

REGIONAL ECOSYSTEM OFFICE

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MEMORANDUM

DATE: 7/2/2020

TO: Patricia A. Grantham, Forest Supervisor, Klamath National Forest

FROM: Matt Ehrman, Regional Ecosystem Office Representative to the Regional Interagency Executive Committee

SUBJECT: Regional Ecosystem Office Review of the Juanita Restoration Project, Klamath National Forest

Summary: The Regional Ecosystem Office (REO) interagency Late-Successional Reserve (LSR) Work Group has concluded its review of the Juanita Restoration Project (project), in the Goosenest LSR (RC-363, GNLSR) on the Klamath National Forest (Forest). The project encompasses approximately 6,000 acres of treatments, with 2,920 acres being within the roughly 40,000 acre GNLSR. Currently, many stands have excessive density and hazardous fuel conditions conducive to high-severity fire. All treatments within the GNLSR have a primary purpose to reduce risk of large-scale habitat loss due to uncharacteristic severe fire, and insect and disease outbreaks with some treatments having secondary benefits of improving late-successional characteristics. The REO is reviewing the project for consistency with standards and guidelines in the Northwest Forest Plan. The REO, based upon the review by the LSR Work Group, concurs with the Forest's finding that the proposed actions are consistent with the Northwest Forest Plan (NWFP) Standards and Guidelines (S&Gs) and desired conditions from the GNLSRA.

Basis for the Review: The GNLSR is addressed under the Goosenest Late Successional Reserve Assessment (LSRA), which was reviewed by the REO (Review Letter dated 11/13/1996) and found consistent under the NWFP S&Gs (C-11). None of the treatments in the current project were exempted by the REO LSRA review letter, however, all project activities are consistent with moving towards desired conditions identified in the GNLSRA. The project includes some treatments that fit the REO Commercial Thinning Exemption (REO letters dated 7/9/1996 and 9/30/1996). These treatments were described in the submitted consistency review documentation in the interest of clarity and completeness, and were found to fit the exemption criteria. All other proposed treatments for this risk reduction project were reviewed by the REO to determine consistency with risk reduction standards and guidelines (C-12, 13).

Background and Project Description: Stand history is complex within this project area. Aerial photos from the 1940s indicate portions of the project area were heavily harvested prior to the mid-1940s, approaching clearcutting in intensity but with varying levels of residual trees left on

site. Some areas were subsequently reforested by planting conifers while other areas were left to regenerate naturally. All of the planted stands are less than 80 years old, and while many trees within the natural stands are also less than 80 years old, limited field data indicates that in some stands basal area-weighted average stand age may be approximately 100 years.

The Project proposes to treat a total of 2,920 acres within the GNLSR to reduce risk of large-scale loss using various methods as described herein. Note that there is overlap with some acres receiving more than one type of treatment to move towards desired conditions. Treatments within the GNLSR include the following:

1. Ponderosa pine thinning in two stands (381 acres)
2. Ponderosa pine/white fir transition treatment in three stands (360 acres)
3. Fire risk reduction thinning in two mixed conifer stands near Juanita Campground (172 acres)
4. Pre-commercial thinning on 10 stands (203 acres)
5. Plantation thinning on eight stands (611 acres)
6. Three meadow restoration stands (54 acres)
7. Fuel Management Zone along Forest Road No. 46N04 (325 acres)
8. Underburning within and adjacent to the GNLSR (1,995 acres)

Outside of but adjacent to the GNLSR, treatments to reduce risk to the GNLSR include natural stand thinning, additional plantation thinning, fuels reduction, and underburning on 1,580 acres. All thinning treatments within the GNLSR are designed to retain trees to the extent possible with valuable habitat features such as large branches, cavities, etc., and to retain snag and down log levels consistent with Klamath National Forest Plan requirements and the GNLSRA. Brief descriptions of each treatment type are included in this letter, however, additional detail may be found in the consistency review document submitted by the Forest.

Treatment 1, ponderosa pine thinning, involves variable density thinning from below of trees up to 20 inch dbh, including appropriate heavily thinned patches and unthinned or lightly thinned patches. This treatment was found consistent with all commercial thinning exemption criteria on 381 acres.

Ponderosa pine/white fir transition treatment (treatment 2) involves variable density thinning from below at variable spacing up to 20 inch dbh with preference to retain sugar pine, Douglas-fir and ponderosa pine with lesser amounts of incense-cedar, white fir, and juniper to give mixed species composition. All white fir less than 20 inch dbh will be removed unless an opening greater than 50 feet would result. Scattered, large, dominant Douglas-fir and ponderosa or sugar pine would be cultured throughout the units by removing surrounding trees that compete for moisture and sunlight. Full crowned trees with good growth potential as evidenced by good leader growth, good needle retention, and lack of disease would be selected for culturing. In two stands totaling 109 acres, culturing would cut trees up to 20-inch dbh; these two stands meet all commercial thinning exemption criteria.

One 250 acre stand in this category has unique characteristics that do not meet all exemption criteria. This stand has a 25 acre portion considered to be Northern spotted owl nesting and

roosting habitat and the prescription will be modified in this stand to retain this habitat quality by retaining 20 percent of the sub-stand in unthinned patches up to one-half acre in size and conducting no individual tree culturing..

The remaining 225 acres of this stand don't meet all exemption criteria for commercial thinning because some trees up to 26 inch dbh would need to be removed in the culturing. Some, but not all of these trees larger than 20 inch dbh would be left for coarse woody debris, but some would be removed as leaving all felled trees would result in excessive fuel loads and compromise the intended fire risk reduction.

Fire risk reduction thinning (treatment 3) on 172 acres of mixed conifer stands involves variable density thinning from below up to 20 inch dbh, including all white fir less than 20 inch dbh, unless an opening larger than 50 feet in diameter would occur. Fifteen percent of the stand would be in unthinned clumps, and individual tree culturing would not be done, nor would openings be created, as larger, older trees are already isolated in clumps and the thinning as described would yield a heterogeneous stand condition with density in line with sustainability and reduced potential flame length and torching indices.

Pre-commercial plantation thinning (treatment 4) is proposed on 10 stands totaling 203 acres and involves thinning of trees less than 8 inch dbh to 20 to 30 foot spacing. A skid steer tractor with harvesting attachment would be used to thin these plantations to appropriate stocking levels to reduce risk of stand replacement fire and facilitate growth towards late successional characteristics. Older trees residual from the historic harvest would be retained. These stands are relatively homogeneous ponderosa pine plantations.

Commercial thinning of ponderosa pine plantations (treatment 5) will occur on eight stands over approximately 611 acres. These planted stands are dominated by trees between 8 and 20 inch dbh and would be thinned to spacing between 20 and 40 feet, with tighter spacing in areas where tree size is smaller and wider spacing in areas with larger diameter trees. Older trees residual to the historic harvest would be retained. Openings of up to 2 acres would be created on approximately 20 percent of three stands. In these openings, soils would be ripped to break up compaction to prepare the soil for planting of 200 to 300 trees per acre with 70% Douglas-fir, and 10% each of sugar pine, ponderosa pine and incense-cedar. Up to 10% of the opening may be seeded to native grasses.

Meadow restoration (treatment 6) treatments will be conducted on 54 acres involving removing or girdling conifers encroaching into meadows. Conifers including western juniper up to 16 inch dbh will be removed within the meadow and up to 50 feet away from the meadow edge, and conifers larger than 16 inch dbh in this zone will be girdled, but retained as snags. Aspen and willow groves in and around these meadows will have competing conifers removed.

The fuel management zone (treatment 7) would create a shaded fuelbreak on 325 acres along an existing major road (46N04) in the GNLSR. Treatment may include mechanical felling and piling, pile burn, mowing or mastication, thin from below prescription, and broadcast or jackpot burning with the fuelbreak extending 200 feet from either side of the road. Mowing may take place as needed every five to 10 year to maintain conditions. Where thinning is used, trees will

be spaced 15 to 25 feet apart. The fuelbreak overlaps other treatment areas within the project where they occur in proximity to road 46N04.

Underburning (treatment 8) would occur on 1,995 acres within and adjacent to the GNLSR. Prescribed underburning would occur following mechanical treatments and may be done once or twice on a given unit if required to achieve desired fuel conditions or maintain them consistent with the historic fire regime. Existing roads, natural features, hand lines, or dozer lines may be used as appropriate for control lines to facilitate safe and effective burning.

Review of the Project: The LSR workgroup lead for the project had a number of telephone discussions with Forest personnel in fall of 2019 and spring of 2020. On March 31, 2020, the Forest submitted a letter requesting project review and attached documents describing the project. Several LSR workgroup personnel submitted questions and comments in writing to the Forest and on June 15, 2020, the Forest submitted a final consistency review document addressing all questions and comments received. The LSR workgroup based its review on these documents and concurs with the Forest's conclusion that the proposed treatments are consistent with the S&Gs and meets the objectives for LSRs as described below.

The project is designed to achieve risk reduction objectives to reduce risk of loss of LSR characteristics consistent with NWFP S&G, as well as moving stands towards the desired conditions described in the LSRA. Risk of loss to fire is well documented by analysis of potential flame lengths showing extensive passive crown fire (torching) that would constitute uncharacteristically high severity of fire effects for these forests. The project is located in the Klamath Province, with documented high risk of loss due to a disrupted fire regime, therefore risk reduction treatments in stands older than 80 years are allowed by the NWFP.

All thinning treatments reduce risk of crowning and torching by reducing continuity of canopy fuels and removing ladder fuels. The prescribed underburning reduces surface fuels and disposes of activity fuels, reducing potential for future severe fire as well as helping to restore the historic fire regime of frequent low- to moderate- severity fire.

The thinning treatments also move stand density to lower levels, reducing the risk of large-scale bark beetle outbreaks that would further increase risk of severe fire. Thinnings are designed with variable density to provide heterogeneous forest conditions that provide habitat while increasing resilience and sustainability of mature forests. The thinning treatments are designed to retain valuable wildlife habitat, and the individual tree culturing component improves sustainability of the largest and oldest fire resilient trees that are particularly valuable habitat as well as being difficult to replace. The culturing also promotes further development of large trees with wildlife value.

The plantation thinning breaks up uniform canopies in these relatively young stands reducing their propensity to burn at high severity. The planting of openings creates a more desirable mixed species composition decreasing the risk of extensive bark beetle outbreaks to which monospecific ponderosa pine plantations are susceptible. The resulting mixed species and mixed age stands also are likely to provide better mature forest habitat in the future.

Treatments are designed to maintain and provide coarse woody debris and snags over the long term at levels consistent with Forest Plan requirements. The project record documents how this will occur, as well as cases where stand conditions don't allow this, such as in some of the younger plantations or the fuelbreak where lower levels of coarse wood are needed for the fuelbreak to have reasonable effectiveness. These exceptions are limited and strike a reasonable balance between competing objectives consistent with stand conditions. Generally, snag and coarse woody debris levels will trend towards desired conditions over time where they can't be met initially, with the exception of the fuelbreak.

Many of the design features conform to pre-commercial and commercial thinning exemption criteria previously published by the REO, which conform to NWFP S&G. The following is a description of consistency with NWFP S&G for project activities that vary from the exemption criteria.

One stand involves removal of a number of trees larger than 20 inch dbh, up to 26 inch dbh, in the culturing component. The documents provided by the Forest demonstrate the need and benefit in thinning these trees to improve sustainability of even larger and older trees of the most desired and fire resilient species, important for their value as wildlife habitat. Reducing risk of loss of these particularly important and rare components of late successional character is clearly consistent with the S&G. Also, the project record documents that a number of these larger trees cut would be left in place for coarse woody debris, but leaving all felled trees would leave excessive fuel loads in this fire prone environment, so the remainder would be removed.

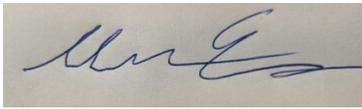
Three planted stands would have openings of up to 2 acres in size harvested on 20 percent of these stands as part of the thinning to break up continuity and establish a new age class and diversify species composition. The project record documents published research from the same physiographic province documenting that openings of this size are consistent with the natural range of variability which increases the sustainability of these stands. The soil ripping in these same stands would break up compaction and improve survivability of this younger age class and mixed species composition. Effectively diversifying species composition, and age and size class diversity is consistent with achieving LSR objectives over the long term.

A small tractor with a harvesting attachment is planned to be used for the precommercial plantation thinning of trees less than 8 inch dbh due to safety concerns related to reducing exposure of agency personnel with hand-cutting and because production rate of this equipment is higher. This equipment meets required soil conservation standards, and the treatment is appropriate to achieve LSR objectives so using this tool is still consistent with S&G.

The LSRA identifies fuelbreaks as an appropriate treatment to provide opportunities to suppress fires burning under more extreme conditions and therefore reduces risks of larger-scale losses that these fires could cause. The combination of this fuelbreak, as well as the treatments within the GNLSR, and the treatments outside of but adjacent to the GNLSR, clearly reduce risk of large-scale losses due to disturbances of LSR characteristics over a larger acreage than the treatment footprint within the LSR.

Like all treatments in this project, the meadow restoration treatments were not specifically identified in the LSRA that was prepared roughly 25 year ago. However, the meadow restoration, as well as all other treatments, are designed to move stands in the GNLSR towards desired conditions as described in the LSRA. Furthermore, all of the thinning and fuel reduction treatments proposed with this project are consistent with the types of projects identified in the LSRA that have been implemented in the past.

Conclusion: Based on the LSR work group's review, the REO concurs with the Klamath National Forest's conclusion that the Juanita Restoration Project is consistent with the NWFP risk reduction S&Gs, and the LSRA for the Gooseneck LSR. If you have questions regarding this review, please contact Jon Regelbrugge at jon.regelbrugge@usda.gov or 707-980-0138.

A rectangular box containing a handwritten signature in blue ink, which appears to read "Matt Ehrman".

Matt Ehrman
Regional Ecosystem Office
Forest Service Representative

cc: Drew Stroberg, Wendy Coats, Catherine Means, Debbie Anderson, Jon Regelbrugge

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