

Deschutes Collaborative Forest Restoration and COPWRR Project-Level Ecosystem Monitoring Report Form

Project: Sisters Area Fuels Reduction Project (SAFR)	
NEPA Authority Used: Environmental Assessment	
Date: June 21, 2011	
Interdisciplinary Team / Forest Service Members Participating: Brian Tandy (Silviculturist), Steven Orange (Contract Administrator), Monty Gregg (Wildlife Biologist), Ingrid Anderson (Pre-sale Forester), Bill Anthony (District Ranger), Bob Flores (Natural Resources Team Leader), Dave Moyer (C.O.R.), Kayla Herriman (Silv Ops), Carl Maass (Timber Sale Contracting Officer), Tom Mafera (Deschutes and Ochoco Vegetation Management Staff Officer)	
Other Participants in Field Evaluation: Glen Ardt (Oregon Department of Fish & Wildlife), Jack Barringer (Black Butte Ranch), Pete Cagliuri (The Nature Conservancy), Phil Chang (Central Oregon Intergovernmental Council/co-facilitator), John Chinnock (Bend resident), Amanda Egertson (Deschutes Land Trust), Gary Guttormsen (Sisters Trail Alliance, Oregon Wild), Ross Holloway (Sisters resident, forestry consultant), Chris Johnson (Interfor Pacific), Jim Larsen (Upper Deschutes River Coalition), Tim Lillebo (Oregon Wild), Kreg Lindberg (OSU-Cascades), Gary Marshall (Bend Fire Department), Marilyn Miller (Miller Conservation Consulting), Ann Moote (consultant, co-facilitator), Jen O'Reilly (US Fish & Wildlife Service), Darek Staab (Trout Unlimited), Bill Swarts (Cascade Timberlands LLC), Alan Unger (Deschutes County Commissioner)	
Units: Comet Unit #2 (EA Unit #115)	Acres in Units: 139
Other Units being Monitored: Cosmo 999 – old growth and black bark areas	

Background

Purpose and Need

The purpose of the SAFR project is to protect structures, property, and human life and safety; improve forest health; and restore the role of fire within the Greater Sisters Area Wildland-Urban Interface. Existing fuel loadings are outside the historic range of natural variability. There is a need to reduce the threat of high intensity wildfire by reducing high levels of unwanted hazardous forest fuels. This could be accomplished by moving the project area to the desired future condition of a more open, large tree dominated ponderosa pine forest that is less susceptible to large-scale, stand-replacing fires.

Three goals were established for the area to meet the purpose and need for this project:

1. Improve forest health, sustainability, and resiliency and promote the development of old growth forest stands and large trees by reducing the uncharacteristically high levels of competing live vegetation and reintroducing the more natural role of low intensity ground fire.
2. Reduce the risk of high intensity wildfires to nearby communities, private properties, and special natural places by reducing uncharacteristically high levels of hazardous fuels in ground, ladder and canopy vegetation.
3. Reduce the risk of high intensity fire to public and fire fighter safety.

Reference: SAFR Environmental Assessment, Record of Decision, and Implementation Plan

Management Objectives for Unit

1. Maintain old growth trees.
2. Maintain and increase numbers of large trees.
3. Reduce risk of high intensity stand replacing wildfire.
4. Reduce stand density to improve forest health.
5. Maintain and improve long-term scenic quality.

References: Comet Project Silviculture Prescription

Treatment Summary for Unit

This unit is dominated by second growth/black bark ponderosa pine. There are widely scattered old growth overstory ponderosa pine throughout the unit. Western juniper can be found throughout the unit in all structural size classes from old growth to seedlings. The unit is in both MA-7 Deer Habitat and Biological Winter Range for deer.

Treatment will be thinning from below, removing smaller second growth trees and favoring ponderosa pine over western juniper. Landing piles will be burned and 7 of the 139 acres will be masticated and broadcast burned to remove brush and small trees.

Thinning trees 8-20.9" dbh: Thin from below to create a "gappy, patch, clumpy" arrangement. Patch/clump size can vary between 1 and 2 to as many as 10 or 20 or more trees. Resultant tree densities will vary widely; however, averages will be: 63 trees per acre, 26-foot spacing between trees, Basal Area 50-60.

All old growth trees and trees over 21 inches diameter at breast height will be retained. Thinned trees will always be the smaller trees at any particular location with three exceptions: 1) a smaller tree is healthier than a larger tree (has a better chance for long-term presence on the landscape), 2) a smaller tree is a more desired species than a larger tree, 3) a smaller tree has desirable old-growth characteristics.

Leave the largest, healthiest trees available with the least bole defect. Trees with bole defects can be left if needed to meet density or spatial arrangement specifications.

Remove second growth trees from around old growth trees to leave no more than 20 basal area around old growth trees.

Only leave second growth western juniper when needed to meet density or spacing objectives.

Thinning trees under 8" dbh: Reduce ladder fuels by removing trees <8" dbh adjacent to overstory trees and breaking up the crown spacing of small trees. Trees <8" dbh should be spaced 25 feet off larger residual trees. Where there are no trees greater than 8" dbh, smaller trees should be spaced from 5 to 40 feet apart.

Selection of species to leave, from most desirable to least desirable, is: ponderosa pine, western juniper, and white fir. Retain rare species such as Engelmann spruce, white pine, and lodgepole pine. Retain western juniper and white fir only when there are no healthy ponderosa pine to leave.

Retain small old growth trees with healthy crowns, especially those adjacent to or mixed in with larger old growth trees. Retain the largest, healthiest, most disease-free trees available from mainly the dominant and co-dominant crown classes. Remove younger trees under 8" dbh that are adjacent to overstory trees. Reduce dwarf mistletoe infection if found.

Mule Deer cover and forage and Forest Plan Amendment: This unit is in Biological Winter Range and Deer Habitat (MA-7). Deer winter range consists of pine-juniper/sagebrush-bitterbrush/fescue, pine/bitterbrush/fescue, and pine/bitterbrush-manzanita/fescue ecotypes. Deer Habitat is managed for thermal (canopy) cover, hiding cover, travel corridors, and forage.

To effectively treat hazardous fuels and defensible space around private property, the Forest Plan Standards and Guidelines for Deer Habitat have been amended as described below.

Defensible space: Areas within 600 feet of private property are treated to reduce hazardous fuels. Percent cover and forage requirements for Deer Habitat do not apply in these areas. Also, blocks treated with mastication and burning may be larger and more closely spaced than allowed in the Forest Plan, so that fuel loadings can be reduced adjacent to private holdings.

Forage: Outside of defensible space areas, Deer Habitat in the SAFR project should be managed for 33% of shrubs in an early seral condition, 33% in a mid seral condition, and 33% in a late seral condition. Defensible space will remain in an early seral stage and not be included in the 33% calculations. The amendment removes the Forest Plan standard limiting the use of prescribed fire to 2% to 2.5% of Deer Habitat in a year.

Cover: Deer Habitat in the SAFR project shows very few areas that can support a crown cover greater than 40% as recommended in the Forest Plan. Instead, different qualities of thermal cover will be recognized and managed for, including hiding cover. No-treatment clumps have been identified to provide hiding cover for a total of 40% cover. Canopy cover will be retained in all stands having 30% or more canopy cover.

References: SAFR Environmental Assessment, SAFR and Comet Implementation Plans, Comet Silviculture Prescription

Selected Implementation Guidelines, Management Measures, and BMPs to Evaluate

An extensive list of design elements drawn from relevant laws, policies, standards, and guidelines apply to all of the action alternatives. Photocopies of this section of the EA will be available on the day of the field visit, including mitigation measures for:

- | | |
|----------------|------------------------------------|
| Air Quality | Recreation/Social Concerns |
| Wildlife | Plants (TES species and invasives) |
| Soils | Scenic Quality |
| Hydrology/Fish | Cultural (Heritage) Resources) |

Reference: SAFR Environmental Assessment, pages 66-75

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.

The group thought treatments were implemented as described in the EA and ROD. There were specific discussions of wildlife clumps, snags, recreational trails, and ladder fuels.

Wildlife Clumps

Since thermal cover specifications were not available on this unit, the Forest Service worked with Oregon Department of Fish and Wildlife to identify the best cover available. Wildlife leave clumps were located around rock outcrops, downed logs, and snags and in areas with good hiding cover. These clumps, along with prescription specifications, created the desired gappy, clumpy, patchy spatial tree arrangement. Participants thought the clumps did a “great job emulating natural forest structure.”

Snags

This unit has very few snags. White-headed woodpecker and other pine-obligate species need snags, and some participants would have liked to see snags created as part of the treatment. The prescription did not call for creating new snags, but they will be created indirectly by opening up the landscape and from prescribed burns. If large trees are grown they will also eventually recruit to snags. Agency specialists do not recommend inoculating trees to draw insects, because it is very costly and in past experience didn’t work well – the inoculated trees didn’t die. One person noted that there is a difference among snags created by beetle kill and snags created by fire kill; they are used by different species and fire created snags may be shorter lived. In future it could be possible to do snag creation in plantations, where the district is experimenting with different treatments, but they will be in small trees. One participant noted that on the Oz project hairy woodpeckers are using created snags, even though they’re small, and recommended creating snags in future treatments. One participant put out a goal of 2-3 snags per acre for white headed woodpeckers and asked for a strategy for snag creation.

One person expressed concern that snags draw lightning and cause fire. Agency specialists said that tall green trees draw lightning too – there’s not a big difference (although snags do burn more easily). When the canopy has been opened up a tall snag or green tree may torch but is less likely to cause a crown fire. However, the agency does look at snag distribution by plant association group and removes some snags where they are denser.

Trails

One horse trail and one mountain bike trail pass through this unit. Forest Service recreation specialists and landscape architects recommended treating the trails the same as the rest of the unit. However, when Sisters Trail Alliance members saw the number of marked trees along the Petersen Ridge Trail they were concerned that the treatment would reduce the slalom quality of the trail by removing “trail-defining trees” for bicyclists to weave between. The contracting officer worked with the Trails Alliance to re-mark trees

along the trail. He also worked with the contractor to create a 400-foot temporary road so the landing could be moved away from the trail and redesigned the skid trails for fewer crossings.

The changes to maintain recreational quality did require tradeoffs. There are only two landings on this 140-acre unit, which means landings are large and trees have to be hauled longer distances. Having only one skid trail instead of four cross the mountain biking trail means there will be more soil impacts on that skid trail. Agency staff suggested that the first few passes on a skid trail create most of the impact, so the impacts on the one major skid trail may add up to less than the impacts of having three to five lower use skid trails. One participant suggested returning in five years to evaluate how well the soil has recovered. Leaving more trail-defining trees changes the unit's appearance, because it leaves a strip of trees along the trail while the rest of the unit has a "clumpy, gappy" appearance. It was suggested that this could be addressed in planning by placing wildlife clumps along trails, but wildlife biologists thought disturbance from a trail running through the clumps would make for poor wildlife habitat. In other places (e.g., the West Bend project), mountain bikers want to leave trail-defining shrubs. This can create a conflict with wildfire risk reduction, particularly if prescribed burns are planned. In areas where there are high volumes of mountain bike use (and dogs), impacts on wildlife are believed to be significant.

The recreationists and the Forest Service connected early enough that skid trails and landings were planned around recreational use. Coordination ideally would happen earlier in relation to tree marking in the future. This is the responsibility of both the Forest Service and the recreational community. On this project trees were marked, then recreationists expressed concerns, and then trees were re-marked, creating inefficiencies in project prep. How can recreationists engage earlier in project design/planning to avoid this in the future? Are trail defining trees something new that marking crews need to be trained in? One thought on how to ensure needed communication was to include both current trails and future planned recreational trails in NEPA analysis. Overall, however, the group was impressed with the treatment and accommodations made to maintain recreational quality.

Fire risk

This unit will not be mowed or burned because it is designated deer winter range. One participant was concerned that leaving bitterbrush under dead tree limbs leaves this unit susceptible to crown fires. The fuels specialist said that because the treatment reduced the number of smaller trees and opened the canopy it would now take a much higher wind to get a crown fire in this unit. It was estimated that the unit would have to be re-thinned in 20 to 50 years.

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.

The group thought the management objectives were met. All old growth trees were maintained. Numbers of large trees will be increased because the treatment opened stands

and reduced competition. The thinning-from-below treatment reduced the risk of high intensity, stand replacing wildfire and reduced stand density to improve forest health. Long-term scenic quality was maintained along trails by moving the landing site away from trails, revising the skid trail pattern for fewer trail crossings, and re-marking to leave more “trail defining” trees.

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 group thought the purpose and needs were met and the contractor is doing a great job.

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.

The silviculturist did demonstration markings for the marking crews and went out with each marking crew to make sure everyone understood the prescription. This helped ensure that the treatment goals were met.

It is desirable to create snags in areas with low snag density, even if they will be small. Some species will use small snags.

It is important to leave “trail defining trees” next to mountain biking trails. These are trees very close to the trail that mountain bikers have to weave between, creating a sort of slalom course.

Ongoing communication with stakeholders can reduce conflict and create results that everyone likes. In this case the contracting officer talked with Sisters Trail Alliance members 30-40 times over a three month period to ensure that the agency and contractor understood the mountain bikers’ concerns and the Trail Alliance understood the agency’s and operator’s constraints.

It is not feasible to create skid trails parallel to a winding trail.

The four structural class categories used in the prescription (old growth, second growth, tweeners, and young growth) came out of learning from the Glaze project.

Sisters RD staff provided an overview of the costs of implementing this project. Logging costs, plus a portion of the service costs were covered by the saw log value. The small tree thinning and biomass removal cost \$380/acre.

Cosmo – black bark

Project: Sisters Area Fuels Reduction Project (SAFR)
NEPA Authority Used: Environmental Assessment
Date: June 21, 2011
Interdisciplinary Team / Forest Service Members Participating: Brian Tandy (Silviculturist), Steven Orange (Contract Administrator), Monty Gregg (Wildlife Biologist), Ingrid Anderson (Pre-sale Forester), Bob Flores (Natural Resources Team Leader), Dave Moyer (C.O.R.), Kayla Herriman (Silv Ops), Carl Maass (Timber Sale Contracting Officer), Tom Mafera (Deschutes and Ochoco Vegetation Management Staff Officer)
Other Participants in Field Evaluation: Glen Ardt (Oregon Department of Fish & Wildlife), Jack Barringer (Black Butte Ranch), Pete Cagliuri (The Nature Conservancy), Phil Chang (Central Oregon Intergovernmental Council/co-facilitator), John Chinnock (Bend resident), Amanda Egertson (Deschutes Land Trust), Gary Guttormsen (Sisters Trail Alliance, Oregon Wild), Ross Holloway (Sisters resident, forestry consultant), Chris Johnson (Interfor Pacific), Jim Larsen (Upper Deschutes River Coalition), Tim Lillebo (Oregon Wild), Kreg Lindberg (OSU-Cascades), Gary Marshall (Bend Fire Department), Marilyn Miller (Miller Conservation Consulting), Ann Moote (consultant, co-facilitator), Jen O'Reilly (US Fish & Wildlife Service), Darek Staab (Trout Unlimited), Bill Swarts (Cascade Timberlands LLC), Alan Unger (Deschutes County Commissioner)
Unit: Cosmo 999 - Second growth/black bark (EA#s 129,131,262,267) Acres in Unit: 407
Other Units being Monitored: Comet Unit #2, Cosmo 999 – old growth

Background

Purpose and Need

The purpose of the SAFR project is to protect structures, property, and human life and safety; improve forest health; and restore the role of fire within the Greater Sisters Area Wildland-Urban Interface. Existing fuel loadings are outside the historic range of natural variability. There is a need to reduce the threat of high intensity wildfire by reducing high levels of unwanted hazardous forest fuels. This could be accomplished by moving the project area to the desired future condition of a more open, large tree dominated ponderosa pine forest that is less susceptible to large scale, stand replacing fires.

Three goals were established for the area to meet the purpose and need for this project:

1. Improve forest health, sustainability, and resiliency and promote the development of old growth forest stands and large trees by reducing the uncharacteristically high levels of competing live vegetation and reintroducing the more natural role of low intensity ground fire.
2. Reduce the risk of high intensity wildfires to nearby communities, private properties, and special natural places by reducing uncharacteristically high levels of hazardous fuels in ground, ladder and canopy vegetation.
3. Reduce the risk of high intensity fire to public and fire fighter safety.

Reference: SAFR Environmental Assessment and Record of Decision

Management Objectives for Unit

1. Maintain old growth trees.
2. Maintain and increase numbers of large trees
3. Reduce risk of high intensity stand replacing wildfire.
4. Reduce stand density to improve forest health.
5. Maintain and improve long-term scenic quality.

References: Cosmo 999 Project Silviculture Prescription

Treatment Summary for Unit

This part of the unit is dominated by second growth / black bark ponderosa pine. Treatment will consist of thinning from below, followed by mowing and burning. Burning piles will also be burned. Removed trees will always be the smaller trees except where a smaller tree is a species other than ponderosa pine, has old growth characteristics, or is healthier. No trees over 21 inches diameter at breast height (dbh) will be removed.

Second-growth trees 8-20.9" dbh: Thin from below to create a "gappy, patch, clumpy" arrangement. Patch/clump size can vary between 1 and 2 to as many as 10 or 20 or more trees. Resultant tree densities will vary widely; however, averages will be:

Average residual DBH (in.)	Average basal area	Average spacing (ft.)
8-12	30	23-34
12-16	50	26-35
16-21	70	30-39
21+	90	35-49

Thinned trees will always be the smaller trees at any particular location with three exceptions: 1) a smaller tree is healthier than a larger tree (has a better chance for long-term presence on the landscape), 2) a smaller tree is a more desired species than a larger tree, 3) a smaller tree has desirable old-growth characteristics. Do not remove any tree species other than ponderosa pine.

Second-growth trees under 8" dbh: Thin to an average of 5-20 trees per acre. Retain all small old growth trees with healthy crowns, especially those adjacent to or mixed in with larger old growth trees. Retain the largest, healthiest trees available from mainly the dominant and co-dominant crown classes. Remove younger trees under 8" dbh that are adjacent to overstory trees.

Selection of species to leave, from most desirable to least desirable, is: ponderosa pine, western juniper, and white fir. Retain rare species such as Engelmann spruce, white pine, and lodgepole pine. Reduce dwarf mistletoe infection if found.

Trees <8" dbh should be spaced 30 to 40 feet off larger residual trees. Where there are no trees greater than 8" dbh, smaller trees should be spaced from 5 to 40 feet apart.

Wildlife clumps: Approximately 10 percent of the unit will be left in unthinned clumps to provide visual screening.

Scenic corridors: The Metolius-Windigo trail runs through this unit and the 15 Road is adjacent to a section of the unit. Scenic quality mitigation measures apply in the area 0-300 feet from the scenic trail and road.

References: SAFR Environmental Assessment, SAFR and Comso 999 Implementation Plans, and Cosmo 999 Project Silviculture Prescription

Selected Implementation Guidelines, Management Measures, and BMPs to Evaluate

An extensive list of mitigation measures drawn from relevant laws, policies, standards, and guidelines apply to all of the action alternatives. Photocopies of this section of the EA will be available on the day of the field visit, including mitigation measures for:

Air Quality	Recreation/Social Concerns
Wildlife	Plants (TES species and invasives)
Soils	Scenic Quality
Hydrology/Fish	Cultural (Heritage) Resources)

Reference: SAFR Environmental Assessment, pages 66-75

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.

Marking

Marking this unit was challenging because of the variety of stand conditions – some old growth and some second growth mixed together. This diversity and the desire to produce clumps may have contributed to the unit being under-marked (the target was an average 80 basal area, with some stands over 80 and some stands under). In some areas trying to create heterogeneity does not work well and feels “forced.” Another aspect of the marking challenge is that the Sisters RD has used other Districts marking crews to do the marking on SAFR. Using other Districts crews, having turnover within those crews, and having a more novel and complex prescription can make it hard to get the desired marking too. Ideally, a silviculturist would be able to work with a crew for a year to get them very proficient at producing this kind of mark. Many participants on the field visit felt that marking this unit more heavily would have better achieved the Purpose and Need and Management Objectives for the project.

Wildlife cover

Was the 10% requirement met? Not if you include defensible space and scenic corridors, but when those are taken out of the equation (as allowed by the Forest Plan amendment), the leave clumps plus untreated sections of the unit bring the total wildlife cover up to over

10%. In addition, there are no-treatment areas throughout the project area that help to bring up the total cover area.

Wildlife

The silviculturist, monitoring crew, and contracting officer continually check for wildlife sign. The entire area is surveyed for special species. If bird nests are found, work is suspended and the nests monitored until the birds fledge. Monitoring includes several visits at different times of day, including morning and evening. For example, on another SAFR unit a red tail hawk nest was found. Operations were suspended in the nest area until the seasonal closure period ended.

This unit was mowed with a deck mower on a skid steer. This is not deer winter range so mowing is acceptable here.

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.

The treatment met the objectives for old growth retention and increasing the numbers of large trees. It also helped to maintain and improve scenic quality. But the group was concerned that the undermarking still left the stands in this unit vulnerable to high intensity fire and forest health stressors. One participant felt that we could have taken out another 1/3 of the trees to get closer to the density desired to reduce wildfire risk, and the site may have to be thinned again in 10 years. (The Forest Service typically would plan to re-enter a site like this in 20 to 40 years). Another participant said there may be more bug kill in future due to dense crown spacing. When the prescribed fire treatment has been completed it may help to further reduce densities as well as create more gaps and spatial heterogeneity and create some snags too.

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 group said treatment in this section of the unit was “a step in the right direction” towards meeting the Purpose and Need. Participants agreed that more black bark trees should have been removed to achieve forest health and wildfire risk reduction goals.

One person would have like to see aspen stand enhancement included in the project activities, to address conifer encroachment. Aspen stand treatments were originally included in SAFR but had to be dropped because of HFRA/NEPA constraints. HFRA steered the District towards a more narrowly focused project and aspen restoration fell outside this scope.

There was extensive discussion of prescribed burning and understory condition. One participant asked when this unit would be burned. Fuels specialists thought that the burn

would occur one year from now. Typically it happens two years after mechanical treatment, to build up litter to carry the fire and allow shrubs to establish. This raised questions about what the desired future condition for the understory should be and what treatments would achieve and maintain that. One suggestion was that we need more grasses and forbs and less bitterbrush in the understory in Ponderosa pine forest. To achieve this we would need to burn sooner after the mechanical treatment, return to sites with fire every 5 years or so, and burn more acres annually. There are social, air, and financial constraints to burning that frequently. Right now the Sisters RD is burning about 1000 acres per year. Within the SAFR project alone there will be 15,000 acres treated that will need fire afterwards. The need for maintenance burning across the District is huge as well – probably 2500 to 5000 acres per year. A first burn after mechanical treatment probably costs about \$80 to \$100 per acre. Maintenance burns after that probably cost \$60 to \$80 per acre. Even if we had all the funding we needed there would still be air/smoke emissions constraints and resident concerns about fire risk and smoke that would be a barrier to more burning. The agency is doing more let-burn of natural fires in areas that have been thinned. Mowing can help to achieve some of the objectives of burning and does not have as many emissions and social concerns. But mowing costs \$100 per acre and does not achieve all the resource goals of burning. Opening up the canopy a bit more would also improve grass and forb regeneration.

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.
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Marked black bark stands can “look like a sea of blue paint,” but after cutting still look dense. In this case, wider gaps between clumps would have been better and potentially 1/3 more trees should have been cut.

The silviculturist found that markers had trouble not doing evenly-spaced marking , so now the leave clumps are marked so that the results is more clumpy/gappy.

One participant asked whether there was dwarf mistletoe in the SAFR project area. Answer: not in the units we will see today, but in the southern part of the project area there is some. The plans there are to thin from below and the Forest Service believes that should be a sufficient treatment (no regeneration harvest planned).

It may be possible to finance more mowing and burning when stewardship contracts are used rather than timber contracts, because retained receipts can be used to finance these activities.

Cosmo – old growth

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Unit: Cosmo 999 - old growth (EA #s 129, 131, 262, 267) Acres in Unit: 407
Other Units being Monitored: Comet Unit 2 and Cosmo 999 -black bark

Background

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3. Reduce the risk of high intensity fire to public and fire fighter safety.

Reference: SAFR Environmental Assessment and Record of Decision

Management Objectives for Unit

1. Maintain old growth trees.
2. Maintain and increase numbers of large trees.
3. Reduce risk of high intensity stand replacing wildfire.
4. Reduce stand density to improve forest health.
5. Maintain and improve long-term scenic quality.

Reference: Cosmo 999 Project Silviculture Prescription

Treatment Summary for Unit

This part of the unit is dominated by large, old growth ponderosa pine with little understory. Treatment will remove only smaller second-growth black-bark trees. No trees greater than 21 inches dbh will be cut. Treatment will include thinning trees, masticating (mowing) shrubs and seedlings, underburning, and burning landing piles.

Late and old structure trees (LOS): All old growth trees will be left regardless of size, conditions, or spatial arrangement. Younger trees will be removed from around old growth trees, leaving only 20 basal area around each old growth tree.

Second-growth trees 8-20.9" dbh: Thin from below to create a "gappy, patch, clumpy" arrangement. Patch/clump size can vary between 1 and 2 to as many as 10 or 20 or more trees. Resultant tree densities will vary widely; however, averages will be:

Average residual DBH (in.)	Average basal area	Average spacing (ft.)
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Second-growth trees under 8" dbh: Thin to an average of 5-20 trees per acre. Retain all small old growth trees with healthy crowns, especially those adjacent to or mixed in with larger old growth trees. Retain the largest, healthiest trees available from mainly the dominant and co-dominant crown classes. Remove younger trees under 8" dbh that are adjacent to overstory trees.

Selection of species to leave, from most desirable to least desirable, is: ponderosa pine, western juniper, and white fir. Retain rare species such as Engelmann spruce, white pine, and lodgepole pine. Reduce dwarf mistletoe infection if found.

Trees <8" dbh should be spaced 30 to 40 feet off larger residual trees. Where there are no trees greater than 8" dbh, smaller trees should be spaced from 5 to 40 feet apart.

Wildlife clumps: Approximately 10 percent of the unit will be left in unthinned clumps to provide visual screening.

Scenic corridors: The Metolius-Windigo trail runs through this unit and the 15 Road is adjacent to a section of the unit. Scenic quality mitigation measures apply 300 feet either side of the scenic trail and road.

References: SAFR Environmental Assessment, SAFR and Comso 999 Implementation Plans, and Cosmo 999 Project Silviculture Prescription

Selected Implementation Guidelines, Management Measures, and BMPs to Evaluate

An extensive list of mitigation measures drawn from relevant laws, policies, standards, and guidelines apply to all of the action alternatives. Photocopies of this section of the EA will be available on the day of the field visit, including mitigation measures for:

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Wildlife	Plants (TES species and invasives)
Soils	Scenic Quality
Hydrology/Fish	Cultural (Heritage) Resources)

Reference: SAFR Environmental Assessment, pages 66-75

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.

This site was visited one year post-thinning. It includes old growth, "tweener," second-growth, and plantation patches. The silviculturist is monitoring this unit, looking at basal area, tree diameter, and tree character on one plot per acre. Post-treatment, basal area in all plots averages 90; ideally it would be closer to an average of 80 to reduce fire risk and improve forest health. However, in some areas, all of the trees had diameters over 21 inches or old growth characteristics and so no trees were cut. In other areas, marking could have been a little heavier. The Forest Service silviculturist estimated that the difference between an average of 80 and 90 basal area was probably one black bark tree per basal area plot (about 3-4 trees per acre). Discussions at this site addressed wildlife cover, monitoring, and the benefits of stewardship contracts.

Wildlife cover

One participant asked whether the requirement to leave 10% of the unit in wildlife clumps was met. On parts of this unit it was difficult to achieve 10% cover, because old growth areas offer virtually no hiding cover and the black bark stands haven't been thinned in over ten years and so offer little hiding cover. Forest Service staff said that on this district they manage on a watershed/landscape basis rather than a unit basis, so they plan to meet for wildlife cover requirements across the watershed, if not on every unit. However, the intention of 10% cover was met on this unit except in defensible space, which was excluded by the Forest Plan amendment. Technically, the cover retention requirement is higher in old growth stands than in black bark, so the 30% goal for old growth would be very hard to meet in this unit.

Monitoring

It took one person approximately 40-50 hours to measure basal area, diameter, and tree character on almost 250 plots in this unit. Plots were located on a grid, with one plot per treated acre. The monitoring cost \$3,200, or \$13/plot. The monitoring was paid for with ARRA funds. Also, the silviculturist took panoramic photos at designated points, which work better than traditional one-shot photo points when the goal is a clumpy/gappy structure. Participants thought the panoramic photos did a good job of showing before and after conditions and particular heterogeneity across the landscape.

Stewardship versus timber and service contracts

If this unit had been treated using traditional timber and service contracts, it would have taken 2 or 3 years and required several entries. Because the commercial thinning and service work were completed together under a stewardship contract, the work was done in one month and a single entry. Also, a stewardship contract, unlike a timber sale contract, requires that the agency use best value contracting, taking into account contractors' past performance and work quality. The downside of using a service stewardship contract (IRSC) is that the money has to be available up front. The district doesn't have to wait for funds to contract a timber sale or a timber sale stewardship contract (IRTC). IRTCs can be used when the product value is higher than the cost of the service work.

Receipts from IRTCs can be used for service work on the same or other stewardship projects. This unit generated approximately 1,000-2,000 board feet of saw log per acre, which is fairly low volume. If additional saw log material could have been removed the gap between costs and receipts could have been narrowed further and fewer appropriated dollars would have been needed to implement the treatment. Removing another 5 or more saw log size trees per acre could have lowered the need for appropriated dollars to zero and possibly generated retained receipts, in which case the only up-front cost would be the prep work. Since post-treatment the plots averaged 90 basal area while the goal was approximately 80 basal area, removing more trees would have better met the prescription goals.

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.

The group agreed that management objectives were met, particularly the objectives to maintain old growth trees, maintain and increase numbers of large trees, and maintain and improve long-term scenic quality. Participants agreed that the risk of high intensity, stand-replacing wildfires had been reduced and stand density reduced to improve forest health, although there were places where more trees could have been removed. In reference to scenic quality, one commented, "This is the cleanest logging job you will ever see" and another said "I wish more forests looked like this project." Participants noted there were very few skid trails and very little "soil flip" visible one year after treatment.

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 group was very pleased with results on this site and agreed that purposes and needs were met.

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.

Panoramic photo points do a great job of showing before and after conditions, particularly structural heterogeneity.

The group encouraged greater use stewardship contracts, especially IRTCs (timber sale stewardship contracts) instead of traditional timber sales. IRTCs can be more desirable than traditional timber sales, because IRTCs put money into service work on the forest. For the CFLR project, the value of saw log material removed during restoration counts as match if it is removed under stewardship contract, but not if it is removed under timber sale authority.