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Comments: Attached are my objections to the Environmental Assessment and Draft Record of Decision for the Green Horse project on the Moose Creek Ranger District, Nez Perce-Clearwater National Forest. I am most concerned about the large harvest units that have been included in the proposal that occur primarily in the Falls Creek drainage (Unit 17 406-acres, Unit 20 198-acres, Unit 10 142-acres, Unit 21 122-acres) and harvest and burning in the Island Creek drainage. Approximately 60% of the Falls Creek drainage and 72% of the Island Creek drainages burned in the Wash Creek wildfire in 2015. The analysis largely ignores the impact of past wildfires on these two drainages.

In addition, the impacts of additional timber harvest from the upcoming Limber Elk project does not seem to have been considered. At least three units (330-acres), that are proposed on the Limber Elk project, border directly on the project boundary of the Green Horse project. Impacts to various wildlife species using the project also appear to have been underestimated and the cumulative impacts of recent wildfires and nearby timber sales have not been thoroughly considered. Species like the fisher, goshawk and the pileated woodpecker are known to avoid large open areas. Deer and elk will utilize the edge of larger openings but avoid areas over 500-feet from cover and both have needs for hiding and security cover which the project will reduce.

Objection 1 [ndash] The forest vegetation analysis is not comprehensive and difficult to follow. The reader must navigate several project documents in the project file to understand the context of the proposed treatments on vegetative conditions.

The Environmental Assessment (EA) suggests there are 9,500-acres in the project area, but makes no assessment of the current vegetation conditions that exist within this project area. The EA does not describe the tree size class of existing project area stands and/or the species composition of those stands. The EA does make reference to the Green Horse Scoping Document (Project File 04-014), but this reference only details the size class and species composition of the proposed treatment units. Harvest units are reported to be mostly composed of grand fir (573-acres) or shade-tolerant mixed species (1,264-acres). Size class of the harvest units is only graphically displayed and it appears that approximately 50% or 755-acres of the proposed regeneration harvest units are in the 15-19.9-inch size class and slightly under 30% or 450-acres of the harvest units are in the 20+ inch size class.

There is a reference in the project file that suggests that 8,812-acres of the 9,500-acre project area are located in the warm-moist potential vegetation type, 318-acres in the warn-dry potential and 382-acres are in the cool-moist vegetation type. According to project file document the current species composition in the project area is primarily grand fir (67%), Engelmann spruce (10%), Douglas-fir (9%) and western red cedar (6%). Lodgepole pine and subalpine fir are also present in minor amounts (<2%). The project file document does not indicate that any stands are dominated by ponderosa pine or western larch. It is unclear exactly how overall species composition in the project area will be modified as a result of the project.

There is very little information on the current distribution of different forest size classes in the project area. However, some insight can be gained from the wildlife report. That wildlife analysis suggests there 2,594-acres of pileated woodpecker nesting habitat that have an average DBH exceeding 20 inches and that a total of 7,614-acres exceed an average DBH of 15-inches for bat habitat. Subtracting stands exceeding 20-inches DBH from this total suggests 5,020-acres are currently in the 15-19.9-inch size class. The project would harvest approximately 450-acres (17%) of the 20+ size class and 755-acres (15%) of the 15-19-inch size class.

The scoping document goes on to discuss past timber harvest and recent wildfire. According to the scoping

document there have been 1,325-acres of regeneration harvest and 110-acres of intermediate treatment in the project area since 1970. The scoping document also suggests that there were 1,091-acres of recent wildfire since 2015 in the project area, and that most of this acreage is a result of the Wash Fire which burned approximately 36,853-acres in and around the project area.

This would suggest that at least 25% of project area is already in relatively young age classes. When coupled with the proposed treatments of 1,510-acres of regeneration harvest, 570-acres of burning and 180-acres of intermediate harvest this could result in slightly less than half of the project area in relatively young age classes.

The vegetation analysis needs to be redone to better explain how project area vegetation will be modified by the proposed action. Cumulative impacts of surrounding wildfires and nearby timber sales also need to be incorporated into the discussion.

Objection 2 [ndash] The need for vegetative treatments is overstated.

Forest Service concerns are that current stands are succumbing to unnatural rates of mortality due to insects and disease, and that there is a need to shift tree species composition away from shade-tolerant species toward more resistant and resilient early seral species. Most of the concerns in the environmental assessment appear to be related to the loss of existing trees to the root disease.

The Environmental Assessment stresses that forest species need to be shifted from stands dominated by grand fir, spruce, Douglas-fir and western red cedar to stands dominated by ponderosa pine, lodgepole pine and western larch. These recommendations appear to be unfounded given the probable habitat types found in the project area.

As suggested in the project file the area is dominated warm-moist potential vegetation types. Thus, the project area generally contains western red cedar habitat-types (Cooper et al. 1992.) on most low elevation northerly aspects. Drier habitats likely exist on low elevation south facing slopes, but these areas are still relatively moist when compared to other western forests and likely support grand fir habitat types (Cooper et al. 1992). These areas would mostly be found in the warm-dry potential vegetation type. Upper elevations in the cool-moist potential vegetation grouping likely support sub-alpine fir habitat types.

According to Cooper et al. (1991), the major seral species in the cedar/queencup beadlely habitat type are Douglas fir, grand fir and western larch. Western red cedar is the climax species. In the grand fir/queencup beadlely habitat type they indicate that grand fir [ldquo]in addition to being the climax dominant, is a major and most consistent dominate of seral stages, even following clearcutting or severe wildfire.[rdquo] They also indicate that Douglas fir is the only consistently important seral species in the grand fir/queencup beadlely habitat type. Subalpine fir habitat types would be found in higher elevations and might be represented by the subalpine fir/twisted stalk habitat. Cooper et al. (1992) report the [ldquo]dominance of spruce and sub-alpine fir at all successional stages[rdquo] in this habitat type.

Thus, the presence of grand fir, spruce, Douglas-fir and western red cedar are the norm for most of the project area and not the [ldquo]high risk[rdquo] situation described by the Forest Service in the environmental assessment. Douglas-fir is likely the most common species on low elevation southerly aspects. Based on the information from Cooper et al. (1991) Forest Service ideas that the project area needs to be converted to more intolerant species such as ponderosa pine and western larch is just plain wrong.

Forests in the moist habitat types of the project area are generally competition-based systems that develop after large scale stand replacing fire. Stand density is usually not the driving factor in the initiation of these large-scale

fires that generally occur at intervals of 250-300 years and under drought conditions such as those that occurred in 1910 and 1933 or in 2015 with the nearby Wash Creek fire. Green et al. (1992) report that the oldest trees, in the habitat group most appropriate for the project area (Type 4B), averaged 210 years with a range from 160 to 264 years. They report that [ldquo]western red cedar may reach an age of 400-700 years[rdquo].

In these habitat types intolerant species like western larch have an initial advantage due to fast growth rates that allow them to capture the site and outpace the growth of other more tolerant species like grand fir, Douglas fir and western red cedar. Ponderosa pine, while present, is generally out competed in all but the driest locations in this system. In the 4A and 4B old growth descriptions, Green et al. (1992) report that [ldquo]Ponderosa pine is a seral species on cedar and grand fir habitat types.[rdquo]

Western larch can remain on the site for long periods of time, these species are gradually replaced by more tolerant grand fir and western red cedar on more northerly aspects. On southerly aspects Douglas fir has an advantage due to its greater tolerance of drought and intermediate shade tolerance.

I cannot understand Forest Service prejudice against grand fir and western red cedar, particularly since most of the project area is composed of cedar and grand fir habitat types. Why do you propose to convert stands with a high component grand fir and western red cedar to larch and ponderosa pine? Historically, these species were likely of limited distribution in the project area.

Such wholesale conversions are very risky and make no sense from an ecological perspective. There is a good reason why 92% of the project area is currently composed of grand fir, Douglas fir, spruce and western red cedar cover types. Grand fir and western red cedar find prime habitat in the project area and historically they always made up a significant component of the mixed species stands that are common here.

Contrary to your assertions in environmental assessment, their presence does not indicate catastrophic risk for increasing levels of insect and disease attack. Such stands have survived thousands of years without human intervention and it can be expected that stands will naturally move to having higher components of western red cedar. In fact, western red cedar is one of the longest lived and most resilient species found on the Nez Perce/Clearwater National Forests. Western red cedar has few problems with insects and disease and historically old growth cedar stands where the hallmark of stable stands that lasted for hundreds of years on the Nez Perce-Clearwater.

In habitats like we see in the project area, most of the competing trees would have been present at the time of stand establishment and stands would have changed overtime due to competition, blowdown, and insect and disease attacks. These are factors that the environmental assessment appears to consider major problems in the project area, when in fact they are part of normal stand development. Understory fire would have also had some influence, but it is not a major driver like it is in ponderosa pine habitat types.

The fact that these systems always had high densities of trees is well documented by Haig (1932). He reported that [ldquo]The extremely rapid decrease in number of trees with increasing age is strikingly apparent. On good sites (site index 60) the total number of trees per acre drops from 4,700 at 20 years to 720 at 80 years, and to 390 at 120 years. The number of trees also decreases rapidly with increase in site index.[rdquo] On excellent sites (Site index 70) Haig found an average of 2,800 trees per acre over a diameter of 0.6 inches in diameter at 20 years of age, on fair sites (site index 50) Haig[rsquo]s tables show approximately 7,800 trees per acre over a diameter of 0.6 inches DBH at age 20 and on poor sites (Site Index 40) he found an 11,500 trees per acre at age 20.

Clearly, the idea of understory encroachment is not applicable in the moist cedar habitat types that predominate in the project area. Tree species found here like cedar and grand fir have made very little genetic investment in mechanisms to survive fire. Instead, they rely on fast growth and/or extensive canopies that allow for light capture in densely stocked stands.

Objection 3 [ndash] Assertions that stands will never develop into old growth are not based on credible science

The Environmental Assessment assumes that the existing stands in the project area will never develop into old growth because they are composed of grand fir, Douglas fir and/or subalpine fir. There is an assertion that because trees in such stands are susceptible to root rots and that they will never develop into size classes that will qualify as old growth.

These assertions largely ignore the successional pathways that commonly occur in project area habitat types. Grand fir is a common stand associate in old growth stands found in the warm-moist potential vegetation type. As shorter-lived grand fir succumbs to root rots and other pathogens it is likely to be replaced by western red cedar and the death of these trees allows for the creation of important old growth components such as snags and downed logs. Canopy gaps and structural diversity within old growth stands is also created as individual trees die. Root rot and other native pathogens generally do not cause the total stand devastation that is described in the Environmental Assessment.

Grand fir, Douglas-fir and spruce commonly achieve sizes that will meet the requirements of the Nez Perce Forest Plan Appendix N and Green et al. (1992). The fact that 2,594-acres of the stands in the project area already have an average DBH exceeding 20-inches clearly demonstrates this fact and it is unclear why more of these stands are not being identified as old growth.

Your concept that there are preferred old growth types and that these stands must have a high component of intolerant species like western larch and ponderosa pine appears to be very value laden. Green et al. (1992) demonstrated that there are different types of old growth depending on the habitat conditions where such stands develop. High elevation mountain tops and dry south facing slopes are going to have different old growth types than productive moist areas with deep soils.

Objection 4 [ndash] The old growth analysis includes large areas of existing roadless habitat and misrepresents several young replacement stands as actual old growth while harvesting 450-acres of mature stands with an average DBH of 20+ inches

The existing old growth analysis includes six old growth analysis areas for a 9,500-acre project area. Old growth analysis areas are supposed to average 10,000-acres in size and this certainly seems like an excessive amount of area in which to evaluate old growth conditions for this project. There is a map of the old growth analysis areas in the project file, but I couldn[rsquo]t find any information in regarding the size of individual analysis areas or the actual acreage of old growth in each unit. Figures in the environmental analysis are only displayed as percentages. At least 60,000-acres is likely included in the six old growth analysis areas and most of the acreage is located in roadless areas that burned in the Wash Creek wildfire.

Only one of these analysis areas (OGAA03020229) has greater than 5% old growth that meets the requirements of Appendix N of the Forest Plan and/or the screening criteria of the Green et al. (1992) old growth publication. Analysis area OGAA03020229 is centered on the Horse Creek drainage and contains 6% old growth according to the environmental assessment. Only one other analysis area has any old growth as identified in Appendix N and/or the screening criteria of the Green et al. (1992) publication. That analysis area (OGAA03020116) appears to be centered on the Island Creek drainage and contains 0.5% old growth. Based on the old growth map in the project file, existing old growth stands appear to occur primarily within the project area. There is little existing old growth outside of the project area, and the other four units do not contain any old growth as identified by definitions in the Forest Plan largely due to the impact of the Walsh Creek wildfire.

Because the amount of old growth is less than the 5% requirement per old growth analysis area as required in the Forest Plan, additional replacement stands have been identified. The criteria for the selection of old growth replacement stands are not very clear, and it appears that many relatively young and small diameter stands have been selected as old growth replacements. Replacement stands are not old growth and should not be considered as actual old growth as was done in the environmental assessment.

While at the same time, it is hard to understand why 450-acres of stands in the harvest units with an average DBH of 20+ inches were not considered old growth or old growth replacement stands. A fully stocked stand with an average DBH exceeding 20+ inches would certainly contain enough large trees to meet either the requirements of Appendix N or the screening criteria of the Green et al. (1992) publication. Even if the stands do not qualify as old growth, such stands would be obvious replacement candidates.

In summary, it is unclear why old growth is being evaluated over such a large area when the project area is actually the size of an old growth unit that is identified in the Forest Plan. It is also unclear why several stands with an average DBH of 20+ inches are being proposed for harvest when it is very obvious that there is a shortage of old growth and mature forest in the surrounding area. Replacement stands do not substitute for actual old growth and were intended to be the best alternative choices in old growth compartments with insufficient amounts of actual old growth. Selecting smaller diameter and younger stands as replacement candidates, calling them old growth and then harvesting stands that may actually be much nearer to an old growth condition was never the intent of the existing Forest Plan.

Objection 5 - General wildlife concerns

My overall impression is that the Green Horse Project will have negative consequences to most wildlife species. The proposal includes four large regeneration harvest units that are over 100-acres in size and one of these units is incredibly 406-acres. The center of these large harvest units is likely to be avoided by most big game species and other species like the fisher and marten will avoid them entirely. Harvest treatments will remove snags, downed wood, shrubs, understory plants and important hiding cover.

The Green Horse project will recondition 20-miles of existing road and reconstruct 19-miles of existing road. Two-miles of new temporary road is also planned. The current condition of these roads is not reported, but it can be expected that this work will increase human access to the project area and that will have negative impacts for most wildlife species.

The wildlife analysis presented in the environmental assessment is obviously incomplete for many species and only displays acres of existing habitat and acreage losses in those habitats. It fails to answer the [ldquo]so what[rdquo] question of what habitat losses associated with the project mean. Most of the analysis is based on stand exam or Vmap database queries and there is a general lack of monitoring data to confirm any of the conclusions of the analysis.

Spatial requirements of territorial species have not been considered and no thresholds of management activity have been set for most species. With the exception of summer habitat use by elk, the impact of motorized use has not been considered for any species. The examination of cumulative effects is also very weak for most species. For example, there is no real evaluation of the nearby Wash wildfire and the adjacent Limber Elk project.

Schultz (2010) outlined most of these problems in a critique of Forest Service wildlife analysis. Schultz found that the Forest Service often relies on stand exam queries to determine acres of suitable habitat, but then makes no interpretation as to what that loss of habitat means to the species. Similar to what has been done on the Green Horse project; there is a failure to set meaningful thresholds and assume that habitat losses are insignificant. Schultz (2010) concludes that [ldquo]the lack of management thresholds allows small portions of habitat to be eliminated incrementally without any signal when the loss of habitat might constitute a significant cumulative impact.[rdquo]

The analysis assumes the project will not contribute to cumulative habitat losses at the Forest level, when the Nez Perce/Clearwater has no idea what the cumulative impact of numerous past and proposed projects are having on the species of concern. There is no acknowledgement in the document of the impact of the adjacent Limber Elk project which has three large harvest units (330-acres) on the border of the project area and several other harvest units.

Right now the Forest Service is trying to significantly increase the amount of logging across the Nez Perce/Clearwater National Forest and numerous projects are in the works (Center Johnson, Clear Creek, Crane Point, East Saddle, End of the World, French Larch, Gold Hill, Hungry Ridge, Johnson Bar, Little Boulder, Lolo Creek, Lowell WUI, Lower Orogrande, Northside Powell, Orogrande Community, Parachute Fuel, Pete King, Red Moose Divide, Smith Ridge, Stray Creek, Tinker Bugs, White Pine, Windy Shingle, etc.). Little regard has been given to the impact of all of this activity on fish, wildlife and water quality. Like Green Horse, none of these proposals ever causes any negative impact to fish and wildlife.

It is over 30 years since the current Forest Plan was signed, yet there is currently no statistically reliable monitoring information on the impacts of Forest Service activities on any wildlife species of concern. With the possible exception of elk (populations monitored by the Idaho Fish and Game) and the North Idaho Elk Guidelines, there is no habitat proxy that is being used on the Forest that has any field verification. For example, it has not been confirmed that old growth standards are truly protecting old growth-related species like the fisher, goshawk, pine marten and pileated woodpecker.

The Forest Service is fond of the argument that viability cannot be discussed at the project level, but they then use habitat numbers outside of the project area to defend excessive development within the individual project area. They rationalize that sufficient habitat is available in other areas to make up for losses within the project area. Under this scenario, no project ever creates a significant impact and species are lost by [ldquo]10,000

cuts[rdquo] as project after project is allowed to proceed. The Forest Service cannot have it both ways; either they need to have project designs that create minimal impacts to species of concern, or they need to have monitoring information that confirms their habitat proxies are [ldquo]providing for a diversity of plant and animal communities based on the suitability and capability of the specific land area[rdquo] as required by the National Forest Management Act.

Objection 6 [ndash] Lack of analysis for grizzly bear and lynx

The project area is surrounded by existing roadless areas and includes higher elevation areas that would provide suitable habitat for both species. There has been a recent confirmed grizzly bear sighting not far from the project area and use by lynx is quite probable. There have been confirmed sightings of lynx along the Lochsa river and other nearby areas. The analysis should have addressed impacts to these two species.

Objection 7 [ndash] Wolverine analysis fails to consider the cumulative impact of surrounding activities such as the Limber Elk and Johnson Bar timber sales

The wildlife analysis claims that the area is transient habitat for the wolverine and that [ldquo]The individual project activities and cumulative actions will result in relatively small-scale disturbances in relation to the large wolverine home range size.[rdquo] However, the analysis fails to consider the cumulative impacts of other nearby projects such as Limber Elk, Johnson Bar and recent wildfires such as Wash Creek, Falls Creek and Johnson Bar. Other large projects such as Hungry Ridge, Tinker Bugs, End of the World and Clear Creek are also not that far away and have the potential to impact wolverine habitat. The cumulative impact of these activities on the wolverine needs to be addressed.

Objection 8- Unclear analysis of Black-backed woodpecker habitat

The black-backed woodpecker habitat evaluation does not indicate how the amount of black-backed woodpecker habitat was determined in the project area. It is only stated that there are 1,100-acres of potential habitat. Despite the fact that there are 1510-acres of regeneration harvest in mature timber stands and 180-acres of intermediate treatment, the analysis concludes that only 68-acres of black-backed woodpecker habitat will be impacted by the proposal. Both regeneration harvest and intermediate treatments will remove dead and dying trees that are important to this species. Without any information on how the amount of habitat was determined and how the proposed units interact with the existing habitat is impossible to determine if this is an accurate portrayal of the impacts to this species.

It is a well-known and recognized fact that black-backed woodpeckers respond positively to recent wildfires and the increases in insect abundance associated with those events. However, it is important to recognize the

importance of unburnt forest to this species. Black-backed woodpeckers are thought to persist at lower levels in unburnt mature and old growth stands during interim periods between wildfires where they make use of dead and dying trees. An unpublished report (Taylor and Schachtell 2002) by former Idaho Panhandle wildlife biologist Jenny Taylor suggests there is considerable use of unburned areas on the nearby Idaho Panhandle National Forest. As the productivity of the adjacent Wash Creek and Falls Creek wildfires decline, dead and dying trees in unburnt stands will become increasingly important to this species in the project area.

The black-backed woodpecker analysis, indicates that the 570-acres of prescribed burning will be helpful to the species following the decline in habitat quality of the Wash Creek and Falls Creek wildfires, but it still downplays the importance of habitat decline in regeneration and intermediate harvest units. Suggesting that scattered clumps of leave trees may still provide foraging and nesting habitat in harvest units. This ignores the fact that most snags and dying trees will be removed with these treatments.

In summary, it appears that the impacts of harvest treatments on black-backed woodpecker habitat have been significantly underestimated in the current analysis. There is a need to clarify what was actually done in the analysis and how the conclusion as reached that only 68-acres of potential habitat would be impacted by 1,690-acres of timber harvest.

Objection 9 - The fisher habitat analysis incorporates large acreages of nearby roadless areas to lessen impact of the proposal and does not address the local direct impacts within the project area

The Green Horse fisher analysis appropriately relies on the findings Sauder and Rachlow (2014) to complete the analysis, but the way the analysis was completed for the 9,500-acre project area significantly underestimates the impacts of the proposal on fisher habitat. Sauder and Rachlow (2014) found that radio tracked fishers had an average of 50% mature forest (greater than 82 feet tall) and less than 5% open areas in their home range. According to their work of the arrangement of habitat is very important and they suggest that fishers select home ranges that have forests [ldquo]arranged in connected, complex shapes with few isolated patches, and open areas comprising <5%...[rdquo] Concentrated areas of timber harvest like those proposed on this project can significantly influence an individual fisher home range.

Sauder and Rachlow (2014) report the average home range size is approximately 12,200 acres and for a female fisher and approximately 24,300 acres for a male fisher. Home ranges generally do not overlap greatly for the individual sexes (21.3% for females and 15.3% for males), but male home ranges can overlap female home ranges. The wildlife analysis uses two HUC 12 watersheds (O[rsquo] Hara Creek and Glover/Selway/Horse Creek) to conduct the fisher analysis. According to the watershed analysis, the acreage in the O[rsquo] Hara Creek HUC 12 watershed is 37,880-acres and the area in the combined Glover/Selway/Horse Creek HUC 12 watershed is 38,637-acres. The Horse Creek HUC 12 and the Glover/Selway HUC 12 watersheds were combined for the fisher analysis.

Thus, the area utilized to examine fisher habitat is actually large enough to accommodate six female fishers and three male fishers. Almost all of the area (outside of the project area) that was included in the fisher analysis is located in the O[rsquo] Hara-Falls Creek and West Meadow roadless areas where there has been no timber harvest. By incorporating this large unroaded area into the analysis, the impacts of the project on the fisher are largely being ignored and diluted.

Instead of incorporating this large roadless area, it would have been more appropriate to analyze a theoretical home range of a female fisher centered on the project area. Perhaps the upper reaches of the American River could be utilized to reach the 12,200-acre female home range size. This area is also roaded and congruent with the project area. Interestingly when the Lick Creek Roadless Area is combined with O[rsquo] Hara-Falls Creek and West Meadow Creek, the project area and the upper reaches of the American River become an island that is surrounded by unroaded areas (Figure 1). Three additional units (9,10 and 11) proposed on the Limber Elk project border the Green Horse project in this area (Figure 2).

The amount of existing opening is not reported in the project area, but the scoping letter suggests there have been 545-acres of regeneration harvest and 1,124-acres of burning in the project area since 1990. Most of the burning (94%) is associated with the recent Wash Creek wildfire. Therefore, about 17.6% of the project area may actually already be open habitat that would be avoided by the fisher. According to the Sauder and Rachlow (2014) publication, this level of opening would decrease the probability of occupancy by the fisher to approximately 20%.

The project will treat 1,510-acres (15.9%) of the project area with regeneration harvest and treat 570-acres (6.0%) with prescribed burning. There will also be 180-acres of intermediate treatment. Even if some of the existing stands are no longer considered an opening, it is not unreasonable to assume there will at least 30% of the project area in an open condition. When combined with 330-acres of regeneration harvest on Limber Elk, the situation is even worse. Sauder and Rachlow (2014) found that home ranges with this much open habitat are generally unsuitable for use by the fisher.

Please update the fisher analysis to look at areas which will actually be harvested and exclude the roadless areas that you have incorporated into your analysis. When the Green Horse project is combined with Limber Elk, you will have essentially eliminated the habitat potential of one female fisher in the roaded island where the Green Horse project is located. Numerous other projects such as Center Johnson, Clear Creek, Crane Point, East Saddle, End of the World, French Larch, Gold Hill, Hungry Ridge, Johnson Bar, Little Boulder, Lolo Creek, Lowell WUI, Lower Orogrande, Northside Powell, Orogrande Community, Parachute Fuel, Pete King, Red Moose Divide, Smith Ridge, Stray Creek, Tinker Bugs, White Pine, Windy Shingle, etc. have also increased the amount of open area below the 5% level reported by Sauder and Rachlow (2014) as the optimum level for this species. This is particularly concerning given the fact that most of these sales are occurring in the historically heavily logged [ldquo]front country[rdquo] that supports the most productive fisher habitat and the most productive forest stands on the Nez Perce Clearwater National Forest.

Figure 1 - Roadless Areas Surrounding the Project Area and Upper American River

Figure 2 - Limber Elk Units Bordering the Green Horse Project Area in the American River Drainage

Objection 10 - Conclusion that bats will not be harmed by proposed project

The Green Horse environmental assessment suggests that there will be a loss of snags in regeneration harvest units and commercially thinned areas, but that the impacts of prescribed burning will be negligible on bats. Thus, there is some acknowledgement of bat habitat loss in the environmental assessment, but these losses are generally discounted due to the fact that individual trees, old growth stands and riparian buffers will be retained. The overall conclusion of the environmental assessment is that [ldquo]the project may impact individuals or habitat but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.[rdquo]

The project will result in a significant decrease in snags and forest cover on 1,510-acres of regeneration harvest and 180-acres of intermediate treatment. What data supports the conclusion that these actions will not cause detrimental impact to bats and other species dependent on snags in light of this proposal and all of the other timber sale activity that is being proposed across the Nez Perce/Clearwater NF?

Objection 11 [ndash] Assumptions that more forage will produce improvements for the gray wolf are unfounded

The environmental assessment suggests that the project area would improve habitat for big game because it would increase forage due to timber harvest and additional burning. According to the environmental assessment this is supposed to improve wolf habitat. This is very debatable given the probable increase in forage that has been already created by the Wash Creek wildfire and the increases in human access that will result from the proposal. Increased human access and the removal of forest cover is likely to increase wolf vulnerability from both hunters, trappers and poachers. Large harvest units associated with the proposal are likely to be underutilized by elk and other big game. Areas greater than 500-feet from forest cover have been shown to be avoided by elk and most other big game species (Servheen et al. 1997). Cover and security habitat are likely much more important in this situation.

Objection 12 [ndash] Failure to display maps and habitat data in the goshawk analysis

The goshawk discussion in the environmental analysis claims to utilize Regional direction (Brewer et al. 2009) to conduct the analysis of goshawk habitat. However, there are no maps of analysis boundaries, display of habitat conditions or designation of post-fledgling areas anywhere in the EA or project file. The Regional direction clearly calls for a [ldquo]well-defined[rdquo] analysis area and an inclusion of a map in the project file. Nesting habitat is to be displayed and documented using the regional recommendations and conditions within potential post-fledgling areas are supposed to be discussed and displayed. This has not been done for the Green Horse project.

Please update the analysis to clearly show home range analysis boundaries and the boundaries of the 420-acre post-fledgling areas that have been identified in the project area. Show existing habitat conditions of each home range in a table that is similar to Table 5 of the Regional Direction. Document how habitat conditions will change in each home range as a result of the proposal and assure that at least 240-acres of potential nesting habitat will be retained in blocks that are at least 40-acres in size (Clough 2000).

The condition of each potential post-fledgling areas needs to be documented as described in Table 7 of the Regional direction and impacts from the proposal should be displayed for individual post-fledgling areas. Assure that there are at least three suitable post-fledgling areas in each home range (Reynolds 1992) following implementation of the project and that each suitable post-fledgling area maintains at least 60% closed canopy mature forest as described in Reynolds (1992).

Objection 13 [ndash] The pileated woodpecker analysis is not spatially specific and it does not include any thresholds of habitat loss that is considered significant

The environmental analysis acknowledges that pileated woodpeckers have home range sizes of approximately 1005 acres (Bull et al. 1992), and that the 9,500-acre project area could support nine nesting pairs of pileated woodpeckers. However, the analysis is not spatially specific and no maps of potential pileated home ranges or habitat are included in the project file.

Based on a habitat query of stands with an average DBH of over 20+ inches, the environmental analysis estimates there are 2,594-acres of nesting habitat. Although it is not stated in the environmental assessment, foraging habitat appears to have been estimated by a similar habitat query of stands with an average DBH between 15 and 19.9-inches. The estimated foraging habitat is 5,134-acres. Some stands with an average DBH between 15-19.9 inches likely include individual snags/trees exceeding the 20-inch diameter size category usually reported as the minimum size for nesting by this species (Bull and Holthausen 1993, McClelland and McClelland 1999), but this fact is not acknowledged in the environmental assessment.

According to the environmental analysis, 47-acres of nesting habitat and 104-acres of foraging habitat would be impacted by intermediate treatments. Regeneration harvest would impact 412-acres of nesting habitat and 919-acres of foraging habitat. The environmental assessment claims that all home ranges would retain sufficient nesting habitat to remain suitable, but it does not quantify the amount of nesting or foraging habitat that would be sufficient to support a nesting pair of pileated woodpeckers.

The only guidelines that I am aware of for the protection of pileated woodpecker were published by Bull and Holthausen in 1993. The analysis should have used guidelines or other scientifically sound information to establish recommendations for maintaining pileated woodpecker habitat. Bull and Holthausen (1993) recommend approximately 25% of the home range be old growth and 50% be mature forest. They suggest that 50% of the area should have stands with greater than 60% canopy closure and at least 40% should remain

unlogged (any type of logging).

Follow up work (Bull et al. 2007) found that pileated woodpecker density did not change in 30 years (despite major infestations of spruce budworm) in home ranges meeting these guidelines, unless extensive regeneration harvesting (like that proposed on the Green Horse project) had occurred in the home range. They defined extensive regeneration harvest as 25% of the area. They also examined nesting success and found that birds that successfully produced young had on average 85% of their home range unlogged and less than 15% logged (any type of logging including fuel reductions). Whereas unsuccessful nesters had 62% of the home range unlogged and 38% logged (Bull et al. 2007).

With over 1,325-acres of existing regeneration timber harvest since 1970 and 1,091-acres of wildfire in 2015, it appears highly unlikely that all nine home ranges within the project area are currently suitable for pileated woodpecker use. When coupled with 1510-acres of new regeneration harvest and 180-acres of intermediate treatment it is likely that several home ranges will no longer remain suitable.

This information should then be evaluated in terms of the project area and the myriad of other projects that are occurring across the Forest. At some point, the impact to the pileated woodpecker and other species that depend on old forest is going to become significant.

It is ironic that the EA (Page 41) uses the Samson (2006) short-term viability analysis and the Bush and Lundberg (2008) habitat estimates as a way to show that pileated woodpeckers are being maintained at the Forest level and that the Green Horse project will not contribute to cumulative impacts. This simplistic query of FIA data is not spatially explicit and relies on meaningless definition of pileated woodpecker habitat that is not supported by the available literature (Bull and Holthausen 1993, McClelland and McClelland 1999, Mellen et al. 1992).

Nesting habitat in the habitat query is simply defined as a stand with one dead tree per acre over 15 inches DBH and foraging habitat is defined as a stand with one dead tree per acres over 9 inches DBH. This is not a defensible description of pileated woodpecker habitat and makes the analysis pretty much meaningless. There is no requirement for the snags to be part of a mature stand and 15-inch DBH snags are not suitable for nesting by this species. If methods used in the Samson report had been utilized in the project area it is likely that most of the stands in the area would have been classified as nesting habitat.

Please update your pileated woodpecker analysis based on the best scientific information. Your analysis should include maps of potential home ranges, maps of suitable habitat and the impact of your proposal on pileated woodpecker habitat.

Objection 14 [ndash] Improper interpretation of the scientific literature on pine marten habitat and lack of concern for the loss of pine marten habitat within the project area and across the Nez Perce-Clearwater NF

The Environmental Assessment suggests there are 5,055-acres of potential pine marten habitat in the project area and that 1442-acres of this habitat would be impacted by timber harvest with the Green Horse project. The analysis also estimates prescribed burning would impact 315-acres and temporary road construction would impact 4-acres of pine marten habitat. Potential habitat was identified largely from database queries (presumably Vmap) for stands that have over 30% crown closure and contain the species groupings of subalpine fir, spruce, lodgepole pine, grand fir or western red cedar (Proposed Action Document [ndash] Page 17).

The analysis suggests that this amount of habitat could potentially support five fishers based on a home range size of 905-acres. The environmental assessment claims this figure comes from Shirk et al. (2014) or perhaps Shirk et al. (2012), but a review of those documents suggest that home ranges were actually much larger. The Shirk et al. (2014) study is a radio telemetry study in two locations in Washington and Oregon. In that study, the home range of female fishers was listed as (10.1 km² or 2,496-acres) for a female fisher in a mesic environment on the Mount Baker-Snoqualmie National Forest. Home ranges sizes were similar in a more xeric landscape on the Winema National Forest. These estimates are similar to those of Bull and Heater (2001) who found that female home ranges averaged 3,500 acres in nearby Northeastern Oregon, The Shirk et al. (2012) uses hair sampling to examine habitat selection at differing scales, it does not make determinations of home range size.

The marten analysis claims to use the findings of Wasserman et al. (2012) to establish home range suitability, but erroneously interprets the findings of that study to conclude that home ranges remain suitable when less than 40% of the home range is composed of openings. What the study actually says is that the [ldquo]probability of marten occurrence decreased from 52% to 33% as the proportion of a 990-m focal landscape, occupied by non-stocked clearcuts increased from 2% (10th percentile) to 28% (100th percentile). This is consistent with previous research that showed that marten rarely used sites where more than 25% of forest cover was removed (Hargis and others 1999)[rdquo]. Hargis et al. (1999) reported that [ldquo]Martens were nearly absent from landscapes having >25% non-forest cover, even though forest connectivity was still present.[rdquo]

The confusion over the 40% number appears to be a result of a misinterpretation of Wasserman[rsquo]s (2012) findings on crown closure. Wasserman et al. (2012) used hair sampling to establish the presence or absence of marten. He then examined habitat conditions at different scales by using circular evaluation areas around known and unknown detection sites. Eleven circles in 90-meter increments from 90-990 meters were used for evaluating parameters like canopy closure. Larger circles (90-1980 meters) were used for evaluating road density in 180-meter radius increments.

Wasserman et al. (2012) report that [ldquo]habitat suitability within a focal landscape remains quite low until average canopy closure exceeds 40%, with suitability rising rapidly as average canopy closure approaches 100%.[rdquo] Crown closure is different than habitat fragmentation by cutting units. Crown closure is generally most appropriately discussed at the stand level, while habitat fragmentation is better described at the landscape level. The Green Horse habitat evaluation has clearly confused the two parameters and should have used the work of Hargis et al. (1999) to establish fragmentation thresholds. Likewise, the use of 30% crown closure to establish suitable habitat is not supported by the work of Wasserman et al. (2012), which clearly indicates that stands with less than 40% crown closure receive little use by marten.

The Green Horse evaluation for marten needs to be redone. There are no maps of the home ranges purported to have been used in the evaluation and no data in support of the impacts on those home ranges. The home range size is inaccurate and appears to have been based on the size of circular focal areas used by Shirk (2012), and not on an actual data from telemetry studies. The analysis uses a very low crown closure threshold (30%) for identifying suitable habitat and suggests that fragmentation of up to 40% of the landscape is suitable for maintaining marten habitat.

Even with all of those errors, the analysis still concludes that marten will likely be displaced from the project area to surrounding roadless locations. Given the Wash Creek wildfire, the amount of timber harvest and burning in the project area, and the adjacent Limber Elk project I agree that marten habitat will be lost, but do not support the idea that marten will simply move to other areas when this occurs. Suitable habitat in those other locations is likely already occupied and the more likely scenario is simply that the amount of marten habitat will continue to decline across the Nez Perce/Clearwater National Forest.

Like many other studies Wasserman et al. 2012 found that marten presence was positively influenced by the amount of mature closed canopy forest and negatively influenced by high road densities, non-stocked clear-cuts and habitat fragmentation. They also found that marten make use heavy use of western red cedar stands. Use of spruce/fir forests was less than reported in some other studies such as Koehler and Hornocker (1997).

Wasserman et al. (2012) point out four main management implications of their work that have implications for marten habitat in the project area. First, is [ldquo]that marten select habitat at multiple spatial scales, selecting home ranges within unfragmented landscapes with high canopy closure and low road density[hellip][rdquo] Second is [ldquo]the importance of low fragmentation, middle elevation forests[rdquo] and third is that timber harvest in northern Idaho National Forest System lands was disproportionately concentrated in high-productivity and highly valuable middle-elevation mesic forest types[rdquo]. These stands are the exact target of actions on the Green Horse project. Fourth, [ldquo]is that marten are highly sensitive to road density and patch density[rdquo] and that [ldquo]abandoned and decommissioned roads that do not appear on current travel plan maps still have substantial impact on marten habitat.

The Green Horse project will build 2.0. miles of new temporary road, recondition 20-miles of existing road and reconstruct 19-miles of existing road. The existing condition of these roads is unreported in the environmental assessment and it is unknown if all or the existing roads are currently open to motorized access. Reconstructing closed roads and allowing more human access could be detrimental to the pine marten.

When coupled with activities being pursued on the Forest (Limber Elk, Center Johnson, Clear Creek, Crane Point, East Saddle, End of the World, French Larch, Gold Hill, Hungry Ridge, Johnson Bar, Little Boulder, Lolo Creek, Lowell WUI, Lower Orogrande, Northside Powell, Orogrande Community, Parachute Fuel, Pete King, Red Moose Divide, Smith Ridge, Stray Creek, Tinker Bugs, White Pine, Windy Shingle, etc.), the risk of the Green Horse project to the species is much greater than suggested in the wildlife analysis. Please do a more complete

scientifically sound investigation of pine marten habitat and include maps and data regarding suitable habitat and the theoretical home ranges that will be impacted by the proposal.

Objection 15 - Elk Analysis Areas (EAAs) are Inappropriately Sized

The Environmental Assessment reports that there are four elk analysis areas (EAAs) that will be impacted by the project proposal, but does not include any maps of these units. It is reported that that all analysis areas are larger than 6,500-acres and one unit (Saddle EAA) is reported to be 8,248-acres. The Island EAA is 7,339-acres, the Falls Creek EAA is 6,964-acres and the Horse Creek EAA is 6,553-acres. These units all exceed the recommended size of analysis areas as described in 1997 version of the North Idaho Elk guidelines (Servheen 1997).

The guidelines suggest that the analysis areas should be around the size of a female elk's home range which is 3,800 acres. The guidelines state that when the evaluation area is too large (Greater than 5000 acres) that "the effects of a proposed activity may be significantly diluted." The elk analysis needs to be redone with appropriately sized evaluation areas, since not changing them violates the conditions of the model and makes the model outputs scientifically unreliable.

Incorporating unroaded lands outside of the project area will cause a similar dilution of potential impacts. As has been previously, discussed the project area is an island of roaded habitat that is surrounded by existing roadless areas. Each of the four elk analysis areas is almost as large as the 9,500-acre project area, suggesting that a considerable amount of unroaded habitat has been incorporated into each of the analysis areas. To properly evaluate the impacts of the project on elk habitat, the analysis areas need to be more directly focused on the project area. Large analysis areas that incorporate a considerable amount of unroaded area, only serve to dilute the actual impact of the proposed project on elk.

Objection 16 [ndash] Potential to significantly impact the number of moose wintering habitat in the project area given the existing condition within the Wash fire perimeter and the amount of harvest associated with the proposal

The Environmental Assessment suggests 1,174-acres of the project area occur in Management Area 21 (Moose winter habitat). According to the Environmental Assessment, only 1.5-acres of regeneration harvest and 1-acre of intermediate treatment is anticipated in MA-21. Management Area 21 is generally considered to occur in old-growth grand fir stands with a dense understory of pacific yew (Pierce and Peek 1984). The importance of these habitats has been documented in the Nez Perce Forest Plan with a special management area (MA-21) and local habitat management guidelines were developed for that habitat based on that local research (Peek et al. 1987).

These guidelines suggest that no more than 45% of MA 21 should be in age classes younger than 90 years and that no more than 14% should be logged in any 30-year period. Management area direction for MA-21 has a standard that only lands under 35% slope are suitable for timber harvest and that only 5% of the suitable acreage can be harvested each decade. Suitable lands (those under 35% slope) are to be managed on a 210-year rotation. Harvested stands are to be managed to maintain 50% of the live Pacific yew component. Slopes exceeding 35% are not supposed to be harvested in MA=21.

The Environmental Assessment suggests that there may be 4,835-additional acres of potential moose winter habitat presumably because most of the stands in the project area support a grand fir overstory of older trees and a yew understory may be present in these stands. Information in the EA does not describe how this acreage was determined, but the original scoping document suggested this determination was based on a habitat query of grand fir stands with an average DBH greater than 15-inches.

The Environmental Assessment suggests 1,083-acres of this potential habitat would be treated with regeneration harvest, 129-acres with intermediate harvest, 294-acres with prescribed fire and that 3.5-acres would be lost due to temporary road construction. According to the EA this is approximately 25% of the general moose habitat. It is also mentioned that the Wash fire burned about 1,100-acres of the project area and that about 800-acres are fairly open at this time. It is unclear, but it appears the data regarding the number of older grand fir stands in the project area predates the 2015 Wash fire. This would suggest that perhaps 50% of the potential moose wintering habitat would be in an open condition after project implementation.

The EA also suggests that [ldquo]if Pacific yew is present in the understory, it would be considered for a retention clump or patch for wildlife.[rdquo] Leaving small untreated clumps may contribute to long-term stand structural diversity and will be important to moose and other species in the future, but it is unlikely that such patches will be utilized by moose during periods of heavy snow accumulation. Ungulates such as moose generally select intact forest stands for winter use based both on reduced snow accumulations and the presence of a forage resource such as understory yew. Based on the amount of proposed harvest and the impacts of the Wash fire, if proposed harvest units prove to have a significant understory of yew, a much better alternative would be to delay harvest in those units until more surrounding stands can reach maturity. Small clumps of yew in open regeneration harvest units are unlikely to be utilized by wintering moose due to the difficulty of reaching these areas when snow accumulations are heavy.

Objection 17 [ndash] Impacts of the 2015 Wash Creek wildfire have largely been ignored in Forest Plan watersheds

The large HUC-12 watersheds analyzed for water yield make little sense in the determination of impacts to the important drainages identified in the Forest Plan. Most of the area in these large HUC-12 watersheds has no influence on conditions in the drainages identified in the Forest Plan, since most of sub-drainages in these large HUC-12 watersheds either flow directly into the Selway River or are located downstream from the drainages identified in the Forest Plan.

Water yield needs to be calculated for each of the individual drainages identified in the Forest Plan and proposed timber harvest adjusted accordingly. According to the National Marine Fisheries Service (1998) an existing ECA (equivalent clearcut acres) of less than 15% is generally indicative of good or high-quality stream condition, 15-20% is considered indicative of moderate quality stream condition and ECA of greater than 20% is indicative of low or poor-quality stream condition in HUC 6 watersheds. As cited in the watershed methodology report [ldquo]Recent literature has converged upon a 20% change in forest canopy as commonly producing a detectable change in peak flows and/or average annual water yield (MacDonald and Stednick 2003; Grant et al. 2008, Troendle et al. 2010).[rdquo]

ECA levels in two Forest Plan watersheds (Island Creek and Falls Creek) are particularly concerning. According

to the Environmental Assessment, 72% of the Island Creek drainage and 60% of the Falls Creek drainage were recently burned in the 2015 Wash Creek wildfire. This would suggest that is a high risk of causing additional impacts in these two drainages by conducting more timber harvest. Island Creek was already known to exceed Forest Plan in 2014 standards for cobble embeddedness (measured at 52%) prior to the 2015 Wash Creek wildfire and it has been identified in the Environmental Assessment that there were [ldquo]high erosion and sediment inputs to the stream in severely burned areas[rdquo] following the Wash Creek wildfire. The environmental assessment and upward trend analysis for Island Creek does not indicate the results of any follow up instream measurements after the Wash Creek wildfire.

Since there are only 35-acres of regeneration harvest and 32-acres of prescribed burning proposed in the Island Creek watershed, the Environmental Assessment downplays any impact to this stream from additional logging or burning. The Environmental Assessment claims the stream is on an upward trend, largely because there has been some vegetative recovery since the 2015 wildfire and that NEZSED model predictions suggest that sedimentation rates have declined from 113% over base in 2015 to 2% over base today. NEZSED modeling suggests this will increase to 6% over base after project implementation. The Forest Plan standard for Island Creek is 70% over base.

No instream measurements appear to have been taken to confirm the actual instream condition in Island Creek. Assumptions have been largely been made that because the amount of activity is small and the activity occurs in the upper drainage that there will be no impact. This approach puts all of the risk on aquatic resources, and an opposite conclusion could have been considered. That approach would have deferred additional activity until the drainage has had a longer time to recover from the Wash Creek wildfire and an actual improving trend could be documented with instream measurements. The small amount of harvest and burning that would need to be deferred would have little overall impact on the project.

The other drainage where increases in water yield are of a concern is Falls Creek. Over 60% of this 7,582-acre drainage burned in the 2015 Wash Creek wildfire. The proposed Green Horse project will treat 888-acres with regeneration harvest, 5-acres with intermediate harvest and 220-acres with prescribed burning. There will also be 1.7-miles of temporary road construction. This would cause over 74.7% of drainage to either be recently burned by wildfire, prescribed fire or timber harvest. Some of the proposed cutting units in this drainage are very large (Unit 17 406-acres, Unit 20 198-acres, Unit 10 142-acres, Unit 21 122-acres) and propose an increased risk of mass failure. Topography is very steep and there are several high risk landtypes. Less harvest and smaller treatment areas that can more easily avoid high risk areas seem to be in order for this drainage. No instream measurements have been taken in Falls Creek.

Objection 18 [ndash] Detrimental Soil Disturbance

According to the specialist report on soils, Detrimental Soil Disturbance (DSD) is currently below the Regional Standard of 15% DSD in all units. Two units are currently at 12%, four units are between 5 and 10% and the remaining units all have DSD values less than 5%.

The proposed project will increase DSD values to 15% or higher in eight units (2A, 3A, 4, 5, 6, 7, 8 and 36). Two units (2A and 3A) would have DSD values of 22% following logging. DSD Mitigation measures such as decompaction of skid trails would then be conducted following logging to bring the units down to 15% DSD.

Why are units that currently meet the Regional Standard being permitted to exceed the 15% standard? It would seem more logical to either modify the proposed logging system (more cable logging) or make the improvements to existing problem areas prior to logging operations. Mitigation of problem areas is a poor substitute for avoidance of potential impacts in the first place. Mitigation never really provides the conditions that existed prior to the impact and excessive soil disturbance (even when mitigated) has the potential to compromise long-term site productivity.

Objection 19 - Timber harvest and skid trail construction in existing roadless areas

There is no reason to conduct intermediate harvest and skid trail construction along roads that border existing roadless areas. This activity will compromise the integrity of the impacted roadless areas and your objective to maintain roadside locations at lower-than-average tree densities of fully stocked stands (EA Page 6) is highly questionable under the National Forest Management Act. That Act requires that "forested lands in the National Forest System shall be maintained in appropriate forest cover with species of trees, degree of stocking, rate of growth, and conditions of stand designed to secure the maximum benefits of multiple use sustained yield management in accordance with land management plans[rdrquo]. There is nothing in the current Forest Plan that suggests roadside areas (roadless or roaded) are to be maintained at less than full stocking.

Your rationale for why this harvest is necessary is very questionable and basically ignores common sense. Your argument largely centers on the idea that you can do it because it is permitted under the Idaho Roadless Rule. There is no reason why the roads can[rdrquo]t be closed to the public or obliterated if there are inordinate safety hazards. Occasional hazard trees could also be removed along roads you desire to keep open without the extensive level of timber harvest that you propose. These are back-country roads with low levels of public use and the risks to public that you describe are very overstated.

While the proposed activities may be within 150-feet of existing roads; they are not of short duration and they will definitely impact the potential of the harvested areas to be considered as wilderness. The effects this harvest will last well over a 100-years at is unlikely that such areas would ever be considered as wilderness, especially if you conduct harvest with ground-based systems requiring skid trails. Potential wilderness boundaries would have to be shifted away from the proposed units and this would likely decrease the size of any future wilderness designation. Please drop all harvest in existing roadless areas.

Sincerely,

/s/ Harry R. Jageman

Harry R. Jageman

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