mitigation to meet resource objectives. Obtain funding.
- Continue to monitor. Make recommendations to Oregon Department of Fish and Wildlife concerning harvest and seasons.