Paula Hood, Co-Director
Blue Mountains Biodiversity Project
Portland Office
5622 NE 7th Ave
Portland, Oregon 97211

February 11th, 2019

Forest Supervisor
Attn: Forest Environmental Coordinator
Umatilla National Forest,
72510 Coyote Road, Pendleton, OR 97801

RE: League of Wilderness Defenders/Blue Mountains Biodiversity Project's objection to the Draft Record of Decision and Final Environmental Impact Statement for the Sunrise Vegetation Management Project on the Umatilla National Forest

Dear Objection Reviewing Officer,

League of Wilderness Defenders/Blue Mountains Biodiversity Project (LOWD/BMBP or BMBP) hereby formally submits the following objections to the Draft Record of Decision and Final Environmental Impact Statement for the Sunrise Vegetation Management Project on the Umatilla National Forest. BMBP has secured the right to submit objections and thereby participate in the pre-decisional administrative review process for this project. LOWD/BMBP has submitted timely written scoping comments regarding this project and extensive comments on the Draft EIS, including field survey sheets from our surveying the affected area for weeks. Please see survey sheets and photos also included with the hard copy of this objection submitted via certified return receipt mail).

Date Decision published
December 28th, 2018

Responsible Official
Monte Fujishin, District Ranger, Umatilla National Forest

Request for meeting
BMBP/LOWD requests a meeting with the Forest Service to discuss matters in this objection and seek resolution of concerns through negotiation before the Umatilla National Forest makes a final decision on the Lex Project.

Location
Pomeroy Ranger District; Township 7 South, Range. 43 East, Section 6; Township 8 North, R. 42 East, Sections 1-5, 8-16, 22-26, and 36; Township 8 North, R. 43 East, Section 2-11, 15-22, and 28-33; Township 9 North, R. 42 East, Sections 25 and 33-36; Township 9 North, R. 43 East, Sections 8, 9, and 13-36; and Township 9 North, R. 44 East, Sections 18, 19, 30, and 31.

Dear Objection Reviewing Officer,

I am submitting this objection to the Sunrise Project Final Environmental Impact Statement (Sunrise project FEIS) on behalf of League of Wilderness Defenders/Blue Mountains Biodiversity Project (also referred to in this document as LOWD/BMBP, Blue Mountains Biodiversity Project, or BMBP). These comments are in addition to BMBP's other supplemental documents such as survey sheets and pictures. Blue Mountains Biodiversity Project's stated mission is to defend and restore the natural ecosystems of the Blue Mountains and Eastern Oregon Cascades bioregions on public lands. We are a local environmental non-profit organization. We have been active in the region since 1991. Staff, volunteers, and supporters of LOWD/BMBP live in various communities surrounding the Umatilla National Forest and use and enjoy the Forest extensively for recreation, drinking water, hunting, fishing, bird watching, general aesthetic enjoyment, family gatherings, viewing flora and fauna, gathering forest products, gathering and using edible and medicinal wild plants, and other purposes. The value of the activities engaged in by LOWD/BMBP volunteers, supporters, and staff would be damaged by the implementation of this project.

Summary of project, including clarifying questions regarding the USFS's project summary: The FEIS (pg. 35) summarizes logging and road-related activities proposed as part of the Sunrise project. Logging would occur across approximately 7,790 acres. Of these 7,790 acres, approximately 5,660 acres would consist of "intermediate logging" (the step "prior to its final harvest", i.e., a slow-motion, multi-staged clearcut). Clearcutting, shelterwood, and seed tree logging ("regeneration" logging) and tree planting would occur on approximately 2,130 acres. The USFS plans to plant trees on the 2,130 acres slated for clearcutting; those trees would be predominately early seral species. The project proposes over 3000 acres of old forest conversion from OFMS to OFSS. Prescribed fire is proposed for 14,055 acres, and both action alternatives include prescribed burning within the Asotin Creek IRA. No logging, commercial or otherwise, would occur within the IRA. Proposed logging and burning in the Sunrise project would total nearly 70% of the 32,00 acre project area. The FEIS states (pg. 25-26) that 39 miles of closed roads and 52 miles of seasonally open roads would be used as haul routes.

The USFS has selected Alternative B-Modified, which includes a reduction in acres due to wildlife habitat considerations. We fully support the USFS taking steps to protect wildlife and their habitat, and recognize the dropping of these units as an important step in protecting native species. The ROD (pg. 2) states: "The following timber harvest units will be dropped to emphasize the importance of wildlife habitat and/or because of difficulty of access: all of units 47, 49, 51, 60, 69, 70, 73, 76, 79, 81, 84, 85, 87, 88, 92, 100, 103, 105, 106, 107, 108, 109, 110, 111, 122, 129, 135, 136, 141, 151, 157, 160, 162, 191, 193, 211, 223, 226; portions of units 55, 58, 64, 66, 67, 71, 72, 77, 80, 82, 83, 86, 94, 96, 102, 112, 113, 114, 116, 118, 120, 121, 131, 138, 159, 232; for a total area of 1,640 acres. The total miles of temporary roads created will be decreased by 6 miles, for a total of 8 miles for the entire project. The seasonal closure of road 4000-360 from Alternative C will be adopted. Devil's Tailbone Road, Forest Road (FR) 4000-360 will have the existing seasonal closure incrementally extended annually from August 1 to March 31." This equates to the proposed total of logging in the Sunrise project occuring on approximately 6,150 acres (rather than 7,790 acres). We request additional clarification regarding any corresponding changes in the total acres of logging in PWA, Undeveloped Lands, OFMS, and OFSS. We also request additional clarification regarding any corresponding changes in the total acres of skyline vs. ground-based logging.

From the ROD:

This decision incorporates the Project Design Criteria and Best Management Practices included in the FEIS (Table 2-3).

Activity	Alternative B-Modified
Intermediate cutting methods – thinning (free or low thin) and improvement cutting (Both alternatives include 2,210 acres of units with a high-retention prescription)	4,402
Regeneration cutting – individual-tree selection, group selection, shelterwood or seed-tree, or clearcutting methods	1,740
Tree-Planting	1,740
Economics	
Cutting areas of likely positive appraised value (acres)	3,880
Cutting areas of marginal or negative appraised value (acres)	2,270
Commercial timber volume (thousand board-feet / MBF)	17,500
Hand-felling, lop/scatter slash	2,270
Conventional ground-based (tractor or skidder)	2,665
Skyline	1,215
Fuels Treatments (Acres)	
Whole-tree yarding/ landing-pile burning	3,880
Mechanical grapple-piling and burning	1,070
Manual (hand) thinning / lop and scatter	1,680
Mechanical thinning (slash-buster/mastication)	590
Broadcast/jackpot burning of activity fuels	880
Landscape prescribed burning	14,055
Transportation and Access (Miles)	
Gated closed roads opened for haul or project vehicle access, then reclosed	35
Temporary roads constructed on new template (prism) and post-harvest decommissioning	3
Temporary roads constructed on existing template (prism) and post-harvest decommissioning	5
4000-360 road closure changed to August 1 to March 31	Y

The FEIS states (pg. 36) that "[w]ithin units designated for intermediate cutting, those identified as "high-retention" areas will be treated to maintain marginal or satisfactory wildlife cover and/or satisfactory cover for wildlife connectivity corridors. Approximately 2,210 unit acres have been identified for cover requirements, 1,372 (62%) of those acres will be hand-thinned and receive landscape-burning treatment only. The goal of the activities in high-retention units is to maintain marginal or satisfactory elk cover and/or wildlife habitat connectivity." We ask for clarification about intermediate logging as proposed in areas identified as important wildlife corridors. Does this mean that the USFS will not be using ground-based or skyline equipment on 1,372 acres of "high-retention" areas? Will the units within the high-retention wildlife corridors include only non-commercial logging? Are these 1,372 acres part of the 5,660 acres of "intermediate" logging, as described above in the project summary, and also depicted in Table 3 of the FEIS? How are these characterizations and numbers of acres different given the units dropped, as described in the ROD?

Below is copy of Table 2 from the FEIS further summarizing the proposed logging, burning, roading, and other activities in the Sunrise project:

Table 3. Activity acres, miles, or board-feet for each management alternative for the Sunrise project. Alternative A is the No-Action Alternative.

Activity	Alternative A	Alternative B	Alternative C
Tree-cutting activities (Acres)			
Intermediate cutting methods – thinning (free or low thin) and improvement cutting (Both alternatives include 2,210 acres of units with a high-retention prescription)	0	5,660	3,880
Regeneration cutting – individual-tree selection, group selection, shelterwood or seed-tree, or clearcutting methods	0	2,130	940
Tree-Planting	0	2,130	940
Economics			
Cutting areas of likely positive appraised value (acres)	0	5,520	2,550
Cutting areas of marginal or negative appraised value (acres)	0	2,270	2,270
Commercial timber volume (thousand board-feet / MBF)	0	26,500	12,100
Cutting/harvest Systems (Acres)			
Hand-felling, lop/scatter slash	0	2,270	2,270
Conventional ground-based (tractor or skidder)	0	3,310	1,640
Skyline	0	2,210	910
Fuels Treatments (Acres)			
Whole-tree yarding/ landing-pile burning	0	5,520	2,550
Mechanical grapple-piling and burning	0	1070	330
Manual (hand) thinning / lop and scatter	0	1,680	1,150
Mechanical thinning (slash-buster/mastication)	0	590	590
Broadcast/jackpot burning of activity fuels	0	880	600
Landscape prescribed burning	0	14,055	14,055
Transportation and Access (Miles)			
Gated closed roads opened for haul or project vehicle access, then reclosed	0	39	34
Temporary roads constructed on new template (prism) and post-harvest decommissioning	0	6	3
Temporary roads constructed on existing template (prism) and post-harvest decommissioning	0	8	5
4000-360 road closure changed to August 1 to March 31	N	N	Y

Note: Acres values are approximate and rounded to nearest 10 acres. Mile values are approximate and rounded to the nearest 1 mile. Intermediate cutting methods acres listed under Tree-Cutting Activities includes thinning and/or burning activities also listed under Fuels Treatments. Fuels treatments may occur alone or in combination.

The FEIS notes that prescribed fire would also take place in the "high-retention" units. The USFS estimates that generally less than 10% of canopy reduction would take place as a result of prescribed fire. What is the likelihood of losing more than 10% canopy reduction in these units, especially those that are key for wildlife connectivity? Did the USFS analyze 'worse case' scenarios for the effects of prescribed burning to wildlife corridors and connectivity?

The FEIS also notes that an "additional 14,055 acres would be burned in a mosaic fashion, over a period of years." Over how many years would this burning occur? During what seasons, and how would it differ according to forest types?

The FEIS states that "wood fiber utilization" would occur. Is this the same as biomass logging and collection? Would habitat components such as downed wood and snags be managed at the minimum levels of Forest Plan standards in these areas? If dead and downed wood is found at levels greater than Forest Plan standards, would it remain intact or would it be removed as part of biomass logging/harvest activities? Flushes of dead wood provide important habitat refugia, particularly given that areas within or adjacent to the project area have been and/or will be heavily managed and may be severely lacking in such components.

In the FEIS, the logging in proposed within Old Forests corresponds exactly with the acres of regeneration logging proposed. How many acres of clearcut or "regeneration" logging are planned for Late and Old Forests? In Table 42, the logging activities are proposed in alternative B are described as 2,130 acres of "Thinning and Regeneration" in Late and Old Forests, with additional thinning of up to 10" dbh on another 1,000 acres. Alternative C proposes 880 acres of "Thinning and Regeneration" with another 1,000 acres of thinning of up to 10" dbh trees. The FEIS notes that approximately 1/3 of logging in Late and Old Forests would involve converting OFMS to OFSS, and that logging would include seed tree logging, seed tree preparatory logging, and shelterwood cutting. The USFS would retain at least 10 large trees/acre in Late and Old Forests. How have the numbers of acres proposed for logging possibly changed as a result of the units dropped? Also, have the number of acres of OFMS being converted to OFSS decreased?

Table 43 below provides further detail regarding the USFS's proposed changes in Late and Old Forests due to logging.

Table 43. Changes to old forest structure by alternative (acres)

Old Forest Structure Type	Existing	Alt B Change	Alt C Change	Alt B Result	Alt C Result
Dry OFSS	843	+1,891	+1,641	2,733	2,484
Dry OFMS	6450	-2,153	-1,904	4,297	4,546
Moist OFSS	22	+1,953	+961	1,975	983
Moist OFMS	5153	-2,199	-1,207	2,954	3,947
Cold OFSS	25	+221	+217	245	242
Cold OFMS	422	-221	-217	201	205
Total	12915	-540	-540	12,405	12,407

What were the USFS process, rationale, and criteria for selecting these stands for logging? Alternative B and C both show overall reductions in Late and Old Forests. If the USFS is planning to leave at least 10 large trees per acre, why would there be an overall decrease in stands that are classified as Late and Old Forests? In addition, if only 10 large trees are left per acre, what happens as these older trees begin to die—i.e., in the not-to-distant future, it would seem that as the older trees die, the mature trees that would have been recruited in their place would be largely removed due to logging, and these areas may no longer be classified as Late and Old Forests. Did the USFS include the loss of recruitment due to logging in the Sunrise project in their analyses?

With the reduction in acres logged (the dropped units detailed in the ROD), will there be a reduction in the "39 miles of closed roads and 52 miles of seasonally open roads would be used as haul routes" that the USFS outlines in the FEIS (pg. 25-26)?

Potential violations of National Environmental Policy Act (NEPA) and the Endangered Species Act (ESA) regarding Threatened Spalding's catchfly and Sensitive-listed plants

Spalding's catchfly, a federally listed Threatened plant species, is documented within the project area. The FEIS states "[i]n areas of occupied Spalding's catchfly (federally listed species) habitat, non-commercial thinning unit boundaries were modified to ensure a 100 foot buffer from tree cutting activities." We are very concerned that a 100' buffer around occupied areas of Spalding's catchfly seems utterly insufficient. Haul, tree felling, potential transport of invasive plants, disturbance related to logging and roads which invites colonization of invasives, movement of cattle

in relation to newly logged areas, and other such issues are likely to affect areas adjacent to logging activities. The FEIS goes on to state that "[i]mplementation of either action alternative would have no effect to the populations of Spalding's catchfly in the project area. Therefore, consultation with the USFWS is not necessary for this project." Beyond the inadequate 100' buffers for known populations, the increase in ground-disturbing activity due to hauling, temporary road building, increased access to the area, tree felling, increased opportunities for invasive plants, and likely changes in livestock use patterns are all likely to have negative affects on existing populations (known and unknown) and on potential habitat for Spalding's catchfly. The USFS determination that "implementation of the proposed action would have "*No effect*" to Spalding's catchfly populations" is arbitrary and capricious. No convincing analyses or logical justifications were given for the USFS determinations that the project would have no effect on Spalding's catchfly and that "[n]o consultation with the U.S. Fish and Wildlife Service is necessary for this project."

The USFS did not adequately analyze the cumulative effects of the project on Spalding's catchfly. For example, the scale of analysis was inappropriately limited to the project area. The USFS states that "[t]he scale of Analysis is the project area (33,150 acres). Since most plants do not move over large areas quickly, and no downstream effects are anticipated, it is not necessary to analyze effects to sensitive plants outside of the project area." This statement ignores key issues, such as the genetic connectivity, and the strength and distribution of Spalding's catchfly populations outside of the project area. Particularly of interest would be any potential nearby populations or habitat, and their status. The USDA Plant Guide publication for Spalding's catchfly (Tilley et al. 2009) notes that: "[t]he species may also suffer loss of genetic fitness from population fragmentation (USDA Forest Service, 2009)." This publication also notes that "[t]here are currently 99 known populations of Spalding's catchfly, 66 populations are composed of fewer than 100 individuals each. Twenty-three populations contain 100 or more individuals apiece, and the 10 largest populations are each made up of more than 500 plants (USDI Fish and Wildlife Service, 2007)." The USFWS Final Rule in 2001 states that *Silene spaldingii* is currently known from a total of 52 populations. Seven populations occur in west-central Idaho, 7 in northeastern Oregon, 9 in western Montana, 28 in eastern Washington, and 1 in adjacent British Columbia, Canada." The Final Rule goes on to state that only eighteen populations contain more than 50 individuals, and only 6 of these are moderately large (contain more than 500 plants). The Final Rule notes that "of the 6 largest populations, 2 are found in Oregon (Wallowa County), 1 in Idaho (Nez Perce County), 1 in Montana (Lincoln County) and 2 in Washington (Asotin and Lincoln Counties). The 6 moderately large populations contain approximately 84 percent (i.e., about 13,800 individuals) of the total number of *Silene spaldingii*. In addition, approximately 100 plants were located in British Columbia (Geraldine Allen, University of Victoria, *in litt.* 1996). The total number of *S. spaldingii* individuals for all 52 populations is about 16,500 (Edna Rev-Vizgirdas, Service, *in litt.* 1999). The USFWS Final Rule (2001) and the USDA Plant Guide (2006) clearly suggest that most populations have very low numbers, and that the potential loss of any of these individual plants or the degradation of their habitat is a threat to the continued existence of the entire population. The few populations that are moderately large comprise the vast majority of the total number of plants (approximately only 15,600), and so each population of Spalding's catchfly is extremely important to the continued survival of the species. The USFWS Final Rule also states that "[m]uch of the remaining habitat occupied by *Silene spaldingii* is fragmented. For example, *S. spaldingii* populations in Oregon are located at least 64 km (40 mi) from the nearest known populations in eastern Washington. *Silene spaldingii* sites in Montana are approximately 190 km (120 mi) from occupied habitats in Idaho and Washington." This information also highlights the importance of diligently protecting individuals within these

limited populations. The loss of individuals within fragmented communities can greatly increase the chance of genetic bottlenecks and problems associated with fragmentation, such as the loss of that population due to stochastic events. Reduction in the number of individuals within stronger populations (which number only 6) can reduce the genetic health of that population, as well as potentially reducing connectivity with neighboring populations.

For the USFS to claim that no cumulative effects analysis is necessary or warranted outside of the project boundaries is arbitrary and capricious. For example, it is important for the agency to understand how Spalding's catchfly populations within the project area may (or may not) have the opportunity to genetically interact with nearby populations outside of the project area. If Spalding's catchfly populations within the project area are genetically isolated, then the protection of such populations may differ from protections taken for populations that are not fragmented and therefore have more opportunity for genetic exchange. The USDA Plant Guide notes that "Spalding's catchfly reproduces solely by seed. It does not spread by rhizomes or other asexual means. It is partially self-compatible (Lesica & Heidel 1996), but its offspring are more fit if cross-pollinated (Lesica 1993). Bumblebees appear to be the primary pollinator (Lesica and Heidel, 1996)". This information further emphasizes the importance of maintaining genetic connectivity with nearby populations. Risking potential unknown populations and causing degradation of potential habitat within the Sunrise project area is potentially a very serious threat to the continued viability of this species. We are very concerned about the USFS's failure to analyze the cumulative impacts of this project and other past, present, and near future projects on areas adjacent to or near the project area—including the status of nearby Spalding's catchfly populations and habitat. Protecting genetic connectivity and ensuring against fragmentation and habitat loss is clearly the only path to recovery for this species, and the USFS has not taken basic and necessary steps towards analyzing key factors in this regard, or towards avoiding potential harm. Similarly, if Spalding's catchfly populations in the region (beyond just the project area) are small and struggling as well as genetically isolated, then such information presents important factors to consider. Depending on the situation and status of nearby populations, more stringent protections may be necessary to ensure the survival and recovery of the species.

A Google search investigating the status of populations of Spalding's catchfly in Oregon and Washington turned up potential impacts that may be negatively affecting some populations. For example, one study that established transects in order to collect baseline data for Spalding's catchfly on the Zumwalt Prairie Preserve found high levels of browsing and insect damage on the plants. From Taylor et al. 2015: "We established three monitoring plots for Spalding's catchfly (Silene spaldingii) on the Zumwalt Prairie Preserve to collect baseline data on their abundance. The monitoring plots were established in areas where to burning and grazing treatments are planned beginning in the summer 2006. We found that catchfly abundance varied greatly among the sites (31-198 individuals/ha). We also found high levels of browsing and insect damage on the plants." Another example is the consultation letter the USFWS (2015) issued to the Wallowa-Whitman National Forest on Spalding's catchfly and MacFarlane's Four-O-Clock regarding the Lower Imnaha Range Analysis Project, which determined that the project "may affect, and is likely to adversely affect" Spalding's catchfly. While I was unable to find detailed and publically available information regarding populations of Spalding's catchfly in or near the Sunrise project area, the information presented here suggests it is highly likely that ongoing impacts to adjacent and nearby populations are negatively affecting the continued viability of Spalding's catchfly. The USFS has access to much more complete information regarding nearby projects and activities that may affect Spalding's catchfly within areas adjacent to or near the Sunrise project area in the past, present, or

reasonably forseeable future. The USFS must analyze and avoid cumulative impacts to Spalding's catchfly.

The USFS failed to conduct adequate direct, indirect, or cumulative effect analyses for Spalding's catchfly. The USDA Plant Guide publication goes on to state that "[t]hreats to Spalding's catchfly primarily involve loss of habitat. This includes habitat loss due to human development, habitat degradation associated with domestic livestock and wildlife grazing, changes in fire frequency and seasonality, and invasions of aggressive non-native plants. Plants are also susceptible to herbicide spray drift and off-road vehicle use." The Sunrise project directly increases the likelihood of Spalding's catchfly will be negatively affected due to the potential risks mentioned in the USDA Plant Guide. For example, the Sunrise project would include: increased road access and usage, which is likely to increase off-road vehicle use; prescribed fire, which may put populations of Spalding's catchfly at risk; herbicide use; and dramatic increases in ground disturbing activities such as slash piles, burning slash piles, haul and road-related activities, yarding, and other such activities that would dramatically increase the risk of invasive plant transport and establishment in the area. Ground disturbing activities would also potentially cause mortality to plants. Domestic livestock, which are already a risk to Spalding's catchfly (particularly to their habitat or to unknown populations), would be more likely to change their current patterns of grazing and movement and potentially trample or over-graze areas that may not currently be as heavily impacted.

The USFWS Final Rule states that "[s]cattered individuals of ponderosa pine (*Pinus ponderosa*) may also be found in or adjacent to *S. spaldingii* habitat." The USDA Plant Guide (Tilley et al. 2009) also notes of Spalding's catchfly that "[o]ccasionally plants can be found in open pine habitats. (USDI Fish and Wildlife Service, 2007)." Did the USFS conduct surveys for Spalding's catchfly with open pine habitats that may be impacted by logging, haul, changes in livestock use that may be associated with logging, and other impacts associated with the project? While we understand the USFS's assertion that "[i]t is impractical to conduct botanical surveys that cover 100% of potential sensitive plant habitat in any particular project area". The USFS also states that surveys did not include several skyline based logging units, and "most of the proposed landscape burn area were not surveyed specifically for this project." Given that the USFS also admits that direct effects may cause "destruction due to ground disturbance from heavy equipment, and incineration from burning", this is very concerning. It seems that the USFS, at the very least, needs to survey within habitats that the plant is likely to be found, and should drop high-quality or sensitive habitat likely to provide good habitat and/or be occupied by this species. What are the USFS's plans for future surveys and monitoring of the Spalding's catchfly populations?

The USFS did not adequately analyze or mitigate the cumulative effects of the Sunrise project in combination with climate change on Spalding's catchfly populations and habitat. The FEIS notes that "[l]ong term effects for this analysis are considered to be more than two years after implementation of all activities. These effects would generally be from indirect effects such as changes in sunlight, erosion rates, hydrologic regimes, and changes in animal grazing patterns and intensity." Yet, the USFS failed to analyze the cumulative impacts of climate change with the project activites, even though climate change is likely to effect hydrologic regimes, changes in sunlight, erosion rates, and other issues that the USFS and the USFWS admits may affect Spalding's catchfly.

The USFWS (2015) notes that "[t]his species is affected by a variety of factors including competition with invasive nonnative plants; habitat destruction and fragmentation resulting from

agricultural and urban development; habitat degradation; adverse grazing and trampling by domestic livestock and native herbivores; herbicide treatments; annual climatic conditions (i.e., drought cycles); ***climate change;*** alterations in fire frequency, intensity, and seasonality; off-highway vehicles; and a loss of genetic variation associated with small, fragmented populations (USFWS 2007)" (emphasis added). For example, the USFWS (2015) notes that climate change may affect how livestock grazing impacts Spalding's catchfly. The USFWS states that "[f]rozen ground is less desirable to walk on by cattle and less likely to be displaced. Frozen ground should limit trampling impacts during this time. Problems arise if it does thaw the top few inches of soil become very slick and unstable and are easily shed off of the top of the deeper, still frozen soil layers. This tends to be equal to, and sometimes more damaging to the soil surface and the plants within it than when the entire soil profile is thawed and soft from spring rains." They go on to note that temperatures and moisture are expected to increase in the PNW according to climate change projections, and that this may result in less frequently frozen conditions. While climate change predictions are not available at fine scales, it is nevertheless important to include predictions relevant to issues such as likely negative effects, downward population trends, and risks to the continued viability of species such as Spalding's catchfly. Other climate-change related issues that may negatively affect Spalding's catchfly (including through cumulative impacts with the Sunrise project) include increased drought in some areas. For example, Environment and Climate Change Canada (2015) in the Recovery Strategy for the Spalding's Campion (*Silene spaldingii*) in Canada, discusses some of the risks to *S. spaldingii* associated with climate change. The Recovery Strategy report notes that "[l]onger and more frequent droughts associated with climate change could adversely affect Spalding's Campion, possibly resulting in the extirpation of small populations. Several studies have found that prolonged or repeated drought conditions contribute to higher rates of mortality; smaller seed set, and extended dormancy (U.S. Fish and Wildlife service 2001, Hill and Gray 2004, Heidel 1995). While dormancy is an important life history strategy in semi-arid environments, the number of years for which individuals may remain dormant is limited, and death is thought to occur after two or three years (Lesica 1997). Additionally, this species likely lacks a long-term seed bank due to the lack of a hard outer seed coat (Lesica 2007) so lack of germination due to moisture constraints over multiple years could have significant effects on the viability of small populations." Hill and Gray (2004) in the Conservation Strategy for Spalding's catchfly (Silene spaldingii Wats.) note that: "[g]lobal warming and major changes in climate regimes could have significant effects on S. spaldingii and its associated communities in the future. Survival will depend on the ability to adapt to changing climate, or migrate to areas that still maintain the conditions necessary for their survival. Plants are particularly vulnerable since they are relatively immobile (Wilson1989). Changing rainfall patterns are anticipated, with some regions becoming drier and others wetter (Given 1994). Within S. spaldingii locations, decreases in precipitation could create more xeric conditions that would not support mesic grassland communities, and increases in precipitation may allow woody vegetation to establish. The effects of global warming will likely be greatest on plants that are sensitive to small changes in rainfall and temperature and cannot readily migrate (Given 1994). Survival may depend on the ability of species to migrate altitudinally; a vertical ascent of 500 meters could compensate for a 3°C rise in average temperature (Given 1994). ...Changes in atmospheric gases associated with global warming could have major negative impacts on S. spaldingii and its habitat. Carbon dioxide levels, which influence structure and composition of vegetation, have been increasing due to human activities (Given 1994). Increases in this gas have been shown to increase productivity of cheatgrass (Mayeux et al. 1994). The substantial increases in cheatgrass productivity could increase even further the number and severity of wildfires in the Great Basin (Smith et al. 1987)." How will shifts in precipitation from climate change, such as increased summer droughts that may occur in some areas during the summer, interact with the opening up and

drying out of stands due to logging, or with impacts on soils when coupled with prescribed burning? With the likely increase in invasive plants associated with climate change predictions? The potential cumulative impacts must be analyzed by the USFS.

Also of extreme concern are the inadequate regulatory mechanisms regarding Spalding's catchfly. While the USFWS, in their Final Rule found that "designation of critical habitat is prudent for S. spaldingii", they also stated that the "budget for listing activities is currently insufficient to allow us to immediately complete all of the listing actions required by the Act. Listing *Silene spaldingii* without designation of critical habitat will allow us to concentrate our limited resources on other listing actions that must be addressed, while allowing us to invoke protections needed for the conservation of this species without further delay." As a result of the USFWS's failure to designate critical habitat for this species, even though the agency admitted it was warranted and prudent, we are in a situation where none of the crucial habitat for this species is recognized or protected. In the context of the Sunrise project, this has resulted in the USFS failing to avoid impacts to or provide sufficient analysis of damage or degradation from the Sunrise project.

We are extremely concerned that the implementation of the Sunrise Project will cause a loss of viability and a downward population trend for the Threatened Spalding's catchfly, and for other Sensitive-listed plant species. We have similar and overlapping concerns for Sensitive-listed plants within the Sunrise project as those we have detailed above regarding Spalding's catchfly. These include: Arthur's milkvetch (*Astragalus arthurii*), green-banded mariposa lily (*Calochortus macrocarpus* var. *maculosus*), Rollin's biscuit-root (*Lomatium rollinsii*), mountain buttercup (*Ranunculus populago*), and Idaho gooseberry (*Ribes oxyacanthoides* var. *irriguum*). The USFS determined that for species affiliated with lithosols and grasslands, and upland coniferous forest communities, the project "may impact individuals or habitat, but would not likely contribute to a trend toward federal listing or cause a loss of viability to populations of sensitive plant species (MIIH)". However, we are concerned that the USFS direct, indirect, and cumulative effects analyses did not adequately avoid or analyze potential impacts to these species.

In addition, we are particularly concerned about the Green-banded mariposa lily (*Calochortus macrocarpus* var. *maculosus*), as this plant is found in areas where prescribed burning is proposed. In addition, the two small populations of the Green-banded Mariposa Lily that occur in areas of proposed burning are also located within the Peola livestock grazing allotment. The Sunrise FEIS acknowledges that negative cumulative impacts to the Green-banded mariposa lily including due to "uncertainty of the indirect effects of burning (changes in grazing patterns and potential increases in competition from non-native invasives), and the many acres of potential habitat that are in areas slated for prescribed burning, it is determined that implementation of the proposed action may impact individuals or habitat (MIIH) of the green-banded mariposa lily." The USFS has a responsibility to avoid negative impacts to Sensitive-listed species, and should do so in this instance. The USFS should drop proposed logging and burning that overlaps with Sensitive-listed species such as the Green-banded mariposa lily and other Sensitive plants. The FEIS asserts that because the populations of Green-banded mariposa lily that may be impacted by project activities are small compared to the overall population of total plants across the project area, the forest, and the species range, the cumulative effects are supposedly minimal and the project "will not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species." However, the USFS failed to conduct sufficient direct, indirect, and cumulative effects analyses to make such a determination. The USFS's rationale is a recipe for a death-by-a-thousand-cuts scenario. What are the cumulative impacts of projects across the scale of the forest, or across the

range of the plant? What projects did the USFS include in these analyses at the forest and region scales? What is the quality of available habitat in and near the project area, and at the forest and regional scales? We also have similar concerns for this species as with the issues we raised regarding cumulative impacts for Spalding's catchfly.

Resolution:

- Drop logging, haul routes, temporary roads, or re-opening of roads in areas of known Spalding's catchfly plants, and in areas of high-quality potential habitat where they are likely to occur. We request the same for Sensitive-listed plants.
- Greatly increase buffers on known populations of Spalding's catchfly and other Sensitive-listed plant species.
- Conduct more thorough surveys for Spalding's catchfly and for other Sensitive-listed plant species.

Potential Wilderness Areas, Roadless Areas, and Undeveloped Lands

We are strongly opposed to logging and road building within Potential Wilderness Areas, inventoried or uninventoried roadless areas, and undeveloped lands. We are very concerned about the direct, indirect, and cumulative negative impacts of the Sunrise project on Potential Wilderness Areas (PWA), Roadless Areas, and Undeveloped Lands. Logging undeveloped areas would only further move the project's forest ecosystem lands away from, instead of toward, the historic range of variability for large snags, viable wildlife habitat, core interior habitat, and other LOS components. For a project that aims to restore historical conditions for species composition, the Agency fails to recognize the irony of pushing other rare aspects of landscapes, such as roadless lands and previously unlogged lands, further away from historical levels.

Scientific research clearly enumerates the many reasons why remaining roadless areas should be protected. Roadless areas can be used as benchmarks for assessing the ecological integrity (e.g. genes, species, and assemblages) and processes (e.g., pollination, demography, biotic interactions, nutrient and energy dynamics, and metapopulation processes) expected in the natural habitat or region. The species-rich native communities found in roadless areas are more likely to withstand invasions (Gelbard and Harrison 2005). Planning is predicated on conserving a sufficient number of ecosystem replicates within protected areas in order to meet representation targets fundamental to conservation of species and ecological sustainability. The Forest Service would advance ecosystem representation targets by solidifying protection for roadless areas. Roadless areas often contribute disproportionately to landscape and regional connectivity, a critical component of adaptation strategies for climate change, and should be protected as climate refugia.

Scientific literature emphasizes the importance of unroaded areas greater than 1,000 acres as strongholds for the production of fish and other aquatic and terrestrial species, as well as sources of high quality water. In a letter to President Clinton urging the protection of roadless areas, 136 scientists noted: There is a growing consensus among academic and agency scientists that existing roadless areas–***irrespective of size***–contribute substantially to maintaining biodiversity and ecological integrity on the national forests. The Eastside Forests Scientific Societies Panel, including representatives from the American Fisheries Society, American Ornithologists' Union, Ecological Society of America, Society for Conservation Biology, and The Wildlife Society, recommended a prohibition on the construction of new roads and logging within existing (1)

roadless regions larger than 1,000 acres, and (2) **roadless regions smaller than 1,000 acres that are biologically significant**.... Other scientists have also recommended protection of all roadless areas greater than 1,000 acres, at least until landscapes degraded by past management have recovered.... As you have acknowledged, a national policy prohibiting road building and other forms of development in roadless areas represents a major step towards balancing sustainable forest management with conserving environmental values on federal lands. In our view, a scientifically based policy for roadless areas on public lands should, at a minimum, protect from development all roadless areas larger than 1,000 acres and ***those smaller areas that have special ecological significance because of their contributions to regional landscapes***. (emphasis added) (Letter to President Clinton from 136 scientists (Nov. 14, 1997).)

While the Agency may attempt to claim it does not have an explicit legal obligation to protect these uninventoried areas, the Forest Service does have a legal obligation pursuant to NEPA to accurately, scientifically, and objectively describe the environmental consequences of logging and road building in ecologically significant areas. NEPA also requires that the agency disclose all pertinent science, including ongoing scientific research and controversy. And NEPA requires the agency to develop scientifically sound environmentally protective action alternatives in its EIS. The analysis for this project, including the action alternatives that degrade potential wilderness area characteristics and uninventoried roadless areas, fails the requirements of NEPA concerning these requirements, and the requisite disclosure of scientific research and recommendations pertaining to roadless and unroaded areas. The USFS did not disclose or adequately analyze the many critical functions of these areas. In addition, the USFS did not adequately consider cumulative impacts regarding logging in these areas in combination with other projects (such as South George, which also logging Undeveloped Lands and uninventoried roadless areas) and climate change. The USFS also did not adequately consider the quality, not just the quantity, of the habitat that would be lost or degraded due to logging and other proposed management activities. Nor did the USFS adequately consider the degradation of connectivity, ecological process and functions, or other unique and important contributions that will be impacted as a result of logging in these areas.

The Forest Service failed to adequately disclose the environmental impacts and ecological risks of logging in Undeveloped Lands, roadless areas, and Potential Wilderness Areas. In national forests, roadless areas are ecologically significant resources for at least two reasons. First, roadless areas contain certain attributes with independent environmental significance not found in areas of national forests fragmented by roads, including, but not limited to, high quality and undisturbed soil, water, and air; sources of public drinking water; diversity of plant and animal communities; habitat for threatened, endangered, proposed, candidate, and sensitive species and for those species dependent on large, undisturbed areas of land; primitive, semi-primitive, non-motorized and semi-primitive motorized classes of dispersed recreation; reference landscapes; natural appearing landscapes with high scenic quality natural integrity and apparent naturalness, solitude and remoteness; and traditional cultural properties and sacred sites. See *Lands Council*, 529 F.3d 1219, 1230 (9th Cir. 2008) (explaining that roadless areas are environmentally significant because "water resources, soils, wildlife habitat, and recreation opportunities, possess independent environmental significance"). Second, roadless areas are important because of the potential for designation as wilderness areas under the Wilderness Act of 1964, 16 U.S.C. §§ 1131-1136. See *Lands Council v. Martin*, 529 F.3d 1219, 1230 (9th Cir. 2008) (explaining that wilderness designation is a reason that roadless areas are "environmentally significant").

As a result of these unique environmental attributes, the Ninth Circuit has recognized a well-settled obligation on behalf of agencies to disclose and analyze impacts to roadless areas. See, e.g., *Lands Council*, 529 F.3d at 1230-1232; *Smith v. U.S. Forest Serv.*, 33 F.3d 1072, 1078 (9th Circ. 1994); *Smith v. U.S. Forest Serv.*, 33 F.3d 1072, 1074 (9th Cir. 1994); *Nat'l Audubon Society v. U.S. Forest Serv.*, 46 F.3d 1437, 1443 (9th Cir. 1992); see also *Sierra Club v. Austin*, 82 Fed. Appx. 570, 573 (9th Cir. 2003). Roadless areas generally entail four categories, wilderness areas, inventoried roadless areas ("IRAs"), uninventoried roadless areas, and roadless expanses. From 1972 to 1979, two inventories of national forest lands, referred to as Roadless Area Review and Evaluation I and II ("RARE"), identified lands for potential inclusion in the national wilderness system. *National Audubon*, 46 F.3d at 1439 (explaining history of RARE I and II). Of the inventoried lands, some were included in the national wilderness system and others remained IRAs. Uninventoried roadless areas were those lands not included or overlooked in RARE I and II. Courts have used the term "roadless expanse" to refer to IRAs and contiguous uninventoried roadless areas in combination. See *Smith*, 33 F.3d at 1073 (referring to an IRA and contiguous uninventoried roadless area as "roadless expanse"); *Lands Council*, 529 F.3d at 1222 (referring to an IRA and a contiguous uninventoried roadless area as a "contiguous roadless expanse").

Uninventoried roadless areas and roadless expanses have been the subject of numerous legal actions. *Lands Council*, 529 F.3d at 1230-1232 (Umatilla National Forest); *Lands Council v. Martin*, 479 F.3d 636 (9th Cir. 2007) (Umatilla National Forest); Smith v. U.S. Forest Serv., 33 F.3d 1072, 1078 (9th Circ. 1994); see also *Sierra Club v. Austin*, 82 Fed. Appx. 570, 573 (9th Cir. 2003). These cases impose certain obligations on agencies when projects are proposed in uninventoried roadless areas and roadless expanses.

In *Smith v. U.S. Forest Serv.*, 33 F.3d 1072, 1074 (9th Cir. 1994), relying on the holding in *National Audubon Soc'y*, 46 F.3d at 1443, the plaintiffs challenged a timber sale prepared in an 4,246 acre uninventoried roadless area bordering a 2,000 acre IRA. *Smith*, 33 F.3d at 1073. There, the court referred to the uninventoried and inventoried roadless areas in combination as a "roadless expanse." *Id.* at 1078. The court determined that "the possibility of future wilderness classification triggers, at the very least, an obligation on the part of the agency to disclose the fact that development will affect a 5,000 acre roadless area." *Id.* at 1078. In doing so, the court determined that the Forest Service must consider IRAs and uninventoried roadless areas together, "[b]ut nowhere has the agency disclosed that the inventoried and uninventoried lands together comprise one 5,000 acre roadless area." *Id.* at 1079. The court held that the agency "has an obligation to take a 'hard look' at the environmental consequences of the proposed sale ... require it, at the very least, to acknowledge the existence of the 5,000 acre roadless area." *Id.* at 1079.

The *Lands Council* court also noted the significance in fully considering impacts to roadless areas, regardless of whether they are inventoried or uninventoried. Citing *Smith v. U.S. Forest Serv.*, the Ninth Circuit noted that there are at least two reasons why logging in roadless areas is environmentally significant, so that its environmental consequences must be considered. First, roadless areas have certain attributes that must be analyzed. Those attributes, such as water resources, soils, wildlife habitat, and recreation opportunities, possess independent environmental significance. Second, roadless areas are significant because of their potential for designation as wilderness areas under the Wilderness Act of 1964, 16 U.S.C. §§ 1131-1136.

Lands Council, 529 F.3d at 1230. In *Lands Council*, the Court specifically reiterated the holding in Smith: "Smith held that the size of an uninventoried roadless area must be considered in combination with the size of any contiguous inventoried roadless area." *Lands Council*, 529 F.3d at 1231. The *Lands Council* court held that "'the possibility of future wilderness classification triggers, at the very least, an obligation on the part of the agency to disclose the fact that development will affect a 5,000 acre roadless area,' *Smith*, 33 F.3d at 1078, or will affect an area of sufficient size as to make it practicable its preservation and use in an unimpaired condition." Finally, the *Lands Council* court noted that "[a]s in *Smith*, 'nowhere has the agency disclosed that the inventoried and uninventoried lands together comprise one 5,000 acre roadless area." Id. at 1232 (quoting *Smith*, 33 F.3d at 1079).

Despite the history of uninventoried roadless areas in the courts, and specifically in the Umatilla National Forest (UNF), the UNF has proposed numerous commercial and non-commercial units that overlap with uninventoried roadless areas (i.e. Other Undeveloped Lands) that have Wilderness characteristics.

"It is well established in this [9th] Circuit that logging in an unroaded area is an 'irreversible and irretrievable' commitment of resources and 'could have serious environmental consequences.'" *Sierra Club v. Austin* No 03-35419; DC No. CV-03- 00022 DWM (9th Circ 2003), *citing Smith v. Forest Service* 33 F.3d 1072, 1078 (9th Circ 1994). This project involves activities in such unroaded areas. The NEPA analysis for this project does not adequately discuss the impacts of proposed activities on all the many significant values of roadless/unroaded areas. Nor does this analysis address the importance of the forests surrounding these unroaded areas, including the essential connectivity adjacent stands provide. The analysis fails to address or disclose the cumulative impacts that would result from management actions not only in unroaded areas but adjacent forest stands, including the diminishment of the extent of currently undisturbed habitat in the project area.

The NEPA analysis should discuss whether the project will push the landscape toward or away from the natural range of variability for large-scale habitat. Landscape analysis based on historic disturbance patterns suggests that historically the majority of old forest and ecologically intact habitat occurred in large patches. These large patches of older forests, and connectivity between LOS patches, that native fish and wildlife species evolved with are now severely under-represented on the forest landscape and must be protected and restored.

The Sunrise project proposes to log 186 acres of Potential Wilderness under alternative B, and 26 acres under Alt. C. It is not clear if the number of acres slated for logging in PWAs may have been reduced under the Alternative B-Modified selected by the USFS as described in the ROD, and we request clarification of this issue. The FEIS states that under alternative B, the PWA would also be affected by new temporary road construction. The FEIS states: "[u]nder Alternative B approximately 186 acres of the Asotin PWA would be affected by cutting and associated activities (such as new temporary road construction). Under Alternative C about 29 acres would be affected. These acres would no longer meet PWA inventory criteria because timber harvest and creation of stumps would make them appear developed. The resulting effect for Alternative A would by about a 1% reduction to the PWA. Under Alternative C there would be less than a quarter of 1 percent reduction to the PWA." The FEIS acknowledges that the "selection of either of the action alternatives could affect a future wilderness decision associated with a forest plan revision: the only difference between the alternatives would be the number of acres affected." We are concerned about

use of logging, road-related activities, and prescribed fire in Potential Wilderness Areas. Logging, road-related activities, and prescribed fire in PWAs areas will degrade their natural, scenic, and untrammeled character, and cause them to be ineligible or less eligible for Wilderness designation.

The USFS has a responsibility to preserve the Wilderness characteristics and attributes of Potential Wilderness Areas. Potential Wilderness Areas should be managed as if they were Wilderness until Congress either designates them as wilderness or releases them. It is Congress's responsibility to determine whether or not these lands should be designated as Wilderness; the USFS should not *de facto* make this decision for Congress by degrading these lands and precluding them from Wilderness designation. No road construction or reconstruction should take place within PWA, Roadless Areas (Inventoried or otherwise), or Undeveloped Lands. The FEIS states (pg. 228) in relation to the Asotin PWA that "[t]he natural appearance of the landscape would be reduced following treatment activities. Stumps, skid trails and slash would be evident where tree cutting activities occur. Tree density would be reduced which would result in more open stands compared with neighboring untreated areas. Some stands would likely be opened to the point that the skyline of the forest canopy appears highly manipulated to the casual observer." The FEIS also acknowledges that "[t]he sense of remoteness, opportunities for solitude, and primitive recreation would be reduced as the sights and sounds of management would intrude into outer portions of the PWA." Many of BMBP's field surveys found high wildlife use and high-quality wildlife habitat within the units in or adjacent to PWAs (please see the survey sheets we submitted). In addition, units that interrupt the connectivity of surrounding or adjacent Wilderness, Roadless, or Undeveloped Lands should be dropped. Forest fragmentation and edge effects are widespread and pervasive problems across the landscape; causing further unnecessary fragmentation should be avoided.

We are also very concerned about prescribed fire in PWAs, specifically the Asotin PWA. The FEIS states that "[l]andscape prescribed fire is proposed on approximately 14,055 acres within the Sunrise project area. Under both action alternatives about 6,139 acres of landscape burning would take place within the Asotin Creek PWA (approximately 38% of the PWA). The USFS claims that "[l]ong term effects to roadless characteristics from prescribe landscape would be positive as fire dependent ecosystems become more resilient to impacts from wildfire." However, the assertion that the long term effects to roadless characteristics would be positive is speculative, scientifically controversial, and unsubstantiated. In addition, the USFS notes that "[p]rescribed fire activities could include incidental cutting of trees within the IRA to facilitate the effectiveness of control lines." Such control lines can damage ecological resources and become widespread. Logging and other fire line activities can create indirect, direct, and cumulative impacts that the FEIS did not adequately consider. The USFS dismisses the tree cutting as minimal, yet makes no quantitative assessment or asserts no prohibition or limit on the felling of trees in the IRA. The FEIS also ignores, undermines, and inappropriately excludes the ecological role and benefits of mixed-severity (including high severity) wildfire in its analyses. The FEIS acknowledges that "[i]n the majority of the project area, fire intensities would be kept low by keeping fire out of the overstory and burning mainly surface fuels....Upon completion, the landscape could be described as a mosaic of unburned, lightly burned, moderately burned, and intensely burned patches." However, as noted by the USFS, once the project implementation is complete the majority of the area would be have been burned by low intensity prescribed burns. The USFS has not offered sufficient peer-reviewed and independent evidence that such conditions would reflect historic norms. Nor has the USFS offered convincing evidence that landscape-scale prescribed burning would be effective in reducing the risk of high-intensity wildfires or substantially assist the USFS in controlling wildfires. The

USFS has not offered any convincing evidence that the prescribed burning on 6,139 acres of PWA would not negatively impact the ecological integrity of the PWA, damage connectivity, or degrade or destroy wildlife habitat for species dependent on dead wood, multi-story canopy structure, or Late and Old Forests. In addition, fire suppression efforts in the backcountry (including large-scale prescribed burning) are not an effective strategy for protecting human structures and habitation.

Forests that have experienced higher levels of protection, such as Wilderness areas, Potential Wilderness Areas, and IRAs are not at increased risk of high severity fire. In fact, they burn with lower severity than forests with less protection. Bradley et al. (2016) found that:

> *"forests with higher levels of protection had lower severity values even though they are generally identified as having the highest overall levels of biomass and fuel loading. Our results suggest a need to reconsider current overly simplistic assumptions about the relationship between forest protection and fire severity in fire management and policy".*

Prescribed fire may have unintended negative consequences on the ecology, wildlife, historic fire regime, and natural ecological processes. The USFS needs to adequately analyze potential affects to the unique characteristics and habitats, and special resources within the project area, including but not limited to Undeveloped Lands, Inventoried Roadless Areas, Potential Wilderness Areas, core habitats, connectivity corridors, wetlands, and scenic and recreation values. These protected areas are in themselves ecologically critical area that requires adequate analyses. In addition, the controversy surrounding the science as well as the uncertainty and risks surrounding fire behavior during prescribed fire was downplayed and not adequately considered in the analysis, leading to a false determination of non-significance. The intensity and the long-term risks and impacts of the project were inappropriately downplayed. For example, Pilliod et al. 2006 note that:

> *"Large-scale prescribed fires and thinning are still experimental tools in ecological restoration (box 1), and unanticipated effects on biodiversity, wildlife and invertebrate populations, and ecosystem function may yet be discovered (Allen and others 2002; Carey and Schumann 2003)."*

Pilliod et al. (2006) examined potential unintended negative effects on wildlife and habitats due to prescribed fire. We are concerned that similar negative effects on wildlife and habitats may occur in the Sunrise Project. For example, we are concerned about possible losses of snags and dead wood (both in direct response to the project and decreased future recruitment), negative effects on density- and closed canopy-dependent species, negative effects on alpha and beta biodiversity, declines in mammal populations, and other unintended negative effects on the flora and fauna and habitats in the project area. We are concerned about the highly speculative nature of this project, and the inappropriateness and potential ecological harm of project implementation in PWAs, IRAs, and Undeveloped Lands, especially given the uncertainty about large-scale negative impacts to natural processes. The Pilliod et al. (2006) study also points to potentially higher losses of dead wood habitats in fall months. If this project does move forward, it may be important to consider burning at different times throughout the year. Highlights from their study include:

> *"Large-scale prescribed fires and thinning are still experimental tools in ecological restoration (box 1), and unanticipated effects on biodiversity, wildlife and invertebrate populations, and ecosystem function may yet be discovered (Allen and others 2002; Carey and Schumann 2003)."*
>
> *"Species that prefer closed-canopy forests or dense understory, and species that are closely associated with those habitat elements that may be removed or consumed by fuel reductions,*

will likely be negatively affected by fuel reductions. Some habitat loss may persist for only a few months or a few years, such as understory vegetation and litter that recover quickly. The loss of large-diameter snags and down wood, which are important habitat elements for many wildlife and invertebrate species, may take decades to recover and thus represent some of the most important habitat elements to conserve during fuel reduction treatments."

"Multiple entries with prescribed fire (repeated burning), which is often the only way to reduce fuels effectively without thinning, may reduce the structural complexity of forests over time. Large prescribed fires (greater than 1000 ha) could also potentially homogenize the landscape for some species and decrease overall wildlife habitat (Brown and others 2004)."

"Fall fires tend to burn hotter and consume more of the down wood and snags" "Consumption of large logs by fire is regulated by fuel moisture, which is often higher in spring and may minimize the loss of these important habitat elements compared to fall burns".

"Implementation of any thinning or prescribed burning is likely to result in loss of snags, future snags, and down wood that are important stand attributes of healthy forests and critical components of wildlife and invertebrate habitat

Loss of large-diameter snags and down wood can take years to decades to recover, as indicated by wildland fire research (Passovoy and Fule 2006)."

"All mammals, except the yellow-pine chipmunk, declined in stands of subalpine fir after prescribed fire in Washington (Hanson 1978)."

"Prescribed fire results in variable snag creation and loss across a stand. Finch and others (1997) reviewed studies that evaluated the effects of prescribed fire on snags and down wood in southwestern ponderosa pine forests and found that snag loss was greatest in the large size classes and in the decay classes (those with decayed heartwood) that contained nest cavities. Snag loss typically ranged from 20 to 48 percent and loss of down wood (logs) from 42 to 74 percent..."

"A net 45-percent decrease in snags followed a prescribed fire in a southwestern pine-oak forest dominated by ponderosa pine (Horton and Mannan 1988). Proportional snag loss in this study was greatest in the size (>50 cm dbh) and decay classes that contained the most nest cavities."

"There is a great need for long-term observational and preferably experimental studies on the effects of a range of fuel reduction treatments at multiple spatial scales (stand or larger)." "However, until more complete information on many species becomes available, the consideration of management activities that allow the retention of critical habitat elements is warranted, particularly those that are slow to recover such as large-diameter down wood and snags."

The USFS overstates the risk to species and habitats from wildfire, and does not disclose or adequately consider critical roles and benefits of wildfire regarding native species, biodiversity, wildlife habitat, ecological integrity in the face of climate change, and other key roles and benefits associated with wildfire. The USFS presents a biased and inadequate analysis on these and related issues. The USFS conclusions are contrary to conservation biology, which generally recognizes that large core habitats with connectivity corridors are crucial for multiple species (terrestrial and

aquatic connectivity, genetic connectivity and diversity, migration and movement, the ability to shift range in response to climate change, etc.). Native species evolved with and often depend on disturbance from wildfire, including high severity wildfires. For example, ESA-listed and Sensitive fish generally have their most robust stocks in Wilderness and Roadless areas (Bader 2000, Bradley et al. 2002, DellaSala et al. 2011, Frissell and Carnefix 2007, Public Lands Initiative 2004, Reiman and Clayton 1997, Reiman et al. 2000, Thurow et al. 2001, Trout Unlimited 2004, Western Native Trout Campaign 2001), and have been shown to recolonize surprisingly rapidly after even high-severity fire, provided that aquatic connectivity is in place (USFS 2014, vol 2. pg 60). Specifically:

> *"[F]ish can recover more quickly than previously thought even from severe burns. Redband trout and bull trout have been shown to re-colonize severely burned drainages within two years, provided the drainages were physically accessible (i.e., no culvert barriers, and provided that other fish in unburned areas were close enough to discover and move back into the recently burned habitat" (USFS 2014, vol 2. pg 60)."*

The forests within the project area are remote, and so were unlikely to have experienced fire exclusion until recent decades. Hanson et al. 2009 noted that:

> *...it is typical for a high percentage of total burned area (i.e., > 90%) to accrue from the small percentage of wildfires (i.e., < 5%) that are large and infrequent (Moritz et al. 2005).*

The forests in the project area are likely within HRV for historic mixed-conifer forests that included mixed- severity fires with long rotation intervals. Noss et al. (2006) note:

> *"[f]ire exclusion has had little effect on fuels or forest structure in forests characterized by high severity (stand replacement) fire. High severity fires are relatively infrequent, occurring at intervals of one to many centuries, whereas active fire exclusion, especially in remote forests, began only decades ago. Because fuel structures or tree densities are usually within the historical range of variability, active restoration is ecologically inappropriate in these forests."*

Fire suppression efforts were highly unlikely to have been widespread or effective in remote areas such as those within the project area until recent decades. The 100+ year timeframe the FEA puts forth for fire exclusion is an extreme overestimate. Heyerdahl et al. (2002) note that fire suppression was not effective until recent decades:

> *"...active re suppression by land-management agencies because these efforts were probably not effective until the 1940s–50s when surplus military aircraft became available."*

The short-term and temporary nature of the perceived fuels reduction benefits from this project are not likely to result in meaningful changes to fire intensity, size, or severity. Rhodes and Baker (2008) found that:

> *"[u]sing extensive fire records for western US Forest Service lands, we estimate fuel treatments have a mean probability of 2.0-7.9% of encountering moderate-or high-severity fire during an assumed 20-year period of reduced fuels."*

Justifications for this project are based on faulty and scientifically controversial theories regarding historic fire regime and stand densities; the effectiveness of fuels reduction to lessen future fire severity; beetle-killed stands and fire risk; threats due to high-severity fires; and threats to firefighter safety and resources. Possible negative impacts to wildlife and habitats due to prescribed fire have not been adequately analyzed. PWAs, IRAs, and Undeveloped Lands areas are not appropriate places for a manipulative management experiment. The experimental extensive human

intervention and interference with natural processes in as proposed in this project are suffused with faulty rationales, scientific controversy, and uncertainty.

We are extremely concerned that the use of prescribed fire in the PWAs, IRAs, and Undeveloped Lands will open the door to increased manipulation. We are very concerned that active management in such areas will become more common, widespread, and invasive. This project will contribute to setting a precedent for such future activities. We are very concerned about increased human intervention in these areas, which seem to be proposed despite a veritable mountain of scientific evidence showing that PWAs, IRAs, Undeveloped Lands, and other large and highly protected blocks of habitat areas are, due to their least-managed conditions, providing the most high- quality and important core habitats and connectivity for wildlife across the landscape. Also despite evidence that these areas have not departed from HRV for vegetation or fire regime parameters, and that fuels reduction efforts are unlikely to be effective or make economic sense, and in the face of increased pressure from climate change, among other issues. Active management in PWAs, IRAs, and Undeveloped Lands sets a bad precedent that risks increased artificial manipulation in the some of the last remaining areas that have been comparatively free of human intervention and management, and which as a direct result of their relatively unmanaged state are providing absolutely crucial habitat and disproportionately supporting the viability of many sensitive and at-risk species.

The USFS did not include a full range of best available science, or disclose public and scientific controversy regarding wildfire, fire regimes, HRV, or the efficacy or need of fire suppression activities (including prescribed fire). For example, weather conditions such as drought and wind are the primary drivers of fire behavior, and generally override on-the-ground forest conditions. Large wildfires are not generally influenced by previous fuels reduction measures. For example, Lydersen et al. (2014) state:

> *"Our results suggest that wildfire burning under extreme weather conditions, as is often the case with fires that escape initial attack, can produce large areas of high-severity fire even in fuels- reduced forests with restored fire regimes."*
>
> *"Our study suggests that even fire-restored forests may not be resistant to high-intensity wildfire that escapes suppression during extreme weather conditions."*

The USFS should not be suppressing wildfire in the remote areas, particularly in large habitat blocks that have enjoyed relatively more protection than surrounding forests. This is important especially given that 1) More protected forests are not at increased risks from wildfire and 2) the mixed-conifer forests within the project area are likely within HRV for forest density and fire regimes. The forests within the project area are remote and do not pose a threat to homes or other structures. Current forest management is unnecessarily putting firefighters at risk by focusing on remote areas, contrary to peer-reviewed science or common sense. Gibbons et al. (2010) found that defensible space work within 40 meters [about 131 feet] of individual homes effectively protects homes from wildland fire, even intense fire. The authors concluded that the current management practice of thinning broad zones in wildland areas hundreds, or thousands, of meters away from homes is ineffective and diverts resources away from actual home protection, which must be focused immediately adjacent to individual structures in order to protect them. In addition, other studies note that the vast majority of homes burned in wildland fires are burned by slow-moving, low intensity fire, and defensible space within 100-200 feet of individual homes [reducing brush and small trees, and limbing up larger trees, while also reducing the combustibility of the home

itself] effectively protects homes from fires, even when they are more intense (Cohen 2000, Cohen and Stratton 2008).

As discussed, Wilderness characteristics of PWAs should be preserved so that Congress can make the decision whether or not to designate these areas as Wilderness. Large-scale prescribed fire would degrade or destroy the Wilderness characteristics of the PWA. Use of prescribed fire in these areas may degrade their natural, scenic, and untrammeled character, and cause them to be less eligible for Wilderness designation. The USFS acknowledges that the project will negatively affect the untrammeled component of wilderness character. If the project moves forward, it is a certainty that negative effects will occur to values such as remoteness, naturalness, untrammeled character, and having a solitary experience. The possible long-term negative impacts of the project such as decreases in snags and dead wood and other wildlife habitats (Pilliod et al. 2006) and the potential for these artificially manipulated forest stands to develop outside of normal and historic trajectories is not adequately disclosed or considered. The USFS offers no convincing rationale to suggest that the project will not cause long-term impacts. Also, the project may increase the USFS's the perceived need for future repeated entries for continued fire suppression, which will further degrade and destroy the values associated with PWAs. Crucial large core areas that contain high-quality wildlife habitats such as PWAs and IRAs are not the place for experimental large-scale manipulative management based on uncertain and/or flawed assumptions. Experimental large-scale manipulative management is PWAs is not in line with the direction or spirit of preserving Wilderness characteristics in PWAs so that they remain eligible for possible Wilderness designation by Congress in the future.

The Forest Service has not demonstrated that the proposed ecosystem modifications or modification of natural processes would not degrade the Wilderness characteristics and attributes of the Asotin PWA. One cannot reverse trammeling through more trammeling. Similarly, the USFS has not demonstrated that ecosystems modifications or modifications of natural process in PWAs, IRAs, and Undeveloped Lands will not negatively affect native species, wildlife habitat, water quality, dead wood and snags, and other basic and key components of forest ecosystem integrity. The notion that "natural" conditions that have long been absent within a particular area due to fire suppression and past development can somehow be reconstructed within that area with more logging and fire suppression (to protect human property) is suspect. Add to that the rapidly changing nature of our forests from climate change, and it becomes nearly impossible to discern a historical "natural" baseline point from which we should gauge "naturalness." The terms "natural" and "untrammeled" are complimentary. What is natural for the area necessarily flows from what is untrammeled. Otherwise, the default position will always be to trammel Wilderness and degrade Wilderness characteristics in PWAs in order to comport with a land manager's notion of what is natural, even though various complicated factors—many of which we do not fully understand and cannot control—are always necessarily at play in shifting natural conditions. The Forest Service should manage all Potential Wilderness Areas and roadless areas to preserve Wilderness characteristics, and that does not preclude them from inclusion in the National Wilderness Preservation System.

The USFS is underestimating and inappropriately excluding Undeveloped Lands that should be included in PWA or Roadless designation. For example, the USFS should not have excluded areas from PWA designation which have minimal evidence of hazard tree removal and firewood cutting. The USFS also should not have omitted areas within 300' of a road and closed roads in its analyses. Areas with minimal, not noticeable, or no evidence of development or stumps should not have been

excluded. The FEIS states that "[t]he 4,527 acres of undeveloped lands identified within the project area would continue to not be designated potential wilderness area, inventoried roadless area or wilderness area. However none of the activities proposed on undeveloped lands would necessarily preclude congress from considering these lands for future wilderness designation." The USFS's assertation that these lands would not be precluded from future Wilderness designation is surprising and confusing, given that similar activities the proposed for PWAs in the Sunrise Project would degrade Wilderness characteristics and those acres "would no longer meet PWA inventory criteria because timber harvest and creation of stumps would make them appear developed." The FEIS acknowledged that the "selection of either of the action alternatives could affect a future wilderness decision associated with a forest plan revision..." (FEIS pg. 229). In addition, the USFS consistently excluded huge swaths of acreages from PWA designation due to legacy and overgrown roads, scattered stumps, and other features not apparent to the casual observer. The USFS cannot have it both ways, and claim that logging, temporary roads, and burning will not affect potential future Wilderness designation, yet turn around and have an inappropriately low tolerance for these same sorts of features, even many decades after their creation, when considering areas for inclusion in PWA designations. We are particularly concerned about areas that are proposed for logging and burning but have never been logged or show no visible evidence of logging or other management. This includes units in PWA, Undeveloped Lands, and roadless areas that BMBP surveyed and found no evidence of logging (please see our field survey sheets).

The FEIS acknowledges that the Sunrise project would affect approximately 2,252 acres of Undeveloped Lands in the project area. The large blocks of Undeveloped Lands within the project area are grouped into Polygons 1 and 2; over 56% of Polygon 1 will be affected by logging and 46% of Polygon 2 will be affected by logging (Tables 80 and 81, FEIS pg. 230). This is a huge and unacceptable loss of these ecologically valuable and sensitive areas. USFS plans to degrade and fragment these large contiguous habitat blocks should be dropped. In order to protect native species, Threatened and Sensitive plants, cold water and compliance with water quality standards, elk cover, and other key ecological functions and processes that PWAs, roadless areas, and undeveloped lands provide, the USFS should drop logging, road-related activities, and other management within these areas. The Forest Service should prioritize protection the many critical functions of Potential Wilderness Areas, inventoried roadless areas, and undeveloped lands. The Effects Analysis for PWAs does not adequately consider these factors. The Forest Service should drop from its proposal for logging or road building within Potential Wilderness Areas and Undeveloped Lands, and burning and some cutting in inventoried roadless areas. These habitat blocks should be left in a natural state to serve wildlife needs, headwaters protection, and as reference condition landscapes for scientific study, as well as for recreation in a natural setting. They represent some of the best and last big blocks of intact, high security habitat left for fish species, wide-ranging keystone predators, native ungulates, and other wildlife species. It is essential that we preserve core habitats and connectivity corridors because these areas are very important for maintaining genetic diversity, facilitating movement and migration, and providing for range and habitat needs. Connectivity corridors also allow for species to colonize new areas or recolonize after disturbances, which will help species adapt to shifts in geographic range due to climate change. Many species are already facing threats to their viability due to fragmentation and a lack of connectivity; climate change threatens to severely exacerbate risks to their continued survival by further fragmenting habitats. Increasing connectivity is the most commonly recommended strategy for preserving biodiversity in the face of climate change, according to a review of 22 years of scientific recommendations (Heller and Zavaleta 2009). Increasing connectivity includes actions such as removing barriers to species dispersal, locating reserves near each other, and reforestation. Other commonly recommended

connectivity-related actions include creating "ecological reserve networks [i.e.,] large reserves, connected by small reserves, stepping stones"; "protecting the "full range of bioclimatic variation"; increasing the number and size of reserves; and creating and managing buffer zones around reserves (Heller and Zavaleta 2009). Large blocks of habitat that are well-connected to each other are important for the long-term survival for many species in the face of climate change.

Resolution:

- Drop all logging and burning in PWAs
- Drop logging in Polygons 1 and 2
- Correct inappropriately narrow exclusion from PWA or IRA designation of Undeveloped Lands that show minimal or no evidence of past logging, fire wood cutting, or development
- Drop proposed logging in units that have never been logged or show no evidence of logging or management. Please see BMBP's field survey sheets and the USFS Sunrise Project's report on Wilderness, IRA, PWA, and other Undeveloped Lands
- Include adequate cumulative effects analyses in an SEIS

The Sunrise FEIS violates the National Environmental Policy Act (NEPA)

Inadequate range of alternatives: The EIS presents an inadequate range of alternatives, leaving the public no choice but to opt for alternatives that, for example, only include commercial logging and re-opening/reconstructing roads. The Forest Service should have prepared an EIS with alternatives that include options such as no commercial logging, no logging in undeveloped lands or lands with wilderness characteristics, and no road reopening/road reconstruction. Road-related impacts are among the most detrimental to forest health and include negative affects on wildlife, wildlife habitats, water quality, and fish. Roads are directly responsible for a suite of damaging impacts on Big Game, Wildlife and their habitats, fish and water quality, and all of the other emphases for management units within the project. Deviation from HRV has not been shown to have nearly the same scale or negative impact on ecosystem health as high road density. The "No Action" alternative was not seriously considered or analyzed, as evidenced by the USFS downplaying or ignoring the myriad of ecological benefits associated with not logging these areas. The USFS also cherry picked studies to overstate potential negative effects associated with wildfire.

The Sunrise project FEIS contains an overly narrowly construed purpose and need/project fails to meet purpose and need: The Sunrise FEIS construed the purpose and need for the project in an overly narrow way so as to reject other action alternatives that would not produce saw logs but would otherwise meet the purpose and need. The Forest Service needs to move away from overly narrow construction of the Purpose and Need statements of their projects that eliminate any alternatives suggested that would not provide sawlogs. The current scale and pace of commercial logging on the Blue Mountains Forests is unsustainable and will inevitably harm many other forest values that require protection, such as MIS [Management Indicator Species] and TES [Threatened, Endangered, and Sensitive species] wildlife, water quality, soil integrity, carbon storage, and recreational aesthetics.

The Sunrise FEIS fails to adequately analyze direct, indirect, and cumulative impacts: The Sunrise FEIS contained inadequate cumulative impacts analyses for MIS, species of concern, vulnerable and sensitive species, and ESA-listed species. Repeatedly, the USFS inappropriately used the Forest scale to make determinations of non-significance of effects. The USFS

inappropriately omitted the South George project in many of the cumulative impacts analyses, and repeatedly omitted consideration of any other projects besides the Sunrise project across at the Forest scale. Occasionally, the USFS also included the South George project in addition to the Sunrise Project for cumulative impacts at the forest scale, but still persisted in leaving out all other projects across the forest scale. For example, the FEIS states: "[t]imber sales associated with the South George EIS total 3,450 acres of treatment in this same watershed. South George units in combination with mechanical treatments in Sunrise project, Alternatives B and C would affect 19 and 12 percent of total forest respectively. At the forest scale, the effect is very small (<1%)". If the USFS is going to look at the forest scale, then all the projects at the forest scale needs to be included in the cumulative impacts analysis. A genuine analysis of cumulative impacts (including quantification of habitat and an analysis of *quality* of habitat) needs to be examined at the project, watershed, and forest scales. In addition, there is little or no quantification of percent of affected habitat at the project and watershed scale for most species, no quantification of the amount/percentages of high *quality* habitat for species, and a highly incomplete consideration of specific past, present, and reasonably foreseeable other projects. These issues reflect an insufficient effects analysis for determination of the consequences to particular wildlife species. This loss of forest density and wildlife habitat would have numerous consequences for other species as well. The scale of the effects analysis was inappropriate for a number of species and issues, including but not limited to Black-backed woodpeckers, Pileated woodpeckers, American marten, Wolverine, Canada lynx, Northern goshawk, and others. This inappropriate, misleading, and disingenuous scale of analysis is what the USFS rests their determinations of non-significance for numerous species. These determinations of non-significance are, as a result, arbitrary and capricious.

The USFS failed to include in their cumulative impacts analysis potential repeat entries into the forest stands within the Sunrise project area, as well as other future projects and re-entries in nearby areas. Areas that are thinned will of course grow back, usually denser and with thicker undergrowth. The artificially open forest structure will only remain so for approximately 10-20 years. Prescribed burns have similar timeframes. Consequently, the USFS is either 1) spending a lot of money and effort, taking large ecological risks, and causing widespread ecological harm for a perceived gain that is lasts 10-20 years or 2) planning to do repeat entries, which they have failed to analyze. In addition, because logging and burning only produce short-term perceived benefits, the chances that wildfire will intersect with "treated" areas in the short-term is extremely low. Rhodes and Baker (2008) found that: "[u]sing extensive fire records for western US Forest Service lands, we estimate fuel treatments have a mean probability of 2.0-7.9% of encountering moderate-or high-severity fire during an assumed 20-year period of reduced fuels."

The FEIS did not include a sufficient analysis of future management activity in their cumulative effects analyses. The omission of reasonably foreseeable projects results in an underestimate of potential cumulative impacts to the project area and the watershed.

In addition, we the USFS did not adequately analyze potential direct, indirect, or cumulative impacts to the beneficial uses of 303d listed streams and streams that are violating water quality standards within or downstream of the project area. Gerstein and Harris (2003) in their report prepared for the Fire and Resource Assessment, California Department of Forestry and Fire Protection, the authors discuss the necessity of assessing cumulative impacts in relation to impaired streams:

"According to the Council on Environmental Quality (CEQ Guidelines, 40 CFR 1508.7, issued 23 April 1971, "Cumulative impact" is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. The FPR Addendum No. 2 cites 14 CCR 898 as the language requiring cumulative impacts assessments. This rule (14 CCR 898) contains two definitions of cumulative effects depending on the legal status of the receiving water body. For 303(d) listed waterbodies the following definition applies.

When assessing cumulative impacts of a proposed project on any portion of a waterbody that is located within or downstream of the proposed timber operation and that is listed as water quality limited under Section 303(d) of the Federal Clean Water Act, the RPF shall assess the degree to which the proposed operations would result in impacts that may combine with existing listed stressors to impair a waterbody's beneficial uses, thereby causing a significant adverse effect on the environment. The plan preparer shall provide feasible mitigation measures to reduce any such impacts from the plan to a level of insignificance, and may provide measures, insofar as feasible, to help attain water quality standards in the listed portion of the waterbody. The distinction between the two categories is that impairment of "beneficial uses" needs to be considered for THPs [timber harvest planning] draining to 303(d) listed waterbodies, whereas the more general definition of "significant adverse effect on the environment" applies to THPs draining to non-303(d) listed waterbodies."

In addition, the USFS failed to adequately analyze the direct, indirect, and cumulative impacts of planned heavy industrial-style logging such as clearcutting. For example, Perry and Jones (2016) examined decades of data from paired watersheds. They found a 50% lower streamflow in tree plantations compared to old growth dominated watersheds. The deficits in streamflow were produced within 15 years, but persisted and actually intensified in 50-year-old stands. The study states that "[t]ogether, the paired basin and experimental gap results indicate that even-aged plantations in 8 ha or larger clearcuts are likely to develop summer streamflow deficits, and these deficits are unlikely to be substantially mitigated by dispersed thinning or small gap creation." The study goes on to state that "[i]n summer, these factors appear to contribute to higher daily transpiration rates by young conifers relative to mature or older conifers, producing pronounced reductions in streamflow during the afternoons of hot dry days (Bond et al., 2002). At sunset, transpiration ceases, and streamflow recovers. Hence, daily transpiration produces large diel variations in streamflow in AND 1 (plantation) relative to AND 2 (reference). ... Reduced summer streamflow has potentially significant effects on aquatic ecosystems. Summer streamflow deficits in headwater basins may be particularly detrimental to anadromous fish, including steelhead and salmon, by limiting habitat, exacerbating stream temperature warming, and potentially causing

large-scale die-offs ... Reductions in summer streamflow in headwater basins with forest

plantations may affect water yield in much larger basins." "Climate warming and associated loss of snowpack is expected to reduce summer streamflow in the region (e.g., Littell et al., 2010). Declining summer streamflows in the Columbia River basin may be attributed to climate change (Chang, Jung, Steele, & Gannett, 2012; Chang et al., 2013; Hatcher & Jones, 2013), but these declines may also be the result of cumulative forest change due to plantation establishment..."

Logging in the Sunrise project can be expected to cause alter the hydrographs in areas of extensive logging, including increasing peak flows and causing lower summer baseflows. Low streamflows in the project area and the region is likely to be exacerbated by climate change. Stream warming and lower flows due to climate change are expected to increase over the next 20-40 years, and thus will directly interact with and exacerbate the effects on streamflow and stream temperature from this project and others. These issues are likely to have severe negative effects on salmon and other sensitive aquatic species. The agency failed to consider the cumulative effects of climate change and logging. There is also evidence to suggest that BMPs may not be sufficient to protect sensitive fish (USFWS 2010; Steel and Beckman 2014). Steel and Beckman (2014) also highlight the importance of diurnal fluctuations in stream temperature for the viability of salmon. The implications of these studies, with the combined cumulative impacts of climate change, need to be seriously analyzed and addressed by the USFS. The Sunrise FEIS also not adequately analyzed the negative impacts of grazing, particularly in combination with climate change. Please see our survey sheets for evidence of extensive impacts due to grazing.

The USFS's management actions regarding Historic Range of Variability needs to be analyzed for affects across the forest and the landscape. The Forest Service has not analyzed the long-term or large-scale affects of early seral treatments that focus on fuels reduction in the project or cumulatively across watersheds and the landscape. Regional trends for logging prescriptions regarding historic range of variability have not been vetted or analyzed for effects on the human or ecological environments across the landscape. The agency has not provided the site-specific evidence, adequate analysis, or best science needed to support any supposed ecological benefit from the logging proposed in the Sunrise project.

Moist old forest multi strata should not be converted to single strata forests; particularly as the project area clearly supports moist, productive, dense, and multi-strata forests naturally. The cumulative impacts to wildlife, habitat features, and water quality from the conversion of OFMS to OFSS have not been adequately analyzed for the Sunrise project or for the larger forest or landscape areas. Similarly, mature mixed-conifer forests should not be converted to early seral species composition, particularly if there is evidence of important wildlife use and/or historical dominance or co-dominance by later seral species. Logging does not mimic fire in terms of ecosystem function and processes.

It is important that the analysis surrounding the range of historical conditions is includes representations of maximum and minimum event ranges. Managing landscapes in reference to HRV must not artificially narrow the envelope to provide an expectation of constancy that would be exclusive of historic, catastrophic disturbances or significant departures from disturbance regimes.

It has been clearly noted in scientific literature that ecosystem functionality depends on the entire range of disturbance regimes, and ecosystem integrity relies in part on including the entire range of HRV conditions to achieve ecological benefits (Agee 2002, Noss et al. 2006, Hessburg et al. 2015).

Historically, mixed- and high-severity wildfires played a central role in ecosystem development and landscape functioning, albeit at a much longer interval and much larger spatial arrangement than low-severity, high-frequency fires within a given forest stand. Although mixed- and high-severity fires occurred with less frequency forest types of the Interior Columbia River Basin, the patterns and processes created by these non-equilibrium events were crucial components of the landscape ecology of presettlement forests (Shinneman and Baker 1997, Pierce et al. 2004, Baker 2015). The failure to reflect the importance of these events in the HRV model reflects the shortcomings of this model to adequately depict presettlement landscape conditions with the fidelity required to construct and implement management actions that contain a high probability of achieving management goals of restored ecosystem resiliency. The FEIS does not adequately consider the ecological significance of high-severity fires, or adequately analyze the current role played by mixed- and high-severity fires in reference to evolving landscape dynamics accompanying climatic changes.

Failure to include best available science/Failure to consider public and scientific controversy: The Sunrise FEIS consistently failed to use the full range of best available science, and failed to consider considerable scientific and public controversy regarding the assumptions and issues raised in the FEIS. Examples include ecological issues and implications for forest management regarding climate change, fire regimes, benefits of wildfire (including high severity wildfire), benefits of native disturbances such as disease and insects, forest density and stand compositions, risks to species and habitats from wildfire, and other issues.

A recent study from Bradley et al. (2016) challenges USFS assumptions about the fire risk associated with more protected areas—those area that have been less-managed or less-logged, but may still have experienced some degree of fire exclusion (such as Wilderness areas. RHCAs have also, of course, seen much more protection than upland areas). The authors state:

> "There is a widespread view among land managers and others that the protected status of many forestlands in the western United States corresponds with higher fire severity levels due to historical restrictions on logging that contribute to greater amounts of biomass and fuel loading in less intensively managed areas, particularly after decades of fire suppression. This view has led to recent proposals—both administrative and legislative—to reduce or eliminate forest protections and increase some forms of logging based on the belief that restrictions on active management have increased fire severity. We investigated the relationship between protected status and fire severity using the Random Forests algorithm applied to 1500 fires affecting 9.5 million hectares between 1984 and 2014 in pine (Pinus ponderosa, Pinus jeffreyi) and mixed-conifer forests of western United States, accounting for key topographic and climate variables. We found forests with higher levels of protection had lower severity values even though they are generally identified as having the highest overall levels of biomass and fuel loading. Our results suggest a need to reconsider current overly simplistic assumptions about the relationship between forest protection and fire severity in fire management and policy".
>
> "Protected forests burn at lower severities: We found no evidence to support the prevailing forest/fire management hypothesis that higher levels of forest protections are associated with

more severe fires based on the RF and linear mixed-effects modeling approaches. On the contrary, using over three decades of fire severity data from relatively frequent-fire pine and mixed-conifer forests throughout the western United States, we found support for the opposite conclusion—burn severity tended to be higher in areas with lower levels of protection status (more intense management), after accounting for topographic and climatic conditions in all three model runs. Thus, we rejected the prevailing forest management view that areas with higher protection levels burn most severely during wildfires."

Hutto et al. 2016 note, in relation to climate change, that increased efforts towards fuels reduction would be an untenable emphasis:

"Any perceived problem with future changes in fire behavior cannot be solved by redoubling our effort to treat this particular climate change symptom by installing widespread fuel treatments that do nothing to stop the warming trend, and do little to reduce the extent or severity of weather-driven fires (Gedalof et al. 2005). Therefore, fuel management efforts to reduce undesirable effects of wildfires outside the xeric ponderosa pine forest types could be more strategically directed toward creating fire-safe communities....Fuel treatment efforts more distant from human communities may carry the negative ecological consequences we outlined earlier and do little to stop or mitigate the effects of fires that are increasingly weather driven (Rhodes and Baker 2008, Franklin et al. 2014, Moritz et al. 2014, Odion et al. 2014)."

Odion et al. (2014) noted, based on extensive literature review of landscape-scale evidence of historical fire severity patters in Ponderosa pine and mixed conifer forests:

"There is widespread concern that fire exclusion has led to an unprecedented threat of uncharacteristically severe fires in ponderosa pine (Pinus ponderosa Dougl. ex. Laws) and mixed-conifer forests of western North America. These extensive montane forests are considered to be adapted to a low/moderate-severity fire regime that maintained stands of relatively old trees. However, there is increasing recognition from landscape-scale assessments that, prior to any significant effects of fire exclusion, fires and forest structure were more variable in these forests. Biota in these forests are also dependent on the resources made available by higher-severity fire."

"... most forests appear to have been characterized by mixed-severity fire that included ecologically significant amounts of weather-driven, high-severity fire."

"The high-severity fire rotations [...] do not support the hypothesis that low/moderate-severity fire regimes were predominant in the majority of ponderosa pine and mixed-conifer forests of western North America. In all the large, forest landscapes for which data covering at least 70 years exist, high-severity fire rotations ranged from about 217 to 849 years [57], and were mostly 200–500 years. This is generally less than potential tree lifespans. For combined moderate- and high-severity fires in the eastern Cascades, rotations were 115–128 years"

"The majority of the evidence did not support the low/moderate-severity fire hypothesis, but, instead, supported the alternate hypothesis that mixed-severity fire shaped these forest landscapes. This finding applies to Pacific states ponderosa pine, Jeffrey pine, and California mixed-conifer forests, as well as ponderosa pine and mixed-conifer forests in the eastern Cascades, Rockies and southwestern USA, where low/moderate-severity regimes have often been applied."

> "Based on direct observations of fire behavior, high winds (generally 10 m open wind speeds .32–35 kilometers/hr) may subject virtually any conifer forest, regardless of fuel density, to crown fire [108]. Thus, empirical data call into question a major premise of the low/moderate-severity fire regime: that ponderosa pine and mixed-conifer forests may be completely resistant to crown fire. Fire intensity increases with winds, and at winds of .30 km/hr spot fires may be ignited over 1 km ahead of the fire front [109]. The coalescing of separate spot fires with the fire front can further energize wind-driven fire [110,111]. Severe droughts also intensify fires by reducing fuel moisture to extremely low levels, allowing crown fire under less windy conditions [108,112]. Severe drought years throughout much of western North America occurred from 1856 to 1865, 1870 to 1877 and 1890 to 1896 [113]. The extensive high-severity fires of 1910 (the Big Burn in Idaho and Montana), when large areas of drier forests burned at high severity prior to fire exclusion–much of it in ponderosa pine–illustrate how fire behavior that is rare temporally due to extreme climate and weather can dominate in space [1]. Many fire episodes in the charcoal records that exceed modern fires undoubtedly involve combinations of extreme wind, drought, and mass fire."
>
> "The importance of multiple lines of evidence has been stressed in determining whether mixed-severity fire regimes applied historically [122]. Our results illustrate broad evidence of mixed-severity fire regimes in ponderosa pine and mixed-conifer forests of western North America. Prior to settlement and fire exclusion, these forests historically exhibited much greater structural and successional diversity than implied by the low/moderate-severity model"

Pierce and Meyer (2008) examined the size and frequency of fire-related debris flows within alluvial fans in Idaho dating back approximately 2,000 years. They found that evidence of small frequent fires historically coincided with multi-decadal climatic cycles of greater moister or drought, and that larger fires corresponded to drought cycles. Today's high severity fires were found to be within natural range of variability. This is likely to change in many areas as a result climate change; however, it is not at all clear that attempting to log our way out of climate change is an appropriate or helpful solution.

Closed canopy forests may burn less severely than open and early seral forests. Logging in moist mixed-conifer forests and mature forests may dry out forests and increase the risk of wildfire. Slash and debris left on the forest floor after logging can also serve to increase the risk of fire.

Hessberg et al.(2007) found that historically mixed-conifer forests were dominated by dense forests. Many of the mixed conifer forests in the region are closed canopy forests that are highly interwoven complex ecosystems that provide high quality habitat for numerous species such as goshawk, marten, Pileated, Lewis woodpecker, and others. Much peer-reviewed scientific research on mixed-conifer forests has suggested that thinning is likely not needed, effective, nor ecologically beneficial in moist mixed-conifer forest to prevent fire, does not mimic the complex natural fire regime (Noss et al, 2006; Lindenmayer et al. 2009) and threatens to increase fire risk (Lindenmayer et al. 2009). The moist, mixed forest type is fragile and vulnerable to the chronic negative impacts of industrial commercial logging. Mature and old-growth moist mixed conifer stands have dense, moist interiors and little wind, which inhibit the spread of wildfire (Lindenmayer et al. 2009; Morrison and Smith, 2005; Rhodes, 2007). Large fires are climatically driven and fuels reduction treatments can be insignificant to prevent fire spread under these conditions.

Noss et al. 2006 noted:

> "One barrier to better use of ecological science is that individuals involved in developing fire policies and practices have tended to be specialists in fire and fuel management, not ecologists, conservation biologists, or other broadly trained scientists. It is not surprising, therefore, that current forest law does not adequately incorporate ecological considerations in its implementation and tends to promote a narrow definition of restoration that focuses almost exclusively on fuels (DellaSala et al. 2004; Schoennagel et al. 2004)."

Williams and Baker have published several studies suggesting that forests in eastern Oregon were considerably more dense than estimates commonly asserted by agencies (Baker 2012; Williams and Baker 2012; and Baker and Williams 2015). There studies have received criticism by some, such as Fule et al. (2014). However, Williams and Baker (2014) provided in-depth responses to these criticisms and clear rationales and defense of their methods; their response was peer-reviewed and published. Their work should not be discounted; rather, it should be considered part of the ongoing conversation and part of the scientific controversy involved in these discussions. Williams and Baker (2014) note:

> "Government wildland fire policies and restoration programmes in dry western US forests are based on the hypothesis that high- severity fire was rare in historical fire regimes, modern fire severity is unnaturally high and restoration efforts should focus primarily on thinning forests to eliminate high-severity fire. Using General Land Office (GLO) survey data over large dry-forest landscapes, we showed that the proportion of historical forest affected by high-severity fire was not insignificant, fire severity has not increased as a proportion of total fire area and large areas of dense forest were present historically..... In response, Fulé et al. ...suggest that our inferences are unsupported and land management based on our research could be damaging to native ecosystems. Here, we show that the concerns of FE are unfounded. Their criticism comes from misquoting W&B, mistaking W&B's methods, misusing evidence (e.g. from Aldo Leopold) and missing substantial available evidence. We also update corroboration for the extensive historical high-severity fire shown by W&B. We suggest that restoration programmes are misdirected in seeking to reduce all high-severity fire in dry forests, given findings from spatially extensive GLO data and other sources."

The authors respond to each criticism by Fule point by point, and they include the following concluding notes:

> "The best possible historical baseline for dry forests is likely to come from systematically combining all sources. Past studies that supported the past incomplete historical baseline, which suggested that low-severity fire primarily maintained historical dry forests, were often spatially limited, incomplete samples of larger landscapes. Tree-ring methods can reconstruct to fine scales back to the late 1800s, but are difficult to complete across large landscapes (but see Heyerdahl et al., 2001). Palaeoecological reconstructions can provide key temporal evidence, but are also difficult to replicate across large landscapes. GLO data, in contrast, can be used to develop reconstructions across hundred of thousands to millions of hectares. New findings from GLO data have challenged past findings about the nature of the historical baseline in dry forests, but it is the role of science to continually test past findings. Refining the historical baseline should help avoid misuse of evidence, false narratives, and misdirected restoration and provide a sound scientific foundation for predicting the effects of climatic change on wildfire and forests."

Resolution:

- Publish an SEIS that includes: a Purpose and Need that is not artificially narrowly constrained, a

full range of the best available science, and discloses public and scientific controversy.
- Include an adequate direct, indirect, and cumulative effects analyses in an SEIS

The Sunrise FEIS violates the National Forest Management Act (NFMA)/Forest Plan

NFMA requires an agency to "provide for diversity of plant and animal communities based on the suitability and capability of the specific land area." 16 U.S.C.S. § 1604(g)(3)(B). The Forest Service has created regulations to carry out this mandate at 36 CFR 219.9 (2012). Under those regulations, the agency must ensure the ecological integrity of the plan area. 36 CFR 219.9(a) Furthermore, the agency "shall determine whether or not the plan components required by paragraph (a) of this section provide the ecological conditions necessary to: contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern within the plan area. 36 CFFR 219.9(b)(1). The Sunrise FEIS failed to demonstrate that the viability of Management Indicator and Sensitive species (MIS) would be ensured with project implementation. Species of concern for protection of viability included the following Management Indicator species: Pileated woodpeckers, Primary Cavity Excavators (PCEs), American Three-toed woodpecker, American ("Pine") marten, Rocky Mountain elk, Steelhead trout, and Redband trout.

We are also concerned about failure to ensure viability of Sensitive-listed species, species of concern, and other at-risk on the Forest, including: Rocky Mountain tailed frog, North American wolverine, Fringed Myotis bat, Northern goshawk, and Neotropical migratory songbirds (particularly Olive-sided flycatchers). In addition, we are very concerned about species such as Black-backed woodpeckers, Lewis' woodpeckers, Flammulated owls, bat species, and wolves. We are also very concerned about additional Threatened, Endangered, and Sensitive Listed species that may occur within or near the project area, including: Canada lynx, Preble's shrew, Rocky Mountain bighorn sheep, Townsend's big-eared bat, Little brown myotis, Bald eagles, Great grey owls, Green-tailed towhees, Mountain quail. We are particularly concerned about aquatic ESA-listed species in or near the project area such as Snake River Basin (SR) steelhead, Bull trout, Snake River Spring/Summer Chinook salmon, and their designated critical habitats and salmon essential fish habitat. Other ESA-listed Sensitive species may also be affected, including Fir pinwheel, Columbia Gorge Oregonian, Pristine springsnail, Humped coil, Thinlip tightcoil, Shiny tightcoil, Salmon coil, Great basin fritillary, Johnson's hairstreak, Western bumblebee, Tailed frogs, and others. We are also concerned about the native ESA-listed plants are present in the project area, and potential negative impacts to these plants were not adequately analyzed or avoided. They include, as mentioned in the FEIS: "Spalding's catchfly (Silene spaldingii) is federally listed as threatened and documented in the project area. Additionally, there are five sensitive plant species documented in, or adjacent to, the project area. They are Arthur's milkvetch (Astragalus arthurii), green-banded mariposa lily (Calochortus macrocarpus var. maculosus), Rollin's biscuit-root (Lomatium rollinsii), mountain buttercup (Ranunculus populago), and Idaho gooseberry (Ribes oxyacanthoides var. irriguum)." We discuss the Threatened and Sensitive-listed plants in depth earlier in our objection. Closely associated with our concerns about the above species are our concerns about protecting valuable and high quality habitats such as snag and dead wood habitat, connectivity (both terrestrial and aquatic), large core habitat blocks such as undeveloped lands, Inventoried and uninventoried roadless areas, Potential Wilderness Areas, mixed-conifer forests, complex and multi-strata forests, late seral and old growth forests, and soil condition to support ecological integrity.

The USFS acknowledges (FEIS pg. 93) that multiple species present on the Umatilla National Forest require late and old structure habitat. These species include pileated woodpecker, white-headed woodpecker, Lewis' woodpecker, pine marten, northern goshawk, Cooper's hawk, sharp-shinned hawk, flammulated owl, great gray owl, Vaux's swift, Townsend's warbler, Hammond's flycatcher, and others. The FEIS (Table 47, pg. 133) acknowledges that the Sunrise project "may affect" a number of Sensitive-listed mammals and invertebrate species, including Preble's shrew, Rocky Mountain bighorn sheep, Little brown myotis, Northern goshawk, White-headed woodpecker, Lewis' woodpecker, Green-tailed towhee, Mountain quail, Rocky Mountain tailed frog, Fir pinwheel, Columbia Gorge Oregonian, Humped coil, Thinlip tightcoil, and Shiny tightcoil. We object to the Sunrise project moving forward given the potential affects to this large number of Sensitive-listed species. The FEIS found no impact to Canada lynx, despite potential habitat for the lynx occurring in the southern portion of the Asotin Creek watershed, and likely being impacted by project logging, burning, roading or other disturbances. The USFS, throughout the FEIS, inappropriately downplays the widespread and negative impacts to this species through this project and others across the forest and the region. The Forest Service has legal responsibilities to protect the viability of Management Indicator species, but not to move forest structure toward a theoretical Historic Range of Variability (HRV) as an over-riding goal. It's not appropriate or legally justifiable to keep reducing Management Indicator species' suitable habitat (e.g. Pileated woodpecker) in timber sale 'project' after timber sale 'project', even after that species is considered vulnerable by the U.S. Fish and Wildlife Service--which apparently applies now to Pileated woodpecker, American marten, and Three-toed woodpecker, all of whom would have suitable habitat acreage reduced under the Sunrise project. For example, the FEIS acknowledged that "[l]andscape prescribed fire would potentially affect an additional 1,400 acres of three-toed woodpecker habitat." However, the USFS then attempts to downplay negative effects through statements such as these: "[a]ny mortality associated with burning would probably enhance foraging opportunities." The failure to take a genuine hard look at the potential negative effects to these species in the continued and constant effort to justify ecologically damaging logging across the landscape is disingenuous. The FEIS did not include adequate cumulative effects analysis as to all these reductions of suitable habitat across the Forest. It is also not justifiable to plan for continued impacts and cumulative potential loss of species viability for a Management Indicator species based on long-term theoretical re-growth of suitable habitat eventually, as the species' viability may be lost before the habitat can grow back—especially given likely planned similar timber sales in the same area in the future, and the 100+ years suitable habitat would take to re-develop.

The Forest Service can't justifiably keep claiming that unquantified speculative future ecological benefits will necessarily offset immediate impacts to already vulnerable species. The current extensive 'fuel reduction/fire risk reduction' timber sales effectively perpetuate suppression of stand replacement wild fires to the detriment of fire-adapted species and ecosystems. Prescribed fire does not fully mimic or replace stand replacement wildfire effects for species associated with stand replacement burns. Cumulative reduction of post-fire habitat due to many projects and fire suppression efforts across the landscape and in the project area constitute a severe blow to the viability of fire-dependent ecosystems species in the project area. The deminimus argument does not account for the effects of many other timber sales. For species that require post-fire, multi-story, or LOS habitats, the FEIS simply implies that other habitat exists outside of the project area. However, the USFS does no actual analysis or quantification of cumulative impacts or remaining available habitat across the landscape or the project area. What is the change in available habitat for this species compared to historic conditions, as well as for species with similar habitat needs? Any

surplus of habitat theoretically above HRV for species such as Pileated and Three-toed woodpeckers is rapidly diminishing with the greatly increased scale and pace of logging targeting Grand fir and density. Edges of species' ranges are important to preserve for ensuring the species' genetic diversity and adaptation to changing climatic conditions. Pileated woodpeckers are ranked as vulnerable. Pileated woodpeckers need a minimum of 40% canopy closure for foraging and at least 60% canopy closure for nesting, so variable density logging isn't likely to retain active Pileated habitat use. Industrial scale logging will destroy available habitat, as will conversion of historic mature mixed-conifer forests to early seral pine plantations. We have similar concerns about other woodpecker species in the project area.
BMBP objects to the USFS's proposals to log in LOS stands, and to convert OFMS stands to OFSS in the Sunrise project and in other projects across the Umatilla NF and the region. The FEIS claims that the Sunrise project, in its approach to Old Forest stand structure will "[t]hin stands in young and mid-successional stages to accelerate the development of old forest structures and increase patch size". However, removing mature commercial-sized mature trees within LOS stands (OFMS and OFSS) will in fact negatively affect recruitment of old growth trees, and move the stands *away* from old forest structure rather than towards. This is especially problematic given that logging will also simplify or degrade other key components of Late and Old Forests, such as snags and dead and downed wood, as well as degrade soils, simplify structural complexity, and decrease forest floor complexity. Again, such actions will move LOS stands away from late seral conditions, not towards.

Overall, 540 acres of LOS would be lost according to the FEIS (Table 43). Such a loss of LOS would most definitely move LOS stands *away* from late seral conditions (hence, the loss of 540 acres of LOS forest). In addition, 4,572 acres of OFMS would either be lost or converted to OFSS. This is an unacceptable loss of Late and Old Forest, and an unacceptable loss of habitat for species that rely on these forests. Alternative B includes 2130 acres of "regeneration" logging in LOS stands. We hope that the USFS is not seriously attempting to claim that "regeneration" logging (clearcutting, seedtree cutting, etc.) will move LOS stands towards late seral conditions. While this number may have changed due to the USFS dropping units (as described in the ROD), it seems that the USFS is still planning at least 1,000 acres of heavy industrial style logging wihin LOS stands. We strenuously object to "regeneration" logging in LOS stands. The USFS did not adequately avoid or analyze the negative impacts this loss would have on these habitats and species, particularly given the speculative nature of the benefits and scientific controversy regarding logging as "restoration" in these areas.

Rocky Mountain Elk: The Sunrise Project will negatively affect elk, likely causing downward population trends and a decrease in viability for this species. Numerous studies and field observations support elk needing denser forest and using denser forest preferentially. The lone Starky study has been over-emphasized. It is questionable whether maintaining higher levels of marginal cover would 'compensate' for loss of satisfactory cover. Thermal protection from extreme weather conditions may still be important for elk and deer and may not be provided by marginal hiding cover. Satisfactory cover also offers better security screening and isolation from disturbance, to which elk are highly sensitive. The USFS should retain more overall tree density and deer and elk cover—especially by dropping sale units in cool moist and cold dry habitat and in microhabitat patches where greater density would naturally occur, such as at higher elevations, on North to Northeast aspect slopes.

Lumping marginal cover in with satisfactory cover is inappropriate. It does not give an accurate picture of the reality on the ground, and obfuscates the widespread degradation of cover (to the point of being "marginal") that would occur as a result of this project. The FEIS states: "[t]he Forest Plan defines satisfactory cover as a stand of trees at least 40 feet tall and providing 70 percent or more canopy closure. Marginal cover is defined as a stand of trees at least 10 feet tall and providing 40 percent or more canopy closure. Both types should have sufficient understory structure to obscure 90 percent of a standing elk at a distance of 200 feet. There is no forest plan standard for marginal cover; rather it is added to satisfactory cover for the total cover standard."

The Response to Comments section of the Sunrise FEIS included those from the Department of Fish and Wildlife which expressed concerns that "[t]he opening of large areas of forest may affect ungulate and bovine distribution during the summer months, potentially concentrating use into the remaining high crown cover areas, i.e. riparian. Elk may move into these areas to avoid road use and find more nutritious vegetation during the drier months, while cattle may use these areas for thermal relief." The USFS did not adequately consider possible negative impacts to elk from issues such as loss of late-summer forage due to logging, especially at higher elevations. They also did not consider the likely increased use of both cattle and elk into riparian areas following logging in the uplands. Riparian areas, though a spatially small portion of the range allotment, are often utilized at much greater rates that surrounding areas, and experience disproportionate use by cattle during the summer months. How will the increased sharing of these small areas by cattle and elk affect native elk? The USFS also did not adequately consider the loss of connectivity in combination with the increased disturbance (both long and short term) on the landscape. Not only will this project and other nearby projects (such as South George) cause a loss of high-quality wildlife habitat—elk will also have less ability to move through the area to escape these disturbances. The USFS did not sufficiently consider these and other similar issues in their impacts analyses.

Road-related activities proposed in the Sunrise Project will negatively affect elk and other native wildlife in the long-term. "Temporary" roads are not temporary. National Forests, including the Umatilla NF, have a severe problem with the pervasive mess of old "temporary" roads and "road bed disturbances" that exist across the landscape, and these roads continue to negatively impact soils, plant communities, watershed hydrology and water quality, and forest fragmentation for decades after their creation. Even if the USFS closes and decommissions these roads, the "road bed disturbance" usually remains on the landscape for many years. Follow-through with decommissioning is often problematic, and lacks funding-- hence, the pervasive and continued problems with this issue on NFs across the landscape. The effects from "temporary" roads, re-opening of roads, haul routes, and skidding, are inappropriately and disingenuously downplayed in the FEIS. In addition, road closures are often ineffective at excluding the public. Reopening roads and building temporary roads will increase access to these areas. This has repercussions for issues such as public access, woodcutting, loss of snags, fragmentation, and increased opportunity for invasive plant establishment and spread. For example, in the Response to Comments section, the WDFW noted in relation to public access to temporary raods that "[h]istorically, this has been an issue with USFS Vegetation Management projects. The public quickly starts using these roads and have significant impacts to elk distribution. The projects conducted in Upper Charly Creek 5-10 years ago resulted in numerous illegal motorized trails accessing these designated closed roads, resulting in a dramatic decrease of elk use in certain areas." The USFS did not take such projects and their effects on elk into account in their cumulative impacts analyses; such analyses much be included to accurately analyze the Sunrise project's direct, indirect, and cumulative impacts to elk.

Also, as noted in the FEIS (pg. 92) "[v]ulnerability and hunting mortality have been found to be higher in forested stands with greater road densities and less hiding cover (Weber et al. 2000). The Sunrise project area was included in an elk study that showed higher elk mortality (e.g. hunter success) near roads (McCorquodale et al. 2010). Unregulated hunting is also contributing to elk mortality near roads (WDFW letter)." Road-related impacts can and often do negatively impact elk and other native wildlife. The USFS should not continue to assert that such impacts related to roads are short-term and will be gone either at project completion or soon after project completion.

Including the Roadless Area in calculations for cover or quality of habitat obfuscates the negative impacts of high road densities and loss of cover and security on elk. The USFS should conduct their analyses in line with the common-sense reality on the ground, i.e., that elk are already experiencing degraded habitat in areas outside the Roadless areas, and that this project will severely exacerbate that reality. Areas in wildlife and big game management areas should be managed to include high-quality cover in sufficient amounts to meet or exceed standards. The USFS should be managing C3, C3A, and C4 areas for big game and wildlife habitat goals—this management should include not degrading wildlife habitat. Elk cover should be above standards in these areas. Connectivity in these areas should also be prioritized. Additional units in these areas should be dropped to provide for needed elk cover. In their response to comments, the USFS notes that Alternative C is responsive to "the elk issue". However, the agency selected Alternative B-Modified, which will have negative impacts on elk, some of which are potentially long-term and may cause a downward trend for habitat and populations, and loss of viability. We are particularly concerned about herds that are already in decline, such as the Asotin Creek herd, and the further degradation of their habitat as a result of this project. While we are supportive of the additional acres the agency dropped (as detailed in the ROD), we are concerned that Alternative B-Modified does not sufficiently provide for elk cover, and that high-quality elk habitat and connectivity will be degraded or destroyed. For example, the FEIS acknowledges that "[o]utside of roadless, MA-C4 has only 20% elk cover". The USFS should better protect elk cover, as well as elk security and connectivity for elk. Road densities are, in many areas outside of the Roadless areas, are too high to provide for quality elk habitat. These high road densities severely limit the ability for elk to persist or recover. These high road densities combined with other Sunrise project activities such as loss of cover, security, and habitat due to logging and road-related activities that increase human use and access in the area, as well as grazing, will have negative cumulative impacts that were downplayed by the agency and not sufficiently considered or avoided. The possible negative habitat trends associated with this and other projects should not be acceptable to the agency and should not have been proposed—especially in areas designated for big game and wildlife management. If specific herds are already experiencing downward habitat trends, it would seem all the more important for the USFS to avoid negatively impacting their security, cover, and high-quality habitats.

Goshawk and accipiter hawks: As accipiter hawks adapt to denser forest conditions, goshawks do not benefit from mature tree logging. Displacement of nesting goshawks is not just a 'short term adverse effect' but a contribution to a trend toward loss of viability and uplisting for goshawk. The same holds for loss of suitable habitat to logging. The cumulative impacts to goshawks across the Umatilla from many timber sales similar to Sunrise incrementally reducing suitable habitat for goshawks and displacing goshawks are very significant and contribute to a cumulative trend toward loss of goshawk viability, downward population trends, and uplisting.

The USFS's failure to disclose Greenwald et al (2005) and many other scientists' findings that goshawk need denser mature forest habitat and that this should not be logged in order to ensure goshawk viability is conspicuously lacking in this biased presentation of the science regarding goshawk habitat needs. The Sunrise FEIS analysis does not address the full range of best available science for goshawk habitat needs. The effects analysis for watershed conditions reads more like a rant against forest density—apparently no matter what the circumstances—and stand replacement wildfire—regardless of growing evidence that even dry Ponderosa pine-dominant forest types were shaped by periodic stand replacement fire.

The FEIS (pg. 131) states that "[w]ithin cutting units, the primary effect to potential goshawk habitat would be changing stand structure from OFMS to OFSS. Generally canopy cover would be reduced to the point that goshawks would not be drawn to these stands for nesting. Hand thinning and mechanical units with high cover retention would retain large trees for future nesting, but the understory would probably be altered enough that prey habitat would be reduced." The FEIS goes on to state that "Alternative B would reduce canopy cover below 50% on about 1,700 acres of potential goshawk habitat, while Alternative C would do the same on about 700 acres." Yet somehow, despite these effects, the Sunrise FEIS makes the arbitrary and capricious determination that the Sunrise project "would not likely cause a loss of viability of the species or a trend toward federal listing". The FEIS notes that "[a]dditional landscape burning would affect 2,400 acres" and that the Asotin Creek burn could affect an additional 1,500 more acres". The FEIS speculates that the "best habitat in riparian areas would not likely be affected."

Olive-sided flycatcher: The Sunrise FEIS suggests that Olive-sided flycatchers will benefit from logging in the Sunrise project. Forest management, including that on the Umatilla National Forest, is likely having a negative impact on this species. Selective logging has been shown to harm the Olive-sided flycatchers. The study *Is selectively harvested forest an ecological trap for Olive-sided flycatchers?* by the well-published and respected scientists Dr. Robertson and Dr. Hutto, shows a loss of nesting success in thinned forests compared to unthinned forests. The authors stated that: "Human activities that closely mimic the appearance but not the fundamental quality of natural habitats could attract animals to settle whether or not these habitats are suitable for their survival or reproduction." The USFS in their response to comments dismissed these concerns because the study examined private land and so may not have protected snags. However, snag density in the study was no dissimilar to many areas of NF lands, and so should not be dismissed so easily. Even if snags are not targeted for removal in USFS logging projects, it is well documented that thinning corresponds to a loss of snags and dead wood through hazard tree removal, incidental/accidental loss, wood cutting, road and haul placement, etc. The Melvin Butte FEA in the Deschutes National Forest notes that: "[p]opulation trends based on BBS data show highly significant declines with an Oregon statewide decline of 5.1% per year from 1966- 1996 for the olive-sided flycatcher." The Robertson and Hutto study and the precipitous declines in population trends for the Olive-sided flycatcher strongly suggest that the USFS must do a better job in analyzing and avoiding impacts to this species in the Sunrise project and others.

Marten: We strenuously object to the severe and extensive negative impacts the Sunrise project will have on marten and on marten habitat. The Sunrise project proposes to logging that would affect approximately "40 percent of the 6,225 acres of marten habitat (2,464) acres in Alternative B". The FEIS goes on to state that an additional 2,000 acres of marten habitat (outside of the logging units) would be affected by burning. This would total approximately 4,465 acres or ~72% of available

marten habitat. The FEIS states that nearly all marten habitat that is not protected by MA-C1 (Dedicated Old Growth, MA-C5 (Riparian) and Asotin Creek Roadless Area designations would be affected by cutting activity proposed in Alternative B. Within MA-C4, 100 percent of the marten habitat would be affected by tree cutting (1,950 acres). After logging, the little remaining habitat available to marten would occur in much smaller blocks and would lack connectivity. The USFS did not adequately analyze the quantity or quality of marten habitat that would be affected by the Sunrise project. The project fails to protect the viability of marten, and will likely contribute to downward population trends for this species, particularly in combination with other projects.

Roads: The Sunrise project will increase road density and road-related negative ecological impacts across the landscape, including fragmentation, edge effects, illegal activity (poaching, user-created and illegal road use, etc.), fire wood cutting, loss of snags, and other negative affects. How many miles of closed or seasonally open roads need significant repair or clearing? How many are recovering, and are becoming overgrown or experiencing erosion? In addition, "temporary" roads are not temporary. Claiming otherwise is disingenuous and harms USFS credibility and public trust. In addition, this is implicitly acknowledged in roads will be constructed over "previous road templates". "Temporary" roads, if they really are "temporary" should not be present on the landscape after projects are over. If this is the case, then road "templates" should not exist. In reality, everyone who has spent time in the field knows that no road is "temporary" and that these road prisms (if not the roads themselves) persist indefinitely on the landscape, and are repeatedly used by the USFS. These are not "temporary" roads.

We are very concerned about the high road densities, particularly within RHCAs, which may act to artificially channel water and sediments into creeks during logging and road-related activities. See FEIS Table 8 below:

Table 8: RHCA Road Interactions at the subwatershed scale

SWS Name	RHCA (mi^2)	Open Road Miles w/in RHCAs	RHCA Road Density (mi/mi^2)	Road Miles Decommissioned	Stream- Road Intersections (open roads)
Lick Creek	1.2	5.3	4.4	4.4	27
NF Asotin Creek	5.2	3.1	0.6	0.3	20
		8.4		4.7	47

Within the project area, the higher RHCA road densities (Table 9) are the result of geomorphic constraints, with most roads located on ridgetops, rather than steep hillslopes and deep canyon bottoms. Roads selected for decommissioning were mostly located on steep hillslopes or near valley bottoms whe the risk for erosion and sedimentation were the highest.

Table 9: RHCA Road Interactions within the project area

SWS Name	RHCA (mi^2)	Open Road Miles w/in RHCAs	RHCA Road Density (mi/mi^2)	Road Miles Decommissioned	Stream- Road Intersections (open roads)
Lick Creek	0.9	4.6	5.1	4.4	26
NF Asotin Creek	5.2	3.1	2.7	0.3	20
		8.4		4.7	46

Unauthorized ATV use occurs on closed roads and non-system routes in both subwatersheds. In these locations many of the ATV routes are old timber sale skid trails or temporary roads which were never physically decommissioned and are kept open by users and some unauthorized ATV use has localized hydrologic condition and water quality effects (Figure 5, for example).

The FEIS attempts to asserts that drainage patterns would remain unchanged and there would be little or no effect to water yield. However, the FEIS also admits that several miles of temporary road would be built and more roads re-opened. Since it is not clear how many years after project implementation all of these roads would be decommissioned, it is clear that road density will

increase for some undetermined time period by the USFS's own admission. Therefore, it was inaccurate for the USFS to state that rod density would remain the same. Of course, these figures do not include road-related impacts from reopening, or that "temporary" roads are present on the landscape for decades to come.

We are also very concerned that the Sunrise project will help the establishment, spread, and infestation of invasive plants in the project area. There are numerous examples of infested sites listed in the FEIS, yet the USFS claims that there is low risk for problems with invasive plants due to the Sunrise project. The USFS should drop areas that overlap with infestations, and hard-to-reach or remote units that require extensive road re-opening or the rebuilding of temporary roads.

The USFS should drop all commercial-size logging in suitable goshawk habitat, suitable marten habitat, suitable and active Pileated woodpecker habitat, and suitable Blackbacked and American toed woodpecker habitat, with no overstory canopy reduction in these areas. We also ask that the USFS drop the proposed prescribed burning of Pileated source habitat to benefit the viability of both Pileated and goshawks. Don't burn in suitable or active Pileated woodpecker and marten habitat as burning destroys habitat suitability for both species—decayed snags and logs for Pileated, and abundant down wood for marten. Don't burn in moister PAGs or during the spring reproductive season. Don't burn areas designated for Pileated or marten, both of which need abundant down wood and snags. Don't implement prescribed burning in the Spring reproductive season to avoid impacts to the reproductive success of woodpecker species, Neotropical migratory songbirds, and goshawks, as well as to better protect seeding of sensitive plants, protect young mammals in burrows, and retain higher soil moisture levels for the dry season. Drop the proposed prescribed burning in the best Northern goshawk habitat in the Sunrise area, as well as to sensitive-listed Fringed myotis bat roosting habitat, and to already beleaguered (at risk) Redband trout and Columbia Spotted frog, both sensitive-listed species. Undeveloped lands, Inventoried and un-inventoried roadless areas, and Potential Wilderness Areas represent some of the best and last big blocks of intact, high security habitat left for fish species, wide-ranging keystone predators, native ungulates, and other wildlife species, and should be left in a natural state to serve wildlife needs, headwaters protection, and as reference condition landscapes for scientific study, as well as for recreation in a natural setting.

Resolution:

- Drop units that provide high-quality elk habitat and cover, at least as much as proposed under Alternative C. In particular, units in wildlife and big game management areas should be managed for increased cover and connectivity and additional units should be dropped in these areas to provide for needed elk cover.
- The Forest Service should retain more overall tree density and deer and elk cover-especially by dropping sale units in cool moist and cold dry habitat and in microhabitat patches where greater density would naturally occur, such as at higher elevations, and on North to Northeast aspect slopes.
- The USFS should drop all commercial-size logging in wildlife connectivity corridors. Drop high quality suitable habitat for MIS species that are dependent on LOS and late seral habitats such as marten, goshawk, and Three-toed woodpecker habitat from logging and fuel reduction.
- Drop planned "temporary" roads as these often remain on the landscape and increase access for illegal firewood (often large snag) cutting and fur trappers and reduce re-opening of

closed roads. Road density should be reduced to at least the Forest Plan standards and objectives for elk.

- Please see our survey sheet priority drop sale units for for MIS, sensitive, or special-status species, plus Forest Service mapping of any additional known suitable habitat for these species in commercial logging sale units.

Aquatics: Potential violations of the Clean Water Act, Forest Plan Standards for water quality, and the Endangered Species Act

We are very concerned about heavy logging across the project area and the effects on hydrology, particularly in areas with proposed logging on steep slopes. Leaving a few sparse trees on a steep hillside is very likely to introduce erosion and sedimentation into streams and increase peak flows, resulting in bank instability, changes in channel morphology, decreases in dissolved oxygen levels, and further elevation of temperatures in the creek.

No temperature increases should be allowed in impaired streams. While the USFS states that there are no 303d listed streams in the project area, it is clear from Table 12 in the Hydrology Resource Report (pg. 19) that NF Asotin Creek in particular is suffering from high stream temperatures that exceed state standards. Has the USFS turned in these data to the Washington State Department of Ecology in order for the department to assess possible 303d listing for the creeks in the project area, including the NF of Asotin Creek? George Creek is currently listed for temperature violations, and will be affected by logging, burning, and road-related activities in the Sunrise project. The South George ROD stated that the George Creek watershed hasn't been logged for some time. The Forest Service states that there have been "nearly 30 years since a major entry into this project planning area". It is telling that George Creek, which contains important anadromous rearing habitat downstream, is still struggling with impaired water quality. Thirty years is enough for the creek to begin the recovery process; it should not be pushed further into impaired status in violation of standards. Additionally, small tributaries are not adequately protected, and contribute significantly to the overall condition and water quality throughout the watershed and in larger creeks.

Due to likely negative affects associated with logging, associated road-related activities, and grazing on water quality, we are extremely worried that the Sunrise project, alone and in combination with other USFS projects and activities, is likely to cause negative impacts and loss of viability to aquatic ESA-listed species in or near the project area such as Snake River Basin (SR) steelhead, Bull trout, Snake River Spring/Summer Chinook salmon, and their designated critical habitats and salmon essential fish habitat. Agency determinations of "Not Likely to Adversely Affect" ESA-listed salmonids and their habitat are arbitrary and capricious, and lack adequate direct, indirect, and cumulative impacts analyses.

The USFS Hydrology Report (pg. 34) states that "Alternative B would not adversely affect water temperature because harvest, thinning and burning would not measurably remove the shade component along any stream channel. Because there would be no change to shade, there would be no adverse effect to beneficial uses and no effect on the 303(d) listing status of streams. In addition, no adverse changes to channel condition from silvicultural treatments are predicted because water yield and peak flow will not be affected (see Cumulative Effects), therefore, morphological channel changes which could affect stream temperature would not occur."

However, additional factors contribute to temperature increases besides the removal of shade. For example, Lewis (1998) in the study *Evaluating the Impacts of Logging Activities on Erosion and Suspended Sediment Transport in the Caspar Creek Watersheds* included the following explanation and diagram illustrating mechanisms by which sediment transport is affected, and how increased sedimentation may in turn increase stream temperatures.

Pg. 55-56: "If stream channels cannot transport all the sediment delivered from hillslopes, they will aggrade, resulting in increased risks for overbank flooding and bank erosion. It was this sort of risk, threatening a redwood grove containing the world's tallest tree, that motivated the expansion of Redwood National Park in 1978 (U.S. Department of Interior 1981). **Accelerated delivery of sediment to streams can result in the filling of pools (Lisle and Hilton 1992), and channel widening and shallowing. Hence, fish rearing habitat may be lost, and stream temperatures often increase.**" (emphasis added)

Figure 1 displays some of the mechanisms linking harvest activities with instream sediment transport. It is impossible to show all the potential interactions in only two dimensions, but the figure does hint at the complexity of controls on sediment movement. Timber harvest activities can accelerate erosion primarily through felling, yarding, skidding, building and using roads and landings, and burning.

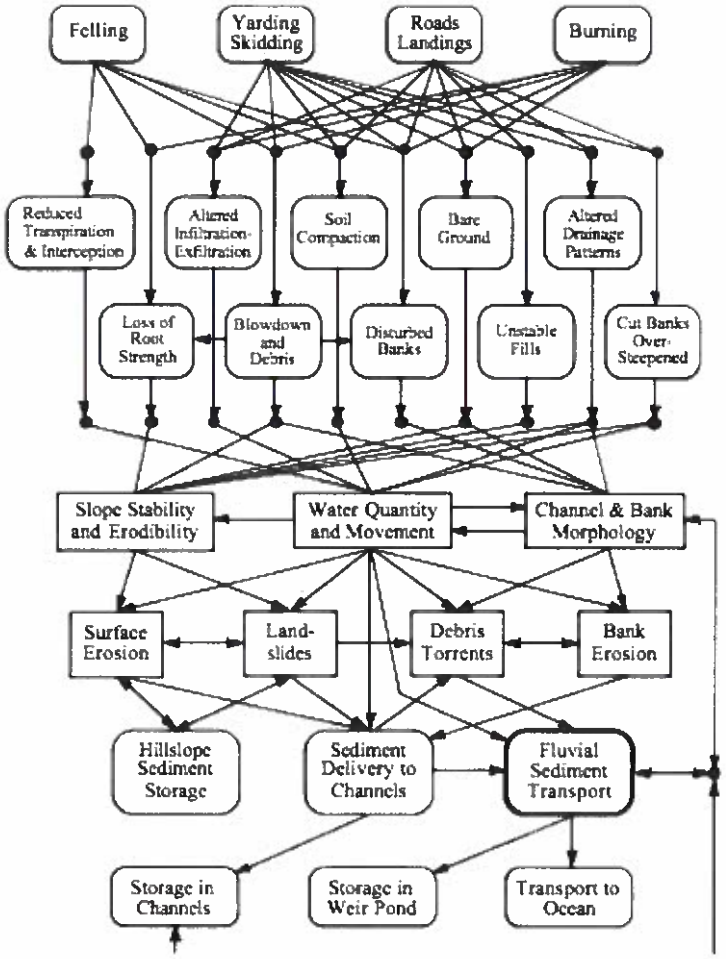

Figure 1—Conceptual diagram showing the major pathways through which logging activities influence fluvial sediment transport.

The FEIS did not sufficiently analyze the cumulative impacts of cattle in combination with the Sunrise project with regard to water quality, the Clean Water Act, and aquatic Forest Plan Standards. For example, the Response to Comments section of the Sunrise FEIS included those from the Department of Fish and Wildlife noting that "The Forest Service should consider that additional monitoring may be appropriate to detect negative vegetation effects from ungulates and bovines for the first 10-15 years post-harvest. The opening of large areas of forest may affect ungulate and bovine distribution during the summer months, potentially concentrating use into the remaining high crown cover areas, i.e. riparian. Elk may move into these areas to avoid road use and find more nutritious vegetation during the drier months, while cattle may use these areas for thermal relief." This has been our experience on the ground as well, over many years of field surveying timber sales (before and after implementation) in National Forests. The USFS needs to consider and avoid the negative impacts to RHCAs with regard to cumulative impacts in timber sales.

We are very concerned about likely increased stream temperatures and fine sediment delivery to streams due to logging, roading, and other management activities proposed in the Sunrise project.

The FEIS acknowledges some of the cumulative impacts from other projects that are also within the Sunrise project area. For example, the FEIS states that "[t]he Asotin Prescribed Burn would occur on about 7,943 acres within the Sunrise Project area. Under the modeled wildfire scenario, there would be an additional 0.09 tons/acre from the Lick Creek subwatershed and 0.11 tons/acre from the North Fork Asotin subwatershed (see Soils Report)." However, the USFS fails to conduct an adequate cumulative impacts analysis that includes other nearby and adjacent projects.

Peak flows seem likely to be affected by the Sunrise project. Modeling as described in the FEIS was confusing. For example, the FEIS included this table, showing cumulative ECAs of 23.1% and 22% for the NF Asotin and Lick Creeks. This is above the 20% threshold the USFS describes. The Hydrology report notes that "[t]he combined effects of past actions, current actions and actions proposed under this alternative would result in ECA percentage increases ***that exceed the 15% threshold identified in the NMFS biological opinion. ECA for would also exceed the 20% level at which effects to water yield, peakflows, or timing of peakflows, have been reported in various studies (see Existing Condition)***" (emphases added). Yet, the USFS then goes on to shift model assumptions to suit their needs: "[b]ecause the instantaneous ECA for Alternative B exceeded the 20% threshold, the model was run using a 7 year harvest scenario (Johnny Collin, timber management administrator, personal communication) and assuming that 2,300 acres would be burned annually for 7 years. Timber sale contracts are valid for up to ten years, although vegetation treatments would probably begin in 2018 and continue for seven years. A prescribed burning schedule is more difficult to predict because it depends on the availability of an appropriate burn window to achieve objectives. Figure 8 shows how ECA would change over a ten year time frame under this scenario, with ECA remaining below the 20% threshold value for cumulative effects to water yield." The USFS is manipulating the models to suit their needs, and to downplay the risks to the watershed.

In addition, even the ECA modeling scenarios that the USFS re-ran in order to get below the 20% threshold are still above the 15% threshold required for consultation. We are extremely worried about the effects to ESA-listed fish due to degraded water quality as a result of this project. We do not feel the NEPA effects analyses for ESA-listed fish species was adequate. We are also very worried that the heavy industrial logging and logging on steep slopes will negatively impact both water quality and steep slopes.

Table 17. Modelling results used to evaluate sediment and water yield

Alternative:	A	B	C
Sediment Modeling (WEPP Road)	***Haul Road Sediment, tons***		
NF Asotin Creek	0.7	2.4	1.3
Lick Creek	0.8	0.9	0.9
Equivalent Clearcut Area	***Cumulative ECA***		
NF Asotin Creek	5.7%	23.1%	17.0%
Lick Creek	3.2%	22.0%	22.0%
ECA – Roads only			
NF Asotin Creek	0.6%	0.1%	0.1%
Lick Creek	1.0%	0%	0%
ECA - Veg Treatments only			
NF Asotin Creek	0.9%	12.6%	5.8%
Lick Creek	2.2%	11.9%	11.9%
ECA - Sunrise Prescribed Fire only			
NF Asotin Creek	---	4.7%	5.4%
Lick Creek	---	3.5%	3.5%
ECA - Asotin Prescribed Fire only			
NF Asotin Creek	4.2%	4.2%	4.2%
Lick Creek	3.4%	3.4%	3.4%

Climate change

The Forest Service is failing to use the full range of best available science in claiming that more carbon is released by wild fire than by logging. We see a lot of inaccurate use of the science re: judging fire regime and wildfire 'risk' by silvicultural assessment of the tree density and multiple canopy layers alone, when most fires are primarily weather-driven, not fuel driven. Further there is scientific controversy over historic tree densities and wildfire severities and occurrence intervals, which is not being disclosed and analyzed in the FEIS.

The Forest Service is willfully ignoring all the science saying that it is imperative to leave mature forest standing and protect carbon storage. It is ridiculous to claim the Sunrise's project contributions do not fall into any of these main contributors of climate change. Surely all the extensive logging, including clearcutting, and biomass (carbon) removal proposed falls under 'Forestry'. This backpedaling is completely lacking in professional integrity and scientific accuracy. We're asking the Forest Service to avoid the large-scale deforestation and conversion of forest carbon storage to short-lived wood projects with the Sunrise sale. There would be an irretrievable loss of forest carbon storage through short-lived wood products conversion, irretrievably contributing to faster, more catastrophic climate change. Clearcutting, in particular, is clearly recognized as contributing extensively to GHG emissions.

The Sunrise FEIS dismissed the project's contribution to climate change, despite many such Forest Service projects contributing unquantified carbon dioxide emissions to the atmosphere and removing unquantified high levels of carbon-sequestering biomass from the landscape, including mature live trees, snags, and down wood. The Forest Service failure to assess the carbon budgets of projects represents inadequate cumulative effects analysis under NEPA. The Forest Service's casual dismissal of the most catastrophic global crisis of our time also reflects purposeful avoidance of

their responsibility as a government agency to plan to reduce carbon emissions from their projects and to maintain greater levels of carbon-storing trees, snags, and logs across the landscape.

The Forest Service consideration of climate change in the Sunrise FEIS also reflects failure to use the full range of best available science. There is evidence that climate change is spiraling out of control past the most extreme scenarios of past modeling has great scientific consensus. There is also overwhelming scientific consensus that the problem is human-caused and that carbon dioxide and other greenhouse gas emissions need to be drastically reduced, and that carbon sinks, such as forests, need to be not only maintained, but increased in their carbon storage. So we ask the Forest Service to start seriously considering our suggestions for changes in their planning, including in the Sunrise project, to reduce carbon dioxide emissions and to maintain and increase mature and large tree structure for carbon storage, rather than removing it through heavy logging.

Climate change has come about from the cumulative, combined effects of many uses of fossil fuels and many timber sales removing the forest's intrinsic carbon sequestration to varying degrees. Many of these sources of emissions and removals of carbon storage were likely smaller than the Sunrise project, but still contributed to the global climate crisis we face today. Thus using the deminimus argument that Sunrise only makes a 'negligible' contribution to overall emissions is failure on the part of the Forest Service to take its fair share of responsibility for slowing and lessening climate change. At the local and regional scales, the Sunrise project's contribution is significant and needs to be reduced. 'Negligible' contributions to climate change certainly add up to the biggest global crisis of our time and federal agencies certainly should take responsibility for their actions, reduce their Greenhouse gas emissions, stop their drive to reduce mature forest cover (which adds up to net deforestation) and set a model of behavior for all those individual people out there trying to reduce their much smaller contributions. This is very inadequate analysis of the Sunrise's project's contribution climate change, leading to no action to address and reduce Sunrise's project emissions and deforestation.

At the very least, the Forest Service should drop all industrial-style logging practices such as "regeneration" (clearcutting), and significantly scale back the Sunrise project's heavy equipment use, mature/commercial sized tree removal through logging, and other biomass removal to reduce Carbon dioxide emissions and removal of carbon-sequestering biomass through Sunrise project implementation. This would move the Sunrise project toward doing ecologically sound restoration without accompanying activities with unnecessarily high CO2 emissions and excessive carbon storage removal through biomass extraction, both of which exacerbate climate change.

Thank you for considering our objections to the FEIS and ROD for the Sunrise Project.

Sincerely,

Paula Elizabeth Hood

Paula Hood, Co-Director
Blue Mountains Biodiversity Project,
League of Wilderness Defenders

CITATIONS

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