APPENDIX B

REVISED

INTERIM MANAGEMENT DIRECTION ESTABLISHING RIPARIAN, ECOSYSTEM AND WILDLIFE STANDARDS FOR TIMBER SALES

REGIONAL FORESTER'S FOREST PLAN AMENDMENT #2

REGIONAL FORESTER'S EASTSIDE FOREST PLAN AMENDMENT NO.2
ALTERNATIVE 2, as adopted

1. All timber sales, except as identified below, will be designed to incorporate the interim riparian, ecosystem and wildlife standards.

2. The following types of sales will not be subject to the interim standards: personal use firewood sales; post and pole sales; sales to protect health and safety; and sales to modify vegetation within recreation special use areas. NEPA and required consultation under Section 7 of the Endangered Species Act must be completed.

3. Five other types of sales will not be subject to the interim ecosystem standard, but must apply the interim riparian and wildlife standards: precommercial thinning sales; sales of material sold as fiber; sales of dead material less than 7-inch dbh, with incidental green volume (ref. RO 2430 ltr, 8/16/93); salvage sales, with incidental green volume, located outside currently mapped old growth (ref. RO 2430 ltr. 8/16/93}; and commercial thinning and understory removal sales located outside currently mapped old growth.

4. Interim riparian standard: Timber sales (green and salvage) will not be planned or located within riparian areas as described below:

a. Perennial and intermittent fish-bearing streams: consists of the stream and the area on either side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of two site-potential trees, or 300 feet slope distance (600 feet including both sides of the stream channel}, whichever is greatest.

b. Perennial nonfish-bearing streams: consists of the stream and the area on either side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to the out edges of riparian vegetation, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance (300 feet, including both sides of the stream channel}, whichever is greatest.

c. Intermittent non-fish bearing streams: consists of the stream channel from the edges of the stream channel to the top of the inner gorge, or to the outer edges of the riparian vegetation, or to the extent of landslides or landslide-prone area, or to a distance of 100 feet slope distance (200 feet, including both sides of the channel), whichever is greatest.

See FSM 25269/80 R-6 Supp 42 for definitions of
Perennial and Intermittent stream

d. Ponds, lakes, reservoirs, seeps and springs, bogs and wetlands consist of the body of water or wetland and/or seeps/spring source and the area to the outer edges of the riparian vegetation, or to the extent of the seasonally saturated soil, or to the extent of moderately and highly unstable areas, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance from the edge of the maximum pool elevation of constructed ponds and reservoirs or from the edge of the wetland, pond or lake, whichever is greatest.

5. Interim ecosystem standard:

a. Characterize the proposed timber sale and its associated watershed for patterns of stand structure by biophysical environment and compare to the Historic Range of Variability (HRV). The HRV should be based on conditions in the pre-settlement era; however 1900's photography may be acceptable. HRV should be developed for large landscapes across which forest types, environmental settings, and disturbance regimes (fire and insects/disease) are relatively uniform. Each component watershed should not be expected to reflect the average conditions for the larger landscape, but the sum of conditions across watersheds within the area for which HRV is developed should reflect ranges of conditions determined in the HRV evaluation. Note: LOS, a term used in the interim wildlife standard, refers to the structural stages where large trees are common, i.e. Multi-stratum with Large Trees and Single-stratum with Large Trees. See Table 1.

b. Ecosystem characterization steps to determine HRV:

1) Describe the dominant historical disturbance regime, i.e. the disturbance types and their magnitudes and frequencies.

2) Characterize the landscape pattern and abundance of structural stages (Table 1) maintained by the disturbance regime. Consider biophysical environmental setting (Table 2) across the large landscape to make this determination.

3) Describe spatial pattern and distribution of structural stages under the HRV disturbance regime, and

4) Map the current pattern of structural stages and calculate their abundance by biophysical environmental setting.

c. Characterize the difference in percent composition of structural stages between HRV and current conditions (Table 3). Identify structural conditions and biophysical environment combinations that are outside HRV conditions to determine potential treatment areas.

Table 1. Structural stages for use with HRV analysis[1]. Structural stage is not necessarily associated with stand age or to seral (species composition) development.

Structural Stage	Definition	Description
Stand Initiation	Growing space is reoccupied following a stand replacing disturbance, typically by seral species.	One canopy stratum (may be broken or continuous), one dominant cohort[2] of seedlings or saplings. Grass, forbs, or shrubs may also be present with early seral trees.[3]
Stem Exclusion: Open Canopy	Occurrence of new tree stems is excluded (moisture limited). Crowns are open grown. Canopy is discontinuous. This structure can be maintained by frequent underburning or management.	One discontinuous canopy stratum. One cohort of trees. New tree stems excluded by competition. Trees[3] may be poles or of small or medium diameter. Understory shrubs, grasses, or forbs may be present.
Stem Exclusion: Closed Canopy	Occurrence of new tree stems is excluded (light or moisture limited). Crowns are closed and abrading.	Canopy layer is closed and continuous. One or more canopy strata may be present'. Lower canopy strata, if present, is the same age class as the upper stratum. Trees may be poles or of small or medium diameter. Understory shrubs, grasses, or forbs may be present.
Understory Reinitiation	A second cohort of trees is established under an older, typically seral, overstory. Mortality in the overstory creates growing space for new trees in the understory. Large trees are uncommon.	The overstory canopy is discontinu- ous. Two or more canopy layers are present. Two or more cohorts of trees are present. Overstory trees may be poles or of small or medium diameter. Understory trees are seedlings, saplings or poles.
Multi- stratum, without large trees	Several cohorts of trees are established. Large overstory trees are uncommon. Pole, small, and medium sized trees dominate	The overstory canopy is discontinuous. Two or more canopy layers are present. Large trees are uncommon in the overstory. Horizontal and vertical stand structure and tree sizes are diverse. The stand may be a mix of seedlings, saplings, poles, or small or medium diameter trees.
Multi- stratum, with large trees	Several to many cohorts and strata of trees are present. Large trees are common.	The overstory canopy is broken or discontinuous. Two or more canopy layers are present. Two or moe cohorts of trees are present. Medium and large sized trees dominate the overstory. Tress of all sizes may be present. Horizontal and vertical stand structure and tree sizes are diverse.
Single stratum, with large trees	A single stratum of large trees is present. Large trees are common. Young trees are absent or few in the understory. Park-like conditions may exist.	The single dominant canopy stratum consists of medium sized or large trees. One or more cohorts of trees may be present. An understory may be absent or consist of sparse or clumpy seedlings. Grasses, forbs, or shrubs may be present in the understory.

[1]Adapted from an unpublished report by K.O'Hara, Assistant Professor of Silviculture, University of Montana, under contract to the Interior Columbia Basin Ecosystem Project for the Eastside EIS. Modifications developed by Miles Hemstrom, USFS Regional Office, Portland, Oregon, with input from Paul Hessburg, USFS/PNW Research Station, Wenatchee Lab, Wenatchee, Washington.

[2]A cohort is a class of trees arising after a common natural or artificial disturbance.

[3]"Trees" refers to live trees, not snags or other dead trees.
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Table 2. Example biophysical environments matrix. Analysis areas may have more or fewer kinds of biophysical environments and characteristics of each environment may differ from those shown. This table is only provided as an example. The biophysical environments listed are not comprehensive. Each landscape area may have these or different environments.

Biophysical Environment[4]	Dominant Disturbance Factors	Disturbance Re gime[5]	Average Disturbance Patch	Typical Landform Setting	Typical Elevation Range	Typical Aspects
Hot, Dry PIPO, ABGR	Fire, insects and disease	Low	<1 acre	Ridge tops and steep side slopes	2500-4000 feet	S, SW
Warm, Dry PSME, ABGR	Fire, insects and disease	Moderate	<5 acres	Side slopes	3000-5000 feet	S, SW
Cool, Mesic PSME, ABGR, ABLA2, PIEN	Fire, insects and disease	High	80-120 acres	Various	3000-5000 feet	Various
Cool, Wet ABGR, ABLA2, TSME	Insects and disease, fire	High	>250 acres	Bottom lands	3000-5000 feet	NE, N. NW, Flat

[4]Temperature and moisture regime, characteristic late seral species, first two letters of genus and species.

[5]Agee (1990) ."The historical role of fire in Pacific Northwest forests", Natural and Prescribed Fire in Pacific Northwest Forests, Oregon State University Press.

Low severity regime: 1-25 year return interval, 0% to 20% mortality of large trees.

Moderate severity regime: 26-100 year return interval, 26% to 70% mortality of large trees.

High severity regime: >100 year return interval, >70% mortality of large trees.

Table 3: Example biophysical environment by structural stage matrix. This is only an example. The number and kind of biophysical environments and the historic and current distribution of structural conditions vary by the landscape. H% is the estimated range of the percent extent of each condition from HRV assessment. C% is the estimated percent extent of each condition at present in the watershed under examination. D% is a range indicating the difference between H% and C%; D% = C%-H%. Negative values indicate a reduction from historical conditions. This table is only provided as an example. The biophysical elements listed are not comprehensive. Each landscape area may have these or different environments.

	Stand Initiation			Stem Exclusion: Open Canopy			Stem Exclusion: Clsoed Canopy			Understory Reinitiation			Multi-Stratum Without Large trees			Multi-Stratum With Large trees			Single-Stratum With Large trees		
Envt	H%	C%	D%	H%	C%	D%	H%	C%	D%	H%	C%	D%	H%	C%	D%	H%	C%	D%	H%	C%	D%
Hot	5 to 15	15	0 to 10	5 to 20	20	0 to 15	NA	NA	NA	NA	NA	NA	5 TO 10	30	20 TO 25	2 TO 15	20	5 TO 18	20 TO	15	-5 TO
Warm, Dry	1 to 15	5	4 to -10	5 to 20	20	0 to 15	1 to 10	10	0 to 9	1 to 10	10	0 to 9	5 to 25	25	0 to 20	5 to 20	35	15 to 30	15 to 55	5	-10 to -50
Cool, Mesic	1 to 5	2	1 to -3	NA	NA	NA	5 to 25	5	0 to -20	5 to 25	5	0 to -20	50 to 70	65	15 to -5	5 to 25	24	19 to -1	NA	NA	NA
Cool, Wet	1 to 10	1	0 to -10	NA	NA	NA	1 to 10	3	2 to -7	5 to 25	10	5 to 15	20 to 50	40	20 to -10	30 to 60	46	16 to -14	NA	NA	NA

6. Interim wildlife standard:

a. The interim wildlife standard has two possible scenarios to follow based on the Historical Range of Variability (HRV) for each biophysical environment within a given watershed. For the purposes of this standard, late and old structural stages (LOS) can be either "Multi-strata with Large Trees", or "Single Strata with Large Trees" , as described in Table 1 of the Ecosystem Standard. These LOS stages can occur separately or in some cases, both may occur within a given biophysical environment.

b. LOS stages are calculated separately in the interim ecosystem standard. Use Scenario A whenever anyone type of LOS is below HRV. If both types occur within a single biophysical environment and one is above HRV and one below, use Scenario A. Only use Senario B when both LOS stages within a particular biophysical environment are ar or above HRV.

c. The following sale types were exempted from consideration of HRV through the interim ecosystem standard, but must still meet the intent of the wildlife standards by following the direction provided in Scenario A, 1) through 4), as applicable to the type of sale being proposed, and regardless of whether the stand is LOS or not:

1) precommercial thinning sales,
2) sales of material sold as fibre,
3) sales of dead material less than sawlog size (7-inch dbh) with incidental green volume,
4) salvage sales with incidental green volume located outside currently mapped old growth,
5) commercial thinning and/or understory removal sales located outside currently mapped old growth.

The interim wildlife standard only altered portions of current Forest Plans. All additional Forest Plan wildlife standards and guidelines not altered in this direction still apply.

d. Scenario A

If either one or both of the late and old structural (LOS) stages falls BELOW HRV in a particular biophysical environment within a watershed, then there should be NO NET LOSS OF LOS from that biophysical environment. DO NOT allow timber sale harvest activities to occur within LOS stages that are BELOW HRV.

1) Some timber sale activities can occur within LOS stages that are within or above HRV in a manner to maintain or enhance LOS within that biophysical environment. It is allowable to manipulate one type of LOS to move stands into the LOS stage that is deficit if this meets historical conditions.

2) Outside of LOS, many types of timber sale activities are allowed. The intent is still to maintain and/or enhance LOS components in stands subject to timber harvest as much as possible, by adhering to the following standards:

a) Maintain all remnant late and old seral and/or structural live trees ?21" dbh that currently exist within stands proposed for harvest activities.

b) Manipulate vegetative structure that does not meet late and old structural (LOS) conditions, (as described in Table 1 of the Ecosystem Standard), in a manner that moves it towards these COI,.:.;. 'cions as appropriate to meet HRV.

c) Maintain open, parklike stand conditions where this condition occurred historically. Manipulate vegetation in a manner to encourage the development and maintenance of large diameter, open canopy structure. (While understory removal is allowed, some amount of seedlings, saplings, and poles need to be maintained for the development of future stands).

3) Maintain connectivity and reduce fragmentation of LOS stands by adhering to the following standards:

INTENT STATEMENT: While data is still being collected, it is the best understanding of wildlife science, today, that wildlife species associated with late and old structural conditions, especially those sensitive to "edge" , rely on the connectivity of these habitats to allow free movement and interaction of adults and dispersal of young. Connectivity corridors do not necessarily meet the same description of "suitable" habitat for breeding, but allow free movement between suitable breeding habitats. Until a full conservation assessment is completed that describes in more detail the movement patterns and needs of various species and communities of species in eastside ecosystems, it is important to insure that blocks of habitat maintain a high degree of connectivity between them, and that blocks of habitat do not become fragmented in the short-term.

a) Maintain or enhance the current level of connectivity between LOS stands and between all Forest Plan designated "old growth/MR" habitats by maintaining stands between them that serve the purpose of connection as described below:

(1) Network pattern -LOS stands and MR/Old Growth habitats need to be connected with each other inside the watershed as well as to like stands in adjacent watersheds in a contiguous network pattern by at least 2 different directions.

(2) Connectivity Corridor Stand Description - stands in which medium diameter or larger trees are common, and canopy closures are within the top one-third of site potential. Stand widths should be at least 400 ft. wide at their narrowest point. The only exception to stand width is when it is impossible to meet 400 ft with current vegetative structure, AND these

"narrower stands" are the only connections available; (use them as last resorts). In the case of lodgepole pine, consider medium to large trees as appropriate diameters to this stand type.

If stands meeting this description are not available in order to provide at least 2 different connections for a particular LOS stand or MR/Old Growth habitat, leave the next best stands for connections. Again, each LOS and MR/Old Growth habitat must be
connected at least 2 different ways.

(3) Length of Connection Corridors -The length of corridors between LOS stands and MR habitats depends on the distance between such stands. Length of corridors should be as short as possible.

(4) Harvesting within connectivity corridors is permitted if all the criteria in (2) above can be met, and if some amount of understory (if any occurs) is left in patches or scattered to assist in supporting stand density and cover. Some understory removal, stocking control, or salvage may be possible activities, depending on the site.

b) To reduce fragmentation of LOS stands, or at least not increase it from current levels, stands that do not currently meet LOS that are located within, or surrounded by, blocks of LOS stands should not be considered for even-aged regeneration, or group selection at this time. Non-regeneration or single tree selection (UEAM) activities in these areas should only proceed if the prescription moves the stand towards LOS conditions as soon as possible.

4) Adhere to the following specific wildlife prescriptions. These standards are set at MINIMUM levels of consideration. Follow Forest Plan standards and guidelines when they EXCEED the following prescriptive levels:

a) Snags, Green Tree Replacements and Down Logs:

INTENT STATEMENT -Most (if not all) wildlife species rely on moderate to high levels of snags and down logs for nesting, roosting, denning and feeding. Large down logs are a common and important component of most old and late structural forests. Past management practices have greatly reduced the number of large snags and down logs in managed stands.

(1) All sale activities (including intermediate and regeneration harvest in both even-age and uneven-age systems, and salvage) will maintain snags and green replacement trees of $\geq$21 inches dbh, (or whatever is the representative dbh of the overstory layer if it is less than 21 inches), at 100% potential population levels of primary cavity excavators. This should be determined using the best available science on species requirements as applied through current snag models or other documented procedures. NOTE: for Scenario A, the live remnant

trees (≥21" dbh) left can be considered for part of the green replacement tree requirement.

(2) Pre-activity (currently existing) down logs may be removed only when they exceed the quantities listed below. When pre-activity levels of down logs are below the quantities listed, do not remove downed logging debris that fits within the listed categories. It is not the intention of this direction to leave standing trees for future logs in addition to the required snag numbers, nor to fall merchantable material to meet the down log requirements. The snag numbers are designed to meet future down log needs in combination with natural mortality. Exceptions to meeting the down log requirement can be made where fire protection needs for life and property cannot be accomplished with this quantity of debris left on site.

The down log criteria are not intended to preclude the use of prescribed burning as an activity fuels modification treatment. Fire prescription parameters will ensure that consumption will not exceed 3 inches total (1 1/2 inch per side) of diameter reduction in the featured large logs (sizes below). Tools such as the CONSUME and FOFEM computer models, fire behavior nomograms, and local fire effects documentation can aid in diameter reduction estimates.

Leave logs in current lengths; do not cut them into pieces. Longer logs may count for multiple "pieces" without cutting them. Cutting them may destroy some habitat uses and also cause them to decay more rapidly. It is also not expected that the "pieces" left will be scattered equally across all acres.

SPECIES	PCS. PER ACRE	DIA. SMALL END	PIECE LENGTH & TOTAL LINEAL LENGTH	
Ponderosa pine	3-6	12”	>6 ft.	20-40 ft.
Mixed Conifer	15-20	12”	>6 ft.	100-140 ft.
Lodgepole Pine	15-20	8”	>8 ft.	120-160 ft.

5) GOSHAWKS:

INTENT STATEMENT: Goshawks are known to use interior forest habitats of mature/old growth structure. Habitat uses, nesting stand characteristics, and key habitat structural components in eastern Oregon/Washington are currently being studied. Until further information is known and management plans approved to insure species viability, the following standards are to be met as a minimum. Forest Plan standards and guidelines that EXCEED the levels described below should be used instead of, or in addition to the following:

a) Protect every known active and historically used goshawk nest-site from disturbance. "Historical" refers to known nesting activity occurring at the site in the last S years. Seasonal restrictions on activities near nest sites will be required for activity types that may disturb or harass pair while bonding and nesting.

b) 30 acres of the most suitable nesting habitat surrounding all active and historical nest tree(s) will be deferred from harvest.

c) A 400 acre "Post Fledging Area" (PFA) will be established around every known active nest site. While harvest activities can occur within this area, retain the LOS stands and enhance younger stands towards LOS condition, as possible.

e. Scenario B

Within a particular biophysical environment within a watershed, if the single, existing late and old structural (LOS) stage is WITHIN OR ABOVE HRV, OR if both types of LOS stages occur and BOTH are WITHIN OR ABOVE HRV, then timber harvest can occur within these stages as long as LOS conditions do not fall below HRV. Enhance LOS structural conditions and attributes as possible, consistent with other multiple use objectives.

The intent of the following direction is to maintain options by impacting large and/or continuous stands of LOS as little as possible, while meeting other multiple use objectives.

1) Harvest activities, (any and all types being considered), can occur in the following stand types in order of priority:

a) Activities should occur within stands other than LOS as a first priority.
b) Second priority for harvest activities is within smaller, isolated LOS stands <100 acres in size, and/or at the edges (first 300 ft) of large blocks of LOS stands ($\geq$ 100 acres).
c) Some harvesting can occur, but only as a last priority, within the interior of large LOS stands ($\geq$100 acres); REGENERATION AND GROUP SELECTION ACTIVITIES ARE NOT ALLOWED . REFER TO NON-FRAGMENTATION STANDARDS, 3) , BELOW.

2) Maintain connectivity as directed in Scenario A, 3)

3) Non-fragmentation standards -Within the interior of large LOS stands ~ 100 acres, (beyond 300 ft from edge), harvest activities are limited to non-fragmenting prescriptions such as thinning, single-tree selection (UEAM), salvage, understory removal, and other non-regeneration activities. Group selection (UEAM) is only allowed when openings created either mimic the natural forest pattern, and/or do not exceed 1/2 acre in size.

4) Adhere to wildlife prescriptions provided in SCENARIO A, 4) a) for sngs, green tree replacements, and down logs; and 5) for goshawks with the following exception for goshawk post-fledgling areas in 5) c):

> A 400 acre “Post Flegling Area” (PFA) will be established around every active nest site. While harvesting activities can occur within this area, up to 60% of the area should be retained in LOS condition, (i.e., if 35% of the area is now in LOS stands then it all needs to be retained; if 75% of the area is now in LOS stands then some can be harvested, as long as this late and old stand structure does not drop below 60% of the area.