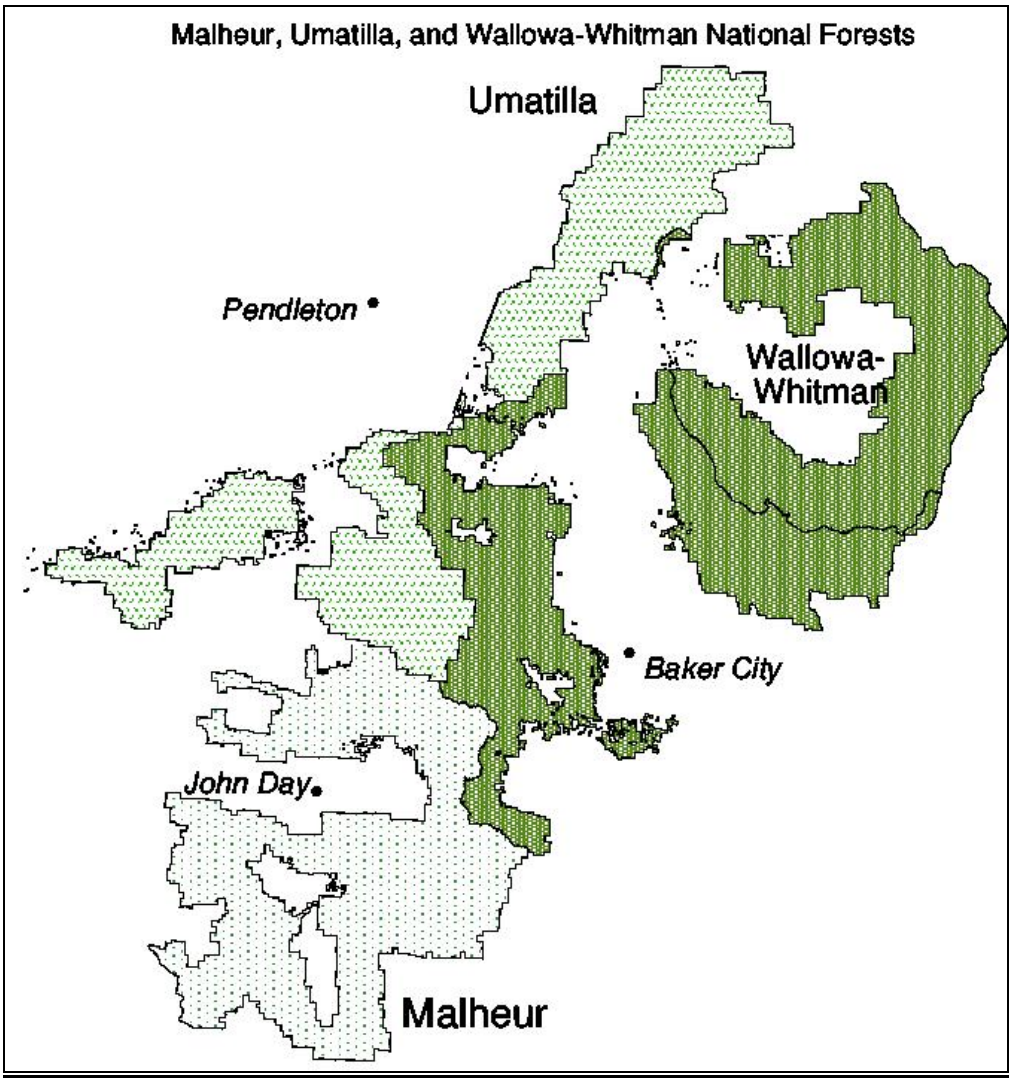
Blue Mountains National Forests

COORDINATED MONITORING ITEMS



SECTION C

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Soil
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Question: Are management practices/projects resulting in conditions which comply with Forest Plan standards and guidelines related to soil resources and site productivity?

Malheur

Existing Condition Sampling of Soil Impacts

Utilizing a soils impact sampling protocol developed by Forest personnel, an assessment of existing soil conditions occurred for a large project on the Emigrant Creek Ranger District. The protocol involves stratifying the planning area into broad groups of soils that have similar physical characteristics and management problems/concerns. A percentage of these broad groups were sampled in the field (locations were randomly selected) utilizing the penetration resistance method (a few units were too rocky and thus received only an ocular soil impact assessment). Of the eighteen units sampled, all but 4 have current soils impacts determined to be less than 20 percent. Of the four units found that exceeded standards, all were either volcanic ash or miscellaneous soil types (no rhyolite units were found to exceed standards).

To ensure correct determinations were made in the field while implementing the resistance and ocular methods, eight of the units sampled received validation testing utilizing a nuclear densiometer; areas identified as impacted and unimpacted during initial sampling were re-sampled with the nuclear densiometer. Results validated findings from the initial determinations. Overall, the sampling protocol seems very useful on projects of this size when it is cost prohibitive to sample every potential unit. For this project, information was extrapolated from areas where sampling occurred to areas of similar soils and past impacts.

BMP Monitoring

Site visits were made to three timber sales (12 units) on the Prairie City Ranger District; the Foggy Timber Sale, the Misty Timber Sale, and the Over Timber Sale. Overall, BMP monitoring occurred on 591 acres. The following is a short summary of results and conclusions found in “FY 2001 Harvest Activity BMP Monitoring Report”, Prairie City Ranger District (Bill Gamble, April 2002):

Foggy Timber Sale – BMP’s for skidtrail location and width were followed, and aided in minimizing negative impacts. BMP skidtrail spacing recommendations stated in the EA were not feasible with the use of a Cut-to-Length (CTL)/Forwarder ground based harvest system. It is likely that soil standards would still have been met at the tighter average skidtrail spacing even without snow cover as less of the total network would be detrimentally impacted given the use of tracked low ground pressure equipment and operation over harvest created slash laid in skidtrails. Figure C-1 shows the effectiveness of slash in protecting soil conditions. The picture on the right shows how only the lower portions of skidtrails, where there is no slash accumulation and more passes occur, show detrimental soil impacts.

Over the snow harvesting utilizing a CTL/forwarder system greatly minimized negative impacts to the soils in units monitored. Resulting estimates of detrimental soil conditions ranged from 6-9 percent. Of this, 4-7 percent of the impact was associated with harvest activities in the unit and the remaining 2-5 percent associated with the existing road network. Forest Plan standards for soil disturbance were met in all units monitored.

The cumulative watershed effects analysis for Clear Creek assumed ground based logging systems operating over dry soil conditions, with estimates of up to 20 percent of the harvest units being detrimentally impacted. Where winter logging and use of low impact equipment is utilized, the current cumulative watershed effects analysis process likely over-estimates the magnitude of detrimental soil impacts and associated watershed effects.

Figure C-1
TYPICAL CTL/FORWARDER SKIDTRAILS
Malheur National Forest

Misty Timber Sale – BMP's for skidtrail and landing locations were followed and aided in minimizing negative impacts to draw bottoms, however, BMP skidtrail spacing and width recommendations stated in the EA were not met. Use of mechanical felling equipment, such as a feller-buncher, is not conducive to the wider skidtrail spacing recommended by the BMP's. The resultant area detrimentally impacted ranged from 20-25 percent, exceeding Forest Plan standards in one of three units reviewed. Skidtrail widths of 16-18 feet (Figure C-2) reflect the use of a large chassis feller-buncher, difficulties in utilizing existing down/jack-strawed lodgepole, yarding of whole trees, and poor equipment operation. Landing sizes were large (Figure C-3), encompassing up to 0.75 acres per landing and accounting for 3 percent of the area detrimentally impacted. It is unclear why such large landings were needed.

Figure C-2
WIDE SKIDTRAIL IN MISTY UNIT 1
Malheur National Forest

Figure C-3
MISTY UNIT 1 LANDING AREA
Malheur National Forest

Over Timber Sale – BMP's for skidtrail location were followed and aided in minimizing negative impacts. All draw bottoms were protected. BMP skidtrail spacing recommendations stated in the EA were met on half of the units reviewed. Overall skidtrail spacing was wider than most of the feller-buncher units monitored. This can be attributed to conscientious equipment operators and effective sale administration.

Over the snow harvesting greatly minimized negative impacts to the soils in monitored units. Figure C-4 shows the healthy ground vegetation and lack of displacement and apparent compaction. Resulting estimates of detrimental soil conditions ranged from 4-7 percent. Of this only 2-4 percent of the impact was associated with harvest activities in the unit and the remaining amount associated with existing the road network and landing areas. Forest Plan standards for soil disturbance were met in all monitored units.

Figure C-4
TYPICAL SKIDTRAILS IN OVER TIMBER SALE
Malheur National Forest

Summary for all sales monitored

Over the snow harvesting greatly reduced levels of detrimental soil disturbance even where skidtrail spacing was tighter than recommended by BMP's. In units reviewed, over the snow harvesting resulted in an average of 7 percent detrimental soil disturbance compared to 20+ percent in units harvested during dry soil conditions. Over the snow harvesting can be an effective mitigation to concerns about soil disturbance and associated watershed effects.

CTL/forwarder operations have an added benefit of not requiring traditional landing areas. Logs can be "hot decked" on existing roadbeds limiting the need for additional landing areas.

Conscientious equipment operation and close sale administration can make a great deal of difference in post harvest soil and stand conditions. Operators and administrators that go the extra mile to limit harvest related impacts to the soils and residual vegetation should be recognized and rewarded.

Evaluation:

Subsoiling will not be needed on units within the Foggy and Over Timber Sales, as levels of soil disturbance are well below Forest Plan standards, and the small amount of detrimentally impacted area is expected to recover readily. Subsoiling will be necessary on the Misty Timber Sale to reduce levels of compaction and facilitate recovery of detrimentally impacted landings and skidtrails. This treatment will leave these sites vulnerable to soil loss until vegetation can become re-established, which is typically occurs within 3-5 years. Once treated areas are re-vegetated, the units should once again meet Forest Plan standards for soil disturbance.

Where feller-bunchers are utilized, consideration should be given to requiring over the snow harvesting in order to reduce detrimental soil impacts and achieve Forest Plan standards. Stricter sale administration would likely have aided in meeting Forest Plan standards on the Misty Timber Sale. The large landings, wide skidtrails, and tight skidtrail spacing are all factors that sale administration can and should address with operators.

Umatilla

Activity areas were visited on each district in 2001 to monitor for soil impacts, implementation of systems (best management practices) to reduce adverse soil impacts, and the effectiveness of planned methods. On active timber harvest operations, field visits were made both during operations and after completion of unit activity.

Harvest-related activity

Units within seven timber sales were visited. The majority of the sales used a CTL harvest system. In general it was found that this system operating on down material reduced compaction and displacement effects. Some rutting was noted near landings but there was no soil movement. Several sales were in areas previously harvested, and existing trails were utilized. Of particular note, one unit had a forwarder route on a short section of 40-50 percent slope. This route was utilized successfully with no rutting or erosion. One visited unit had post-operational burning which consumed the activity fuels but retained the majority of the duff layer. One sale utilized a ground based system. In areas with an adequate down wood component there was very little compaction. Some areas of high use (close to landings) and with lower levels of down wood had some rutting and displacement. The grapple piling operation had some areas of displacement associated with excessive machine turning. Estimates of detrimental soil conditions (DSC) and exposed soil are displayed in Table C-1.

Table C-1
MECHANIZED HARVEST OR FUEL TREATMENTS
Umatilla National Forest

Activity Unit	Treatment	% DSC*	% Exposed Soil
Spouter 1	CTL**	4	0-1
Spouter 2	CTL	8	0-2
Eden 49, 50	CTL	4-6	0-1
Eden 53	CTL	2-3	0
Eden 40	CTL	2-3	0-1
Cliffhanger 2	CTL	5	4-5
Cliffhanger 11	CTL	5	0-2
Cliffhanger 29	CTL	3-5	1
Miner A	Ground Based	2	0
Miner D	Ground Based	9	3-5
Gobbler 10		3-6	0-3
Lick 24	Skyline	2-4	5-15
Lick 8	CTL	3-5	0-2
Lick 23	CTL	4-8	1-4
Lick 5	CTL	3-6	1-3
Lick 9, 10, 11	Whole Tree	6-10	5-10
Lick 4	CTL	3-5	2-4
Sawmill 1	Grapple Pile	----	5-10
Sawmill 12	Grapple Pile	----	5-10

* Detrimental Soil Condition
** Cut-to-Length

Wildfire

Suppression efforts on the Mallory Fire created temporary erosion hazards from bulldozer fire-line construction. Reopening of closed roads and dozer operations near and across streams exposed mineral soil to potential erosion and weed invasion. Rehabilitation treatments immediately followed cessation of fire suppression activities, and included installation of waterbars for drainage diversion and seeding of suitable areas. Native seed and native straw with seed was used in select areas adjacent to draws or streams. Fire severity was low to moderate over most of the burn area with high severity effects to soil surfaces limited to a few hundred acres, with the largest portion in the Graves Creek area. The Big Creek Fire, on the NFJD RD. employed minimum impact suppression tactics, with all hand-line construction in this primarily wilderness fire. Fire severity was moderate or low on the majority of the fire area with high severity effects on no more than 100 acres. Slopes were steep, however, and follow-up monitoring in 2002 is planned.

Subsoiling

Monitoring survival of planted tree seedlings continued in the special demonstration area on the Heppner RD. Monitoring has been ongoing since 1992 to compare survival of seedlings with and without subsoiling treatment. Overall the findings indicate substantial benefit to seedling survival when subsoiling is part of the site preparation for planting.

Evaluation:

Management impacts to soils continue to move towards less disturbing effects, with utilization of the full capability of selected yarding systems in harvest operations as a key objective. This indicates implementation of best management practices as being effective in achieving soil and water quality objectives.

Mechanized harvest systems of lower ground disturbance are being utilized to a greater extent while attempting to balance the need for effective fire hazard reduction. Piling of dead and down wood is being attempted with grapple systems, which use lighter-bodied excavator frames, with less compaction risk than bulldozer operations used in past decades. Occasional avoidable adverse impacts occur following weather events or operator inattentiveness, yet this is the exception to the otherwise overall very satisfactory operations of contractors and Forest Service contract administrators.

An ongoing concern is the cumulative effect of legacy disturbance that often is not practical to rehabilitate or otherwise treat. Fortunately, areas of enduring high disturbance effects are scattered, and involve relatively little land area with few areas exhibiting signs of productivity distress or erosion problems. The process of identifying areas that may be suitable for treatment is becoming incorporated into planning area assessments in addition to ongoing reconnaissance surveys for watershed improvement needs.

Five-Year Review:

Adjustments in harvest methods, site preparation, and fuel treatments continue to result in a reduction in adverse effects on soil resources. Detrimental soil conditions, as defined in the Forest Plan, continue a trend of improvement with less adverse impacts from mechanized harvest and silvicultural activities. Road system improvements are continuing a trend of reduction in sediment production and stabilization of problem sections of roads with cut-slope or other difficult areas. Since the late 80's and early 90's, there has been a shift in logging, yarding, and site preparation methods that are now much less disturbing to the land in terms of adverse soil impacts.

Erosion risk and actual erosion occurrences continue to decrease with little to no acceleration of natural erosion resulting directly from management activities, such as grazing practices and prescribed fire prescriptions.

Use of bulldozers for piling and burning of downed, woody material has ceased with fuel treatments accomplished by mechanical piling with grapple piling, mastication with 'slashbusting' equipment, hand piling, and more 'jackpot' type burning occurring.

There is a strong need to accelerate the pace of the Ecological Unit Inventory and complete coverage for the entire Forest. Completion of this correlated inventory will provide the needed detail for soils and potential vegetation information useful at several scales, both for planning and project formulation. This land-type level of detail will provide needed data on soil characteristics to allow tailoring of soil impact levels to particular soil types. This will allow moving away from the blanket-approach in the present Forest Plan. The numeric standards in the present Plan were an excellent first step needed to deal with the situation at the time, but they are difficult to measure and not necessarily appropriate for all soil types or conditions. Determination of land productivity and suitability would be much improved with the designations of ecological units.

The goals of the standards and guidelines set in the Plan are still valid but the measurement methods are ready for updating. More readily measurable means to assess soil related impacts are needed along the lines of the qualitative assessment protocol receiving testing on Blue Mountain Forests. Validation of assumptions related to soil impacts is sorely needed from the research community with emphasis and need related from management to the research branch or academia. Retrospective studies can be undertaken to gain some insight into local results of various site impacts and treatment methods that have occurred over the last 10 years or so.

Wallowa-Whitman

Soil surveys were conducted on the Wallowa Valley RD on timber sales in the planning phase to establish pre-activity soil conditions. Surveys were conducted using the Wallowa-Whitman NF soil protocols. All areas have proposed units that exceed Forest Plan soil standards and guidelines. Information from the surveys was entered into a database to track soil conditions through the sale and into the future. Information will be used to help plan harvest systems and post-sale rehabilitation measures. This has been a cooperative effort with Wallowa Resources.

Monitoring of soil productivity standards and guidelines was completed on the Reservoir Timber Sale during project implementation. This review found that the standards and guidelines were met. The Devils Run Subsoiling project, completed in 1996, was reviewed for effectiveness. Generally, subsoiling was found to be enhancing soil recovery processes. It was also found that livestock need to be deterred from using the subsoiled trails by scattering down woody material.

Evaluation and Recommended Action:

- Continue coordinated efforts with the Tri-Forest Monitoring Team.
- Schedule site visits to timber sales and slash treatments on all Districts.
- Finalize a Tri-Forest "Soil Impact Sampling Protocol" so that soil assessment (existing conditions) inventories can be completed during the project development stage. This is needed to improve cumulative effects analysis and ensure the identification of all areas needing treatment (complete enhancement/rehabilitation package), as well as, to ensure that Regional Guidelines and Forest Plan standards are being met.
- Additional monitoring of restoration projects is needed to determine recovery rates and to see if anticipated results have been achieved. Currently, this monitoring work is limited due to increased workload, funding, and priority considerations.
- Current BMP recommended skidtrail spacing is difficult to achieve with the use of mechanical harvesting equipment (CTL processors, feller-bunchers). Spacing should be reviewed and adjusted when use of mechanical harvesting is required or probable.

Air Quality and Smoke Management
Malheur 31, Umatilla 1, Wallowa-Whitman 22

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

The Forest Service across the entire Northwest Region has been 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 Service and Smoke Managers in each of the states, and some problems in data transmission to Smoke Management for the Oregon Department of Forestry have been noted.

Malheur

The reporting obligations to the Oregon State Implementation Plan (SIP) and the Northeast Oregon Smoke Management MOU during calendar year 2001 were met.

Table C-2
EMISSIONS TREND
Malheur National Forest

Year	Acres Treated	PM 10	BD Acres	Natural Fuels Acres
1993	6,133	889	5,286	847
1994	8,117	456	3,658	4,432
1995	11,218	1,635	6,681	4,537
1996	18,019	1,930	5,684	12,335
1997	32,142	3,553	9,392	22,750
1998	36,124	1,882	9,159	26,965
1999	26,555	1,084	4,582	21,973
2000	7,759		4,051	3,708
2001	25,000		5,376	19,624

Umatilla

The 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 MOU.

Figure C-5
TOTAL FUEL CONSUMPTION
Umatilla National Forest

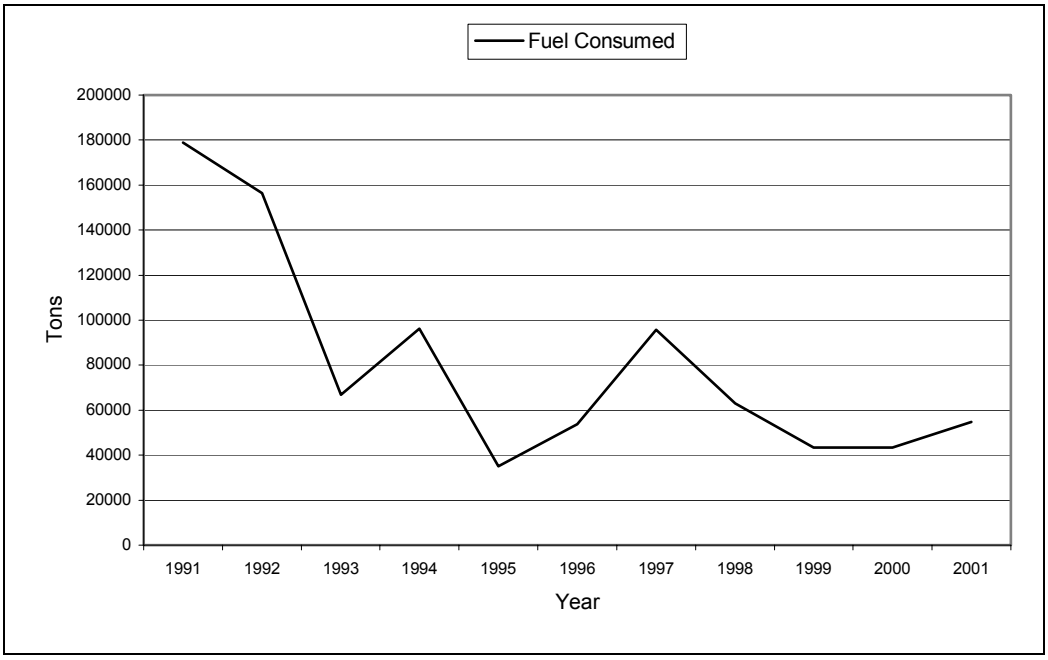
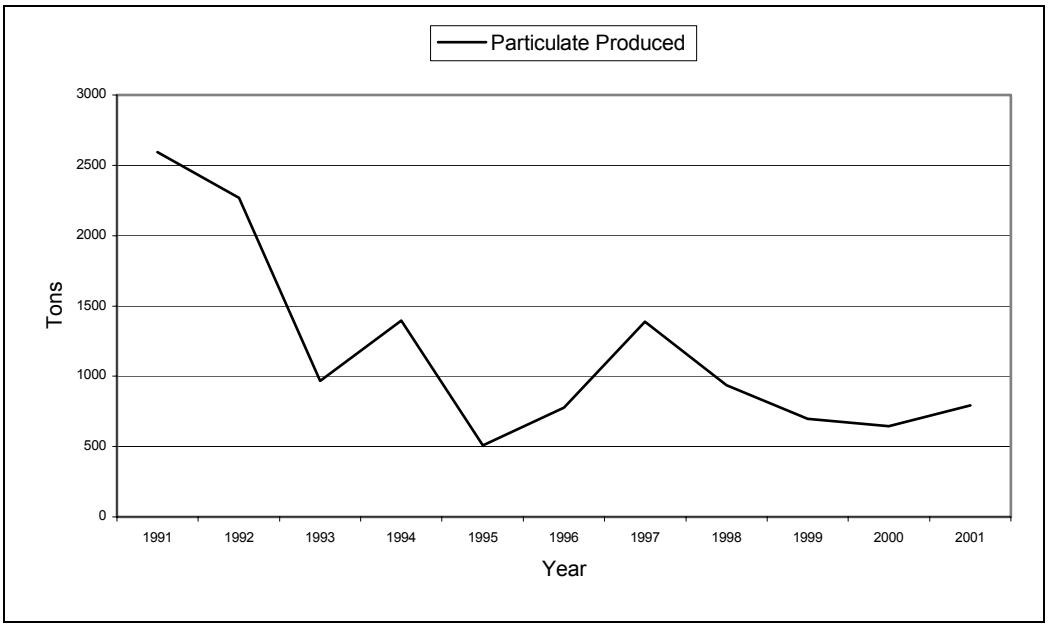


Figure C-6
PM10 EMISSIONS
Umatilla National Forest



Wallowa-Whitman

The Forest met the reporting obligations under the Oregon State Implementation Plan (SIP) and the Northeast Oregon MOU. Emissions were under the cap established for Northeast Oregon.

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 Forest 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 calendar year 2001 as a result of prescribed burning.

Wallowa-Whitman

Smoke intrusions as a result of prescribed fire occurred into Baker City on May 7 and 10, 2001; and La Grande on October 21, 2001. These impacts were short term and moderate.

Evaluation and 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 has been initiated by the Oregon Department of Forestry.
- 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.

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 2001 survey flights are shown in the following table. Most forest diseases are not identified or mapped by aerial observers, so there is no annual tabulation of incidence/severity.

Table C-3
FOREST SERVICE ACRES OBSERVED INFESTED BY KEY INSECTS DURING 2001 AERIAL INSECT DETECTION SURVEY[1]
Malheur, Umatilla, Wallowa-Whitman National Forests

Key Insect	Malheur NF	Umatilla NF	Wallowa-Whitman NF
Douglas-fir Beetle	1,488	1,131	12,082
Spruce Beetle	262	34	298
Fir Engraver	950	1,695	1,844
Mountain Pine Beetle, LPP[2]	175	750	1,251
Mountain Pine Beetle, PP[3]	3,104	1,091	684
Mountain Pine Beetle, WWP[4]	0	0	0
Mountain Pine Beetle, WBP[5]	0	0	0
Pine Engraver	29	0	0
Western Pine Beetle	416	8	5
Western Pine Beetle, Pole-Size PP[3]	0	0	0
Western Spruce Budworm	0	0	0
Douglas-fir Tussock Moth	0	44,759	6,044
Larch Casebearer/Larch Needle Cast	0	140	1,474

[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 above, and the following figures, current population levels of most key insects in the Blue Mountains Province are relatively low, with a few exceptions. Douglas-fir tussock moth populations reached outbreak status on the Pine RD and portions of the Walla Walla RD and Pomeroy RD in 2000. However, larval populations rapidly declined as a result of TM BioControl-1 (virus insecticide) treatments in critical resource areas in June and July of 2000, and from the spread of naturally occurring virus in most other untreated areas monitored by the project. Additional post-treatment monitoring in 2001 found very few live tussock moth larvae over most of the three project areas. Almost no tree defoliation, top-kill, or mortality occurred in treated and control areas in 2001; but due to the patchy nature of tussock moth defoliation, results on the limited number of evaluation plots may not be indicative of all areas within the outbreak. During 2001, significant tussock moth-caused defoliation and tree mortality occurred on the south end of the Heppner Ranger District, northeast of Monument, Oregon, and in the Wenaha-Tucannon Wilderness.

It was anticipated that current outbreaks of Douglas-fir beetle populations might continue to increase in areas with heavy defoliation from tussock moth, notably on the northern halves of the Wallowa-Whitman and Umatilla National Forests. However, Douglas-fir beetle populations appear to be declining overall, especially on areas that were treated in 2000. The Forests should continue to monitor this situation, particularly on the Umatilla National Forest where tussock moth defoliation has occurred in untreated areas in 2001.

A few other bark beetle species (e.g., spruce beetle and mountain pine beetle) increased slightly in 2001 in response to droughty conditions or other causes of host-tree stress. However, these trends are expected to be short-lived. The Forests should continue informal monitoring of all bark beetle conditions where populations have increased in 2001.

The infestation trends of selected major insect species on National Forest lands in the Blue Mountains over the past six years are shown in the following figures. Most insect populations in the Blue Mountains have oscillated within their natural cycles. Besides tussock moth, the largest increase in population trend over the past 6 years occurred in Douglas-fir beetle, and larch casebearer. Larch casebearer declined in 2000, but increased slightly in 2001 causing insignificant, spotty, mostly light defoliation of some larches.

Western spruce budworm reappeared on 354 acres on the Malheur NF in 2000 after having been absent since about 1993. However, defoliation from budworm was very light. There was no defoliation mapped in the Blue Mountains in 2001.

Figure C-7
TREND OF DOUGLAS-FIR TUSSOCK MOTH OCCURRENCE ON NATIONAL FOREST LANDS

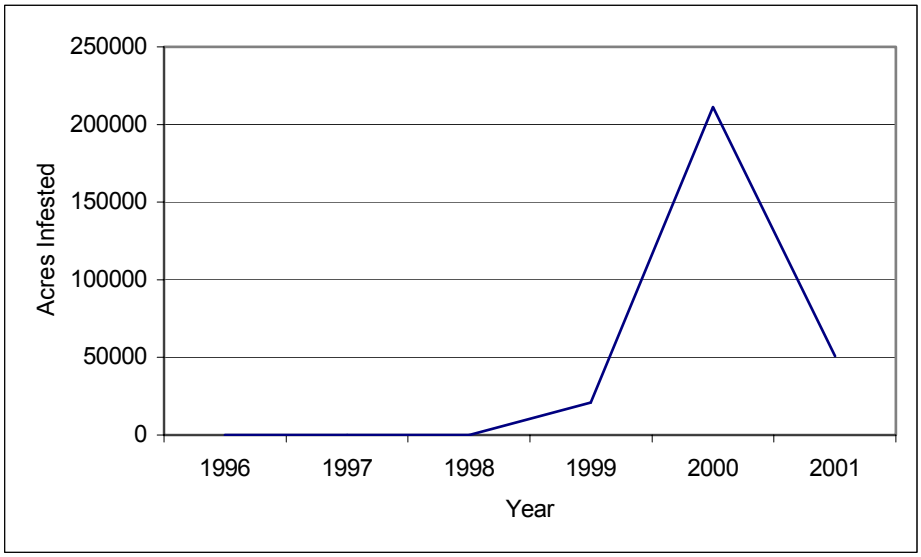


Figure C-8
TREND OF DOUGLAS-FIR BEETLE AND FIR ENGRAVER OCCURRENCE ON NATIONAL FOREST LANDS

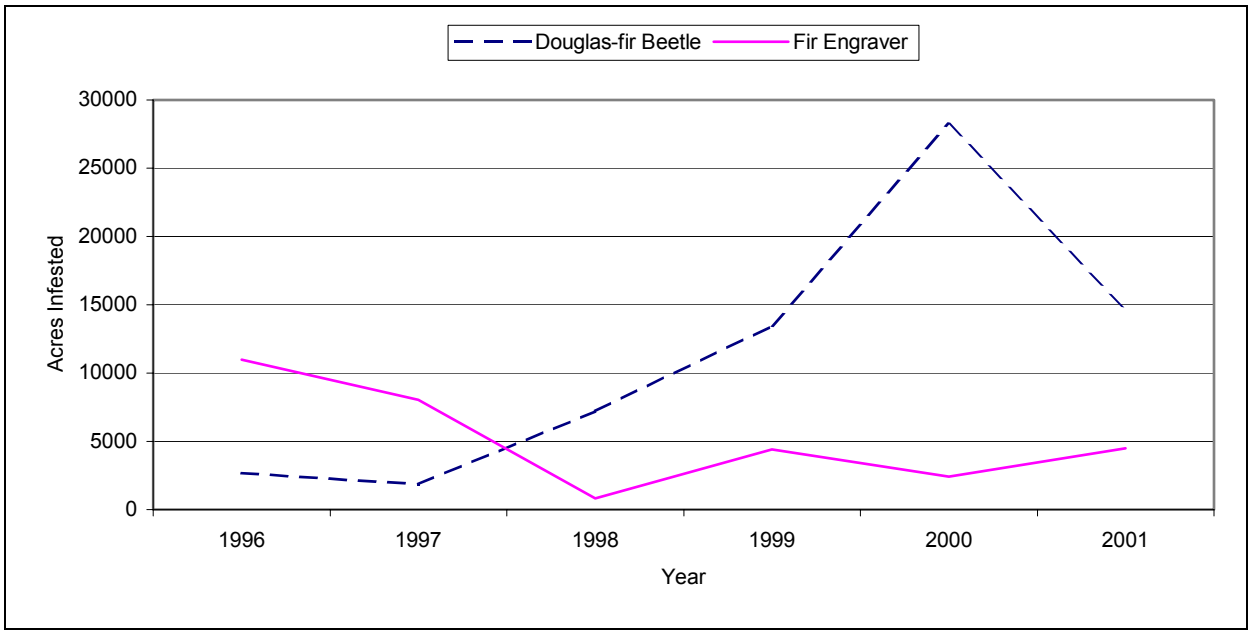
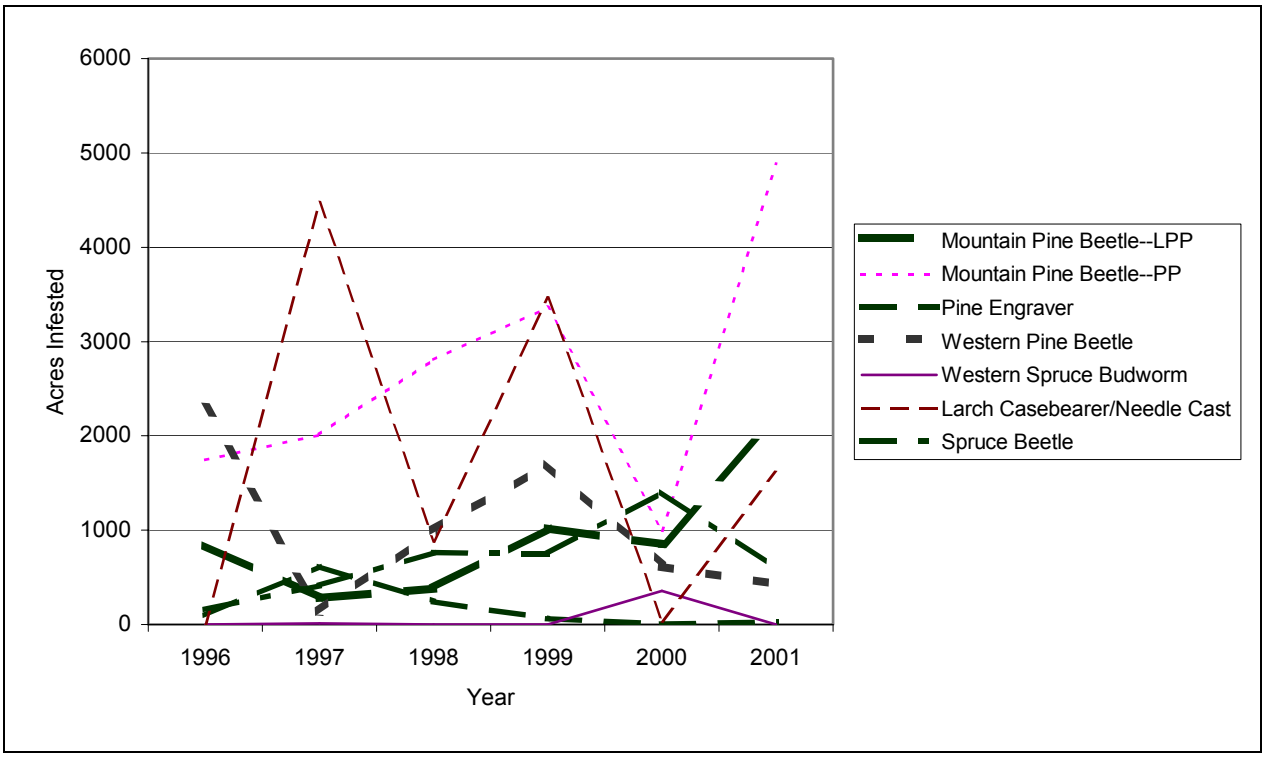


Figure C-9
TREND OF INSECT OCCURRENCE ON NATIONAL FOREST LANDS



Forest Diseases:

Unlike forest insect damage, and with a couple of exceptions, tree diseases generally do not cause cyclic epidemic tree damage or mortality. Rather, they may result in slowly increasing decay, damage, defect and/or mortality as stands age, become increasingly stocked with shade-tolerant species, and the causal organisms steadily spread. Most tree diseases and resultant damage are not readily recognizable from the air, thus they are not mapped in the annual aerial detection survey. Most data on forest diseases comes from stand exams and personal observations by silviculture staff and pest management specialists. The exceptions are larch needle cast, which may be mapped along with an insect, the larch casebearer, which causes similar-appearing discoloration of larch foliage, several other needle or leaf blights, and blister rust. Most of these cyclic and showy foliage diseases do not cause significant mortality or damage, while the most damaging agents usually are not readily apparent until trees die. Additionally, many insects and diseases work together to cause mortality, where the disease acts as the predisposing agent and the insect directly causes tree death. In such cases the mortality may be identified in the aerial detection survey, but will most likely be attributed to the insect agent. The root disease-bark beetle relationship is a good example of this scenario.

Vegetation management treatments nearly always include strategies to reduce the impacts of forest pests. Many projects are reviewed by the Blue Mountains Service Center Pathologist and Entomologists for their assistance in developing treatment strategies, as well as to document treatment needs in controversial situations. Treatments often involve reducing impacts where disturbances are moving outside the natural range of variability, but also include addressing prescription modifications to provide habitat needs for wildlife provided by diseases and insects. Outdated management techniques have frequently proved to exasperate disease incidence and severity; soil compaction, highgrading seral species, excluding ground fire, wounding residuals, and not boraxing stumps, are examples of techniques that have since been improved upon, and are no longer used in disease-susceptible stand types. Other less-than-ideal strategies are still used as compromises to meet other resource objectives, and the Service Center Pathologist and Entomologists attempt to identify ways to mitigate other adverse affects while keeping stands healthy.

Incidence of tree diseases are included in stand examination records, but have not proved to be a good monitoring tool because of infrequent, and discontinuous examinations and non-standardized procedures. Quality of disease detection and assessment has also proved 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 from Region 6 are being used to provide data for the National Risk Map Project.

Thirteen 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, and 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. This activity should be a priority for all Blue Mountains Forests to provide a continuous historic record of insect and disease activities, evaluations, surveys, and prevention and suppression treatments, and to provide baseline data by which departures in levels of insect and disease populations and impacts could be detected.

Insect and disease risk modeling has been done for nearly all of the Watershed Analyses completed on the Wallowa-Whitman and Umatilla Forests since 1995, using a computer-based risk calculator called UPEST which uses site and vegetation conditions taken from a variety of data sources to provide 15 individual insect and disease risk levels as well as a single composite rating. A new simplified risk rating technique called RASAPD was recently developed that was specifically designed to interpret data collected solely from aerial photographs.

Laminated root rot (*Phellinus weirii*) is common in mixed conifer stands in the Mt. Emily area on the Walla Walla and La Grande Districts. Discontinuous disease centers are known on the Pomeroy and Heppner Districts, and minor levels are known on the Wallowa Valley and the western extent of the 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 marginally productive pine communities, being most common on the southern Malheur National Forest, but also found 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 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 that has been 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 Emigrant Creek District of the Malheur NF in ponderosa pine. Several research investigations 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.

Tomentosus root disease (*Inonotus tomentosus*) occurs in nearly all Blue Mountains Engelmann spruce communities, often at rather high incidence. Although occurrence is high, the damage is usually restricted to root and butt rot of living trees, often resulting in windthrow, being highest in older trees. The high level of spruce beetle-caused mortality over the last couple of decades has reduced the population of older large spruce and the level of tomentosus has similarly been reduced. Root disease will gradually increase as these young stands mature.

White pine blister rust is an exotic disease that 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 nearly the entire province where it is native. The Pomeroy District probably has done the most recent white pine restorative activity, including gathering seed 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* plants. There has been one recent restoration project on the Baker District at Marble Point, and another is planned on the Umatilla NF, near Vinegar Hill. 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 intrusion

by other conifers, mainly subalpine fir. Most severely-infected stands will be reliant upon natural selection and propagation of resistant hosts to persist with a viable pine component.

Comandra blister rust (*Cronartium comandrae*) until recently was considered a minor disease in northeastern Oregon. In 2000, a several hundred acre long-ongoing severe infestation was discovered on the Baker Resource Area, Vale District, BLM, near Mormon Basin. Inspection of nearby similar stands on the Wallowa-Whitman NF 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. Older grand fir in wet grand fir series communities often have high levels of Indian paint fungus (*Echinodontium tinctorium*). Defect reduces timber values and contributes to hazard trees in some recreation sites. 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 which 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. Some inoculated trees have been used by cavity excavators within several years of treatment.

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 massive 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 on 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 retained 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 communities once kept primarily to ponderosa pine as a result of ground fire. Western dwarf mistletoe is most common on the Blue Mountain, Prairie City, Baker, and Unity Districts, and is nearly absent in the northern Blue Mountains. Other dwarf mistletoes occur throughout most of their host type. The retention of large tree structure regardless of mistletoe infection will increase infection levels in the future.

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, but the primary problem throughout the vast majority of sites is the poor reproduction success of clones. Restoration and rejuvenating of clones is actively occurring throughout the province but seldom involves managing pests, but rather protecting sprouts from being browsed, removal of conifer ingrowth, and prescribed fire.

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. Vegetation management projects conducted by ranger districts are frequently reviewed by the Blue Mountains Service Center Pathologist and Entomologists who provide assistance in developing treatment strategies and document treatment needs in controversial cases.

In the past, some types of vegetation management actions 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.

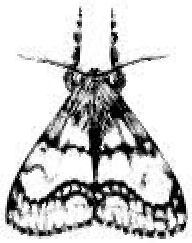
Other practices, primarily associated with policy, may allow future pest increases. Increases in shade-tolerant species associated with unevenage management will likely result in a number of insect and disease impact increases. Dwarf mistletoes will continue to spread and intensify with retention of large infected individuals. Some areas where silvicultural treatments are not allowed due to wildlife habitat needs or other resource concerns may host insect or disease epidemics, and eventually may be at extreme risk to wildfire. The Blue Mountains Forests need to carefully monitor these conditions and modify management directions and resource policies if maintaining artificial stand conditions to support current resource needs leads to overall decline in stand health and vigor, and ultimately exacerbates insect, disease, and wildfire risks in the future.

Insect outbreaks are sometimes inevitable although 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 windstorm 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 resource managers with lead time to prepare for an outbreak. The Tussock Moth Early Warning System continues to be the primary vehicle for providing advanced warning of impending tussock moth outbreaks, and was instrumental in alerting resource managers and pest management specialists of the last two major tussock moth outbreaks in the Blue Mountains. The advanced warning allowed resource managers ample time to analyze the situation and meet all NEPA requirements that ultimately led to suppression of both outbreaks in a timely manner. Early Warning adult trapping and follow-up lower crown sampling of larvae, when warranted, are critical to detecting and responding to tussock moth outbreaks in a timely manner. These activities need to be continued by the Forests of the Blue Mountains.

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 RD through aggressive treatments with bark beetle pheromones. Treatment in stands will occur again in 2002. In addition, other bark beetle pheromone treatments in stands within the Walla Walla Ranger District, Umatilla National Forest will be carried out in 2002 to reduce potential impacts on Engelmann spruce, by spruce beetle. These activities are appropriate and timely responses to these major bark beetle concerns and should be continued by the Forests where necessary to protect Late and Old Successional stands and other critical resources, whenever catastrophic disturbances occur.

Evaluation and Recommended Action:

- Continue pheromone treatments of bark beetles on the Walla Walla and Pine Ranger Districts in 2002 as funds are available.
- In stands on the Heppner Ranger District severely damaged by Douglas-fir tussock moth, closely monitor trees that are defoliated 75 percent or more for attack by bark beetles or direct mortality from defoliation. Host trees of large diameter that may occur in these areas, potentially could harbor bark beetle populations that could increase 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.
- Establish long-term insect monitoring programs in prescribed fires where large diameter, old growth trees are involved. Delayed mortality sometimes occurs in large, old ponderosa pines when deep accumulations of duff are removed during prescribed fires. It is important to monitor these conditions and identify potential changes that may be needed in development and implementation of prescribed fire prescriptions or pre-burn fuel treatments.
- Continue to review develop recreation sites for trees with advanced failure potential. Encourage districts to develop vegetation management plans for these sites.
- Implement strategies to ensure the viability of whitebark pine communities, including propagation of blister rust-resistant stock.
-



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?

Table C-4
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	- -	27,530 -	 -
Acres newly-inventoried in FY2001	Gross Net	-	1,565 -	 -
Acres currently NEPA-approved for treatment	Gross Net	- -	4,341 -	 -
METHODS OF TREATMENT Manual	Gross Net	-	5,926 20	53 -
Mechanical	Gross Net	-	0 -	0 -
Biological **	Gross Net	-	0	594 -
Prescribed Fire	Gross Net		0	0
Cultural	Gross Net	-	5 <1	0 -
Chemical	Gross Net	-	4,050 52	4,392 -
TOTAL	Gross Net	-	9,981 73	5,039 -

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

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

Umatilla

Noxious weeds are being treated in accordance with the Regional FEIS for Managing Competing and Unwanted Vegetation, its Mediated Agreement, and the Umatilla National Forest's Environmental Assessment for the Management of Noxious Weeds (1995). In 2001, the Forest became involved in a new region-wide analysis that will (1) revise current programmatic direction for the management of non-native invasive plants, and (2) analyze proposed actions relating to the treatment and restoration of new noxious weed infestations. NEPA documents and decisions from this effort are expected to be finalized in 2004. The regional effort is of critical importance to the Forest, since only a small portion of our existing weed infestations have been analyzed and cleared for treatment.

Current Conditions:

Noxious weed infestations on the Forest encompass approximately 27,530 gross acres. Of these, 1,565 acres were newly inventoried during the 2001 field season. Weed density is low to moderate in most infestations.

Approximately 25 weed species are present on the Forest. Those of greatest concern include musk thistle, diffuse/spotted/Russian knapweed, yellow starthistle, 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. Focal points for the expansion and spread of noxious weeds generally coincide with highly disturbed or heavily traveled areas such as transportation corridors, areas of high recreation usage, rock and gravel pits, mine sites, log landings, and timber harvest units.

Risk Assessment:

A Forest-wide noxious weed risk assessment was conducted in Spring 2001 to assess the susceptibility of individual watersheds to noxious weed invasion and spread, and to determine priority areas for prevention and control efforts. Noxious weed susceptibility was quantified through a characterization of three major elements: habitat potential (vegetation and climatic conditions), seed availability (proximity to existing noxious weed infestations), and potential for spread (proximity to roads and level of grazing activity).

Results of the assessment indicate that over half (24) of the watersheds occurring on the Forest have a high risk of noxious weed invasion and spread. The primary factors contributing to a high risk rating were large amounts of suitable habitat for noxious weeds (warm to hot, dry forest with canopy closure of less than 40%), and a large number of existing noxious weed sites (high seed availability). Although the high-risk watersheds are distributed across all four Ranger Districts, the highest priority areas for treatment tend to occur on the north end of the Forest (Walla Walla and Pomeroy RDs) where problematic populations of yellow starthistle and knapweed species are present and spreading. Only seven watersheds were rated low risk, these generally occurred on the periphery of the Forest boundary (minimal acreage in federal or Umatilla NF ownership) or in areas of low road density.

Restoration Actions:

Noxious weed restoration actions include hand, mechanical, cultural (the establishment of desirable of vegetation, e.g., seeding with native grasses), and chemical control methods (Table C-7). The highest priority species for NEPA clearance and treatment include new invaders such as yellow starthistle, sulfur cinquefoil, tansy ragwort, and diffuse and spotted knapweed. These species have limited distributions at present, and many infestations can be controlled and even eradicated if early treatment measures are implemented. They have also been designated as high priority species by both Oregon and Washington State Departments of Agriculture (“B” or “T” statutory status).

Ranger District Conditions

Heppner Ranger District

Weed populations appear to be stable and under control. Hand pulling has kept populations of knapweed and tansy ragwort in check. There is concern, however, 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 areas, as hand-pulling is not feasible or effective due to the species rhizomatous rooting characteristics.

North Fork John Day Ranger District

Six years of aggressive weed treatment activities on the District has been extremely effective in containing and controlling the spread of noxious weeds. The District treated virtually all priority sites in 2001 and saw an overall reduction in weed densities. The knapweeds are very much under control; eradication is feasible but difficult. In general, chemical treatments offer better control than manual treatments. If soil conditions are good, however, manual treatment has been very effective, especially with diffuse knapweed. Houndstongue continues to show limited success under manual treatment and spotted knapweed showed very poor results under manual treatment for 2001. Three problematic weeds will pose the greatest challenge in the future – yellow toadflax, sulfur cinquefoil, and to a lesser extent, medusahead.

The following table lists the total number of plants treated for three primary weed species over the last 3 years on North Fork John Day Ranger District:

Table C-5
NUMBER OF PLANTS TREATED
North Fork John Day Ranger District, Umatilla National Forest

Year	Diffuse knapweed	Spotted knapweed	Houndstongue
1999	6,758	3,323	45,641
2000	6,460	1,665	40,636
2001	1,888	2,169	38,966

Species trends on the North Fork John Day Ranger District are as follows:

Diffuse knapweed:
There was a dramatic reduction in density of diffuse knapweed in 2001 due to several years of chemical treatment. Few new sites have been found in ongoing surveys. Many sites are showing zero plants.

Spotted knapweed:
Declining in density but much more persistent than diffuse knapweed. Also fewer new sites are being found with surveys.

Houndstongue:
Steadily declining in density. Most acres are under chemical treatment. Even under vigilant chemical treatment, the District finds a level of persistence not indicated in the literature. Monitoring shows we are not allowing seed production and the chemically treated plants die, yet after 5 years of treatment the weed densities remain much higher than anticipated. Some of the slow decline is due to the inventory of dense new patches on the perimeter of treated sites.

Yellow toadflax:
Occurs mostly in the Granite area, which was surveyed in 2001, and is fairly aggressive in dredge tailings. No treatments occurring as manual methods are not effective and the sites are not NEPA cleared for chemical applications. These sites are definitely problematic.

Sulfur cinquefoil:
Began inventory of main infestation corridors in 2001. Many new sites mapped, including some in the wilderness. Manual control methods are not an option. This is definitely our most serious problem. No sites currently under treatment.

Medusahead:
Few sites of this species, however, one site presents a serious threat to open grassland.

Yellow starthistle, whitetop, scotch thistle, and leafy spurge:
Only a few known small sites located on the District, but adjacent private land populations pose a serious threat and we continue to survey for these weeds. No leafy spurge on the District, but a 5-acre site on the Wallowa-Whitman threatens the North Fork John Day Wilderness and river corridor.

North End Ranger Districts

The noxious weed situation on the northern end of the Forest is especially problematic due to extensive yellow starthistle 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.

Pomeroy Ranger District

The District reports that noxious weed sites receiving chemical treatment are decreasing in both size and plant density, especially when treatments are applied annually or biennially. Yellow starthistle is of particular concern on this District, as many sites are remote, inaccessible, and lack NEPA clearance for treatment. Where treatments do occur, yellow starthistle density generally declines, but the extent of many infestations is still increasing.

Walla Walla Ranger District

Noxious weed acreage and trends on the District are shown in Table C-6. The apparent expansion of acreage is largely due to the intensity of survey work, which increased dramatically in 1997. Yellow starthistle poses the greatest threat, and occurs primarily in the Walla Walla City Watershed, an area that is generally unavailable for entry and treatment. Medusahead experienced a large increase in 2001 as a result of fires in the Meacham Canyon area. Sulphur cinquefoil was been known to be present on the District, but was not formally inventoried until 2001. Similar to reports from North Fork John Day Ranger District, diffuse knapweed coverage is dramatically reduced when herbicides are applied; subsequent manual methods are then adequate for controlling population expansion.

Table C-6
NOXIOUS WEED ACREAGE
Walla Walla Ranger District, Umatilla National Forest

Species	Year									
	1992	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Bastard Toadflax						369	716	716	735	752
Diffuse Knapweed	345	370	374	568	810	1,636	2,268	2,794	3,825	6,463
Hoary Cress							347	347	347	347
Leafy Spurge						519	526	526	526	528
Medusahead							403	404	404	1,746
Musk Thistle				466	497	497	497	497	497	501
Spotted Knapweed					496	1,487	1,927	2,279	2,357	2,466
Tansy Ragwort	2	67	310	655	1,118	1,136	1,136	1,147	1,185	1,199
Yellow Starthistle	2	2	2	49	53	57	258	258	1,012	1,014
Sulphur Cinquefoil										116

Table C-7
ACRES TREATED BY VARIOUS VEGETATION MANAGEMENT METHODS
Umatilla National Forest

Activity	**Manual**	**Mechanical**	**Biological**	**Rx Fire**	**Cultural**	**Chemical**	**Total**
Silviculture							
REF Site Prep	0	1,171	0	548	0	0	1,719
TSI Release	232	0	0	0	0	0	232
Tree Genetics	0	0	0	0	0	0	0
Research	0	0	0	0	0	0	0
Facilities Mtnc.							
Rec Sites	0	0	0	0	0	0	0
Admin Sites	0	0	0	0	0	0	0
Range Improvement	0	0	0	0	0	0	0
Noxious Weeds							
Net	20	0	0	0	<1	52	73
Gross	5,926	0	0	0	5	4,050	9,981
Wildlife Habitat Improvement	0	0	0	515	0	0	515
Right-of-way mtnc.							
Roads	0	0	0	0	0	0	0
Trails	0	0	0	0	0	0	0
Special Uses	0	0	0	0	0	0	0
Easements	0	0	0	0	0	0	0
Utility Corridors	0	0	0	0	0	0	0
TOTAL GROSS ACRES	6,158	1,171	0	1,063	5	4,050	12,447
% by Treatment	49.5	9.4	0	8.5	0.1	32.6	100

Wallowa-Whitman

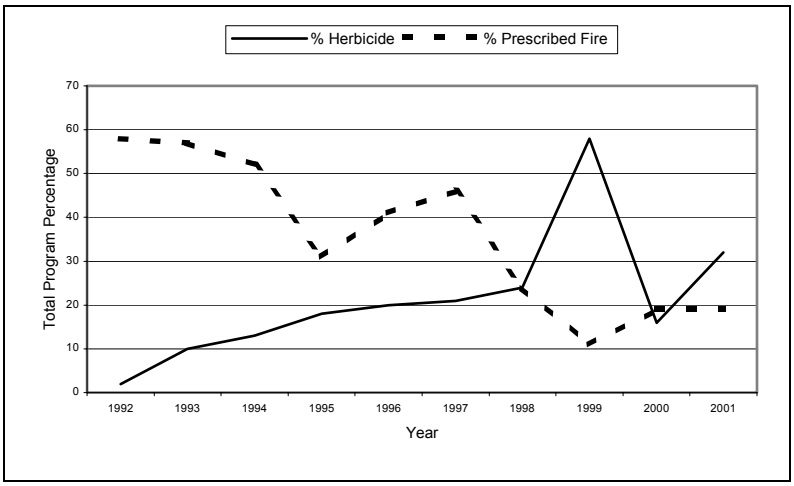
The final version of the Wallowa-Whitman National Forest's "Monitoring Guide for Vegetation Management Activities" was approved and published in June of 1993. The guide initiates a process to assure compliance with Forest Plan goals and the Final Environmental Impact Statement for Managing Competing and Unwanted Vegetation and its associated Mediated Agreement.

Accomplishment data has been collected as required by the guide for the past 10 years. Table C-8 displays treatment methods by activity type. Figure C-9 compares the herbicide and prescribed fire activities to the total program, revealing an increase in herbicide use, and a decrease in prescribed fire activities from 1992 to 2001. Herbicide treatments are anticipated to increase for the next few years while a more intensive noxious weed control program is conducted. The level of prescribed fire activity is uncertain based on the perceived need to increase this activity Forest-wide for ecosystem management needs, but at the same time follow the Environmental Protection Agency's recommended Air Quality Standards.

Table C-8
ACRES TREATED BY VARIOUS VEGETATION MANAGEMENT METHODS FY2001
Wallowa-Whitman National Forest

Activity	Manual	Mechanical	Biological	Rx Fire	Chemical	Total
Silviculture						
REF Site Prep	486	0	0	266	60	812
TSI Release	5,547	0	0	2,100	52	7,699
Tree Genetics	10	189	0	0	14	213
Research	0	0	0	0	0	0
Facilities Mtnc.						
Rec Sites	10	10	0	0	0	20
Admin Sites	0	0	6	0	6	12
Range Improvement	0	0	0	0	0	0
Noxious Weeds	53	0	594	0	4,392	5,039
Wildlife Habitat Improvement	0	0	0	410	0	410
Right-of-way mtnc.						
Roads	4	38	0	0	0	42
Trails	70	0	0	0	0	70
Special Uses	0	0	0	0	0	0
Easements	0	0	0	0	0	0
Utility Corridors	0	2	0	0	0	2
TOTAL ACRES	6,180	239	600	2,776	4,524	14,319
% by Treatment	43.1%	1.7%	4.2%	19.4%	31.6%	100%

Figure C-10
PERCENT OF TOTAL ACRES TREATED WITH HERBICIDES AND PRESCRIBED FIRE
Wallowa-Whitman National Forest



Evaluation and Recommended Action:

- Continue to monitor on the Wallowa-Whitman National Forest 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", (Everett et al, 1994), and the "Blue Mountains Ecosystem Restoration Strategy", (Schmidt et al, 1993).
- Continue to build an aggressive prevention, inventory, treatment, and monitoring program for noxious weeds. Emphasize early detection and control. Maintain and update noxious weed inventory/treatment databases and 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.
- Accelerate work on the 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 (LaGrande, OR) involving invasive species and noxious weeds.

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.

Table C-9
SILVICULTURAL HARVEST METHODS (IN ACRES) FOR FY2001
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 FY2001 Harvest (acres)	109	0	0
Percentage (actual/planned)	3.3%	0%	0%
Shelterwood/Seed Tree			
Forest Plan Estimate	5,084	2,600	8,500
Actual FY2001 Harvest	208	0	41
Percent (actual/planned)	4.1%	0%	0.5%
Overwood Removal			
Forest Plan Estimate	6,301	1,500	1,200
Actual FY2001 Harvest	0	0	116
Percent (actual/planned)	0%	0%	9.7%
Uneven-age/Selection			
Forest Plan Estimate	6,424	900	6,500
Actual FY2001 Harvest	366	1,054	557
Percent (actual/planned)	5.7%	117.1%	8.6%
Commercial Thinning			
Forest Plan Estimate	6,778	100	3,900
Actual FY2001 Harvest	3,907	783	3,984
Percent (actual/planned)	57.6%	783.0%	102.2%
Salvage/Sanitation			
Forest Plan Estimate	3,956	NA	0
Actual FY2001 Harvest	0	1,242	494
Percent (actual/planned)	0%	NA	NA
Special Cut			
Forest Plan Estimate	0	NA	0
Actual FY2001 Harvest	0	127	0
Percent (actual/planned)	NA	NA	NA
TOTAL			
Forest Plan Estimate	31,873	9,100	24,400
Actual FY2001 Harvest	4,590	3,206	5,192
Percent (actual/planned)	14.4%	35.2%	21.3%

Table C-10
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
2001	109	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.

Malheur

Harvest acres in FY2001 are far below Forest Plan projections, and harvest levels continue to decline. The Forest had no created openings that exceeded Forest Plan standards.

Umatilla

Table C-9 displays silvicultural harvest methods reported for fiscal year 2001, and compares them to Forest Plan projections (see Table 4-1 in Forest Plan). It shows that fiscal year 2001 harvest levels were far below Forest Plan projections for the even-aged regeneration harvest methods (clearcut, shelterwood/seed tree, overwood removal). Excluding categories not included in the Forest Plan (salvage/sanitation, special cut), total harvest acreage for FY 2001 was only 20 percent of Forest Plan projections. When comparing fiscal year 2001 and 2000 harvest levels, harvest for 2001 was up substantially at 166 percent of the 2000 level, due primarily to a relatively large increase in salvage acreage for FY2001.

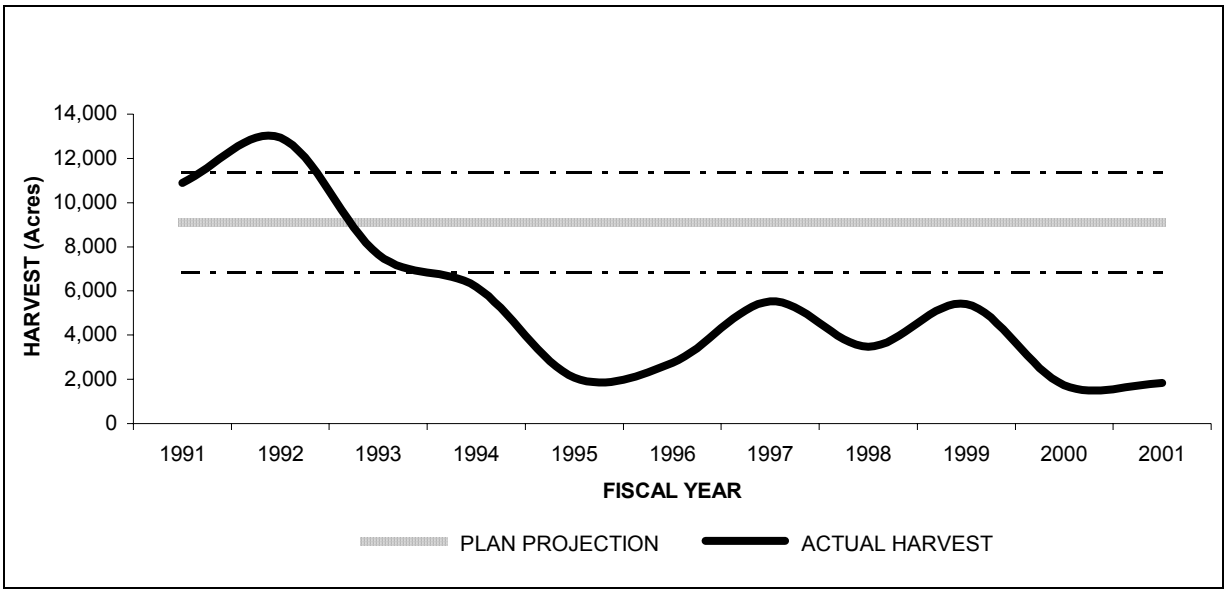
Silvicultural prescriptions implemented in 2001 were designed to meet Forest Plan standards and guidelines, including riparian management objectives as applicable. As stated in previous monitoring reports, silvicultural treatments have shifted away from even-aged regeneration cutting and toward other harvest methods such as uneven-aged management and commercial thinning. This shift represents national and regional direction based on evolving societal expectations about how the national forest system should be managed.

Figure C-11[1] displays timber harvest levels since 1991, the first year of Forest Plan implementation. It also displays projected harvest levels from the Forest Plan (solid gray line) along with an annual threshold of variability of ± 25 percent (the dashed horizontal lines; page 5-17 in Forest Plan established 25% as

[1] Source: "Annual reforestation and timber stand improvement accomplishment report; table 20 – regeneration and intermediate harvest acres" for fiscal years 1991 to 2001.

the threshold value). Harvest levels for fiscal year 1992 were above the upper threshold, after which they declined precipitously and remained well below the lower threshold since 1993.

Figure C-11
SILVICULTURAL HARVEST METHOD, 1991-2001
Timber Harvest Compared With Forest Plan Projection and 25% Threshold
Umatilla National Forest



There are many reasons for a 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;[2] the data portrayed above shows that harvest levels for the Umatilla National Forest followed a similar trend. It is difficult to predict what harvest levels may be like in the near future.

Table C-10 displays the trend in clearcut acres for the Umatilla National Forest since 1992. 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. After the Chief's announcement, the Umatilla National Forest began reducing the amount of clearcutting acreage, and it has declined substantially since the early 1990s. For fiscal year 2001, the clearcutting acreage represents 0 percent of the 1988 base level, reflecting the fact that no clearcut harvest occurred during that fiscal year. Fiscal year 2001 is the second year in a row in which no clearcutting occurred on the Umatilla National Forest.

Five-Year Review

Table C-11 displays harvest methods reported for fiscal years 1996 through 2001, and compares them to Forest Plan projections (annual values from Forest Plan Table 4-1, multiplied by 6). It shows that harvest levels were far below Forest Plan projections for the even-aged regeneration harvest methods (clearcut, shelterwood/seed tree and overwood removal). Uneven-age/selection was very close to Forest Plan projections, whereas commercial thinning greatly exceeded them. Excluding categories not included in

[2] Source: O'Laughlin, Jay; Maynard, Bob; Fitzgerald, Steve [and others]. Seven suggestions for revising ICBEMP. Journal of Forestry. 96(10): 42-46.

the Forest Plan (salvage/sanitation, special cut), total harvest acreage for the 6-year period was only 38 percent of Forest Plan projections.

Table C-11
HARVEST METHODS (ACRES) FOR FY 1996-2001
Umatilla National Forest

Harvest Method	Forest Plan Estimate (acres for 6 years)	FY1996-FY2001 Harvest (Acres)	Percentage (Actual/Estimate)
Clearcut	24,000	6,230	26%
Shelterwood/Seed Tree	15,600	6,851	44%
Overwood Removal	9,000	249	3%
Uneven-age/Selection	5,400	5,316	98%
Commercial Thinning	600	2,105	351%
Salvage/Sanitation	N.A.	9,194	N.A.
Special Cut	N.A.	127	N.A.
TOTAL	54,600	30,072	55%

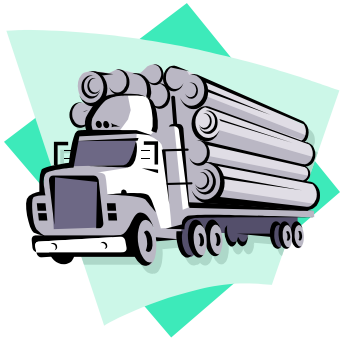
Evaluation and Recommended Action

Chapters three and four of the Forest Plan indicate that many of the social, economic and resource objectives of the Umatilla National Forest are somewhat dependent on timber harvest for their successful accomplishment (for example, using timber harvest to provide a desirable amount and configuration of elk habitat by modifying forest vegetation).

Total harvest acreage for the last six fiscal years was 62 percent below Forest Plan projections, suggesting that any goals, objectives, and desired conditions that rely on timber harvest are either not being met at all, or are being achieved at less than full potential. Since 6-year harvest acreage is substantially below the 15 percent threshold of variability for this item, the Plan may need to be adjusted to account for this deviation. (Note: the Forest Plan, page 5-17, established two thresholds of variability for this monitoring item: 25% on an annual basis, and 15% for the decade.)

Wallowa-Whitman

One basic assumption used during the development of the Forest Plan was the widespread use of intensive, even-aged forest management. With the implementation of the Screens, PACFISH, and INFISH Forest Plan amendments, the Forest uses commercial thinning as the predominant silvicultural harvest method. Revision of the Forest Plan will evaluate the shift away from intensive, even-aged management. Although authorized by the Forest Plan, the Forest has not used clearcutting for several years.



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-12 displays acres of reforestation accomplished by treatment method as compared to assumptions made in the Forest Plans.

Malheur

Artificial regeneration (planting) is above the Forest Plan level, primarily as a result of fires. The Forest is currently meeting the 5-year NFMA reforestation requirement.

Table C-12
REFORESTATION ACCOMPLISHMENT (IN ACRES) FOR FY2001
Malheur, Umatilla, and Wallowa-Whitman National Forests

	MALHEUR		UMATILLA		WALLOWA-WHITMAN	
Activity	Forest Plan Avg/Year	FY2001 Accomplish-ment	Forest Plan Avg/Year	FY2001 Accomplish-ment	Forest Plan Avg/Year	FY2001 Accomplish-ment
Site Prep for Natural Regeneration	7,212	0	NA*	-	1,700	469
Natural Regeneration without Site Prep	0	339	3,145	4,425	8,000	2,316
Artificial Regeneration (Planting)	5,460	6,581	4,375	1,369	4,800	1,141

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

Umatilla

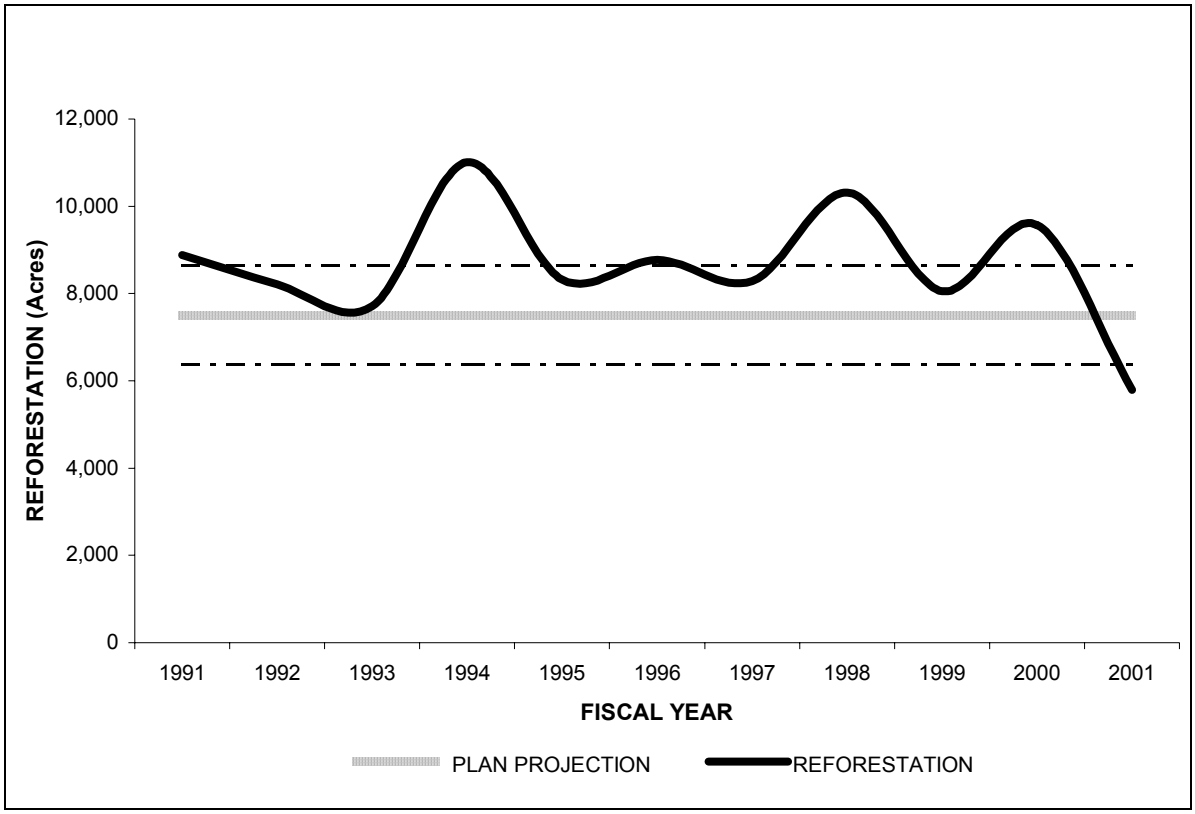
Table C-12 displays natural and artificial (planting) regeneration acres for fiscal year 2001. For reporting purposes, natural regeneration includes the following items: site preparation for natural regeneration, and certification of natural regeneration without site preparation.

Figure C-12 [3] displays regeneration accomplishment since 1991. It also displays the Forest Plan projection (solid gray line) along with a threshold zone of ± 15 percent (the dashed horizontal lines). As noted in Table C-12, the Forest Plan projection for this monitoring item was 7,520 acres annually, comprised of 3,145 acres of natural regeneration and 4,375 acres of planting (see Table 4-20 in Forest Plan). The figure shows that regeneration accomplishment has generally exceeded Forest Plan projections, and three years (fiscal years 1994, 1998, and 2000) exceeded the upper 15 percent threshold level (page 5-18 in Forest Plan established 15% as the threshold of variability for the regeneration activity).

High regeneration accomplishment in three fiscal years reflects greater-than-normal tree planting following two important disturbance events – an outbreak of western spruce budworm that ended in 1992 (reflected by the high planting level in FY1994), and Tower, Wheeler Point, and other wildfires that occurred in 1996 (reflected by high planting levels in fiscal years 1998 and 2000).

[3] Source: "Annual reforestation and timber stand improvement report; table 3 – status of current reforestation needs" for fiscal years 1991 to 2001.

Figure C-12
REGENERATION COMPARED WITH FOREST PLAN PROJECTION AND 15% THRESHOLD
Umatilla National Forest



Seedling Survival: Note that the Forest Plan had no explicit requirement to monitor seedling survival, but it is included here because survival has important implications on the effectiveness of the artificial (planting) component of the regeneration activity.

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 figures display historical survival percentages for the first and third year surveys; a third figure summarizes the acreage with satisfactory stocking. In addition, each figure shows an average (the horizontal gray line) and one standard deviation (the dashed lines) to provide a measure of survival variability.

Figure C-13 shows that first-year survival rates have been relatively consistent and that only one significant deviation occurred: 1996. The 1996 deviation was related to four large wildfires that burned in late summer and fall of 1996. Those fires burned across many reforestation units and, as would be expected, the small, vulnerable seedlings were either directly consumed by the flames or died soon afterward as a result of fire-related damage.

Figure C-14 paints a different picture than first-year survival. 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-13
FIRST YEAR SEEDLING SURVIVAL, 1991-2001
(Gray line = mean, Dashed lines = one standard deviation)
Umatilla National Forest

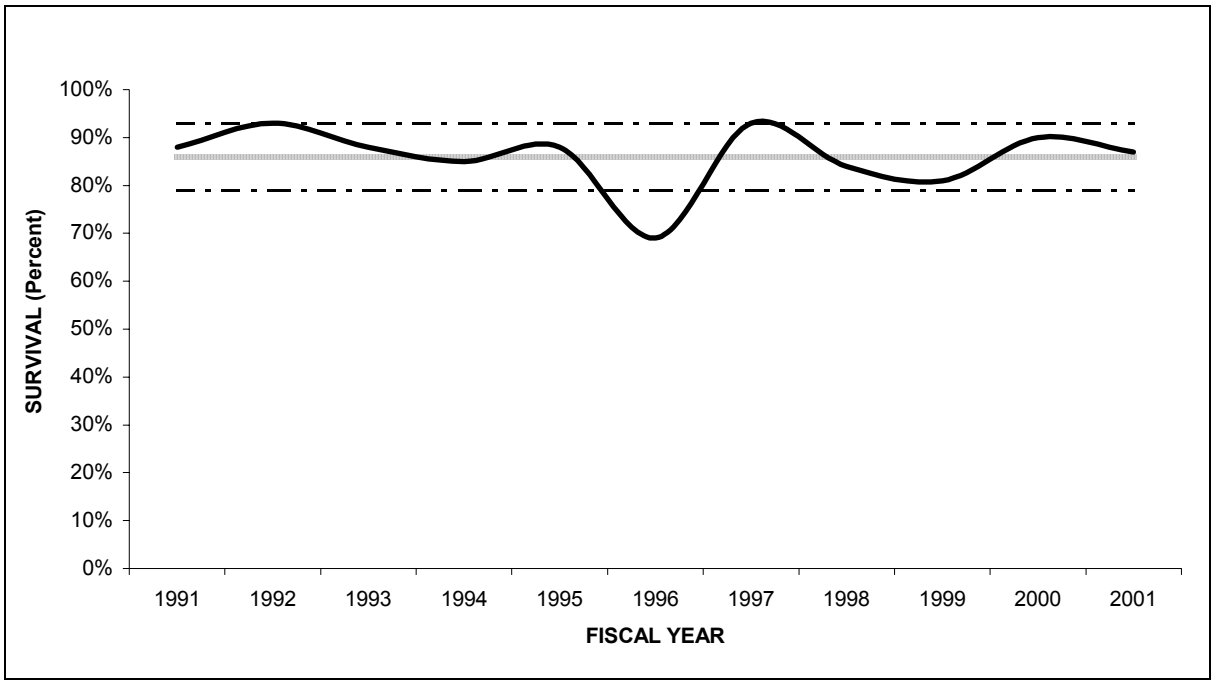
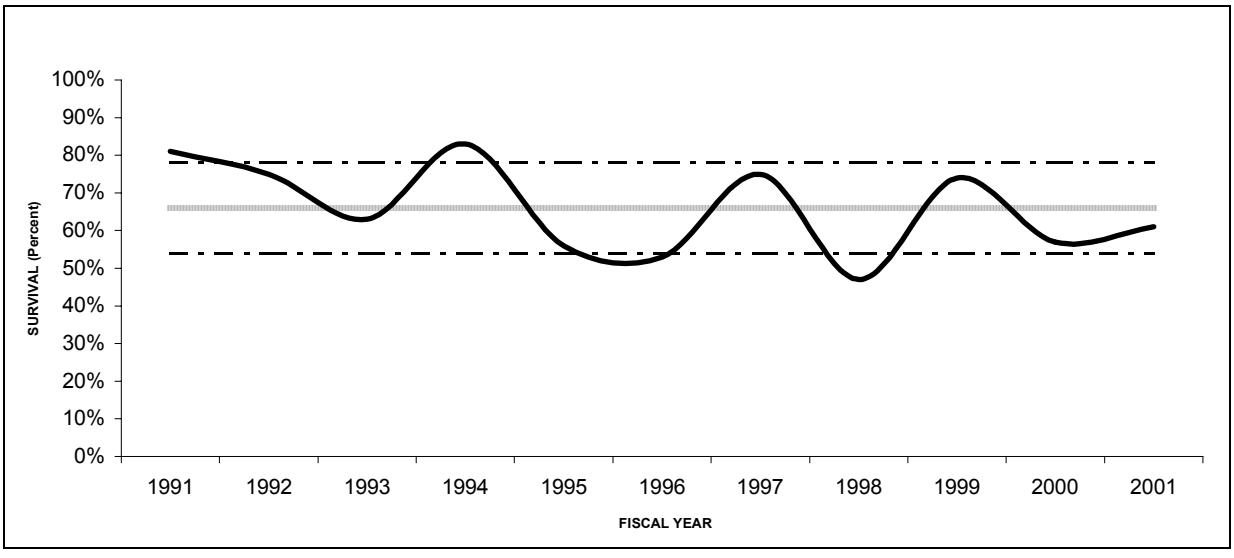


Figure C-14
THIRD YEAR SEEDLING SURVIVAL, 1991-2001
(Gray line = mean, Dashed lines = one standard deviation)
Umatilla National Forest



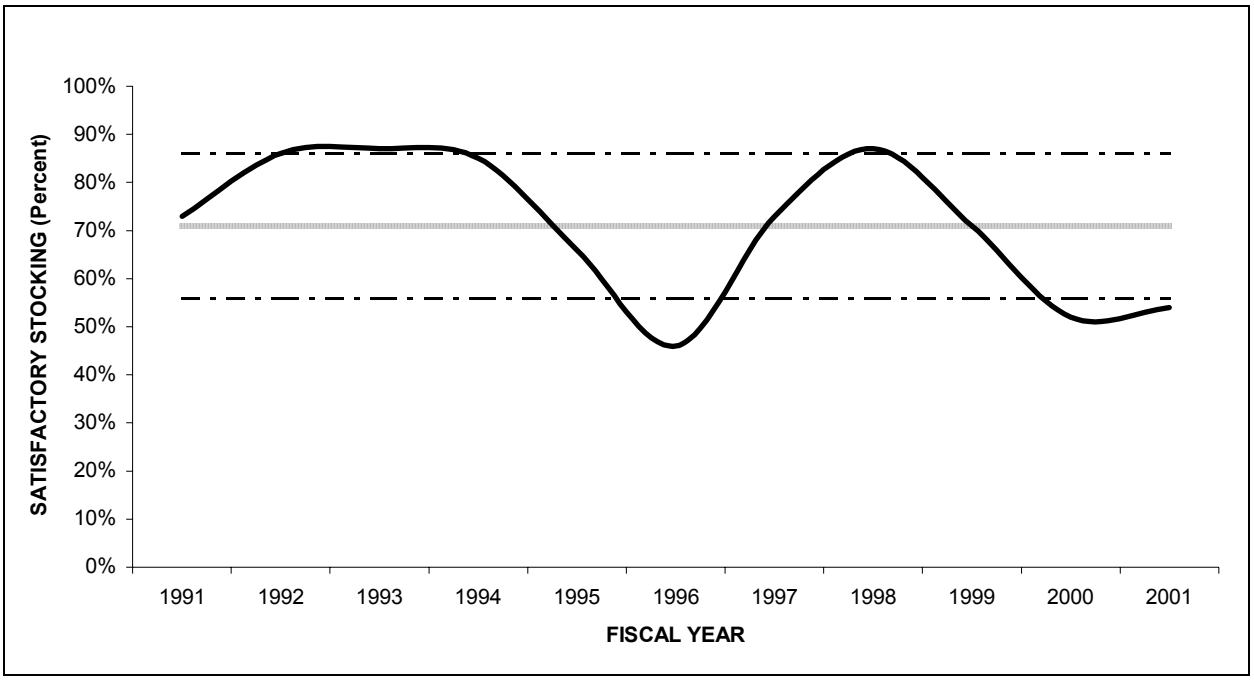
There are many factors that may be contributing to lower seedling survival rates by the third year. Environmental conditions are probably the most significant factor (drought, frost damage, etc.), followed by animal damage caused by gophers, other small mammals, and browsing ungulates such as elk and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

Satisfactory Stocking: Note that the Forest Plan had no explicit requirement to monitor satisfactory stocking, but it is included here because it has important implications on the overall effectiveness of the regeneration activity for the Umatilla National Forest.

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 Figure C-15 show that satisfactory stocking was above average in the early 1990s, and below average for 1996 and 2000-2001. The 1996 deviation reflects the impact of wildfires (plantations that were burned), whereas the 2000-2001 situation reflects the impact of drought.

The satisfactory stocking figure below shows that for the most part, the Forest has successfully met the requirements of the National Forest Management Act of 1976 (NFMA), 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)).

Figure C-15
SATISFACTORY STOCKING PERCENTAGE, 1991-2001
Umatilla National Forest



Five-Year Review

Table C-13 displays regeneration methods reported for fiscal years 1996 through 2001, and compares them to FP projections (annual values from FP Table 4-20, multiplied by 6). It shows that regeneration levels were slightly above FP projections; natural regeneration exceeded FP levels by 45 percent, whereas planting occurred at levels 11 percent below FP projections. Total regeneration acreage for the 6-year period was 13 percent above FP projections.

Table C-13
REGENERATION ACCOMPLISHMENT (ACRES) FY 1996-2001
Umatilla National Forest

REGENERATION ACTIVITY	Forest Plan Estimate (Acres For 6 Years)	FY1996-FY2001 Regeneration (Acres)	Percent (Actual/Estimate)
Natural Regeneration	18,870	27,346	145%
Artificial Regeneration (planting)	26,250	23,441	89%
TOTAL (Regeneration)	45,120	50,787	113%

Evaluation:

Total regeneration acreage for the last six fiscal years was 13 percent above Forest Plan projections. If high planting levels had not occurred following the 1996 wildfires, then this item would not have exceeded Forest Plan projections. However, it is obvious that more natural regeneration is being reported than was anticipated by the Forest Plan, and the disparity between planted and natural acres would have been even greater if the 1996 fire planting had not occurred. Since regeneration acreage is within the threshold of variability for this monitoring item (Forest Plan, page 5-18, established 15 percent as a threshold of variability), no Forest Plan adjustment is recommended for regeneration.

Wallowa-Whitman

A first year survival of 82 percent is right at the Forest's historic average (based on the last 10 years, 1991-2000), in spite of extremely hot summer temperatures and dry soils throughout July, August, September, and with no measurable amount of precipitation occurring until well into October. Unfortunately, additional drought-induced mortality is anticipated to show up in the second year since most survival exams were conducted in early to mid-September and no measurable amount of precipitation was to occur for another month.

Table C-14
STATUS OF REFORESTATION AFTER FINAL HARVEST
Wallowa-Whitman National Forest

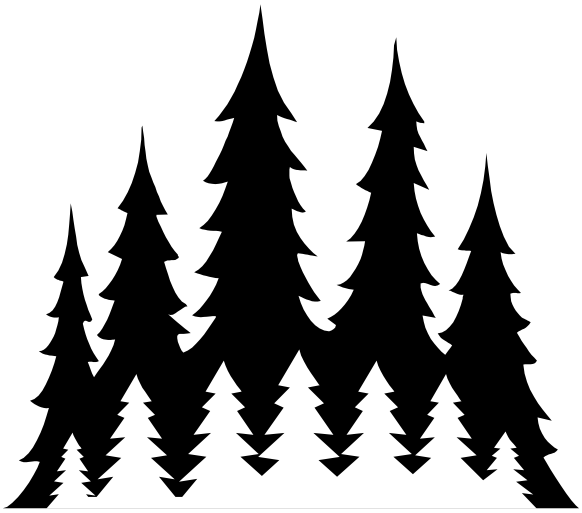
Year of Harvest	Revised Final Harvest Acres	Adequately Stocked		Not Adequately Stocked		Not Adequately Stocked - No Further Treatment	
		Acres	%	Acres	%	Acres	%
1992	7,398	6,363	86%	1,018	14%	0	N/A
1993	4,627	4,106	89%	514	11%	7	<1%
1994	3,514	3,207	91%	292	8%	15	<1%
1995	1,135	868	77%	267	23%	0	N/A
1996	2,303	1,740	76%	563	24%	0	N/A

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

Table C-14 displays the status of reforestation efforts following harvest for the years 1992-1996. On the Wallowa-Whitman, many of the acres considered not adequately stocked are associated with salvage sales from western spruce budworm, Douglas-fir bark beetle, drought conditions and wildfire mortality of the 1990's. Many of the areas burned over by wildfires, and then subsequently salvaged, were planted to 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.



Noncommercial Thinning
Malheur 24, Umatilla 17, Wallowa-Whitman 6

Question: How many acres were treated with stocking level control, and was the total within Forest Plan projections?

Table C-15 displays acres of noncommercial thinning accomplished by treatment method as compared to assumptions made in the Forest Plans.

Malheur

The level of noncommercial thinning on the Forest is below the Forest Plan projection because of funding levels for this type of work.

Table C-15
NONCOMMERCIAL THINNING ACCOMPLISHMENT (IN ACRES) FOR FY2001
Malheur, Umatilla, and Wallowa-Whitman National Forests

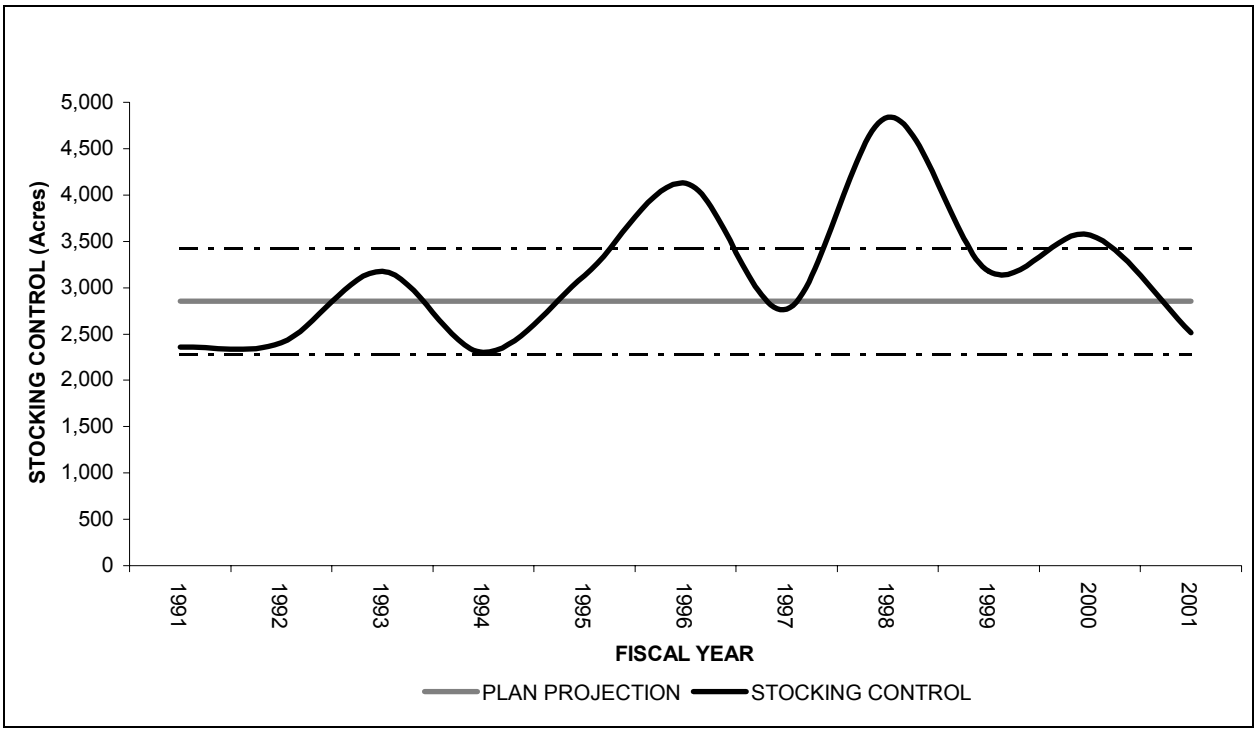
	MALHEUR		UMATILLA		WALLOWA-WHITMAN	
Activity	Forest Plan Avg/Year	FY2001 Accomplish-ment	Forest Plan Avg/Year	FY2001 Accomplish-ment	Forest Plan Avg/Year	FY2001 Accomplish-ment
Noncommercial Thinning	10,840	5,877	2,620	2,514	7,400	10,047
Release			232	0		

Umatilla

Table C-15 displays stocking control treatments reported for fiscal year 2001, and compares them to Forest Plan projections (see Table 4-20 in Forest Plan). It shows that fiscal year 2001 stocking control accomplishment was 12 percent below the Forest Plan estimate; this accomplishment level is within the Forest Plan's threshold of variability (20% deviation).

Figure C-16 displays stocking-level attainment since 1991, the first year of Forest Plan implementation. It also shows projected levels of stocking control from the Forest Plan, along with a 20 percent threshold of variability (Forest Plan, page 5-19, established 20% as a threshold of variability for this monitoring item).

Figure C-16
STOCKING CONTROL, 1991-2001
Umatilla National Forest



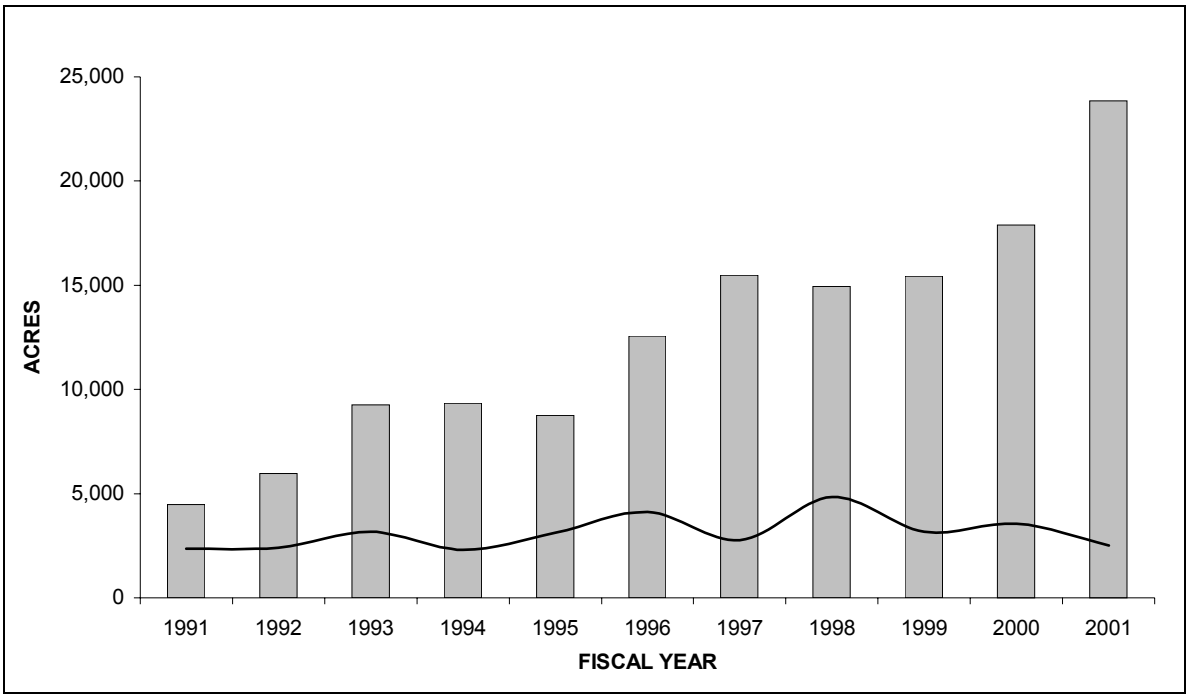
*Stocking-Control Need***.** As stated in previous monitoring reports, the Forest continues to accumulate a backlog of acres needing stocking-control treatment. If shifts in funding or priorities do not occur (e.g., shifting the priority from reforestation to stocking-level control), the acreage that needs stocking-level control will continue to grow rapidly. This backlog of stocking-control need is common not only for the Umatilla National Forest and the rest of the Blue Mountains, but for the Pacific Northwest Region in general.[4]

Thinning is an active restoration technique affecting small-diameter trees. It can be used to reduce wildfire risk and improve forest health, to develop or protect fish and wildlife habitat, to encourage undergrowth vegetation, to promote late-successional characteristics for biological diversity, and to accomplish a variety of other land management objectives. The Forest Plan did not anticipate many of these objectives for stocking-level control and that is probably one reason for the Plan's relatively low projections with respect to release and noncommercial thinning.

The Forest's need for stocking-level control has continued to grow at a rapid rate, indicating that Forest Plan projections may have seriously underestimated future needs with respect to noncommercial thinning and release. Figure C-17 shows stocking-control attainment versus need for the entire Forest Plan implementation period (1991-2001).

[4] See: Powell, David C.; Rockwell, Victoria A.; Townsley, John J. [and others]. Forest density management: recent history and trends for the Pacific Northwest Region. Technical Publication R6-NR-TM-TP-05-01. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Region. 21 p.

Figure C-17
STOCKING CONTROL ATTAINMENT (Line) VERSUS NEED (Bars)
Umatilla National Forest



Five-Year Review

Table C-16
STOCKING CONTROL ACCOMPLISHMENT (ACRES) FOR FY1996-FY2001
Umatilla National Forest

STOCKING CONTROL ACTIVITY	Forest Plan Estimate (Acres For 6 Years)	FY1996-FY2001 Stocking Control (Acres)	Percent (Actual/Estimate)
Noncommercial Thinning	15,720	20,603	131%
Release	1,392	390	28%
TOTAL (Stocking Control)	17,112	20,993	123%

Table C-16 displays stocking-control acreage reported for fiscal years 1996 through 2001, and compares it to Forest Plan projections (annual values from Forest Plan Table 4-20, multiplied by 6). It shows that stocking-control treatments were slightly above Forest Plan projections, with noncommercial thinning exceeding projections by 31 percent and release occurring at levels 72 percent below projections. Total stocking-control acreage for the 6-year period was 23 percent above Forest Plan projections.

Evaluation

Fire Managed for Resource Benefits
Malheur 36, Umatilla 18

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

Natural ignitions are not being utilized to allow fire to play its natural ecological role in wilderness areas. Fire Use Plans are being developed, which will allow this activity to occur in the future.

Activity fuels and non-activity fuels are being treated as predicted in the Forest Plan.

Umatilla

During calendar year 2001, the Umatilla National Forest experienced 16 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.

Evaluation and Recommended Action:

- The Forest Plan revision process should be utilized to reassess and update Fire Management Plans, with opportunities to utilize Fire Managed for Resource Benefits.
- Levels of activity and non-activity fuel acreages should be tied to management programs identified in the Forest Plan revision process.

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

There are several trails that allow OHV use. Generally, these trails were not constructed to meet current OHV standards (primarily all terrain vehicle (ATV) standards). Current Malheur Forest direction does not prohibit cross-country use of OHVs unless posted and most level II and III roads are open to OHVs unless posted otherwise. Most of the OHV use occurs during the spring horn gathering season or during the fall hunting seasons; however, there has been an increase in interest from the recreating public to access trails for recreation purposes other than hunting. Creek crossing, riparian areas, potential bull trout habitat, and habitat for other fish species may be impacted by this uncontrolled cross-country use.

Wallowa-Whitman

OHV use continues to increase as a popular dispersed recreation activity on the Forest. Most notably the use of ATV or Quad machines is on the rise, especially during spring and fall hunting seasons. The use of full size "jeep" type OHVs and motorcycles have remained constant and is mostly seen during the summer season. In some parts of the Forest unauthorized use (i.e. mud bogging) was also observed in sensitive riparian areas, and in designated area closures.

The type of use/users can be categorized into 5 main groups. These are listed in their order of popularity:

- Spring through fall hunters - seeking and retrieving game on roads and cross-country.
- Road and trail riders - on open Forest Service roads and designated motorized trails.
- Administrative and Permittee Users - such as FS employees, special use permit and grazing permit holders.
- Day users- going cross-country looking for antlers, berries, exploration areas; or use associated with camping or access from private land.
- Extreme Riders - seeking challenging settings in rough terrain, hill climbing, and wetlands.

To provide for some of these user groups, the Forest has designated trail networks on the La Grande and Unity Ranger Districts, although moderate to high use has been noted on the southern units around Baker, Pine, Unity and La Grande. In order to meet future demands in balance with biophysical needs, the Forest is continuing the development of an ATV Strategy which began in 2000. This strategy will be developed with the two other NE Oregon Forests, Umatilla and Malheur NFs, and is a partnership with the State ATV Allocation Committee. This strategy will produce a risk assessment, and coordinate future ATV activities at the Tri-Forest scale. Consistency is a main element for the strategy and coordination effort.

During the development of the strategy, the general issues identified have been:

- Wildlife, fisheries & water quality, noxious weeds concerns
- Balancing recreation opportunities
- Lack of adequate riding areas or knowledge of these areas (information and education)
- Safety - Mixed use of vehicles
- Perceptions of limited access
- Increased use & advancing machine technology
- Social concerns from non-motorized recreationists and adjacent landowners
- FS ability to fund and enforce

Evaluation and Recommended Action:

- Determine where the areas are on the Forest (Malheur) that meet OHV needs yet protect sensitive areas.
- Complete a Trails Strategy to determine which trails have the potential to meet new ATV standards. Use the strategy to determine future trails needs, which may include abandoning some existing trails or changing the type of user (Malheur).
- Continue to monitor use and administer existing route systems.
- Continue Tri-Forest efforts and finalize strategy in FY2003.
- Continue to seek partnership opportunities with State ATV allocation committee.
- Initiate partnerships with local ATV dealers and organizations for education, source of planning comments, and monitoring of user areas.
- Incorporate ATV goals and objectives into existing and future watershed scale project proposals.

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

The free-flowing characteristics of both designated wild and scenic rivers (North Fork Malheur and Malheur Rivers) have been protected consistent with the Forest Plan Standards and Guidelines. Current projects being analyzed under NEPA adjacent to eligible rivers have maintained their potential eligibility. These projects include the Merit Analysis and the Lake Creek Organization Camp Permit analysis.

Umatilla

The free-flowing characteristics of eligible/suitable and designated rivers on the Forest have been protected, consistent with Forest Plan Standards and Guidelines. The potential effects of a proposed mining operation (Camp Creek Placer) on the North Fork John Day Wild and Scenic River resource were included in the Camp Creek Placer Environmental Assessment. The analysis concluded that there would be no significant impact on wild and scenic river values from implementing the preferred alternative as designed, with associated mitigation measures. A final decision to implement the mining operation is pending completion of ESA consultation.

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 FY2001. No projects identified in the river management plan were implemented in FY2001.

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 continue 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 FY2001. 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 FY2001. 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 values were 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 FY2001. NEPA for relocation of the trail and trailhead will be completed in 2002.

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 through contract and force account projects.

Lostine River

The segment classified as wild is within the Eagle Cap Wilderness. The only human activity during FY2001 was wilderness recreation use and relocation/reconstruction of the developed recreation facilities. 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, and removing hazard trees from roadside and recreation sites. The Lostine Recreation Corridor reconstruction project was initiated this year. The project is aimed at mitigating recreational impacts along the river corridor by installing new vault accessible toilets, relocating some campsites and parking areas, and overall formalizing the facility's design to fit into the landscape. This project will continue into 2003 or 2004.

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 FY2001 was wilderness recreation use. This includes activities such as trail administration/patrol and maintenance, and administration of the upper Minam Threatened and Endangered fisheries by Oregon Department of Fish and Wildlife at Reds Horse Ranch.

Dutch Flat Wild and Scenic Study River

The upper portion, 6.6 miles of Dutch Flat Creek, was recommended to be included in the National Wild and Scenic River System as a Wild River in 1996. No new or ongoing management activities occurred in FY2001, 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 FY2001.

Overall this river is still a valid candidate for inclusion into the Wild and Scenic River system since it's identification and associated documentation in 1996. In that time no actions have been conducted to affect the free flowing conditions or Outstandingly Remarkable Values (ORVs).

Evaluation and Recommended Action:

- Continue to monitor projects that have the potential to effect classification of eligible rivers.
- 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.
- Review training of personnel that are knowledgeable of the Wild and Scenic River Act and specific ORVs for the rivers on the Forest.

Wilderness
Malheur 6, Umatilla 37, Wallowa-Whitman 39

Question: Are the physical/biological, social, and managerial standards of each designated Wilderness Resource Spectrum (WRS) class being maintained within levels outlined in the Forest Plan?

Malheur

Monument Rock and Strawberry Mountain Wildernesses

Monitoring was not accomplished on any wilderness element in 2001 except for social aspects, such as encounters and group sizes. Party sizes were within limits when randomly encountered. Violations of wilderness rules and regulations were minimal. The pristine area maintained its character, and the primitive area retained its characteristics and management objectives.

One wilderness ranger was funded to work in both wildernesses in 2001. A trails crew was also funded and completed 133.6 miles of trails maintenance.

Umatilla

Based on field observations, the primary types of nonconforming use occurring on the Walla Walla Ranger District are occasional mountain bike entry on trails during the summer, and occasional snowmobile entry in the flatter areas around the edge of the wilderness during the winter. While nonconforming use is not desirable, the amount of nonconforming use is at a low enough level such that wilderness values are not being damaged. Wilderness standards are being met.

Wallowa-Whitman

Four wilderness areas were monitored in FY2001; Eagle Cap, North Fork John Day (Baldy Creek Unit), Hells Canyon, and Monument Rock.

Eagle Cap Wilderness

Physical/Biological standards: Regional haze continues to be the most significant impact to the wilderness area. The primary monitoring processes for air pollution threats are contract surveys and an ongoing survey of baseline lichen conditions. Native vegetation was restored on 10 campsites in the Lakes Basin Management Area. Two recently completed restoration projects were monitored and as a result replanted, with additional improvements accomplished. Three vegetation-monitoring plots were actively monitored. Over 70 acres were treated for the noxious weeds, knapweed and scotch thistle. Oregon Department of Fish and Wildlife surveys indicated deer populations are low but stable, while elk numbers are greatly decreased. The number of hunts has been reduced. There are two active cattle allotments in the Wilderness. The Lakes Basin Management Area continues to receive the greatest amount of use. The Eagle Cap Wilderness Restoration Plan was completed in FY2000.

Managerial standards: One Volunteer Wilderness Ranger and two trail crews worked in the Wilderness. Other trail work was accomplished through volunteer efforts. Many junction and Lakes Basin Management Area signs were replaced. About 208 miles of trail were maintained. Sixteen fires were reported (four human caused, twelve from lightening), with a total of 8.45 acres burned. Two prescribed burns were planned but not implemented due to unfavorable weather conditions.

Monitoring conducted in FY2001 is inconclusive for determining if the Wilderness is being managed according to management direction and provisions of the Wilderness Act.

North Fork John Day Wilderness – Baldy Creek Unit

Physical/Biological standards: One lightening caused fire was reported, two acres were burned. Human impacts are small, localized, and do not appear to be significantly increasing.

Social Setting standards: Non-conforming uses, specifically mountain bike and ATV use, continues to be a problem in some areas.

Managerial standards: A total of 20.4 miles of designated trails received minimal maintenance (logging out) by volunteers and force account crews in FY2001.

Hells Canyon Wilderness

Physical/Biological standards: Regional haze is currently the most significant impact to this area. Air quality monitoring involved preliminary lichen community sampling. Biological control agents were monitored at one yellow star thistle site. Two sites had biological agents destroyed by the Eastside Complex Fire in 2000 and were not looked at in 2001. Identified sites within the Wilderness were sprayed, totaling 54 acres. Oregon Department of Fish and Wildlife surveys indicated deer populations are low but stable, while elk numbers are greatly decreased. The number of hunts has been reduced. There are six active cattle allotments.

Managerial standards: Six trail crewmembers, and volunteers worked in the Wilderness. Many of the trail junction signs need to be replaced. The crew and volunteers maintained a total of 300 miles of trail. Four lightening and no human caused fires were reported in FY2001. The fires burned 130.3 acres.

Monitoring conducted in FY2001 is inconclusive for determining if the Wilderness is being managed according to management direction and provisions of the Wilderness Act.

Monument Rock Wilderness – Wallowa-Whitman Portion

Managerial standards: All four hiking trails were maintained again this year, however, there was minimal Forest Service presence and administration.

Evaluation and Recommended Action:

- Place Wilderness Rangers and volunteers on the ground. Primary duties include inventory and monitoring, and visitor contact to provide information and education.
- Monitor 20% of existing sites
- Complete re-inventory of campsites.
- Eliminate the backlog of trail maintenance work.
- Continue implementation of ignited fire projects.
- Complete wilderness boundary marking.
- Continue implementation of the new wilderness fire management plan.
- Monitor non-conforming use trespass.
- Implement restoration plan action items.
- Seek and implement Community Wilderness Volunteers Program (RTP grant) opportunities.

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

Seventy-six archaeological and historic sites were monitored in 2001. This is 2 percent of the approximately 4,300 known National Register of Historic Places (NRHP) eligible and undetermined sites on the Malheur National Forest. Five (7%) 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. There was a significant drop in the number, and particularly the percentage, of sites monitored. The Malheur National Forest now manages the Snow Mountain Ranger District of the Ochoco National Forest and most of the increase in the number of sites we manage was due to this administrative change. The Forest also has a smaller Heritage work force due to a significant budget drop across the Region.

Table C-17
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
2001	76 (2%)	5 (7%)	0	0	0	3	1	0	1
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

Evaluation and 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.

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?

Wallowa-Whitman

Road Densities

Table C-18 shows that both the total miles of road on the Wallowa-Whitman and the open miles have been reduced significantly since 1996, while the number of closed miles has increased.

Table C-18
ROAD DENSITIES
Wallowa-Whitman National Forest

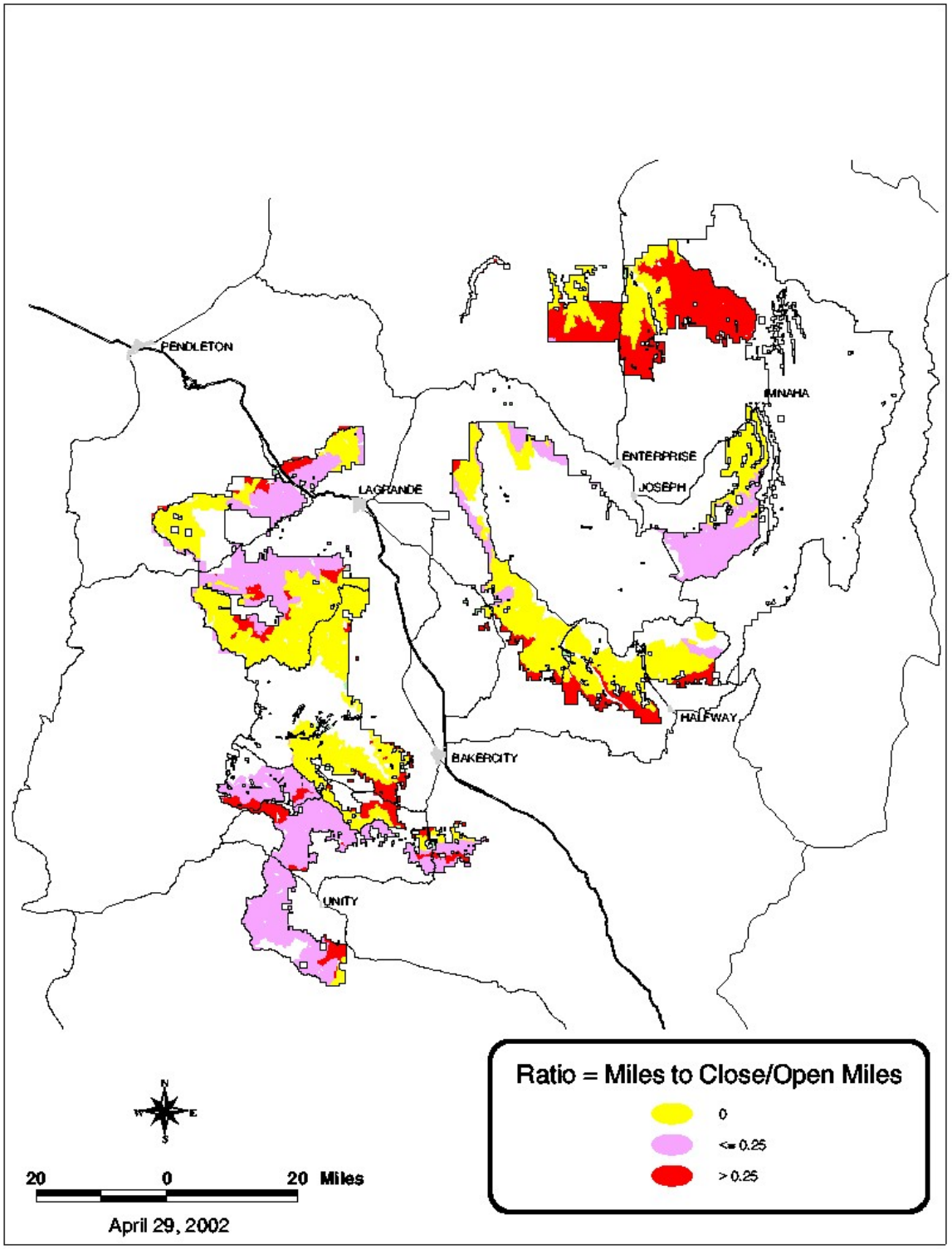
Year	Closed Miles	Open Miles	Total Miles
2002	4276.0	5047.7	9323.7
2001	4315.6	5017.5	9333.1
1999	3917.6	5394.7	9312.3
1998	3917.6	5394.7	9312.3
1997	3942.3	5597.0	9539.3
1996	3893.7	5834.0	9727.7

A query was run to determine how many miles of road still need to be closed in order to meet road density guidelines specified in the Forest Plan. Approximately 675 to 700 miles of road remain to be closed.

A GIS plot was made in order to identify the portions of the Forest that have the greatest need for additional closures to bring open road densities down. This information is shown on Figure C-18. A ratio was created for comparative purposes by dividing the number of miles to close by the total open miles (for a given watershed and management area combination). The larger the number, the more work that needs to be done in order to bring densities into compliance with the Forest Plan guidelines. The white areas do not have density guidelines. The lightest shaded areas meet guidelines. The medium shaded areas have some problems, and the dark areas have the largest problems with road densities. The area that stands out as needing attention is within the Upper Joseph watershed (near the north end of the Forest).

While we are making some progress toward meeting road density guidelines, progress is slow and will take a long time at the current rate. In order to continue to make progress with limited budgets, the potential to reduce road densities in these areas should continue to be evaluated as part of project level decisions.

Figure C-18
RATIO OF MILES OF ROAD TO CLOSE TO OPEN MILES
MANAGEMENT AREAS 1, 1W, 3, AND 3A
Wallowa-Whitman National Forest



Road Closure Effectiveness

Table C-19 summarizes the road closure effectiveness monitoring data since 1997.

Table C-19
1997 - 2001 ROAD CLOSURE EFFECTIVENESS SUMMARY
Wallowa-Whitman National Forest

Year	Barrier Type Earth Barrier	Natural	Gate/Guardrail
1997	88%	75%	6%
1998	86%	89%	-
1999	91%	100%	83%
2000	80%	100%	83%
2001	*	*	*

* No data collected because information request came after field season was over.

The effectiveness is based on a sample and does not represent total effectiveness.

Any one of these closure types can be adequate, if the proper device is used and if it is installed properly. Gates are more expensive to install and maintain, and should only be used where access is required on a regular basis.

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 has 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-20
SUMMARY OF FOREST ACCOMPLISHMENTS – ROADS
Wallowa-Whitman National Forest

	Actual Output by Year (miles)					
Activity/Output	**1997**	**1998**	**1999**	**2000**	**2001**	**Forest Plan est.**
Construction	**2**	**1**	**3**	**2.8**	**1.1**	
Reconstruction	**103**	**61.3**	**76**	**36.5**	**49.5**	
Combined Const/reconst	**105**	**62.3**	**79**	**39.3**	**50.6**	**249**
Oblit/Decomm	**83**	**51.3**	**41.5**	**59.1**	**45**	

Evaluation and Recommended Action:

- Continue the commitment to annually monitor a portion of the closures on each District, fixing and modifying the transportation system on the ground and modifying databases to match as needed.

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 Plan Management Area Standards and Guidelines. Mining activities were about the same as in 2000 due to the low market price of precious metals. In 2001 a concerted effort was made to physically survey abandoned mine sites and locate them by GPS, identify the type of mining, file an abandoned mine report, map all claims, and place them on a GIS layer. As a result of this year's field work, 13 sites have been found. By this accomplishment we now can precisely identify their location. Location and mine reports are needed prior to requesting Regional Office funds for site cleanup. There are numerous abandoned sites on the Forest still to be located.

There were 120 mining claims on the Forest in 2001, of which 31 percent are placer, and 69 percent lode. Forest resource specialists reviewed all mining proposals for compliance. No heritage sites associated with mining were found. There were 111 mining claims on the Blue Mountain Ranger District and 9 on the Emigrant Ranger District. There was no mining activity on the Prairie City Ranger District, and there were no oil or gas leases on the Forest.

Rehabilitation was an ongoing process and met Standards and Guidelines on all inspected claims that had work activity. There are abandoned claims that need rehabilitation when funds become available. In 2001, funding was available for the rehabilitation process on two sites. They currently are in the Engineering Evaluation and Cost Analysis phase. Rehabilitation of all mining operations is of prime concern, however it is recognized that 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.

On all inspected claims, rehabilitation work was checked for effectiveness and compliance with standards, techniques used, and ways in which to improve future operations.

Umatilla

There are approximately 25 active operations on 75 mining claims, mostly occurring on the North Fork John Day Ranger District; however, some interest is growing on the other three Districts. Some of these claims have little or no work done on them but none the less they are still claimed and part of the Forest's minerals workload. Twenty-eight claimants filed or phoned notices that they were going to operate during the 2001 field season. Of the total, only 14 claims were worked. The District received one proposed Plan of Operations (POO) during the 2001 field season. This POO is being evaluated in the Granite Area Mining EIS. The District and Forest also receive numerous requests for recreational types of mining from the public. There are also a few occupancy problems that need to be worked on in the future.

Most active claims were monitored at least once during the operating season. Inspections and reclamation reviews indicate that standards and guidelines were being met. One must note that since suction dredging and any in-stream work now requires a Plan of Operation on the Umatilla, there have been reports of some illegal activities on the District.

Of the 14 claims that were worked, only 7 had some actual reclamation work done on them. This is primarily because the claims in the Granite area have had their activity either modified by the claimants or modified by direction from the Forest Supervisor. These modifications have been in order to be determined a "No Effect" to listed species or habitat while the claims are being consulted on with the

regulatory agencies. This determination allows that level of activity to continue while the consultation process is ongoing.

The average disturbance for claims that were monitored was less then 0.05 per acre (totaling approximately 1.65 acres for the 14 claims that were checked). One claim had about 1 acre of disturbance, and this claim was totally reclaimed. All 1.65 acres that were reclaimed met objectives for reclamation.

Wallowa-Whitman

There are approximately 300 active Plans of Operation on the Wallowa Whitman National Forest. This level of activity has remained steady for the past few years. Approval of new mining operations has slowed due to the increased level of analysis and addition of needed consultation with the regulatory agencies under the Endangered Species Act. Most of these activities are located on the Baker and Unity Districts, with a few on Pine, and none on La Grande although there still are mining claims located on this District.

Approximately 80 percent of the Plans approved since about 1994 meet Forest Management Goals and Forest Plan Management Area Standards and Guidelines, and are in compliance with the Forest Plan. Additional mitigations are needed on many older Plans, particularly in the area of reclamation and water quality protection. These are gradually being corrected through required Plan modifications, such as when older Plans are being upgraded for ESA considerations, or when older Plans are amended by the operators. An estimated 20 percent of the Plans as written do not meet the LRMP. Few active operations are in this category, as many of the "inadequate" Plans have not operated in some time.

Currently, updating older existing Plans to meet the LRMP is one intended outcome of the North Fork Burnt River EIS, and this is being continued in other NEPA efforts when Plans are being amended by operators or when new Plans are filed upon expiration of their previous Plans.

An estimated 85 percent of active operations complete suitable reclamation. The other 15 percent include miners who are unwilling to reclaim certain work areas, pending future Plans. In such cases the miners provide larger reclamation bonds rather than rehabilitating promising mining/testing sites that they have not completed within the mining season. The Forest maintains suitable reclamation bonding, and amends the Plan of Operations as necessary.

Rehabilitation standards are effective for the newer and updated Plans where the miners understand what is expected of them. This can be an unanticipated problem in cases where the miners don't really understand what is expected, but this does not become apparent until the rehabilitation work is in progress. The suggested solution is frequent communication and monitoring, especially during the rehabilitation work.

A problem with monitoring the effectiveness of rehabilitation is that for many operations, they never reach the point of being ready for rehabilitation/reclamation work. Many projects are never finished nor are closed down. As one operator finishes up with his operations another prospective miner often comes in and takes over the project, and resumes mining. This applies to both overall operations as well as small parts of larger projects. The suggested solution is to discuss the situations with the operators and maintain suitable reclamation bonds.

Evaluation and Recommended Action:

- Coordinate mining administration activities among the three Forests for consistency between forests.

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-21
LIGHTNING, HUMAN CAUSED FIRES AND ACRES BURNED
Malheur National Forest

Fire Cause	Number of Fires	Acres Burned
Human	39	55
Lightning	242	897
Total	281	953

Umatilla

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 FY2001, the number of fires is obviously slightly below average. The reason for this difference appears to be nothing more than natural variation. Human caused fires were also below average, which may reflect the positive impact on forest users of the many fire prevention messages and efforts put forth by the Forest and all our cooperators.

A large portion of the acres (4000+) burned on the Forest came from fires that started outside the Forest's protection boundary. These fires were staffed and managed by other agencies with the Forest involved as a cooperator. This situation does reflect a lower total suppression cost than would normally be expected.

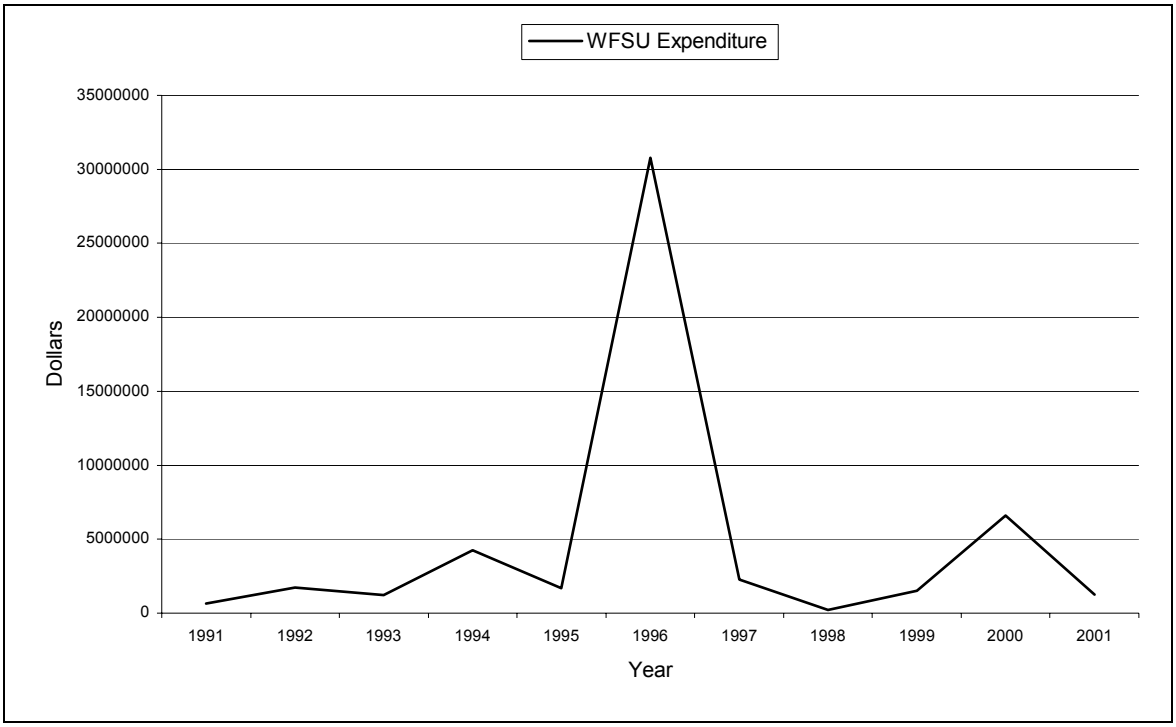
The number of acres increased relative to the past few years but does not exceed the longer-term average annual acres burned.

Table C-22
LIGHTNING, HUMAN CAUSED FIRES AND ACRES BURNED – TREND
Umatilla National Forest

Fire Cause	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Human Caused:											
Number of Fires	52	53	71	45	16	32	45	31	51	21	29
Acres Burned	29	156	635	153	7	8,289	3,281	226	170	3,200	144
Lightning-Caused											
Number of Fires	93	137	20	201	82	97	70	87	124	28	81
Acres Burned	49	278	3	5,637	131	64,228	37	195	86	615	5,101
Forest Totals:											
Number of Fires	145	190	91	246	98	129	115	118	175	49	110
Acres Burned	78	435	638	5,793	138	72,517	3,318	421	256	3,815	5,245

Figure C-19 shows the trend in actual expenditures of WFSU (Wildfire Suppression and Rehabilitation Funds) per fiscal year.

Figure C-19
ACTUAL EXPENDITURES OF WFSU – TREND
Umatilla National Forest



Evaluation:

The Forest, as directed by the National Fire Plan, began implementation of the Forest's latest (1999) fire preparedness analysis (National Fire Management Analysis System's or NFMAS), at 90 percent of the 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). This level 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 increase supported by the National Fire Plan, will aid in reducing fuel loading over a large number of acres and would result 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.

Recommended Action:

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

Guidelines for HEI are being met in recent planning efforts initiated in FY 2001 (carrying over to 2002 for implementation). Analysis is being done at the subwatershed scale, and with the use of a watershed assessment, out to the watershed scale. The analysis in a recent planning effort was not aggregated to the management area as defined by ODF&W, as the project straddles two management areas.

Forest Plan standards and guidelines were considered in the Olmstead project area. While satisfactory cover percentage was within 1 or 2 percent of the standard, a Forest Plan amendment was written because the harvest planned to take total cover 1 to 2 percent below the standard. Road density is typically above the standard and road closures are identified to help improve habitat effectiveness.

Evaluation:

Assumed relationships between cover spacing, cover quality and open roads do not appear to be valid, based primarily upon newer research coming out of the Starkey Experimental Forest (Wisdom et al., 1999; Rowland et al., 2000; Johnson et al., 2000). This and other research is showing an even stronger influence of open roads and habitat selection relative to deer and elk habitat use. In short, for considerable distances (up to 1,000 meters), habitat selection for elk is heavily influenced by open roads. Considerable distance was needed from open roads before other habitat factors, such as cover and forage, out weighed the impact of roads on habitat selection. Also, interesting relationships between deer and elk were noted, with an inverse relationship demonstrated by deer to open roads. Generally, deer were found closer to open roads. It is suspected that deer/elk interactions are responsible for this, with elk displacing deer from areas of greater distance from those roads. With deer, however, it was noted that cover areas were disproportionately selected for in higher traffic areas, offering some validity to the idea of cover use to mitigate road disturbances. New analysis techniques may be needed to adequately address this issue, and true impact of habitat effectiveness and impacts to big game distribution. Preliminary model development has begun with analysis of the Merit Project on the Prairie City Ranger District, based upon the research of Wisdom et al. and Rowland et al. (1999, 2000).

Umatilla

To meet the needs for elk/deer, Forest Plan standards and guidelines are applied at the project analysis area level. 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. The quantity and quality of elk cover remains a point of debate as indicated by recent research showing that thermal cover may not be such a critical component for elk as previously thought (Cook, et.al., 1998). Key elk habitat components, such as forage, hiding cover, 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.

Five-Year Review:

The North Fork John Day Ranger District implemented an Access and Travel Management policy that has resulted in 10 years of low open road densities. This has benefited big game particularly considering the large-scale losses of cover from fires, insect and disease. Big game populations remain high on the south end of the Forest.

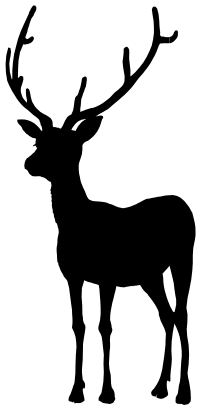
Wallowa-Whitman

HEI was calculated for 10 planning areas (Sandy Bottle, Sprinkle, Dark Meadow, Spooner, Rice Baldwin, California, Stices Gulch, Baboon, Sumpter, and McCully) in 2001. All sales exceeded the HEI requirement of 0.50 and the minimum hiding cover ratio of 30 percent. Road densities were usually between 2.2 and 3.1 miles per square mile, which often does not meet Forest Plan standards. As reported under the Roads monitoring item, the potential to further reduce road densities should be evaluated as part of project level decisions. Forage data was unavailable and the road density variable does not reflect actual habitat conditions due to the lack of restrictions for motorized vehicles on closed roads and cross country. Road closures in these planning areas continue to allow access by OHV's. Motorized access is suspected to result in poor distribution of elk across available habitat and in many cases may force elk onto adjacent private lands.

Elk habitat improvement projects included treating noxious weeds on approximately 1,600 acres in big game winter range areas.

Evaluation and Recommended Action:

- Continue to assess the utility of HEI. Develop a new habitat model to replace the current HEI model or modify the existing one to reflect more recent research findings. The new model should reflect results from the Starkey Traffic Study that found road densities to be a poor indicator of elk habitat effectiveness. Additionally, the new model should address forage quality and quantity in a form practical for ground level personnel to collect and incorporate. 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 cannot be met, emphasize the need to provide mitigation to meet resource objectives. Obtain funding to implement road closures.
- Make recommendations to Oregon Department of Fish and Wildlife concerning big game harvest and seasons.



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

There is a need to increase the size of designated old growth units to meet habitat requirements, based on recent research. During project-level analysis, dedicated old growth boundaries are changed to correspond with stand boundaries and the units are increased in size. Newest research shows more acres of old growth are needed than required by the Forest Plan. Though more acres are designated than required by the Forest Plan, typically there is not the amount of old growth in one block to meet the requirements stated by the newest research.

If replacement units do not exist, they are identified, along with pileated woodpecker feeding areas. Connectivity is identified and maintained between designated old growth units and other late and old structure (LOS) stands. It helps to provide some semblance of continuity between suitable habitat, although usually the LOS stands are not in large enough blocks (outside of the designated old growth) to be considered a home range.

Umatilla

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

Five-Year Review:

Restoration and protection of old growth habitat is clearly needed. Declines have been documented in the Camas Ecosystem Analysis, the Desolation Ecosystem Analysis, and the Umatilla-Meacham Ecosystem Analysis. Many Dedicated Old Growth areas are not meeting the intent outlined in the Forest Plan. Decline of old growth is largely due to past harvest of large trees, but is also due to widespread landscape changes caused by fire suppression and/or natural events (Tower, Bull and Summit fires; insect and disease outbreaks, wind events).

Wallowa-Whitman

No old growth surveys were conducted on the Forest, except on one district, where eight stands were surveyed. Allocated old growth surveys indicated that only 20 percent met Forest Plan standards. These stands were primarily deficient in large diameter trees and most have had some partial timber harvesting. Replacement stands were typically unavailable. These results are typical of surveys from the last 10 years.

Evaluation and 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, evaluate the old growth issue, including 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. The allocated old growth approach from the Forest Plan needs to be drastically revised to be consistent with the HRV and structure based management strategies. Abundant research has illustrated that the small size of old growth allocations are inadequate to provide for reproduction needs of the species that they were intended to support. Any new approach to old growth management should also include considerations for patch size, connectivity, and rotation.

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

No dead and defective tree habitat was monitored following management activities during fiscal year 2001.

Umatilla

Dead standing tree (snag) and down wood sample data were conducted on three salvage timber sales on the Walla Walla Ranger District and one on the Pomeroy Ranger District. The data was collected to show how 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 within a unit and collective timber sale area. The following tables show pre-treatment and post-treatment data sets from the same plot location within each harvest unit for the Walla Walla Districts' Cliffhanger Timber Sale, Sheep Salvage Timber Sale, and Umatilla Breaks Salvage; and Lick (Pomeroy RD) timber sales.

Table C-23
DEAD STANDING WOOD DENSITIES
CLIFFHANGER 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	1.80	0.14	UNK	UNK	4.9	0
03	"	"	"	"	2.4	1.4
06	"	"	"	"	6.5	0.7
09	"	"	"	"	6.7	0
11	"	"	"	"	11.1	0.5
12	"	"	"	"	7.6	0
17	"	"	"	"	8.8	0
82	"	"	"	"	16.0	0
Sale Average	1.8	0.14	UNK	UNK	8.0	0.3

Table C-24
DEAD STANDING WOOD DENSITIES
SHEEP 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
01	1.8	0.14	33.0	0	4.5	1.9
02	"	"	UNK	UNK	15.8	1.8
03	"	"	"	"	17.5	1.7
05	"	"	31.0	1.0	4.7	1.9
06	"	"	25.7	0	8.6	0
07	"	"	24.2	1.9	UNK	UNK
10	"	"	36.5	3.8	3.8	2.8
Sale Average	1.8	0.14	30.1	1.3	9.2	1.7

Table C-25
DEAD STANDING WOOD DENSITIES
UMATILLA BREAKS 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
20	1.80	0.14	UNK	UNK	8.9	0
25	"	"	21.0	0.9	1.8	0.9
26	"	"	11.0	0.9	5.7	1.9
27	"	"	57.7	0	3.7	0
Sale Average	1.8	0.14	29.8	0.5	5.0	0.7

Table C-26
DEAD STANDING WOOD DENSITIES
LICK 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	1.80	0.14	UNK	UNK	6.52	0
03	"	"	"	"	6.67	0
04	"	"	"	"	3.45	0
05	"	"	"	"	3.26	0
07	"	"	"	"	1.04	0
09	"	"	"	"	0.0	0
19	"	"	"	"	1.83	0
20	"	"	"	"	4.88	0
Sale Average	1.8	0.14	UNK	UNK	3.85	0

Table C-27
DEAD DOWN WOOD DENSITIES
CLIFFHANGER 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	UNK	UNK	49.0	980-1,220’
03	“	“	“	“	15.0	300-375’
06	“	“	“	“	12.6	252-315’
09	“	“	“	“	13.3	266-333’
11	“	“	“	“	43.4	868-1,085’
17	“	“	“	“	31.6	632-790’
82	“	“	“	“	30.8	616-770’
Sale Average	15-20	100-140 ft	UNK	UNK	24.4	488-610’

Table C-28
DEAD DOWN WOOD DENSITIES
SHEEP 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
01	15-20	100-140 ft	31.6	632-790’	31.6	632-790’
02	“	“	UNK	UNK	37.7	754-942’
03	‘	“	UNK	UNK	17.6	352-440
05	“	“	39.6	792-990’	33.9	678-847’
06	“	“	38.6	772-965’	5.4	108-135’
07	“	“	24.4	488-610’	UNK	UNK
10	“	“	49.5	990-1,237’	18.3	366-470’
Sale Average	15-20	100-140 ft	36.7	734-917’	24.1	482-602’

Table C-29
DEAD DOWN WOOD DENSITIES
UMATILLA BREAKS 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
20	15-20	100-140 ft	UNK	UNK	14.2	284-355’
25	“	“	15.4	308-385’	22.7	454-567’
26	“	“	15.4	308-385’	18.7	374-467’
27	“	“	17.0	340-425’	33.5	670-837’
Sale Average	15-20	100-140 ft	15.9	318-397’	22.3	446-557’

Table C-30
DEAD DOWN WOOD DENSITIES
LICK 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	UNK	UNK	24	240-600'
03	"	"	"	"	20	400-500'
04	'	"	"	"	9	180-225'
05	"	"	"	"	11	220-275'
07	"	"	"	"	14	280-350'
09	"	"	"	"	0	0
10	"	"	"	"	14	280-350'
20	"	"	"	"	7	120-175'
Sale Average	15-20	100-140 ft	UNK	UNK	14	280-350'

* 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.

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

Some individual timber sale units did not meet the ≥ 20" dbh snags per acre guideline. However, since no pretreatment data is available, it is unclear if that size class occurred prior to treatment or was reduced as a result of activities.

As with snags, the lengths of downed logs after harvest exceed those present before harvest. This reflects the on-going blow down 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.

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

Five-Year Review:

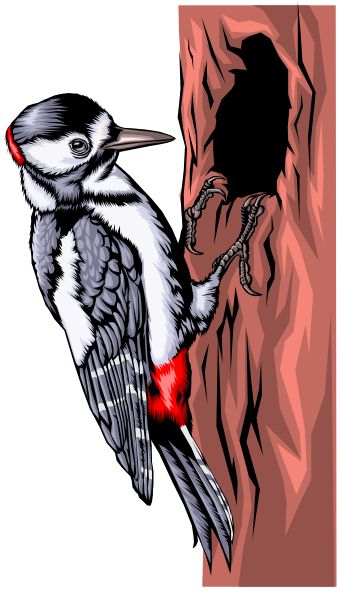
Although projects met or exceeded minimum snag and down wood standards, most monitoring occurred in salvage situations where an excess of dead tree habitat was available. Concerns remain regarding prescribed burning and down wood retention, hard versus soft snag retention, and loss of snags from fuel wood harvest.

Wallowa-Whitman

Monitoring was completed on 11 timber sales following logging, which comprised about 2,700 acres. Of the acres surveyed, about 1,400 acres met the 100 percent snag density requirement. Snag requirements are not always met due to past timber harvest and firewood cutting. Firewood cutters are making a significant reduction in snags left post sale. KV funds to create snags were only available on one district. No estimates for down logs or green tree snag replacements were collected. No surveys were conducted for primary cavity excavators use due to lack of funds.

Evaluation and Recommended Action:

- The Forest Plan Amendment (Wallowa-Whitman) that requires 100 percent potential population levels for snags does not interpret what constitutes the 100 percent level. ICBEMP likely represents the latest scientific information that alludes to actual snag needs at different landscapes scales. There is a need for a common snag policy that defines what the 100 percent level is for different biophysical environments.
- Obtain funds to: create snags where deficiencies exist, sample primary cavity excavator populations, conduct snag level surveys over large analysis areas, and close roads after harvest.
- Each District (Umatilla) 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

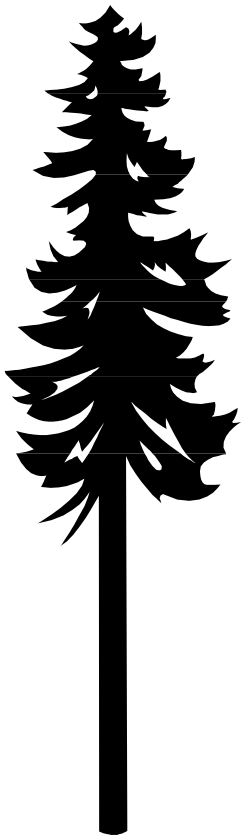


Timber Suitability
Malheur 23, Umatilla 41, Wallowa-Whitman 9

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, Umatilla, Wallowa-Whitman

No lands were reclassified by the forests.



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 offered 15.4 MMBF (3,037 MCF) in timber volume in FY2001 (TSPQ volume).

Umatilla

Table C-31
TIMBER VOLUME OFFERED – TREND
Umatilla National Forest

	VOLUME OFFERED FOR SALE			
	MMBF		MCF	
FISCAL YEAR	ASQ	TSPQ	ASQ	TSPQ
1994	1	9	192	1,728
1995	5	22	960	4,224
1996	19	45	3,648	8,640
1997	37	82	7,104	15,744
1998	38	62	7,296	11,904
1999	17	26	3,264	4,992
2000	1	17	192	3,264
2001	9	17	1,707	3,224
Forest Plan Projected Output	124	159	23,800	5,380

Wallowa-Whitman

Table C-32
TIMBER VOLUME OFFERED FOR SALE
Wallowa-Whitman National Forest

VOLUME OFFERED FOR SALE				
	MMBF		MCF	
Fiscal Year	ASQ	TSPQ	ASQ	TSPQ
1991	33	53	6,600	10,600
1992	66	79	13,200	13,800
1993	8	23	1,600	4,600
1994	17	29	3,400	5,800
1995	39	54	7,800	10,800
1996	44	53	8,600	10,300
1997	40	49	7,900	9,700
1998	32	40	6,200	7,800
1999	24	30	4,900	6,600
2000	20	33	4,000	6,400
2001	23	32	4,600	6,700
Forest Plan Project Output	141	205		

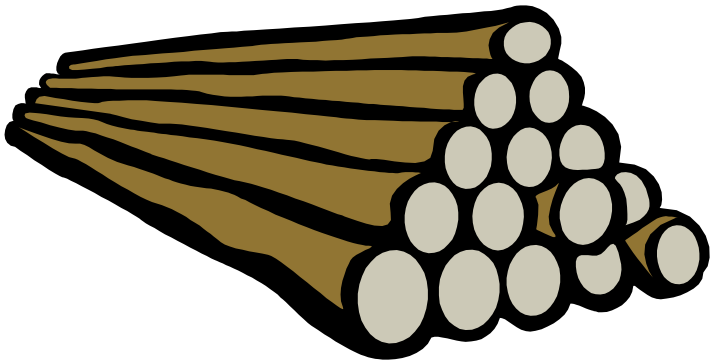
The Forest received funding to offer 27,788 mbf of all forest products. The Forest successfully offered and sold 32,338 mbf during Fiscal Year 2001. This included two projects that were carried over from the previous fiscal year (6,758 mbf).

Five-Year Review:

Calculations for the Allowable Sale Quantity were based on assumptions that are no longer valid. During the late 1980's the Agency implemented intensive, even-aged management prescriptions throughout the national forests. With the shift to ecosystem restoration, commercial thinning and sanitation/salvage are used as the predominant silvicultural harvest methods today. To address concerns for endangered species habitat protection, harvest treatments are no longer planned on many areas of the forest that were originally classified as capable, available and suitable for timber management. Incorporating the management guidelines described in the Screens, PACFISH, and INFISH amendments to the Forest Plan, it is estimated that the Forest can sustain an annual harvest of 40 MMBF. However, declining budgets prevent the Forest from achieving that level of harvest. If recent budget trends continue, the Forest may be able to sustain a level of harvest around 20 MMBF.

Evaluation and Recommended Action:

- Adjust Forest Plan ASQ and TSPQ levels upon revision of the Forest Plans.



Special Focus Item: Project Implementation Effects on Soils

Introduction

Tri-Forest monitoring field reviews have been implemented four of the last five years in an effort to improve consistency across the Forests, and provide an avenue for information sharing. This year's review emphasis was the effects of project implementation on the soils resource. Part of the rational for choosing soils as the focal point for the reviews was the inclusion of soils as an issue in a number of recent appeals and litigations. There has been a perception that the effects of project implementation on soils has been inadequately analyzed and documented. Another reason for choosing soils was to facilitate discussions which might lead to increased consistency within the Blue Mountains in the determination of existing soils conditions, and the analysis of effects.

Project Selection and Monitoring Process

Potential review projects were submitted to the three Forest Planners. After reviewing these projects, they decided to review timber harvest using cut-to-length logging systems, underburning, and salvage activity following wildfire projects on three Districts from the three Forests. Two interdisciplinary review teams, consisting of Forest employees from throughout the province, conducted on-the-ground inspections over a 4-day period. Team members were provided with project documentation prior to the reviews. District employees familiar with the project planning and implementation accompanied the teams on the site visits.

Project Descriptions and Findings

A brief description of the reviewed projects and findings follows. More detailed information on each review can be obtained from the Umatilla National Forest Supervisor's Office in Pendleton, Oregon.

Spring Creek Restoration Project

The Spring Creek Restoration Project (La Grande Ranger District, Wallowa-Whitman National Forest) was approved in May 1997, and included a broad array of restoration activities. Two harvest treatment units, and a road obliteration project were reviewed in the field. The harvest treatment units were selected based on heavy equipment use on relatively steep slopes during moist conditions, corresponding to "worst case" potential for adverse effects on soils. In both units the harvest system was changed from skyline to cut-to-length (harvester/forwarder), in part to avoid temporary road construction and due to difficult slope configuration for a skyline system. Harvest operations were primarily complete during the winter, with some activity occurring during spring break-up. Both units had adverse skids on relatively steep slopes (up to 35%).

Project Conclusions

- Forest Plan standards and guidelines related to soils were met with only a few instances of somewhat higher than possible soil impacts from activities during marginal soil conditions.
- Wheel ruts in some areas appear deeper than may have been with activities in drier or more frozen/deeper snow conditions.
- The change in logging system probably reduced the potential for adverse soil and water effects.
- Results of site-specific project monitoring as planned in the EA were not readily available to the team. Monitoring and documentation of the RHCA treatment results would be especially important to document.
- The District is commended for undertaking active management of riparian areas.

Recommendations

- Continue using Forest Plan standards and guidelines related to soils.
- Continue using Best Management Practices.
- Operations outside the normal operating season, July 1 to October 31, require careful monitoring of snow and frozen soil conditions, especially on days with marginal conditions.
- As opportunities arise, establish "permanent" skid trail systems if continued entries are expected.
- Tracking and computation of road obliterations should be included in discussion/analysis of effects on soil productivity.
- Complex projects such as this with a range of activities would benefit from establishing an implementation coordinator to track project completion.

Skookum Underburn Project

The Skookum Underburn Project (Heppner Ranger District, Umatilla National Forest) was approved in March 1998, and was designed to re-introduce fire into the ecosystem. Project objectives were to remove excess accumulations of naturally occurring fuels, and improve the quality and quantity of forage. At the time of the review, two treatments had been implemented. Approximately 6,500 acres were burned in September 1998, and 3,700 in May 2001. A very small sample (two locations for each treatment) was reviewed due to time constraints. At the team's request, review areas were selected based on "worse case" potential (such as burning in RHCAs) for adverse effects on soils.

Project Conclusions

- Project objectives for the protection of soil productivity and erosion risk were met.
- Fuel consumption in the spring burn was on the low side and could have been increased without undue risk to soil properties or erosion risk.
- Majority of spring burn consumption was under tree canopies where there is virtually no chance of erosion. Burn resulted in little exposed soil.
- Lack of fire line construction reduced the overall disturbance, erosion risk, and the potential for noxious weed spread.
- BMPs F2 (Consideration of Water Quality in Formulating Prescribed Fire Prescriptions) and F3 (Protection of Water Quality During Prescribed Fire Operations) were implemented as designed and were fully effective.

Recommendations

- Continue using Forest Plan standards and guidelines related to soil.
- Continue using Best Management Practices (BMPs).
- Further monitoring of consumption of stream channel woody debris is recommended.
- Prescribed fire planning should provide for burning in both the spring and fall to take advantage of all burning windows. To date, more acres have been burned in the fall than planned for this project. Implementation has deviated from the Decision Memo in terms of acres blackened, and from the project description upon which scoping and the analysis were based.

Summit Fire Recovery Project

The Summit Fire Recovery Project (Blue Mountain Ranger District, Malheur National Forest) Record of Decision was signed on July 13, 1998. This project responded to conditions created by the Summit Fire, which burned approximately 38,000 acres in August and September of 1996. Post-fire reviews identified a specific restoration need of moving the area closer to its historic range of stand structure. Activities included in the decision were fuel reduction, road closures and decommissioning, reforestation, rehabilitation of watershed problems, riparian planting, and

noxious weed control. At the District's request the review team focused on salvage sale activity, as these activities generated controversy and were the subject of much review prior to and after their implementation. Approximately 6,700 acres of salvage activity occurred between July 1998 and April 1999. The team reviewed a small sample of these acres, primarily looking at sites where ground conditions or harvest system corresponded to conditions which had the "worse case" potential for adverse effects on soils.

Project Conclusions

- Soil impacts are consistent with Forest Plan guidelines for detrimental soil impacts on examined areas. There were a few problem areas, mainly associated with changing conditions and sale administrators getting overextended by multiple operations, but no extensive or consistent problems.
- Project design, layout, and implementation met stated project soil objectives.
- Great care was taken in upland harvest units to reduce erosion potential.
- Designated skid trail spacing and limiting off-trail use to feller-bunchers was successful at limiting detrimental soil impacts. Other BMPs for erosion control and limiting soil impacts worked well.
- There was a good working relationship between resource specialists and personnel implementing the projects.
- There was good continuity between the timber sale contracts and the Record of Decision. Very good follow through on mitigations, and the contract had the necessary provisions to address soil concerns.
- More thorough field determinations, such as stream classification and location of wet areas, could have prevented some undesirable results.
- One of the overall project objectives was to reduce fuel loads to reduce the risk of a future severe reburn. There was a question if this objective was met considering the number of snags left in some harvest units.

Recommendations:

- Continue using Forest Plan standards and guidelines related to soil.
- Continue using Best Management Practices (BMPs).
- Closed roads if not to be reused, maintained, or kept on the system should be considered for decommissioning or obliteration. Consider these restoration activities in assessments of overall watershed condition.
- Areas with deep soil and few coarse fragments are good candidates for subsoiling when conditions warrant.
- Expanded use of native seed where seeding is implemented will help with restoration of native grasses and forbs.

Overall Recommendations:

- Continue using Forest Plan standards and guidelines related to soils.
- Continue using Best Management Practices (BMPs).
- Operations outside the normal operating season require careful monitoring of snow and frozen soil conditions, especially when conditions are transitional.
- Closed roads if not to be reused, maintained, or kept on the system should be considered for decommissioning or obliteration. These restoration activities should be considered in assessments of overall watershed condition.