

Stop 1: Mid Maury II Unit 71

COPWRR Project-Level Ecosystem Monitoring Report Form

Project: West Maurys Fuels and Vegetation Management Project	
NEPA Authority Used: EIS	
Date: October 20, 2011	
Interdisciplinary Team / Forest Service Members Participating: Kate Klein (Forest Supervisor), Becky Kreachbaum (Silviculturist), Carl Maass (Contracting Officer), Rob Rawlings (Silviculturist), Bryan Scholz (Prescribed Fire Planner), Dede Steele (Wildlife Biologist), Robin Vora (Assistant Natural Resource Officer), Shelby Williams (Forester)	
Other Participants in Field Evaluation: Glen Ardt (Oregon Department of Fish & Wildlife), Pete Caligiuri (The Nature Conservancy), Phil Chang (Central Oregon Intergovernmental Council), John Chinnock (Citizen), Bill Dean (Bureau of Land Management – Prineville), Irene Jerome (American Forest Resource Council), Tim Lillebo (Oregon Wild), Marilyn Miller (Miller Conservation Consulting), Ann Moote (facilitator), John Morgan (Ochoco Lumber Co. and Crook County Natural Resource Committee), Don Rooper (Interfor), Don Wood (Crook County Natural Resource Committee)	
Unit: Mid Maury II Unit 71 (EIS Unit 375)	Acres in Unit: 48
Other Units being Monitored: Mid Maury II Unit 69 (EIS 375), Mid Maury II Unit 36 (EIS 405), Mid Maury Units 6-12 and West Aspen Units 3-5 (EIS 445, 476)	

Background

Purpose and Need

The Maury Mountains Watershed Analysis completed in 2000 shows that almost all plant communities are outside the historic range of variability. Forested stands are more susceptible to insects, disease, and wildfire. Stands are denser with more shade-tolerant species. Also, the amount of late and old structure (LOS) stands has decreased from a range of 10,500 to 19,600 acres dominated by large trees to about 880 acres today. Large trees are susceptible to mortality related to competition stress with smaller, understory trees. Fire suppression has allowed understory layers to develop with a resulting increase in stand density and an increase in competition stress. Fire suppression has also allowed the amount of fuels to increase. There are needs to:

1. Move the seral and structural conditions of forest stands towards their historic ranges of variability by (1) maintaining and increasing the amount of late and old structured stands, (2) increasing the resistance of forest stands to insects and diseases, and (3) maintaining and increasing broadleaf and shrub communities.
2. Move fire regimes towards their historic ranges of variability by (1) increasing the amount of low-intensity fire conditions, (2) maintaining low-intensity fire conditions where they already exist, and (3) decreasing the amount of high-intensity fire conditions.
3. Provide wood products to contribute to the health of the local and regional economies and provide opportunities for employment and income.

Reference: West Maurys Fuels and Vegetation Management Project FEIS and ROD

Management Objectives for Unit

1. Maintain and increase numbers of large trees. The criterion for LOS is 10 trees per acre 21 inches DBH and larger. Typical LOS stocking would be 18 trees plus.
2. Reduce risk of high intensity fire / stand replacing wildfire.

Post harvest stand condition: Basal area will range from 40 to 60 square feet per acre. Stand will appear much more open with large trees more visible. Species composition will be dominated by ponderosa pine with occasional large juniper and scattered Douglas fir. The resulting stand should contain two or more age classes, exhibit multiple canopies, and have a higher proportion of early seral species. Existing large trees will persist at lowered risk.

References: Unit Prescription, West Maurys Fuels and Vegetation Management Project FEIS

Treatment Summary for Unit

Pre-treatment conditions:

This is a ponderosa-pine dominated unit with scattered western juniper and Douglas fir. Elk sedge is common in the understory. Prior to treatment, the unit was densely stocked, with a stand exam showing 283 trees per acre (basal area 113 square feet per acre). Over 20% of the soils were disturbed.

Prescription:

Commercial thin: Use individual tree selection for uneven-aged management and tractor logging on existing trails. Do not cut trees larger than 21 inches DBH. Thin from below, leaving the largest, most vigorous trees. Aggressively remove dwarf mistletoe infected trees. Remove Douglas fir with any dwarf mistletoe and ponderosa pine with mistletoe rating of more than 2 (Hawksworth) regardless of spacing.

Spacing guide: Dry grand fir and mesic pine sites

Diameter (inches)	Spacing (feet)	Trees per acre	Basal Area sq.ft/acre
9	20	108	48
11	24	75	50
13	28	56	52
15	32	44	53
17	35	35	55
19	39	29	56
21	43	24	58
25	50	18	60
30	59	13	63

Stand improvement: Where stand conditions include overstocking of non-merchantable trees, precommercial thin to 22 by 22 feet, then lop slash or assess need after harvest. Remove western juniper up to 12 inches DBH. If most excess trees are less than 3 inches diameter conditions may be favorable for a thin with prescribed fire.

Special instructions:

Soils: Stay on existing trails and compacted areas; no net increase in soil disturbance.

Snag requirements: 0.2 to 1.5 trees per acre greater than 21 inches DBH. 1.1 to 2.4 trees per acre less than 21 inches DBH.

Down wood requirements: Maintain between 2 and 6 pieces per acre (55 to 167 feet) minimum 6 feet long and 12 inches diameter at small end.

References: West Maurys Fuels and Vegetation Management Project FEIS, Unit Prescription

Selected Implementation Guidelines, Management Measures, and BMPs to Evaluate

Extensive lists of design elements drawn from relevant laws, policies, standards, and guidelines apply to all of the action alternatives. Photocopies of these sections of the EIS will be available on the day of the field visit, including mitigation measures for:

- Soils
- Wildlife
- Noxious Weeds
- Sensitive Plant Species
- Watershed and Riparian Resources
- Recreation Resources
- Heritage Resources
- Air Quality/Prescribed Fire
- Water Quality/Fisheries

Reference: West Maurys Fuels and Vegetation Management Project FEIS

Unit Evaluation

Were the treatments implemented as described in the decision document or Record of Decision? Were the treatments implemented in accordance with the Selected Implementation Guidelines, Management Measures, and BMPs identified above? If not, please explain why.

Commercial thin achieved DBH, spacing, basal area, species distribution, and age class specifications.

Stand improvement (precommercial thin and prescribed burn) has been deferred on portions of this unit because funding is limited. The portion of the unit with primarily juniper in the understory is being burned. A portion with fewer juniper is planned for precommercial thinning, but that work has been deferred. It may be possible to reduce the cost of the precommercial thin by burning before doing the thinning, so that small seedlings don't have to be cut. Participants like the option of doing a burn-through instead of precommercial thin if conditions are favorable.

Snag goals were not met. It is expected that treatment, especially the prescribed burn, will create more snags. One participant suggested it would be more effective to create snags during thinning.

Soils show much less disturbance than many logging jobs – can't even see the skid trails. Good job.

Wildlife cover was provided by leaving untreated patches between units, and snags and down wood within units. Participants recommend leaving a percentage of each unit in

small dense patches for wildlife (not just big game), to provide more diversity within the unit. The ID team noted that they might do that on larger units, but smaller units are laid out during implementation to create wildlife patches. They also noted that this project was planned in 2005; recent projects are leaving wildlife patches within units during NEPA planning.

There was a question about **grazing allotments after a prescribed burn**. Normally there is a rest period of 1 to 2 growing seasons after a burn.

For each Management Objective for this Unit, please evaluate whether the objective has been achieved. If the objective has not been achieved, please comment on barriers, constraints, limitations, etc. and what might be needed for future projects to achieve the objective.

Assuming the prescribed precommercial thin and burn will be completed, the management objectives were met. The commercial treatment looks good. Lack of funding to complete the stand improvements is an ongoing limitation on this and other projects. Using stewardship contracting where possible may help cover some of these costs.

Project Evaluation

Were the results of this project what was anticipated and intended? Have treatments addressed the Purposes and Needs for this project? If not, why not?

The first two needs were largely met. The treatment moved seral and structural conditions and fire regimes toward their historic ranges of variability. A prescription calling for a variable density (patchy/clumpy/groupy) forest structure within units would have better achieved the historic forest structure, which had vertical, horizontal, and structural diversity.

The third need was partially met. The project provided a lot of jobs, but the operator lost money. The costs were high because the market was depressed and the distance to market is long. The contractor estimates that commercial treatments on this project provided 3,000 to 5,000 board feet per acre. Logs were hauled to the mill in Gilcrest, over 100 miles away. Some areas planned for commercial thinning were dropped because of market conditions.

Please share any observations or comments about the project planning, implementation, or results that are important to understanding management of this unit or important for improving future management in similar projects.

Lack of funding for non-commercial treatments may limit the Forest's ability to achieve the project goals. The Ochoco National Forest may not have the money to do the precommercial thinning and prescribed burning. This is an ongoing problem. The group recommends using stewardship contracts where possible to help fund service work using retained receipts or goods-for-services authorities.

Plan and write prescriptions for structural heterogeneity. The prescription calls for precommercial thinning to 22x22 feet, with 25% variance allowed. Participants were concerned that this would create an evenly spaced, "homogenized" forest. Since the goal is to move the forest toward its historic range of variability, the prescription should call for vertical, horizontal, and structural diversity. New research shows that that diversity is important for wildlife. (See the paper on patches versus traditional thinning presented at an SAF conference last week.) Participants said that variable density (patchy/clumpy) thinning has real benefits to firefighting, because fire behavior is different in a patchy/clumpy forest structure, and that patchy/clumpy structure reduces movement of insects and disease. Participants recommend that the NEPA documents, prescriptions, and contracts explicitly call for variable density (patchy/clumpy) spacing. They also recommend leaving a percentage of each unit in small dense patches for wildlife. One participant suggested that fire would eventually create some of the desired variability, but others said it should be planned: "If you don't plan for it, you may not get it." Variable density spacing should be defined in the prescription and again in the contract, and markers should be trained to recognize and mark for a patchy/clumpy/groupy structure. On the Sisters Ranger District, when using stewardship contracts silviculturists have prescribed patchy/clumpy structure using designation by prescription.

Treat more of the project area to achieve landscape-scale restoration, support the local economy, and maintain infrastructure for future restoration work. There was a question whether this project achieved landscape-scale restoration. The commercial treatments address about 20% of the total project area, and it is unclear when and how much of the prescribed precommercial thinning and burning will be completed. One participant said that experience in ponderosa pine and dry mixed conifer Arizona showed that if you don't treat large areas, you don't affect fire behavior very much. Larger-scale treatments are also more effective for economic benefits and maintaining the local infrastructure. There were some questions about how much of the planning area had been treated in earlier projects. Cumulatively, earlier projects plus this one may have achieved a higher percentage of treatments. Stewardship contracting can be a better tool than service contracts for ensuring that stand improvement treatments are completed.

Retain old character trees under 21 inches DBH. Some large trees that were less than 21-inches diameter but had old-growth characteristics (e.g., platy bark) were cut. Participants recommend writing prescriptions in the future to retain old character trees, not just the largest, most vigorous trees.

Retain historic mix of species.

Stop 2: Mid Maury II Unit 69

COPWRR Project-Level Ecosystem Monitoring Report Form

Project: West Maurys Fuels and Vegetation Management Project	
NEPA Authority Used: EIS	
Date: October 20, 2011	
Interdisciplinary Team / Forest Service Members Participating: Kate Klein (Forest Supervisor), Becky Kreachbaum (Silviculturist), Carl Maass (Contracting Officer), Rob Rawlings (Silviculturist), Bryan Scholz (Prescribed Fire Planner), Dede Steele (Wildlife Biologist), Robin Vora (Assistant Natural Resource Officer), Shelby Williams (Forester)	
Other Participants in Field Evaluation: Glen Ardt (Oregon Department of Fish & Wildlife), Pete Caligiuri (The Nature Conservancy), Phil Chang (Central Oregon Intergovernmental Council), John Chinnock (Citizen), Bill Dean (Bureau of Land Management – Prineville), Irene Jerome (American Forest Resource Council), Tim Lillebo (Oregon Wild), Marilyn Miller (Miller Conservation Consulting), Ann Moote (facilitator), John Morgan (Ochoco Lumber Co. and Crook County Natural Resource Committee), Don Rooper (Interfor), Don Wood (Crook County Natural Resource Committee)	
Unit: Mid Maury II Unit 69 (EIS Unit 253)	Acres in Unit: 80
Other Units being Monitored: Mid Maury II Unit 71 (EIS 375), Mid Maury II Unit 36 (EIS 405), Mid Maury Units 6-12 and West Aspen Units 3-5 (EIS 445, 476)	

Background

Purpose and Need

The Maury Mountains Watershed Analysis completed in 2000 shows that almost all plant communities are outside the historic range of variability. Forested stands are more susceptible to insects, disease, and wildfire. Stands are denser with more shade-tolerant species. Also, the amount of late and old structure (LOS) stands has decreased from a range of 10,500 to 19,600 acres dominated by large trees to about 880 acres today. Large trees are susceptible to mortality related to competition stress with smaller, understory trees. Fire suppression has allowed understory layers to develop with a resulting increase in stand density and an increase in competition stress. Fire suppression has also allowed the amount of fuels to increase. There are needs to:

1. Move the seral and structural conditions of forest stands towards their historic ranges of variability by (1) maintaining and increasing the amount of late and old structured stands, (2) increasing the resistance of forest stands to insects and diseases, and (3) maintaining and increasing broadleaf and shrub communities.
2. Move fire regimes towards their historic ranges of variability by (1) increasing the amount of low-intensity fire conditions, (2) maintaining low-intensity fire conditions where they already exist, and (3) decreasing the amount of high-intensity fire conditions.
3. Provide wood products to contribute to the health of the local and regional economies and provide opportunities for employment and income.

Reference: West Maurys Fuels and Vegetation Management Project FEIS and ROD

Management Objectives for Unit

1. Maintain and increase numbers of large trees. The criterion for LOS is 10 trees per acre 21 inches DBH and larger. Typical LOS stocking would be 18 trees plus.
2. Reduce risk of high intensity fire / stand replacing wildfire.

Post harvest stand condition: Basal area will range from 60 to 110 square feet per acre, depending on concentration of large trees. Large trees will appear more dominant. Species composition will be 95% ponderosa pine, 5% Douglas-fir/grand fir. The resulting stand should contain two or more age classes, exhibit multiple canopies, and have a higher proportion of early seral species.

References: Unit Prescription, West Maurys Fuels and Vegetation Management Project FEIS

Treatment Summary for Unit

Unit description

This commercial harvest unit is in moist pine LOS with patches of dry pine LOS, Douglas-fir LOS, and western juniper LOS. The understory includes pinegrass and bunchgrasses.

The unit includes the headwaters of Klootchman Creek, a Class IV stream. Part of the unit is within the Hammer Creek Wildlife/Recreation Management Area. A large heritage site and a scabland habitat (lithosol soils) within the unit were identified to be avoided during layout. There is a designated elk calving area within the unit, and a noxious weed site.

Prior to treatment, the unit was densely stocked, with a stand exam showing 660 trees per acre (basal area 269 square feet per acre). There was a low level of dwarf mistletoe but current bark beetle activity. Soils were very erosive but fairly deep. The prescription called for merchantable timber to be sold and removed from the stand.

Prescription:

Commercial thin: Thin from below for uneven-aged management using individual tree selection and tractor logging on existing trails. Do not cut trees 21 inches DBH or larger. Use spacing guide for moist pine sites (below). Reduce proportion of Douglas-fir and grand fir in areas with more than 25 percent by selecting for ponderosa pine. In the remaining areas, leave the biggest, most aggressive trees. Aggressively remove dwarf mistletoe infected trees. Remove Douglas-fir with any dwarf mistletoe and ponderosa pine with mistletoe rating of more than 2 (Hawksworth) regardless of spacing.

Timber stand improvement or reforestation needs: Precommercial thin following harvest, including the Riparian Habitat Conservation Area.

Fuel treatment: Grapple pile concentrations, staying on existing disturbance and building piles on temporary and decommissioned roadbeds.

Special considerations:

Riparian area: Active headcut on Klootchman Creek is to be treated before harvest. Follow all EIS guidelines for watershed resources (pp.40-41)

Elk calving area: No work from May 15 through June 15.

LOS: A Forest Plan amendment for this project allows commercial harvest in LOS areas with densities below their historic range of variability because the treatment goal is not timber production but to improve forest health and reduce mortality of larger trees.

Hammer Creek Management Area: No work from December 1 through May 1. Reconstruct any disturbed trail sections or signs.

Noxious weed area: No log hauling; no work from August 1 through August 30 to avoid seed dispersal. Do not burn within 100 feet of noxious weed infestation.

Scabland habitat (lithol soils): avoid; do not construct temporary landings or roads.

Soils: stay on existing trails to avoid soil compaction.

Treatment Summary for Unit (continued)

Snag requirements: 0.2 to 1.5 trees per acre greater than 20 inches DBH. 1.1 to 2.4 trees per acre less than 20 inches DBH.

Down wood requirements: Maintain between 2 and 6 pieces per acre (55 to 167 feet) minimum 6 feet long and 12 inches diameter at small end.

Spacing guide: Dry grand fir and mesic pine sites

Diameter (inches)	Spacing (feet)	Trees per acre	Basal Area sq.ft/acre
9	20	108	48
11	24	75	50
13	28	56	52
15	32	44	53
17	35	35	55
19	39	29	56
21	43	24	58
25	50	18	60
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References: West Maurys Fuels and Vegetation Management Project FEIS, Unit Prescription

Selected Implementation Guidelines, Management Measures, and BMPs to Evaluate

Extensive lists of design elements drawn from relevant laws, policies, standards, and guidelines apply to all of the action alternatives. Photocopies of these sections of the EIS will be available on the day of the field visit, including mitigation measures for:

- Soils
- Wildlife
- Noxious Weeds
- Sensitive Plant Species
- Watershed and Riparian Resources
- Recreation Resources
- Heritage Resources
- Air Quality/Prescribed Fire
- Water Quality/Fisheries

Reference: West Maurys Fuels and Vegetation Management Project FEIS

Unit Evaluation

Were the treatments implemented as described in the decision document or Record of Decision? Were the treatments implemented in accordance with the Selected Implementation Guidelines, Management Measures, and BMPs identified above? If not, please explain why.

Yes, except the prescribed burn has not yet been implemented. The group discussed the following aspects of the treatment:

Prescribed fire: Although the prescription calls for burning grapple piles this won't be necessary because the commercial thin was completed using whole-tree yarding so most slash ended up on landings. Underburning is planned to remove remaining slash. There is a lot of slash on this landscape that was there prior to treatment. The Forest plans to treat fuels by underburning unless the botanist determines the risk of spreading weeds is too great.

Noxious weeds: The group discussed noxious weed management, and particularly Canada thistle, which was evident on this unit. Canada thistle (technically not a noxious weed) dispersion is controlled by cleaning equipment prior to treatment. In some places (not here), a biotic treatment – introduced wasps – is being used to manage Canada thistle. Canada thistle is used by some wildlife species – elk and deer eat the new sprouts - and one participant said doves use thistle. Known noxious weed sites may be restricted from treatment. In some cases, the contractor may be required to clean equipment when moving it from unit to unit; that was not required on this project. Large noxious weed infestations may be excluded from burning, but it's not possible to exclude all small infestations. Chemical weed treatments may be used; the Ochoco National Forest has an agreement with Crook County to do this. No chemical treatments are currently being used on this project.

Soils: Logging trails and ruts were more evident on this unit, but soil disturbance was monitored and guidelines were met. There was a 100-foot spacing requirement for skid trails across this project.

Mistletoe in LOS: There was a question whether trees greater than 21 inches DBH would be removed if they had mistletoe. If mistletoe were found in a tree greater than 21 inches DBH that tree would probably be isolated by thinning around it and/or favoring alternative, non-host species, but would not be removed.

For each Management Objective for this Unit, please evaluate whether the objective has been achieved. If the objective has not been achieved, please comment on barriers, constraints, limitations, etc. and what might be needed for future projects to achieve the objective.

Participants said most management objectives were met as far as they could tell from viewing about 6 of the 80 acres on this unit.

Two riparian exclusions left dense patches in parts of this unit, which helped achieve seral and structural heterogeneity.

Because of the large number of trees 21-inch DBH and greater on this unit and because the two riparian buffers within the unit were excluded from thinning, there is some question whether the fire risk reduction goals were met. Participants thought this unit “would burn hot” and recommend precommercial thinning in the riparian buffer areas to reduce this risk. The basal area target was higher on this unit because of the number of large trees that had to be retained.

Project Evaluation

Were the results of this project what was anticipated and intended? Have treatments addressed the Purposes and Needs for this project? If not, why not?

Yes, although management constraints on cutting large trees and thinning in riparian buffers may have left fuel loads outside the historic range of variability, and the risk of spreading weeds on this unit may preclude prescribed burning.

Please share any observations or comments about the project planning, implementation, or results that are important to understanding management of this unit or important for improving future management in similar projects.

In terms of wildlife habitat, participants liked the patchy clumps left in this unit as a result of the riparian exclusions and liked that down wood and snags were retained in the leave patches.

Participants recommend precommercial thin in riparian buffers to reduce fuel load.

Stop 3: Mid Maury II Unit 36

COPWRR Project-Level Ecosystem Monitoring Report Form

Project: West Maurys Fuels and Vegetation Management Project	
NEPA Authority Used: EIS	
Date: October 20, 2011	
Interdisciplinary Team / Forest Service Members Participating: Kate Klein (Forest Supervisor), Becky Kreachbaum (Silviculturist), Carl Maass (Contracting Officer), Rob Rawlings (Silviculturist), Bryan Scholz (Prescribed Fire Planner), Dede Steele (Wildlife Biologist), Robin Vora (Assistant Natural Resource Officer), Shelby Williams (Forester)	
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Unit: Mid Maury II Unit 36 (EIS Unit 405)	Acres in Unit: 48
Other Units being Monitored: Mid Maury II Unit 71 (EIS 375), Mid Maury II Unit 69 (EIS 253), Mid Maury Units 6-12 and West Aspen Units 3-5 (EIS 445, 476)	

Background

Purpose and Need

The Maury Mountains Watershed Analysis completed in 2000 shows that almost all plant communities are outside the historic range of variability. Forested stands are more susceptible to insects, disease, and wildfire. Stands are denser with more shade-tolerant species. Also, the amount of late and old structure (LOS) stands has decreased from a range of 10,500 to 19,600 acres dominated by large trees to about 880 acres today. Large trees are susceptible to mortality related to competition stress with smaller, understory trees. Fire suppression has allowed understory layers to develop with a resulting increase in stand density and an increase in competition stress. Fire suppression has also allowed the amount of fuels to increase. There are needs to:

1. Move the seral and structural conditions of forest stands towards their historic ranges of variability by (1) maintaining and increasing the amount of late and old structured stands, (2) increasing the resistance of forest stands to insects and diseases, and (3) maintaining and increasing broadleaf and shrub communities.
2. Move fire regimes towards their historic ranges of variability by (1) increasing the amount of low-intensity fire conditions, (2) maintaining low-intensity fire conditions where they already exist, and (3) decreasing the amount of high-intensity fire conditions.
3. Provide wood products to contribute to the health of the local and regional economies and provide opportunities for employment and income.

Reference: West Maurys Fuels and Vegetation Management Project FEIS and ROD

Management Objectives for Unit

1. Maintain and increase numbers of large trees. The criterion for LOS is 15 trees per acre 21 inches DBH and larger on grand fir sites.
2. Maintain mosaic of early and mid seral species composition.
3. Reduce risk of high intensity fire / stand replacing wildfire.

Post harvest stand condition: Basal area will range from 50 to 70 square feet per acre, depending on the density of large trees. Large trees will appear more dominant but stand will have a high level of structural diversity. Species composition will be 70% ponderosa pine, 30% Douglas-fir/grand fir. Existing large trees will persist at lowered risk.

References: Unit Prescription, West Maurys Fuels and Vegetation Management Project FEIS

Treatment Summary for Unit

Pre-treatment conditions:

This is a dry grand fir unit mixed with ponderosa pine, western juniper, and Douglas-fir. Understory is dominated by pinegrass, currant, and snowberry. Soils are ashy. Springs have developed in a road cut, with a stand of willow. Pre-treatment, a stand exam found Douglas-fir had some dwarf mistletoe but often appeared vigorous, while grand fir had a low growth rate and often had stem disease. Tree density was 286 trees per acre and basal area was 119 square feet per acre. There is a patch of grand fir LOS in the middle of the unit, and an LOS connective corridor designated along a riparian area.

Prescription:

Commercial thin: Individual tree selection for uneven-aged management and tractor logging. Do not cut live trees 21 inches DBH or larger. Thin from below using spacing guide for moist pine sites (below). Reduce proportion of Douglas-fir and grand fir in areas with more than 25 percent by selecting for ponderosa pine. Remove slow-growing, low-vigor grand fir with sparse crowns where healthy replacement understory trees occur. Remove fir with dead tops. Aggressively remove dwarf mistletoe infected trees. Remove Douglas fir with any dwarf mistletoe and ponderosa pine with mistletoe rating of 1 or more (Hawksworth) regardless of spacing. There will often be smaller acceptable pine trees left in areas with severe Douglas-fir dwarf mistletoe.

Stand improvement or reforestation needs: Precommercial thin after harvest.

Fuel treatment: Grapple pine following precommercial thinning. Keep machinery on existing disturbance.

Special management requirements:

Snag requirements: 1 to 3.4 trees per acre >20 inches; 3.3 to 7.3 trees per acre <20 inches

Down wood: Maintain between 2 and 6 pieces per acre (81 to 257 lineal feet) minimum 6 feet long and 12 inches diameter at small end.

LOS: A Forest Plan amendments for this project allow commercial harvest in LOS areas with densities below their historic range of variability.

Connective corridors: A Forest Plan amendment for this project allows reducing canopy closure to less than 50% in connective corridors where the management goal is to improve forest health and reduce mortality of larger trees, not timber production.

References: West Maurys Fuels and Vegetation Management Project FEIS, Unit Prescription

Treatment Summary for Unit (continued)

Spacing guide: Dry grand fir and mesic pine sites

Diameter (inches)	Spacing (feet)	Trees per acre	Basal Area sq.ft/acre
9	20	108	48
11	24	75	50
13	28	56	52
15	32	44	53
17	35	35	55
19	39	29	56
21	43	24	58
25	50	18	60
30	59	13	63

References: *West Maurys Fuels and Vegetation Management Project FEIS, Unit Prescription*

Selected Implementation Guidelines, Management Measures, and BMPs to Evaluate

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- Watershed and Riparian Resources
- Recreation Resources
- Heritage Resources
- Air Quality/Prescribed Fire
- Water Quality/Fisheries

Reference: *West Maurys Fuels and Vegetation Management Project FEIS*

Unit Evaluation

Were the treatments implemented as described in the decision document or Record of Decision? Were the treatments implemented in accordance with the Selected Implementation Guidelines, Management Measures, and BMPs identified above? If not, please explain why.

Yes, overall treatments were implemented as specified. The Forest Service probably won't burn this unit because it was whole-tree yarded and there are no grapple piles. The group discussed the following aspects of the treatment:

Prescribed fire: The fuels specialist said that with the level of down fuels and fir on this unit it would be hard to find a window to burn without causing a lot of mortality in the large firs, so it would be better to let the down wood rot. There was a discussion of the option of jack-pot burning this unit. Probably the only window for jack-pot burning would be in the spring, which is a problem because spring burns tend to persist for long periods.

Snags: One participant asked whether it would have been desirable to make grand fir with sparse crowns into snags instead of removing them. Live and dead large grand fir provide nesting habitat. However, dead grand firs tend to come down quickly, so the snags would probably fall in 3 to 5 years. Some participants thought that it would still be desirable to make them into snags for wildlife habitat and then have the down wood after they fall.

LOS, forest structure, and HRV: One person asked whether more fir should have been removed from around large pines, since the intent was to improve resiliency in large pines. This led to a discussion of the likely historic range of variability of both forest structure and species on this unit. Some participants thought that since it is a north-facing slope with ashy soils and probably more moisture retention than other units it would have supported more and higher density patches and more fir than were called for in the prescription. Looking at the site evidence, others said they thought this unit might have been more of an open ponderosa pine stand than mixed conifer. Researchers from Missoula are currently researching fire dendrochronology in the Ochoco National Forest. Their results are showing a frequent fire return with no more than 30-year return intervals. This mean fire return interval makes the stand borderline between a frequent fire forest type and a mixed-severity forest type. However, the big pines that were present indicate a more frequent fire regime on this site. This suggests that participants were looking at a unique micro-topographic bench on a north slope with more well-drained soils that likely would have led that particular site to be more open and dominated by early seral species like ponderosa pine. There were different opinions about whether it is better to restore to pre-settlement conditions or to retain clumps and large firs found on the site whether or not they were there historically, to provide more spatial and species diversity across the landscape. One participant suggested that prescriptions could recommend appropriate proportions of low, moderate, and high basal area treatments (based on site productivity) throughout stands to help achieve spatial heterogeneity. Either way, with reproduction this site will have more small trees and more fir in a few years. The Forest Service expects the next entry for density control or regeneration will be in 20 years.

Mistletoe: There was a question why this prescription called for removing all mistletoe with a rating of 1 or more, when for other units it was for a rating of 2 or more. Answer: probably because this unit had less mistletoe and the silviculturist wanted to remove it all.

For each Management Objective for this Unit, please evaluate whether the objective has been achieved. If the objective has not been achieved, please comment on barriers, constraints, limitations, etc. and what might be needed for future projects to achieve the objective.

Yes.

Project Evaluation

Were the results of this project what was anticipated and intended? Have treatments addressed the Purposes and Needs for this project? If not, why not?

Generally, yes.

Please share any observations or comments about the project planning, implementation, or results that are important to understanding management of this unit or important for improving future management in similar projects.

As a general rule, participants would like to see leave patches built into all prescriptions.

When maintaining and increasing the number of large trees is a management goal, leave the largest trees even if they are under 21 inches DBH if it is economically feasible to do so. The species to be retained will depend on the prescription, however: some fast-growing species such as white fir can be as large as 20 inches DBH but only 70-90 years old and so may warrant cutting to protect true old-growth character trees.

Stop 4: Mid Maury Units 6-12 and West Aspen Units 3-5

COPWRR Project-Level Ecosystem Monitoring Report Form

Project: West Maurys Fuels and Vegetation Management Project	
NEPA Authority Used: EIS	
Date: October 20, 2011	
Interdisciplinary Team / Forest Service Members Participating: Kate Klein (Forest Supervisor), Becky Kreachbaum (Silviculturist), Carl Maass (Contracting Officer), Rob Rawlings (Silviculturist), Bryan Scholz (Prescribed Fire Planner), Dede Steele (Wildlife Biologist), Robin Vora (Assistant Natural Resource Officer), Shelby Williams (Forester)	
Other Participants in Field Evaluation: Glen Ardt (Oregon Department of Fish & Wildlife), Pete Caligiuri (The Nature Conservancy), Phil Chang (Central Oregon Intergovernmental Council), John Chinnock (Citizen), Bill Dean (Bureau of Land Management – Prineville), Irene Jerome (American Forest Resource Council), Tim Lillebo (Oregon Wild), Marilyn Miller (Miller Conservation Consulting), Ann Moote (facilitator), John Morgan (Ochoco Lumber Co. and Crook County Natural Resource Committee), Don Rooper (Interfor), Don Wood (Crook County Natural Resource Committee)	
Units: Mid Maury Units 6-12 and West Aspen Units 3-5 (EIS 445, 476)	Acres: ~150
Other Units being Monitored: Mid Maury II Unit 71 (EIS 375), Mid Maury II Unit 69 (EIS 253), Mid Maury II Unit 36 (EIS 405)	

Background

Purpose and Need

The Maury Mountains Watershed Analysis completed in 2000 shows that almost all plant communities are outside the historic range of variability. Forested stands are more susceptible to insects, disease, and wildfire. Stands are denser with more shade-tolerant species. Also, the amount of late and old structure (LOS) stands has decreased from a range of 10,500 to 19,600 acres dominated by large trees to about 880 acres today. Large trees are susceptible to mortality related to competition stress with smaller, understory trees. Fire suppression has allowed understory layers to develop with a resulting increase in stand density and an increase in competition stress. Fire suppression has also allowed the amount of fuels to increase. There are needs to:

1. Move the seral and structural conditions of forest stands towards their historic ranges of variability by (1) maintaining and increasing the amount of late and old structured stands, (2) increasing the resistance of forest stands to insects and diseases, and (3) maintaining and increasing broadleaf and shrub communities.
2. Move fire regimes towards their historic ranges of variability by (1) increasing the amount of low-intensity fire conditions, (2) maintaining low-intensity fire conditions where they already exist, and (3) decreasing the amount of high-intensity fire conditions.
3. Provide wood products to contribute to the health of the local and regional economies and provide opportunities for employment and income.

Reference: West Maurys Fuels and Vegetation Management Project FEIS and ROD

Management Objectives for Unit

1. Maintain and increase numbers of large trees. The criterion for LOS is 10 trees per acre 21 inches DBH and larger on moist ponderosa pine sites.
2. Reduce encroachment of western juniper.
3. Reduce risk of high intensity fire / stand replacing wildfire.
4. Reduce conifer displacement of aspen in RHCA. Maintain open meadows.
Promote development of large streambank pine.

Post harvest stand condition: Basal area will range from 40 to 60 square feet per acre. Stand will appear much more open. Species composition will be 95% ponderosa pine. Existing large trees will persist at lowered risk.

References: Unit Prescription, West Maurys Fuels and Vegetation Management Project FEIS

Treatment Summary for Unit

Pre-treatment conditions:

These units are in an even-aged ponderosa pine stand with juniper trees, seedlings, and saplings throughout. Snowberry, Oregon-grape, pinegrass, and Idaho fescue are common. The units contain Antelope Creek and a tributary, both Class III streams. Soils are moderately deep, erosive, ashy clay. A pre-treatment stand exam found 259 trees per acre and basal area of 122 square feet per acre.

Historically, this unit was open with large ponderosa pine. It contained a large aspen stand that was decimated by beaver in the late 1970s. Pre-treatment, there were vigorous aspen sprouts spaced about 50 feet apart throughout the former aspen stand. Part of the stand had converted to ponderosa pine, and juniper and pine seedlings and saplings were scattered throughout the meadow. Pine and juniper stocking on adjacent slopes were very high and had lowered water availability to aspen and limited the extent of aspen. Reducing competition to aspen in this drainage was a treatment goal.

Other features requiring special management attention include Riparian Habitat Conservation Areas (RHCAs), Elk Calving Areas, General Forest Winter Range, Peck's lily habitat, a goshawk post-fledgling area (PFA), noxious weed (Canada thistle) infestations, heritage sites, and a Visual Management Corridor on road 16.

Prescription:

Commercial thin: Thin from below using spacing guide for dry pine sites (below). In RHCAs include all aspen in spacing, but do not mark any conifer within 10 feet of stream bank. Do not cut live trees 21 inches DBH or larger. Average basal area post-harvest will be about 50 square feet per acre. Aggressively remove mistletoe infected trees. Remove ponderosa pine with dwarf mistletoe rating of 2 or more (Hawksworth) regardless of spacing. Mark trees with deformed tops.

Stand improvement: Precommercial thin after harvest. Cut juniper seedlings and saplings within RHCA. Thin conifers up to 9 inches DBH within 50 feet of aspen.

Fuel treatment: Underburn. Maintain high fuels within aspen clone to reduce animal use and to provide large woody material to riparian channel. Do not burn meadow.

Spacing guide: Dry pine sites

Diameter (inches)	Spacing (feet)	Trees per acre represented	Basal Area (sq. ft/ acre)
9	32	44	19
11	38	31	20
13	44	23	21
15	50	18	22
17	55	14	23
19	61	12	23
21	64	11	26
25	64	11	37
30	75	8	38

Treatment Summary for Unit (continued)

Special management requirements:

Riparian areas: Recommend using horse logging within RHCAs to minimize soil disturbance and allow access to excess trees. Do not cut any conifers within 10 feet of stream bank to maintain shade. Follow all EIS guidelines for watershed resources.

Elk Calving Areas: No work from May 15 through June 30.

General Forest Winter Range: No work from December 1 through May 1.

Peck's lily PCT: no work from April 1 through August 1.

Goshawk PFA: No work from March 1 through August 30.

Noxious weed infestations: No work from August 1 through August 30 to avoid spreading seed. Avoid Canada thistle infestations on road 1600 and in meadow on Antelope Creek. Re-use landings and limit additional soil disturbance.

Heritage sites: Avoid during layout.

Snag requirements: 0.2 to 1.5 trees per acre >20 inches; 1.1 to 2.4 trees per acre <20 inches

Down wood: Maintain between 1 and 5 pieces per acre (minimum 6 feet long and 12 inches diameter at small end).

References: *West Maurys Fuels and Vegetation Management Project FEIS, Unit Prescriptions*

Selected Implementation Guidelines, Management Measures, and BMPs to Evaluate

Extensive lists of design elements drawn from relevant laws, policies, standards, and guidelines that apply to all of the action alternatives. Photocopies of these sections of the EIS will be available on the day of the field visit, including mitigation measures for:

- Soils
- Wildlife
- Noxious Weeds
- Sensitive Plant Species
- Watershed and Riparian Resources
- Recreation Resources
- Heritage Resources
- Air Quality/Prescribed Fire
- Water Quality/Fisheries

Reference: *West Maurys Fuels and Vegetation Management Project FEIS*

Unit Evaluation

Were the treatments implemented as described in the decision document or Record of Decision? Were the treatments implemented in accordance with the Selected Implementation Guidelines, Management Measures, and BMPs identified above? If not, please explain why.

Yes, except that some units have not yet been treated and the meadow will be burned (the prescription specified that the meadow should not be burned).

Meadow burning: Piles will be burned before broadcast burns. The prescription for Mid-Maury Units 10&11 was changed in mid-2008 to allow meadow burning, because Forest Service staff determined that the restoration objectives of the project can be better met with use of some prescribed fire. Biologists will determine when it should be burned (will be a fall burn). Burning may stimulate aspen sprouts; if aspen sprout after a burn, they will be protected from browsing.

For each Management Objective for this Unit, please evaluate whether the objective has been achieved. If the objective has not been achieved, please comment on barriers, constraints, limitations, etc. and what might be needed for future projects to achieve the objective.

Objectives 1, 3, and 4 have been met. The objective to reduce western juniper encroachment will be met when the units are burned.

This treatment did a great job of providing conditions for aspen regeneration. The thinning has opened the canopy, providing warmth to the soil.

Project Evaluation

Were the results of this project what was anticipated and intended? Have treatments addressed the Purposes and Needs for this project? If not, why not?

Yes, conditions are more conducive to aspen regeneration and will be more so once the burning is done and upland treatments are completed. It may be desirable to protect new aspen from browsing by fencing areas with new sprouts.

Please share any observations or comments about the project planning, implementation, or results that are important to understanding management of this unit or important for improving future management in similar projects.

It's great to see aspen included throughout the West Maurys project.

Monitor aspen regeneration. Monitor before and after burning to see if new aspen sprouts need to be protected from browse.

Horse logging may limit treatment. The three West Aspen units will be horse logged; however, finding contractors with horses is a problem. Snow logging is an alternative to horse logging on wet soils, but it is hard to plan for snow and sites may not be accessible. Units that were completed in the West Aspen Timber Sale used different equipment to achieve low impact objectives, including a tracked machine (lower psi) rather than a rubber tire skidder (higher psi) to get the logs to the landings, as well as cable winching of logs out of the wet areas.

Make post-NEPA changes more transparent. If a prescription changes from what is specified in the EIS, but the change is within the scope of intent or will have a lesser effect, a letter is written to the file changing the EIS. A participant suggested that when changes are made to the EIS, all those who commented on the EIS should receive notice of the change.