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RE: Pilot Thompson EA Public Comment

The Pilot Thompson Project has been touted by the agency as a collaborative forest restoration project "designed to restore forests and landscapes to conditions that are both more resistant and resilient to disturbances and that provide the diversity needed to restore and maintain native biodiversity and essential ecosystem functions (EA p. 1-1)." The agency has also claimed that forest management in the region "continues to be stymied by conflicting interests that pit timber production against habitat protection and result in a legal and administrative gridlock." The BLM has promoted the pilot projects as a way to "demonstrate how the restoration techniques…would compare in terms of social acceptability to the more traditional forest management practices and projects (EA p. 1-5)." Unfortunately the pilot projects have entailed only a thin veneer of collaboration and have not been restoration driven. Furthermore, the inconsistency between agency claims/analysis and project outcomes, impacts, and results are currently proving to be socially unacceptable. The agency's refusal or simple inability to implement credible, consistent, and responsible forest restoration treatments has become clear to many in the collaborative process. By and large the claims in the Pilot Thompson EA are misleading and unsubstantiated. They simply do not translate into implementation or on the ground results, constituting a flawed and inadequate analysis of impacts in the EA. This lack of commitment and follow through on behalf of the agency has "stymied" the process. Likewise the agency's aggressive and divisive response to public controversy, public concerns, and critical/adaptive thought has forced many to question the ability of the BLM to act as a credible and objective collaborative facilitator. Such attitudes on behalf of the agency also serve to stymie adaptive management by attacking critical voices rather than addressing the issues raised through an adaptive management framework. Without this critical examination of project prescriptions, objectives, and outcomes truly adaptive management is impossible.

Collaboration:

The BLM has insisted on promoting the Pilot Projects as collaborative in nature, despite a "purpose and need" so narrowly tailored as to effectively discourage and eliminate truly collaborative outcomes. The agency has made itself clear that the management preferences of Norm Johnson and Jerry Franklin will trump all other concerns, ideas, and perspectives. Significant public concern has been expressed regarding the lack of an upper diameter limit and the proposal to build new forest roads to facilitate commercial logging. In page 2-45 of the EA the agency rejects the popular notion of an upper diameter limit by stating that "the intent of the Pilot Project is to implement this approach [the approach of Norm and Jerry] and imposing other conditions would not be an accurate rendering of that approach." Furthermore, when community/collaborative members propose treatment guidelines, management protocol, or design features, the agency simply states that Norm and Jerry will have the final say. Often we are told that "Norm and Jerry should be part of this conversation," unfortunately they largely have not been a part of the collaborative conversation, yet have the power to include or exclude whatever they wish or find justified. When controversy develops around any specific design feature the agency simply states that Norm and Jerry support their position, end of conversation. Thus the ability of the public (or anyone other than Norm and Jerry) to influence the project is severely limited, negating any potential

collaborative outcomes. In fact, the approach is very top-down and according to the purpose and need will not incorporate ideas beyond those proposed by Norm and Jerry.

It is my contention that this approach also limits the agency's ability to provide a range of alternatives for NEPA analysis. The narrowly defined purpose and need would also seem to limit the ability of the responsible official to create a Record of Decision that might incorporate public comments, inputs, and concerns. The decision is simply predetermined; the project will implement Norm and Jerry's approach. This is a violation of NEPA which was created to allow for meaningful public input, comment, and dialog. NEPA was also developed to offer and analyze "a range of alternatives," a requirement that is clearly not being respected. The process is currently being dominated by two individuals at the expense of the public concerns, comments and collaboration.

Furthermore, I have seen a remarkable decrease in opportunities for public involvement when comparing Pilot Thompson and Pilot Joe. Importantly, the decrease in opportunities for public involvement before the release of the EA and the identification of Action Alternatives was quite dramatic, enabling the public little opportunity to influence what was being proposed. Opportunities for collaboration including field trips and meetings have by and large been held during business hours in the middle of the work week, further discouraging public involvement. The scheduling of these meetings has been conducted in a way that is convenient for the agency, NGOs, and the industry (who are paid to attend), but are not generally offered at times conducive to public involvement.

The logging of large, old trees: Age-based tree removal guidelines and the proposal of an upper diameter limit:

Although the first principal of dry forest restoration is the retention of all trees older than 150 years and the BLM's marking guidelines for the Pilot Thompson Timber Sale recommend "paying particular close attention to trees greater than 30" DBH, because these tree sizes have the greatest likelihood of being greater than 150 years of age." The agency has continued to mark trees over 30" DBH for removal and is using the age based tree removal guidelines to justify the removal of large trees over 20" DBH throughout the treatment area. Trees up to 42" DBH and over 200 years old were logged in the Pilot Joe Timber Sale and many trees over 30" DBH, that I believe to be over 150 years old, have been marked for removal in the Pilot Thompson Timber Sale; yet, some of these trees have been re-marked for removal due to public pressure and documentation. The BLM has claimed only two old growth trees (> 150 years old) were logged in Pilot Joe Timber Sale, yet very little dendrochronological research has been conducted. To date, field manager John Gerritsma has admitted the agency has aged only 12 stumps in unit 26-1A of the Pilot Joe Timber Sale, however, the agency has admitted that many large trees were removed in violation of the project prescriptions and guidelines in unit 26-1A. Community members believe that many large, possibly old growth trees were also removed in units 26-2, 35-1A, 35-1B, and 35-2. In fact, the removal of such trees was widespread in the Pilot Joe Timber Sale.

It is my contention, after numerous trips into the Thompson Timber Sale units, that the agency has marked many large, possibly old growth trees. The trees range from 20"-38" DBH and harbor all the characteristics of old growth trees. As noted earlier some of these trees have since been re-marked for retention, yet not due to agency quality control measures, but due to public outrage and concern. The retention of these trees and others still marked for removal would no doubt "accelerate the development of old growth characteristics." By their very nature large, old trees take long periods of time to replace and their removal constitutes a significant, long term impact. The number of large trees proposed for removal, in light of their relative deficiency within the project area, constitutes a "cumulative impact" that must be analyzed in the EA. In fact, a large motivator identified by the agency encouraging active management in this area is the general deficiency of large old trees. The EA is misleading in this regard, claiming that no old growth trees will be removed and large, dominant and co-dominant trees will be retained (EA P. 3-30). This has not always translated into implementation, causing significant controversy and hampering trust among collaborative members.

According to the EA 342 douglas fir were cored in the Pilot Thompson project area, the average DBH was 20.3" and the average age 99 years (EA p.3-7). According to the marking guidelines for the sale "trees greater than 30" DBH should receive "particular attention" because "these size trees have the greatest likelihood of being greater than 150 years of age." Both statements would lead one to believe that trees over 20" DBH would be carefully considered for retention—as these are the future late seral trees that will compensate for the historic loss of these habitat structure— and all trees over 30" DBH would be retained. Likewise in the PCE's identified for spotted owl critical habitat, trees between 20" and 30" are documented to be key characteristics of NRF habitat for the Northern Spotted Owl. Legal requirements listed on page 1-8 state that the agency must "conserve and/or recover ESA listed species and the ecosystems on which they depend," yet in numerous units trees between 20" and 30" DBH have been marked for removal. I would propose a 20" DBH limit on Dry Forest Restoration projects in the Middle Applegate to protect and recover ESA habitat and to ensure that all trees over 150 years of age are adequately retained. Likewise, I believe this limit would allow for commercial timber extraction while facilitating the retention of trees that will act as "recruitement" for CWD, large snag, and large tree requirements. This will significantly contribute to the development of late-seral/old growth characteristics. Given the deficiency of large trees and large dead wood in many of the treatment units and across the project area, retention of large live trees and large tree recruitment (e.g. mid-seral trees) will best "accelerate the development of old growth characteristics," "increase the mean diameter" of a stand, and provide for the recovery of the Northern Spotted Owl in this relatively stable, critical habitat unit. The agency has failed to demonstrate or identify how the removal of these large trees (over 20" DBH) is contributing to Dry Forest Restoration goals, especially given the deficiency of large tree structures throughout the project area.

The use of a 20" DBH limit would ensure the retention of adequate numbers of mid-seral trees, across the landscape and with enough frequency that they will maintain characteristic levels of old and large trees going forward, despite the unavoidable and predictable mortality of existing old trees. Currently the agency is removing far too many mid-seral trees despite the lack of vigor in many of the area's largest, oldest trees. Severe canopy reductions and the opening of these stands will increase drought stress, windthrow, solar heating, etc; potentially shocking existing overstory trees and leading to mortality. Such impacts can be seen in past treatments in the Armstrong Gulch, Deming Gulch, and Forest Creek areas as well as within the shaded fuelbrakes in the Thompson Creek watershed. It is inevitable that some of these large trees will succumb to the rigors of age and climate, thus "replacement" trees must be retained in sufficient quantities to encourage the forest to continue developing large, old trees that might influence habitat conditions. Adequate redundancy is required to safe guard forest resilience in the face of mortality due to stress, drought, insects, wind, and/or fire.

In Norm and Jerry's article titled "Restoration of Federal Forests in the Pacific Northwest: Strategies and Management Implications" the age base diameter limit on tree removal was proposed for two specific reasons.

1) **To protect smaller diameter trees that may be over 150 years old.** The examples cited were Ponderosa pine on the Deschutes National Forest and Western Larch in Eastern Washington. Due to droughty conditions, competition among trees, harsh growing conditions, and unproductive soils, trees on dry forest sites can grow very slowly supporting old growth trees that are 20" DBH or even less. It is plausible that this could be the case in the Applegate, especially on south, south-west, and western exposures. It is also plausible that the BLM is removing relatively small diameter, but old trees throughout the project area. The agency has conducted little if any research into this issue and has yet to define or demonstrate how the agency is protecting these trees through project design features, prescriptions, marking guidelines, or other project protocol or design. The removal of trees 20" DBH and larger is widespread throughout the project area, amounting to over 140 trees in unit 20-1 alone. Trees in this diameter class, marked for removal are also very prevalent in units 19-4 and 28-2. To date, the agency has yet to demonstrate how the protection of small, but old trees is being facilitated in the Pilot Thompson Project, despite the

existence of such trees being a central tenant of the age base limit. Norm and Jerry state that these trees are especially "vulnerable to timber harvest under current rules (P. 91, 2009)." Given the sheer number of trees in this diameter class (over 20" DBH) marked for removal it appears that they are also very vulnerable to timber harvest in the pilot projects. The agency must identify how it will ensure the retention of these trees under current project prescriptions and marking guidelines. The capacity of the agency to retain these trees has not been adequately analyzed in the EA and project prescriptions and marking guidelines offer absolutely no guidance regarding the maintenance of these smaller diameter but, old growth trees. On the contrary, interpretation of the age based guidelines has been used by the agency to justify the removal of virtually any tree below 30" DBH and is in direct conflict with the intent of the age based limit to ensure the retention of <u>all</u> old trees, especially those under 30" DBH.

2) **To allow for the removal of young, fairly large white fir (over 21" DBH) beneath sugar pine.** This condition by and large is not represented in the project area and thus providing this as a justification for the removal of large old trees in the Pilot Thompson Timber Sale is invalid and disingenuous. Not only is sugar pine relatively rare in the Pilot Thompson units, but white fir, especially white fir of significant size is nearly non-existent in the project area. By and large white fir in the Applegate Drainage is found at higher elevations than those found in the project area, yet will occasionally be found at low elevations in cool, protected sites. The existence of co-dominant white fir growing beneath large, old sugar pine is simply undocumented in the project area. To offer this justification for large tree removal demonstrates the agencies lack of site specific prescriptions and considerations. The agency is using generalized prescriptions (designed for forests east of the Cascade Mountains) that insufficiently address the needs of the landscape in question. Using this justification for large tree removal demonstrates the agency's inability to truly amend these "east-side" prescriptions to adequately reflect localized concerns and needs

<u>The lack of accountability and verifiable limits on tree removal facilitated by the Age based tree removal guidelines:</u>

The use of age based tree removal guidelines is problematic on many levels. First and foremost, age is, vague, difficult to verify and account for, and subject to a large degree by personal interpretation. The inability to accurately concur age from standing trees is especially difficult given the scale of the projects proposed and the wide variety of site conditions, soil conditions, and disturbance histories represented across the project area. Likewise, the spectrum at which growth rates occur is diverse, making identification of old trees difficult throughout the project area. The difficulties in monitoring and verifying tree age from standing trees has led to and will continue to lead to controversy, mistrust, and gridlock in regards to project implementation. The mark will be shroud in significant controversy until safe guards are incorporated in the project PDF's to protect large and old trees. The current situation is essentially an open slate for the agency that offers no limitations on large tree removal. The agency has stated in the marking guidelines for the project that trees over 30" DBH would be paid "particular close attention…because these trees sizes have the greatest likelihood of being greater than 150 years of age than most trees below this diameter." The agency has interpreted this guideline to mean that they have essentially no diameter cap and can remove any tree they define as less than 150 years. They have used this guideline to justify the removal of trees approaching and in some instances greater than 30" DBH with impunity.

The reality is that age is essentially a surrogate for structure and size. The characteristics indentified as indicators for age are based on structural conditions and characteristics, large diameter trees, with large limbs, thick bark, and a "bottle brush" shape are identified as distinguishing characteristics. In terms of fire resiliency and habitat quality, the age of the tree is less important than the characteristics of the tree in question. A diameter limit would allow for the retention of <u>all</u> large trees, old trees, and trees that sustain the structural characteristics typical of late-seral conditions and habitats. It would also ensure for the "recruitment" of large living trees, Coarse Woody Debris (CWD), and large snags to "accelerate the development of old growth characteristics." A 20" DBH limit would also allow

for the retention of enough large trees to meet the PCE's for Northern Spotted Owls in terms of canopy closure, the retention of large trees, and the recruitment of large, live trees, large snags, and CWD. Likewise, given the age class data currently available trees over 20" DBH are likely to be 100 years or older. Limits placed on the removal trees over 20" DBH would ensure the retention of all trees over 150 years of age, including "smaller" old growth trees. The retention of <u>all</u> old trees is a basic principal of dry forest restoration and is the basis of the Environmental Analysis.

The use of a 20" DBH limit would also serve to limit controversy, mistrust, and gridlock, all stated goals of the pilot projects. It would limit the ability of the agency to side step and trivialize issues involving large tree removal and would allow for better implementation monitoring, an issue that has thus far proven to be problematic. A concrete diameter limit would facilitate continuing stakeholder trust and agency accountability in a way that could be monitored and verified rather than the current approach that is unverifiable and subjective, leading to absolute agency discretion, public mistrust, and continuing controversy.

Lack of adequate historical baseline and faulty reference ecosystem model.

To date, the agency has not clearly identified a historical baseline or reference ecosystem model that will define restoration or forest management goals for the pilot projects. The agency has simply and quite vaguely stated that the intention is to restore "characteristic structure and composition" to dry forest ecosystems within the pilot project area. "Desired forest conditions" have been identified as including the "maintenance of older trees" and "increased heterogeneity" yet no data has been presented to clearly demonstrate how this might be defined, what these conditions might consist of and/or what historical or scientific data is being used to identify these conditions. The agency has identified on page 3-3 of the EA that "Historically, forest stands had fewer trees per acre, trees of larger diameter, and a different composition because of more open conditions. These stands were composed of more ponderosa pine, oak species, and incense cedar and native grasses." The information presented is taken from the Middle Applegate Watershed Analysis of 1995, an agency document with very little data presented to substantiate these claims. Yet, the claims are not only unsubstantiated they are overly simplistic and generalized, leading to the development of "novel" and homogenized landscapes. The agency has not given any solid evidence beyond conjecture to support this interpretation of historic landscapes, mosaics, and conditions. Much of the historic evidence supporting the concept of more open landscapes and canopy conditions due to frequent fire return intervals pertains more directly to oak woodlands and valley floor plant communities. Very little early documentation of conditions in mixed conifer stands and dry douglas fir forests can be found for SW Oregon. Yet, a review of the available information and the scientific research exploring these historic conditions clearly shows that open canopy conditions were not as common place as the agency claims in the EA.

A recent paper written by Paul Hosten, Frank Lang, and Gene Hickman titled "Patterns of vegetation change in Grasslands, Shrublands, and Woodlands of Southwestern Oregon" has identified "the existence of stand structures facilitated by stand replacing fire at the time of Euro-American colonization. The range of historical data indicates that woody canopy cover dominated much of the Southwestern Oregon landscape. Where forest structure was open, the understory was often dominated by shrubs rather than herbaceous species." The researchers have identified the presence of increased density in some areas due to fire suppression, yet also have identified evidence of "naturally dense compositions and structures favored by fire intervals that support dominance by woody trees and shrubs (p.2)." The evidence they present is taken from early land surveys, photographs, homestead claims and other land management activities. The agency has not presented such evidence to support their claims. (p.4)

In a survey of early landscape descriptions and diary accounts, the researchers have documented that nearly 1/3 of the early accounts refer to dense or closed vegetative structure (p.4). These descriptions also identify "the common place occurrence of stand replacing fire and the replacement of timber by

shrubs challenges the notion that contemporary stand replacement fires are an anomaly when compared to historic conditions (p.7).” According to documentation analyzed in the Second Forest Homestead Act, many homesteads in the Applegate Valley found at low elevations identify “the presence of brush or chaparral, with frequent reference to the high density of vegetation.” Often open forest conditions where documented to support woody vegetation in the understory rather than dominance by herbaceous understory species (p.9).

Likewise, research into GLO surveys from the 1890’s demonstrates that “dense undergrowth” was common in the mountains southwest of the project area. Likewise, they found that “within the mixed conifer community, it seems likely that Douglas fir associations were dominant (McKinley & Frank 1996, p. 101-102).” Surveys involving the early Donation Land Claims (DLC) between 1850 and 1855 identified the presence of pine oak woodland in the valley bottoms; yet, “The Hopkins DLC at higher elevations (2,600 ft) shows a marked contrast from vegetation averages displayed by other DLC’s…They found half of the Douglas fir and no pine. Such findings indicate a mixed conifer community (McKinley & Frank 1996, p.49-50).”

Another article titled “Historical Vegetation Changes in Southwestern Oregon” written by Paul Hosten and Olivia Duran also validates these reference conditions stating that “results do not justify the conviction that the landscape was historically much more open. Settlement era surveyors recorded much more closed canopy forest and woodland than open savannas and prairies in valleys and foothills, a condition confirmed by settler descriptions and early photos (p. 16).” The results of this study using early GLO surveys concluded that historically 82.4% of the landscape was “closed” while only 17.6% was “open.” Of particular interest to the pilot projects was the finding that historically 76.5% of the total “closed” vegetation types were found in mixed conifer habitats. Also of particular interest is that currently only 38.4% of the “closed” vegetation type is found in the mixed conifer associations constituting a total reduction of 38.1% in “closed” mixed conifer vegetation between historic and present conditions. This finding is in direct contradiction of the stated reference condition in the Pilot Thompson EA claiming that in general such vegetation types were historically much more open than they are today. (p.8) This finding also demonstrates that the pilot projects and the treatments proposed will further contribute to this reduction in “closed” mixed conifer forest between historic and contemporary times, pushing these forests further from their range of historic variability.

Further evidence can be found in John Leiburg’s 1899 survey of vegetation in the Ashland Watershed and the Upper Little Applegate. Leiburg found that douglas fir forest constitutes “58% of the forested acreage west of the Cascades.” It is clear that douglas fir has long been a dominant tree on northern, eastern, and western exposures in the Applegate, it is also clear that fire suppression and historic logging have impacted the habitat of dry douglas fir stands. The question remains as to how severe that impact has been and what the historic condition of these forests was. No doubt they were somewhat more open and adapted to wildfire. Leiberg notes that low elevation fir forest generally constituted 25% p.pine, 5% s.pine, 55% douglas fir, 5% w.fir, 2% cedar, and 8% oak or madrone in the Ashland watershed and Little Applegate area. He notes that a “characteristic stand and one which is typical contains 60% red fir (douglas fir).” Some stands contained 75%-85% douglas fir in 1899. He states that “in the red fir (douglas fir) type the forest in these regions reach their maximum density, this holds good for the mature timber as well as for the seedling and sapling growth. The type never has the open aspect which characterizes stands belonging to the yellow pine type, except on areas where heavy stands of mature timber effectively shade the ground there is a good growth of many species of shrubs.” Thus, the region’s fir forests should not be treated as they have been, with prescriptions created for east side pine forest (Johnson and Franklin 2009 p.37).

It is my contention that much of the dry fir forest in the region was significantly more open in regards to small, understory trees, yet the density of large old trees has been greatly reduced. I do not believe the historic documentation suggests that much of the dry fir forest in the region supported stands of pine and oak as the BLM proposes. These species colonize more exposed slopes rather than the north and west slopes treated in Pilot Thompson and tend to be found lower in elevation than much of the proposed treatment area. Although found within fir stands these early successional species may have been

an anomaly or found in response to harsh soil conditions, exposures, and fire histories including mixed and high severity fire. Many of the proposed treatment areas are forests historically maintained and developed through the influence of mixed severity fire, yet proposed treatments are based on low severity, high frequency fire. The structures developed through thinning in the pilot projects are distinctly different than those that would naturally develop with a mixed fire regime.

The Applegate is a patchwork of plant communities, one of which is clearly a dry douglas fir community. The mosaic of vegetation can be predicated through a mixture of soil types, slope position, natural disturbance, and sun exposure. Many of the proposed treatment areas lie within areas predisposed to the development of mixed conifer forest due to the slope position, exposure, and historic disturbance regime. Leiberg noted in 1899 that "west of the cascades the yellow pine tracts in some places barely hold their own. Along the upper and high limits there is occasionally a decided tendency towards a larger proportion of red fir(d.fir)." He also states that pine forests embedded within fir types "are in a state of decay and are gradually being replaced by red fir which advances from the surrounding forest." Thus, forest succession was well under way in 1899 and dry fir forest was a distinctive community within the lower elevations of the Applegate Valley and SW Oregon.

Pine species and hardwoods were found throughout these forests in areas of shallow soil and those areas recovering from high severity fire and maintained by a mixed or low severity fire regime. It is the patchy and diverse nature of mixed severity fire that has shaped the forests in question, not a low severity, high frequency regime. Studies have documented a fire return interval of 9-50 years in mixed conifer forests in the Klamath/Siskiyou, with some fire free periods lasting much longer than 50 years. This creates much different structural and compositional conditions then the low severity fire regime of ponderosa pine forests and oak woodlands. The abundance of chaparral, the diversity of age and species, the prevalence of stump sprouting hardwoods, and the patchy distribution of the historic forest landscape, all point to a mixed severity regime and douglas fir dominated mixed conifer forest throughout much of the area. The vast amount of ancient douglas fir harvested from BLM lands between the 1950's and 1980's clearly demonstrates the ability of douglas fir to grow and regenerate over time on these sites

In regards to historic fire return intervals (FRI) and fire regimes, the agency states that the Middle Applegate area was historically subjected to a FRI of 10-30 years and has missed multiple fire cycles over the last 100 years (EA p. 3-5). The agency characterizes this fire regime as a "high frequency" fire regime. Yet, numerous fire history studies throughout the Klamath/Siskiyou region in mixed conifer forests have documented the fire regime of the area to be a "mixed fire regime" with highly episodic and variable fire frequencies (Colombaroli and Gavin 2010, Taylor and Skinner 1997, 1998, Skinner and Chang unpublished 1996, Skinner 1994, Agee 1991, Adams and Sawyer 1980). This pattern of mixed fire regimes and variable fire frequencies is very important in creating landscape level patterns, forest compositions, and structures. In fact, it appears that the range of fire frequency is often more important in defining landscape and forest conditions throughout this region than the mean fire return interval. It is often thought that the range of fire free periods in the Klamath/Siskiyou are generally longer and more variable than in similar forest communities found in the Sierra Nevada and Southern Cascade Mountains (Skinner and Chang 1996). For example a fire free period of 40-50 years is typical in many fire history studies in the Klamath/Siskiyou, this would allow species such as douglas fir that are fairly susceptible to low and moderate intensity fire while young, to become established and develop conditions/adaptations to fire that would enable the trees to become fairly resistant to low and moderate severity fire. Scientists have theorized that such variable fire frequency may be a driver for biodiversity in the region (Christensen 1985); likewise, ecological process modeling (Keane etal. 1990) indicates that vegetative and fuel conditions would be significantly different from pre settlement patterns if the return intervals were regular and without variation. Such variation is characteristic of fire in the Klamath/Siskiyou region and is partially what sets the region apart from other regions in terms of forest composition and structure.

Appropriateness of "East-side" prescriptions in the Klamath/Siskiyou

The dry forest restoration principals and prescriptions proposed by Norm and Jerry were developed for forest communities east of Cascade Mountains and in the more arid portions of the west.

Although these forests may share some dominant conifer species with the dry forest associations in the Klamath Siskiyou, the "complicated, diverse forests"(Franklin, Johnson 2009 P. 37) found in the Klamath Siskiyou (including the Applegate Drainage) sustain much more diverse forest communities with more variable fire histories than the forests east of the Cascade Crest. The variable fire history, diverse geology, steep terrain, and influence of aspect creates a patchwork of chaparral, oak woodland, mixed conifer and hardwood forest and open grassland very different from the forest of pine, fir, and larch across the arid west.

The proposed stand densities and landscape patterning identified as the desired condition in the Pilot project appears based heavily on the forests of the "east side." Norm and Jerry have identified "The Dry forests in the central and eastern portion of the Klamath Province " as areas they would expect "forest types and fire regimes more like the eastern slope of the Cascade Range, especially ponderosa pine and Douglas Fir plant associations. The Dry Forest strategy described for the eastern slope of the Cascade Range should be considered and we have conducted our analysis accordingly (Franklin and Johnson 2009, P.37)." They continue stating that "A variation of the Dry Forest strategy proposed for the eastern slope of the Cascade Range could be successfully applied to the Douglas Fir and Ponderosa pine plant associations, especially on the checkerboard lands of the BLM and the eastern portion of the Rogue River National Forest." The agency has neither demonstrated how such a "variation" has been developed, nor have they provided science to validate the use of "east side" prescriptions in the Klamath/Siskiyou Mountains. No attempt to validate or justify this approach has been made in the EA, creating an inadequate and incomplete analysis.

James Agee in his seminal book, "Fire Ecology of the Pacific Northwest," describes the mixed conifer/mixed evergreen forest as "the most complex set of forest types in the Pacific Northwest…They differ in their specific mix of species, their fire regime, and the successional patterns likely after disturbance (Agee P. 280 1993)." The Applegate area is particularly diverse harboring mesic sites typical of western Oregon amongst more arid terrain harboring species from the Great Basin, the pine forests east of the Cascade Mountains, and the oak and chaparral country of California. The Klamath/Siskiyou harbors species that do not exist and do not have ecological equivalents east of the Cascades. These species include madrone, black oak, white oak, live oak, manzanita, buckbrush, and others. The mixed conifer forest has long been identified as a distinct and diverse community with very different stand dynamics, structures, compositions and fire histories than forests east of the Cascade Range. In fact the mixed conifer forest community is considered a northern extension of the Sierra montane forest (Franklin and Dyrness P. 136 1973) rather than a western extension of the east-side. The mixed conifer forest is characterized by diverse layered forest canopies rich with hardwood species, creating stand dynamics quite different from the more eastern pine forests. The forests of the Klamath/Siskiyou often include only "scattered individuals" (Franklin and Dyrness P. 139 1973) of Ponderosa pine and sugar pine, while the "east side" is dominated by these species. The "east side" pine stands are usually adapted to a lower severity, high frequency fire regime. Mixed conifer forests are adapted to a mixed fire regime rather than low severity, high frequency fire.

The climate of the eastern Klamath/Siskiyou is milder than that of the eastern Cascades; some years are moist like the Pacific Northwest, while others are warm and dry. The summers are always sufficiently dry to burn, yet the fire frequency and lightening occurrence may be less frequent than many forests east of the Cascades.

It is my contention—and the best available science demonstrates—that forests of the Klamath/Siskiyou support forests of higher diversity, with higher canopy cover, much more layered and diverse stand structures, and entirely different fire regimes than those of the east side. It is also theorized that the globally significant forest diversity of the region can be partially explained through this variable disturbance history, while the east side forests have developed with a much more regular disturbance history. The stand structures, species composition, and regeneration patterns created by these separate fire regimes are quite distinct and require regionally specific prescriptions to sustain biodiversity and forest health. I would propose that the forests of the Klamath/Siskiyou are an intermediate forest community, supporting diverse stands of intermediate density. The climate, fire regime, and species composition is

truly unique creating forests that are neither the wet forests communities typical west of the Cascade Mountains nor the dry forest communities typical east of the Cascade's. The forests of the Klamath/Siskiyou are simply too diverse and important to simplify with generalized prescriptions developed for forests of another region.

Understory response:

Although Norm and Jerry have identified the shrubby in-growth and understory response generated by timber harvest operations and canopy reduction as an issue of concern, the BLM has not adequately analyzed or explored this issue in the context of the Pilot Projects. Norm and Jerry recommend that "In restoration silviculture, potential shrub response to reduction in stand densities must be considered. Some dry mixed conifer plant associations have the potential to develop dense shrubby understories when light and moisture are made available by tree thinning; this is particularly the case in Dry Forests that exhibit more even sized and dense structures. Such understories can provide significant ground fuels for wildfires, thereby negating some of the positive effects of thinning on fire behavior. The potential for development of shrubby understories can initially be assessed on the basis of plant associations; ie plant associations vary significantly in potential understory responses. Current stand conditions provide another important measure. Hence, the potential for developing undesirable levels of understory fuels needs to be assessed on a stand by stand basis and prescriptions adjusted so as to reduce the risk of undesirable understory responses. Indeed, it may be desirable to maintain essentially full overstory canopy cover, treating only ladder fuels, and leaving all dominant and co-dominant trees in place rather than risk enhancing ground fuels (e.g., grasses and shrubs) (Franklin and Johnson 2009, P. 31)." It is my contention that the Applegate drainage exhibits all the characteristics listed above that contribute to the "risk of undesirable understory response" and the recommendations given by Norm and Jerry including the retention of dominant and do-dominant trees, the retention of canopy cover, and the emphasis placed on treating ladder fuels should be considered for the pilot projects. Treatments proposed in the Pilot Thompson Project and implemented in the Pilot Joe Project have not followed these recommendations despite clear indications that such a response should be expected.

The mixed conifer forests of the Applegate drainage specifically and the Klamath/Siskiyou in general have long been known to develop dense woody understories when canopies are opened by either fire or industrial logging. Species such as pacific madrone, live oak, manzanita, buck brush, deer brush, and chinquapin, all found in the project area have long been problematic in the Applegate area and can create ladder fuel and fuel loads of concern in regards to fire resilience and fuel management objectives. Such dense understories can also limit conifer regeneration for a period of years or decades depending on site conditions (Agee 1993, P. 287). Yet, at times douglas fir regeneration following canopy reduction can also be quite dense, creating ladder fuels and heavy, highly flammable fuel loads in the understory layer thus putting the remaining stand at risk.

The forests of the Middle Applegate tend to "exhibit more even sized and dense structures" the very conditions Norm and Jerry identify as conditions that might encourage "undesirable understory response." In fact, rather than acknowledge this condition and create prescriptions that might discourage such a response. The agency has identified these "even sized and dense structures" as conditions prevalent within the project area, yet have not analyzed for such a response or tailored treatments in a way that might reduce risks. On the contrary, the agency has proposed to open canopy conditions drastically in all commercial units (to 40%-60% canopy coverage). Such heavy thinning will encourage a dense growth of understory trees and shrubs, likewise many of the proposed "gaps" will also encourage such a response. The Middle Applegate also sustains plant communities with considerable amounts of live oak and pacific madrone, heavy thinning in such plant communities will also encourage dense understory growth, increasing ladder and ground fuels after commercial treatment.

The development of dense understory fuels following commercial thinning is common in the Applegate Drainage and the planning area. In fact, most of the proposed commercial units thinned in the mid to late 1990's have now developed dense, woody understory conditions. These conditions can be

found in Deming Gulch, Armstrong Gulch, Waters Gulch, and other areas heavily thinned in the Little Applegate. Likewise, these conditions can be found in Forest Creek, Thompson Creek, Ferris Gulch, and other areas heavily thinned in the Middle Applegate area.

I would proposed that the agency thoroughly analyze the impact of opening canopy conditions in regards to understory response, fuel reduction objectives, and in light of the recommendations offered by Norm and Jerry in their 2009 article. Analysis into prior outcomes from such thinning treatments must be documented and included in an EIS for the Pilot Thompson Project. If past outcomes, as well as current conditions and plant communities tend to create such "undesirable understory" conditions proposed canopy reductions and the felling of dominant and co-dominant should be adjusted to minimize these risks. I would also recommend that the agency create an alternative that proposes to in act these recommendations by Norm and Jerry for analysis in an EIS. Included in this alternative would be the recommendations for dry fir/pine sites, especially those featuring even aged and dense structural conditions, as well as those higher on the slope and on harsh exposures.

In our region it is often the density of large trees, with canopies shading out understory species that minimizes shrub response and allows for open understory conditions. More open canopies have a tendency towards dense, woody understory conditions including dense growths of manzanita, madrone, live oak, deer brush, etc. This is especially true on sites where excessive cutting of hardwood species occurs and thus stump sprouting is initiated. It is also true of yarding corridors where soil is disturbed triggering germination of woody species. The density of yarding corridors in the Pilot Thompson project could encourage the germination of woody shrubs on a scale that would create serious fire risk and negate many of the positive impacts of thinning. The agency should begin monitoring for this response in an effort to further identify the conditions that create such an undesirable proliferation of woody shrub species, including treatment options, soils, plant communities, yarding techniques, slope position, exposure, etc.

Use of basal area targets:

The over emphasis on basal area targets when implementing forest restoration prescriptions in the region has lead the agency to compromise naturally occurring tree groupings, manage for rigid targets that limit heterogeneity on the landscape scale and create homogenized stands that are subjected to predetermined stand conditions despite site specific considerations. The use of basal area targets as the major thrust of dry forest restoration strategies is forcing agency managers to promote simplified stand structures, homogenized conditions, and is encouraging the removal of large, old trees, especially in naturally occurring groupings of trees. According to Norm and Jerry, basal area targets and Stand Density Index (SDI) considerations should not override other important resource values, yet they appear to be the major diver for forest restoration prescriptions. Norm and Jerry state that "Published management guidelines focused on Stand Density Index (SDI) or basal area may be useful but must be applied with care in restoration forestry, since these were developed for young managed stands-not for stands dominated by a small population of large trees. Again, natural stands characteristics maintain fine scale heterogeneity or "patchiness" that needs to be maintained. For example, old trees are sometimes clustered in groups that "contain 2 (common) to 6 (rare) individuals; such aggregations are natural and are probably mutually supportive rather than competitive. In any case, restoration silviculture needs to provide for such heterogeneity (Franklin & Johnson p.31 2010)."

The rigid and dogmatic use of basal area targets is not entirely appropriate for restoration forestry and tends to focus prescriptions on tree spacing and trees per acre, at the expense of site specific conditions, wildlife needs, natural heterogeneity and stand diversity. The goals of restoration forestry should not be to achieve the "correct" stocking level, but to preserve, maintain, and re-create a range of natural and historic stand conditions that might better achieve multiple objectives and promote biodiversity. The emphasis on basal area targets also focuses treatments on reducing competition in forest stands, which is needed in many situations, yet the over emphasis on individual tree health, spacing, and stand density can further compound the common deficiency in standing snags, CWD, and heterogenity.

The approach views mortality as a negative impact despite the requirements of CWD and snag habitat by wildlife and the role they play in maintaining site productivity. By managing to eliminate competition and "capturing" nearly all mortality for commercial use, the long term recruitment of CWD and snag habitat is diminished, along with the associated loss of structural diversity.

Although useful in many circumstances, including in the reduction of competitive stresses that can lead to insect outbreaks and low vigor stands, it must be realized that basal area management was developed to maximize timber production, increase tree growth, and set acceptable stocking rates in heavily managed forest stands, not to manage for wildlife, heterogeneity, natural stand conditions, and forest resiliency. It seems that basal area targets force resource managers into a futile pursuit, trying to create the "optimal" or "ideal" stand conditions; elusive, undefined, and unattainable conditions that promote a static view of nature. This is the "command and control" management strategy that focuses entirely on "desired future conditions," that again, are elusive, ill-defined, and unattainable given the random and unpredictable natural processes and conditions at play. The emphasis should instead be placed on tending away from "undesirable" conditions. This puts the emphasis on a range of acceptable conditions (e.g. biodiversity/ heterogenity). Basal area management can inform and play a role in such management, but should not be the driver or seen as the only means of promoting forest health and diversity. The use of basal area targets and SDI in restoration forestry should be used with some caution and flexibility. The need for redundancy and ability of a stand to absorb natural disturbance processes requires that some allowance for competition and mortality in varying degrees be accounted for when managing forest stands. Often the basal area targets are interpreted and implemented in a very rigid fashion, leaving little room for flexibility, leaving few options for the future, and homogenizing forest ecosystems.

The Removal of Naturally Occurring Tree Groupings and the Loss of Existing Heterogeneity:

A significant controversy has developed in the Pilot Projects surrounding the treatment of naturally occurring tree groupings. The agency has often marked these naturally occurring tree groupings or "clumps" in a way that reduces heterogeneity, forest resiliency, and characteristic structure. The agency should not use basal area targets, spacing requirements, or age based tree removal limits as justification to remove large, fire resistant trees or break up natural clumps, groupings, or mature co-dominant trees. Such patchy forest distribution is a natural response to low and mixed severity fire and can help to mitigate fire severity and enhance habitat conditions. Such groupings are significant biological legacies that should be retained and represent natural heterogeneity. Uniform treatments based on spacing should be abandoned and a more variable distribution pattern encouraged in both the overstory and understory. Rather than try to engineer such landscapes, naturally occurring groupings of significant age should be retained in all circumstances. When available such groupings should be retained to maintain natural biodiversity and encourage characteristic stand structures. If a goal of the project is to encourage heterogeneity and to a certain extent mimic historic conditions, then the remnants of these fire-mediated forest structures must be maintained,where they still exist. Thus far, the emphasis for heterogeneity has focused on the creation of openings or "gaps" and has failed to maintain naturally occurring heterogeneity and/or tree groupings.

Stand composition in the area is almost never "pure," thus, large co-dominant douglas fir can naturally occur in pine dominated stands and vice versa. In fact in Norm and Jerry's "Restoration of Federal Forests in the Pacific Northwest (p. 31)," they warn against too heavy an emphasis on the utilization of the Stand Density Index or basal area targets because such methods were developed for plantation management not the management of natural fire adapted stands. They state that naturally generated "clumps" can vary from 2 to 6 individuals, are mutually supportive, and should not be broken up to meet basal area or stand spacing targets. Yet, often agency prescriptions compromise these naturally supportive and fire adapted clumps, due to economic interests and rigid basal area targets. Naturally occurring clumps of overstory trees, whether even aged, mixed age, or mixed species should be preserved on the landscape to protect and enhance heterogeneity. Groupings of trees should be retained unless the age differences are pronounced, the aggregate is creating excessive competition that cannot be addressed

by thinning around these clumps, or the clump includes smaller, younger trees that create fuel ladders leading into the canopy of larger more mature trees Where a grouping exists that appears mutually supportive, provides diversity of structure, has a similar canopy height, supports late successional characteristics such as large limbs, broken tops, interlocking branches, etc, the entire clump should be retained and thinning conducted around the grouping to reduce fire risk, stress, and uniformity.

To ignore natural patterns and stand structures is not restorative. To compromise the last remnants of historic, fire adapted stand conditions under a "restorative" approach is simply contradictory and the practice should be discontinued. Such conditions represent a complex interaction between site conditions, soil conditions, disturbance history, natural succession, climate, and competition. Such conditions are very difficult if not impossible to accurately mimic and generalize. The random and chaotic nature of forest development, especially in the mixed conifer forests of the Klamath/Siskiyou has yet to be accurately defined and understood, thus remnants of these complex historic communities should be retained in all circumstances.

Roads, OHV use, and Soils

Temporary Road Construction:

The Medford District BLM often claims to have a strong commitment to road decommissioning, the reduction of road densities, and watershed health in general; however, the on the ground impacts of unmanaged OHV use, proposed road building, extensive tractor and cable yarding corridors, log landing development, skid trail development, and "temporary" road construction serve to threaten the attainment of ACS standards and objectives, and compound already significant road and erosion related impacts to both the Ferris Gulch and Thompson Creek watersheds. Despite the recommendations of the ACS, the Middle Applegate Watershed Analysis, and the claims of the Pilot Thompson EA, the agency is proposing to increase sedimentation, road density, and general disturbance to Fragile Gradient Soils.

Although the agency claims to be reducing road density through the implementation of the Pilot Thompson, the reality is that the creation of log landings, skid trails, and new roads whether "temporary" or "permanent" have real impacts that cannot be analyzed away. Likewise, the creative use of numbers does not change the reality on the ground.

Road density within the project area varies from watershed to watershed, but in general is already fairly high, ranging from a low of 2.1 in the Ninemile Creek drainage to 5.8 in the Ferris Gulch drainage. Lower Thompson Creek sustains 4.2 road miles per square mile, while Upper Thompson Creek sustains 4.6 miles per square mile. According to the EA "road densities may be considered high and may result in altered hydrology when they exceed 4 miles per square mile (P. 3-65)." Despite the already high road density in the planning area and throughout the Ashland Resource Area, the agency is steadily and continually proposing the creation of new logging roads at the expense of watershed and hydrological values. To continue increasing road densities in areas already considered "high" is irresponsible, unjustified, and constitutes a irretrievable loss of important resources..

Despite BLM's claims, the impacts of "temporary" road construction are well documented and the efficacy of road obliteration following road creation and use is minimal at best. In the EA for the Rustler Timber Sale in the High Cascades District of the Rogue River-Siskiyou National Forest, the agency acknowledged that "Temporary roads are also expected to have an irretrievable reduction in soil productivity since they are bladed (soil is mixed and displaced) and compacted. Even once rehabilitated, the soil profile is modified to a degree that may take many years to return to the productive state of the undisturbed forest soils adjacent to it." According to the 2000 National Forest Roadless Area Conservation FEIS (P.3-30) temporary roads are not designed or constructed to the same standards as the classified road system and therefore result in a "higher risk of environmental impacts." The FEIS goes on stating that "Temporary roads present most of the same risks posed by permanent roads, although some

may be of shorter duration. Many of these roads are designed to lower standards than permanent roads, are typically not maintained to the same standards, and are associated with additional ground disturbance during their removal. Also, use of temporary roads in a watershed to support timber harvest or other activities often involves construction of multiple roads over time, providing a more continuous disturbance to the watershed than a single, well-designed, maintained, and use-regulated road. While temporary roads may be used temporarily, for periods ranging up to 10 years before decommissioning, their short- and long-term effects on aquatic species and habitats can be extensive." (Specialist Report for Terrestrial and Aquatic Habitats and Species prepared by Seona Brown and Ron Archuleta, EIS Team Biologists)

Likewise, BLM soils scientists in the Coos Bay District have found that the restorative value of decommissioning efforts is often minimal: "What I have seen so far have been nothing more than modified rock rippers and little lateral fracture of the soil occurs and the extent of de-compacting is very limited (Big Creek Analysis file, section F, Soils Report, Page 4)."

The increased risk associated with temporary road design and decommissioning must be analyzed in a NEPA document. The assumption that "temporary" roads are relatively environmentally benign is entirely unsubstantiated and the agency has shown no scientific evidence to support this assumption. Scientific research has shown "temporary roads, to be anything but benign or "temporary." I would suggest the agency review the following research "Effectiveness of Road Ripping in Restoring Infiltration Capacity of Forest Roads" Charles H. Luce, USDA Forest Service Intermountain Research Station, published in Restoration Ecology Vol. 5 No. 3. Simply put, the decommissioning of a "temporary" road does not mitigate the impact of its creation, in terms of sedimentation, hydrological function, soil compaction, and water infiltration. Ripping the road bed and closing the road to vehicular traffic is not equal to the road never being built, neither is full obliteration or re-contouring.

According to the Pilot Thompson EA (P. 3-48), both proposed "temporary" roads lie within soils having "a low resistance to compaction," but a "high potential for recovery." Likewise, the agency states that they expect that "decommissioning would likely not return the soil to the original bulk density in the short term" and soil productivity to be "returned in the long term" yet no information is provided to substantiate these claims. What scientific research is the agency basing its "high potential for recovery" on? How is the agency defining "short" and "long term" impacts? What are the real impacts associated with "temporary" road construction? These are questions that must be answered in an EIS document.

<u>"Permanent" Road Construction:</u>

Two new "permanent" roads are proposed to be constructed in the Pilot Thompson Project under Alternative 2. These new roads would be developed in areas already considered to have high road densities. Although the BLM would like to downplay the impacts of these new roads, they would only add to a problem that the Middle Applegate Watershed Analysis identified as an issue of significant concern. In the Middle Applegate Watershed Analysis (P. 86) the BLM recommends to "reduce overall road densities." Given the extensive and cumulative impact of road construction, skid trail establishment, road blading, landing construction and proliferation of ORV trails the effect of implementing the Pilot Thompson project would increase the Equivalent Roaded Area in the watershed. This is significant in that the area is already above the 4 miles of road per square mile threshold. Likewise, when adding the effects of "temporary" road construction, OHV trails, landings, skid trails, and road blading the impacts become more pronounced and the already high road density is much higher than the agency claims. "Temporary" roads, skid trails, and unmanaged, unauthorized OHV trails have many of the same impacts as "permanent" roads, possibly more. This combined impact constitutes a major net increase in road density, especially in the Ferris Gulch watershed where road density is already an astounding 5.8 miles. Impacts to the Thompson Creek watershed would also be significant in that road densities are already above 4 miles.

The creation of new roads is unjustified given the already severe impacts road building has created in these watersheds. Specifically, proposed road 39-4-06 would be developed on slopes ranging from 50%-80% in Fragile (FG) Soils. The steepest portion of this road is proposed in an area that has "the potential to be easily detached" (3-45). It is also noted that OHV use has severely impacted the adjacent

road bed creating "large gullies in the road (3-45)," although the road would be "blocked after use" OHV use especially during wet weather has the potential to create new and persistent impacts to the newly created road bed, just as it has in the existing road bed. In fact, the EA states clearly that road creation will create "a noticeable increase in soil erosion the first few significant rain events after construction (3-46)," these impacts are not consistent with the objectives of the ACS.

Proposed road 39-4-20 would be created to log unit 19-4, a unit harboring relatively open late seral forest that should be canceled. Canceling the unit and mitigating the impact of tree removal in this area would be recommended, it would also negate the need for this newly created "permanent" road. Although road construction would be mostly located on a rocky ridgetop, this new road would no doubt become a firing range, OHV track, garbage dump, and generally disturbed site as nearly all roads in the area have become. The lack of enforcement and other adequate measures to address these problems has been neglected and ignored by the agency. In fact, these problems have been encouraged by BLM land management decisions that promote OHV use. Likewise, disregard and neglect has also encouraged the problem of OHV use to become widespread in the Thompson/Ferris area. Newly created road will also potentially displace and disturb wildlife and lead to increased hunting pressures. Noxious weeds will also likely move into the site due to road construction, this could lead to spread into the freshly disturbed logging units below.

Skid trail construction:

Although the agency often claims that skid trails created for logging purposes will be short term impacts and/or temporary features on the landscape, this claim is unsubstantiated. The EA estimated that "it would take from 50-80 years for skid trail soil density levels to recover to near-natural density levels (3-42)." This is surely a long term impact. The EA proposes 1.17 miles of Designated Skid Trails and Swing Trails. Again this is a significant number that should be seen as an increase in the Equivalent Roaded Area, as the skid trails will impact soils and hydrology in a manner similar to road construction. Although most of the skid trails proposed would be developed on "existing footprints" this would preclude soil recovery of these areas and create more substantial long term impacts namely soil displacement, compaction, and the loss of vegetative material. It is likely that despite the agencies best efforts that these skids would become OHV trails in the future, just as many have in the past.

Proposed skid T38S-R4W-S20 would not be developed on an existing footprint and would severely impact a relatively intact oak woodland and area of native grassland. This small remnant community found on the ridgeline above unit 20-1 would be seriously degraded in terms of oak woodland structure—as trees would be removed for skid construction—and soil impacts would be significant as well creating long term impacts to soil productivity. Lastly, the spread of noxious weeds within this relatively intact native grassland is nearly unavoidable when disturbing soils, dragging logs, and utilizing heavy equipment. Intact oak woodlands in the area are an easily degraded and under-represented plant community that is very susceptible to noxious weed spread. To call such impacts "restoration" is misleading and dishonest. To claim that the Pilot Project will "restore" characteristic structure to fire adapted stands is also misleading while relatively intact plant communities are degraded in this way. Exactly what is being restored when understory, overstory, and unique relatively undisturbed plant communities are being degraded? Unit 20-1 should be canceled along with the development of proposed this skid.

Fire/Fuels:

The impact of implementing the Pilot Thompson Timber Sale will have conflicting impacts on fire/fuels management. Despite the acknowledged impacts of increased solar radiation, air movement, and the development of dense, shrubby in-growth following canopy reduction, the agency has shown little attempt to analyze for these impacts in the EA, this despite the acknowledgement that much of the stated impetuous for thinning in these areas related to high fire hazards and the risk of "uncharacteristic" fire. Many studies conducted in the Klamath/Siskiyou have shown a correlation between open stand conditions and high severity fire effects. The reduction of forest canopies can often increase surface fuels, fire line

intensity, and flame lengths to the detriment of fuel management objectives. Opening more stands will also increase the total acreage in need of routine maintenance in order to keep fuels at manageable levels. The continuing increase in acres in need of maintenance will stretch fuel reduction budgets beyond their capacity to maintain beneficial fuel loads and accumulations. The retention of higher canopy closures will reduce the need for continual maintenance by reducing the solar radiation at the ground level, by retaining soil moisture, and through the retention of large, fire resistant trees. Contrary to BLM assumptions large diameter douglas fir trees are very fire adapted and resilient. The removal of these trees will not only compound issues associated with canopy reduction, but will make forests less fire resilient by removing the very structures that facilitate fire resiliency in a stand (e.g. large trees and relatively high crown base heights).

Often the agency claims that by removing large fir trees stand composition will shift towards more fire resilient species such as pine and oak. Often this claim is erroneous due to stand conditions that will continue to facilitate the regeneration of fir rather than pine or oak species. Aspects, microclimate conditions, and fire histories on this landscape often favor douglas fir trees on north, east, and often northwest facing slopes. Simply put these are fir sites, not pine sites and pine species will not regenerate, persist, or compete well in these areas. The distinction between fire resilience of pine and fir species is often associated with the increase resilience of pine in the seedling and sapling stage as compared to douglas fir, yet at greater ages douglas fir develops many of the characteristics of fire resilient species, such as thick bark, high crowns, the shading and reduction of woody understories, and the ability to sustain low to moderate severity fire impacts. Simply put it is the age and size of the tree that creates fire resilience, thus trading larger, older, douglas fir trees, for younger regenerating pine species will actually increase the potential fire severity for many years until regeneration species attain sufficient age and size to encourage fire resilience. The increase in woody growth and regeneration associated with commercial thinning will also increase fuel laddering and connectivity for many generations, putting the larger more fire resilient trees at risk.

Lastly, there is a natural spectrum of fire resiliency associated with varying fire regimes and forest types throughout the west. The appropriateness of forcing low severity fire regimes in ecosystems adapted to mixed severity fire is questionable. The mixed conifer region of the Klamath/Siskiyou is documented to have historically supported a mixed severity fire regime and is often referred to as a douglas fir mixed hardwood forest community. To encourage a low severity fire regime adapted from the "east side" is not appropriate and will impact characteristic forest structures, composition, adaptations to fire, habitat conditions, and stand development patterns in a way that will limit habitat complexity and biodiversity in a region renowned for its high biologic diversity and complex habitat mosaics. To "fire safe" this forest in a way that mimics low severity fire communities will not restore "characteristic" or "historic" structure. Such treatments tend to create novel ecosystems with little to no historic context, over representing site conditions that may have historically existed on a much smaller spatial scale and in a much more diverse mosaic than the stated "desired future conditions" of the Pilot Thompson Timber Sale.

Noxious Weeds:

The spread of noxious weeds throughout treatment areas proposed in the Pilot Thompson Project are of concern given the severity with which canopies will be opened, the creation of new roads, skid trails, tractor swing trails, landings, and other ground disturbing activities such as road renovation, cable yarding, and tractor yarding. The agency has identified 9 species of noxious weeds within the project area. Some represent significant infestations and some such as Medusa-head Rye have "no effective treatment methods available at this time (3-129)." The EA states that "newly disturbed areas are most vulnerable to noxious weed establishment. Soil disturbance creates favorable conditions for the establishment of noxious weeds by removing competing vegetation." Activities identified to introduce or spread noxious weeds include road construction—I would add even "temporary roads"— and timber harvest. The EA further states that "logging activity presents a key dispersal opportunity for noxious weed seeds (3-130)." The EA lists the tires of log trucks, logging equipment, and other logging associated

forms of dispersal as concerns. It also states that "logging creates openings during ground disturbance and canopy removal which noxious weeds may colonize." Such canopy reduction and the creation of openings or "gaps" is a design feature of the pilot projects and could lead to significant noxious weed spread. Despite the increased opportunity for weed establishment and spread the agency does not identify a weed treatment schedule, funding for eradication or treatment of weed species, or monitoring protocol that will identify issues if and when the develop. Nor has the agency proven in the past to be able to adequately fund noxious weed removal programs on the scale needed to tackle this problem. Past activities have proven that once introduced the agency's ability to eradicate or even control noxious weeds has been fairly inadequate. As old sites grow larger and less controllable, the establishment of new sites and the continuation of activities that encourage weed spread will further compound these problems, leading to widespread infestations and impacts to native plant communities. The Analysis of noxious weed spread in relation to the ground disturbing activities on over 1,200 acres of commercial units, many miles of road renovation, and the construction of new road, skid trails, and tractor swing trails is faulty and insufficient, especially given the long term potential irreversible impact of noxious weed spread.

Northern Spotted Owl and Pacific Fisher Impacts:

The Pilot Thompson Project is located within critical habitat for the Northern Spotted Owl. Ten known spotted owls have been located in the project area and habitat for these owls will be impacted by the proposed action. The context of these impacts within the Pilot Thompson Project Area and due to the precedent setting nature of the Pilot Projects is important to analyze. Currently, owl populations are "more stable in Southern Oregon and Northern California" then throughout the rest of their range. This is significant as declines in Washington and Northern Oregon have been quite severe due to habitat loss and competition from the Barred Owl. According to the EA no Barred Owls have been documented in the project area (3-121). Given the lack of Barred Owl competition in the area and the relative stability of owl populations in the Klamath/Siskiyou Mountains special attention should be given to protecting, maintaining, and restoring quality habitat in the area as well as providing for the Primary Constituent Elements (PCE). In fact the EA states that due to Barred Owl competition the agency "must allow for added protections of habitat to compensate (3-97)."

It is noted on page 3-96 that "Spotted Owls prefer coniferous forests with multiple layers of vegetation and a variety of tree species and age classes with the presence of large logs and large diameter live and dead trees." Likewise PCE's are identified on page 3-99 including, "Moderate to high canopy closure (60-80%)." "Multilayered multispecies canopies with large (20-30 inches or greater) overstory trees, High Basal area (greater than 240 ft/ acre), High diversity of different diameter classes, High incidence of large live trees with various deformities, Large snags and large accumulations of fallen trees and other woody debris, and sufficient open space below the canopy for northern spotted owls to fly." The agency has not adequately identified or analyzed the proposed actions impacts on these important PCE's. In fact, the treatments proposed focus on reducing many of these PCE's either to the minimum requirements or beyond the levels recommended to maintain suitable spotted owl habitat. In fact, canopy closures are proposed to be predominantly in the 40-60% range after treatment, basal areas are proposed to be reduced to between 80-120 feet/acre (not even half the 240 acre/feet identified), the diversity of diameter classes will be shifted towards the existence of only large diameter classes rather than a wide range of diameter classes, multilayered canopies are targeted for simplification in proposed treatment areas, and both large live trees with deformities and large snags and CWD will also be reduced on site both in the short term and long term from "captured mortality" of large trees.

The impact of severe canopy and basal area reduction in the treatment areas is of serious concern and was insufficiently analyzed in the EA. Short term and fairly certain impacts to owl habitat are being proposed with only theoretical and uncertain long term benefits being identified. The uncertainty of these long term benefits must be considered in the analysis of the pilot projects. Likewise, the certainty of impacts associated with stand replacing fire must be analyzed in the context of the actually likelihood of

this outcome, rather than the theorized and reactionary predictions based on the fear of fire and the over stated risk of stand replacing fire. The prediction that any given wildfire burning in the project area would be predominantly stand replacing and does not reflect the best available science regarding fire severity in the Klamath/Siskiyou or throughout the range of the Northern Spotted Owl. These assumptions are based on the agencies unsubstantiated fear of wildfire and the agencies bias towards extractive industries rather than actually data and the verification of fire severity in the region.

It is also fairly certain that impacts to the spotted owls prey species will be significant. In regards to northern flying squirrel the agency admits that negative impacts are expected "when harvesting stands resulted in open conditions (3-111)." Such "open conditions" are the goal of management actions within treatment areas. Likewise, both non-commercial and commercial treatments will impact the availability of CWD within treatment areas to the detriment of the dusky footed woodrat, a primary prey species in the area. Fuel reduction treatments in both commercial and non-commercial treatments will also substantially reduce the availability of cover provided by shrubby understory growth or chaparral habitat adjacent to coniferous habitats effecting available nesting sites within the project area. In the Biological Opinion for the project, fish and wildlife clearly identify impacts to the Northern Flying Squirrel stating that "In general, spotted owl primary prey species, such as northern flying squirrels, will likely avoid harvested NRF habitat (Carey 2000, Forsman et al. 2004) and dispersal-only habitat areas (Wilson 2010, Manning et al. 2012). This is anticipated due to the reduction in tree densities, canopy closure, and mid-story canopy, as well as impacts to existing snags and down coarse wood in harvested areas; all of these attributes are key habitat features that influence the carrying capacity of the affected stands for the spotted owl's primary prey species listed above. These harvested areas will become much more inhospitable to flying squirrels, whose abundance is tied to complex mid-story canopies (Carey 2000 and Wilson 2010) (Biological Opinion p. 59)."

Impacts to the Pacific Fisher are similar as many of the same PCE's are required. The Pacific Fisher was detected within the project area, yet the agency has not identified in the EA, where in the project area these detections were located and where they were located in relation to the proposed treatment areas? Information provided by the BLM does show a wide distribution of fisher in the watershed. The EA states that large trees and large snags with cavities are the most important structural elements of fisher habitat (3-116). In fact, "the strongest and most consistent habitat association in the West Coast Distinct Population Segment was the use of cavities in live trees and snags by reproductive females" likewise, preference is given to hardwood cavities (3-116). According to the EA "the reduction in structural elements used for denning and resting distributed across the landscape was the highest ranked and geographically most consistent threat to fishers. Currently, there are no defined empirical thresholds at which the reduction of structural elements may begin to negatively affect fishers (3-116)." Although the agency has no defined thresholds for the reduction of these elements and "very little is known regarding how forestry practices affect fishers use of currently untreated areas (3-116)." It is well documented that the loss of these important structural elements has negative impacts on fisher occupancy, reproduction, and use. It is also well documented that commercial timber harvest is often responsible for the loss of such structural elements including hardwoods and conifer trees capable of supporting large cavities, standing snags and CWD, and the loss of large green trees. Also of importance to the fisher is the complexity of structural habitat in the canopy layer and on the forest floor, these conditions facilitate denning and maintain conditions that lead to abundant prey sources. The structural complexity of many stands will be greatly impacted by the proposed treatments and the "captured mortality" involved in logging these sites will impact snag and CWD habitat in the near and long term, effecting habitat conditions for the fisher and its prey species.

The EA provide no qualitative analysis of the projects impacts on fisher populations or the connectivity of habitat provided post-harvest. This constitutes an insufficient and faulty analysis.

Monitoring:

Given the experimental and precedent setting nature of the Pilot Projects it would appear that monitoring for results, impacts, and ecological consequences would be of the utmost importance. The projects have been promoted as a demonstration or "pilot project" to provide a template for future forest management in the public lands of the west. Yet, without adequate monitoring the projects will demonstrate very little. Likewise, without adequate monitoring the impacts, result and ecological consequences of the projects will not be known or understood. The implications of such a scenario could be far reaching as the "pilot" approach spreads from region to region. Unfortunately the untested approach has already started to spread throughout the northwest before initial monitoring results have been collected or interpreted. Despite the lack of monitoring data or validation of the approach the agency is moving ahead, proposing to treat thousands of acres using this approach.

The agency states that "the Medford District BLM has committed to monitoring the Middle Applegate Pilot projects. Monitoring is essential to demonstrating the ability of the Franklin and Johnson principals to accomplish pilot project restoration goals. Monitoring is also important in the context of adaptive management, enabling project learning to inform future management decision making (2-45)." Yet this commitment comes into question when the agency identifies that implementation monitoring will be accomplished rather casually "in the day to day work of BLM employees" and through the "contract administration process." Such an approach is not sufficient as it does not include independent third party monitoring and those in charge of such implementation monitoring have vested interests that encourage them to identify the project as a success no matter the outcome. Norm and Jerry acknowledge this issue and have stated in a paper titled "Applying Restoration Principals on the BLM O&C Forests of Southwest Oregon" that "Across federal agencies, we sense that confidence and trust for forest managers is not high among some members of the public…Monitoring is necessary but not sufficient; people are increasingly skeptical of agencies keeping score on the effectiveness of their own actions (Franklin & Johnson Nov. 2010)."

Effectiveness monitoring is being conducted with slightly more transparency, including third party monitoring and some level of community involvement. The effectiveness monitoring implemented in relation to the Middle Applegate Pilot projects is a good starting point, but must be adequately funded to be successful. Although this third party monitoring effort partially funded by the BLM has begun to collect data from the Pilot Joe Timber Sale, the effort is essentially useless unless adequately funded now and in the future. While claiming to be committed to monitoring the project the agency complains that "Project monitoring can be time consuming, complicated, and expensive. While the following indicators have been identified as good measures to assess objective attainment, it is not confirmed that funding will be available for monitoring using the following indicators." Although the agency claims to have strong commitments to long term effectiveness monitoring the statement above contradicts this claim and others made to the public regarding the need of such monitoring and the agency ability to deliver. It has become apparent that such funding is not likely to materialize. The agency is simply too invested in getting the cut out to spend the needed time, money, and energy monitoring for effectiveness. If this situation continues the pilot projects will "demonstrate" very little beyond the agency's lack of commitment to the long term monitoring of these projects. The inadequacy of effectiveness monitoring in turn demonstrates the agency's lack of commitment to adaptive management. Adaptive management is simply impossible without long term monitoring to inform the process.

Issues of connectivity in the project area:

The Middle Applegate Watershed Analysis (page 96) identifies two wildlife corridors in the Thompson Creek Watershed. One is designated to provide connectivity between late successional habitats in the Thompson Creek and Chapman-Keeler watershed. This corridor consists of Sections 2 and 3 of T39S R3W. Commercial units are proposed in section 3. The other corridor was designated as a "key wildlife migration corridor" in sections 9, 10, 11, 12, and 16 of T39S R4W. Commercial units are proposed in section 9 of this corridor.

The EA does not analyze impacts to or disclose the existence of these important wildlife

corridors. No analysis of compliance with the objectives of these wildlife corridors has been conducted at this date.

The agency has also failed to identify how connectivity between LSEAs will be facilitated. The agency has also failed to identify how connectivity between the Thompson Creek and Carberry Creek watersheds will be facilitated. This is vitally important as the more intact portions of Carberry Creek support populations of many late seral species such as the pacific fisher, northern spotted owl, and other important species of wildlife that might migrate from the low elevations in Thompson Creek to higher elevation summer range. The connectivity between these drainages provides dispersal corridors for species requiring late seral conditions and must be maintain. The EA provides no insight whatsoever regarding the connectivity between watersheds and the ability of wildlife to disperse from the upper portions of the Applegate Watershed into the foothills of the Applegate Valley.

Alternative 3:

I would oppose the approval of Alternative 3. Despite the agency contention that the Alternative 3 was developed to address the community concern of road development, the alternative fails to reduce the project's environmental and ecological impact. In fact, the approval of Alternative 3 would clearly increase environmental impacts by greatly expanding the scope of the commercial units being proposed and the downgrading of unacceptable levels of NRF habitat for the spotted owl.

First off, I think the agency failed to accurately understand the community's intention regarding a "no new roads" alternative. I believe the community is simply asking the agency to operate from the already extensive road system developed in the Pilot Thompson area. Many watersheds already contain road densities that are beyond the 4 miles per square mile threshold identified by the agency in the EA. In fact, upper Thompson Creek, Lower Thompson Creek, and Ferris Gulch (where most of the units are located) already exceed this threshold. To build new roads is simply irresponsible. These already high road densities should allow the BLM to operate adequately; the need to develop new roads to facilitate the management proposed simply demonstrates the unsustainable and overly impactful form of management being proposed and the severe watershed impacts associated with the proposed landscape scale approach. The heavy utilizing of commercial thinning is a major component of management as proposed by the BLM and will over time create road densities that are far beyond the acceptable threshold. The agency is simply manipulating the public concern regarding road development by proposing vast helicopter logging proposals. This is not what the public has asked for, nor does it address the issue of minimizing environmental impacts.

Second, I oppose the helicopter units proposed in Alternative 3 because they have not been marked for public review, violating the public's trust and the basic tenants of collaboration and transparency. The public simply does not know exactly what the agency is proposing in these areas and cannot collaborate around or monitor the mark for compliance with dry forest restoration principals. This seems important given the controversy involved in the BLM mark and the significant inconsistencies found by the public to exist within the mark of Pilot Thompson. Agency quality control and marking implementation has proven to be inadequate, having missed numerous significant inconsistencies during both Pilot Joe and Pilot Thompson. The mark has been a constant controversy and leaving large areas proposed for commercial logging unmarked is not collaborative, nor does it elicit the public's trust. The situation also offers very little opportunity for the public to provide site specific comments regarding the helicopter units.

Lastly, and possibly most importantly the proposed helicopter units appear to significantly increase the impact of the project in regards to late seral/old growth forest conditions and Northern Spotted Owl habitat. The EA clearly states that although Alternative 2 proposes to treat 378 acres of NRF habitat and will downgrade 57 acres of that habitat to dispersal (3-109). Alternative 3 on the other hand proposes to treat 611 acres and will downgrade 214 acres of that habitat to dispersal. This impact is unacceptable and antithetical to the restoration of spotted owl habitat and the claimed "acceleration of old growth characteristics." The downgrading of 214 acres of NRF habitat should not be allowed under any circumstance and cannot be seen as a restorative action.

Non-commercial units:

The agency clearly stated in a public field trip to unit 31-11NC a non-commercial unit implemented under the Pilot Joe Project that non-commercial units proposed for treatment will not and have not been conducted in any way that is consistent with dry forest restoration principals. The non-commercial units do not involve "skips," "gaps," emphasis on reducing competition under legacy trees, and do not address either issues of species composition by favoring drought hardy or fire resilient species. Non-commercial units also do not adequately address stand density or structural conditions in the forest stands treated. In fact, from what I have seen the non-commercial treatments differ very little if at all from non-commercial or fuel reduction units implemented under past actions. They simply do not meet the standard or address the issues necessary to identify a treatment area as restorative in nature or even intent. The treatments represent a continuation of a tunnel vision, fuel reduction approach that has been damaging and ineffective in regards to forest restoration objectives. Simply put, these treatments are a severe missed opportunity and a waste of public tax dollars. If we are to send crews into the forest to treat such acreages, then we should strive to achieve multiple objectives and restore these sites in a way that increases resiliency and encourages healthier stand conditions. To achieve these results means a more holistic approach.

The lack of emphasis placed on restoration principals in non-commercial units further demonstrates the agency's preoccupation and over emphasis on commercial timber extraction. It also demonstrates the limitations of the Franklin & Johnson approach and its inherent bias towards timber production. Neither the agency nor the professors involved have shown any intention of treating non-commercial units in a restorative framework. I find it very telling that in commercial units the agency demands severe reductions in competition around "legacy" trees and heavily targets douglas fir trees of all diameter classes, including large, potentially old trees for removal. The agency claims that canopy conditions and stand densities must be severely reduced in commercial units including the removal of large, fire resistant trees. Yet in non-commercial units little to no emphasis is placed on addressing these concerns. It appears that the agency only chooses to emphasize these principals when large, commercial sized trees are involved. All too often in non-commercial units the agency has left large amounts of douglas fir competition beneath legacy trees, including those that represent more drought hardy and fire resilient species. It also appears that stand densities, douglas fir encroachment, species composition, and other concerns are not being addressed. The treatments achieve little beyond the agency's ability to report acres treated and inflate the numbers of acres "restored." The project looks good on paper, but offers very little actual benefit.

The agency is essentially "dumbing down" non-commercial treatments, because the contract crews utilized to implement these prescriptions admittedly do not have the ecological aptitude to actually implement complex, site specific and restorative treatments. The agency has accepted this inadequacy rather than require competent crews. The low bid process further enforces this inadequacy as do prescriptions based simply on spacing with no emphasis on structure, composition, fire resiliency, or other important factor. Such treatments, implemented by incompetent crews have degraded plant communities in the Applegate Valley now for decades. They have simplified stands, increased the spread of noxious weeds, heavily impacted non-forest plant communities, and degraded wildlife habitat. On many occasions I have heard BLM personnel admit that these treatments involving oak woodland and chaparral sites have essentially no basis in ecological needs or principals and have focused only on spacing and fuels. Likewise, I would contend that the conditions often created have no historical basis and are essentially creating "novel" ecosystems rather than resorting "characteristic" or "historically accurate" conditions. The perpetuation of this problem is unacceptable, especially in the context of a so-called "forest restoration" or "ecological forestry" project such as the pilot project.

There has been considerable research conducted regarding these issues, yet the BLM has been slow to incorporate this science into its treatments. The emphasis has been placed on the ease of treatments and the simplification of fuel reduction contract specifications rather than on adaptive and

appropriate management. The public will no longer accept these severe impacts to non-forest plant communities while sound science and local experience demonstrate a need for a more holistic approach.

The following publications should be consulted and incorporated into your treatment prescriptions and planning efforts:
http://people.oregonstate.edu/~muirp/FuelsReductionSWOregon/index.html.

Recommendations for Project design and implementation:

1) Drop unit 19-4 from the Pilot Thompson Timber Sale
2) Drop unit 20-1from the Pilot Thompson Timber Sale
3) Institute a 20" DBH limit for the project.
4) No New Roads of an sort, temporary or permanent
5) Do not approve helicopter units proposed in Alternative 3
6) Create an EIS with an adequate range of alternatives that complies with NEPA requirements.
7) Identify connectivity corridors in the Project Area and define how they will be protected, restored, and enhanced
8) Incorporate current science and restoration principals into non-commercial treatments

Unit 19-4:

Unit 19-4 lies within the Ninemile Creek drainage. This unit is within the area burned during the 1987 Thompson Creek/Ninemile Fire and sustained a very productive understory burn that enhanced stand conditions and late seral characteristics. The unit is on a northwest exposure and is Doug fir dominant representing a classic late seral, douglas fir plant community in the Applegate Valley. Few pines or oaks exist within the site due to the dominance and adaptability of douglas fir to the conditions present. Much of the stand supports late-seral conditions and has proven to be resilient to the effects of fire. It is an open stand with sparse fuel and little downed wood. The understory is minimal with sparse grass, duff, and herbaceous growth. The overstory is dominated by groupings of large fir trees. The presence of firescars gives the area a wild and natural feel. The conditions naturally present constitute the very conditions and stand objectives of dry forest restoration, having burned nicely in the '87 fire the stand is *not* fire suppressed.

The need for thinning in this stand is minimal at best. It would not demonstrate "restoration" of overly dense dry forests as the structure is open, healthy, and the average diameter fairly large. These conditions were identified by Norm and Jerry as the reason for dropping a unit in the Pilot Joe Timber Sale and the same logic should be applied to unit 19-4. The unit should be canceled.

Although late seral, the stand is deficient in snags and large downed wood; therefore, retention of the current stand density and structure should remain to sustain tree mortality and snag development. Commercial logging will diminish the stand's ability to absorb natural disturbances, making the stand less resilient by reducing redundancy and "capturing mortality" that could otherwise contribute to the development of old growth characteristics. It will impede the development of snags by removing large old trees and reducing the competition currently present within legacy tree groupings.

The agency has admitted that this stand does not represent "overly dense forest" conditions and they have stated the intention of treatment in the stand to be based on structural and compositional concerns. They often speak of the stand as if it was a pine site and that managing for pine species would increase the stands resilience to fire and drought. Yet, the ability of the agency to adequately regenerate pine on this site is minimal at best. Opening the stand will only create more douglas fir and possibly pacific madrone regeneration and infill increasing surface fuels, ladder fuels, and the susceptibility of the stand to fire by removing large fire resilient trees only to replace them with saplings and undergrowth that is less resilient. According to historic research conducted by John B. Leiburg in 1899 the douglas fir stands of Southwestern Oregon were dense, heavily stocked, and sustained large amounts of understory growth "except on areas where heavy stands of mature timber eventually shade the ground (Borgias 2004, p.6)." This very condition is developing in unit 19-4 and should be retained to provide for the benefit of fire resiliency.

The unit represents a very rare naturally regenerating post fire condition that given the scale of salvage logging and plantation development after the Thompson/Ninemile Fire of 1987 is severely underrepresented in the project area. The conditions represented create landscape heterogeneity, biodiversity, and an adaptation to natural disturbance that has otherwise been "managed" out of this landscape.

The unit is situated on a very steep slope; even skyline yarding would result in significant ground disturbance. There is no plausible location for a yarding corridor that would not result in the cutting of late-seral trees. Yarding corridors in this unit will also likely compromise the "skips" consisting of oak openings at the top of the unit. The agency claims these "skips" will be maintained yet also routinely admits that large openings are often created at the top of cable yarding units as corridors merge. How this merging of corridors will impact these "skips" has not been sufficiently analyzed and it is my contention that they will be severely compromised in yarding operations.

Measurements of some of the largest trees unmarked as "take" trees were between 29" and 36" within this unit. There are many unmarked "take" trees within this diameter class, too many, in fact, to be consistent with dry forest restoration principals and agency claims of "restoration." In acknowledgement of marking inconsistency within this unit the agency has reviewed the mark in ½ acre area and found numerous trees that are either inconsistent with project objectives principals, and guidelines or have been found to be over 150 years of age. These trees were then marked for retention, but many other questionable trees remain throughout the unit. How many similar situations would be found if the review was extended across the entire unit?

The agency has instituted a small research project in the unit to review the mark in the context of tree ages, yet J. Gerritsma stated on 4/18/13 that trees over 150 years old will only be retained if the agency finds widespread inconsistencies. Individual trees over 150 years old will not be retained despite solid evidence of ages in excess of 150 years. This is a direct violation of restoration principals, the claims and analysis in the EA, and statements made by the agency throughout to collaborative process. Such an attitude clearly demonstrates a lack of commitment to the integrity of implementation in light of project principals and objectives. I would also note that many large trees within the unit are not identified to be included in the age verification research leaving them vulnerable to harvest no matter the decision made regarding trees found to be over 150 years old.

In many cases natural groupings of trees are marked for removal, consisting of either the entire grouping or individual trees within a grouping. These groupings or "clumps" of trees represent natural fire mediated conditions that should be maintained, not degraded to increase timber production. As stated in Johnson and Franklin 2009, such trees should not be removed to achieve basal area targets (P.31). These groupings are examples of natural or "characteristic" stand conditions and represent existing on site heterogeneity. Unfortunately the agency interpretation of heterogeneity is based almost entirely on the creation of openings rather than the maintenance of naturally occurring heterogeneity. How the agency will encourage "characteristic" structure while allowing for no natural expression of structural diversity is questionable.

In many cases large trees in excess of 20" DBH area marked for removal. The agency has not identified how the removal of these trees will enhance or demonstrate forest restoration principals and objectives such as increasing the mean tree diameter in the stand, encouraging characteristic structure, fire resiliency, or improving habitat conditions for the northern spotted owl. In fact, the unit has been identified as an area where NRF habitat will be downgraded to dispersal habitat to the detriment of late seral associates. This downgrading of habitat was found by the Fish and Wildlife Service in their Biological Opinion to constitute a "likely to adversely impact" finding. The Service stated on page 62 that "Based on this 500 acre analysis, the Level 1 Team determined the proposed action is ***likely to adversely affect*** **(LAA)** spotted owl critical habitat. This is because the 500 acre analysis area for unit 19-4 will undergo as much as 25 percent reduction in the amount of available NRF habitat and the Team and the Service determined that amount of habitat loss was not insignificant or discountable because we expect the ability of those areas to support spotted owl nesting (PCE number 2) to be

reduced in a meaningfully measureable manner (see Dugger et al. 2005, Olson et al 2004). Decreases in spotted owl prey, particularly flying squirrels, are anticipated as well." The importance of unit 19-4 to late seral conditions and associated species is of particular concern because only 144 acres of NRF habitat currently exist within the 500 acre analysis area, NRF habitat will be reduced by 25% to 108 acres.

Adding insult to injury new road construction will be required to treat this unit severely impacting habitat conditions, forest stands, and landscape connectivity on the ridgeline above unit 19-4. The issue of connectivity must be addressed in unit 19-4.

The unit provides refugia for late successional species in a sea of industrial forestry. Unit 19-4 lies directly adjacent to large plantation stands on BLM lands and heavily logged industrial forest land yet, provides connectivity across the Ninemile Drainage into the LSEA lands in Upper Ninemile Creek. I believe that unit 19-4 should be included in the LSEA by expanding its footprint into the relatively intact forest on the east side of Little Humpy Mountain. The LSEA could then be extended through relatively intact habitat across Ninemile Creek to unit 19-4. This would allow for dispersal across the drainage rather than isolating late seral species to the southern portion of Ninemile Creek. It would also improve connectivity between the Thompson Creek watershed and the more intact portions of Carberry Creek.

It is my proposal that unit 19-4 be dropped entirely from the Pilot Thompson Timber Sale and the LSEA to the south-east be extended through 19-4 to the ridgeline above.

Unit 20-1:

20-1 is the lowest unit in the Ferris Gulch watershed at the far northern end of section 20. It is accessed off road 38-4-20.1. Much of the unit has been previously thinned commercially and supports the typical understory response of dense madrone, fir, and deer brush. The stand is mid seral, fairly open and dominated by douglas fir, but does support a fair amount of pine at its upper margins. The understory where not thick with regeneration from the last commercial entry, is grassy or mossy and supports very little downed wood.

The unit is "take" tree marked with blue paint. The larger trees marked for removal range from 29" to 32" DBH. According to the BLM tree tally over 140 trees 20" and above are marked for removal in unit 20-1 alone. Trees marked for removal are mostly co-dominant, but also include dominant fir. Groupings of trees and individual trees are marked for removal. Up near the ridge the majority of the stand is marked for removal, cutting most of the mature fir to favor a few scattered pine. The proposed mark will severely open canopy conditions, favor the spread of noxious weeds, diminish potential late seral habitat, and will not achieve the desired results of accelerating old growth conditions, increasing the mean diameter in the stand, encourage quality northern spotted owl habitat, or adequately reduce fuels because understory response is expected to be quite dense and vigorous just as it was in response to the last round of commercial thinning.

I have concerns regarding impact of heavy thinning on Great Grey Owls a species that has been identified to occupy nesting sites nearby (2-40).

Above the unit is a beautiful open ridgeline of native grass and oak woodland, the oak woodland is proposed for non-commercial fuels treatments, although there is little need for treatment in these fairly open, pure groves of white oak. In past treatments the agency has badly damaged oak woodlands with such treatments by simplifying stand structures and introducing or facilitating the spread of noxious weeds by reducing canopy. I would recommend no treatment in this area. Yet, it is not the proposed fuel treatment in this stand that will most significantly impact this remnant stand of oak woodland. A skid trail is proposed atop this ridge, creating a "cat trail" and skidding logs through these oak woodlands. No doubt much of the stand will be removed; the yarding will create massive

soil disturbance, compaction, and the spread of noxious weeds. To call this “restoration” is misleading at best.

Also of concern is the extensive road renovation required to log this unit. The road in question is gated and has filled in nicely with young vegetation. The renovation of this road, the proposed skid trail, and the existence of OHV routes through this unit lead one to believe future OHV use will be a major concern in this area and will be encouraged by the implementation of logging prescriptions and infrastructure needs in unit 20-1.

I would recommend that unit 20-1 be dropped from the Pilot Thompson Timber Sale.

28-2:

Although a small unit the mark in 28-2 is overly aggressive and proposes to essentially eliminate douglas fir from the stand in an attempt to favor ponderosa pine. The objective of pine retention could be facilitated without the removal of nearly all douglas fir trees on site with more benefit to the stand, by decreasing the inevitable understory response and its impact on fuel and fire conditions. The effort to cleanse the stand of fir is misguided and does not correlate to historic stand conditions, species compositions, and fire regimes. In many cases the cleansing of fir from a stand does little more than limit heterogeneity, biodiversity, and impact wildlife conditions in an attempt to create a fictitious and novel stand condition. It has been documented that “Large fir trees, especially those with heartwood decay, provide important habitat for many species and efforts to cleanse the landscape of fir trees should be avoided (Brown, Agee, & Franklin 2004, p 908).”

Dense and explosive understory growth has developed in this stand due to past commercial thinning treatments. These treatments maintain much more canopy closure than the proposed treatment in Pilot Thompson and have only compounded fuel loads and decreased fire resiliency in this stand. The drastic canopy reduction proposed will only make this problem worse. Especially given the close proximity of this treatment area to homesteads along Thompson Creek special consideration should be given to managing to reduce fuel risks.

Unit 28-2 should either be dropped from the Pilot Thompson Timber Sale or re-marked to reduce future fuel risks and retain considerably more canopy closure. Thinning around large pine could take place, but should focus on improving the survivability of these pine species without exaggerating existing fuel loads or eliminating fir from the stand.

Thank you for the opportunity to comment on this important project,