Regional Ecosystem Office
Late-Successional Reserve Project-Level Consistency Reviews
August 5, 2009
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Background and Introduction

Standards and Guidelines (S&Gs) in the *Record of Decision for Amendments to Forest Service and Bureau of land Management Planning Documents Within the Range of the Northern Spotted Owl (NWFP ROD)* provide that silvicultural activities, treatments to reduce risks of large-scale disturbances, and salvage within Late-Successional Reserves (LSRs) and Managed Late-Successional Areas (MLSAs) [collectively referred to as LSRs] are subject to review by the Regional Ecosystem Office (REO) (NWFP ROD, pages C-12, 13, and 26). In addition, other activities deemed to have potentially adverse effects on LSR objectives are subject to REO review (NWFP ROD, pages C-19). The LSR Workgroup is a subgroup of the REO which reviews treatments to provide concurrence that projects are consistent with the NWFP. If projects are inconsistent with the NWFP Standards and Guidelines or land allocations, plan amendments may be proposed; proposed plan amendments are subject to review by the RIEC (Regional Interagency Executive Committee) under a separate review process.

The Standards and Guidelines also state the REO may develop criteria that would exempt some activities within Late-Successional Reserves and Managed Late-Successional Areas from review. Exemption criteria for silvicultural projects have already been developed and were issued April 20, 1995, for Young Stand Thinning, Release, and Reforestation and Revegetation, and July 9 and September 30, 1996, for Commercial Thinning Activities - https://www.fs.fed.us/r6/reo/landuse/lsr/exemptions.php. Many treatments not meeting these exemption criteria may be appropriate within Late-Successional Reserves and Managed Late-Successional Areas, and these treatments remain subject to REO review.

This document has been prepared by the LSR Workgroup as a tool to assist the field in preparing the analysis and justification for projects that may require a consistency review. This document is designed to be used in conjunction with the NWFP ROD. The following five steps are given in this document:

A. Determine if there is a need to complete, modify or update an LSR Assessment
B. Determine if a project-level consistency review is needed
C. Determine which Standards and Guidelines in the NWFP ROD apply to the project
D. Develop the documentation needed for a consistency determination
E. Reaching and documenting concurrence of project consistency with NWFP

The Forest Service has identified Points of Contact for the LSR Workgroup. If you have questions regarding this document, or if you need assistance with the following steps, contact your agency's LSR Workgroup Point of Contact:

- US Forest Service R6 – Debbie Anderson – 503-808-2286 – debra.anderson@usda.gov
- US Forest Service R5 – Jon Regelbrugge – 707-980-0138 – jon.regelbrugge@usda.gov

Step A. Determine if there is a need to complete, modify or update an LSR Assessment

First determine whether the proposed project is within an LSR, and whether an LSR assessment covering the proposed project area has already been completed. An LSR assessment should be prepared before habitat manipulation activities are designed and implemented within LSRs. If an LSR assessment already exists, review it to determine if any updates or modifications are needed. Concurrence letters from REO, which include discussion of exempted projects and treatments, are posted on the REO website at: https://www.fs.fed.us/r6/reo/landuse/lsr/reviews.php. Most LSR Assessments were completed and reviewed by REO at least 10 or more years ago. A new or revised assessment can be completed if LSR ecological conditions have changed to the extent that projects and management proposed in the original assessment need to change. Changes such as large-scale stand replacing disturbance events and/or extensive changes in proposed projects or management could warrant a new assessment. Otherwise, revise the original assessment as needed. Also review the cumulative effects of smaller changes that may have occurred due to succession or smaller events on the ability of the late successional reserve to meet Northwest Forest Plan objectives, and modify the assessment to reflect the impact of these changes. The associated impacts may also be part of the purpose and need for the project(s).

Steps 1-4 in the checklist under Step B may be helpful for this step.

Step B. Determine if a project-level consistency review is needed

The next step is to determine if a project-level consistency review by REO is needed. If it is determined that the project requires REO review, contact the LSR workgroup as early in the planning process as possible. To initiate review by the LSR Workgroup, contact your agency LSR Workgroup Point of Contact.

The checklist below should assist in determining if consistency review is necessary.

Step	Yes	No	Evaluation questions	Conclusion
1	**Determine the land allocation within which the project occurs.**			
	X		Does the action occur in an LSR? *LSRs include MLSAs and 100 acre LSRs (i.e. spotted owl activity centers and occupied marbled murrelet sites; p. C-10), which require REO review (S&G pp C-12, 13, 19, 26).*	**No** - no review required by REO. **Yes** – Proceed to step 2.
2	**Determine the completion status of the LSR Assessment.**			
	X		Has an LSR Assessment been completed? *A management assessment needs to be prepared for each LSR/MLSA or group of LSRs/MLSAs before habitat manipulation activities are designed and implemented (C-11, 26). Note that 100-acre LSRs need to have LSR Assessments done as well. Some forest-wide LSR Assessments (i.e*	**No** – complete LSR Assessment before, proceeding or concurrently with project planning. **Yes** – proceed to step 3.

Step	Yes	No	Evaluation questions	Conclusion
			individual forests that did a single assessment to cover multiple LSRs/MLSAs) included 100-acre LSRs, while others did not.	
3	**Determine the review status of the LSR Assessment.**			
	X		Has the LSR Assessment been reviewed by REO? *LSR Assessments and MLSA Assessments are subject to review by the Regional Ecosystem Office (C-11). Reviewed LSR Assessments will have a signed memo from REO stating their concurrence with consistency, and noting any project criteria that may be exempt from future review (see step 6 below).*	**No** - submit the assessment to the LSR Workgroup to initiate REO review. **Yes** – proceed to Step 4.
4	**Assess any changes in ecological conditions within the LSR since the assessment was completed.**			
		X	Since REO review, has the local decision maker determined that ecological conditions within the LSR have changed to the extent they would alter the management proposed in the original LSR Assessment? *Many LSR Assessments had reviews completed over 10 or more years ago. Since that time, new information may be available regarding current LSR conditions that can be used to update assessments; some LSRs have experienced large-scale disturbance events that have altered the landscape. In addition, cumulative effects of smaller changes (e.g., those due to succession or small disturbance events), may have affected the LSR's ability to meet Northwest Forest Plan objectives, resulting in a need to alter proposed projects.*	**No** –Then proceed to step 5. **Yes** – Revise LSR Assessment and resubmit to REO for review. Upon completion of review, continue to step 5.
5	**Determine whether the type of activity proposed require project review.**			
	X		Is it a silviculture, salvage, or risk reduction activity? *Such actions require REO review. Silviculture activities requiring review are described on p. C-12. Salvage activities are described beginning on p. C-13. Risk reduction activities are described on p. C-12-13).*	**No to both questions** – Go to 3rd question in Step 5 **Yes to either question** - activity requires REO review. Proceed to Step 6. **Uncertain** - contact your

Step	Yes	No	Evaluation questions	Conclusion
			Does the activity have potentially adverse effects on LSR objectives? *Activities consistent with the "Standards and Guidelines for Multiple-Use Activities Other Than Silviculture", on pp. C-16-19 do not require REO review, except as noted. Multiple-use activities that are determined by the proposing agency or by the RIEC to have potentially adverse effects on an LSR or MLSA are subject to REO review under the "Other" S&G on page C-19.*	LSR Workgroup Point of Contact.
			Does the activity propose changes to standards and guidelines or land allocations established under the NWFP? *Proposed plan amendments to change NWFP standards and guidelines or land allocations incorporated in FS or BLM plans are subject to RIEC review. The RIEC review process is separate from the REO LSR Workgroup review. Workgroup review (of the LSR assessment and/or project, as needed) should generally be completed prior to RIEC review of the proposed plan amendment (REO memo dated 8/27/09).*	**No** – activity does not require REO review. Proceed to Step 6. **Yes** – Requires review by the REIC, contact LSR Workgroup Point of Contact
6	**Determine whether the project as currently designed is covered by an REO exemption or letter of concurrence.**			
	X		Does the project meet silviculture exemption criteria developed by the Regional Ecosystem office? *REO may develop exemption criteria for silviculture, salvage, or risk reduction projects (C-12-13). REO issued exemption criteria for pre-commercial thinning (REO memo 362 dated April 20, 1995) and commercial thinning (REO memos 694 and 801, dated July 9, 1996 and September 30, 1996, respectively). Projects that fully meet these criteria do not need further review by REO.*	**No to all questions in Step 6–** project requires review by REO. Contact your LSR Workgroup Point of Contact **Yes to any question in Step 6-** If project **completely** follows any exemption criteria listed in this step, then REO review is complete. If project only partly follows exemption criteria (either criteria within an LSR Assessment, or REO silviculture exemption criteria), project will require REO review. If LSR Assessments have silviculture
			If the LSR Assessment contains project criteria that have been reviewed by REO, and REO has exempted future projects that meet these criteria from review, does the proposed project meet these criteria?	

Step	Yes	No	Evaluation questions	Conclusion
	X		*Some LSR Assessments contain criteria (typically called "exemption criteria") for silviculture, salvage or risk reduction projects. In cases where these criteria are specific enough to clearly show that projects will meet LSR objectives, REO has exempted future projects that meet these criteria from review. Such exemptions will be clearly stated in the LSR Assessment review letter from REO. If projects fully meet these criteria, they do not need further review by REO.*	exemption criteria that differ from REO silviculture exemption criteria, project does not have to follow both sets of criteria simultaneously, but must completely follow one set of criteria in order to be exempt from review (i.e. one can not "mix and match" components from different criteria).
		X	Do you have a letter from REO stating that project was reviewed and that REO concurs with your finding of consistency with the S&Gs? *Concurrence letters are sent with each project review. If you have such a letter, make sure to read it in its entirety because the review letter may include assumptions or modifications that must be followed by the project to ensure its consistency.*	

The 27 Road Fuelbreak Project is consistent with the Northwest Forest Plan risk reduction category of treatment as described on pages C-12-13 of the ROD.

Risk & Need For Treatment

This project and associated treatments seek to reduce risk associated with large-scale disturbance due to catastrophic wildfire. Proposed treatment would reduce tree densities, in particular those occupying the mid-story that create ladder fuels for crown fire. Ongoing landscape trends indicate substantial risk of large-scale wildfire. Forest stands in this area have become increasingly dense over time. Stands have high potential for crown fire due to dense concentrations of ladder fuels in the mid-story and interconnected crowns in the overstory. Regional drought, coupled with recent insect attack are causing losses of small to moderate diameter trees that increase fuel loads long-term. Fire regime condition class within this LSR is III. This indicates a high departure from normal fire frequency. Should a fire occur, large-scale mortality within the LSR is likely. This would increase snag availability substantially, but would reduce the quantity of green tree refugia for species that rely on old growth stand structure. It would delay development of late successional conditions and increase the quantity of early seral habitat within, and adjacent to, the LSR.

Spatial Context

Treatment within this LSR is part of a broader roadside fuelbreak encompassing approximately 3,000 acres. Treatment within the LSR consists of 316 acres, respectively. The proposed treatments would create a fuelbreak along existing linear roads directly adjacent to Badger Creek Wilderness and the LSR. This would provide opportunities for firefighters to safely and effectively engage wildfire via a defendable containment line. This fuelbreak also provides connectivity to other ongoing restoration and fuels reduction projects on the District to the north and south.

Adjacent to this treatment area to the east is the Forest boundary with state and private land. To the west lies Badger Creek Wilderness. The absence of either large-scale infrequent fire activity or low intensity frequent fire activity have created large accumulations of fuels within the larger planning area and the LSR. The east side of the Mt. Hood frequently experiences westerly winds, so should a wildfire start in Badger Creek Wilderness there is a high likelihood of spread to the east, through the LSR, and potentially onto neighboring land ownership.

Proposed Treatments

Vegetation treatments would mitigate risk associated with catastrophic wildfire by reducing density of ladder fuels and reducing shrub density. Treatments would largely consist of a thin from below, targeting retention of overstory trees with robust crowns that have self-pruned. Treatments would reduce densities to approximately 80 ft^2 per acre basal area. Residual canopy cover would range from 30-50%. Trees targeted for removal are primarily shade tolerant species that lack fire resistance, particularly grand fir. Basal area to be removed is approximately 60-80 ft^2 per acre. Treatments would target removal of small diameter trees occupying the mid-story,

increasing canopy base height after treatment. Some vigorous young trees would be retained in open areas to promote regeneration of desired species and maintain a healthy age structure.

It is also important to note that some treatment units within the LSR have been treated previously. Overstory densities are relatively low, but brush and small diameter trees regenerating in the understory present a risk through excessive fuel loading. Within these units, non-commercial thinning would occur at approximately 20'x20' spacing. Project-created slash would be piled and burned. Fuel loading after treatment would be maintained in all treatment units at 10-15 tons per acre, according to forest plan standards. Large woody debris would be retained, as would snags larger than 12" dbh.

See Attachment A for a draft prescription that would be similar to the LSR stand treatments in this project.

Desired Conditions

Treatments would alter current stand structure in the following ways: (1) density of midstory would be reduced, (2) density of co-dominant trees in the overstory would be reduced, (3) frequency of overlapping crowns would be reduced, and (4) spatial arrangement of overlapping crowns would be altered to increase spatial heterogeneity. Large, mature trees including ponderosa pine and Douglas-fir would be maintained across the treatment area,. Additionally, snags and existing coarse woody debris would be retained.

The area is dominated by dry-mixed conifer and pine/oak forest types, both of which historically sustained low densities of trees. Plant communities within the LSR proposed for treatment include ponderosa pine/bluebunch wheatgrass, grand fir/oceanspray, and Douglas-fir/pinegrass. Reducing densities in these plant communities would return the site to more historic conditions and would allow for the development of large ponderosa pine and the open-park like and cathedral conditions characteristic of old-growth ponderosa pine plant communities. Current and future stand conditions as a result of proposed treatment are shown below. Refer to Appendix B for more detailed unit information.

Table 1. Average Stand Density Measurements Before and After Treatment.

Stand Conditions	BA[1]	Trees per Acre[2]	Quadratic Mean Diameter[3]	Stand Density Index[4]
Current Conditions	185	1207	6.2	419
After Initial Treatment	109	87	16.4	167
50 Years After Initial Treatment	154	383	13.0	274

1. Basal Area is the cross-sectional area of all stems of a species or all stems in a stand measured at breast height and expressed per unit of land area
2. Trees per acre is a the average number of stems within an acre
3. Quadratic mean diameter is the diameter corresponding to the tree of arithmetic mean basal area, or average diameter by basal area. The use of the quadratic mean gives greater weight to larger trees and is equal to or greater than the arithmetic mean
4. Stand Density Index (SDI) is an expression of relative stand density in terms of the relationship of a number of trees to stand quadratic mean diameter

Maintenance Treatments

Some understory regeneration is expected following treatment. In particular, regeneration would be stimulated in canopy openings where sunlight can penetrate to the understory. Species composition is not expected to change as a result of treatment, regeneration would be dominated by grand fir, Douglas-fir, Ponderosa pine, and Oregon white oak where already present. Site conditions are moisture limited so growth will be slow. Maintenance of understory regrowth is expected to be required in 15-20 years after treatment. This may be done via non-commercial thinning or prescribed burning, if conditions are suitable.

Post-treatment monitoring would occur to determine if the purpose and need has been met. Post-treatment monitoring would assess stand attributes including surface fuel loading, canopy base height, and density metrics such as trees per acre and average basal area. Fuel loadings would be maintained at 15 tons per acre to meet Forest Plan Standards. As described above, the nature of fuels treatments often necessitates maintenance activities. Monitoring would occur immediately following treatment to determine success, and 5-10 years following treatment to determine when further maintenance is required.

Supporting Analysis

This purpose and need is supported by the Douglas Cabin LSR Assessment. The assessment states that very little of LSR is comprised of desired old growth structures, and recommends thinning and underburning to begin moving stands toward cathedral, open intolerant multistory-old, and open parklike structures. Further, the assessment acknowledges that proximity to Badger Creek Wilderness and current stand conditions create substantial risk of wildfire loss.

This treatment will not eliminate all risk of wildfire loss, as treatments are proposed on a portion of the LSR. However, it will serve to mitigate potential losses by providing safe engagement zones for firefighting personnel. Further, this treatment seeks to reduce losses at the landscape level, which is critical to support continued development of old-growth and late successional characteristics within and adjacent to this LSR.

Appendix A

Sale Name: **Unit No.:**

Acres:

Treatment: Thin from Below/Variable Density Thin

Treatment Objectives: 1) Increase canopy base height 2) Reduce crown cover 3) Maintain old trees and structural diversity through the use of skips and gaps. Skips are intended to protect existing conditions that are not common to the stand or protect sensitive resource areas from ground disturbing activities while providing for structural diversity. Gaps are intended to create openings to support regeneration of shade intolerant species and more rot resistant species while also providing structural diversity.

Desired Future Condition: To have a more open stands to release retention trees and maintain or increase growth and vigor. The stand should consist of the largest and most well-formed trees that are available.

Cutting/Marking Guide: **Designation by Description**
Leave Tree Mark
Thin from Below to average BA of 80 FT²

Commercial Matrix
• For conifers 5.0 inches DBH and above thin from below to an average of 80 ft² BA .
• Species cut preference: GF, DF, WH, PP, WL, WWP

Skips
• Intent of skips is to protect wet areas, cultural sites, wildlife (i.e. snags and down wood patches) features, and minor species.
• Minimum Skip size is ½ acre
• Within skips there shall be no treatments, landings, skid trails, or temp roads.
• Skips should be at least 2 chains apart

Gaps
• Place gaps near existing openings, frost pockets, wind throw, root rot centers, or large concentrations of Oregon white oak.
• Species cut preference: GF, DF, WH, PP, WL, WWP
• Retain all trees 24” DBH and greater
• Maximum Gap size cannot exceed 2 acres
• No gaps within 50’ of equipment exclusion zones
• Gaps should be at least 2 chains apart

Noncommercial Thins
• Thin conifers 0-12” DBH to an average tree spacing of 20’x 20’
• Species cut preference: GF, DF, WH, PP, WL, WWP

Special Considerations within the Unit

* Pacific Yew and Western Red Cedar should be treated as a minor species and not cut.
*Follow provided mitigation measures for road closures, decommissioning, and other resource concerns within the unit.

Appendix B. Detailed Unit Information

Unit	Acres	LSR Acres	Avg Age	Current BA	Current TPA	Current QMD	Current SDI	Current Avg Height	Current Canopy Cover	Snags Per Acre (>12")	Structure Class	Dominant Plant Association	Fire Condition Class	Proposed Treatment
66	30	28	104	96	1772	3.2	279	76	66	10	Understory Reinitiation	Ponderos a pine/ bluebunch wheatgrass	3	Non-Commercial thin 100 TPA
67	4	4	79	106	376	12.2	210	84	70	-	Stem Exclusion	Ponderos a pine/ bluebunch wheatgrass	3	Non-Commercial thin 100 TPA
68	27	27	88	147	887	5.5	341	75	70	3	Stem Exclusion	Douglas fir/common snowberry-ninebark-o	3	Non-Commercial thin 100 TPA
69	8	8	78	138	454	13.2	270	77	67	-	Stem Exclusion	Douglas fir/pinegrass-elk sedge	3	Re-entry thin 80 RBA
70	66	66	137	295	863	7.9	593	88	87	9	Understory Reinitiation	Douglas fir/pinegrass-elk sedge	3	Non-Plantation thin 80 RBA
71	10	10	107	214	663	7.7	436	93	76	4	Understory Reinitiation	Douglas fir/common snowberry-ninebark-o	3	Non-Plantation thin 80 RBA
72	55	55	126	188	3107	3.3	533	83	77	4	Understory Reinitiation	Douglas fir/common snowberry-ninebark-o	3	Re-entry thin 80 RBA
80	49	28	93	81	853	4.2	209	60	63	1	Stem Exclusion	Ponderos a pine/ bluebunch wheatgrass	3	Non-Commercial thin 100 TPA
83	20	16	102	181	965	5.9	409	67	65	2	Understory Reinitiation	Ponderos a pine/ bluebunch wheatgrass	3	Re-entry thin 80 RBA
85	26	21	130	312	2731	4.6	779	87	84	2	Young Forest Multi-Strata	Grand fir/oceanspray-eastside	3	Re-entry thin 80 RBA
86	67	25	152	205	781	6.9	434	65	83	3	Understory Reinitiation	Douglas fir/common snowberry-ninebark-o	3	Re-entry thin 80 RBA
87	52	19	106	157	411	8.4	309	72	85	1	Understory Reinitiation	Douglas fir/common snowberry-ninebark-o	3	Re-entry thin 80 RBA
88	13	10	86	160	247	10.9	283	74	84	1	Stem Exclusion	Ponderos a pine/ bluebunch wheatgrass	3	Non-Plantation thin 80 RBA

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Date