**BARK**
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December 17th, 2012

Dear Whitney,

Bark's mission is to bring about a transformation of public lands on and around Mt. Hood into a place where natural processes prevail, where wildlife thrives and where local communities have a social, cultural, and economic investment in its restoration and preservation. Bark has over 7,000 supporters who use the public land forests surrounding Mt. Hood, including the areas proposed for logging in this project, for a wide range of uses including, but not limited to: clean drinking water, hiking, nature study, non-timber forest product collection, spiritual renewal, and recreation. We submit this protest on behalf of our supporters and include by reference all comments received by our supporters.

Bark is fundamentally at odds with the Forest Service's approach to commercial logging as restoration. Bark knows that the forests of the Cascade Mountain region have self-managed for thousands of years without heavy human interference, and the best way to restore the damage of the last century of industrial forestry is to let the forest restore itself.

This is not a restoration project – it is a commercial timber sale. Restoration projects don't lead to additional degradation and retard achieving Forest Plan standards for wildlife health and habitat for decades to come. We would prefer that the Forest Service also acknowledged the truth of the matter and used more appropriate language in describing its project. As such, we will refer to the project henceforth as the Red Hill Timber Sale.

**Commercial logging as restoration**

The Red Hill Timber Sale is premised on the assumption that thinning grows bigger trees faster and that this outweighs the ecological impacts of increasing soil compaction, sedimentation, and peak flows while decreasing wildlife habitat, down woody debris and snags. This assumption is neither fully supported in scientific literature, nor applied equally to every stand of trees in the Red Hill project area.

As we noted in our comments on the recently withdrawn Jazz Timber Sale, the science and implementation of restoration treatments in young-managed forest

landscapes is in its infancy. As recognized by the Pacific Northwest Forest Restoration Learning Network, while retrospective studies and models suggest active restoration is warranted, there are few long-term studies which help managers clearly identify "best management practices" for thinning projects. (Davis, 2008). In fact, a common debate is whether forests should be actively restored (e.g., thinned) and how management of road systems interact with thinning to affect ecosystem recovery at watershed and landscape scales. Moreover, as forest managers begin to implement active restoration in degraded forest landscapes, specific prescriptions for treatments have been extremely diverse. With limited practical experience, managers often are struggling to interpret the scientific literature and develop treatments that are both operationally feasible and consistent with long-term ecological objectives. (Davis, 2008).

As noted above, the concept of active thinning to restore forests is fairly new, and yet unproven. One important body of research on restoring young forests has come from the Pacific Northwest Coastal Forest Restoration Learning Network. The Learning Network was created in an effort to facilitate communication between managers and scientists, and catalyze growth in practical restoration knowledge. The Learning Network includes members from restoration projects within young-managed forest landscapes throughout the Pacific Northwest Coast (SE Alaska, British Columbia, Washington, Oregon, and northern California) and parts of the West Cascades, North Cascades, and Pacific Ranges.

Far from making the sweeping claims that the Forest Service presents in the Red Hill PA, the Learning Network has identified several remaining questions about the impacts of thinning. (Davis, 2008). Of particular interest to Red Hill are the following questions identified by the Learning Network, followed by suggestions for further research:

*How will stands develop if they are left unthinned?*

We are not certain how stands will develop if they are left unthinned. Because so much of the landscape remains in a younger condition (under 80 years), we still have little empirical data on the development of unthinned stands. Often, the decision to thin or not thin a stand is a decision based on operational logistics, economics, and expectations of improving ecological conditions of the system. Bark would argue that with units 21 and 26 progressing in a way that seems more aligned with natural succession –with understory initiation, suppression mortality, and shade tolerant tree growth commencing – these stands may offer us such an opportunity.

*How do treatments interact with the natural processes of the forest system?*

It is not clear how restoration treatments may interact with or change disturbance regimes or alter hydrologic regimes. For example, it is possible that

thinned trees may become wind-firm and reduce the amount of windthrow patches in the future stand. Alternatively, thinning could encourage increases in forest pathogens (e.g., Annossus root rot in western hemlock) that may prevent the stand from reaching a late-seral state. In addition, thinning can alter wildlife behavior (e.g., increase bear damage, alter ungulate browse). These may have unanticipated impacts on stand development and should be considered from the outset.

*If a young stand is treated, what type of treatment should be used?*

Knowledge on the impacts of variable density thinning and the inclusion of skips and gaps, including size and spatial arrangement, is still unknown. Results from most studies that have investigated these are still in early stages of development, so long-term trends remain clouded. The tradeoffs of one entry versus multiple entries are also unclear. Many believe that multiple entries may be necessary to achieve late-successional habitat, especially where western hemlock is prevalent. However, the repeated disturbance from tree felling and harvesting equipment on other elements of stand structure and composition are not known. (Davis, 2008).

Bark echoes these uncertainties about thinning and requests that the Forest Service engage with this scientific uncertainty rather than making unsupported, sweeping conclusions about the unequivocal benefits of thinning.

In addition, other research on thinning urges forest managers to approach such projects cautiously, acknowledging their uncertainty and ecological tradeoffs. A team of six scientists recently considered large scale thinning and identified many concerns about the practice. They found that even when confined to previously harvested stands, thinning treatments must be evaluated carefully and implemented in such a way as to avoid negative impacts. (Carroll, 2009). Ground based methods and associated machine piling, burning of activity fuels, construction and increased use of roads and landings can increase soil erosion, compact soils, and elevate surface runoff. (Carroll, 2009).

The study concluded that no evidence exists to support the contention that an extensive thinning program will hasten restoration of historic patterns of forest heterogeneity on a landscape scale. Hence, thinning treatments should be applied cautiously and only where ecologically warranted. Thinning should not be considered a cure-all for forests degraded by fire exclusion or other human activities. (Carroll, 2009). As discussed below, Bark requests that the Forest Service engage with these questions and cautions to develop a more reasoned and scientifically supported restoration-based alternative for inclusion in the Environmental Assessment.

In the context of these uncertainties and cautions, and with a purpose and need that is explicitly focused on ecosystem restoration, Bark offers the

following comments to encourage the Forest Service to re-think the Red Hill Project and make it more ecologically sound.

**Stew Crew Recommendations**

Even though Bark approaches forest management with different goals and values than does the Forest Service, we attempted, through our participation in the Hood River Collaborative Stewardship Crew (Stew Crew), to engage these differences and create a good project. This group included a diverse participant body, and generated some very good discussions and recommendations.[1] Bark is discouraged to see that the Forest Service has not valued or incorporated all of the results of the Stew Crew meetings into this project, especially as regards Variable Density Thinning and Logging for Forest Health.

*Variable Density Thinning*

After considerable discussion in the Stew Crew, it recommended that plantations be thinned using "Variable density thin from below with skips and gaps up to **two** acres". *PA at 1-15.* While it lists this recommendation in the PA, the Forest Service chose to ignore it, and proposes to use variable density thinning with gaps from **one to five** acres in size. *PA at 1-14*. It is unclear that a five acre clearcut is a "gap", and this is something the Stew Crew explicitly declined to endorse. The PA never explains why the Forest Service deviates from the Stew Crew's recommendation, nor why such large gaps are necessary. Bark suggests that there is little to no need for additional early seral habitat in the project area, as 35% of the watershed is in private hands, and much of this is clearcut, as well as the large clear cut utility corridor (Big Eddy) running through the project area.

As another example as to why these 5 acre gaps are unneeded, take unit 44. Table 2-3 in the PA shows that 3 gaps totaling 10 acres would be placed within unit 44. Yet when groundtruthers looked at the unit on the ground we found numerous openings already naturally occurring within the unit. As pictured to the left this opening in the northwest corner of unit 44 was approximately an acre in

[1] The PA lists Rocky Mountain Elk Foundation as an environmental group. Bark believes this to be in error, as the objectives of the RMEF are fundamentally at odds with sustainable ecosystem management. Bark believes it should be listed as a user/ recreation group.

size and already achieves the goals of new gap creation. It furthers show that these stands have the natural ability to create the complexity that this project purports to achieve.

If the Forest Service wants to encourage people to participate in future collaborative processes, it would do well to: 1) follow the recommendations of the group; or 2) provide a detailed explanation of why it chose not to do so. For the Red Hill Timber Sale, Bark strongly advises the Forest Service to follow the Stew Crew's recommendations and decrease the maximum size of gaps to two acres.

*Logging for Forest Heath*

In its summary of the results from the Stew Crew's review of the Red Hill Timber Sale, the PA failed to include that "There was no agreement on a recommendation [for Forest Health Treatment] due to the lack of documented need for forest management in the units." The absence of agreement is as valuable as the presence of agreement in moving forward with a project, and the Forest Service should have listened to the silence of the Stew Crew and not included the Forest Health Treatment units in the Red Hill Timber Sale.

Bark has consistently challenged the stated reasons for the Forest Health logging. Our extensive surveys on the ground and from our understanding of forest ecology, the reasons are simply inaccurate. One reason is that the forests are in poor health because they are dense; and the other reason is that there are occurrences of insects and disease. *PA at 2-1*.

Let us consider forest ecology. If a stand of naturally regrowing forest begins competing for resources, some trees are weakened and become more vulnerable to insects and disease. These trees may die, becoming snags that provide essential wildlife habitat, or fall to become down woody debris, which opens up the forest canopy and cycles nutrients back into the forest floor. Thus, from a basic understanding of the cycles of forest succession, the "Forest Health" stands in the Red Hill project are growing as nature intended. Even if the trees are dying off "above normal insect and pathogen mortality" this would be a positive factor in an area that is already snag deficient. *PA at 1-12*.

All this aside, Bark volunteers observed a very different story on the ground in units 44 & 50. They did not observe any major signs of disease, or impact from balsam woolly adelgids (who only prey on true firs, of which there are few in these units). Indeed, Bark volunteers observed a beautiful multi-story forest, with a high diversity of conifer species – including Douglas Fir, Western Hemlock, Lodgepole Pine, Noble Fir, Pacific Silver Fir, and Western White Pine. Not only are these the healthiest parts of the forest that Bark volunteers visited, they are the ones that the Forest Service wants to log the heaviest - down to a 40% canopy closure.

They also observed that these are two of the only units with adequate number of snags (the other two being the older sections of 21 & 26). In unit 44, we even observed snags of sufficient number and size to provide suitable habitat for pileated woodpecker. This contrasts with the conclusion in the PA that none of the units contain sufficient numbers of large trees or snags to provide potential habitat for the pileated woodpecker. *PA at 3-147.* Bark requests that the Forest Service survey for pileated woodpecker in units 44 & 50 or, for this and so many other reasons that these comments will raise, simply remove these units from the project.

As best as Bark groundtruthers could tell, units 44 & 50 are naturally moving towards achieving the desired stand characteristics, and have no noticeable major outbreaks of insects or disease. Logging these units would retard the natural functions in a variety of ways.

**Snags**

Standing dead trees (snags) are important resources for vertebrate and invertebrate species worldwide and to forested ecosystems. They return essential nutrients to the soil and increase soil fertility. In the Douglas-fir and western hemlock forests of the Pacific Northwest, over 100 vertebrate species utilize snags for some part of their life cycle. Approximately 20 percent (34 species) of all bird species in the Pacific Northwest depend on snags for nesting and feeding and the abundance of snag-dependent birds is correlated with the density of suitable snags. (Boleyn, et. al., 2002).

The starting place for this project area is one of snag scarcity: On average the proposed treatment units are below Mt. Hood Land and Resource Management Plan (Forest Plan), FW-215 and 216 standards for snags. Currently, there are roughly 0.5 snags per acre 20 inches DBH and greater across all dominant plant associations. Forest Plan standards for Western hemlock are 2.2 snags per acre and Pacific silver fir are 2.4 snags per acre.*PA at 3-7.* In the context of an already snag-depleted ecosystem, a restoration project that removes even more snags is troubling.

In the analysis of the proposed action, the PA acknowledges that snags will be cut during harvest operations, temporary road construction, road decommissioning, road closure, and storm proofing due to safety considerations and that some downed logs would be degraded during project implementation. *PA at 3-150.* Yet, the PA does not provide any number or estimate of

how many snags will be lost, or acknowledge that most of the trees that would have become new snags will be logged – leaving fewer, healthier trees that will not die for decades. We should look at questions like: In a landscape that is already denuded of snags, what would be the impact on snag dependent species during the time lag when there are even fewer snags in the forest than there are now?

Bark is most concerned about the helicopter yarding in the Forest Health units. Where are the helicopter landings located? What is their circumference? This is important information, as Bark has been researching the OSHA standards regarding helicopter logging and snags. Helicopter logging creates unique safety hazards such as rotor wash, the wind created by the helicopter, which can exceed 100 kilometers per hour. Any loose limbs, ground debris, snags, or non-windsafe trees must be removed before allowing the helicopter in the area.

I recently spoke with Dale Cavanaugh from the regional OSHA office to determine the extent of the area that must be cleared of snags and other non-windsafe objects, and he told me that all snags within 200 feet of the landing would have to be cleared. Depending on the size of the landing, that could be a fairly large percent of the snags – especially in the only units with adequate numbers of snags!

The PA ties to downplay this by saying that "there would be little direct effects on existing conditions because suitable snags would be maintained unless they pose a health and safety risk." *PA at 3-15*. It seems that a fairly high number of snags might fall into the category of "health and safety risk" – please provide more accurate information in the EA.

In sum, Bark disagrees with the PA's conclusion that "because of the very small number of snags expected to be cut, there would not be a reduction in the percentage of biological potential being provided for species dependent on snags and down wood." *PA at 152*. This timber sale will eliminate an unknown (but possibly significant) number of snags from the landscape for safety reasons, and remove most of the trees that are on their way to dying from insects and disease and becoming snags. In these two ways, this project will further retard attainment of the Forest Plan standards. Finally, the PA argues that the future snags will be bigger, thus provide better for habitat needs. From the PA table 3-33, it appears that in 100 years, under the no action alternative, there will be twice as many large snags, and that the QMD of thinned trees will be only two inches greater. Two inches is not an impressive surge of growth, nor does it seem to make that much different in habitat quality. *PA at 3-94*. This seems especially so when we are considering decades of having a reduced number of snags in the planning area.

**Analysis of the "No action alternative"**
This project is moving forward on the assumption that the only way to meet the restoration goals of the purpose and need is to have a 1,500 commercial timber sale, with all the accompanying adverse environmental impacts – that are primarily caused by the infrastructure (roads, skid trails, skyline yarding corridors, etc.) needed to remove commercial products from the forest. This is an assumption Bark does not share.

Indeed, it is not at all clear that the no-action alternative would not also meet the first three facets of the purpose and need: 1) to increase health and growth of stands; 2) create greater variability of vertical and horizontal stand structure; and 3) maintain or enhance aquatic habitat and riparian conditions by improving forest health. *PA at 1-4*.

The Forest Service does a strange thing in its comparisons of the action and no action alternative which obscures this point: it analyzes the action alternative as if time exists, but the no action alternative as if time doesn't. For example, the PA finds that under the no-action alternative forests would "continue to remain uniformly dense and overstocked" *PA at 2-1.* This fails to recognize that the forest changes over time, even without human interference. The "no action" forest would experience increased tree mortality, which would open gaps, create more snags, add structural diversity, lead to the introduction of other species, etc, all of which achieve the purpose and need.

By focusing almost solely on tree width and density, the analysis of "No action" in Section 3 never discloses the positive outcomes from no action, such as increased snag density in the short-term, increased down woody debris, less soil compaction, less erosion and sediment loss. Another way to approach this section would be to acknowledge all the potential ecosystem damage from commercial logging operations and road building that come from the action alternative, and analyze how much better the forest would be without having those occur. Please try incorporating more of that information into the EA.

**Environmental Impacts**
Much of the analysis acts as if all of the stands are in the same pre-existing condition. This is not accurate. Units 26, 44 and 50 are all significantly older forests, which have much more structural complexity and diverse understory. Of all the units proposed for treatment, the following three units have marginally suitable mid-elevation late-successional forest habitat for R6 Sensitive species and Survey and Manage species: Units 26 and 50 are both approximately 75 years old with a current canopy closure density of approximately 70 percent. Unit 44 is the oldest unit proposed for treatment; stand age is approximately 99 years old and current canopy closure is approximately 70 percent density. *PA at 3-160*. These are the units that Bark requests be removed from the project, as these forests are all healthy and

moving towards the desired conditions, and logging could actually keep them from meeting the purpose and need.

*Fungi*

If R6 Sensitive and Survey and Manage fungal species are present in the vicinity of the proposed project area they would be most likely to occur in Unit 44. *PA at 3-160*. The Forest Service did not do multi-year surveys for fungi, therefore it is assumed that R6 Sensitive/Survey and Manage fungi are present due to the presence of late-successional forest. *PA at 162*. These fungi would be adversely impacted as host trees for some fungal species may be cut which would directly impact the exchange of nutrients between host trees and fungi. In the short term, fungal mycelia would be disturbed and fragmented by machinery during project implementation and would also likely be impacted by localized soil compaction and short-term erosion. *PA at 167*.

Soil compaction reduces long-term soil productivity by adversely affecting mycorrhizal fungi. Mycorrhizal fungi are essential for tree survival and productivity. These fungi mainly reside in surface layers of soil and organic matter and provide numerous benefits to their host plants, including: enhancing the uptake of essential nutrients and water; protecting against pathogens; binding soil particles to create favorable soil structure; and facilitating below-ground nutrient transfer among plants. (Wiensczyk, 2002). These miniscule fungi can determine the structure and dynamics of plant communities, and are major players of below ground plant interactions.

Logging and yarding impact the forest floor on a variety of levels. They decrease available organic matter, such as fallen trees, that can be colonized by mycorrhizae and utilized for their water-retention properties. Logging-related activities also compact soils. Soil compaction degrades soil structure and restricts movement of oxygen and water through the soil, which prevent plants from forming feeder roots most closely associated with mycorrhizae colonization.

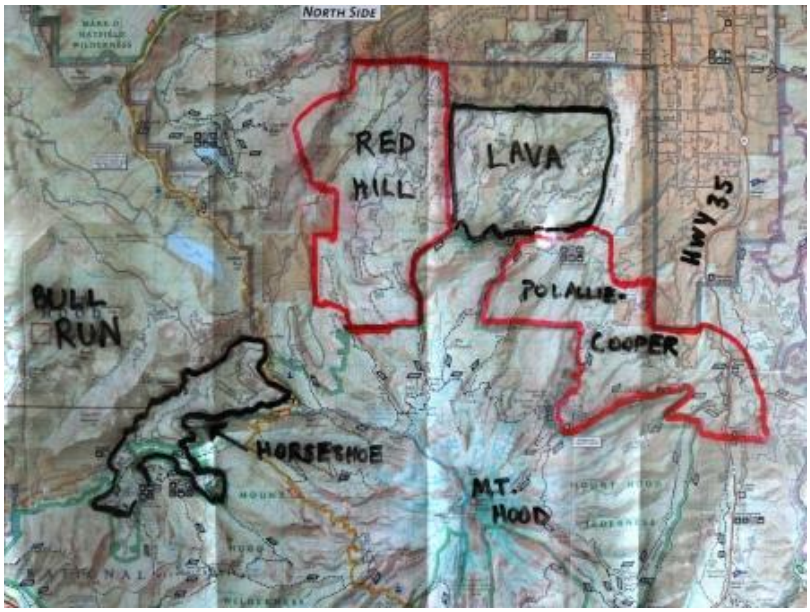
Removal of LWD adds to the adverse impacts of soil compaction. In heavily compacted areas, the number of ectomycorrhizal root tips was greatest in areas of highly decomposed woody debris. Additionally, wood debris from current or future fallen snags act as an inoculum for mycorrhizal species and also as a water retention site in the soil (Amaranthus, et al 1996). In fact, exporting organic matter out of the forest limits the ability of mycorrhizae to respond to soil compaction as woody soil debris act as a refuge for certain species.

A relevant study found that ectomycorrhizal root tips were reduced over 60% in areas of high compaction by tractor yarding, coupled with organic material removal, and that effects of soil compaction on forest ectomycorrhizal networks can last up to 45 years. (Amaranthus, et. al 1996). This means that the

"restoration" logging in unit 44 could actually damage soil productivity for many decades.

Given all this information, Bark does not understand how the Forest Service concluded that the Proposed Action is expected to have a **Beneficial Impact/Effect** on the Survey & Manage fungi. *PA at 3-169*.

**Cumulative Impacts:**




Four words: Lava, Pollalie Cooper, Horseshoe.

Are these not reasonably foreseeable projects with cumulative impacts? How is it that they were left out of the analysis altogether?

Please include the potential environmental effects of these sales in the EA. There is no way we can adequately analyze what is happening on Mt Hood without looking at the cumulative effects of all these projects.

*Riparian Reserve Logging*
Commercial logging in Riparian Reserves is allowed only when *necessary* to "acquire the desired vegetation characteristics needed to attain ACS objectives." *NFP at C-33*.

The goal of "growing bigger trees faster," which seems to be the main justification for logging in the Riparian Reserves, is not necessary to attain any of the ACS objectives. Additionally, there are many possibilities for ecological damage from commercial logging and yarding in Riparian Reserves. Logging, yarding, landings, and roads in riparian zones degrade aquatic environments by lessening the amount of large wood in streams, elevating water temperature, altering near-stream hydrology, and increasing sedimentation. (Karr et al. 2004).

The Forest Service has failed to establish the need for commercial thinning to attain ACSOs – aside from stating that the riparian vegetation is "overstocked" with relatively uniform trees with low levels of diversity. Bark's experience on the ground in the project area leads us to believe that this is a drastic oversimplification of the riparian areas, which include many spacious, diverse, well-functioning stands. Even if the Forest Service's generalization were true,

this still doesn't support the need to log in Riparian Reserves, as the EA never shows why logging is **needed** to attain ACSOs. Bark requests that the Forest Service remove all commercial logging from riparian reserves, as it is well-documented to lead to adverse watershed impacts and is not necessary to attain ACSOs.

There are very few data on the impacts and benefits of riparian thinning, and what is available is highly ambivalent or indicates net harm to water quality (Reeves et al. 2006b). This suggests that the risk of inadvertent adverse effects on water quality and aquatic biodiversity from an extensive mechanized thinning program is high (Rhodes 2008). In this project, Bark is specifically concerned about sediment delivery and loss of wood recruitment.

*Sediment*

The West Fork Hood River already exceeds the standard recommended in the Watershed Analysis. *PA at 3-85*. The PA mentions that there will be up to four miles of temporary roads, but that the location may change. This makes it very difficult to comment on them. One of Bark's main concerns about the new roads are potential stream crossings. The PA does not disclose if, or where, the new roads will cross streams, what the conditions of those streams currently are and how the crossing will impact water quality.

As the PA's lack specificity prevents site specific comments, Bark will have to offer more general comments about roads and stream crossings. The PA also does not include any quantitative assessment of the Red Hill Timber Sale's effects on erosion from road (re)construction compared to leaving roads in their current recovering state. Road construction is by far the greatest contributor of sediment to aquatic habitats of any management activity (Meehan 1991, Robichaud et al. 2010). Even <u>temporary</u> road construction can cause resource damage including erosion and sedimentation, exotic species spread and disruption of wildlife (Trombulak and Frissell 2000). Unpaved roads and stream crossings are the major source of erosion from forest lands contributing up to 90% of the total sediment production from forestry operations.

Although it is not disclosed in the PA, in addition to construction and reconstruction impacts, elevated road use for log haul also greatly elevates erosion and sediment delivery on unpaved roads. Research on logging roads has consistently documented that roads used by more than four logging trucks per day generated more than seven times the sediment generated from roads with less use and more than 100 times the sediment from abandoned roads (Reid et al., 1981). The USFS's own summary of scientific information on roads (Gucinski et al., 2001) concluded that "rates of sediment delivery from unpaved roads are . . . closely correlated to traffic volume." Even with a road surface of crushed rock aggregate, which is often used with the intent to reduce sediment production on road surfaces, Foltz (1990) documented that elevated truck traffic increased sediment production by 2 to 25 times that on unused roads in

western Oregon. Foltz (1990) noted that since the processes are the same across regions, a similar range of increases was likely. Primary mechanisms for increased erosion and sediment production from road use are the production of highly mobile fine sediment on road surfaces, road prism damage, disruption of gravel or aggregate surfaces, and rutting.

As with constructed and reconstructed roads, the highly elevated sediment production from roads used for haul is delivered to streams at stream crossings and other points of connectivity between streams and roads, such as gullies and relief drainage features that dump elevated road runoff laden with sediment to areas in relatively close proximity (e.g., less than 300 feet) to streams. This impact of log hauling at stream crossings, alone, will greatly elevate sediment delivery to the stream system. Please analyze this more fully in the EA.

If however you proceed with the mapped out roads on 2-10 of the PA we would strongly encourage the removal of the temporary road leading into unit 1. This road runs directly parallel to the Key Site Riparian area of the West Fork. The placement of a temporary road along this section of road will only contribute more to the problems outlined above.

*In-stream Wood Recruitment*
The Forest Plan has a standard of 106 pieces of suitable large wood per mile of stream (FW- 095). For eastside streams, all pieces of large wood should be at least 35 feet long with 80 percent at least 12 inches in mean diameter, and at least 20 percent of large wood pieces should be over 20 inches in mean diameter. With the exception of McGee Creek in the lower 1.3 miles, none of the surveyed stream reaches in the action area met the standard (Table 3-32). The West Fork Hood River, Red Hill Creek and Marco Creek were well below Forest Plan standards; McGee Creek within the Forest (the Forest boundary is at river mile 1.3) was also below standard but not to the degree of the West Fork Hood River and Red Hill Creek. *PA at 3-88.*

The PA acknowledges that riparian conditions and pathways for recruitment are recovering in much of the action area; however, short-term wood recruitment is limited because most trees are not yet of an age and/or size to fall in great numbers on their own. *PA at 3-88.* Bark believes this to be true, but is entirely confused as to why the solution to this problem is to take more trees out of the ecosystem before they reach the age/size to fall on their own. Removing the trees that are most likely to die naturally necessarily decreases the amount of trees in the riparian reserve that would become in-stream coarse woody debris.

While the PA suggests that even though there would be a longer time delay for riparian woody debris, that because the future trees will be bigger they will be

better. Again, the increased growth rate seems far from significant – definitely not enough to make a huge difference in time line for decay.

**Riparian Buffers**

The Red Hill project area contains 12.7 miles of designated critical habitat (also referred to as listed fish habitat, LFH) for Lower Columbia River steelhead (*Oncorhynchus mykiss*) and Lower Columbia River Chinook salmon (*O. tshawytscha*) habitat in the project area and 15.1 miles of Critical Habitat for Columbia River bull trout (*Salvelinus confluentus*). *PA at 3-74.*

The PA states that perennial streams, wetlands, lakes and ponds would all have a minimum of 60-foot no cut buffer, and intermittent streams would have a minimum of 30-foot no cut buffers. PA at 2-13. Bark is perplexed as to why the no-cut buffers are less than the width that NMFS has stated is essential to prevent take of ESA listed species. On Nov. 6, 2009, NFMS sent the Forest Service and BLM a letter titled "Nonconcurrence and Notice of Biological Opinion in Preparation for the Re-initiation of Informal Consultation on the 2007-2009 Low-Risk Thinning Timber Sales Programmatic Action for the Lower Columbia/Willamette Recovery Domain" ("Letter of Nonconcurrence"). The Letter of Nonconcurrence said, in sum, that based on new scientific information and analysis of data and scientific literature not considered in its prior informal consultation, NMFS concluded that the existing no-cut buffers and level of tree retention for perennial stream reaches located upstream of ESA-listed species of salmon and steelhead would cause reductions in stream shade and increases in water temperature that are reasonably certain to adversely affect these species and their critical habitat.

Bark sued the Forest Service and BLM to force the agencies to expand their no-cut buffers on existing sales to 100 feet on either side of a perennial stream. The Forest Service and BLM settled this suit earlier this year and did expand boundaries on all units within 1,000 feet of ESA-listed fish habitat, including in the nearby Lake Branch timber sales. Bark assumed that future sales would incorporate this information and include adequate buffers. Could you please explain why these smaller no-cut buffers provide ESA-listed fish adequate protection?

*Listed Fish Species*

According to the Preliminary Decision Memo for Forest Wide Restoration, September 2012 it identifies two separate projects along Marco Creek to assist ESA listed fish that reside in Marco Creek. The West Fork Watershed Analysis 4-21 notes that Marco Creek is already marked as a concern stream regarding the ARP. Further, Marco Creek is already contending with the permanent clearcut of Big Eddy which cuts right through it, leaving absolutely no riparian buffer.

This would all lead Bark to conclude that we should not be logging unit 21, which has 70% slopes above Marco Creek, and the healthiest intact ecosystem of all the plantation units.

Another item worth mentioning is the Road 1600720 that leads into unit 5. This roadway crosses the South Fork Marco Creek at two separate locations as it switchbacks into unit 5. Groundtruthers found that there were trees growing directly in the road template. Perhaps more troubling were the rockslides noted in the vicinity of the South Fork. It would be a catastrophe to have a roadway improvement trigger an event that further complicates the enhancement of Marco Creek. This is especially so since this road section is slated to be decommissioned after the project is completed. That is, if funding is available.

*Survey & Manage Mollusks*
Only one stand proposed for thinning treatment (Unit 44) is over 80 years old and thus was surveyed for potential aquatic survey and manage mollusk habitat. *PA at 3-83*. Bark believes that the Forest Service should also survey the south portion of unit 26, as our groundtruthers found it to be at least 100 years of age. It seems that the Forest Service averaged the ages of the stand in the unit to reach the 75 year stand age (as the northern portion of the unit is much younger). Currently, several environmental groups in Oregon are suing the BLM over the use of stand age averages in order to avoid surveying in stands that have components over 80 years. Bark requests that the Forest Service correct this mistake now, and conduct survey & manage surveys in the southern half of unit 26.

**Geology**
According to the WFWA 4-11 debris torrents are common on slopes above 50% in the West Fork watershed. The Forest Health Units 44 and 50 are located on steep slopes, up to 70%. Further unit 50 has 6 streams within the unit, a road that dissects the unit, and is just a quarter-mile from the West Fork. The Hood River Interim Director noted on photos of unit 50 that there were avalanche chutes within the unit, and raised concerns about this causing a potential event in the unit. Unit 50, and for that matter unit 44, are also very close to the West Fork Hood River along a Key Riparian site and should be removed from further consideration.

**Wildlife**

Earlier this year, remote cameras on the NE side of Mt. Hood captured images of nocturnal red foxes, identified as the Sierra Nevada Red Fox, long thought to be extinct in the Mt. Hood region. Please include analysis of the potential impact of this sale to this rare fox, as the sale may overlap its range.

There is a spotted owl nest right by unit 44 which, at 99 years old, is the oldest unit in the project area and borders a 100 acre LSR. Edge effects have been documented to commonly penetrate 100 m into a forest stand. Even when edge is conservatively defined based on a 60 m zone, a high proportion of existing old-growth stands are largely edge habitat and would be subject to indirect effects of thinning of adjacent stands. (Carroll, et.al., 2009). Strong edge effects also subject remnant LSOG patches to increased propagule pressure from non-native species, making them more at risk for invasion by diseases (Hansen et al. 2000, Kauffmann and Jules 2006), as well as exotic flora that grow into the forest canopy or dominate understories. The Red Hill PA contained no analysis of the impact of increasing edge effects in the LSR through logging in unit 44.

If left unlogged, this unit has the best potential of all the units to become spotted owl nesting and roosting habitat. Plans to helicopter yard it will both reduce snags and disturb owls! This unit also borders a large tract of undisturbed forest to the west that contains suitable owl habitat. Again, there are so many reasons NOT to log unit 44 for forest health. Please remove it from the sale.

While the PA suggested that the treated area would remain dispersal habitat after the timber sale, it failed to discuss the impact of commercial thinning on the Spotted Owl's key prey: the northern flying squirrel. Flying squirrel populations in second growth plantations decline after the plantations are thinned and remain at low levels for 20-40 years. The northern flying squirrel is the principle prey of the spotted owl. Additional research has found that squirrel populations in unthinned patches are larger than the thinned ones, and even those decline after adjacent areas are thinned. (Wilson, T. 2010). Predation seems to be the most limiting factor – thinning seems to open the stands and result in a period of several decades when squirrels are too vulnerable to predation so the population remains very low until new growth reaches 10 meters. Prescriptions that retain visual occlusion in the mid-story layers would be best suited for maintaining squirrel populations. (Wilson, T. 2010).

The PA failed to acknowledge that thinning reduces flying squirrel populations and that they also decline in areas adjacent to thins, and failed to quantify what the effect of a decrease in its principle food source would mean for the spotted owl.

**Invasive Species**

This section was confusing. It began by stating that the proposed project has a Moderate Risk of introducing or spreading noxious weeds. *PA at 3-170*. It ended by saying that There is a **High Risk** of introducing and/spreading noxious weeds directly and indirectly via machinery and equipment used during all ground disturbing activities proposed under the Proposed Action alternative. *PA at 3-172*. From visiting the project area and seeing the

prevalence of invasive species in disturbed areas, Bark feels that the latter conclusion is much more accurate.

So, working under the assumption that there is a high risk for spread of invasives, what does that mean? Invasive plants can reduce biological diversity, displace native plant communities, decrease and degrade wildlife habitat, alter fire regimes, change hydrology, disrupt mycorrhizal associations, alter nutrient dynamics, and increase soil erosion. There are already six noxious weed species of concern in and near units 5, 6, 9, 15, 18, 27, 44 and along the following unit access roads and haul routes: 1340, 1600, 1600-018, 1612, 1620-630, 1800, 1810-011, 1811-620. *PA at 3-172*.

The PA suggests that implementation of the Project Design Criteria/Mitigation Measures (PDC) specifically for prevention and control of noxious weeds would reduce the risk. However, in its comments on the Jazz timber sale, Bark noted that similar design criteria have been applied to many other thinning projects in the Clackamas watershed and they have not been successful at curbing the spread of invasive species. *Jazz PA comments at 24*. Bark volunteers recently monitored post-logging units in the Clackamas for compliance with BMPs. All the sales monitored have similar, if not more restrictive, BMPs as the Red Hill Timber Sale in regards to invasive species management. Of the units surveyed – within two years of logging, 85% had presence of invasive species, especially prevalent in the landings and skid trails. Clearly, the BMPs did not work in similar projects to curb the spread of invasive species, and the Forest Service has given no assurance that this instance would be any different.

Bark suggests that not logging units 26 and 21 would prevent the spread of invasives from the utility corridor upslope. St. John's Wort, Scotch Broom, Spotted knapweed, Oxeye Daisy, Bull Thistle, and Hairy Cat's Ear are all present in the corridor and all of these invasives are strongly associated with logging. Bark strongly encourages the Forest Service to create better protocol to slow the spread of invasive plants, as the current ones are simply not working.

**Best Management Practices**

Bark raised the issue of the Forest Service's relationship to Best Management Practices very thoroughly in our recent appeal of the Jazz Timber Sale. Recent conversations with Forest Supervisor Chris Worth indicate that he is reviewing the Forest Service's approach to implementation and monitoring of the BMPs. As this is an ongoing process, and will likely result in some changes to the overall Forest Service approach to BMPs, Bark will not comment extensively on the BMPs in the PA stage of this project.

That said, the use of flexible terms like "may", "generally", and "should" <u>do not</u> belong in BMPs. This goes against their very purpose, and turns them into

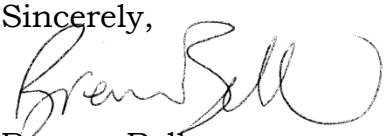
unenforceable suggested management practices. Please review and revise your BMPs to have enforceable, quantifiable standards. We will comment more fully on BMPs upon review of the EA.

**Conclusion**

Bark's main suggestions for moving forward with this project area are as follows:

1. Follow the Stew Crew's recommendations and decrease gaps to no more than 2 acres;
2. Remove the "Logging for Forest Health" units, and units 21 & 26 from the project;
3. Increase riparian no-cut buffers to at least 100 feet for perennial streams, and 50 feet for intermittent streams; and
4. Ensure quantifiable, enforceable BMPs.

Sincerely,



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