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Comments: [External Email]Black Diamond Project comments

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Dear Forest Service,

Please use the attached letter as the comments of Rocky Smith et al.

The previous version I sent had some minor errors and omitted one

endorser. I apologize for the screw-up.

Please acknowledge receipt of this version of our comments.

Rocky Smith

Dennis Kuhnel, Canyon Lakes District Ranger

2150 Centre Avenue, Building E

Fort Collins, Colorado 80526

Via e-mail: comments-rm-arapaho-roosevelt-canyon-lakes@usda.gov

April 3, 2023

Dear Mr. Kuhnel,

The following are the comments of the undersigned on the Black Diamond Project, as described in the Preliminary Environmental Assessment (PEA) and various specialist reports. We previously submitted a scoping

comment letter for this project, dated September 23, 2022. It is hereby incorporated by reference in its entirety.

I. INTRODUCTION

We appreciate the improvements in design of the project made since scoping. In particular, many of the design features (PEA Appendix B) are good; if fully implemented, they would reduce the impacts of the project.

We still believe, however, that the most effective treatment to reduce the risk of fire is to treat in the home ignition zone, the area extending about 30 meters around each home. Restoration and resilience treatments are only warranted in the lower elevation areas dominated or formerly dominated by ponderosa pine, generally below about 7200 feet elevation, where human fire suppression and other factors have likely caused stands to become denser than they were historically. Treatment in the project area should generally be limited to these two types of areas. Given the project's scale, size, duration, and impacts, including those to species listed under the Endangered Species Act and designated critical habitat, an Environmental Impact Statement must be prepared for this proposed project. See 40 C.F.R. Part 1502. The Forest Service must comply with its pre-2020 Forest Service NEPA regulations, which remain in effect.

II. COMMENTS ON PROPOSED TREATMENT METHODS

Thinning. Thinning low elevation ponderosa pine stands may be beneficial if it helps restore the natural structure of lower elevation stands (generally below about 7200 feet - see Sherriff and Veblen, 2006) that are or were dominated by ponderosa pine. Thinned stands must retain the natural clumpy structure found in ponderosa pine. This is essential for species like Abert's squirrel.

However, thinning may promote regeneration, leading to a dense stands of young ponderosa pine. This would increase ladder fuels and recreate the condition now proposed to be addressed in the Black Diamond Project. These regenerated stands would have to be thinned to maintain the more open structure characteristic of these stands. If the Forest Service wishes to keep fuel levels and vegetation structure within the historical range of variability, it is committing itself to future treatment of these stands.

Thinning also increases easily ignitable fine fuels. In the dry environment after thinning, with more sunlight hitting the forest floor, these fuels will decay slowly. These fuels could carry a ground fire into unthinned areas, where it might crown, resulting in the type of fire the project is designed to reduce.

PODs. The project would designate potential operational delineations, or PODs, which would serve as fire control lines or areas. EA at 10. Though a variety of treatments might be done along POD boundaries, presumably the treatments there would be fairly intensive in order to "strategically bolster [the PODs] efficacy as control features". Ibid.

PODs would be 300-1000 feet wide. EA at 18. This is a very wide swath, much larger than needed to serve as fire control lines or areas, or as staging areas for firefighters. Treating in these wide PODs throughout the project area, including some of the more remote parts, would fragment habitat and spread invasive and noxious weeds.

PODs of some width, but much less than proposed, might make sense in areas near infrastructure, as in the lower elevations of the proposed project area. However, PODs would be designated throughout the project area, even in subalpine areas. See Attachment 9 to the Wildlife Report. There are even two PODs proposed in the middle of the Green Ridge West Roadless Area.

PODs should only be designated in areas most in need of treatment - near homes and other infrastructure, and maybe in the lower montane zone where restoration of dense stands will be attempted. And the PODs should be much smaller, perhaps 100 feet maximum.

Prescribed fire. The undersigned like the idea of reintroducing fire to those lower elevation areas where it was fairly frequent (fire return interval 70 years or less) and was the primary influence on stand structure and composition. Fire should be set only in areas where it would be low intensity, i. e., it would burn ground vegetation and small trees, and maybe scorch larger trees but not kill them. However, a design feature would allow fires to kill up to 30 percent of the dominant and co-dominant trees (or "main canopy") in areas that had not previously received any kind of fuels treatment. Design Feature Wildlife 13 c, PEA at B-15. Once a fire gets into the tree canopy, it will be impossible to control. Fires should not be ignited if they are likely to crown out, i. e., get into the crowns of dominant and co-dominant trees.

Subalpine areas would be manipulated to receive natural fire. EA at 30. Design Feature 13 b (PEA at B-14-15) would allow ignitions in Englemann spruce-subalpine fir and in lodgepole pine areas above 9000 feet elevation. Subalpine areas burn very infrequently, so there is no need to prepare them for fire. Fires should not be deliberately ignited in subalpine areas.

Pile burning can damage soils. Long, hot fires in large piles or those composed of larger (greater than three inches in diameter) material will kill all microorganisms and volatilize soil nutrients. The burned areas, which might

not have native vegetation for awhile, are ideal locations for the introduction and spread of invasive and noxious weeds.

Piles should be kept small, no more than five feet high, and composed of small-diameter material, i. e., no more than three inches in diameter. Design Feature HSWF 4 f would require an examination to determine if restorative measures were needed. It suggests actions that could be taken to mitigate the impacts of pile burns. This design feature is good and should be retained and fully implemented; however, it is better to keep piles small (in number, coverage, and material size) to minimize the risk of soil damage and weed infestation, as well as the need for mitigation.

Piling ponderosa pine may invite breeding of *Ips pini*, a bark beetle which could attack and kill or topkill remaining large ponderosa pine trees. See Silviculture and Vegetation Report (Silvi Report) at 47. If piles are not immediately burned, they and the surrounding live trees should be monitored at least twice per year for ips beetles. If any are found, control measures should be considered.

Ecological engineering. As described below, a few proposed actions would amount to ecological engineering, i. e., changing tree species in some areas. Generally, this should not be attempted. It is impossible to predict what future conditions will be and how such actions might affect the landscape. It would be ironic if this was attempted because part of the purpose of the project is to address a shift in forest conditions away from the range of historic variability. EA at 4. Rather than attempt to engineer the landscape to possibly adapt to a warming climate, the project should concentrate on reducing fuels in areas nearest homes and infrastructure and restore the stand structure of lower elevation ecosystems.

The PEA states that planting may alter species composition to: "promot[e] resistance to drought, improv[e] the composition of fire-resistant species, or to improve heterogeneity". EA at 31, A-16. This could allow introduction of species in areas where they have not been found historically. This could cause a ripple effect throughout the portion of the landscape where such planting was done, as it could effect wildlife, botany, microorganisms, etc.

The project may implement more frequent fires in areas that historically had mixed severity fires. Id. at 33. This would also have an unknown effect on soils, microorganisms. Wildlife, botany, etc. Again, the focus should be on restoring fire to areas where it was historically frequent but has been excluded.

III. PROTECT WILDLIFE HABITAT

The Forest Service needs to ensure that the proposed action is consistent with the Guidance for Federal Departments and Agencies on Ecological Connectivity and Wildlife Corridors that was issued by the Council on Environmental Quality on March 21, 2023.

It is important to maintain habitat effectiveness (HE) for wildlife, i. e., areas where there is minimal intrusion from motor vehicle use of roads and trails. Note that five of the eight geographic areas have HE values below 50 percent, and all of them have reduced HE under the 2020 update compared with the analysis done for the 1997 Forest Plan. Biological Evaluation and Wildlife Report (BE) at 57. Under the Forest Plan, activities should not reduce HE values below 50 percent, and there should be no further reduction of HE values in those GAs where it already under 50 percent. Plan Guideline 109. Proposed activities may have to be reduced or redesigned in some areas to comply with this guideline.

Design Feature Wildlife 15 c (PEA at B-16) would allow adjustment of unit boundaries and canopy cover retention requirements to maintain effective habitat. This is good as far as it goes, but some whole units may need to be dropped from the project to meet the intent of the Plan guideline cited above and ensure habitat remains, or has a chance to become, effective.

See further discussion of HE in our 2022 comments at p. 19.

Outside of the four roadless areas, the project area is pretty heavily roaded, BE at 57; Wildlife 2: Attachments to the Terrestrial Wildlife Report, Existing Transportation Map. Hopefully, the project could be implemented with no, or only minimal, new road construction, even for temporary roads. While the NEPA documents acknowledges that temporary road construction will occur, there is no estimate of road mileage or location for where these may be created. As a result, there is insufficient information to understand and effectively comment as to the impacts from these activities and to ensure that these impacts are minimized and mitigated. Any roads that are constructed must be obliterated. Existing roads that are not needed for other purposes should also be closed and rehabilitated after work in the respective area has been completed. We are pleased to see Design Feature HSWF 5, which would require the following:

All temporary roads, landings, crossings and detrimentally impacted portions of skid trails shall be restored/obliterated within one year of completion of use.

PEA at B-8.

Retaining snags is critically important for wildlife, as we discussed in our 2022 comments at 20. The BE states that:

Substantial numbers of large snags would be removed in mechanical clearcut, overstory removal, and salvage or thinning treatments along POD boundaries.

Id. at 59. Removing snags near infrastructure may be necessary or desirable for safety and fuel reduction. However, snags should otherwise be retained in sufficient numbers and be well distributed to meet the needs of cavity-nesting and perching wildlife.

The requirements for snag retention in Design Feature Wildlife 14 c (PEA at B-15) are good. However, another Design Feature would only protect large snags (12 inches or more in diameter) outside of mechanically treated areas. Wildlife 4, PEA at B-12. Large snags should be retained in all areas outside the areas closest to homes.

ESA Legal Framework

Congress enacted the Endangered Species Act ("ESA") in 1973 to provide "a program for the conservation of . . . endangered species and threatened species." 16 U.S.C. [sect] 1531(b). Section 2(c) of the ESA establishes that it is the policy of Congress that all federal agencies shall seek to conserve threatened and endangered species, and shall utilize their authorities in furtherance of the purposes of this Act. 16 U.S.C. [sect] 1531(c)(1). The ESA defines "conservation" to mean "the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary." 16 U.S.C. [sect] 1532(3). Section 4 of the ESA directs the Secretary of the Interior to list species that are threatened or endangered with extinction, and to designate "critical habitat" for such species. 16 U.S.C. [sect] 1533(a). "Critical habitat" is the area that contains the physical or biological features essential to the "conservation" of the species and which may require special protection or management considerations. 16 U.S.C. [sect] 1532(5)(A). Section 4 of the ESA also requires the Secretary to develop and implement recovery plans for threatened and endangered species, unless the Secretary finds that such a plan will not promote the conservation of the species. 16 U.S.C. [sect] 1533(f). The ESA defines "endangered species" as "any species which is in danger of extinction throughout all or a significant portion of its range." 16 U.S.C. [sect] 1532(6). The ESA defines "threatened species" as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." 16 U.S.C. [sect] 1532(20). The ESA requires the action agency, in consultation with FWS to "insure that any action authorized, funded, or carried out by" the agency "is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification" of the critical habitat of such species. 16 U.S.C. [sect] 1536(a)(2). FWS and the action agency must use the best scientific data available during consultation. Id.

For each proposed action, the action agency must request from FWS whether any

listed or proposed species may be present in the area of the proposed agency action. 16 U.S.C. [sect]

1536(c)(1); 50 C.F.R. [sect] 402.12. If listed or proposed species may be present, the action agency

must prepare a "biological assessment" to determine whether the listed species is likely to be

adversely affected by the proposed action. Id. If the action agency determines that a proposed action may affect any listed species or critical habitat, the agency must engage in formal consultation with FWS, unless the biological assessment concludes that the action is not likely to adversely affect any listed species or critical habitat, and FWS concurs with that finding. 50 C.F.R. [sect] 402.14. To complete formal consultation, FWS must provide the action agency with a

"biological opinion," explaining how the proposed action will affect the listed species or habitat.

16 U.S.C. [sect] 1536(b); 50 C.F.R. [sect] 402.14. If FWS concludes that the proposed action "will jeopardize the continued existence" of a listed species or result in the destruction or adverse modification of critical habitat, the biological opinion must outline "reasonable and prudent alternatives." 16 U.S.C. [sect] 1536(b)(3)(A). If the biological opinion concludes that the action is not likely to jeopardize the continued existence of a listed species, and is not likely to result in the destruction or adverse modification of critical habitat, FWS must provide an "incidental take statement," specifying the amount or extent of incidental taking on such listed species and any "reasonable and prudent measures" that FWS considers necessary or appropriate to minimize such impact, and setting forth the "terms and conditions" that must be complied with by the action agency to implement those measures. 16 U.S.C. [sect] 1536(b)(4); 50 C.F.R. [sect] 402.14(i). In order to monitor the impacts of incidental take, the action agency must monitor and report the impact of its action on the listed species to FWS as specified in the incidental take statement. 16 U.S.C. [sect] 1536(b)(4); 50 C.F.R. [sect][sect] 402.14(i)(1)(iv), 402.14(i)(3). If during the course of the action, the amount or extent of incidental taking is exceeded, the action agency must reinitiate consultation with FWS immediately. 50 C.F.R. [sect] 402.14(i)(4).

Section 9 of the ESA and its implementing regulations prohibit the unauthorized "take" of listed species. 16 U.S.C. [sect] 1538(a)(1); 16 U.S.C. [sect] 1533(d); 50 C.F.R. [sect] 17.31. "Take" is defined broadly to include harming, harassing, trapping, capturing, wounding, or killing a protected species either directly or by degrading its habitat. 16 U.S.C. [sect] 1532(19); 50 C.F.R. [sect] 17.3 (defining harm to include "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering"). Taking that is in compliance with the terms and conditions specified in the incidental take statement of a biological opinion is not considered a prohibited taking under Section 9 of the ESA. 16 U.S.C. [sect] 1536(o)(2).

Here, the Fish & Wildlife Service and the Forest Service risk violating Section 7(a)(1) and (a)(2) of the ESA, for, among other things, by failing to ensure that the proposed project would conserve listed endangered and threatened species and their critical habitats, and implements meaningful and effective mitigation. Because the Forest Service's BA found that two listed species, Preble's meadow jumping mouse and Canada lynx are likely to be adversely affected, and Preble's meadow jumping mouse designated critical habitat is also likely to be adversely affected, the Forest Service must engage in formal consultation and fully meet the requirements of Section 7(a)(2) prior to the proposal being approved. These findings in the BA also underscores the significant impacts from the proposed project, and thus, the necessity of conducting an EIS.

Lynx. The Cameron Peak Fire burned much of the area surrounding the project area. It likely converted most of the lynx habitat in the fire perimeter to unsuitable habitat. BE at 62. Thus it is critical to conserve the lynx habitat in the project area.

However, considerable treatment could occur in lynx habitat:

For the Redfeather North LAU, approximately 11,886 acres of currently suitable lynx habitat (primary and secondary) are located within treatment areas, of which up to 332 acres may be clearcut, 2,419 acres may have salvage or thinning, 6,426 acres may have mechanical thinning and/or Rx burning, and 1,178 acres may have manual thinning & or burning, manual thinning, or broadcast burning. [hellip]

For the Redfeather South LAU, approximately 7,335 acres of currently suitable lynx habitat (primary and secondary) are located within potential treatment areas, of which up to 118 acres may be clearcut, 1,077 acres may have salvage or thinning, 2,573 acres may have mechanical thinning and/or Rx burning, and 2,782 acres may have manual thinning & or burning, manual thinning, or broadcast burning.

BE at 63-64. In addition, 1540 and 783 acres, respectively of non-commercial thinning could occur in these LAUs. Ibid. This is thinning of regeneration, which would reduce the dense horizontal cover needed by lynx' favorite prey, snowshoe hare, as would any other thinning in suitable lynx habitat. Dense young stands in lynx habitat should not be thinned until the lower parts of the tree crowns are out of reach of snowshoe hare over average snowpack, i. e., when the stand is no longer lynx foraging habitat.

As discussed above, there is no need to cut in the subalpine zone, where most of the lynx habitat is. But areas within the four roadless areas in the project area have suitable habitat for lynx and are proposed for treatment. See further discussion below under Protect Roadless Areas.

Design Feature Wildlife 14 e on PEA B-15 would require protection of advanced regeneration in suitable lynx habitat. This is good, but it must be recognized that any mechanical treatment is likely to kill a substantial percentage of small trees. See Alexander, 1987, who stated that "any kind of cutting is likely to destroy at least half of the advanced growth." Id. at 44. Burning similarly would be likely to kill small trees, probably most or all of them in any stand that was burned. Reduction of dense horizontal cover provided by the young trees would reduce the quality of lynx habitat.

The BE determines that the project may affect lynx and is likely to adversely affect this species. Id at 67. As stated above, conservation of lynx habitat is very important because so much habitat was lost in the Cameron Peak Fire. There is no need to treat in the subalpine zone or in lynx habitat. The project should be redesigned to

stay completely out of suitable lynx habitat.

Marten. Marten (*Martes Americana*) has habitat requirements similar to those for lynx in that it needs late successional forest cover with abundant coarse woody debris. The down dead component is especially important for marten, as it is used to forage under snow. See BE at 76.

Staying out of spruce-fir stands, as is advocated throughout these comments for a variety of reasons, would help protect marten habitat. If any treatment is done in these stands, down dead logs, especially the larger ones, must be retained.

Prebles meadow jumping mouse (PMJM) (*Zapus hudsonius preblei*). This species, listed as threatened under the Endangered Species Act, is found only in Colorado's Front Range and in southern Wyoming. The species exists along many streams in the project area, which includes some critical habitat units. BE at 68. Almost all the areas where the species is likely to be found have potential treatment opportunity units. Ibid. Therefore, treatments must be carefully designed not to adversely modify or destroy PMJM habitat or reduce populations of this species. The Forest Service should err on the side of caution to ensure protection of habitat and populations, i.e., if treating an area could possibly adversely affect the species, it should not be implemented. All critical habitat units must especially be avoided.

PMJM has an estimated active period from May 1 to October 31. BE at 68. However, one of the design features, Wildlife 2, would allow activity beginning October 1. PEA at B-12.

Design Feature Wildlife 2 would also allow treatments until April 30. It would be better to prohibit burning and all other ground disturbances in potential PMJM habitat to no later than about March 20. This would allow vegetation in treated areas to recover in time for the species to use these areas that season.

GOSHAWK (*Accipiter gentilis*). This species needs mature forest habitat with large trees and snags. These areas should generally not be treated, as is argued throughout these comments.

It is known to nest in the project area, with four nest territories detected. BE at 88. A design feature, Wildlife 16 a 3, p. B-16, would require no treatment in areas at least 30 acres around nest sites. However, Reynolds et al,

1992, recommended that a larger area, 180 acres to include replacement nests, be protected. See our scoping comments at p. 21 for additional discussion on goshawk.

Areas surrounding abandoned nests should not be treated, unless the nesting habitat therein has been destroyed. Goshawks are known to have very high nest fidelity, as they will reuse nests for many years and reoccupy old nests.

Any treatment in and near goshawk habitat should be limited to minor thinning from below, and if safe, low-intensity fire. Treatment should be done outside the nesting season, i. e, roughly from mid-September to mid-February.

Boreal owl (*Aegolious funereus*). This is another species that depends on late successional forest. It favors high elevation forests, generally above 9000 feet. BE at 93. It has been detected in the project area, and proposed treatments would damage its habitat. Ibid. Notably, much of the boreal owl habitat outside the proposed treatment units has been cut 25-50 years ago and is still not good habitat for this species. Id. at 94.

It is thus important to conserve the remaining habitat for this species. As stated before, treatment should not be done in the high elevations of the project area outside the home ignition zone.

Big game. The project area has 11 elk calving areas, covering approximately one-third of the project area. BE at 103. A design feature, Wildlife 12 d, PEA at B-13-14, would recommend restrictions on activities for elk calving only from May 15-June 15. This restriction should: apply to deer fawning areas, be mandatory in and near any elk calving and deer fawning areas, and run from about May 1 to June 20.

The restriction on activities in deer and elk winter range, proposed for December 1- March 30 (Wildlife 12 e, B-14), may need to be extended to at least April 15 in years with heavy snow and/or cold, snowy spring weather.

Other species of possible concern include Abert's squirrel and flammulated owl. See our scoping comments at 20-21.

IV. CONSERVE EXISTING AND DEVELOPING OLD GROWTH

Old growth is very important for wildlife, watershed integrity and storing carbon and must be retained. See our previous comments on old growth at pp. 16-17 of our scoping comments.

Accordingly, we are pleased to see the following:

Treatments in old-growth lodgepole pine or spruce-fir are not needed to maintain old-growth structure and would generally degrade old-growth habitat quality.

Design Feature Wildlife 15 at PEA p. 15. However, this same design feature would allow "[f]uels or fire risk reduction treatments cutting along POD boundaries" in these forest types. Ibid. Such cutting could degrade and/or destroy old growth and fragment habitat for numerous wildlife species. It should not be allowed.

15 b, p. B-16 would allow cutting of lodgepole pine old growth if it was "non-functional". How is "non-functional" determined? There is no explanation of how this would be determined or defined. Regardless, a stand either is or is not old growth, or is developing into old growth. Lodgepole pine old growth should not be treated and there should not be any open-ended caveats such as "non-functional" that could be used for permitting cutting of lodgepole pine old growth.

Lower elevation ponderosa pine stands that are denser than they were historically may benefit from treatment. Reduction in density via thinning from below and low-intensity prescribed fire could restore the open, clumpy structure of this eco-type. This would reduce the chances that these stands are replaced via an unnaturally high-intensity fire and would allow these stands to maintain existing old growth character or develop into old growth.

The Forest Service must provide an inventory of both mature and old growth areas within the project area in order to ensure consistency with President Biden's Executive Order (14072): Strengthening the Nation's Forests, Communities, and Local Economies, issued April 22, 2022. The order acknowledges the importance of both mature and old growth forests as a natural climate-crisis solution, and "calls on the Secretaries of Agriculture and the Interior, within one year, to define, identify, and complete an inventory of old-growth and mature forests on Federal lands, accounting for regional and ecological variations, as appropriate, and making the inventory publicly available." Executive Order No.14072.

The importance of both mature and old-growth forests for helping address the climate and biodiversity crises

cannot be overstated. As they mature, forests sequester and accumulate massive amounts of atmospheric carbon stored mainly in large trees and soils making an invaluable contribution to climate-smart management and international climate commitments. See Stephenson et al., 2014; Mildrexler et al., 2020. Other studies demonstrate that unmanaged forests can be highly effective at capturing and storing carbon. See Luyssaert et al., 2008. Further, mature and old-growth forests have received increased global attention in climate fora (IUCN 2021) and in the scientific community as natural climate solutions. See Moomaw et al., 2019. Notably, Article 5.1 of the Paris Climate Agreement calls on governments to protect and enhance "carbon sinks and reservoirs." Article 38 of the UNFCCC COP26 Glasgow Climate Pact emphasizes "the importance of protecting, conserving and restoring nature and ecosystems, including forests[hellip] to achieve the long-term global goal of the Convention by acting as sinks and reservoirs of greenhouse gases and protecting biodiversity." The U.S. was also one of 140 nations at the COP26 that pledged to end forest degradation and deforestation by 2030. Logging mature forests is a form of forest degradation, as it removes or reduces important forest structural features, such as carbon storage.

Several studies demonstrate that maintaining forests rather than cutting them down can help reduce the impacts of climate change. "Stakeholders and policy makers need to recognize that the way to maximize carbon storage and sequestration is to grow intact forest ecosystems where possible." Moomaw, et al., 2019. Another report concludes:

Allowing forests to reach their biological potential for growth and sequestration, maintaining large trees (Lutz et al 2018), reforesting recently cut lands, and afforestation of suitable areas will remove additional CO₂ from the atmosphere. Global vegetation stores of carbon are 50% of their potential including western forests because of harvest activities (Erb et al 2017). Clearly, western forests could do more to address climate change through carbon sequestration if allowed to grow longer.

Hudiburg et al., 2019 (emphasis added). Further, a June 2020 paper from leading experts on forest carbon storage reported:

There is absolutely no evidence that thinning forests increases biomass stored (Zhou et al. 2013). It takes decades to centuries for carbon to accumulate in forest vegetation and soils (Sun et al. 2004, Hudiburg et al. 2009, Schlesinger 2018), and it takes decades to centuries for dead wood to decompose. We must preserve medium to high biomass (carbon-dense) forest not only because of their carbon potential but also because they have the greatest biodiversity of forest species.

Law, et al., 2020 (emphasis added). Further, to address the climate crisis, agencies cannot rely on the re-growth of cleared forests to make up for the carbon removed when mature forests are logged. One prominent researcher explains: "It takes at least 100 to 350+ years to restore carbon in forests degraded by logging. If we are to prevent the most serious consequences of climate change, we need to keep carbon in the forests because we don't have time to regain it once the forest is logged." Id. (citations omitted).

Clearly the role of mature and old-growth forests to store carbon and serve as a natural climate-crisis solution must be part of any detailed project-level analysis. Forest soils are a major factor in the ability to provide such an essential ecosystem service. In addition, mature and old-growth forest soils have extremely well-developed networks of mycorrhizal fungi that should also be included in any characterization of mature and old-growth forests. Notably, mycorrhizae attached to plant roots, provide nutrient and chemical pathways within and among plants that increase uptake of water and nutrients. Simard et al., 2013. "All forest trees form mycorrhizas involving thousands of fungal species (Molina et al., 1992)." Id. Mycorrhizae form meta-networks with connections strongest for trees within the same cohort (clustering of large trees) and same species (particularly the progeny of older trees). Id. See also Simard, 2009; Simard, et al., 2012; Simard, 2018; Simard, et al., 2021. Further, "[m]ycorrhizal fungi can link the roots of different plant hosts, forming mycorrhizal networks (Molina and Horton 2015)." Simard, 2018, emphasis added. These networks link trees of same and different species of varying age classes, but older trees serve as hubs facilitating the transfer of water, carbon, nutrients and compounds that act in a similar fashion as neurotransmitters enabling chemical communication. Id. When hub trees in the cohort are cut down, the entire cohort can be impaired by breaking the meta-network linkages. See Simard et al., 2013. Identifying and preserving these hub trees is essential for the functionality of mature and old growth forests.

V. PROTECT ROADLESS AREAS

In our scoping comments, we detailed the values of the four Colorado Roadless Areas (CRAs) and the risk to resources if they were entered. See those comments at 13-14. Our concerns still stand. The total footprint of the proposed action is estimated to be 15,801 acres. EA at 35.

Control lines created with saws could be 50-100 feet wide. EA at 38, Roadless Report at 3. This would destroy, at least in the short term, the undisturbed soil and other roadless values.

In the upper tier portion of the North Lone Pine CRA, logs up to eight inches in diameter could be piled in preparation for prescribed burning. EA at 37. Up to 7006 acres could be burned in the upper tier portion of the CRA.

Piling of surface fuels generally less than 8 inches in diameter, in preparation for prescribed fire to reduce the risk to forest and soil resources that may otherwise result from excessive surface fuel loading within or adjacent to a planned prescribed burn unit.

Roadless Report at 2. In Cherokee Park and the non-upper tier portion of North Lone Pine, "[t]hinning, piling, and rearrangement of fuels [would] be completed by manual methods". Roadless Report at 3. This implies that

mechanical equipment (bulldozers) could be used for piling in the other CRAs.

Burning piles with material as large as eight inches in diameter, especially large piles created by machines, could result in a hot fire of long duration that would damage soils and reduce or delay the re-establishment of native vegetation. Non-native plants, i. e., weeds, could become established and/or existing populations could spread. This piling and burning would be allowed in the non-upper tier portion of North Lone Pine and the other CRAs as well. Ibid. Implementing such practices would not retain roadless area characteristics, as the areas so treated would look disturbed.

Mechanical equipment could even be used for thinning and fuel rearrangement in Cherokee Park and North Lone Pine Areas. EA at 38. Though no temporary roads would be constructed (ibid.), the use of mechanical equipment creates paths that are essentially roads, ruining the roadless characteristics and creating the appearance of a road that could be used by recreationists after work under the project is complete.

The Cherokee Park CRA needs minimal, if any, treatment. The elevation ranges from 8400 to 9700 feet and is thus less departed from historical conditions than lower elevation areas. The Roadless Report describes the issue well:

As described, proposed broadcast prescribed burning, and associated small tree cutting where allowable to facilitate burning, may be consistent with maintaining or improving habitat structure in the minor portion of this RA at the lowest elevations that may have mixed Douglas-fir, ponderosa, and lodgepole pine. In most of the RA where lodgepole pine and mixed spruce-fir-lodgepole is dominant, burning could cause undesired tree mortality and reduce habitat quality for mature forest species, such as goshawk, marten, and boreal owl. It may also impact suitable lynx habitat through undesired canopy and understory tree mortality. Variable levels of beetle-caused tree mortality in lodgepole pine and Engelmann spruce are present and additional canopy mortality from broadcast burning could further reduce habitat quality for these species and would likely reduce dense horizontal cover in lynx habitat. Because lodgepole pine, Engelmann spruce, and subalpine fir are thin-barked species easily killed by fire, prescribed burning could result in undesired understory and overstory tree mortality and reduction in habitat quality.

Id. at 7-8.

The Roadless Report continues:

The design criteria precluding active lighting in subalpine lodgepole pine and spruce-fir forest types presumably would prevent much active burning and potential tree mortality in about half of the RA that has these forest conditions and suitable lynx habitat.

Ibid. However, the design feature mentioned is contradictory. It seems intended to prohibit active ignitions in the higher elevation habitat but allows exceptions. See Wildlife-13 b, PEA Appendix B at 14-15.

Two rare plant species exist in this CRA, including one of the largest populations of Larimer aletes (*Aletes humilis*) (Roadless Report at 13), which is found only in the northern Front Range of Colorado and in southern Wyoming. Strong design features must be required to protect these plants, i. e., keep all ground disturbing activities and piling away from existing populations and areas where those populations could expand. See further discussion in section IX below. Disturbances from the proposed project could also negatively affected the species via the introduction of noxious weeds.

The portion of the Green Ridge East CRA proposed for treatment is at 9600 to 10,300 feet elevation (Roadless Report at 8), which is mostly well above the area that is moderately or more departed from historical conditions. The "small tree thinning and piling and burning of thinning slash and existing surface fuels" proposed here would "reduce habitat quality for mature forest species, such as goshawk, marten, and boreal owl" by removing low tree cover and down dead wood, and even cause some overstory mortality. It would also reduce the dense horizontal cover needed by snowshoe hare, the favorite prey of lynx. Roadless Report at 8-9.

This entire area is suitable lynx habitat and also provides habitat for several sensitive species needing mature forest habitat. Proposed treatment would degrade habitat for these species and provide very little or no protection from wildfire. Ibid. It must not be treated.

The portion of the Green Ridge West CRA proposed for treatment ranges in elevation from 8400 to 10,400 feet. Most of this area is suitable lynx habitat, and like Green Ridge West, it has habitat for several sensitive species that need mature forest habitat. The effects of treatment would be the same as for Green Ridge East, and the GR West CRA must also be left alone.

The North Lone Pine CRA is at elevations between 6500 and 8000 feet, said to be "almost entirely in the lower montane zone". Roadless Report at 10. However, the upper part of this CRA is in the area that is likely more influenced by mixed severity fire than frequent, low intensity fire. See Sherriff and Veblen, 2006, who found that the ecosystems in areas with elevations above approximately 2200 meters (7216 feet) were primarily shaped by a mixed severity fire regime. Thus intensive treatment to restore ecosystem structure and composition characteristic of an area with a frequent, low intensity fire regime should only occur in the lower 700 feet or so of this CRA. Above this elevation, especially on north- and east-facing slopes, treatment, if any, should be lighter (less intensive thinning, less frequent burning). Denser tree stands and higher fuel loading should be accepted.

There is habitat, including designated critical habitat, for Preble's meadow jumping mouse in this CRA. Roadless

Report at 10. This habitat must be protected. See further discussion in Wildlife section above.

The Lone Pine Research Natural Area is within the Lone Pine CRA. There are "several rare plant occurrences" within this area. Roadless Report at 3. These plant species must be protected. It would be very easy to burn areas containing these species unless burns are carefully designed to avoid these areas. There must be design features that will detail how these plant populations will be protected, including from the introduction of noxious and/or invasive weeds. The proposed design features only require surveying and that "[a]ctions taken for protection will be commensurate with the potential impact." PEA at B-2. We recommend a buffer of at least 100 feet, which should allow the populations to expand in addition to protecting the existing plants. See further discussion in section IX below.

The Cherokee Park and Green Ridge East and West CRAs have habitat for sensitive species that require mature forested habitat, including marten, goshawk, boreal owl, and olive-sided flycatcher. The proposed treatment would reduce the quality of habitat for these species. Roadless Report at 10-12. These areas should not be treated.

Map 9 in PEA Appendix C shows two PODs in the Green Ridge West Roadless Area. According to fuels design features, snags could be felled along POD boundaries, and coarse woody debris could be removed in an area at least 50 feet from the POB boundaries. See PEA at B-3.

Several watersheds rated as functioning at risk are in the CRAs. Roadless Report at 4-5. Long, hot burns could exacerbate these conditions. The two watersheds in the Green Ridge West CRA "have been impacted by significant post fire erosion" from the Cameron Peak Fire. *Id.* at 4. This CRA "is only accessible from two roads that have severe hydrologic impacts due to Cameron Peak Suppression repair and inadequate infrastructure/placement". *Ibid.* Treatment in this CRA is thus not advised at this time, for this and other reasons, which are discussed above. See further discussion on watersheds in section VII below.

Any roads used for access to CRAs that are not needed for private land access must be completely obliterated after work is completed in order to maintain roadless area characteristics. Treatment would reduce the density of trees in some areas, removing barriers to off-road motor vehicle and mountain bike use, as the Roadless Report observes:

Unmanaged uses may proliferate throughout the treatment areas with the implementation of projects. When density of trees is reduced, roadside and trailside barriers are reduced and visual sight lines increase, which may all work to expand unintentional access across the project area. More unauthorized/unwanted user created trails could be created.

Id. at 16. More off-route use would be damaging to numerous roadless area characteristics.

Currently roads near the Cherokee Park CRA "do not directly connect to this area". Roadless Report at 15. It needs to be kept this way. The other three CRAs have easier access and unauthorized uses, including creation and maintenance of trails for OHVs, mountain biking and horse use. Id. at 15-16. Applying proposed design criterion Recreation 6 (PEA at B-12-12) would be a good start at reducing impacts. It should be strengthened by focusing law enforcement patrols in areas where recent treatment may have made off-route access easier. Of course, the best measure would be to design the project to minimize creation of opportunities for off-route use.

In short, there could be considerable adverse impact to CRAs under the project. The impacts from pile burns may not be short term, as soils could be damaged, and invasive plants could become established or spread. At a minimum, the proposed treatments would damage the roadless area characteristics of undisturbed, soil, air, and water; diversity of plant and animal communities; and habitat for threatened, endangered, and sensitive species.

To avoid this, no treatment in roadless areas should be authorized under the project, except the lower elevation of the Lone Pine CRA. The Green Ridge East CRA should not be treated at least until the surrounding area which burned in the Cameron Peak fire recovers.

VI. PROTECT WILD AND SCENIC RIVERS. Under the Wild and Scenic Rivers Act and the Forest Plan, areas found eligible for designation as a wild, scenic, or recreational river must be protected. See our 2022 comments at 15.

Design Feature WSR-1 FEA at B-17, would allow cutting in Management Area 1.5, Designated and Eligible Wild Rivers for fuels mitigation, as long as the trees were disposed on site. Doing the latter might require piling and burning, which would degrade the wild river environment. This design feature should be deleted.

VII. PROTECT WATERSHEDS. The design features of hydrology, soils, fisheries, and watersheds are generally quite good. We appreciate the commitment to analyze the potential for cumulative impacts when watersheds with known stream health concerns could reach 20 percent equivalent clearcut area, or 25 percent for watershed with no such concerns. PEA at B-4.

However, we do not see any measures to specifically address connected disturbed area (CDA). This should be a concern with the well-roaded condition of the project area. Management measure 11.1, design criterion 1a in the agency's Watershed Conservation Practices Handbook, FSH 2509.25, specifically requires that expansion of CDA be limited to no more than 10 percent in each third-order watershed.

It is good that all new temporary roads used for the project "shall be restored/obliterated within one year of completion of use". HSWF 5 at B-8. However, some watersheds could already have high CDA. Using a temporary road, even for a relatively short time like a year, could exacerbate stream health conditions by moving more sediment into streams.

The effects of the Cameron Perak Fire must be considered in designing the treatment units in the Black Diamond Project, as treatment is proposed in watersheds affected by the fire. Most of the fire occurred downstream of the project area (Water Resources Analysis (WRA) at 13), so effects from the fire will not appear in the project area. However, poorly designed or implemented treatments could exacerbate downstream conditions by adding sediment. One of the watersheds was rated impaired even before the fire. As the WRA notes, "deteriorated conditions downstream make it critical that efforts are made to minimize any further impacts[during project implementation]". Id. at 17.

Two watersheds at least partially in the project area, Black Hollow- Cache La Poudre and Roaring Creek, were affected by the fire and are already over the threshold values for equivalent clearcut area. WRA at 24. Treatment should not occur in these watersheds. The Gordon Creek watershed is very close to the threshold ECA (id. at 23, 24) and should also not be treated.

Four watersheds upstream of the project area burned in the Cameron Peak Fire, and thus "increased sediment from post-fire runoff may have moved and may continue to be moving into streams in the project area". Id. at 17. It will obviously be very important to design treatments not to increase any poor watershed conditions.

VIII. REDUCE RECREATION IMPACTS

The proposed treatments would increase opportunities for off-route motor vehicle use, as trees and other vegetation that now prevents or discourages such off-route travel would be removed via logging or fire. The Forest Service must prohibit motor vehicle use in areas potentially available for off-route use due to project implementation. Design Feature 6, PEA at B-11-12, is good.

IX. FIGHT NOXIOUS WEEDS AND PROTECT RARE PLANTS

The project area has many acres of invasive and/or noxious weeds. As the Roadless Report observes:

There are known non-native invasive plant infestations throughout the entire project area, including all 4 roadless areas.

Id. at 7. Burning and other proposed activities create or improve a good, if not ideal, environment for the introduction and spread of non-native, invasive plant species.

Design features for weeds (see PEA at B-9) should be strengthened to require eradication, to the maximum extent practicable, of any weed populations in the project area near treatment locations, i. e., where any fire, road construction, maintenance, reconstruction, or prescribed fire may be implemented. It is especially important to eliminate, to the greatest degree reasonably possible, cheatgrass (*Bromus tectorum*), as this species is well adapted to fire and will increase its coverage after burns.

It is good that "[a]ll weed infestations within implementation units [would] be monitored for at least three years post implementation". PEA Design Feature Weeds-2, *ibid.* However, this feature should specifically require eradication of any weeds found, similar to those encountered at the beginning of the project.

As discussed in sections above, the project area has some rare plant populations. Design Feature Botany-2 does not require a buffer around rare plant populations, only that "[a]ctions taken for protection will be commensurate with the potential impact". PEA at B-2. As discussed above, it is very important to protect the rare plant communities in the Lone Pine Research Natural Area. Buffers are needed to ensure that prescribed fire and other ground-disturbing activities do not reach areas with rare plant populations.

X. THE PROJECT SHOULD INCLUDE IN ITS PURPOSE AND NEED SECTION A NEED FOR A "SUSTAINABLE" ROAD SYSTEM.

The Forest Service aims to "improve/maintain forest/landscape health and resilience," by implementing the Black Diamond project. One important aspect of this aim is to implement a sustainable road system.

Though required by its own regulation, the Forest Service here fails to include the need to identify and achieve a minimum road system needed for safe and efficient travel and for the protection, management, and use of National Forest system lands. See 36 C.F.R. [sect]212.5(b)(1)). An agency has a duty to comply with its own rules, unless it provides a rational explanation for departing from those rules. See *Chrysler Corp. v. Brown*, 441 U.S. 281, 295 (1979). There is no acknowledgement or rational explanation in the PEA for not complying with Subpart A of the Roads Rule. The express language of the rule is clear: "the responsible official must identify the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands." 36 C.F.R. [sect] 212.5(b)(1) (emphasis in original). Further, "[i]n determining the minimum road system, the responsible official must incorporate a science-based roads analysis." *Id.* (emphasis added). Finally, the agency's own regulations define that minimum road system as "the road system determined to be needed" to, inter alia, reflect long-term funding expectations and ensure minimization of adverse environmental impacts. *Id.*

The PEA fails to acknowledge the Travel Management Rule and does not incorporate a Travel Analysis Report (TAR) for the Arapaho-Roosevelt National Forest. A TAR was not included as one of the Specialist Analysis Report provided to the public for this proposed action. We ask whether the project team used travel analysis to refine the proposed action, and note this is only one component of meeting the obligation of the Travel Management Rule. After more than 20 years since the Forest Service promulgated its 2001 Roads Rule, see 66 Fed. Reg. 3217 (Jan. 12, 2001), it is unreasonable for the Forest Service to continue delaying identification of the minimum road system. The Arapaho and Roosevelt National Forests must comply with directive memoranda from the Forest Service's Washington Office directing forests to identify the minimum road system for precisely this type of project. See, e.g., Memorandum from Leslie Weldon to Regional Foresters et al. on Travel Management, Implementation of 36 CFR, Part 212, Subpart A (Mar. 29, 2012) ("The next step in identification of the [minimum road system] is to use the travel analysis report to develop proposed actions to identify the [minimum road system].") This should be reflected in the Purpose and Need for this project.

XI. AN ENVIRONMENTAL IMPACT STATEMENT NEEDS TO BE PREPARED FOR THE PROJECT. Black Diamond would be a large project, covering up to 120,455 acres. PEA Table 1 at 16. The project is likely to adversely affect Preble's meadow jumping mouse and its designated critical habitat as well as adversely affect Canada lynx. PEA Table 8. The project would likely be implemented over several years, meaning the impacts would be spread out over time as well as over the landscape. The Forest Service "is unsure of the potential for significant impacts of the proposed action". PEA at E-10. There is thus a possibility that impacts could be significant, and an EIS must be prepared.

The PEA provides more information than scoping documents did about where treatments might be implemented. Still, the PEA and supporting documents fail to disclose exactly what treatments would be done where. It is particularly concerning that there is no estimate of how many miles of new temporary roads would be needed, nor where they might be located. Without this information a determination of no significance can surely not be made given the size, scale, and impacts, including impacts to ESA listed species and designated critical habitat.

The PEA's failure to properly disclose information about temporary roads (location, size, etc.) makes it difficult to describe and analyze the possible impacts from implementing the project, as the WRA notes:

Due to the nature of condition-based analyses, it is challenging to predict exactly where and when each treatment will occur in future years. Challenges in awarding timber or fuel reduction contracts, variability in burn windows for prescribed fire, and adaptations needed for changing conditions on the ground are all examples of the challenges that may lead to some level of uncertainty in predicting outward.

WRA at 22. This has also prevented the public review that NEPA requires.

Even the POD locations, where much of the proposed treatment would occur, are not set and may change:

POD boundary work under the current proposal is not tied to specific locations. The locations currently designated for POD boundary treatments are based on current information and are not set and thus open to modification as conditions change and/or as a result of proposals during the implementation phase of the project.

PEA at E-5.

Location of treatments is important, as impacts can vary based on local soils, plants, tree species and structure, wildlife and habitat, etc., resources that vary by location. In order to accurately describe impacts, the NEPA document needs to provide more detailed information about what treatments would be done in what locations, and where roads would be needed to access and implement treatments.

See additional discussion on project NEPA compliance below.

XII. THE PRELIMINARY EA VIOLATES NEPA BY FAILING TO DISCLOSE THE PROJECT'S SITE-SPECIFIC IMPACTS.

A. NEPA Requires Agencies to Take a Hard Look at Site-Specific Impacts.

The PEA purports to be a project-level analysis. Although it contemplates additional NEPA analysis, it does not require it once analysis of the project is complete. Thus, any NEPA document prepared for this project must include the detailed information and analysis that NEPA and the Council on Environmental Quality (CEQ) regulations require for this large, landscape-scale analysis.

In enacting NEPA, Congress recognized the "profound impact" of human activities, including "resource exploitation," on the environment and declared a national policy "to create and maintain conditions under which man and nature can exist in productive harmony." 42 U.S.C. [sect] 4331(a). The statute has two fundamental goals: "(1) to ensure that the agency will have detailed information on significant environmental impacts when it makes decisions; and (2) to guarantee that this information will be available to a larger audience." *Env'tl. Prot. Info. Ctr. v. Blackwell*, 389 F. Supp. 2d 1174, 1184 (N.D. Cal. 2004) (quoting *Neighbors of Cuddy Mt. v. Alexander*, 303 F.3d 1059, 1063 (9th Cir. 2002)); see also *Earth Island Inst. v. United States Forest Serv.*, 351 F.3d 1291, 1300 (9th Cir. 2003) ("NEPA requires that a federal agency 'consider every significant aspect of the environmental impact of a proposed action ... [and] inform the public that it has indeed considered environmental concerns in its decision-making process.'"). "NEPA promotes its sweeping commitment to 'prevent or eliminate damage to the environment and biosphere' by focusing Government and public attention on the environmental effects of proposed agency action." *Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 371 (1989) (quoting 42 U.S.C. [sect] 4321). Stated more directly, NEPA's "'action-forcing' procedures . . . require the [Forest Service] to take a 'hard look' at environmental consequences" before the agency approves an action. *Metcalf v. Daley*, 214 F.3d 1135, 1141 (9th Cir. 2000) (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348 (1989)). "By so focusing agency attention, NEPA ensures that the agency will not act on incomplete information, only to regret its decision after it is too late to correct." *Marsh*, 490 U.S. at 371 (citation omitted). To ensure that the agency has taken the required "hard look," courts hold that the agency must utilize "public comment and the best available scientific information." *Biodiversity Cons. Alliance v. Jiron*, 762 F.3d 1036, 1086 (10th Cir. 2014) (internal citation omitted).

At the project level, as compared to a programmatic decision, the required level of analysis is stringent. See, e.g., *Friends of Yosemite Valley v. Norton*, 348 F.3d 789, 800-01 (9th Cir. 2003). At the implementation stage, the NEPA review must be more tailored and detailed because the Forest Service is addressing individual site-specific projects. Indeed, federal courts have faulted the Forest Service for failing to provide site-specific information in a landscape level analysis:

This information does not allow the public to determine where the range for moose is located, whether the areas open to snowmobile use will affect that range, or whether the Forest Service considered alternatives that would avoid adverse impacts on moose and other big game wildlife. In other words, the EIS does not provide the information necessary to determine how specific land should be allocated to protect particular habitat important to the moose and other big game wildlife. Because the Forest Service did not make the relevant information available . . . the public was limited to two-dimensional advocacy[mdash]interested persons could argue only for the allocation of more or less land for snowmobile use, but not for the protection of particular areas. As a result, the Forest Service effectively stymied the public's ability to challenge agency action.

WildEarth Guardians v. Montana Snowmobile Ass'n, 790 F.3d 920, 927 (9th Cir. 2015).

When the Forest Service fails to conduct that site-specific analysis, the agency "does not allow the public to 'play a role in both the decision-making process and the implementation of that decision.'" Id. at 928 (quoting Methow Valley Citizens Council, 490 U.S. at 349). Although the agency has the discretion to define the scope of its actions, such discretion does not allow the agency to determine the specificity required by NEPA. NEPA's procedural safeguards are designed to guarantee that the public receives accurate site-specific information regarding the impacts of an agency's project-level decision before the agency approves the decision.

Analyzing and disclosing site-specific impacts is critical because where (and when and how) activities occur on a landscape strongly determines the nature of that impact. As the Tenth Circuit Court of Appeals has explained, the actual "location of development greatly influences the likelihood and extent of habitat preservation. Disturbances on the same total surface area may produce wildly different impacts on plants and wildlife depending on the amount of contiguous habitat between them." New Mexico ex rel. Richardson, 565 F.3d at 706. The Court used the example of "building a dirt road along the edge of an ecosystem" and "building a four-lane highway straight down the middle" to explain how those activities may have similar types of impacts, but the extent of those impacts - in particular on habitat disturbance - is different. Id. at 707. Indeed, "location, not merely total surface disturbance, affects habitat fragmentation," and therefore location data is critical to the site-specific analysis NEPA requires. Id. Merely disclosing the existence of particular geographic or biological features is inadequate[mdash]agencies must discuss their importance and substantiate their findings as to the impacts.

Courts considering condition-based management have come to a similar conclusion. For example, the U.S. District Court for the District of Alaska in 2019 issued a preliminary injunction in the case Southeast Alaska Conservation Council v. U.S. Forest Service, halting implementation of the Tongass National Forest's Prince of Wales Landscape Level Analysis Project. See 413 F. Supp. 3d 973 (D. Ak. 2019). The court did so because the Forest Service's condition-based management approach, which failed to disclose the site-specific impacts of that logging proposal, raised serious questions about whether that approach violated the National Environmental Policy Act (NEPA).

The district court explained the approach the Forest Service took in the Prince of Wales EIS:

each alternative considered in the EIS describe[d] the conditions being targeted for treatments and what conditions cannot be exceeded in an area, or place[d] limits on the intensity of specific activities such as timber harvest. But the EIS provides that site-specific locations and methods will be determined during implementation based on defined conditions in the alternative selected in the . . . ROD . . . in conjunction with the . . . Implementation Plan The Forest Service has termed this approach condition-based analysis.

See id. at 976-77 (internal citations and quotations omitted).

The Prince of Wales EIS made assumptions "in order to consider the 'maximum effects' of the Project." *Id.* at 977. It also identified larger areas within which smaller areas of logging would later be identified, and approved the construction of 164 miles of road, but "did not identify the specific sites where the harvest or road construction would occur." *Id.*

The district court evaluating the Prince of Wales project found the Forest Service's approach was equivalent to the deficient analysis set aside in *City of Tenakee Springs v. Block*, 778 F.2d 1402 (9th Cir. 1995).

Plaintiffs argue that the Project EIS is similarly deficient and that by engaging in condition-based analysis, the Forest Service impermissibly limited the specificity of its environmental review. The EIS identified which areas within the roughly 1.8-million-acre project area could potentially be harvested over the Project's 15-year period, but expressly left site-specific determinations for the future. For example, the selected alternative allows 23,269 acres of old-growth harvest, but does not specify where this will be located within the 48,140 acres of old growth identified as suitable for harvest in the project area. Similar to the EIS found inadequate in *City of Tenakee Springs*, the EIS here does not include a determination of when and where the 23,269 acres of old-growth harvest will occur. As a result, the EIS also does not provide specific information about the amount and location of actual road construction under each alternative, stating instead that "[t]he total road miles needed will be determined by the specific harvest units offered and the needed transportation network."

Id. at 982 (citations omitted).

The district court concluded that plaintiffs in the case raised "serious questions" about whether the Prince of Wales EIS condition-based management approach violated NEPA because "the Project EIS does not identify individual harvest units; by only identifying broad areas within which harvest may occur, it does not fully explain to the public how or where actual timber activities will affect localized habitats." *Id.* at 983, 984.

On March 11, 2020, the Alaska district court issued its merits opinion on the Prince of Wales Project, reaffirming its September 2019 preliminary injunction decision and holding that the Forest Service's condition-based management approach violated NEPA. *Southeast Alaska Conservation Council v. United States Forest Serv.*, 443 F. Supp. 3d 995 (D. Ak. 2020). The court explained that "NEPA requires that environmental analysis be specific enough to ensure informed decision-making and meaningful public participation. The Project EIS's omission of the actual location of proposed timber harvest and road construction within the Project Area falls short of that mandate." *Id.* at 1009 (citations omitted).

The district court also concluded that the Forest Service's "worst case analysis" was insufficient, explaining: "This approach, coupled with the lack of site-specific information in the Project EIS, detracts from a decisionmaker's or public participant's ability to conduct a meaningful comparison of the probable environmental impacts among the

various alternatives." Id. at 1013. Consequently, the court concluded that

By authorizing an integrated resource management plan but deferring siting decisions to the future with no additional NEPA review, the Project EIS violates NEPA. The Forest Service has not yet taken the requisite hard look at the environmental impact of site-specific timber sales on Prince of Wales over the next 15 years. The Forest Service's plan for condition-based analysis may very well streamline management of the Tongass ... however, it does not comply with the procedural requirements of NEPA, which are binding on the agency. NEPA favors coherent and comprehensive up-front environmental analysis to ensure ... that the agency will not act on incomplete information, only to regret its decision after it is too late to correct.

Id. at 1014-15 (internal citations and quotations omitted). To be clear, the Forest Service should not interpret the Alaska District Court's decision to somehow endorse the use of condition-based analyses for environmental assessments. Where the exercise of site-specific discretion is material to a project's environmental consequences, NEPA requires consideration of site-specific proposals and alternatives, regardless of whether the effects are "significant." 42 U.S.C. [sect] 4332(2)(C), (E).

The Black Diamond project is a project-level decision. While the Preliminary EA envisions further site-specific data collection, monitoring, and project design, it does not anticipate or describe any future NEPA analysis or any future public involvement consistent with that law. As a result, any NEPA analysis must include the detailed information and analysis that NEPA and the CEQ regulations require. Failure to do so precludes informed agency decisionmaking and informed public comment, in violation of NEPA.

B. The Preliminary EA Fails to Disclose the Black Diamond Project's Site-Specific Direct and Indirect Effects

Although NEPA requires that analysis disclose specific information about the when, where, and how of any agency action, so that the impacts and alternatives can be described and weighed, the PEA fails to contain much of this data or analysis. Instead, the Forest Service will apparently postpone important components of site-specific project design and impacts analysis until after the NEPA process is complete. This upends NEPA's central purpose that agencies look before they leap, as the Court concluded in Southeast Alaska Conservation Council.

The PEA specifically admits that the project would employ a condition-based management approach.

[T]his project uses a condition-based management approach, which would address needs at the landscape scale and more effectively address and respond to disturbances. Condition-based management is an approach for NEPA compliance which supports responsiveness and flexibility between planning and implementation in natural resource management. Condition-based management allows for proposed management actions to be

aligned[mdash]post-decision but prior to implementation[mdash]with current conditions on the ground. It does this by focusing on collecting the right data at the right time for the right activity to meet the land management decision. Known or expected environmental conditions are examined in this EA as well as a range of possible management actions. Mapping and geospatial data, relevant scientific literature, and existing site information of current conditions were used to propose a variety of appropriate management actions to move toward desired conditions.

PEA at 80.

The PEA also acknowledges that site-specific locations and methods will be determined during implementation over the project's twenty-year life span based on defined conditions:

the proposed action is a collection of forest management actions that could be implemented in the project area, but exact selection of specific management actions, and/or combinations of actions when appropriate, will be dependent on the site-specific needs and forest plan directives for the areas identified for treatment.

PEA at 13.

This is the same sort of proposal that a federal court found violated NEPA in Southeast Alaska Conservation Council.

XIII. THE FOREST SERVICE MUST ACCOUNT FOR GREENHOUSE GAS EMISSIONS AND PROVIDE A TOTAL CARBON BUDGET.

The Forest Service must provide detailed analysis for a project of this scope and scale that utilizes readily available methods and models that represent high quality information and accurate greenhouse gas accounting when undertaking environmental reviews of logging projects on federal lands. Research, including studies done by the U.S. government, indicates that logging on federal forests is a substantial source of carbon dioxide emissions to the atmosphere. See Merrill, M.D et al., 2018; Harris, N.L. et al. 2016. Notably, logging emissions - unlike emissions from natural disturbances - are directly controllable. Models and methods exist that allow agencies to accurately report and quantify logging emissions for avoidance purposes at national, regional, and project-specific scales. As such, the Forest Service has the ability and responsibility to disclose estimates of such greenhouse gas emissions using published accounting methods with the express purpose of avoiding or reducing the greenhouse gas associated with logging, and acknowledge the substantial carbon debt created by logging mature and old-growth trees and forests on federal lands. See Hudiburg, et al. 2019; Harmon et al.

(2022).

In particular, we recommend that:

1. The agency should identify and assess the carbon stock of mature and old-growth forests and trees given the substantial carbon value of such trees and forests. See Krankina, O., et al., 2014; Law, B.E., et al., 2021; Mackey, B., et al. 2013; Keith, H. et al., 2019; Law, B.E., et al. 2022; DellaSala D.A, et al., 2022; Birdsey, R., et al., 2023.

1. The agency should identify and assess gross emissions from logging, particularly logging mature and old-growth trees and forests on federal lands, and including the emissions from logging on site and downstream emissions through the entire chain of custody of milling, manufacturing, and transportation.

1. The agency should provide a high standard of scientific support for any asserted offsets of gross emissions, including discussion of timing factors that address the carbon debit created from logging vs avoiding logging and allowing stocks to further accrue. See Moomaw, W.R. et al., 2019. We also note that storing some carbon in short-lived wood product pools is not compensatory as an offset or avoidance for using other carbon-intensive materials in construction. See Harmon, M.E., 2019.

The Forest Service must disclose direct and indirect climate pollution from removing, transporting, and milling wood. This includes emissions from loss of stored carbon during the removal at the forest (in-boundary) and manufacturing and transport process (out-of-boundary). That is, the NEPA documents for the project should more closely specify the need to disclose the GHG emissions from logging on site through the entire chain of custody of milling, manufacturing, and transportation, including:

- * construction, reconstruction, and maintenance of logging access routes;
- * all forms of logging operations (clearcut, selective, postfire, commercial thinning, etc), including any herbicides, insecticides and related treatments;
- * transport of logs to mills;
- * milling of the wood; and
- * transport of products to other sectors.

These emissions and others are all foreseeable impacts of logging projects. In some cases, these impacts may be considerable. For example, the South Plateau Project in Montana, currently undergoing NEPA review, will result in at least 40,000 trips by fully loaded logging trucks to remove the 83 million board feet of timber, and will involve the construction (and subsequent obliteration) of up to 57 miles of temporary road. We note that in addressing the impacts of coal mine expansions, federal agencies have disclosed the GHG emissions of

equipment used to mine coal and to transport it to market. Land management agencies can and should make similar projections for GHG pollution associated with vegetation removal and landscape restoration projects.

The Forest Service routinely asserts that the impacts of logging on carbon stores will be minimal because carbon from logged trees will be stored long-term in forest products. Such assertions are contrary to research indicating that much of the carbon stored in removed trees is lost in the near term, and little carbon is stored long-term in wood products. See Intergovernmental Panel on Climate Change, AR6 WG1 (2021).

For example, a 2019 study evaluated the quantification of biogenic emissions in the state of Washington, which included GHG emissions from logging, but not decomposition of wood products. The study concluded that the failure to address decomposition losses amounted to as much as a 25% underestimation of carbon emissions. See Hudiburg, et al., 2019.

Losses from decomposition vary over time and also depend on the lifetime of the wood product being produced from the timber. Paper and wood chips, for example, have very short lifetimes and will release substantial carbon to the atmosphere within a few months to a few years of production. Bioenergy production and burning has been found to release more emissions than burning even coal, including methane. Product disposal in landfills results in anaerobic decomposition that also releases methane. Methane has a global warming potential about 30 times that of carbon dioxide over 100 years, and over 80 times that of carbon dioxide over 20 years, magnifying the impact of disposal of short term wood products. See Intergovernmental Panel on Climate Change, AR6 WG1 (2021).

Longer term wood products can store carbon for many decades, but this depends on the life of the product. To give a sense of the larger picture, a study modeling carbon stores in Oregon and Washington from 1900-1992 showed that only 23% of carbon from logged trees during this time period was still stored as of 1996. See Harmon, M.E., et al., 1996. Similarly, more than 80% of carbon removed from the forest in logging operations in West Coast forests was transferred to landfills and the atmosphere within decades. In addition, Hudiburg (2019) concludes that state and federal carbon reporting had erroneously excluded some product-related emissions, resulting in a 25-55% underestimation of state total CO₂ emissions from logging. Many of the aforementioned decomposition emissions could be avoided if trees were left standing, especially by protecting carbon stocks from logging of mature and old-growth trees and forests on federal lands.

The detailed NEPA analyses we are calling for would disclose the trade-off and the importance of maintaining the stock value of mature and old-growth trees. In so doing, the analysis would quantify both the short-term and long-term gross and net impacts of logging. This would allow agencies to disclose and assess the trade-offs between increasing GHG emissions via logging now - when decreases are most sorely needed - versus alleged increases in storage later. Detailed NEPA analysis would also avoid ignoring short-term carbon losses due to logging based on the erroneous assumption that the residual forest will have significantly reduced potential to have its carbon stores diminished by high-severity fires. Decades of research, however, call these sorts of blanket assertions into question. Moreover, this is not a basis for failing to disclose emissions from the logging itself, especially in comparison to fire. Research shows that emissions from logging greatly exceed those from all natural

disturbances combined (fire, insects, windstorms). See Harris, N.L., et al., 2016; Merrill, M.D. et al., 2018; Zald, H.J., and C.J. Dunn, 2018.

Further, the CEQ recently issued Guidance clarifying that agencies must address the emissions and storage impacts of project-specific vegetation removal projects, "such as prescribed burning, timber stand improvements, fuel load reductions, and scheduled harvesting." CEQ, National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change, 88 Fed Reg. at 1206. We support this direction. In addition, the Forest Service should also assess emissions from pile burning related to forestry operations, as such actions can intensify carbon release.

The nature of the climate change emergency is based on multiple points of emission sources, with each contributing to the problem cumulatively. Therefore, project level analysis is a critical undertaking and one for which land management agencies now have the tools to quantify the contribution of each federal action, including in cumulative effects analyses.

Given the significant climate impact of logging on federal lands, it is critical that agencies estimate and quantify greenhouse gas emissions associated with each individual logging project and provide annual estimates of greenhouse gas emissions associated with total logging on federal lands. Agencies should expand their abilities and expectations around accounting for logging emissions as a significant contributor to climate change in tandem with continued progress in fire emissions accounting that more accurately captures actual carbon emissions from forest fires. See Harmon, M.E., C.T. Hanson, and D.A. DellaSala. 2022.

XIV. THE PEA DOES NOT INCLUDE ADEQUATE ANALYSIS OF MITIGATION MEASURES AND THEIR EFFECTIVENESS.

Under NEPA, the agency must have an adequate mitigation plan to minimize or eliminate all potential project impacts. NEPA requires the agency to consider mitigation that would avoid the impact altogether by not taking a certain action or parts of an action, minimize impacts by limiting the degree or magnitude of the action and its implementation, rectify the impact by repairing, rehabilitating, or restoring the affected environment, reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action, and compensate for the impact by replacing or providing substitute resources or environments. 40 C.F.R. [sect] 1508.1(s).

"[O]mission of a reasonably complete discussion of possible mitigation measures would undermine the 'action-forcing' function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 353 (1989). NEPA requires that the agency discuss mitigation measures, with "sufficient

detail to ensure that environmental consequences have been fairly evaluated." *Id.* at 352.

An essential component of a reasonably complete mitigation discussion is an assessment of whether the proposed mitigation measures can be effective. Compare *Neighbors of Cuddy Mountain v. U.S. Forest Service*, 137 F.3d 1372, 1381 (9th Cir.1998) (disapproving an EIS that lacked such an assessment) with *Okanogan Highlands Alliance v. Williams*, 236 F.3d 468, 477 (9th Cir.2000) (upholding an EIS where "[e]ach mitigating process was evaluated separately and given an effectiveness rating"). The Supreme Court has required a mitigation discussion precisely for the purpose of evaluating whether anticipated environmental impacts can be avoided. *Methow Valley*, 490 U.S. at 351-52, 109 S. Ct. 1835 (citing 42 U.S.C. [sect] 4332(C)(ii)). A mitigation discussion without at least some evaluation of effectiveness is useless in making that determination.

South Fork Band Council v. Dept. of Interior, 588 F.3d 718, 727 (9th Cir. 2009) (rejecting EIS for mining project for failure to conduct adequate review of mitigation and mitigation effectiveness in EIS). "The comments submitted by [plaintiff] also call into question the efficacy of the mitigation measures and rely on several scientific studies. In the face of such concerns, it is difficult for this Court to see how the [agency's] reliance on mitigation is supported by substantial evidence in the record." *Wyoming Outdoor Council v. U.S. Army Corps of Eng'rs*, 351 F. Supp. 2d 1232, 1251 n. 8 (D. Wyo. 2005). See also *Dine Citizens v. Klein*, 747 F. Supp. 2d 1234, 1258-59 (D. Colo. 2010) (finding "lack of detail as the nature of the mitigation measures" precluded "meaningful judicial review").

The EA is devoid of any detailed analysis of the effectiveness of the purported mitigation measures. It is impossible for the Forest Service to contend that it fully reviewed the effectiveness of mitigation measures[mdash]as required by NEPA[mdash]when the EA lacks any reference to such analysis. Simply referring generally to potential mitigation measures, as the EA does, does not comply with NEPA. As held recently by the federal courts, an EA violates NEPA if it "fails to address the effectiveness of the mitigation measures." *Gifford Pinchot Task Force v. Perez*, 2014 WL 3019165, at *39 (D. Or. 2014). As in *Gifford Pinchot*, no analysis, let alone mention, of how effective these mitigation measures will be is contained in the EA. As such the EA violates NEPA.

XV. THE PEA DOES NOT ADEQUATELY REVIEW ALL REASONABLE ALTERNATIVES.

NEPA requires the agency to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources." 42 U.S.C. [sect] 4332(E); 40 C.F.R. [sect] 1501.1(b)(3). It must "rigorously explore and objectively evaluate all reasonable alternatives" to the proposed action. *City of Tenakee Springs v. Clough*, 915 F.2d 1308, 1310 (9th Cir. 1990). Per 36 C.F.R. [sect] 220.3, the Forest Service is also to include an environmentally preferred alternative, which is "that which causes the least harm to the biological and physical environment; it also is the alternative which best protects and preserves historic, cultural, and natural resources. In some situations, there may be more than one environmentally preferable alternative."

Even if an EA leads to a FONSI, it is essential for the agency to consider all reasonable alternatives to the proposed action. *Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1228-29 (9th Cir. 1988) (citations omitted, emphasis in original). "While a federal agency need not consider all possible alternatives for a given action in preparing an EA, it must consider a range of alternatives that covers the full spectrum of possibilities." *Ayers v. Espy*, 873 F. Supp. 455, 473 (D. Colo. 1994).

Here, the EA does not consider any action alternative other than the proposed. PEA at 1-2. This is wholly insufficient for a reasonable range of alternatives. Yet, there are various reasonable alternatives that can and need to be considered that would reduce negative impacts. The following are reasonable alternatives that should be considered:

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- * An action alternative that would not create or use temporary roads.
- * An action alternative that would not include proposed activities within CRAs.
- * An action alternative that would not include Preble's meadow jumping mouse critical habitat and areas of suitable Canada lynx habitat as areas that would be subjected to proposed activities.
- * An action alternative that focuses solely on treatments extending 30 meters around homes and removes the subalpine/higher elevation areas from the proposed action to keep any proposed treatments below 7,200 feet in elevation.
- * Environmentally preferable alternative(s).

The CEQ regulations warn that a NEPA document is not to be used to justify a decision already made. 40 C.F.R. [sect] 1502.2(g).[1] Thus, "an agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative . . . would accomplish the goals of the agency's action, and the EIS would become a foreordained formality." *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991), cert. denied, 502 U.S. 994, 112 S. Ct. 616 (1991). See *Muckleshoot Indian Tribe v. U.S. Forest Serv.*, 177 F.3d 800, 814 n.7 (9th Cir. 1999); *Friends of Southeast's Future v. Morrison*, 153 F.3d 1059, 1066 (9th Cir. 1998).

CONCLUSION

The proposed restoration/resilience treatments should be confined to lower elevation stands dominated or

formerly dominated by ponderosa pine which are now denser than they were historically. Thinning and low-intensity burning in these areas can help restore these lower elevation ecosystems. POD designations should be limited to these areas and be much less than the proposed 300-1000 feet wide.

Treatments can also be done in the home ignition zone, i. e., the area about 30 meters from each home, to reduce fuels.

Treatments should not be done in subalpine ecosystems, especially spruce-fir, nor in lynx habitat or the Cherokee Park and Green Ridge East and West CRAs.

Sincerely,

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[1] While this cites to the CEQ regulations prior to 2020, the principle that a NEPA document cannot justify a decision already made remains as it derives from the statutory mandates for NEPA. Additionally, the 2020 Council of Environmental Quality regulations are facially invalid and under legal challenge.