August 28th, 2023

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**RE:  Hungry Creek Vegetation Improvement Project EA**

*Comments submitted electronically through the project webpage comment portal*

**Center for Biological Diversity** ⦁ **Grand Canyon Trust**

 **Western Watersheds Project**

District Ranger De Lay,

These comments are submitted on behalf of the Center for Biological Diversity, Grand Canyon Trust, and Western Watersheds Project regarding the Hungry Creek Vegetation Improvement Project.  We appreciate the opportunity to participate in this project.

As an initial matter, we appreciate that the Forest Service made several changes to the proposed action in response to comments received during scoping. EA at 47. In particular, we appreciate that the White Flats Historic Chaining and Chaining Expansion has been altered in recognition that the project goals emphasize habitat restoration. We agree that chaining is inappropriate. We also appreciate the consideration of the No Mechanical Treatments in IRA alternative.

These comments are timely filed. The Forest Service published the notice of availability of the draft environmental assessment (EA) on July 27, 2023. The comment period normally would have expired on Saturday, August 26, 30 days from the publication of the notice. 36 C.F.R. § 218.25(a)(1). However, Forest Service regulations mandate that when a 30-day comment period closes on a Saturday, Sunday, or federal holiday, the deadline for filing comments is extended until 11:59 PM on the following business day, which here is August 28. 36 C.F.R. § 218.25(a)(2).

**COMMENTS**

1. **General Old Growth Considerations**

The EA states that the total old growth percentage within the project area is 26%, yet the total percent of old growth is 2% for spruce/fir, 7% for mixed conifer, and 5.6% for ponderosa pine. We request clarification on these figures. We interpret them to mean that, for example, 2% of the spruce/fir in the project area is old growth, rather than that 2% of the project area is made up of old growth spruce/fir. Even if the latter is the correct interpretation, we don’t see how the 26% total old growth percentage in the project area arises out of the figures provided for the individual forest types.

Concerningly, Table 6 for pinyon and juniper does not include an *Old Growth* element as the other forest types do. We request that this be added and analyzed in detail, as we discuss in the *Pinyon and Juniper* section below.

Under the heading *Treatment Descriptions by Vegetation Type (Alternative 1)* the EA states that spruce/fir, mixed conifer, and ponderosa pine will be cut within 10’ of the canopy drip line of any aspen 10” diameter at breast height (DBH) or larger (pp. 30-31). This should be qualified to make clear that old growth conifers will not be cut in these situations. Old growth conifers should be retained, especially in the ponderosa pine and mixed conifer types, even if they are growing within 10’ of the drip line of aspen 10” DBH or larger. In such instances the conifers are likely much older than the aspen. The EA states that there are no direct effects to old growth associated with spruce/fir, mixed conifer, and ponderosa pine (pp. 78-80). For that to hold true, the EA should clarify that old growth in these forest types will not be removed adjacent to aspen as described above.

The EA should specify measures for preferentially retaining large and mature trees in the variety of treatments it proposes. The EA does not disclose the area of forest type to which each treatment is to be applied. The EA should provide a summary of treatment by forest type.

The EA fails to disclose how many trees will be logged, in what size classes, and from what areas. The EA presents stand data only as averages for that entire forest type across the project area, and only as categorized by VSS class. It is not clear that the data is representative of the stands to be treated, only of the overall aggregate of that forest type within the project area. As such, the EA does not disclose or analyze the intensity of logging to occur in each area (although the Monitoring Report indicates that the Dixie NF is aware that logging is contributing to the decline in goshawks), the number of trees to be removed, the size of trees to be removed, or the number of large trees (VSS 5 and 6) to be removed. The EA should disclose and analyze all of these impacts.

Because the EA discusses stand data only as averages aggregated over the entire project area, the project's assertion that it will “balance” stand structures (i.e., VSS classes) is highly questionable. There is no data to support the claim that large trees will be removed only where necessary to balance VSS classes, and there is no explanation of how such a calculation and determination will be made operationally in the field. Instead, there is likely to be a prescription that allows for the removal of a certain number of large trees (singularly or by groups) in each stand, potentially resulting in large trees being removed from stands where there is a deficit of large trees. Looking only at the average aggregate level—as the EA does—provides no reason to think there will be a “balancing” of VSS classes, especially at the 1 – 10 acre scale at which silvicultural prescriptions are applied.

The EA must present a process by which stand structure will be assessed at the operational scale to “balance” VSS classes at the 1-10 acre scale. Such a process must also ensure that large trees are not removed at the sub-stand level when there is a dearth of large trees at the stand level. We recommend retaining all trees 18 inches dbh or greater.

**II. Pinyon and Juniper**

We appreciate and support the retention of all old growth pinyon and juniper (p. 32).

The Silviculture Report states that the proposed action is in alignment with Executive Order (EO) 14072 on *Strengthening the Nation’s Forests, Communities, and Local Economies* (Silviculture Report, p. 28). This EO establishes as a policy the conservation of mature and old-growth forests on Federal lands. The EO also directed the Secretaries of the Interior and Agriculture to define, identify, and complete an inventory of old-growth and mature forests on Federal lands. This direction was fulfilled in April 2023 with the issuance, by both agencies, of the mature and old-growth forest report. Appendix 1 of the report provides old-growth working definitions for Forest Service regions. Table 11 provides minimum old-growth criteria for the Intermountain Region (Region 4). For old-growth pinyon and juniper in the southeastern part of the region, which includes the Dixie NF, the minimum large tree diameter (at root collar) is 9” for low productivity sites (with a corresponding minimum large tree age of 150 years) and 12” for high productivity sites (with a corresponding minimum large tree age of 200 years; p. 39).

These figures correspond well with site-specific findings from nearby on the Fishlake NF presented in Orlemann & Robison 2020.[[1]](#footnote-1) The project they examined authorized removal of trees up to 15” diameter at root collar (DRC), which was intended to preserve pre-settlement trees (pp. 337-338). Orlemann & Robinson found that trees 10” DRC are likely pre-settlement trees, estimated at 155 to 175 years old (pp. 340, 343).

In line with the guidance outlined in the old-growth forest report, the Forest should not be cutting pinyon or juniper trees larger than 12” DRC unless it can be documented by aging that such trees are not old-growth trees. Furthermore, 12” DRC is the old-growth threshold for high productivity sites. Some of the locations in the project area may qualify as low productivity sites, and should thus use 9” DRC as the old-growth threshold.

The EA proposes to thin pinyon and juniper within 100 feet of streams (p. 32). The EA should clarify how old growth pinyon and juniper adjacent to streams will be identified and retained. Some of these trees are extremely large, and they provide habitat complexity and diversity that riparian species do not. We understand the desire to thin some of these trees, but complete removal should not take place, particularly of large/old pinyon or juniper.

The EA states that pinyon and juniper woodlands should have shrubs, forbs, and grasses making up 20% or more of total vegetation, apparently including persistent pinyon-juniper woodlands (p. 17). The EA also gives as a desired condition for pinyon and juniper a fire return interval of 10 to 30 years (p. 18). We are not aware of any science supporting such a fire return interval for pinyon and juniper, in particular for pinyon and juniper woodlands and shrublands, which are the prevalent types in the project area. The EA proposes to masticate or hand thin pinyon and juniper to approximately 134 trees per acre (18’ x 18’ spacing) (p. 32). We request justification for this approach, and we are concerned about the apparent even-spacing approach from both an ecological and visuals standpoint. We request that the Forest provide scientific information supporting the proposals cited above, or modify them appropriately if such scientific information does not exist.

**III. Ponderosa Pine**

We support the Forests’s desire to maintain and promote VSS 5 and VSS 6 structural stages in ponderosa pine (p. 31).

In our scoping comments, we referred to Forest to the Old Growth Protection & Large Tree Retention Strategy developed as part of the Four-Forest Restoration Initiative in northern Arizona and included it with our comments. We were disappointed to not see this referenced in the EA or Silviculture Report.. This Strategy was developed with broad agreement from a variety of stakeholders and provides a common-sense approach to protecting and retaining large old trees. We again request that the Forest use this document to inform its approach to ponderosa pine as part of this project.

A recent scientific review, whose authors include many Forest Service researchers, confirms the importance of protecting large, old trees to improve forest resilience and protection of wildlife.[[2]](#footnote-2) The study, among other things, states:

“Forest thinning in these forest types [should be] aimed at retaining larger, more fire-resilient tree species, and restoring open canopy structure.”[[3]](#footnote-3)

“Fuel treatments that modify within-stand structure to remove small trees and reduce surface fuels while retaining large, more fire-resistant trees and variable stand structure (Stephens et al. 2021) are most appropriate in dry pine, dry to moist mixed-conifer forests and oak woodlands, particularly where there is evidence that older fire-resistant species have been or are being replaced by younger fire-sensitive species (e.g. Yocom-Kent et al. 2015).”[[4]](#footnote-4)

 “[T]reatments that restore the ecological resilience of old-growth forests and patches with large and old trees are critical to long term maintenance of wildlife habitats (Hessburg et al. 2020) of seasonally dry forests and terrestrial carbon stocks, and slowing the feedback cycle between fire and climate change (Hurteau and North 2009).”[[5]](#footnote-5)

“Several studies highlight that the most effective fuel treatments include coupled thinning and burning (Kalies and Yocom Kent 2016), and emphasize the importance of retaining large, fire-resistant trees in dry mixed conifer forests (Agee and Skinner 2005, DellaSala et al. 2004, Stephens et al. 2009).”[[6]](#footnote-6)

“Although the management situation for wNA [western North America] forests is daunting, our review of the scientific literature offers clear guidance. In seasonally dry wNA forests that were historically dominated by fire-resistant species, restoring open, fire-tolerant canopy structure and composition, favoring larger tree sizes, and reducing surface fuels can effectively mitigate subsequent wildfire and stabilize carbon stocks (Fig. 1).”[[7]](#footnote-7)

As a result, numerous studies, collaboratives, and Forest Service decisions have emphasized the need to protect large and old ponderosa pine trees in order to achieve both ecological restoration and greater resilience to catastrophic events such as wildfire and insect infestations. These decisions have often done so by setting an upper limit for the size of trees that can be logged for forest management.

For example, the Four Forest Restoration Initiative, a collaborative guided by science and working to improve management on forests in northern Arizona, has adopted an “Old Growth Protection & Large Tree Retention Strategy.”[[8]](#footnote-8) As part of that strategy, “the 4FRI Collaborative has agreed that the 4FRI effort should implement large tree retention and old growth protection strategies that are … are based upon a 16” diameter threshold that limits the cutting of trees larger than 16” to circumstances and criteria set forth in pre-defined exception categories.”[[9]](#footnote-9)

A similar collaborative in New Mexico agreed that “It is generally advisable to maintain ponderosa pines larger than 41 cm (16 inches) diameter at breast height (dbh) and other trees with old-growth morphology regardless of size (e.g. yellow-barked ponderosa pine or any species with large drooping limbs, twisted trunks or flattened tops).”[[10]](#footnote-10)

One peer-reviewed study concludes:

Large and old trees, especially those established before ecosystem disruption by Euro-American settlement, are rare, important, and difficult to replace. Their size and structural complexity provide critical wildlife habitat by contributing crown cover, influencing understory vegetation patterns, and providing future snags. Ecological restoration should protect the largest and oldest trees from cutting and crown fires, focusing treatments on excess numbers of small young trees. Given widespread agreement on this point, it is generally advisable to retain ponderosa trees larger than 41 cm (16 inches) dbh and all trees with old-growth morphology regardless of size (i.e., yellow bark, large drooping limbs, twisted trunks, flattened tops). Despite the heterogeneity of forest site and stand conditions in the Southwest, cutting of larger trees will seldom be ecologically warranted as ‘‘restoration’’ treatments at this time due to their relative scarcity. Following this guideline would significantly reduce hazards of stand-replacing fires in most cases and also favor the development of future old-growth forest conditions (Moir and Dieterich 1988, Harrington and Sackett 1992).[[11]](#footnote-11)

This article notes that managing ponderosa pine forests for ecological restoration can also help increase forest resilience.[[12]](#footnote-12)

This science and social history demonstrate that diameter limits in ponderosa pine on the Dixie National Forest are reasonable, and should be considered in any NEPA analysis concerning logging in such pine forests.

**IV. Pinyon Jay**

The Fish and Wildlife Service recently issued a positive 90-day finding in response to a petition to list the pinyon jay under the Endangered Species Act and has initiated a status review.[[13]](#footnote-13) The 90-day finding lists adverse habitat treatments in pinyon-juniper woodlands as a factor it is considering under 4(a)(1) the Endangered Species Act. Thus pinyon jay qualifies as a species proposed under the Endangered Species Act, and as such potential impacts to pinyon jays must be analyzed in depth, which has not been done in the EA. Pinyon jay is also designated as a Species of Greatest Conservation Need by the Utah Division of Wildlife Resources as part of its Wildlife Action Plan.[[14]](#footnote-14)

Pinyon jay populations are currently undergoing significant decline. An estimated 85% of the pinyon jay population was lost between 1967 and 2015, and the population is anticipated to decline by another 50% in 19 years.[[15]](#footnote-15) We believe that care should be taken to not adversely impact local pinyon jay populations. Pinyon-juniper removal can have detrimental effects on pinyon jays, most concerningly removal of traditional nesting sites and elimination of important nut-producing pinyon pines. Many planning efforts use a standard nesting season for analyzing impacts to migratory birds, generally April or May 1 to July 31. However, recent research has shown that this window is not appropriate for pinyon jays, and that standard surveys for other birds are likely not adequate for pinyon jays. In addition, pinyon jays appear to preferentially nest in younger (post-settlement) pinyon or juniper trees at the woodland-shrubland interface, which the EA explicitly targets around the perimeter of sagebrush and mountain shrub meadows (p. 32).

Thus, it is important that the appropriate species-specific surveys be completed each year before cutting takes place. Pinyon jays can have very high nest site fidelity. Marzluff and Balda (1992) documented a flock that bred at the same site each of the 14 years that this flock was observed, and for another flock documented 5 different nesting sites that were each used 9 times.[[16]](#footnote-16) The following measures based on the best available science should be utilized for any activities with the potential to impact pinyon jays, particularly for pinyon-juniper removal projects:

* Survey all areas where trees will be removed or habitat disturbance will occur, with surveys conducted during pinyon jay nesting season (generally February through May). Areas should be surveyed even if the tree removal or disturbance will take place outside the nesting season, as pinyon jays can have very high nest site fidelity and may use the same nesting sites across years.
* To establish pinyon jay absence, three surveys should be conducted during the nesting season, with each survey separated by at least two weeks.
* If pinyon jay nests are found, the breeding colony should be buffered by a 500 meter no-treatment/disturbance zone as recommended by the *Conservation Strategy for the Pinyon Jay* led by the U.S. Fish & Wildlife Service.[[17]](#footnote-17)

We propose that these measures be incorporated into the EA and Implementation Checklist.

The EA states that treatments within pinyon and juniper will move stands toward desired conditions, and that this will benefit pinyon jay (p. 105). However, no evidence has been provided showing that the desired conditions for pinyon and juniper are beneficial for pinyon jay.

**V. Goshawk**

The Hungry Creek project EA proposes 43,211 acres of logging—based primarily on balancing VSS classes for the goshawk—without addressing the impact of logging on goshawk, nor the need to retain large trees, despite the statements in the Monitoring Report that logging is contributing to the decline in goshawk and that balancing VSS classes is insufficient.

“In general goshawk territories are not remaining occupied regardless of vegetation management. However, in some territories, it is clear that management activities have reduced occupancy of that territory. During 2019 and 2020 a total of 251 goshawk territories were monitored on the Dixie National Forest. Of these territories only 26 (~10%) were occupied. Some of these nest monitoring sites occurred in our near treatment areas. At least one of these nests was abandoned as a result of timber harvest practices too near the nest. Studies have determined that timber harvest can lead to lower rates of occupancy (Patla 2005 and Rodriguez et al. 2018).” Dixie National Biennial Monitoring Evaluation Report at 74.

“VSS data are dated, site specific and sometimes lacking, making diversity determinations uncertain. The Dixie Forest plan specifies percentages of each VSS class for forested areas. Overall, the Dixie National Forest is lacking in VSS 5 and VSS 6 class trees (mature to old growth) most likely due to historical timber practices. The lack of mature and old growth stands on the Forest limits the habitat needed for species such as the Northern goshawk and challenges the Forest to meet timber targets.” 2019-2021 Dixie National Biennial Monitoring Evaluation Report at 29.

According to the Dixie National Forest LRMP, the Dixie NF is supposed to be monitoring goshawk population levels, with special attention to big forest projects.

“Goshawks will serve as a Management Indicator for old growth conifer and aspen…” Dixie NF LRMP at II-16 (1986).

“Nest survey for goshawks…Annual if population near minimum level, or every 2-5 years in project areas.” Dixie NF LRMP at V-5 (1986).

“At the project level, goshawk surveys are conducted prior to implementation.” Dixie National Biennial Monitoring Evaluation Report at 26.

The most recent monitoring results from 2019-2021 indicate that the goshawk population on the Dixie has declined substantially.

“Management Activities – Currently, most terrestrial focal species are maintaining numbers and appear to be doing well. However, mule deer and northern goshawk numbers are down significantly. Mule deer are below objective in all units on the forest and at very low numbers in most of these units. Northern goshawk are at the lowest occupancy in 15 years. Both species are affected by drought and may be responding to severe prolonged drought. However, there may be management activities that contribute to these population drops, Specifically, timber harvest has been linked to goshawk nest abandonment and may be impacting current goshawk behavior.”2019-2021 Dixie National Biennial Monitoring Evaluation Report at 13-14. Emphasis added.[[18]](#footnote-18)

“Goshawk populations are below MVP. Goshawk population trends are down in Utah, across the Intermountain region, and across all survey areas. These trends are a reflection of goshawk population numbers across the Dixie NF. Suggested change would be to evaluate goshawk territory occupancy on the Forest in relation to regional goshawk population levels.” 2019-2021 Dixie National Biennial Monitoring Evaluation Report at 17.

“Goshawk territories on the Dixie National Forest are not remaining occupied. Occupancy has declined from over 30% in the mid-2000’s to just 10% in 2021 (Figure 4). The minimum viable population for the Forest is 40 active nesting pairs. There were only 8 in 2021.” Dixie National Biennial Monitoring Evaluation Report at 73.

Despite the fact that the Hungry Creek Project area contains 17 PFAs, neither the EA nor the Wildlife Specialist Report report any occupancy data specific to the territories in the Hungry Creek Project. Instead, they report VSS classes. This is inconsistent with the requirements of the LRMP.

“The Hungry Creek Vegetation Improvement project area MMA contains the home ranges for seventeen northern goshawk territories…” Wildlife & Plant Report at 26.

“Nest survey for goshawks…Annual if population near minimum level, or every 2-5 years in project areas.” Dixie NF LRMP at V-5 (1986).

At the forest level, monitoring reports acknowledge that logging is contributing to the decline in goshawk on the Dixie.

“In general goshawk territories are not remaining occupied regardless of vegetation management. However, in some territories, it is clear that management activities have reduced occupancy of that territory. During 2019 and 2020 a total of 251 goshawk territories were monitored on the Dixie National Forest. Of these territories only 26 (~10%) were occupied. Some of these nest monitoring sites occurred in our near treatment areas. At least one of these nests was abandoned as a result of timber harvest practices too near the nest. Studies have determined that timber harvest can lead to lower rates of occupancy (Patla 2005 and Rodriguez et al. 2018).” Dixie National Biennial Monitoring Evaluation Report at 74.

The monitoring reports also acknowledge that simply “balancing” VSS classes is insufficient to conserve the goshawk.

“VSS data are dated, site specific and sometimes lacking, making diversity determinations uncertain. The Dixie Forest plan specifies percentages of each VSS class for forested areas. Overall, the Dixie National Forest is lacking in VSS 5 and VSS 6 class trees (mature to old growth) most likely due to historical timber practices. The lack of mature and old growth stands on the Forest limits the habitat needed for species such as the Northern goshawk and challenges the Forest to meet timber targets.” 2019-2021 Dixie National Biennial Monitoring Evaluation Report at 29.

The Hungry Creek Vegetation Improvement Project, Wildlife & Plant Report reports that the project area is severely deficient in large trees in several ways. All 14 PFAs in the Project Area are deficient in VSS 5 and 6 in the nest areas. The MRNG for nest areas is that all trees are VSS 5 and 6. “Only seven nest areas have any representation in the mature forest (VSS 5), and none in the old forest (VSS 6).” The White Creek PFA has the greatest VSS 5 and 6 component with 35% VSS 5. Wildlife and Plant Report at 27.

The Hungry Ridge PFA is 30% VSS 5, compared to the DFC of 20%; the White Creek PFA is 18% VSS 5. All others are severely deficient (8, 6, 6, 2, 1, 2, 1, 0, 0, 0, 0). None of the PFAs have any VSS 6. Wildlife and Plant Report at 27.

Applying the MRNG VSS classes to the Hungry Creek project area as a whole, by forest type (cover type), the VSS 6 (24”+ dbh) is deficient in the dominant tree species in all forest types; the VSS 5 is deficient in all forest types but ponderosa pine. Wildlife and Plant Report at 28.

By these numbers, there is no excuse for logging any trees over 18” dbh in any forest type. Even though ponderosa pine forests have a greater percentage of VSS 5 (18 to 24”) than the DFC of 20%, those VSS 5 trees should be retained to develop VSS 6, which is currently deficient. Despite the obvious need to retain large trees, the EA focuses instead on 1) the need to reduce stand densities to the desired levels and 2) the need to “balance” forest structure to achieve the standardized VSS proportions of 10-10-20-20-20-20.

“Previous selective logging (overstory removal) combined with precommercial thinning and fire exclusion resulted in ponderosa pine stand structure that is substantially even-aged VSS 3 and VSS 4. Some pockets of uneven-aged VSS 5 and VSS 6 exist and should be managed to maintain and enhance structural diversity. Stands of even-aged pine should receive a thinning that would begin to prepare for regeneration. An initial cut would increase light and nutrient availability to the residual stand and provide for seed germination and establishment of seedlings.” Hungry Creek Project EA at 31.

“Both the forest plan as amended and the PFC assessment for the Hungry Creek Project direct that forested areas should be managed for the full range of seral conditions characteristic of each forest cover type.” Wildlife and Plant Report at 43.

As stated in the passage excerpted from the EA above, the Dixie is proposing to retain “some pockets” of large trees, but does not acknowledge that large trees may exist as single trees in some areas, and nowhere does the EA consider measures to preferentially retain large trees. For example, the Stand Density Indices for the six VSS classes in ponderosa pine forest in the project area are reported in the Silviculture Report at 17.

Existing SDI Desired SDI

VSS 1 0.3% 10%

VSS 2 8.4% 10%

VSS 3 17.7% 20%

VSS 4 32.9% 20%

VSS 5 31.3% 20%

VSS 6 9.3% 20%

By removing trees from VSS 4 (12 to 18 inches) and VSS 5 (18 to 24 inches), the Project can reduce overall stand density, which will automatically increase the proportion of trees in VSS 6. This would create the appearance of increasing the VSS 6 component while fostering not a single new large tree, and while even depleting the medium-to-large trees that are needed to develop into old growth.

**VI. Mexican Spotted Owl**

There is no Mexican Spotted Owl Critical Habitat or PACs within the project, although there is potential habitat. The Hungry Creek EA assumes that more logging will improve MSO habitat, despite acknowledging that previous logging has degraded MSO habitat.

 “The FWS does not propose specific guidelines for vegetation types outside of Protected Activity Centers (PAC). The Recovery Plan states, “We assume that existing and planned management for these forest and woodland types will maintain or improve habitat for these needs of the owl.” This assumption is largely based on the premise that existing, late-seral stands will be maintained or restored where necessary across the landscape, silvicultural practices will favor uneven-aged over even aged cuts, and management will focus on ecosystem approaches which consists of the natural range of variation across the landscape (USFWS, 2012a). As discussed above, the pinyon-juniper woodlands, ponderosa pine cover types and riparian areas are currently outside the historical range of variation with departure from desired fire regimes and conditions. Within the riparian areas the hardwood component is declining and wetland vegetation diversity is decreasing as trends toward conifer dominance increase.” Wildlife and Plant Report at 19.

**VII. Fire**

We appreciate the default to allow natural ignitions to be managed for resource benefit (p. 20). The EA says that most fires in the Posey Fire Management Unit were less than 1 acre in size and suppressed, and lists fires of 200, 350, and 500 acres (p. 20). Thus it appears that managing natural ignitions for resource benefit has not been the default in recent years. We request clarification on whether this is correct. If it is, we appreciate the proposed shift in fire management in this project. If this is not correct, we believe that management of natural ignitions should seek to mimic historic fire behavior where feasible, and request that this approach be analyzed in more detail in the EA in this context.

**VIII. North Creek Aquatic Habitat Improvement**

Under this section the EA proposes to optimize stream slope, channel geometry, and stream bed material (p. 33). It is not clear to us what exactly is contemplated here. If this would involve the use of heavy machinery, it could have serious impacts. The details of these actions must be disclosed and the associated impacts analyzed in detail.

**IX. Carbon Storage, Climate Change and Drought**

**A. The Forest Service’s Failure to Disclose and Quantify the Hungry Creek Project’s Climate Damage Violates NEPA.**

The Hungry Creek Project 2023 Final EA bases its analysis of the project’s climate impacts largely on two programmatic analyses, neither of which purport to address the Hungry Creek Project’s impacts. *See* EA at 56 (citing A. Dugan et al., Forest Carbon Assessment for the Dixie National Forest in the Forest Service’s Intermountain Region 2020, and USDA Forest Service, Climate Change Vulnerability and Adaptation in the Intermountain Region, RMRS-GTR-375 (2018).

None of these documents – the EA, the 2020 Forest Carbon Assessment, nor the regional climate change report – take the hard look at the Hungry Creek Project’s climate impacts that NEPA requires. None quantifies the Hungry Creek Project’s impacts on the loss of carbon storage or on increased pollution due to project implementation. All continue to rely on questionable science, or ignore contrary science. And at least one engages in what amounts to climate denial concerning the impacts of logging on climate pollution. The Forest Service’s climate analysis thus violates NEPA’s hard look mandate.

1. The Forest Service fails to disclose and quantify the Hungry Creek Project’s impact on carbon storage.

a. The Forest Service ignores applicable guidance.

The Forest Service should have applied the 2023 CEQ Climate Guidance, but failed to do so, and failed to explain why it would not do so. CEQ urged agencies to “consider applying this guidance to actions in the EIS or EA preparation stage if this would inform the consideration of alternatives or help address comments raised through the public comment process.” 2023 CEQ Climate Guidance, 88 Fed. Reg. at 1212.

Applying the 2023 Guidance would clearly “help address” these comments. Similarly, President Biden’s direction concerning the social cost of carbon pre-dated the publication of this EA.

Even if the Forest Service asserts that it can rely upon CEQ’s 2016 Guidance, the agency did not do so here. As described in more detail below, the 2016 CEQ Guidance contains specific direction concerning how agencies should analyze climate impacts from site-specific forest management projects (using the example of “a prescribed burn”), guidance the agency largely ignored.

b. The Hungry Creek Project logging will degrade carbon stores.

The Hungry Creek Project will have direct, indirect, and cumulative impacts on climate change because logging and burning forests will impact the ecosystem’s ability to store carbon.

The Forest Service acknowledges that the Dixie National Forest’s trees are currently acting as a carbon sink, meaning they are storing more carbon than they are emitting. EA at 56, 111. Science makes clear that the Hungry Creek Project will likely worsen climate emissions by removing trees that are currently fixing carbon, turning them into wood products (which results in a significant loss of that carbon fixed in wood), and leaving a landscape with no trees and (eventually) seedlings that will take decades if not centuries to replace the carbon lost due to logging.

The Hungry Creek Project targets larger and older conifer trees in aspen stands across nearly 16,000 acres, EA at 28, and as noted in the discussion of the Roadless Rule, below. The project includes logging over a total 47,000 acres, including 20,000 acres of thinning, and another 7,000 acres of “timber stand improvement.” *Id*.

Logging old and mature forests in particular worsens climate change by releasing significant amounts of carbon and by preventing such forests from continuing to sequester carbon. As the Forest Service has admitted regarding mature forests in Alaska, such forests “likely store considerably more carbon compared to younger forests in this area (within the individual trees themselves as well as within the organic soil layer found in mature forests).” Forest Service, Tongass Land and Resource Management Plan, Final EIS (2016) at 3-14. This is so because when a forest is cut down, the vast majority of the stored carbon in the forest is released over time as CO2, thereby converting forests from a sink to a “source” or “emitter.” *See, e.g*., D. DellaSala, The Tongass Rainforest as Alaska’s First Line of Climate Change Defense and Importance to the Paris Climate Change Agreements (2016) at 5.

A 2012 review concluded that thinning forests to reduce fire severity likely would have negative impacts on the forests carbon stores, even assuming that a treated area would burn at lower severity than an untreated area. The report concludes:

it appears unlikely that forest fuel-reduction treatments have the additional benefit of increasing terrestrial [carbon] storage simply by reducing future combustive losses and that, more often, treatment would result in a reduction in [carbon] stocks over space and time. Claims that fuel-reduction treatments reduce overall forest [carbon] emissions are generally not supported by first principles, modeling simulations, or empirical observations.

J.L. Campbell et al., Can fuel-reduction treatments really increase forest carbon storage in the western US by reducing future fire emissions? Frontiers in Ecology and the Environment, 2012; 10(2): 83–90, doi:10.1890/110057 (published online 15 Dec. 2011), available at<https://ir.library.oregonstate.edu/concern/articles/vd66w041v>.

Recent studies agree 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*., Intact Forests in the United States: Proforestation Mitigates Climate Change and Serves the Greatest Good, Frontiers in Forests and Global Change (June 11, 2019) at 7 (emphasis added). One 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*.

T. Hudiburg *et al*., Meeting GHG reduction targets requires accounting for all forest sector emissions, Environ. Res. Lett. 14 (2019) (emphasis added). Further, a June 2020 literature review 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 (Krankina et al. 2014, Buotte et al. 2019, 2020).

B. Law, et al., The Status of Science on Forest Carbon Management to Mitigate Climate Change (June 1, 2020). *See also* T. Hudiburg et al., Carbon dynamics of Oregon and Northern California forests and potential land-based carbon storage, *Ecological Applications* (2009), 19:163-180, available at<https://esajournals.onlinelibrary.wiley.com/doi/10.1890/07-2006.1> (last viewed Aug. 27, 2023); O. Sun, Dynamics of carbon stocks in soils and detritus across chronosequences of different forest types in the Pacific Northwest, USA, *Global Change Biology* (2005) 10:1470-1481, available at .<https://doi.org/10.1111/j.1365-2486.2004.00829.x> (last viewed Aug. 27, 2023).

Two experts in the field recently concluded:

Recent projections show that to prevent the worst impacts of climate change, governments will have to increase their pledges to reduce carbon emissions by as much as 80%. We see the next 10 to 20 years as a critical window for climate action, and believe that *permanent protection for mature and old forests is the greatest opportunity for near-term climate benefits*.

B. Law & W. Moomaw, Keeping trees in the ground where they are already growing is an effective low-tech way to slow climate change, *The Conversation* (Feb. 23, 2021) (emphasis added), available at<https://theconversation.com/keeping-trees-in-the-ground-where-they-are-already-growing-is-an-effective-low-tech-way-to-slow-climate-change-154618> (last viewed Aug. 27, 2023).

A 2021 letter to the President signed by dozens of scientists cited peer reviewed studies in support of the following conclusions:

As hundreds of climate and forest scientists warned Congress last year, logging in U.S. forests emits 723 million tons of uncounted CO2 into our atmosphere each year—more than 10 times the amount emitted by wildfires and tree mortality from insects combined. Greenhouse gas emissions from logging in U.S. forests are now comparable to the annual CO2 emissions from U.S. coal burning, and annual emissions from the building sector. Most of the carbon in trees removed from forests through logging is emitted almost immediately, as branches and tree tops are burned at biomass energy facilities, and mill residues are burned at the sawmills, typically for energy production—emitting more CO2 than burning coal, for equal energy produced. Logging conducted as commercial “thinning,” under the rubric of fire management, emits about three times more CO2 than wildfire alone.

B. Moomaw et al., Open Letter to President Biden and Members of Congress from Scientists: It is essential to Remove Climate-Harming Logging and Fossil Fuel Provisions from Reconciliation and Infrastructure Bills (Nov. 4, 2021) (citations omitted).

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 forest is logged. One prominent researcher explains: “It takes at least 100 to 350+ years to restore carbon in forests degraded by logging (Law et al. 2018, Hudiburg et al. 2009). 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* (IPCC, 2018).” B. Law, *et al*., The Status of Science on Forest Carbon Management (emphasis added).

The importance of preserving mature forests in staving off the worst impacts of the climate crisis and the extinction crisis led President Biden on Earth Day in 2022 to issue Executive Order 14,072, “Strengthening the Nation’s Forests, Communities, and Local Economies.” E.O. 14,072, 81 Fed. Reg. 24851 (Apr. 27, 2022), available at<https://www.govinfo.gov/content/pkg/FR-2022-04-27/pdf/2022-09138.pdf>. That order notes:

Globally, forests represent some of the most biodiverse parts of our planet and play an irreplaceable role in reaching net-zero greenhouse gas emissions. Terrestrial carbon sinks absorb around 30 percent of the carbon dioxide emitted by human activities each year. Here at home, America’s forests absorb more than 10 percent of annual United States economy-wide greenhouse gas emissions. *Conserving old-growth and mature forests on Federal lands* while supporting and advancing climate-smart forestry and sustainable forest products *is critical to protecting these and other ecosystem services provided by those forests*.

E.O. 14,072, 81 Fed. Reg. at 24851 (emphasis added).

The President directed the Forest Service to “within 1 year of the date of this order, define, identify, and complete an inventory of old-growth and mature forests on Federal lands,” and after, that inventory is complete, to “analyze the threats to mature and old-growth forests on Federal lands,” and to develop strategies “that address threats to mature and old-growth forests on Federal lands.” E.O. 14,072, Sec. 2, 81 Fed. Reg. at 24852. That inventory is now complete and it demonstrates the catastrophic losses of old growth over the last century and the importance of protecting what mature and old growth forest remains. Forest Service, Mature and Old-Growth Forests: Definition, Identification, and Initial Inventory on Lands Managed by the Forest Service and Bureau of Land Management (April 2023), and available at<https://www.fs.usda.gov/sites/default/files/mature-and-old-growth-forests-tech.pdf> (last viewed Aug. 27, 2023).

Despite the President’s directive that the Forest Service respond to the climate crisis by conserving, inventorying, and developing policies to address threats to mature forests, the Hungry Creek Project area will remove vast mature conifers on nearly 16,000 acres – nearly 25 square miles. And despite the importance of responding to the climate crisis to protect forests and the wildlife that inhabit them, the Forest Service declines to quantify the project’s climate impacts, makes invalid comparisons contrary to current guidance and caselaw, and provides a variety of excuses for why the impacts on carbon storage will be “extremely small.”

The agency’s failure to quantify the climate impacts of the project is arbitrary and capricious.

c. The Forest Service may not dismiss the impacts to carbon stores as “minimal” or “negligible.”

The Forest Service’s discussion of the Hungry Creek Project’s climate impacts dismisses them as “extremely small … relative to national and global emissions.” EA at 56.

This approach distorts the project’s climate impacts, using metrics tailored to make the impacts of logging on carbon storage look small by comparison. Virtually any individual project impacting the climate, except perhaps those on a national scale, will look small when compared to climate emissions from all U.S. forests. CEQ’s 2023 Climate Guidance, as well as the Council’s 2016 NEPA climate guidance ***specifically recommended against using the type of comparison employed by the Dixie National Forest***:

a statement that emissions from a proposed Federal action represent only a small fraction of global emissions is essentially a statement about the nature of the climate change challenge, and is not an appropriate basis for deciding whether or to what extent to consider climate change impacts under NEPA. Moreover, these comparisons are also not an appropriate method for characterizing the potential impacts associated with a proposed action and its alternatives and mitigations because this approach does not reveal anything beyond the nature of the climate change challenge itself….

CEQ, 2016 NEPA Climate Guidance at 11. CEQ’s 2023 NEPA Climate Guidance makes the same statement. 88 Fed. Reg. at 1201. The fundamental difficulty at the heart of climate change is that it is the product of thousands of different decisions, yet each one adds to and worsens a problem that threatens trillions of dollars in damage, will impair public health, and will disproportionately burden people of color and those with lower incomes, and worsen the biodiversity crisis, among other impacts. Carbon emitted or not stored today will warm the climate for centuries and have impacts far beyond those in Utah (or the U.S.).

The agency’s decision declining to quantify the project’s impacts because they are allegedly “extremely small” in comparison to the world’s (or nation’s) carbon emissions is thus not only misleading, it masks the fact that every additional bit of climate pollution, or elimination of carbon sequestration ability, makes the problem worse, and that every bit of sequestration and storage is critical to the solution.

This approach is not only contrary to existing guidance, and Biden administration policy, as discussed above, it is contrary to federal court decisions. *Ctr. for Biological Diversity v. United States Forest Serv.*, 2023 U.S. Dist. LEXIS 144726, at \*25-\*37 (D. Mont. Aug. 17, 2023) (vacating Forest Service decision approving timber project as violating NEPA in part because the agency dismissed the project’s climate impacts as “infinitesimal,” and noting that “[u]nder this logic, the USFS could always skirt ‘hard look’ analysis when doing a carbon impacts review by breaking up a project into small pieces”); *350 Montana v. Haaland*, 50 F.4th 1254, 1259 (9th Cir. 2022) (setting aside agency’s determination that a coal mine expansion would not have significant impacts in part because that determination relied “on the arbitrary and conclusory determination that the … project’s emissions will be ‘minor’” compared to global and domestic emissions); *WildEarth Guardians v. Zinke*, 2019 U.S. Dist. LEXIS 30357 (D. Mont. Feb. 11, 2019) at \*25 (proposed findings) (“But by only comparing the estimated emissions to total U.S. emissions, OSM potentially diluted the adverse environmental effects of coal combustion at a local level. The Ninth Circuit has stated that when assessing the effects of an agency action, the appropriate analysis must include consideration of both broad scale and local impacts”); *Pac. Coast Fed. of Fisherman’s Ass’ns v. Nat’l Marine Fisheries Serv.*, 265 F.3d 1028, 1036-37 (9th Cir. 2001); *Or. Nat. Res. Council Fund v. Brong*, 492 F.3d 1120, 1129-30 (9th Cir. 2007) (noting that averaging environmental effects based on a broad scope can lead to misleading results). The Forest Service must provide the public and the decision-maker with a sense of the relevant scale of the climate harm of the proposed action in comparison to the no action alternative so that the impacts may be compared.

Even if the logging permitted in the Hungry Creek Project—when viewed in isolation—may only result in relatively minor climate impacts (whatever that means), NEPA expressly requires agencies to consider whether agency actions are “related to other actions with individually insignificant but cumulatively significant impacts.” 40 C.F.R. § 1508.27(b)(7) (1978). Thus, the Forest Service may not blithely dismiss and deny the climate impacts of the Hungry Creek Project without considering the cumulative significance of the project when added to other past, present, and reasonably foreseeable logging projects and Forest Service timber sales on the Dixie National Forest, in the state, region, and nation. 40 C.F.R*.* § 1508.7 (1978); *WildEarth Guardians v. Zinke*, 368 F. Supp. 3d 41 (D.D.C. 2019) (holding that BLM erred by failing to consider the cumulative climate impacts of oil and gas leases together with “GHG emissions generated by past, present, and reasonably foreseeable BLM lease sales in the region and nation”). The Forest Service failed to address these cumulative effects, violating NEPA.

d. The Forest Service’s assertions of the carbon benefits of logging contradict best available science.

The Forest Service bases its dismissal of the Hungry Creek Project’s climate impacts as “negligible” in part on the assumption that logging over 40,000 acres will result in storing carbon for years in wood products, that logging now will result in more resilient forests over the long term, and that the forest will regrow, storing carbon at that time. Scientific studies, unaddressed by the Forest Service, undercut each of these assumptions. Failing to address such contrary science violates NEPA’s “hard look” mandate.

The EA states that “[h]arvested trees turned into commercial products will continue to bind carbon.” EA at 56-57. The 2020 Dixie National Forest Carbon Assessment (at 2) further alleges that “timber harvests, thinning, and fuel reduction treatments that remove carbon from the forest and transfer a portion to wood products.”

The EA also asserts that if forest stands are at an increased risk of carbon loss through disturbances, such as wildfires and insect epidemics, then there may be a carbon benefit to removing those stands and losing the benefit of the carbon the trees presently store:

Overall, the project should have a neutral to positive balance on carbon sequestration and climate change as the vegetation treatments are designed to reduce the threat of high-intensity wildfire from killing large patches of intact forest in a single event.

EA at 57. None of the agency's assertions is well founded; all of it is contradicted by science that the agency has failed to acknowledge or rebut.

First, contrary studies largely unaddressed by the Forest Service (an oversight that violates NEPA) demonstrate that significant volumes – in some cases a majority – of carbon stored in trees are *immediately* lost when trees are logged and milled, and the rest is likely to be returned to the atmosphere *sooner than would occur if the trees were left standing*, eliminating *any alleged benefits* from storing carbon in wood products.

[H]arvesting carbon will increase the losses from the forest itself and to increase the overall forest sector carbon store, the lifespan of wood products carbon (including manufacturing losses) would have to exceed that of the forest. Under current practices this is unlikely to be the case. A substantial fraction (25%– 65%) of harvested carbon is lost to the atmosphere during manufacturing and construction depending on the product type and manufacturing method. The average lifespan of wood buildings is 80 years in the USA, which is determined as the time at which half the wood is no longer in use and either decomposes, burns or, to a lesser extent, is recycled. However, many forest trees have the potential to live hundreds of years ….

B. Law & M.E. Harmon, Forest sector carbon management, measurement and verification, and discussion of policy related to mitigation and adaptation of forests to climate change. *Carbon Management* (2011) 2(1), available at<https://www.researchgate.net/publication/235591616_Forest_sector_carbon_management_measurement_and_verification_and_discussion_of_policy_related_to_climate_change> (last viewed Aug. 28, 2023).

Second, additional studies conclude that the extent to which carbon benefits can be realized from leaving forests standing depends on a variety of factors, virtually none of which the Forest Service evaluated in the EA:

The climate change mitigation benefit of keeping a forest as a carbon sink or to harvest it depends on several factors, including the inventory and age of standing timber, the growth rate of the forest, the dynamics of the carbon fluxes (including the threat of natural disturbance), the time frame being considered, and the context of carbon displacement factors used when wood products replace non-wood products.

C. Howard *et al.,* Wood product carbon substitution benefits: a critical review of assumptions, *Carbon Balance & Management* (2021) 16:9, at 2, available at<https://www.researchgate.net/publication/350511044_Wood_product_carbon_substitution_benefits_a_critical_review_of_assumptions> (last viewed Aug. 28, 2023).

Peer-reviewed articles indicate that there is little substitution benefit of using wood compared to using other products (e.g., concrete for building), and that industry (and agency) talking points to the contrary vastly overestimate the carbon benefits of using wood. *See* M. Harmon, Have product substitution carbon benefits been overestimated? A sensitivity analysis of key assumptions, *Environmental Research Letters* (2019), available at<https://iopscience.iop.org/article/10.1088/1748-9326/ab1e95/pdf> (last viewed Aug. 28, 2023) (“Substitution of wood for more fossil carbon intensive building materials has been projected to result in major climate mitigation benefits often exceeding those of the forests themselves. A reexamination of the fundamental assumptions underlying these projections indicates long-term mitigation benefits related to product substitution may have been overestimated 2- to 100-fold.”). Again, the Forest Service’s failure to address contrary scientific conclusions violates NEPA.

Third, to address the climate crisis, agencies cannot rely on the re-growth of cleared forests to make up for the carbon removed when mature forest is logged. Yet the Forest Service implies exactly that. See EA at 57. Absent from the Forest Service’s analysis is any estimate for *how long* it will take to undo the carbon damage done by eliminating forests that are now efficiently storing carbon. As one prominent researcher explained:

It takes at least 100 to 350+ years to restore carbon in forests degraded by logging (Law et al. 2018, Hudiburg et al. 2009). 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* (IPCC, 2018).”

C. Howard *et al.,* Wood product carbon substitution benefits: a critical review of assumptions, *Carbon Balance & Management* (2021) 16:9, at 2, available at<https://www.researchgate.net/publication/350511044_Wood_product_carbon_substitution_benefits_a_critical_review_of_assumptions> (last viewed Aug. 28, 2023). Another agrees: “The importance of forest carbon storage is now greatly amplified by a warming climate that must urgently be addressed with reductions in greenhouse gasses and natural climate solutions.” Law, *et al*., The Status of Science on Forest Carbon Management (emphasis added). *See also* IPCC (2018). *See also* T. Hudiburg et al., Carbon dynamics of Oregon and Northern California forests and potential land-based carbon storage.

The Forest Service ignores the timing aspect of the climate crisis and the fact that we must reduce climate pollution (and continue robust carbon storage) *now*, not decrease carbon storage and worsen emissions over the next century as the Hungry Creek Project would do.

Further, the EA asserts that the certain destruction of carbon-storing forests now can be offset by the uncertain increased risk of carbon loss through disturbances. EA at 57 (“Overall, the project should have a neutral to positive balance on carbon sequestration and climate change as the vegetation treatments are designed to reduce the threat of high-intensity wildfire from killing large patches of intact forest in a single event. If the treatments are successful, the overall resilience of the forest would improve, which would make it more adaptable to climate stressors including drought”).

e. The EA Fails to Quantify Carbon Impacts

The CEQ 2016 climate guidance, which CEQ in February 2021 urged agencies to rely on, contains explicit guidance on carbon storage, and notes:

Quantification tools [to evaluate climate emissions or storage] *are widely available, and are already in broad use in the Federal and private sectors*, by state and local governments, and globally. Such quantification tools and methodologies have been developed to assist institutions, organizations, agencies, and companies with different levels of technical sophistication, data availability, and GHG source profiles. When data inputs are reasonably available to support calculations, agencies should conduct GHG analysis and disclose quantitative estimates of GHG emissions in their NEPA reviews. These tools can provide estimates of GHG emissions, including emissions from fossil fuel combustion and *estimates of GHG emissions and carbon sequestration for many of the sources and sinks potentially affected by proposed resource management actions*.

CEQ, 2016 NEPA Climate Guidance at 12 (emphasis added). The guidance further specifies that estimating GHG emissions is appropriate and necessary for actions such as individual federal forest projects. *Id*. As described above, the 2023 CEQ Guidance contains even more explicit direction on this point, which the agency chose to ignore.

The Forest Service nowhere explains why it is unable to address climate, carbon storage, and sequestration in a project covering nearly 50,000 acres – which covers thousands of stands – but can do so at the Forest level. Solely relying on the entirely backward looking 2020 Forest level analysis again contradicts the 2016 (and 2023) CEQ climate guidance which assumes that land management agencies can and should address the climate effects of individual, site-specific projects.

The 2020 Dixie National Forest Carbon Assessment (at 5) concludes that the Forest is storing about 56 million tons of carbon over two million acres. The Hungry Creek project will remove trees on roughly 2.5% of the Forest. Even assuming the project removes only about one-tenth of the carbon stores on those acres, the project will result in about half a million tons of CO2 equivalent in carbon stores. (0.025 X 56 million = 1.4 million tons of carbon. 10% of 1.4 million tons of carbon = 140,000 tons of carbon. 1 ton of carbon = 3.67 tons of CO2. 140,000 tons of carbon = 513,800 tons of CO2 equivalent). That’s more than the amount of CO2 produced by running a natural gas power plant for a year. *See*<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>.

This is a significant level of addition to carbon pollution, and should have been disclosed and quantified in the Project NEPA analysis.

f. Conclusion

The Forest Service failure to comply with its duty to disclose the Hungry Creek Project’s impacts on climate change and carbon storage contradicts the Dixie National Forest Carbon Assessment’s recognition (at 1) that “Carbon uptake and storage are some of the many ecosystem services provided by forests.” If carbon storage is an “ecosystem service,” the National Forest should do more than merely wave away the Hungry Creek Project’s impacts on that ecosystem service. And under caselaw, agency guidance, and President Biden’s directives, it must do more.

2. The Forest Service fails to disclose and quantify the fossil fuel pollution of implementing the Hungry Creek Project.

Logging and burning treatments, and the nearly 40 miles of skid trail construction, and temporary road construction, as well as miles of reconstruction and maintenance of some routes necessary to access the cutting units, for the 20-year life of the project will require the use of heavy equipment, almost certainly exclusively powered by fossil-fueled engines. So will transporting logs to mills, a task that will involve potentially thousands of loaded truck trips to mills. This activity will result in greenhouse gas pollution that will worsen climate change for centuries, and that pollution will be over and above the pollution that would occur under the no action alternative. Milling and preparing wood products from raw logs, and transporting them to market, will also cause greenhouse gas pollution.

Neither the 2023 Final EA, nor the Carbon Storage and Sequestration Report, nor any other document in the record acknowledges or attempts to disclose these impacts. The EA simply brushes off these impacts stating: “This project would result in the release of CO2 as the result of heavy equipment operation, timber hauling and road maintenance and reclamation. These releases will be limited in magnitude and duration.” EA at 56. This means that the agency does not attempt to analyze or quantify the project’s carbon pollution impacts from road construction, logging, log transport, milling, and shipping products to market.

This contrasts to the approach taken elsewhere by the Forest Service and by other agencies, such as the Office of Surface Mining, which have disclosed in NEPA documents the estimated pollution from internal combustion engines necessary to mine, process, and ship coal to market. *See, e.g.*, Office of Surface Mining & Bureau of Land Management, Environmental Assessment, Colowyo Coal Mine Collom Permit Expansion Area Project (Jan. 2016) at 4-15 – 4-18 (including table assessing “direct GHG emissions” from “drills,” “dozers,” “graders,” “haul trucks,” etc., for the proposed action); U.S. Forest Service, Supplemental Final Environmental Impact Statement, Federal Coal Lease Modifications COC-1362 & COC-67232 (Aug. 2017) at 102-113 (publishing tables estimating emissions of air pollutants, including greenhouse gasses CO2 and CH4 (methane) for activities including road and well pad construction, heavy equipment use, and commuter vehicle trips for the no action and proposed action alternatives). Federal courts have noted agencies have done so as well. *350 Montana* *v. Haaland*, 50 F.4th 1254, 1259 (9th Cir. 2022) (noting agency disclosed climates impacts of transporting coal by rail and then ship, and end-use combustion overseas).

These OSM or Federal Coal Lease Modifications analyses demonstrate that agencies, including the Forest Service, can and do attempt to disclose direct climate emissions from construction and transport activities. While coal mining has different climate impacts than logging, the point is that agencies can and have disclosed the climate pollution from fossil fuel engines used in resource extraction, transport, and end use. The Forest Service provides no basis (let alone a reasonable one) for failing to do the same for the Hungry Creek Project. This violates NEPA.

The Forest Service cannot assert that there is no reasonable way to collect this information because EPA has developed models that allow agencies to disclose the carbon pollution impacts of truck trips, bulldozers, and other equipment. *See, e.g.,* EPA, Overview of EPA’s Motor Vehicle Emission Simulator (MOVES3) (Mar. 2021), available<https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1011KV2.pdf> (last viewed Aug. 28, 2023). Tools exist for the Forest Service to undertake such analysis.

The Forest Service’s failure to address the climate pollution impacts of timber sale preparation, road construction, transport, and milling is arbitrary because the agency asserts that one of the project’s purposes is to “[s]alvage [the] commercial value of timber stands,” thus justifying the project on the *economic* impacts of these activities, but ignores the climate impacts.

It is also arbitrary because the Forest Service concludes that carbon losses from logging will be limited because cut trees will be turned into wood products. But it can’t take credit for these alleged carbon savings without accounting for the climate pollution required (in the form of logging, transport to mills, milling, and transport to market) that it will take to turn those trees into wood products.

Federal courts have repeatedly concluded that federal agencies must take a “hard look” at foreseeable downstream impacts of a project, particularly where those impacts are part of the project’s purpose. *See, e.g., Sierra Club v. FERC*, 867 F.3d 1357, 1372 (D.C. Cir. 2017) (holding that a federal agency violated NEPA by failing to take a hard look at the greenhouse gas emissions of burning gas that would be transported by the agency’s approval of pipelines, where the burning of that gas was “not just reasonably foreseeable” but “the project’s entire purpose”). Here, the Forest Service proposed the project in part to reap economic benefits from timber production. The Forest Service therefore must disclose the climate impacts of producing and shipping those timber products.

**X. Herbicide chemicals pose serious risks to people, wildlife, and the forest ecosystem.**

The EA proposes to apply herbicide across 769 acres to reduce shrub cover in the sagebrush steppe, shrublands, and grasslands.

 “Treat sagebrush steppe using mechanical treatments and/or herbicide. Reduce shrub (primarily sagebrush) cover via Tebuthiuron (i.e., Spike) in small (< 100 ac) areas of dense sagebrush stands where the herbaceous (i.e., grasses and forbs) understory is currently being limited. Approximately 30% of these stands would be treated, creating age-class diversity.” EA at 32.

The EA at 33 indicates that there are 2,566 acres of sage steppe/shrublands/grasslands restoration. 30% of that area is 769 acres. These areas targeted for herbicide application are concentrated along riparian areas and directly adjacent to ephemeral streams.[1] These narrow riparian areas contain concentrated wildlife habitat, corridors, and recreation use.

Even when used as instructed, chemicals pose serious risks to people, wildlife and native plants. Many herbicides are highly resistant to breakdown, sometimes taking years to decay. Due to their persistence, wood chips from poisoned trees and grass clippings cannot be used for compost because the toxins can continue to kill vegetables and flowers. In response, states have warned consumers and farmers that feed and compost may include persistent chemical residues.[2] Many of the toxic herbicides that the Forest Service has proposed to spray on National Forests have not been studied in more than a decade, so the true risk to plants and animals is unknown. The Environmental Protection Agency has ignored the Endangered Species Act’s requirement to study the potential harms from these chemicals to endangered species, so the public cannot know how imperiled species will be impacted by herbicides.

*The proposed action violates NEPA.*

NEPA is “our basic national charter for protection of the environment.”[3] Its purpose is to “encourage productive and enjoyable harmony between man and his environment” and to “promote efforts which will prevent or eliminate damage to the environment . . . .”[4] As a threshold matter, the Forest Service must establish a purpose or need for the herbicide spraying proposals. A proposal to use herbicides, when the Project hasn’t established the problem necessitating their use, and when there are other means available to address resprouting and invasive species, would be arbitrary, capricious and contrary to the law.[5]

As described above, any subsequent NEPA document should articulate a range of reasonable alternatives. NEPA analysis “shall serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made.”[6] NEPA requires agencies to “[s]tudy, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources.”[7] In fact, the alternatives section is considered the heart of an environmental analysis.[8] At least one alternative should forego the use of herbicides.

In using herbicides, the Forest Service must comply with the principles of Integrated Pest Management (IPM). The Forest Service must consider an IPM approach that takes a comprehensive look at the vectors that introduce and spread invasive plants, and consider a comprehensive plan for addressing those vectors and reducing the impacts of invasive plants. However, the proposed action does not identify the invasive species to be targeted in the project area, nor the metrics the project will apply in determining where and how to address invasive species.

NEPA’s core function is to “help public officials make decisions that are based on understanding of environmental consequences,”[9] by requiring federal agencies to take a “hard look” at potential environmental consequences and environmentally enhancing alternatives “as part of the agency’s process of deciding whether to pursue a particular agency action.”[10] The Forest Service must give more than a perfunctory glance at potential impacts of herbicide use in order to meet NEPA’s hard look mandate. For example, the analysis should disclose the herbicides to be used, the cost of the herbicides, the equipment needed to deploy them including personal protective equipment for those spraying them, the cost of herbicide trainings including associated travel and time away from other tasks, the cost of secure herbicide storage, and the cost of implementing procedures in the event of herbicide poisoning and any of the costs associated with herbicide use.

In any NEPA analysis, an agency must adequately describe the affected environment, and disclose the environmental consequences of the proposed action and each of the alternatives to the proposed action.[11] The Forest Service must adequately describe the units within the project area that it seeks to deploy toxic herbicides on, or the consequences of action under the various alternatives on these many unique zones.

The Forest Service is also required to consider three types of environmental effects: those that are direct, indirect, and cumulative.[12] Direct effects “are caused by the action and occur at the same time and place.”[13] Indirect effects “are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.”[14] A cumulative impact results from the incremental impact of the proposed action “when added to the effects of other past, present, and reasonably foreseeable future actions regardless of what agency . . . undertakes such other actions.”[15] “Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.”[16] Under NEPA, “effects” and “impacts” are synonymous terms that include “ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health.”[17] The agency’s statements “shall be supported by evidence that the agency has made the necessary environmental analyses.”[18]

The Forest Service must look at the direct, indirect and cumulative effects of herbicide use. For example, one direct effect of herbicide use will be dead flowering plants and less food available for pollinators. The Dixie National Forest is home to countless species (literally, as there has been no thorough survey) of native bees and other pollinators, so we expect an analysis of this direct effect. Sticking with the example of pollinators, we also expect an analysis of the indirect effects of reduced forage for pollinators. And, finally, there must be a cumulative effects analysis of herbicide use with all the other impacts that are directly foreseeable, such as livestock grazing, OHV use, wildfire, logging, road maintenance, climate change, etc.

*The proposed action violates ESA*

The EA proposes to use Tebuthiuron in the herbicide applications. EPA found that the current, labeled uses of tebuthiuron resulted in acute and chronic risks of concern to: mammals, terrestrial-phase amphibians, reptiles, small-sized birds, terrestrial and aquatic plants. This poses a risk to yellow-billed cuckoo, spotted bat, broad-tailed hummingbird, and Virginia’s warbler utilizing the riparian areas.

In considering permitting the use of herbicides on the project, the Forest Service must comply with its substantive mandates under the Endangered Species Act (“ESA” or “Act”). In looking at the impacts of the various herbicides to be proposed, the Forest Service must recognize that the EPA has never completed Section 7 consultation under the ESA for any pesticides. In the wake of EPA’s failure to complete ESA consultations on pesticides, the Forest Service and U.S. Fish and Wildlife Service cannot simply rely on other risk assessments unrelated to ESA consultation to determine effects to species.

For decades, the EPA has refused to comply with its substantive and procedural ESA duties when it registers pesticides. Despite the clear and unambiguous command of the ESA, the EPA has never implemented a nationwide pesticide consultation with the Services on the registration of any pesticide. Indeed, absent litigation forcing the EPA to comply with the law, the EPA has never voluntarily consulted on the impacts of any pesticide or pesticide product on any species.[19] Restricting herbicide use formulations to those containing either EPA or Forest Service risk assessments cannot meet ESA requirements for this project. These risk assessments fail to comply with the basic mandates of the Act, as their purpose is pesticide registration, and they do nothing to analyze the effects on individual listed species, as the ESA requires.

The Endangered Species Act was enacted to provide a “means whereby the ecosystems upon which endangered species and threatened species depend may be conserved…[and] a program for the conservation of such endangered species and threatened species.”[20] As the Supreme Court has unequivocally summarized, the ESA’s “language, history and structure” make clear and “beyond doubt” that “Congress intended endangered species to be afforded the highest of priorities,” and endangered species should be given “priority over the ‘primary missions’ of federal agencies.”[21] Simply put, “[t]he plain intent of Congress in enacting this statute was to halt and reverse the trend toward species extinction, whatever the cost.”[22] 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.”[23]

The EPA and Forest Service risk assessments do not afford endangered species the highest of priorities, and cannot be used to analyze the effects of herbicides on listed species. To fulfill the substantive purposes of the ESA, each federal agency is required to engage in consultation with the Services to “insure that any action authorized, funded, or carried out by such agency ... is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the adverse modification of habitat of such species ... determined ... to be critical….”[24] The obligation to “insure” against a likelihood of jeopardy or adverse modification requires the agency to give the “benefit of the doubt” to endangered species and to place the burden of risk and uncertainty on the agency taking the proposed action.[25]

Section 7 “consultation” is required for “any action [that] may affect listed species or critical habitat.”[26] Agency “action” means “all activities or programs of any kind authorized, funded or carried out in whole or in part by Federal agencies.”[27] This definition is meant to be expansive and includes, but is not limited to, “(a) actions intended to conserve listed species or habitat; (b) the promulgation of regulations; (c) the granting of licenses, contracts, leases, easements, rights-of-way, permits, or grants-in-aid; or (d) actions directly or indirectly causing modifications to the land, water, or air.”[28]

Under the Services’ joint regulations implementing the ESA, an action agency such as the Forest Service must initiate consultation under Section 7 whenever its discretionary action “may affect” a listed species or critical habitat.[29] Only where the action agency determines that its action will have “no effect” on listed species or designated critical habitat is the consultation obligation lifted.[30]

Adoption of any herbicide use as contemplated in the scoping letter triggers the need for Section 7 consultation for the unique and incredibly diverse assortment of threatened and endangered plants and animals in the Dixie NF.

Section 7(a)(2) requires that the action agency determine at the earliest possible time whether the action “may affect” listed species, or else issue a “no effect” determination.[31] The “may affect” threshold is “relatively low” to ensure that “actions that have any chance of affecting listed species or critical habitat—even if it is later determined that the actions are not likely to do so—require at least some consultation under the ESA.”[32] If the “may affect” threshold is met, the agency must determine if the action is “likely to adversely affect” (LAA) or “not likely to adversely affect” (NLAA) listed species and obtain concurrence from the Services. When a LAA determination is made, formal consultations with the Services are required.

When the Forest Service initiates consultation on this action, it must not only consider the direct effects when making this threshold call of whether the herbicides may affect listed species, but it also must consider indirect and cumulative effects. For example, for a listed bird, the Forest Service must not only consider the direct effect of lost habitat if herbicides are used to kill trees they nest in, but it also must consider indirect effects such as the loss of plants that provide habitat for the insects that the bird consumes. And it must consider the cumulative effects, like bioaccumulation of the herbicide in soil and associated effects on insects and soil microbes.

Adopting any of the alternatives that would allow for herbicide use will in effects to listed species (for example, yellow-billed cuckoo), and in addition to passing the “may affect” threshold, this action would also likely exceed the “likely to adversely affect” threshold as well, thereby triggering the requirement to conduct formal consultation with the U.S. Fish and Wildlife Service. The Forest Service may not move forward with any final decisions on this project until it completes formal ESA consultation.

In addition to requiring consultation under Section 7, Section 9 prohibits any person—whether a private or governmental entity—to “take” any endangered species of fish or wildlife listed under the ESA.[33] “Take” is defined to mean “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in such conduct.”[34] FWS has defined “harm” to include “significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering.”[35] Only an incidental take statement issued along with a final biological opinion can shield the action agency from the prohibition against take. If the Forest Service allows any herbicide use prior to completing formal consultation with the U.S. Fish and Wildlife Service, it will very likely be committing unauthorized take, and will be subject to the consequences provided under the Act.

*Use of pesticides on native plants*

Failure to address the importance of these native plants to restoration and climate resiliency would violate NEPA’s hard look mandate. Removing native plants with chemicals that have complex and at-times unpredictable cumulative effects will lead to additional cumulative effects throughout the ecosystem. Treatments that rely on herbicide as an essential next step following a forest thinning will not benefit the overall health of the ecosystem, and because of significant risk of drift and persistence, there are many cumulative impacts to wildlife and native plants which cannot be easily quantified. Cumulative herbicide application can have substantial impacts to water quality and wildlife habitat, and is not supported by best available science.

*Integrated Pest Management*

Prevention is the most cost-effective action that the Forest Service can perform to maintain the health and integrity of the forest. Reliance on herbicide means that the Forest Service has failed their mandate to follow Integrated Pest Management protocols.[36]

The Natural Resources Conservation Service (NRCS) defines Integrated Pest Management as “*a site-specific combination of pest prevention, pest avoidance, pest monitoring, and pest suppression strategies*.”[37] IPM was developed as a process for addressing pests of all kinds as a response to the overuse of chemical pesticides and their associated environmental harms.[38] Pesticide overuse threatens environmental health, disrupts food webs, contaminates drinking water, and undermines pesticide effectiveness.[39]

IPM has become the standard framework for using pesticide on public lands across the Federal government and the Federal, Insecticide, Fungicide, and Rodenticide Act (FIFRA) states that “…the [Environmental Protection Agency] Administrator in cooperation with the Secretary of Agriculture shall develop approaches to the control of pests based on integrated pest management…”.[40] IPM practice is codified into the laws and regulations of agencies that manage public lands including: the United States Department of Agriculture’s United States Forest Service (USFS)[41] which manages the Gila NF, as well as the Department of Interior (DOI)[42], and its Bureau of Land Management (BLM)[43] and National Parks Service (NPS)[44].

The most important use of IPM on public land is for the management of invasive species as directed by Executive Orders 13112[45] and 13751,[46] which instruct Federal Agencies to prevent the introduction and spread of invasive species. There are approximately 50,000 alien species in the United States that impact the survival of 42% of all threatened and endangered species.[47] Alien species degrade ecosystems by suppressing natural biodiversity, altering food webs, changing nutrient cycling, introducing novel diseases, and can cause significant economic damage.

Alien species cause up to $120 billion a year in environmental damages[48] and the U.S. government spends billions of dollars a year to mitigate and control alien species.[49] IPM is essential to stopping the spread and introduction of alien species on public land, and per the basic tenets of IPM, efforts must focus on the root causes of species spread. We believe that pesticides should only be used as a last resort, and the Forest Service must not rely on reflexive or reactive pesticide use. Already, there are countless examples of federal land management agencies claiming to adhere to the tenets of IPM but in reality, deploying dangerous pesticides as a first line of attack. In the absence of clear direction for herbicide use, the Forest Service unwittingly lays the groundwork to be another example of this tragic phenomenon.

IPM is a process that requires planning that is land-use- and pest-specific that uses the minimum level of pest suppression necessary.[50] IPM relies on prevention, avoidance, monitoring, and suppression (PAMS) techniques in order to decrease pest pressure from a combination of biological, cultural, and chemical controls.[51] Successful management requires the preparation and implementation of strategic, long-term plans with defined threshold values for pest control actions that rely on prevention, education, and restoration that enhance the overall health of an ecosystem.[52] Early Detection and Rapid Response (EDRR) is essential to identifying, monitoring, and removing new alien species from an environment.[53] In IPM, chemical control may only be the last line of defense after preventative and avoidance practices have been implemented, and in IPM, even when pesticides are used, the least toxic options are deployed.

We oppose widespread permissions for herbicide use on public land. We challenge the Forest Service to develop meaningful use-criteria for herbicides in order to fulfill its mandate to use integrated pest management principles and protocols to reduce the likelihood of default reliance on herbicides. The analysis should present a strategic, long-term plan with defined thresholds and PAMS techniques that would address noxious weeds now and in the future; these must be developed.

*Impacts associated with Tebuthiuron*

The EA specifically identifies Tebuthiuron as the herbicide to be applied in the Hungry Creek project.

EPA has found that the current, labeled uses of tebuthiuron resulted in acute and chronic risks of concern to: mammals, terrestrial-phase amphibians, reptiles, small-sized birds, terrestrial and aquatic plants.

Nearby birds, amphibians, and reptiles were estimated to be exposed to levels of tebuthiuron that cause chronic harm for 140 days out of the year and at a distance of up to 139 ft from the site of application.[54] Mammals were estimated to be exposed to a level of tebuthiuron that was 45 times higher than the level known to cause harm.[55] Harm to mammals from tebuthiuron could extend up to 100 days out of the year at a distance of up to 479 ft.[56] The labeled uses of tebuthiuron can expose terrestrial plants to over 1000 times the level known to cause harm. Harm to plants can also extend 1000 ft from the site of use.[57]

EPA found that bystanders could be exposed to concerning levels of tebuthiuron at distances of up to 150 ft away.[58] And that occupational users can be harmed by some uses of the pesticide, even when wearing the label-required PPEs.[59]

Citations for Section X:

[1] See Figure 3, Vegetation Treatments, EA at 43.

[2]<https://www.maine.gov/dacf/php/pesticides/documents2/messages/Important%20Warning%20Regarding%20Persistent%20Herbicides.pdf> (last viewed Sep. 4, 2020).

[3] 40 C.F.R. § 1500.1(a).

[4] 42 U.S.C. § 4321. 71.

[5] The APA confers a right of judicial review on any person that is adversely affected by a federal agency action. 5 U.S.C. § 702. Upon review, the Court shall “hold unlawful and set aside agency actions . . . found to be arbitrary, capricious, and abuse of discretion, or otherwise not in accordance with law.” Id. § 706(2)(A).

[6] 40 C.F.R. § 1502.02(g); *see id*. § 1500.1(c) (“NEPA’s purpose is not to generate paperwork—even excellent paperwork—but to foster excellent action”).

[7] 42 U.S.C. § 4331(2)(E).

[8] 40 C.F.R. § 1502.14.

[9] 40 C.F.R. § 1500.1(c).

[10] *Baltimore Gas & Elec. Co. v. Nat. Res. Def. Council*, 462 U.S. 87, 100 (1983); *see also* 42 U.S.C. § 4332(1) (“[T]he policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in [NEPA].”).

[11] 40 C.F.R. § 1502.1.

[12] *Id*. § 1508.25(c).

[13] *Id*. § 1508.8(a).

[14] *Id*. § 1508.8(b).

[15] *Id*. § 1508.7.

[16] *Id*.

[17] *Id*. § 1508.8 (emphasis added); see also id. § 1508.14. 74.

EPA found that the current, labeled uses of tebuthiuron resulted in acute and chronic risks of concern to: mammals, terrestrial-phase amphibians, reptiles, small-sized birds, terrestrial and aquatic plants.

[18] *Id*. § 1502.1.

[19] EPA has voluntarily implemented conservation measures for four listed species over the past 50 years: (1) measures to protect Attwater’s prairie chicken from thiram, (2) measures to protect the Delmarva fox squirrel from carboxin, (3) measures to protect the Karner blue butterfly from methoxyfenozide, and (4) measures to protect the Hine’s emerald dragonfly from methoxyfenozide.

[20] 16 U.S.C. §§ 1531-1544; 16 U.S.C. § 1531(b).

[21] *Tenn. Valley Auth. V. Hill*, 437 U.S. 153, 174-75 (1978).

[22] *Id.* at 184.

[23] 16 U.S.C. § 1532(3).

[24] *Id.* § 1536(a)(2).

[25] *See Sierra Club v. Marsh*, 816 F.2d 1376 1385 (9th Cir. 1987).

[26] 50 C.F.R. § 402.14

[27] *Id.* at § 402.02.

[28] *Id.*

[29] 50 C.F.R. § 402.14(a); *See also Ass’n of Home Builders v. Defenders of Wildlife*, 551 U.S. 644 (2007).

[30] 50 C.F.R. § 402.14(a).

[31] 50 C.F.R. § 402.14(a).

[32] *Karuk Tribe of Cal. v. U.S. Forest Serv.*, 681 F.3d 1006, 1028 (9th Cir. 2012).

[33] 16 U.S.C. § 1538(a)(1)(B).

[34] *Id*. § 1532(19).

[35] 50 C.F.R. § 222.102.

[36] U.S. Forest Service, “FSM 2100 - Environmental Management Chapter 2150 - Pesticide Management and Coordination,” 2014.

[37] NRCS, “Integrated Pest Management Code 595” (Natural Resource Conservation Service, 2010), https://efotg.sc.egov.usda.gov/references/public/NY/nyps595.pdf.

[38] Gerrit Cuperus, Richard Berberet, and Phillip Kenkel, “The Future of Integrated Pest Management,” in *E. B. Radcliffe,W. D. Hutchison & R. E. Cancelado [Eds.], Radcliffe’s IPM World Textbook* (St. Paul, MN: University of Minnesota, n.d.), https://ipmworld.umn.edu.

[39] John Peterson Myers et al., “Concerns over Use of Glyphosate-Based Herbicides and Risks Associated with Exposures: A Consensus Statement,” *Environmental Health* 15 (February 17, 2016), https://doi.org/10.1186/s12940-016-0117-0; Maarten Bijleveld van Lexmond et al., “Worldwide Integrated Assessment on Systemic Pesticides,” *Environmental Science and Pollution Research* 22, no. 1 (January 1, 2015): 1–4, https://doi.org/10.1007/s11356-014-3220-1; Gregor J. Devine and Michael J. Furlong, “Insecticide Use: Contexts and Ecological Consequences,” *Agriculture and Human Values* 24, no. 3 (September 1, 2007): 281–306, https://doi.org/10.1007/s10460-007-9067-z.

[40] “Federal Insecticide, Fungicide, and Rodenticide Act,” 7 U.S. Code § 136w–3 (c) (2012).

[41] U.S. Forest Service, “Forest Service Manual 2100-Environmental Management,” Chapter 2150 (U.S. Forest Service, March 19, 2013), page 6. Departmental Regulation 9500-4.

[42] U.S. Department of the Interior, “Department of the Interior Departmental Manual,” Chapter 1: Integrated Pest Management Policy, Section 1.5, Part 517, Series 31: Environmental Quality Programs (U.S. Department of the Interior, May 31, 2007).

[43] U.S. Bureau of Land Management, “BLM Vegetation Treatments Using Herbicide Final Programmatic EIS Record of Decision” (U.S. Bureau of Land Management, 2007), 4–6, https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=renderDefaultPlanOrProjectSite&projectId=70300&dctmId=0b0003e880de5eb8.

[44] U.S. National Park Service, “Management Policies 2006” (Washington, D.C.: U.S. National Park Service, 2006), 48, https://www.nps.gov/policy/MP\_2006.pdf.

[45] William Clinton J, “Executive Order 13112 Invasive Species” (Federal Register, February 3, 1999), https://www.govinfo.gov/content/pkg/FR-1999-02-08/pdf/99-3184.pdf.

[46] Barack Obama, “Executive Order 13751 Safeguarding The Nation From the Impacts of Invasive Species” (Federal Register, December 8, 2016).

[47] David Pimentel, Rodolfo Zuniga, and Doug Morrison, “Update on the Environmental and Economic Costs Associated with Alien-Invasive Species in the United States,” *Ecological Economics*, Integrating Ecology and Economics in Control Bioinvasions, 52, no. 3 (February 15, 2005): 273–88, https://doi.org/10.1016/j.ecolecon.2004.10.002.

[48] Pimentel, Zuniga, and Morrison.

[49] National Invasive Species Council, “National Invasive Species Council Crosscut Budget” (Washington, D.C.: National Invasive Species Council, January 25, 2018), https://www.doi.gov/sites/doi.gov/files/uploads/crosscut\_25january2018.pdf.

[50] NRCS, “Integrated Pest Management Code 595.”

[51] NRCS.

[52] Joseph M. DiTomaso, “Invasive Weeds in Rangelands: Species, Impacts, and Management,” *Weed Science* 48, no. 2 (April 2000): 255–65, https://doi.org/10.1614/0043-1745(2000)048[0255:IWIRSI]2.0.CO;2.

[53] Lindy Garner, “Early Detection and Rapid Response to New Invasive Grasses in North Central Wyoming” (U.S. Fish and Wildlife Service, April 2019), https://www.doi.gov/sites/doi.gov/files/uploads/wyoming\_invasive\_grasses\_report.pdf.

[54] EPA. Transmittal of the Draft Environmental Fate and Ecological Risk Assessment in Support of the Registration Review of Tebuthiuron. May 20, 2014. Pg. 3. Available here:<https://www.regulations.gov/document?D=EPA-HQ-OPP-2009-0327-0042>.

[55] *Id.*

[56] *Id.*

[57] *Id.*

[58] EPA. Tebuthiuron: Draft Human Risk Assessment. June 12, 2014. Pg 25. Available here:<https://www.regulations.gov/document?D=EPA-HQ-OPP-2009-0327-0041>.

[59] *Id.* at 26-27.

**XI. The Proposed Action Threatens to Violate the Roadless Rule.**

The national Roadless Area Conservation Rule, adopted in 2001, generally prohibits the cutting, sale or removal of timber from National Forest Service inventoried roadless areas in Utah. 36 C.F.R. § 294.13(a), published at 66 Fed. Reg. 3244 (Jan. 12, 2001) (“Timber may not be cut, sold, or removed in inventoried roadless areas of the National Forest System, except as provided in paragraph (b) of this section.”).

Because the Forest Service proposes logging within IRAs, the Forest Service can only authorize such treatments if they comply with the Roadless Rule. As proposed in the EA, the Forest Service fails to demonstrate that the proposed action will comply with that law. Further, the potential impact to roadless area values and characteristics requires preparation of a full environmental impact statement.

**A. Proposed Actions within Roadless Areas**

The project area includes nearly all of the 17,118-acre Hog Ranch IRA, nearly all of the 15,135-acre Jake Hollow IRA, and more than half of the 8,328-acre McGrath Lake-Auger Hole IRA. *See* Dixie NF, Motorized Travel Plan, Inventoried Roadless Areas and Unroaded and Undeveloped Areas Specialist Report (March 2009) at 9 (identifying acreage of Dixie NF IRAs), available at<https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5220839.pdf> (last viewed Aug. 23, 2023).

The proposed action for the Hungry Creek Vegetation Improvement Project would authorize logging (“vegetation treatments”) across three roadless areas within the project area, across more than 24,346 acres, or more than 38 square miles. These logging “treatments” will include:

- more than 12,500 acres of “thinning,” involving “density reduction including sanitation for mistletoe control, removal of conifer for aspen, meadow restoration, and fuels reduction.” EA at 33. Thinning in the “aspen vegetation type” will involve “Remov[ing] larger conifers from within stands of aspen to reset the succession back to aspen.” EA at 31. In mixed-conifer, spruce/fir, and ponderosa pine forests, thinning will involve “Releas[ing] seral aspen clones from conifer competition” by removing “conifers within 10’ of the canopy drip line of any aspen 10" DBH or larger.” EA at 30-31.

- 9,588 acres of “aspen restoration,” involving the “removal of competing conifer trees from within and surrounding aspen.” EA at 33.

- 1,653 acres of “Sage steppe shrub-grass” treatments, involving “removing encroaching P/J [piñon-juniper], brush mastication, and herbicide treatments.” EA at 30.

- Several hundred acres of riparian logging, including “riparian machine and hand,” which includes logging via mastication and other means within 100 feet from the edge of water, and “riparian hand thin,” which includes logging within 100 feet from the edge of water. EA at 32.

The EA discloses that logging (“silviculture”) will occur throughout 79% of the Hog Ranch Inventoried Roadless Area (IRA); 58% of the Jake Hollow IRA, and 25% of the McGrath Lake/Auger Hole IRA. EA at 76. Thus the majority of the project’s 47,663 acres of vegetation treatments involve logging within IRAs, and the vast majority of IRA acreage in the project area will be logged. EA at 28.

Further logging and/or prescribed fire will occur on 94% of the Hog Ranch and Jake Hollow IRAs, and 65% of the McGrath Lake/Auger Hole IRA. The project will also authorize the following “fuels treatments” within most of the three IRAs:

- Broadcast burning

- Lop and scatter, cut and pile/pile burn/

- Lop and scatter/pile burn

- Whole tree yarding/pile burn

EA at 29.

**B. Legal Framework: The Roadless Rule**

The Roadless Rule provides that, in general, “[t]imber may not be cut, sold, or removed in inventoried roadless areas of the National Forest System.” 36 C.F.R. § 294.13(a). One exception to this general provision states:

timber may be cut, sold, or removed in inventoried roadless areas if the Responsible Official determines that one of the following circumstances exists. The cutting, sale, or removal of timber in these areas *is expected to be infrequent.*

(1) The cutting, sale, or removal of *generally small diameter timber* is needed for one of the following purposes and will *maintain or improve one or more of the roadless area characteristics* as defined in § 294.11.

(i) To improve threatened, endangered, proposed, or sensitive species habitat; or

(ii) To maintain or restore the characteristics of ecosystem composition and structure, such as to reduce the risk of uncharacteristic wildfire effects, within the range of variability that would be expected to occur under natural disturbance regimes of the current climatic period.

36 C.F.R. § 294.13(b)(1) (emphasis added). The Roadless Rule defines roadless area characteristics as:

Resources or features that are often present in and characterize inventoried roadless areas, including:

(1) High quality or undisturbed soil, water, and air;

(2) Sources of public drinking water;

(3) Diversity of plant and animal communities;

(4) Habitat for threatened, endangered, proposed, candidate, and sensitive species and for those species dependent on large, undisturbed areas of land;

(5) Primitive, semi-primitive nonmotorized and semi-primitive motorized classes of dispersed recreation;

(6) Reference landscapes;

(7) Natural appearing landscapes with high scenic quality;

(8) Traditional cultural properties and sacred sites; and

(9) Other locally identified unique characteristics.

36 C.F.R. § 294.11. The rule requires a highly site-specific analysis, given the regulation’s emphasis on “*locally identified* unique characteristics.” *Id.* (emphasis added).

The Roadless Rule’s preamble reinforces the need for such a site-specific analysis.

Because of the great variation in stand characteristics between vegetation types in different areas, a description of what constitutes “generally small diameter timber” is not specifically included in this rule. Such determinations are best made through *project specific* or land and resource management plan *NEPA analyses*, as guided by ecological considerations such as those described below.

The intent of the rule is to limit the cutting, sale, or removal of timber *to those areas that have become overgrown with smaller diameter trees*….

[A]ll such *determinations of what constitutes* “*generally small diameter timber*” will consider how the cutting or removal of various size classes of trees would affect the potential for future development *of the stand*, and the characteristics and interrelationships of plant and animal communities associated with the site and the overall landscape. *Site productivity due to factors such as moisture and elevational gradients, site aspect, and soil types will be considered, as well as how such cutting or removal of various size classes of standing or down timber would mimic the role and legacies of natural disturbance regimes in providing the habitat patches, connectivity, and structural diversity critical to maintaining biological diversity*. In all cases, the cutting, sale, or removal of small diameter timber will be consistent with maintaining or improving one or more of the roadless area characteristics as defined in § 294.11. ….

Vegetative management would focus on removing generally small diameter trees while leaving the overstory trees intact. The cutting, sale, or removal of trees pursuant to 294.13(b)(1) *must be clearly shown through project level analysis to contribute to the ecological objectives described*. Such management activities are expected to be rare and to focus on small diameter trees.

Forest Service, Roadless Area Conservation Rule, 66 Fed. Reg. 3244, 3257, 3258 (Jan. 12, 2001) (emphases added). In adopting the Roadless Rule, the Forest Service thus anticipated that logging in IRAs under this specific exception would only occur following a project-level NEPA analysis that evaluated *stand-specific conditions*.

As the Ninth Circuit Court of Appeals has summarized the Roadless Rule’s requirements:

“[w]hether the [Forest] Service may harvest timber in an inventoried roadless area is a three-step inquiry*.” All. for the Wild Rockies v. Krueger*, 950 F. Supp. 2d 1196, 1214 (D. Mont. 2013), *aff’d sub nom*. *All. for the Wild Rockies v. Christensen*, 663 F. App’x 515 (9th Cir. 2016). “First, the timber to be harvested must be ‘generally small diameter.’ Second, the harvest must be needed for one of two listed purposes [as defined in 36 C.F.R. § 294.13]. Third, the harvest must maintain or improve one or more of the roadless area characteristics as defined in § 294.11.” *Id*.

*Los Padres ForestWatch v. United States Forest Serv*., 25 F.4th 649, 656 (9th Cir. 2022).

**C. The Forest Service Must Ensure that the Project Will Not Construct Roads within IRAs.**

The Roadless Rule prohibits road construction within IRAs except in a narrow number of circumstances, none of which apply to this project, and none of which the EA invokes. 36 C.F.R. § 294.12.

The Forest service must make clear that the project will not permit road construction in IRAs.

First, the EA indicates that the logging equipment will utilize, and the Forest will “reopen” miles of “closed roads” within at least two IRAs. See EA at 46 (showing “utilized closed routes” within the Hog Ranch IRA, including routes G4100, G4101, and G4102, and such a route, 30499, within the Jake Hollow IRA). At a minimum, the Forest Service must provide photographic evidence of the condition of each of these routes.

“Reopening” closed roads may amount to temporary road construction, and such “reopening” has been set aside as in violation of the Roadless Rule by at least one federal court. *See Helena Hunter & Anglers v. Tidwell*, 841 F. Supp. 2d 1129 (D. Mont. 2009). In *Tidwell*, the Forest Service failed to disclose the nature of the closed roads in the IRAs that would allegedly be “reopened” with minor work. The court held that the roads to be reopened barely existed on the ground and would have to be effectively constructed before they could be used.

Second, the EA implies that 40 miles of vehicle routes - skid trails - will be built into roadless areas. EA at 35. (“Areas within the IRAs that require access for mechanical treatments would have skid trails *built* to facilitate [motorized] access.” (emphasis added)). The Roadless Rule defines a “road” as “a motor vehicle travelway over 50 inches wide” and a “temporary road” as “road authorized by contract, permit, lease, other written authorization, or emergency operation, not intended to be part of the forest transportation system and not necessary for long-term resource management.” 36 C.F.R. § 294.11. Thus, any skid trail built for the project that is over 50 inches wide would appear to meet the definition of a “temporary road” which is barred by the Roadless Rule. In any subsequently prepared NEPA document, the Forest Service must disclose the width of skid trails and explain why they do not meet the definition of “temporary road” in the Roadless Rule.

**D. Absent an Exception to the Roadless Rule, Removal of Pinyon and Juniper Trees for This Project Would Violate the Rule.**

The Forest Service cannot argue that the Roadless Rule’s prohibition on tree removal (which reads “[t]imber may not be cut, sold, or removed in inventoried roadless areas of the National Forest System”) does not apply to pinyon and juniper trees because trees are not “timber.” 36 C.F.R. § 294.13(a). Such an interpretation of the Rule would be precedent-setting, and thus would require preparation of an EIS. The preamble to the rule uses the terms “timber” and “trees” interchangeably, indicating that the ban on tree removal applies to all trees and not just those generally sold for wood products. Roadless Area Conservation Rule, 66 Fed. Reg. at 3257, 3258 (e.g., “Vegetative management would focus on removing generally small diameter *trees* while leaving the overstory *trees* intact.”). In any event, the Dixie National Forest Plan identifies “pinyon-juniper” as a “Timber Management” issue requiring further research, indicating the Forest considers pinyon and juniper to fit under the definition of “timber.” Dixie National Forest, Land and Resource Management Plan (1986) at II-61. If an exception to the rule is claimed, removal of pinyon and juniper must be infrequent and limited to small diameter trees.

The EA appears to admit that the Roadless Rule would bar the logging of piñon and juniper trees. See EA at 76 (“Removal of small diameter trees including mixed conifer, aspen, pinyon and juniper and ponderosa pine would occur in the IRAs.”).

While we appreciate this statement, the Final EA should make explicit the Roadless Rule applies to the removal of piñon and juniper trees.

**E. The Forest Service Fails to Ensure that Roadless Area Logging Will Be “Infrequent.”**

The Roadless Rule “expects” that logging (tree removal) in roadless areas for any purpose will “be infrequent.” 36 C.F.R. § 294.13(b).

Instead, logging in the IRAs in the project will be pervasive, ongoing for up to 20 years, and may need to be re-done. Logging in the IRAs will thus fail to be infrequent, in violation of the Rule.

Logging will occur across more than 3/4s of the Hog Ranch IRA (79%) and more than ½ of the Jake Hollow IRA (58%). EA at 76. Logging will also occur within 25% of the McGath Lake/Auger Hole, although that figure is somewhat misleading, because a significant portion of that IRA is located outside the project area (see map, EA at 8); that portion could be treated in the future in another project.

Logging in the IRAs “would be implemented over a 10–20-year period,” EA at 76, meaning that those seeking to enjoy the IRAs for their sense of solitude and naturalness will be excluded for nearly a generation. The Forest Service seeks to minimize the frequency of treatments within the IRA by stating that up to 20 years of logging *may* result in no need to treat these areas for “close to 100 years,” in the event they achieve their desired goals. EA at 76. However this means that: (1) if the treatments are unsuccessful (and the EA does not explain the chances that the project will achieve its objectives), treatment will need to be more frequent; and (2) if the treatments succeed, these IRA will be being logged 1 out of 5 years on average over the next century. That hardly seems “infrequent.”

The EA also vaguely asserts that “[t]his project while spanning many years will attempt to keep disturbances within IRAs as infrequent as possible,” EA at 77, while providing no definition for what “as infrequent as possible” means, nor by what means the agency will “attempt” to minimize logging’s disturbance. The EA identifies no mitigation measures for how it would do so. In sum, the agency fails to ensure that logging in these IRAs will be “infrequent,” violating the Roadless Rule.

**F. The Forest Service Fails to Ensure that Logging Will Be Limited to “Generally Small Diameter Timber.”**

The EA fails to explain how it can approve “thinning,” “whole tree yarding,” or other logging and tree removal within individual stands, much less across the entire planning area. The Forest Service must explain why and how, *for each stand within each IRA*, the proposed action complies with the Roadless Rule.

The Forest Service contends that it can authorize logging within IRAs under the Roadless Rule exception for logging of “generally small diameter timber.” However, neither the EA nor related documents make that case. To the contrary, it appears that the logging proposed for this project will likely violate this Roadless Rule provision.

In adopting the Roadless Rule, the Department of Agriculture explained that “[t]he intent of the rule is to limit the cutting, sale, or removal of timber *to those areas that have become overgrown with smaller diameter trees*.” Forest Service, Roadless Area Conservation Rule, 66 Fed. Reg. 3244, 3257 (Jan. 12, 2001) (emphasis added). The Forest Service provides little evidence that the proposed action would do so, or that the area has become overgrown with such trees.

Several of the specific types of logging that the proposed action would authorize target larger trees or authorize logging without limits on the size of tree to be logged, thus failing to ensure that the Forest Service would meet the Rule’s mandate to remove “generally small diameter” trees.

For example, thinning in the “aspen vegetation type” will involve “[r]emov[ing] *larger* conifers from within stands of aspen to reset the succession back to aspen.” EA at 31 (emphasis added). By targeting “larger” conifers, the proposed action will do precisely the opposite of the Roadless Rule’s mandate. The EA does not assert that aspen stands have become “overgrown with smaller diameter trees,” but instead that they include larger trees of the wrong type. The Roadless Rule does not authorize logging in such situations.

In addition, in mixed-conifer, spruce/fir, and ponderosa pine forests, thinning will involve “[r]eleas[ing] seral aspen clones from conifer competition” by removing “conifers within 10’ of the canopy drip line of any aspen 10" DBH or larger.” EA at 30-31. The EA does not place any limit on the size of conifers removed, or any direction to remove only “generally small” conifers, nor does it allege that these conifers will be generally small.

The proposed action would also authorize 9,588 acres of “aspen restoration,” involving the “removal of competing conifer trees from within and surrounding aspen,” again without any limit on the size of conifers to be logged, or any allegation that the area is overgrown with small trees. EA at 33. If logging is necessary to remove conifers as competition, these are likely to be larger conifers that are shading out smaller aspen. *See* Silviculturist Report at 11 (noting that “[t]he percentage of aspen *in the overstory* of mature seral stands is declining due to forest succession as conifer species *continue to over-top aspen* clones,” meaning that logging conifer in these stands would remove the largest, overtopping trees (emphasis added)).

The targeting of large, likely old conifers in aspen stands not only conflicts with the Roadless Rule, it also appears to contradict Forest Service guidance for restoration of aspen in Utah, which states: “Old-growth conifer trees which predate fire suppression activities and probably coexisted in or near the aspen stand during a more active fire regime are likely to resist fire when retained. *Consideration should be given for retaining these legacy trees*.” *See* Guidelines for aspen restoration in Utah, GTR-390, at 30 (emphasis added).[[19]](#footnote-19) There is no evidence that the Forest Service has given any consideration to identifying or retaining such legacy trees, or that it has disclosed the effects of removing them.

The EA’s brief descriptions of “thinning” and “whole tree yarding” fail to include any description or limits on the type or size of trees that can be cut down in IRAs, or the nature of the stands in areas to be thinned or yarded.

The EA contains little more than four sentences addressing how the project will comply with the Roadless Rule’s mandate that logging in IRAs can only occur if it involves the removal of generally small diameter trees. Those sentences read:

Removal of small diameter trees including mixed conifer, aspen, pinyon and juniper and ponderosa pine would occur in the IRAs. These treatments would focus on trees in VSS 4 and below (for mixed conifer, ponderosa, and aspen) and strive to maintain the VSS 5 and 6. Likewise within pinyon and juniper stands treatments would be geared to treating smaller diameter trees. This would benefit the vegetative characteristics of the IRAs by thinning out the understory and promoting the old growth and larger trees in the stand. See the Vegetation and Forestry Report for additional details.

EA at 76.

None of these sentences ensures compliance with the Roadless Rule.

First, while the EA states that “[r]emoval of small diameter trees including mixed conifer, aspen, pinyon and juniper and ponderosa pine would occur in the IRAs,” *id*., it does not state that the proposed action will remove *only* or even *generally* small diameter trees. The fact the project will remove some small diameter trees does not ensure Roadless Rule compliance.

Even assuming the Forest Service meant that the project would remove only small diameter trees within IRAs, neither the EA nor supporting defines or distinguishes between small, medium, and large diameter trees, nor do those documents provide any information about the nature of trees to be logged within IRAs at the stand level, as the Roadless Rule preamble directed. This violates the Roadless Rule preamble’s assumption that the Forest Service would make “*determinations of what constitutes* ‘*generally small diameter timber*’”and would *“*consider how the cutting or removal of various size classes of trees would affect the potential for future development *of the stand*, and the characteristics and interrelationships of plant and animal communities associated with the site and the overall landscape.” Forest Service, Roadless Area Conservation Rule, 66 Fed. Reg. 3244, 3258 (Jan. 12, 2001) (emphasis added).

Here, the Dixie National Forest nowhere “determines” what constitutes a small diameter tree. Thus, the public is left only with the agency’s bald assertion that the trees logged will be “small” without evidence of any kind, or any limits on the size of trees to be removed.

Second, even if the statement that treatments in IRAs “would focus on trees in VSS 4 and below (for mixed conifer, ponderosa, and aspen) and strive to maintain the VSS 5 and 6,” EA at 76, is meant to define what constitutes “generally small diameter trees” as those VSS 4 and below, the EA’s description of the proposed action does not ensure that “generally small diameter trees” would be removed. For each of these forest types, the Forest Service identifies VSS 4 trees as “Mid-Age Forest” and having a diameter between 12 and 18 inches. *See* Silviculturist Report at 12 (table displaying existing VSS distribution “for a representative aspen stand”); *id*. at 14 (same for a “representative mixed conifer stand”); *id*. at 17 (same for a “for a representative Ponderosa pine stand”). This means aspen, ponderosa, and mixed conifer (which includes a variety of species including ponderosa pine, Douglas fir, White fir, Limber pine, Blue spruce, and aspen (*see* Silviculturist Report at 13)) up to 18 inches DBH could be removed. The Forest Service provides no description or evidence to explain by what definition an aspen, ponderosa, or species within the mixed conifer type would be considered “small;” the Forest Service never provides one, and never explains why 18 inches in diameter is “small” for each of these half-dozen species, nor does it define “small” compared to what. Nor does the Forest Service provide evidence or scholarly support for its conclusion that aspen, ponderosa, Douglas fir, White fir, Limber pine, Blue spruce are *all identical,* in that 12-18 inches DBH is considered the size of a middle-aged tree for *each and every one of these species without any variation*.

The data provided for the “representative stands” of various forest types does not help the Forest Service demonstrate compliance with the Roadless Rule. The Forest Service does not indicate where these stands are located, including whether they are located within IRAs, so it is unclear whether they provide any data at all concerning the size of trees within IRAs. In addition, the data shows that only 11% of mixed conifers are 18” DBH or larger in the representative stand, and only 5% of aspen at 18” DBH or larger in that representative stand. Silviculturist Report at 12, 14. Again, this calls into question whether the Forest Service’s implication that 18” DBH, whether aspen, ponderosa, or mixed conifer, constitutes a “generally small” tree of any species within the project area, given that very few trees of some species are larger than 18” DBH.

The very existence of these figures, however, shows that the Forest Service has stand-specific data; data that it could and must use to ensure that it will log only generally small diameter timber *in each stand*, as the Forest Service anticipated in adopting the Roadless Rule. Because the Forest Service does not use such site-specific data nor explain why it cannot, the agency’s proposal to log within IRAs violates the Roadless Rule and is arbitrary and capricious.

The EA’s statement that the proposed action would “strive to maintain the VSS 5 and 6” does not bar logging these very largest trees, nor does it explain where or under what circumstances, or how many of, such large trees may be removed from roadless area forests, again making it impossible to tell whether the agency will comply with the law.

Third, the statement that “within pinyon and juniper stands treatments would be geared to treating smaller diameter trees” is simply an assertion backed with no evidence and no design criteria. How will the Forest Service and the contractor ensure that no medium or large pinyon or juniper trees will be logged, when the EA provides no definition of a small-diameter pinyon or juniper tree, nor does it limit logging in P-J to a tree of any particular size. It would be arbitrary and capricious for the agency to rely on this unsupported allegation.[[20]](#footnote-20)

The EA cites two other documents – an “IRA Brief” and “IRA Characteristics Worksheets” – as supporting the Forest Service’s determination that the project complies with the Roadless Rule. But neither document does so with respect to the “generally small diameter” requirement. The IRA Brief asserts that mechanical and prescribed *fire treatments* “will be conducted primarily on ladder fuels and small diameter trees to aid in fireline reinforcement and ignition,” but nowhere defines “small diameter trees” or provides evidence to support that contention. IRA Brief at 1. And in describing *commercial timber sale and harvest components* of the project, the IRA Brief does not assert that those treatments will only remove small diameter trees. *Id*. The IRA Worksheets allege that logging will benefit IRAs, but fail to address at all the size of trees that the project will remove. *See* IRA Worksheets.

The Forest Service could have clarified its compliance with the Roadless Rule by providing explicit design features to limit tree removal to generally small trees as identified by stand and species type with specific diameter limits to comply with the Roadless Rule. But the EA contains no design features limiting the size of trees to be logged in IRAs – or any design features of any kind to protect the roadless areas’ special values or to ensure the compliance with laws related to Roadless Area management. *See* EA at 35-42 (listed project design features). To the contrary, one design feature indicates that logging may involve removal of spruce trees greater than 14 inches DBH. (“TM-9. To prevent spruce beetle spread, all live or recently killed Engelmann spruce felled or pushed over, which exceed 14 inches diameter and 18 inches in length, shall be skidded to a designated landing for disposal.”). As noted above, the Roadless Rule preamble indicates that before the agency can use the exception permitting logging within IRAs, it must undertake a *site-specific analysis* to determine the *nature of individual stands to be logged*. The EA does not attempt to undertake such analysis.

The Roadless Rule preamble indicates that before the agency can use the exception permitting logging within IRAs, it must undertake a site-specific analysis to determine the nature of individual stands to be logged. This the EA and the Roadless Evaluation fail to do. The EA makes clear that it will not undertake a site-specific review to identify the what, where, and how of treatments within individual stands in roadless areas *until after the NEPA review is complete*. In fact, the EA makes clear that the Forest Service will approve logging in roadless areas now, and decide the nature of that logging later, precisely the opposite of what both NEPA and the Roadless Rule provide.

A recent federal appeals court decision demonstrates that this project *is likely to be found to violate the Roadless Rule*. In *Los Padres ForestWatch v. United States Forest Serv*., 25 F.4th 649 (9th Cir. 2022), the Forest Service approved the Tecuya Ridge logging project in a roadless area, setting a limit of logging trees less than 21 inches diameter at breast height (dbh), arguing that trees of such width constituted “generally small diameter timber.” *Los Padres ForestWatch*, 25 F.4th at 656-57. The court found that the Forest Service failed to support its conclusion that a 21” dbh tree constituted a “small diameter” tree, noting among other things that “the Forest Service did not attempt to articulate this explanation or, indeed, provide any information at all on the average dbh of the trees located within the … Project area.” *Id*. at 658. The court therefore found the agency violated the Roadless Rule and remanded the project back to the Forest Service for further explanation as to what constitutes a small diameter tree. *Id*. at 659.

Here, the Dixie National Forest has done *even less* than the Forest Service in *Los Padres ForestWatch*. Neither the EA nor any of the Dixie National Forest’s supporting documents purport to define what constitutes a “small diameter” tree for any of the stands within the massive project area, let alone within individual roadless areas. Nor does the Forest Service explain how any of the project’s provisions will limit logging to small trees, whatever those might be, while some of those documents indicate just the opposite: that large conifers will be targeted for logging in aspen stands. The agency does not provide the average size of trees in individual stands or across each IRA, and the representative tree stand data provided indicates that the agency’s approval of logging in VSS4 and below will involve the logging of some of the largest remaining trees in those stands, as few trees are larger. Because the Forest Service provides no stand-level data at all for the project (including roadless areas), neither the public nor the decision-maker can discern the size of trees in stands in the project area, or the size of trees to be removed. Thus, as with the project at issue in the *Los Padres ForestWatch* case, a reviewing court is likely to set aside the Hungry Creek project for violating the Roadless Rule.

Further, because the Hungry Creek Project is likely to violate the Roadless Rule, the Forest Service must prepare a full environmental impact statement (EIS). Council on Environmental Quality regulations implementing NEPA have identified numerous factors that may require an agency to find that an action is likely to have a significant impact, and therefore requires preparation of an EIS. One of those is “[w]hether the action threatens a violation of federal, state, or local law or requirements imposed for the protection of the environment.” 40 C.F.R. §1508.27(b)(10) (2019). *See also* Forest Service Handbook 1909.15, Ch. 15 (agency NEPA handbook quoting the CEQ regulations).

In any subsequently prepared NEPA document, the Forest Service must describe, specifically, whether and how each treatment type within each unit will comply with the Roadless Rule requirement that permits removal of only “generally small diameter trees,” with reference to each individual stand that is proposed for silvicultural treatment.

Without this information, neither the Forest Service nor the public can determine whether the Forest Service will limit logging within Roadless Areas to that allowed by law.

**G. The Forest Service Fails to Disclose or Ensure that Logging Will Maintain or Improve One or More Roadless Area Characteristics.**

The exception the Forest Service invokes to allow logging in IRAs requires that logging “will maintain or improve one or more of the roadless area characteristics.” 36 C.F.R. § 294.13(b)(1).

Virtually all roadless area characteristics identified in the Roadless Rule could be degraded by logging, the use of heavy equipment and skid trails, and pile burning. Further, the analysis concerning impacts to roadless characteristics requires a highly site-specific analysis, given the regulation’s emphasis on “*locally identified* unique characteristics.” 36 C.F.R. § 294.11. Thus, the only way to determine whether a project may comply with these provisions is for the Forest Service to undertake a site-specific analysis that maps the roadless areas at issue, reviews the values of each roadless area to be impacted by specific logging treatments at specific locations, and evaluates the impacts of the proposed action at the *stand-specific level*, with stands broken down by vegetation type, at a minimum. Because the Hungry Creek project would approve numerous, ill-defined tree removal and other actions across multiple roadless areas over an indeterminate number of years, the Forest Service must demonstrate how it can ensure compliance with this Roadless Rule exception.

The Forest Service may allege that the IRA Worksheets address the impacts to IRA characteristics, and demonstrate that the project will improve at least one roadless area characteristic in each IRA. While the IRA Worksheets address various factors for each impacted IRA, the discussion is general, and does not address stand-specific impacts. Further, much of the discussion of impacts to characteristics is premised on the assumption that the project will reduce the risk of uncharacteristic wildfire, without ever disclosing the current risk of such fire, or disclosing by what amount the proposed action will reduce that risk, or whether that reduction will continue over the years as climate change results in ever more severe weather and fire behavior.

Further, the proposed logging will likely degrade, or at least is unlikely to “maintain or improve,” many of the roadless area characteristics in ways the IRA Worksheet does not acknowledge. For example, the EA admits that the “40 miles of skid trails would be required to implement treatments in the IRAs,” effectively building one mile of road per square mile of IRA treated. EA at 35. Skid trails - effectively roads used to drag timber out of the forest - may be clustered as close as 100 feet apart. EA at 41 (“skid trails should be located approximately 100 to 150 feet apart, depending on terrain”). The Forest Service fails to disclose the location of these built, motorized trails within IRAs, leaving that decision largely to the logging industry, subject to Forest Service approval. EA at 36 (“Skid trail locations will be agreed upon with Timber Sale Administrator prior to implementation”). Up to one-seventh of a logging unit may be clearcut for skid trails. EA at 39 (“Designate skid trails to the extent practicable to limit site disturbance to less than 15% of unit area.”).

The Forest Service concludes that impacts from logging, including skid trail construction, will be “short term.” IRA Worksheet at 4, claiming logging will result in decreasing scenic integrity “in the short term (1-3 years) after vegetation removal … but will increase in the long term”). This assertion is arbitrary and capricious, given that skid trails and other evidence of logging *more 20-50 years ago within this very project area are still degrading the landscape and hydrologic function* within the project area. EA at 97 (“Past timber harvests in the project area have occurred on 17,988 acres from the 1970s-1990s. Past harvest operation activities such as skid trails, roads, landings, and staging areas *are still visible on the landscape and may still be affecting soil functions*.” (emphasis added)). At a minimum, the Forest Service must explain why the impacts of prior skid trail construction in the Project area are not a good predictor of the impacts of skid trails built for this Project, and what the Forest Service is doing differently now from what it did in the 1970s-1990s that has resulted in 30-50 years of ongoing scenic and hydrologic degradation.

Unless and until the Forest Service undertakes a specific analysis of *each stand-specific treatment* within each specific roadless area, and how each treatment will impact each IRA’s roadless characteristics, it cannot ensure that it will comply with the Roadless Rule. Further, because the EA and supporting documents fail to disclose the location of any treatment or skid trail or fire line or any other ground-disturbing activity within IRAs, it cannot take the hard look required by NEPA at roadless area characteristics or comply with the Roadless Rule.

The Roadless Rule exception further provides that logging may be authorized in IRAs if the removal of small diameter trees is necessary “[t]o maintain or restore the characteristics of ecosystem composition and structure, *such as to reduce the risk of uncharacteristic wildfire effects, within the range of variability that would be expected to occur under natural disturbance regimes of the current climatic period*.” 36 C.F.R. § 294.13(b)(1)(ii) (emphasis added). But the EA fails to disclose what an “uncharacteristic wildfire” would entail in the impacted ecosystem, and analyze the “range of variability that would be expected to occur under natural disturbance regimes of the current climatic period” for each IRA at issue.

Roadless areas are beloved and staunchly protected by forest advocates because these areas include the last remnants of undisturbed ecosystems, pure water, critical wildlife habitat and quiet recreation. The Forest Service should tread particularly carefully when proposing management in these areas, and carefully ensure compliance with the law that protects those areas. This is not to say that the Forest Service cannot demonstrate that some treatments in some roadless areas may be necessary and helpful, but the EA, like the Scoping Notice, has failed to do so. Any subsequently prepared analysis or NEPA document must address, and ensure compliance with, the Roadless Rule and disclose how the proposed action will impact and protect roadless area values.

**XII. Temporary Road Construction**

The Forest Service has long recognized the damaging impacts of roads to a variety of natural resources. *See, e.g.*, Trombulak (<https://conbio.onlinelibrary.wiley.com/doi/pdfdirect/10.1046/j.1523-1739.2000.99084.x>); Gucinski et al., Forest Roads: A Synthesis of Scientific Information (May 2001), available at <https://www.fs.fed.us/pnw/pubs/gtr509.pdf>.

Further, the agency has long explicitly recognized the damaging impacts of temporary roads. *See, e.g*., Final EIS for the Roadless Area Conservation Rule (2000) at 2-18 (“The use of temporary roads may have the same long lasting and significant ecological effects as permanent roads, such as the introduction of nonnative vegetation and degradation of stream channels”); *id*. at 3-30 (“in general, temporary roads are not designed or constructed to the same standards as classified roads and are not intended to be part of the National Forest System Transportation System. The results can be a higher risk of environmental impacts over the short run.”); *id*. at 3-150 (“temporary roads present most of the same risks posed by permanent roads, although some may be of shorter duration. Many of these roads are designed to lower standards than permanent roads, are typically not maintained to the same standards, and are associated with additional ground disturbance during their removal. Also, use of temporary roads in an area to support timber harvest or other activities often involves construction of multiple roads over time, providing a more continuous disturbance to the area than a single, well-designed, maintained, and use-regulated road. While temporary roads may be used for periods ranging up to ten years, and are then decommissioned, their short- and long-term effects can be extensive to terrestrial species and habitats.”), *id*. at 3-164 (“While temporary roads may be used temporarily, for periods ranging up to 10 years before decommissioning, their short- and long-term effects on aquatic species and habitats can be extensive.”). *id*. at 3-176 (“Rare plant populations can be lost during road construction, whether roads are temporary or permanent. While temporary roads may be used temporarily, for periods ranging up to 10 years, and are then decommissioned, their short and long-term effects can be extensive to rare plant populations.”), available at at <https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5057895.pdf>.

The location of temporary roads can determine their impacts, and so the Forest must disclose the location of temporary roads, both re-opened and new roads, in any subsequently prepared NEPA analysis. This the EA fails to do. The Forest should also provide a plan for decommissioning and rehabilitating of non-system roads in the project area, including both temporary roads created for project purposes and others that may be discovered in the project area.

In addition, the Forest should discuss the effectiveness of road closures in this watershed – including what closure methods have been used, whether closures actually effectively prevented vehicle use of closed routes, and should disclose whether and how often there is monitoring for illegal off-road use in the area.

**XIII. Assessment & Monitoring**

The Hungry Creek vegetation treatment proposal is complex, involving a variety of treatment methods in diverse ecological sites with a range of land health conditions. The projects will be conducted over a period of time in which climate is expected to change rapidly and with unknown consequences for vegetation and land uses. This project is an opportunity to develop research that would advance the understanding of the interactions of these parameters over the course of project implementation and provide invaluable information for future management.

The EA briefly mentions the need for monitoring but does not include much detail under the monitoring topic itself. For example, at page 39 (G-1), the EA merely says that an Interdisciplinary Team will agree on an implementation plan, monitoring, and adaptive management to minimize potential impacts and improve future implementation. At page 128, the Implementation Checklist briefly indicates monitoring will employ Best Management Practices implementation and effectiveness monitoring and will monitor for noxious weed infestations.

However, the EA contains more detailed monitoring plans under other subheadings. For example, in the hydrology and soils section, the EA indicates that monitoring plots will be part of prescribed burns. “Collaborative review of prescriptions, data*,* and field visits between fire and other resource personnel may lead to adaptive management changes to meet desired conditions.” EA at 39 (HS-17). The management proposal for Riparian Areas (HS-16) discusses excluding ungulates from treated riparian areas if average woody browse exceeds 40% of new leaders on woody riparian species. This exclusion will continue until monitoring shows that livestock grazing can return while still maintaining treatment objectives.

We are glad to see the EA acknowledge the need for monitoring of post-treatment livestock grazing. The EA warns that there may be a need for herding, salt placement, timing of grazing, fencing, and rest to protect treatments in riparian areas. EA at 40. It also sets measurable objectives for ground cover and desirable plant establishment prior to restocking treated areas. In addition, the plan will not implement prescribed burns on units where invasive plants are above 5 percent. EA at 40.

Long-term monitoring of post-treatment livestock management is a critical component of treatment success. We encourage you to add grazing exclosures to collect long-term data after livestock have returned to ensure that project objectives are maintained. We would like to see more detail on the objectives and methods of monitoring in all vegetation types and treatment techniques. Please address this in the final EA analysis by developing a plan that outlines protocols and establishes specific, objective, quantitative goals for all the expected outcomes, including triggers for adaptive management. Important indicators of landscape health should be included, such as vegetation diversity (species, functional and structural groups), percent cover of exotics, and percent cover of bare ground. The common monitoring techniques like trend and frequency, which are designed to measure livestock use, are not adequate for research.

**XIV. Failure to Disclose Economic Impacts*.***

A purpose and need for the project is to “Salvage commercial value of timber stands threatened by current and imminent mortality,” EA at 27, and the project includes more than 2,800 acres of “commercial thinning.” EA at 33.

Thus, although supporting local industry is a project goal, the EA fails to contain any projections or quantification of the volume that it says is important (for example, the likely board-feet the project will make available to local mills), nor the economic impact of the project in terms of income or employment. Because the Forest Service likely has detailed stand data for the project area, such an analysis would seem relatively straightforward to perform.

The EA’s failure to quantify the potential economic impacts not only violates NEPA, it is puzzling in light of the fact that the Forest Service elsewhere routinely performs this analysis as a matter of course. For example, in a 2021 final EA for a logging project in Montana, the Forest Service estimates for each alternative: the acres harvested; the board footage to be logged; appraised stumpage rates; the predicted high bid; the total revenue to be generated; the present net value of the timber harvest and other resource activities; and the total employment and labor income estimated to be generated over the life of the project. Lolo National Forest, Redd Bull Environmental Assessment (Jan. 2021) at 124-128, available at <https://www.fs.usda.gov/project/lolo/?project=56574> (last viewed Aug. 28, 2023). NEPA mandates that the Forest Service perform a similar analysis for the Hungry Creek Project.

**XV. Conclusion**

We are grateful for the opportunity to provide comments on this EA.  Please let us know if you have any questions about anything contained in this set of comments.

Sincerely,



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2. S. J. Pritchard, P. et al., Adapting western North American forests to climate change and wildfires: ten common questions, Ecological Applications (July 2021), available at https://esajournals.onlinelibrary.wiley.com/doi/epdf/10.1002/eap.2433 (last viewed Aug. 6, 2021). [↑](#footnote-ref-2)
3. Id. at PDF page 11 (emphasis added). [↑](#footnote-ref-3)
4. Id. at PDF page 13 (emphasis added). [↑](#footnote-ref-4)
5. Id. at PDF page 22 (emphasis added). [↑](#footnote-ref-5)
6. Id. at PDF page 27 (emphasis added). [↑](#footnote-ref-6)
7. Id. at PDF page 34 (emphasis added). [↑](#footnote-ref-7)
8. Four Forest Restoration Initiative, Old Growth Protection & Large Tree Retention Strategy. [↑](#footnote-ref-8)
9. Id. at 7. [↑](#footnote-ref-9)
10. U.S. Forest Service et al., New Mexico Forest Restoration Principles (May 2006), available at https://www.fs.usda.gov/Internet/FSE\_DOCUMENTS/stelprdb5207898.pdf (last viewed Aug. 6, 2021). [↑](#footnote-ref-10)
11. Allen et al., Ecological Restoration of Southwestern Ponderosa Pine Ecosystems: A Broad Perspective, Ecological Applications, 12(5) (2002) at 1425. [↑](#footnote-ref-11)
12. Id. at 1429 (emphasis added). [↑](#footnote-ref-12)
13. <https://www.govinfo.gov/content/pkg/FR-2023-08-17/pdf/2023-17726.pdf> [↑](#footnote-ref-13)
14. *2020 Addendum – Changes to Utah Species of Greatest Conservation Need*, <https://wildlife.utah.gov/pdf/WAP/2020-addendum.pdf>, pp. 1, 3; see also *Utah’s Species of Greatest Conservation Need October 2021*, <https://wildlife.utah.gov/pdf/WAP/2021-10-sgcn-list.pdf>, p. 1. [↑](#footnote-ref-14)
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18. <https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd1064813.pdf> [↑](#footnote-ref-18)
19. Kitchen, SG, PN Behrens, SK Goodrich, A Green, J Guyon, M O’Brien, D Tart 2019. Guidelines for aspen restoration in Utah with applicability to the Intermountain West. Gen. Tech. Rep. RMRS-GTR-390. Fort Collins CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 55 p. [↑](#footnote-ref-19)
20. The Forest Service’s assertion in the EA (at 121) that “this project is compliant with the Roadless Area Conservation Rule” is similarly unsupported by fact or argument. [↑](#footnote-ref-20)