ONRC

ONRC is generally supportive of young stand thinning. We're glad that you proposed some real alternatives to the proposed action that include not building any new roads, and we're also happy to see that you are adopting some variable density thinning techniques to help build a more diverse future forest. Please consider the following comments before issuing the final EA and decision, and **please provide a comment period on the full EA <u>BEFORE</u> making the decision**. *The regulations concerning comment and appeal have been followed (Decision Notice).*

1. Road Building Issues

We have a number of concerns over the proposed reuse of old temporary roads and the building of new temporary roads. Roads harm wildlife, promote spread of invasive species and diseases, damage soil resources, and adversely impact aquatic systems.

As you have heard from us many times, the impacts of temporary roads are far from temporary in nature. Research results, published in *Restoration Ecology,* shows there is nothing temporary about temporary roads, and that ripping out a road is NOT equal to never building a road to begin with.

> The saturated hydraulic conductivity of a ripped road following three rainfall events was significantly greater than that of the road surface before ripping... most saturated hydraulic conductivities after the third rainfall event on a ripped road were in the range of 22 to 35 mm/hr for the belt series and 7 to 25 mm/hr for the granitics. *There are no granitic soils in the project area (s. 4.6).* These conductivities are modest compared to the saturated hydraulic conductivity of a lightly disturbed forest soil of 60 to 80 mm/hr." id. Even this poor showing of restoring pre-road hydrologic effects worsened with repeated rainfall. "Hydraulic conductivity values for the ripped treatment on the granitic soil decreased about 50% with added rainfall ($p(K1=K2)=0.0015$). This corresponded to field observations of soil settlement and large clods of soil created by the fracture of the road surface dissolving under the rainfall... The saturated hydraulic conductivity of the ripped belt series soils also dropped from its initial value. Initially, and for much of the first event, the ripped plots on the belt series soil showed no runoff. During these periods, run-off from higher areas flowed to low areas and into macropores.... Erosion of fine sediment and small gravel eventually clogged these macropores... Anecdotal observations of roads ripped in earlier years revealed that after one winter, the surfaces were nearly as solid and dense as the original road surfaces." Id. Even though ripped roads increase water infiltration over un-ripped roads, it does not restore the forest to a pre-road condition. "These increases do not represent "hydrologic recovery" for the treated areas, however, and a risk of erosion and concentration of water into unstable areas still exists." *The use of the term "temporary road" does not imply that the effects are temporary. The term is used in timber sale contracts for roads that are built by the operator, and obliterated by the operator upon completion. The South Fork analysis does not claim hydrologic recover immediately after obliteration. The analysis uses a model of hydrologic recovery that would show recovery of a temporary road in approximately 35 years (s. 4.2.0.1, s. 4.2.0.2, s. 4.2).*

While you do disclose some of the impacts anticipated from building new temporary roads, we also have concerns about **reusing old temporary roads** that were put in when the stands were originally logged. Your preliminary analysis says nothing about the impacts of reopening/rebuilding these roads. Please disclose information about these roads: Were they located appropriately when built? Are there

any stream crossings, etc? How will reopening and repairing these roads impact soil and water resources? Please disclose how this work will be done and what impacts it will have. *The impacts have been disclosed. There are no stream crossings and the roads have been selected for reuse because they were located in appropriate locations and serve the long-term transportation needs of the area (s. 4.2.0.1, s. 4.2.3).*

2. Thinning Suggestions

Thinning must be done very carefully (and in many cases avoided) in order to avoid, minimize, and mitigate logging's numerous adverse ecological effects including: (1) removal of large trees that are disease and fire resistant (Frost 1999); (2) increased levels of fine fuels and short term fire hazard (Weatherspoon 1996, Huff et al. 1995, Wilson & Dell 1971, Fahnestock 1968); (3) increased mortality of residual trees due to pathogens and mechanical damage to boles and roots (Filip 1994, Hagle & Schmitz 1993); (4) damage to soil integrity through increased erosion, compaction, and loss of litter layer (Harvey et al. 1994, Meurisse & Geist 1994); (5) creation of sediment that may eventually be delivered to streams and harm fish (Grant & Wolff 1991, Beschta 1978); (6) retention of insufficient densities of large trees and woody debris to sustain viable populations of cavity-nesting and woody debris dependent species (DellaSala et al. 1996); and (7) reduced habitat quality for sensitive species associated with cool, moist microsites or closed canopy forests (FEMAT 1993, Thomas et al. 1993). *The units are plantations with no large trees (s. 4.3.1). Where applicable these issues have been addressed in the EA.*

One of your evaluation criteria should be whether any short-term degradation of ACS objectives is off-set by long-term benefits brought about by the proposed action. *The ACS objectives would be met (s. 4.2.13, EA Appendix E).* For example, sediment caused by culvert work will generally be off-set by better fish passage and or better accommodation of high flows. And some insolation, weeds, and soil disturbance from logging can be off-set by enhanced understory diversity and increased growth of conifers brought about directly by the canopy reduction. However, extensive road construction or road reconstruction will not be justified by a small restoration thinning effort. And ground-based logging that allows heavy equipment off of roads may cause significant soil disturbance that will not be offset by any intended benefits to the vegetation. *In addition to the restoration element that would be applicable to riparian reserves, the project has other objectives including health and growth, and providing forest products that also require road use. The EA documents effects to these resources and I have found that the effects are not significant (Decision Notice).*

Again, we like the variability you are starting to regularly build in to your thinning prescriptions. We especially like your plan to treat riparian reserves to create increased diversity and promote future course woody debris, and then leave them alone.

We hope you will design the planned “skips” and “gaps” to protect the few legacy features that are in these stands and the seeps/wetlands that are present but not part of the riparian reserves. *Seeps and wetlands are riparian reserves. Many larger seeps and wetlands are mapped and included in GIS maps of riparian reserves but some are too small to locate accurately or were unknown at the time GIS maps were created. Skips are used to protect the small isolated wet areas that are sometimes found in harvest units (3.6.2).* We also wish you would leave more or all of the minor species in the stands to help promote diversity. *EA s. 3.2.1*

Regarding your specific logging system plans, we feel it would be better NOT to do GB yarding in units 9 and 11 (as proposed in Alt B) due to steep ground. If you do choose Alt C to avoid this, perhaps you could consider dropping the 7 acres in unit 11 to be done with helicopter logging, as this raises the project costs significantly for such a small area. Also in Alt C, 2300 feet of new road to reach 13 acres (unit 13) is far too much. Why not keep tractor swing proposed in Alt B for this unit or drop it altogether? As you might guess, Alt D with no roads is our preferred alternative, but we ask you to still consider the tractor swing proposed in Alt B for unit 13 to drop the cost of doing that unit with helicopter. What is the probability of Alt D being bid on with the helicopter logging in place? Our major concern with Alt D is the reuse/rebuilding of the old roads. Until we see an analysis of their impacts we can not be completely comfortable with this alternative. *The effects of reusing old roads is included in the EA s. 4.2.3, s. 4.5 and s. 4.6. Our analysis shows that helicopter is an expensive logging system. I choose to keep the helicopter options, in part to show the trade-offs between alternatives.*

3. Protect Soil and Water Quality

Soil disturbance caused by logging, road building, skid trails, and pile burning causes erosion that adversely impacts both soil and water resources. Mass failures from roads and logged areas are more frequent, larger, travel farther, contain less wood, and damage a far greater percentage of stream channels in a watershed than do those from mature forests.[1] *Mass failures have not occurred in this area in the past due the stable nature of the landforms and the proposed thinning is not likely to trigger new mass failures (EA s. 4.6).*

Scarification, ripping, and subsoiling does not alleviate the following negative impacts, therefore not completely mitigating:

- compaction of soil and alteration of the soil ecosystem;
- alteration of hydrology, water storage, flow, timing, from soil compaction;
- alteration or loss of native plant communities, and tendency to create conditions which favor noxious weeds or other non-native plants;
- disruption of soil foodweb and biotic communities that serve important soil functions and processes such as aeration, nutrient cycling,

Soil productivity must be zealously guarded in order to protect our forests for future generations. Use of ground-based logging equipment almost always compacts soil causing reduced site productivity, drastically altered soil food web relationships, reduced infiltration, and increase surface runoff. Ground-based logging causes higher incidences of root damage and scarring of residual trees (compared to skyline systems)[2].

Ground-disturbing activities in RR can be extremely detrimental to soil and water resources. While some of the ground in the RR here has probably been previously impacted, please take every precaution to keep ground-disturbance to a minimum in riparian areas so they can continue to recover from management activities.

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[1] May, C.L., 2002. Debris flows through different forest age classes in the central Oregon Coast Range. J. Amer. Water Resour. Assoc., 38: 1097-1113.

[2] Kellog, L., Han, H.S., Mayo, J., and J. Sissel, "Residual Stand Damage from Thinning— Young Stand Diversity Study," Cascade Center for Ecosystem Management.

Even with subsoiling of temporary roads and landings, there will still be impacts to soil resources. I have found that these impacts are not significant (EA s. 4.6 & Decision Notice).

As noted above, we'd also like to see you protect seeps and wetlands more explicitly. *EA s. 3.3.3, & s. 3.6.2.*

We have some concerns with the proposed aerial fertilization near the riparian reserves as well. To minimize chances of drift and spread of the fertilizer into riparian areas, please look at expanding your buffer of these areas. *EA s. 3.6.9. The units proposed for fertilization are not near riparian reserves..*

5. Create more CWD and Snags

Bats, martens, woodpeckers, bears, amphibians, invertebrates, and many other species are dependant upon snags and down wood. Snags and down wood also serve several crucial ecosystem functions related to site productivity, nutrient storage & cycling, hydrology, geomorphology, disturbance, and habitat (terrestrial, riparian and aquatic). Current direction for protecting and providing snags and down wood tend sot be focused on a small subset of the full spectrum of values provided and does not ensure the continued operation of these ecosystem functions or meet the complete lifecycle needs of the many species associated with this unique and valuable habitat component. Please consider all the many values of snags and down wood presented in C.L. Rose, et al's 2001 paper.[3] *EA s. 3.6.2, & s. 4.5.10*.

It seems that you will try to protect any legacy features, and as we've noted above we hope you can do this, if necessary, by using the "skips" and "gaps" built into the prescription. However, there aren't many snags or large down logs here, right? The PA mentions potential for snag and down wood creation in the units. If you can find the money to do this, we hope you will make this a priority, especially in the riparian reserves, where you don't anticipate further treatment.

Ferranti

Roads

- Are there uninventoried roadless areas over 1000 acres in this project? *No.* Is there planned logging or road building within them? This needs to be avoided.
- If a subwatershed exceeds the Mt. Hood National Forest Land Resource Management Plan's (LRMP) standards for road density – no new roads should be constructed or reconstructed. The guidelines of the LRMP were certainly written with logging in mind, so the idea that you need to exceed the LRMP to log is logically absurd. Since the system roads don't take into account the rogue roads, the total road density in this area is even more extreme than is likely to be admitted. *Forest Plan standard and guideline FW-208 refers to OPEN road density for deer and elk and FW-210 specifically suggest that exceptions may occur based on local circumstances. The project is not creating any new system roads or any other road that would*

[3] Rose, C.L., Marcot, B.G., Mellen, T.K., Ohmann, J.L., Waddell, K.L., Lindely, D.L., and B. Schrieber. 2001. Decaying Wood in Pacific Northwest Forests: Concepts and Tools for Habitat Management, Chapter 24 *in* ***Wildlife-Habitat Relationships in Oregon and Washington*** (Johnson, D. H. and T. A. O'Neil. OSU Press. 2001) http://www.nwhi.org/nhi/whrow/chapter24cwb.pdf

remain open to the public. EA s. 4.5.13. Public comment has suggested that we not combine timber sales and restoration projects in one EA. Alternatives A, B and D do not construct new roads. Where old roads are being reused - there are no stream crossings and the roads have been selected for reuse because they were located in appropriate locations and serve the long-term transportation needs of the area. The Clear Creek area has checkerboard ownership with roads that cross National Forest lands and access BLM and private lands. We have an obligation to adjacent owners to honor their access rights. Road density in other areas such as Fish Creek have been reduced far lower that the Forest Plan standard level in part to compensate for other areas where road density would remain higher (EA s. 4.12).

- Landings attract illegal dumping. This is a particular problem in this area. With the large number of landings planned, and the FS unable to address the current illegal dumping problem, this project will just act to aggravate a problem that is intractable at this time. *Since the units have been logged before, existing landings are available to use again.*
- Any economic analysis of this project needs to include the costs of added law enforcement for new illegal dumping sites (as many landing traditionally become. *It is not likely that this project would attract new illegal activity that is not already occurring. Past sales in the area such as Guard and Clear have not caused additional dumping.*

Looking for more clarity on local history

- The area is described as "plantations" though unit 12 appears to be primarily hemlock and silver fir. Has the Forest Service been creating plantations of silver fir? Just to be sure that there is no misunderstanding on my part it would be helpful if it is confirmed that "plantation" is being used to describe active planting of the trees done under the authority of the USFS rather than passive reseeding by adjacent stands. *The term "plantation" is used for stands that have been clearcut and planted to distinguish them from other stands that have not had intensive management. It is common for non planted species to also occur in plantations mixed in with the planted trees. Some silver fir trees can continue to survive from before the clearcut and silver fir, hemlock and other species often seed in from the edge. There are also planted noble fir trees that can sometimes be confused with silver fir. All of the units in South Fork Thinning are plantations: Old aerial photographs from 1960 are on file at the District office that clearly show the units as created clearcuts; and stand records also show the dates of clear cutting and planting (EA s. 4.3.1).*

- Local old-growth density number is not cited or backed-up with historical data. I would expect this type of data to be important when trying to set some sort density targets for the Riparian Reserves. *The target post thin density numbers are not intended to replicate "old-growth" stand density conditions. The intent is to reduce the stand densities so that the dominant trees are capable of maintaining high diameter growth rates, which mimic the early growth rates of many late-successional trees. Research indicates that this strategy would most likely develop future forest stands that replicate late-successional forests (EA s. 4.2.6).*
- Do the density numbers take into account local "old-growth" conditions that change with watershed, elevation, slope aspect, riparian reserve, dominant species, etc.? *See above. Local factors and future events such as insect damage or tree diseases would help to create the future late-successional characteristics.*
- Are current dbhs different between riparian and upland? *No.*
- Are current densities different between riparian and upland? *No.*

Purpose and Need

- How can the FS cite under the Purpose and Need "enhance and restore diversity" when the thinning is going to remove the smallest diameter trees thereby reducing the structural diversity within the stands? *EA Section 3.2.1 & 4.4.3 describe how variability will be achieved.*

Prescription

- Clearcuts for deer should be done in pre-commercial thins, doing it in mid-seral stands is a deceitful way of clearcut logging without public awareness. *No clearcuts are proposed.*
- Any assertion that forage areas need development need to include analysis of private timber lands. With the significant amount of clearcutting done on those adjacent lands, the assertion that more forage is needed within the project area is suspect. *The project does not include the creation of forage areas.*
- Any assertion that forage areas need development need to include analysis of BLM lands. Logging on those BLM adjacent lands may have already created the forage that is needed within the project area is suspect. *The project does not include the creation of forage areas.*
- Fertilization is unnecessary because, as noted, these stands are growing so well that they need to be thinned. *Fertilization is not necessary. It is a proposed action that will enhance the growth and health of stands (EA s. 3.2.3).*
- How will even the full Riparian Reserves be able to block transmission of the fertilizer at all? The mobile nitrogen fertilizer is unlikely to respect the different Riparian Reserve (i.e., perennial vs. intermittent) widths, never mind the non-existent reserve widths for ephemeral streams (termed wetlands under 1 acre) which could act quite effectively in delivering the nitrogen load downstream. *EA. s. 3.6.9, 4.2.5. The units considered for fertilization are not near riparian reserves.*
- Thinning smallest trees leaves units more homogenous not less homogenous. *The trees in the plantations are very similar in size and are part of one canopy layer. See EA s. 3.2.1 & 4.4.3 for a description of variable thinning.*

Riparian

- Heavy Riparian Reserve logging has unknown consequences for how well the Riparian Reserves will continue to function as connectivity corridors. What are the references and citations for this approach? *Proposed thinning in riparian reserves would be designed to meet riparian reserve objectives of enhancing late-successional characteristics (EA s. 4.2.6). Silvicultural diagnosis is in Appendix E.*
- Any patches of laminated root rot that occur in riparian areas should be left untouched since they naturally act to create canopy openings. Not only do they create these openings, but the disease acts to enhance deciduous growth (very important to creating more diversity within conifer forests) by targeting confers (deciduous maple and alder are immune). *Totally avoiding root rot patches is not feasible because there are no clear lines delineating where the fungus is present and where it is absent in the forest. If the fungus has reduced stocking in a patch to a level less than the prescribed leave tree density then no additional thinning would occur.*
- Any patches with native tree disease in addition to laminated root rot that occur in riparian areas should be left untouched since they naturally act to create canopy openings and increase structural heterogeneity. *See above.*
- Unit 12 just "leaks," in a simple transect I found numerous wetlands under 1 acre. What provisions are there for protecting this diversity? *Seeps and springs may be excluded from the unit boundary or may be protected by marking leave trees around the perimeter (EA s. 3.2.2).*

- The concept that intermittent streams don't need as large a no-cut buffer as perennial streams is logically flawed. Air-borne dust, rain, and rain-on-snow events – primary non-catastrophic mechanisms for sediment transport into local streams operate equally well for both perennial and intermittent streams. Simply put, intermittent streams (streams with enough water flow that they show either annual deposition or scour) are running when you get either rain or rain-on-snow and need the same level of protection as the perennial streams. Airborne dust from summer road travel deposits in intermittent stream beds and on the surrounding vegetation – this dust will mobilize when it rains and the intermittent streams flows again. There is little difference in terms of sediment transport between perennial and intermittent streams and the use of the smaller -or zero- no-cut buffer appears illogical and poorly reasoned. *The no-harvest buffers for perennial streams are wider to provide additional shade.*
- Under no circumstances are landings appropriate in riparian reserves. *EA s. 3.6.7. The design criteria were developed with input from NOAA Fisheries to provide adequate protection to aquatic resources.*
- Fertilization is a danger since it is so mobile the changes are that it will end up in the local waterways adding to the nitrogen loading in local streams. *EA. s. 3.6.9, 4.2.5. The units considered for fertilization have gentle slopes and no direct connection to streams.*

Soil

- Forest plan standards on detrimental soil conditions were written with logging in mind. If the area exceeds LRMP then there should be no further disturbance in those areas until they are recovered to the LRMP standard. *The Forest Plan gives direction for "should" standards and guidelines. The no-action alternative was considered. See Decision Notice and EA s. 4.6.*
- It is reasonable for the ARP to include past, present, and future BLM and private land use planning, since this information would be required for both FS and FWS to adequately address the impact of the sale on ESA listed species (e.g., northern spotted owl, various anadromous species). Since it is reasonable to assume that the FS has this information, it is reasonable to assume that any ARP numbers that are run include them. *The ARP analysis to document consistency with Forest Plan standards and guidelines applies to National Forest lands (EA s. 4.2.12). The watersheds contain both BLM and private lands. The anticipated impact of the project to forest hydrology is so small that it would not likely result in a significant incremental effect to the watershed as a whole (Decision Notice).*