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Via web portal: <https://cara.fs2c.usda.gov/Public/CommentInput?Project=61372>

July 8th, 2022

Dear Ranger McLaughlin and staff:

The following are the Magnolia Forest Group's comments on the proposed St. Vrain Forest Health Project, as described in the Purpose and Need document ("PN") and its appendices accessible on the project's website.

I. INTRODUCTION

Over the last decade we have spent 9 years working with the USFS on land management on the Boulder Ranger District including the full NEPA process for the Forsythe II Project, as well as participating in the Multiparty Monitoring Group (MMG) established for the Forsythe II Project in the Final Decision Notice (DN). Since 2017 we have also been members of the Front Range Roundtable and Landscape Restoration Team. Members have also worked independently with the Boulder Ranger District (BRD) to address site specific recreational issues, such as along the along the CR 68J corridor.

We commend the USFS for attempting a more inclusive approach to the St. Vrain Forest Health Project, as well as the emphasis on reintroducing fire to the landscape. However we hold significant concerns with the proposed action methodology, which is admitted to be "unlike anything we've done on this Forest before", as well as certain aspects of the proposed implementation.

We appreciate the desire to reduce the potential risk from wildfire and to try to adapt to climate change. We need to recognize at the outset that any vegetation, forest or non-forest, can burn under the right conditions. Thus fire is always a possibility, and people living near areas such as the proposed project area will always face some risk.

We believe that efforts to reduce fire risk should begin from the home outward. See Bevington, 2021, which discusses the benefits of starting at the home and working outward, and the problems with, and ineffectiveness of, mechanical treatment well away from homes. Though this paper was written to address the situation in California, the concepts used therein apply to the project area here in Colorado as well. The home-outward approach is very consistent with science, as is discussed further below.

Also, a balance is needed between attempting to provide protection against fire on the one hand and retaining important forest resources and values on the other. The values at issue include: ecological integrity, wildlife habitat connectivity and effectiveness, scenery, carbon storage, and manageable recreation. It is not clear that the project as currently proposed would sufficiently retain these values.

The Purpose and Need document at p. 1 admits that “[t]here is no forest management project that will ‘protect’ our communities from wildfire in [extreme] conditions”. We are glad to see this statement in the PN. But it is well recognized that most fires which threaten communities only burn under extreme conditions of high temperature, low humidity, and wind. These conditions will still occur, and fires will still burn, as any vegetation will burn if it is dry enough.

The proposal amounts to eco-engineering, i. e., attempting to change the structure and composition of ecosystems in the area, ostensibly to allow adaptation to climate change and protection from wildfire:

In addition to restoring more resilient forests and reducing wildfire risk, management actions should promote climate change adaptation to maintain ecosystem services in an uncertain future. This restoration approach involves comparing existing forest structure and composition to historical references and anticipating how climate change will impact the environment for tree establishment and growth to determine appropriate desired future conditions.

PN at 26.

It is important to recognize that the current condition of the vegetation in the project area is not primarily due to climate change. Rather, it is the result of human manipulation over the last 150 years. This includes fire suppression, which has resulted in some lower-elevation stands becoming denser than they were historically. But the area has also been affected by high-grade logging, livestock grazing, water development, and human settlement. The project proposes additional manipulation beyond the lower-elevations stands that have departed from their historical condition.

While we may think we know the general trend of how climate change might affect areas such as the project area, we do not know exactly what will happen, how intense it will be, or when events will happen. For instance, in a warming climate, where drought is a major concern, who would have predicted the extreme events of September, 2013, when parts of the project area and adjacent areas received almost a year’s worth of precipitation in just six days?

Species and ecosystems have adapted to various changes during the current climatic period (since the last ice age approximately 11,000 years ago), and they will continue to adapt. The exact path of climate change cannot be accurately predicted. Thus actions designed today based

on our current knowledge may be undesirable by the time the proposed project is fully implemented (20 years – PN at 20). Therefore, manipulating ecosystems on what we think might happen is not a good strategy.

There are many references to drought within the PN:

Fire behavior was exacerbated by high temperatures and low humidity with poor overnight recovery, and strong gusty winds through rough terrain in drought-stressed forests. (p. 5)

In Colorado, climate change is manifesting as increases in mean annual temperature, earlier spring snowmelt and runoff, and more severe drought events (3). (p. 6)

...more recently a wave of aspen die-off, referred to as ‘sudden aspen decline’, due to long-term drought (p. 18)

Adapt vegetation composition and structure to anticipated climate change impacts on wildfire and insect activity, and on drought. (p. 25)

Yet only in Appendix D, p. 4 is there really much of a mention of the benefits of maintaining cool, moist north slopes:

Aspect – Due to higher solar radiation, south-facing slopes tend to have lower soil moisture than north-facing slopes. Forests tend to be more open on south facing slopes and support more frequent low severity fire regimes. On north-facing slopes lower temperatures and evapotranspiration create deep snowpacks that persist later into the year. The conditions on north-facing slopes generally support higher tree cover. However, forest structural patterns can be highly variable, including openings and closed canopy patches. Fire behavior is also more variable on north-facing slopes. North-facing slopes may provide refugia for certain forest types as warmer and drier climate conditions push vegetation generally upwards in elevation.

Forests greatly reduce evaporative losses (especially in our dry climate). In the face of climate change and rising temperatures we would like to see an analysis of evaporative losses due to reduced tree cover. This analysis needs to be balanced with the desire to remove trees to reduce competition, and fuel loading.

We do not suggest that no action be taken on the project area. As we describe below, actions to protect the home ignition zone are warranted, as are some actions to restore historical structure and composition of lower-elevation stands dominated by ponderosa pine. We also support the proposal to restore fire to the project area given that it is well planned for, and adequately staffed, and monitored. The USFS though should take the opportunity to learn from this year’s fires in

NM and implement strategies to prevent a reoccurrence of such events following pile and broadcast burning on the BRD.

Other actions can include identifying and managing climate refugia for wildlife, an action that commendably is proposed here.

But the, wholesale manipulation of ecosystems to address what might be the path of climate change is not warranted and not desirable. Rather, the Forest Service should use the proven method of hardening homes against wildfire.

Given our ongoing collaboration with the USFS we are also keenly aware of the resources shortages on both the ARP and the BRD, especially when it comes to staffing. This important practicality seems to have been entirely overlooked in all of the project material. At the last check the BRD comprised: the District Ranger, one Silviculturalist, 1-2 Foresters, one Recreation Manager (who comprised the entire recreation department), one Realty Specialist, one Law Enforcement Officer, potentially some summer Seasonals, and the fire crew including the AMFO and 2-4 other guys. The BRD currently shares one Wildlife Biologist with the Clear Creek Ranger District, who was also covering for a third ranger district in the absence of their wildlife biologist. Given the list of partners on the St. Vrain Forest Health partnership page it doesn't appear that any USFS wildlife biologist (District or otherwise) was even included in the project design. This is a major short coming, which needs to be rectified.

The Forsythe II Project DN approved 2,462 acres for treatment activities, including 945 acres of broadcast burning (p. 31) with the expectation that implementation would take 5-15 years (p. 3, Decision Notice Forsythe II Project). Those 2, 462 acres have been broken up into 4 (non-consecutive) years worth of layout and implementation. On average that equates to about 615 acres per year. Currently 3 out of the 4 years of implementation are complete. Even at only 615 acres (average) per year the time commitment from both the USFS to survey, flag and mark, and from the Magnolia Forest Group to ground truth, map, and monitor has been huge. The St. Vrain Forest Health Project at a little over 100,000 acres would need to implement approx. 5,000 acres per year to be complete within the 20 year timeline. With the need to first cut and then burn many of the acres proposed that acreage number is much higher as many acres will be treated twice. Those 5,000 acres per year are approx. 8 times the current scale of treatment! Logically that would require 8 times the current level of current staffing at the USFS and 8 times the involvement from the public or partners. Being very generous, and assuming each person is capable of more, and/or available full time, that would require 4 times the number of people actively involved in the Forsythe II Project. Given past experience, the reality of the BRD staff increasing that much by the 2023 proposed implementation start date is next to nil. Even with the involvement of other partners there are certain tasks that legally fall entirely to USFS staff such as wildlife surveys, unit layout, contracting, and contracting oversight.

The only conceivable way this many acres could be covered in the number of years set forth is by working off maps and aerial imagery with limited ground truthing, and Designation by

Prescription (D by P) implementation. Both of these methods carry significant room for error. For example, in one of the Forsythe II units the apparently dense lodgepole from 10,000' aerial imagery, which was slated for patch cutting, turned out to be lodgepole developmental old growth directly above a drainage. In other words it was a minority on the landscape, and a desirable feature to retain, which if not checked on the ground would have been patchcut. On the 2017 Landscape Restoration Team field trip to the Pike San Isabel Forest one their silviculturalists spoke to the fact that marking individual trees yielded the best results to match what he was looking for in his prescription. D by P implementation on the other hand greatly diminishes the ability to hold the contractor accountable for mistakes unless they are extreme.

In short the USFS does not currently have the staffing ability to carry out a project on such a large scale within the timeframe allotted.

II. PROCESS ISSUES

A. ROLE OF PARTNERS. The PN extolls the work of the St. Vrain Forest Health Partnership (Partnership). It states:

The Partnership, including the Science Team, have been instrumental in the development of this proposal through developing adaptive management processes and providing multiple rounds of feedback.

PN at 5. Furthermore, it is clear that partners would have a major role in reviewing and validating preliminary management action proposals, once the overall project is approved:

The Forest Service would seek review of proposals with partners including the St. Vrain Forest Health Partnership and cooperating agencies. Partners would review preliminary management action proposals to reflect landscape-scale community values, climate change adaptation, cross-boundary collaboration, cumulative watershed effects and biophysical (ecological) zones and gradients.

PN at 45.

It seems that the Partnership has had a major role in development of the overall project, and if it is approved, it will have a major role in evaluating any specific proposals for treatment within the project area. Is the partnership open to all members of the public? Does the it include all points of view, including local residents and others who may not be in favor of large-scale treatment, or may oppose some aspects of the proposal? If not, the development of the proposal may violate the Federal Advisory Committee Act.

In any case, the Forest Service must be sure to include, and respond to, input from people not formally or informally part of the Partnership. It must not assume that the overall proposal

developed by the Partnership and the Forest Service is necessarily the best project to be approved.

While the USFS has made great strides toward involving the community in the pre-NEPA process, and lays out the intention to continue to do so throughout the project, without a project specific EA for each smaller project within this larger proposal there is no legally binding requirement for the USFS to make project level decisions that align with the public/partnership input. On at least a couple occasions in the past changes in USFS leadership have corresponded with abrupt departures on plans created in a collaborative partnership. In one case a new District Ranger arrived on the BRD at the end of the NEPA process for the Winter Ridge Project. He selected an alternative that had not been worked on through the collaborative process the former Ranger had undertaken with the community. Similarly on the Pike National Forest a new District Ranger arrived after extensive collaborative work on the Upper Monument Creek Project had been completed, and initially decided that his way of running a District was very USFS centric, without the need for much outside input. In the years following that personnel change several members left the collaborative, and for all intents and purposes the first several years of implementation were carried out with very little input from the former collaborative members. In other words people make a huge difference, especially to a collaborative and without well structured and legally binding processes a change in personnel can mean all former understandings are lost. It is highly unlikely that many of the people involved in this project proposal will still be in their current positions either within the USFS or the Partnership in 20 years. As such this project proposal should be a full EIS process, with subsequent EAs for each of the smaller projects to ensure that no matter who is in office public input is required to be taken, and recourses are available if it is not. (See further comments on the EA process below under Appropriate NEPA Documentation.)

B. CONDITION-BASED MANAGEMENT. The proposed project will “embraces a conditions-based approach”, and “[t]here are no traditional project units drawn on maps targeted for specific management actions”. PN at 1. This is legally problematic. The locations and descriptions of treatments to be implemented would not be available to the public until just before implementation, i. e., well after the overall project had been approved. There are statistics showing how much of focus areas by forest type and special management areas could be treated by any of six management action (PN Table 1, p. 34-35), and maps showing very generally where certain types of treatment could occur (PN Appendix E, maps 8-14). In addition, PN Table 3 at p. 40 shows acreage for aspen stands and meadows/fens, and a fairly wide range of road mileage needed, as well as “temporary/user created road obliteration” mileage proposed. Thus the proposal is too unspecific to allow a reasonably accurate disclosure of impacts as required by NEPA.

The public may have opportunities to comment on individual project proposals, but these would have already been identified by the Partnership and agencies:

....the St. Vrain Forest Health Partnership, cooperating agencies, and the Forest Service (agencies) would annually identify focus areas, or large areas, such as priority watersheds or communities at risk, where individual management actions should be proposed next for implementation.

PN at 43.

In other words, the projects would already be at a fairly advanced stage before they reached the public. Only through an annual workshop would there be “opportunities for the public to suggest and inform priority areas”. PN at 44. Projects would be approved by the Forest Service, with no formal comment process or opportunity to object to a proposal. The Forest Service would not be required to respond to any comments received. Interested parties not in the Partnership or agencies would thus have little opportunity to affect the design of activities under the proposed project.

Site-specific information related to, for example, where logging would occur or new roads would be built, is essential for an agency and the public to understand and evaluate the reasonably foreseeable impacts of a proposal. *See, e.g., Southeast Alaska Conservation Council*, 443 F. Supp. 3d 995, 1014 (D. Alaska 2020) (explaining where a project analysis “identified a total acreage of potential timber harvest, but not the distribution of the specific acreage authorized by each alternative within these areas”, “[t]his omission is meaningful given the duration and scale of the project” and “fails to provide a meaningful comparison of alternatives.”).

NEPA’s review obligations are more stringent and detailed at the project level, or “implementation stage,” given the nature of “individual site-specific projects.” *Ecology Ctr., Inc. v. United States Forest Serv.*, 192 F.3d 922, 923 n.2 (9th Cir. 1999); *see also Friends of Yosemite Valley v. Norton*, 348 F.3d 789, 800-01 (9th Cir. 2003); *New Mexico ex rel. Richardson v. Bureau of Land Management*, 565 F.3d 683, 718-19 (10th Cir. 2009) (requiring site-specific NEPA analysis when no future NEPA process would occur); *Colo. Env’tl. Coal. v. Ofc. of Legacy Mgmt.*, 819 F. Supp. 2d 1193, 1209-10 (D. Colo. 2011) (requiring site-specific NEPA analysis even when future NEPA would occur because “environmental impacts were reasonably foreseeable”). NEPA requires that agencies must undertake and disclose site-specific analysis before making decisions with site-specific impacts. *See, e.g., California v. Block*, 690 F.2d 753, 761 (9th Cir. 1982) (holding that site-specific impacts must be “fully evaluated” when an agency proposes to make an “irreversible and irretrievable commitment” of resources to a project at a particular site).

In other words, whenever an agency proposes to choose among options that have different site-specific environmental consequences—like logging in one area versus another or logging an area lightly versus clearcutting—the agency must provide site-specific analysis of those environmental consequences during the NEPA process before making a final decision. *See, e.g., Western Watersheds Project v. Abbey*, 719 F.3d 1035, 1049 (9th Cir. 2013) (internal citation omitted) (holding that BLM has a “critical duty to ‘fully evaluate[]’ site-specific impacts” even after issuing a programmatic EIS); *City of Tenakee Springs v. Block*, 778 F.2d 1402, 1407 (9th

Cir. 1985) (finding that “NEPA requires both a programmatic and a site-specific EIS,” and that agencies do not have discretion “to determine the specificity required by NEPA” in a site-specific EIS but must instead adhere to the statute); *Wilderness Soc’y v. U.S. Forest Serv.*, 850 F. Supp. 2d 1144, 1150, 1157 (D. Idaho 2012) (holding that the U.S. Forest Service was required to “take a ‘hard look’” at the impact of 94 miles of roads under NEPA “before making them a part of the designated route system in the area” despite the roads having been used unofficially for years); *Klamath-Siskiyou Wildlands Ctr. v. U.S. Forest Serv.*, No. 2:05-CV-0299, 2006 WL 1991414, at *9–10 (E.D. Cal. July 14, 2006) (invalidating the use of an EA without site-specific analysis for project locations). Specifically, when an agency prepares a site-specific analysis for a project-level action, it must include “a reasonably thorough discussion of the distinguishing characteristics and unique attributes of each area affected by the proposed action.” *Stein v. Barton*, 740 F. Supp. 743, 749 (D. Alaska 1990); see also *Klamath-Siskiyou Wildlands Ctr.*, 2006 WL 1991414, at *9–*10. Moreover, in order to “facilitate public discussion,” the project’s “proposed activities must be sufficiently correlated with environmental factors” and values—such as the presence of plant and wildlife species, for example—in *each area* that will be affected by the project. *Stein*, 740 F. Supp. at 749; see also *Ayers v. Espy*, 873 F. Supp. 455 (D. Colo. 1994) (holding that where the Forest Service’s EA for a timber sale in the Arapaho and Roosevelt National Forests selected an alternative despite “grossly inadequate” soil data, the agency was required to conduct a soils inventory and analysis providing site-specific information sufficient to properly evaluate each proposed alternative and the reasons for each alternative’s selection or rejection).

“[G]eneral statements about possible effects and some risk do not constitute a hard look, absent a justification regarding why more definitive information could not be provided.” *Or. Natural Res. Council Fund v. Brong*, 492 F.3d 1120, 1134 (9th Cir. 2007) (citation omitted).

Analyzing and disclosing site-specific impacts is critical because where (and when and how) activities occur on a landscape strongly determines the nature of the impact. As the Tenth Circuit Court of Appeals has explained, the actual “location of development greatly influences the likelihood and extent of habitat preservation. Disturbances on the same total surface area may produce wildly different impacts on plants and wildlife depending on the amount of contiguous habitat between them.” *New Mexico ex rel. Richardson*, 565 F.3d at 706. The Court used the example of “building a dirt road along the edge of an ecosystem” and “building a four-lane highway straight down the middle” to explain how those activities may have similar types of impacts, but the extent of those impacts – in particular on habitat disturbance – is different. *Id.* at 707. Indeed, “location, not merely total surface disturbance, affects habitat fragmentation,” and therefore location data is critical to the site-specific analysis NEPA requires. *Id.* Merely disclosing the existence of particular geographic or biological features is inadequate – agencies must discuss their importance and substantiate their findings as to the impacts. *Or. Natural Res. Council Fund v. Goodman*, 505 F.3d 884, 892 (9th Cir. 2007).

Courts in the Ninth Circuit have taken a similar approach. For example, in 2019 the U.S. District Court for the District of Alaska issued a preliminary injunction in the case *Southeast Alaska*

Conservation Council v. U.S. Forest Service, halting implementation of the Tongass National Forest’s Prince of Wales Landscape Level Analysis Project. *Southeast Alaska Conservation Council v. U.S. Forest Serv.*, 413 F. Supp. 3d 973 (D. Ak. 2019). The court did so because the Forest Service’s failure to disclose the site-specific impacts of that logging proposal raised “serious questions” about whether that approach violated NEPA.

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

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

See id. at 976-77 (citations omitted). The Prince of Wales EIS made assumptions “in order to consider the ‘maximum effects’ of the Project.” *Id.* at 977. It also identified larger areas within which smaller areas of logging would later be identified, and approved the construction of 164 miles of road, but “did not identify the specific sites where the harvest or road construction would occur.” *Id.*

The Court found the Forest Service’s approach contradicted Ninth Circuit precedent including *City of Tenakee Springs v. Block*, 778 F.2d 1402 (9th 1995), concerning logging on the Tongass National Forest. In *City of Tenakee Springs*, the appellate court set aside the Forest Service’s decision to authorize pre-roading in the Kadashan Watershed, without specifically evaluating where and when on approximately 750,000 acres it intended to authorize logging. The district court evaluating the Prince of Wales project found the Forest Service’s approach was equivalent to the deficient analysis set aside in *City of Tenakee Springs*.

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

Id. at 982 (citations omitted).

The district court concluded that plaintiffs in the case raised “serious questions” about whether the Prince of Wales EIS’s condition-based management approach violated NEPA because “the Project EIS does not identify individual harvest units; by only identifying broad areas within which harvest may occur, it does not fully explain to the public how or where actual timber activities will affect localized habitats.” *Id.* at 983. After finding the plaintiffs also met the other factors for preliminary injunction, the Court enjoined all logging until a decision on the merits. *Id.* at 986.

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

The district court also concluded that the Forest Service’s “worst case analysis” was insufficient, explaining: “This approach, coupled with the lack of site-specific information in the Project EIS, detracts from a decisionmaker’s or public participant’s ability to conduct a meaningful comparison of the probable environmental impacts among the various alternatives.” *Id.* at 1013. Consequently, the court concluded that

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

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

In the end, “vague and conclusory statements, without any supporting data, do not constitute a ‘hard look’ at the environmental consequences of the action as required by NEPA.” *Great Basin Mine Watch v. Hankins*, 456 F.3d 955, 973 (9th Cir. 2006); *see also Ocean Advocates v. Army Corps of Engineers*, 402 F.3d 846, 869 (9th Cir. 2004) (finding that a vague and uncertain analysis is insufficient to meet NEPA’s mandate).

As CEQ has previously recognized, site-specific NEPA analysis leads to better outcomes, period. Memorandum from Michael Boots, Acting Director of Council on Env’t Quality, to Heads of Fed. Dep’ts and Agencies, “Effective Use of Programmatic NEPA Reviews,” at 5 (Dec. 18, 2014) (stating that the NEPA process of using programmatic and site-specific analysis “leads to better outcomes” for the environment, public engagement, and government decision making). This is available at https://obamawhitehouse.archives.gov/sites/default/files/docs/effective_use_of_programmatic_nepa_reviews_final_dec2014_searchable.pdf (Last viewed June 9, 2022.)

In alignment with what has been enumerated above several organizations led by the Western Environmental Law Center drafted a letter [“the letter”] to CEQ in February of this year (Request for CEQ-Issued Guidance and/or Regulatory Change Addressing Federal Land Management Agency Attempts to Avoid Site-Specific NEPA Analysis and Disclosure (“Condition-Based Management”)) outlining the ways in which CBM project proposals avoid some of the most fundamental NEPA requirements, and on-the-ground harms that result when agencies, most often the USFS, try to avoid their NEPA obligations through condition-based management practices. Appendix 1 of the letter outlines 11 different case studies of CBM projects. The Magnolia Forest Group is a signee to this letter along with 91 other organizations across the country. (Full letter and references is attached separately.)

In conclusion the letter states:

We support agency efforts to improve their decision-making processes, including efforts (such as programmatic analyses and decisions) that set broad priorities and broad-scale sideboards for future action. But NEPA does not permit agencies to bypass the requisite detailed, site-specific analysis for project-level EAs or EISs. Recent approaches to NEPA like CBM undermine the public’s ability to: (1) notify agencies of issues they may have overlooked; (2) encourage agencies to adopt different alternatives or mitigation measures; and (3) hold agencies accountable when they ignore public comments or contrary scientific evidence. These failures cannot be cured by ersatz, post-decisional public involvement processes.

The letter further notes on p. 4

...the requirement to consider site-specific impacts is inherent in the EA’s role of assisting decisionmakers to determine whether an EIS is required. Without site-specific analysis, an agency cannot credibly justify a finding of no significant impact (“FONSI”) for a site-specific project.

See the section below (Appropriate NEPA Documentation) for further discussion of an EA versus an EIS.

The letter compares a CBM plan to a Forest Plan, noting that:

...where and how to conduct logging or build roads are the sorts of decisions explicitly left “unresolved” in forest plans and deferred to future project-level decisions, requiring site-specific analysis at the project level.

(p. 4) This example compares perfectly to the way the St. Vrain Forest Health Project is written.

As with most projects, including the ones mentioned in the legal cases cited above, the impacts from the St. Vrain project will depend on where activities occur. As is detailed in these comments below, there are special places in the project area, including roadless areas, a research natural area, and the Todd Gulch Fen. There is also habitat for one threatened wildlife species and several other species of concern. Impacts will vary depending on how much of these special places and habitat are treated, as well as and how and when.¹ The Forest Service must disclose these potential impacts and allow public review before approving activities. But as currently proposed, the public would not have any input or recourse of action on site-specific activities prior to approval, as these projects would be developed later, after approval of the overall project. This is not acceptable.

C. APPROPRIATE NEPA DOCUMENTATION. An environmental impact statement should be prepared for the overall St. Vrain project. The impacts from activities in a 100,000-plus acre project area over 20 years are likely to be significant. These impacts include, but are not limited to: wildlife habitat, soils, recreation opportunity, and scenery.

According to the Council on Environmental Quality’s “Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations” under #36(a):

A. The environmental assessment is a concise public document which has three defined functions. (1) It briefly provides sufficient evidence and analysis for determining whether to prepare an EIS; (2) it aids an agency's compliance with NEPA when no EIS is necessary, i.e., it helps to identify better alternatives and mitigation measures; and (3) it facilitates preparation of an EIS when one is necessary. Section 1508.9(a).

While the regulations do not contain page limits for EA's, the Council has generally advised agencies to keep the length of EAs to not more than approximately 10-15 pages. Some agencies expressly provide page guidelines (e.g., 10-15 pages in the case of the Army Corps). To avoid undue length, the EA may incorporate by reference background data to support its concise discussion of the proposal and relevant issues.

¹ Timing could affect cumulative impacts; for instance, if treatment were concentrated in habitat for the species discussed below in a short time period, it could result in significant impacts to those species.

The scoping letter for this project is already 63 pages long, not including hundreds of pages in additional references. Scoping letters, as such, should naturally pale in length to a complete EA, which suggests any EA for this project is likely to be at least a couple hundred pages long, and well over the suggested 10-15 page length.

With this in mind we would also draw your attention to #13 of Council on Environmental Quality's "Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations" which states:

The regulations state that the scoping process is to be preceded by a Notice of Intent (NOI) to prepare an EIS. But that is only the minimum requirement. Scoping may be initiated earlier, as long as there is appropriate public notice and enough information available on the proposal so that the public and relevant agencies can participate effectively.

However, scoping that is done before the assessment, and in aid of its preparation, cannot substitute for the normal scoping process after publication of the NOI, unless the earlier public notice stated clearly that this possibility was under consideration, and the NOI expressly provides that written comments on the scope of alternatives and impacts will still be considered.

Instead of approving activities only after the overall project is approved, the Forest Service should prepare a programmatic environmental impact statement (EIS) that covers the overall impacts and cumulative impacts. Once that is approved, the agency should prepare environmental assessments (EAs) for individual projects with full public involvement and an objection period for each.

III. VEGETATION TYPES AND AREAS THAT COULD BE TREATED

Home ignition zone (HIZ). Actions to reduce fuels and the associated risk of fire should be concentrated in the HIZ, which is about 30 meters surrounding a house. It can also be used to protect other infrastructure. Experiments and modeling have shown that fire outside this zone will not directly ignite a structure. See Cohen, 1999, 2008, and Syphard et al, 2014.

Homes can still ignite from burning embers that break off from fires to ignite new fires some distance away. However, if actions are taken to minimize fuels in the HIZ, the structures have a much greater chance of surviving a wildland fire, as there would be little material for a burning ember to ignite. On the other hand, treating areas outside the HIZ is likely to have little effect on the survivability of homes. See Cohen, 1999.

A home-outward strategy is likely to be more effective in protecting buildings than reducing fuels more than 30 meters from the buildings. If the buildings themselves and the immediately surrounding areas are treated appropriately, there would be little for any firebrands (burning embers) to burn when a wildfire hits. On the other hand, if areas well away from buildings are treated but areas around them are not, the buildings would still be vulnerable to ignition from any wildfire.

Firebrands have been known to travel 1.5 miles to start a new fire. To protect buildings, the entire area at least this distance from any building would have to be treated to have little or no vegetation.

The action of firebrands igniting houses, as opposed to trees aflame doing so, is poignantly demonstrated by a photo of homes destroyed by the Camp Fire at Paradise California in 2018. See Exhibit 1. It shows houses burnt down to almost nothing, while most of the conifer trees surrounding these houses did not burn at all. This is just one example; there are many more from recent fires across the western U. S.

We recommend the Forest Service, through its State and Private Forestry division and the Colorado State Forest Service, work with local landowners to encourage them to treat their own properties. That would do far more to protect homes from future wildfires than the proposed project would do.

Fire-suppressed stands dominated, or formerly dominated, by ponderosa pine. As determined by Sherriff and Veblen, 2006, ponderosa pine stands in the northern Front Range of Colorado below about 2200 meters (7200 feet) elevation were primarily influenced by frequent, low-intensity fires. It is these stands that are most likely to be unnaturally dense because of fire suppression. Thus any fuel reduction efforts outside the HIZ should be focused below this elevation, where a site-specific analysis shows that an area has substantially departed from historic conditions. However, some small trees should be retained in treated areas, as is further discussed below.

Historically, stands above 7200 feet elevation were generally influenced by a mixed-severity fire regime, which means that relatively dense stands developed at times. Also, stands that were high-graded, i. e., where the biggest and best trees were cut, may have become dense with regeneration filling in the gaps created by logging and removal of the larger trees. It is also important to recognize the role of livestock grazing in increasing the density of ponderosa pine stands. Grazing removed fine fuel that would have otherwise supported low-intensity fire, which would have in turn maintained open ponderosa pine stands. See Belsky and Blumenthal, 1997².

Spruce-fir stands. Stands in this vegetation type do not need to be managed. Fire is infrequent, and trees killed by bark beetles remain standing for many decades. Data in the PN shows that this forest type is the least departed from historic conditions. See PN Appendix E, Maps 6 and 7. Yet the project would treat an unspecified acreage of this vegetation type:

Spruce/fir stands managed for community and firefighter safety and suppression effectiveness can also promote resilience by managing fuels generated by fuels reduction or insect outbreak and diversifying species composition.

² These authors believe that livestock grazing may have been as important as fire suppression in changing the density of ponderosa pine stands. In this ecotype, grazing is a form of fire suppression because it removes fine fuels, i. e., grasses, forbs, and small shrubs, that support low-intensity fires.

PN at 29. Given the infrequency of fire, treatments to increase “suppression effectiveness” are not needed. Treatments might degrade wildlife habitat. See section below.

It is unclear on what is meant by “diversifying species composition” because in most of the spruce-fir zone, no other trees are sufficiently adapted to the cold temperatures and frequently snow-covered environment to be able to survive there. Spruce-fir areas usually have a very good diversity of ground vegetation (i. e., grasses, shrubs, forbs, etc.), and are themselves a minority on the landscape (see Table 1, page 34), adding to the diversity of species composition on the landscape scale.

PN p. 29 states “[w]ildfire should be managed where feasible...”. Fires rarely burn in the spruce-fir vegetation type, but when they do, it is under extremely dry conditions. That is the only time spruce-fir stands are dry enough to burn, and such fires are almost always high severity over at least some of the area burned, and are impossible to control. Thus it will never be feasible to manage wildfire in spruce-fir stands.

Broadcast burning, said to be a possible management action in spruce-fir stands (PN Appendix A at 17) should never be implemented. It would difficult if not impossible to do safely, i. e., either a planned fire could not be sufficiently ignited or if ignited, would quickly get out of control.

The desired future conditions for spruce-fir include landscape connectivity, wildlife habitat, and climate refugia. PN Appendix A at 17. The peer reviewed studies for forest restoration in the Upper Montane are at best few and far between. Peer reviewed studies for forest restoration in the subalpine zone, in which spruce-fir can be found, is practically non-existent, hence leaving little to no scientific basis for treatment. The desired conditions for spruce-fir can best be achieved and/or retained by leaving spruce-fir stands alone.

Aspen stands. The PN states the following with regard to aspen in the project area:

[conifer encroachment into aspen] reduces habitat diversity and biodiversity across the landscape. Restoration management actions would reduce the amount and total cover of conifers, creating suitable conditions for aspen to thrive in all age classes and increasing grass forb and shrub diversity to provide habitat and forage for wildlife.

PN at 37. Actually, the combination of aspen and conifers increases diversity because various wildlife species that prefer either aspen or conifer can both be present. For example, conifer-invaded aspen can form the dense horizontal cover needed by snowshoe hare, the favorite prey of the threatened (under the Endangered Species Act) lynx.

With fires expected to increase, new aspen is likely to regenerate on its own. The project is designed to reduce fire coverage and intensity, which might, over the mid- to long-term, reduce regeneration of aspen. Before cutting to attempt to increase the areal coverage of aspen or removing conifer from existing aspen stands, the Forest Service should survey and share with the public how much aspen springs up as the recently burned areas within and near the project area begin to recover. It should also survey the project area's aspen stands to determine which have more than one age class of aspen and thus are self-reproducing. Those aspen stands do not need to be treated.

PN at 37 states that multi-aged aspen stands are desired. However, whether aspen can self-reproduce is determined genetically and will not be positively affected by treatment. However, treatment could adversely affect aspen by soil compaction from use of heavy equipment, which would prevent the emergence of aspen suckers.

Cutting and removal of conifers in aspen stands could damage the aspen trees. Felling and skidding of conifers to be removed may cause wounds in aspen trees that would provide entry points for fungi that would cause decay and hasten the death of the aspen so infected.

There is no need to treat aspen in the project area.

Retain larger and older trees. As the PN observes, old trees were historically a major component of Front Range forests but are now scarce. The larger trees were the first ones taken by early European-descendant settlers, as they provided the most wood or the biggest logs for building houses and other structures. Retaining existing old forest stands and fostering mature stands into old growth status should be a major focus of the proposed project.

Older tree stands provide habitat for various wildlife species such as lynx (see more below), marten, goshawk, and others. Such trees, particularly ponderosa pine, are the most resistant to ignition during wildfire. Older trees also provide the best storage of carbon. Retaining such trees will thus be an important component of any strategy for mitigating climate change.

The Forest Plan has several plan components designed to protect and retain old-growth forest. See Plan at 31-21, components 116-122. One is of particular importance for the proposed project:

Within existing ponderosa pine and Douglas-fir old-growth stands that are known or discovered, either exclude vegetation treatments or reduce fire hazards using prescribed fire or mechanical means if sites are at risk from fire (e.g. removal of encroaching Douglas-fir regeneration in ponderosa pine old growth sites).

GL 121, Plan at 32.

In MA 3.5, a standard requires the Forest Service to “[e]xclude vegetation treatment of inventoried spruce-fir or lodgepole pine old growth.” Plan Standard 1 at 359. However, the proposed project’s Preliminary Design Features (PDFs) allow an exception to this if lodgepole pine old growth is considered “non-functional”. PDF Terrestrial Wildlife 4, PN Appendix C at 13. Granted, not all old growth stands have the same ecological value, but if they provide some ecological benefit associated with late successional forests, they need to be retained.³

Other plan components require the Forest Service to, among other issues, “[r]etain all existing Douglas-fir and ponderosa pine old growth”, “[m]aintain or increase habitat effectiveness within identified old growth areas”, maintain or develop a network of existing and future connected old-growth stands with adequate and well-dispersed habitat, and encourage development of ponderosa pine and Douglas-fir old growth. Plan components 116-122, Plan at 31-32. The NEPA document must include an analysis of how old growth would be conserved, and if possible in ponderosa pine stands, developed or enhanced.

The Forest Service has badly bungled ponderosa pine cutting in the past, such as in the Taylor Mountain area (which is within the current project area) in 2010 and 2011. The proposal there was to reduce ponderosa pine density by removing smaller trees that probably existed primarily because of fire suppression, but many larger trees were cut. See:

<https://www.dailycamera.com/2010/12/25/allenspark-residents-frustrated-over-loss-of-old-growth-trees/>

With any commercial timber sales, it would be especially difficult to ensure retention of the larger trees. Obviously, stewardship contractors, particularly Integrated Resource Timber Contractors, would prefer the largest trees, as more wood products can be made from them compared to smaller trees. To get the desired treatment done, the temptation would be for the Forest Service to allow some big trees to be cut, as occurred with a stewardship contract in the Taylor Mountain area, as well as in the Lumpy Tongue/Forsythe I contract. It would also be tempting for the stewardship contractor to take larger trees, whether it is allowed to or not. For these reasons, commercial timber sale contracts (Integrated Resource Timber Contract) should not be used in the St. Vrain Project area.

It must be recognized that trees must first be young before they can become old. Thus it is important to retain some smaller trees. These trees will form the new forest if the older trees die from any cause, including bark beetles. Trees less than about six inches in diameter will not likely breed bark beetles. In ponderosa pine-dominated stands that have become denser than they were historically with younger trees, some Douglas-fir should be retained to have more diversified stands in case bark beetles attack and kill the older ponderosa pine. Some younger ponderosa pine should also be retained to perpetuate that tree type if the larger pines die from a future bark beetle attack.

³ PDF Terrestrial Wildlife 4 cites Forest Plan FEIS, Appendix B, p. 11. That section describes the analysis process for the Forest Plan. It states that “[k]ey old-growth characteristics are primary considerations” for determining what is old growth. There is no provision for determining old growth to be “non-functional”.

Lodgepole pine stands. Lodgepole pine naturally grow in dense stands. Fire suppression has not affected the density of existing stands. A desired condition for this vegetation type is:

Stands of young lodgepole pine trees self-thin and grow into larger size classes rather than stagnating in overstocked conditions.

PN Appendix A at 15.

Under the Forsythe II project the USFS re-entered previous patch cuts to manually thin the lodgepole regeneration (regen) initially with our full support. However given the density of the regen patches the slash piles created from the thinning torched 95-100% of the remaining lodgepole when burned (see Exhibit 2). Unless the cut regen can and will be removed from the site, rather than burned on location, it is impossible to regenerate a lodgepole pine stand other than one densely stocked with lodgepole. The end result of all patch and clear cuts is either a dense lodgepole pine stand, or a permanent fuel break. (See Exhibit 2.)

“Patchcuts” up to 5 acres and clearcuts of up to 40 acres could be implemented in lodgepole pine (PN Appendix B at 7), including in the wildland urban interface mitigation zone (PN Appendix A at 7). Clearcuts over a few acres resemble industrial forestry and are inappropriate for an area that provides recreational and scenic values as the project area does. Large clearcuts would be very noticeable and contrast with the character of the landscape. Clearcuts would regenerate and form dense new stands. These trees would be ladder fuels which could carry fire into the crowns of residual stands surrounding the clearcuts and patchcuts. Thus to serve as a fuel break, patchcuts and clearcuts would have to be constantly re-treated.

If the patch/clear cuts are not retreated the USFS risks recreating the situation which Monica Turner, a professor of integrative biology at the University of Wisconsin–Madison observed in Yellowstone in 2016 when fires re-burned stands of lodgepole pine that had burned in 1988 and 2000:

Typically, most trees killed by fire remain standing for years. Surface fires leave dead needles on trees. Crown fires burn needles off but leave standing trunks. However, four of the 18 re-burned plots Turner’s team sampled saw fire so severe they had to come up with a new name to describe them: crown fire plus. In these, 99 percent of the stems of previous trees combusted.

In some areas, fire burned so severely that nothing but the stumps of young trees remained. Logs that had once been scattered on the forest floor combusted, leaving negatives of their former selves — ghost shadows — where they’d fallen.

“...Even at just 16 years old, there was sufficient fuel for these forests to burn at the highest possible level of severity.” (Emphasis added.)

(<https://wildfiretoday.com/2019/05/21/resilience-of-yellowstones-forests-tested-by-unprecedented-fire/> Study also published in the Proceedings of the National Academy of Sciences week of May 20, 2019.) This implies that well within the time frame the USFS traditionally revisits stands to conduct follow up thinning, such stands could burn at, or above a traditional standard of high severity during a fire event. This outcome is completely at odds with the desire to protect WUI communities, promote forest resilience, and protect drinking water sources.

Even without 16-28 year old lodgepole regeneration the effectiveness of patch/clear cuts in reducing fire severity is highly questionable, especially given new science emerging from the 2020 fire season. Nicholas Povak’s (Research Ecologist, USFS) findings suggest that the greatest **increase** in fire severity following treatment occurred in clear cuts. Meanwhile the greatest **decrease** in fire severity following treatment occurred in thinning with under burns, followed closely by under burns. See Exhibit 3.

Extensively thinning existing lodgepole stands for crown spacing can also increase the fire susceptibility, as it will foster the development of one or more understories. Lodgepole stands seldom do this to this extent on their own. Any new trees would form ladder fuels to carry fires into the crowns of the taller trees. Thus a light ground fire that would not lead to a crown fire in untreated stands could do so in treated stands.

On the other hand, if lodgepole stands are lightly thinned to leave enough shade to prevent shade-intolerant trees, grasses, forbs, and shrubs (surface and ladder fuels) from regenerating this could resemble the self thinning of an older forest. On field trips with the Boulder Ranger District staff in the Forsythe II area, the AFMO said he would feel comfortable having his men in a lodgepole forest of this description (with access to the road).

While lodgepole as a species is resilient to high severity fires, lodgepole trees themselves will never burn at low severities. Given the difficulties with lodgepole pine treatment and timely follow up we recommend little to no treatment of lodgepole pine stands outside the HIZ, or within POD boundaries.

Dwarf mistletoe (DM). The PN states in various places that trees with dwarf mistletoe (DM) will be treated. See, e. g., Appendix A at 10. This should be reconsidered, as DM is a benefit for wildlife, especially avian species. See Bennetts et al, 1996, who recommended the following:

...we suggest that in areas where management goals are not strictly focused on timber production, control of dwarf mistletoe may not be justified, practical, or even desirable. Our data suggest that dwarf mistletoes may have positive influence on

wildlife habitat. Consequently, we suggest that eradication effort be reconsidered given that dwarf mistletoes have been part of these forest ecosystems for thousands, and possibly millions, of years.

Therefore, mature trees, especially ponderosa pine, should not be cut just because they have DM. A Hawksworth Mistletoe Rating should be used to determine which trees should remain (lower rating) and which trees should be removed (higher rating).

Recently burned areas. Management actions here include: salvage logging, slash piling, pile burning, and broadcast burning. PN appendix A at 24. These actions would delay or thwart the soil and vegetative recovery of these areas. Any use of heavy equipment would disturb newly established vegetation. It makes no sense to burn areas again shortly after they have burned, as this would eliminate any soil organic matter. The only actions that should occur in recently burned areas are planting, where necessary to achieve adequate stocking, hazard tree removal where trees have fallen or might fall across roads or trails and management of non-native invasive plants.

Sanitation/Salvage. Under this part of the proposed action, dead and dying trees would be removed. PN at 23. Dead and dying trees are important for wildlife, as they provide nesting and perching areas. Removal of these trees should be focused primarily in areas where the trees could become hazardous and fall across roads or onto infrastructure such as powerlines, campgrounds, trailheads, etc. In areas where there are large numbers of dead trees, such as from fire, or insect/disease attack, some could be removed. There is no need to treat them elsewhere.

The following are USFS definitions for sanitation and salvage cuts (https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5413732.pdf):

4231 Salvage cut: intermediate cutting to remove trees that are dead or in imminent danger of being killed by insects or other injurious agents. The primary goal is to remove dead trees before they become economically worthless. Note that if salvage harvest will be heavy enough to create a nonstocked opening . . . then the treatment should be coded as stand clearcutting – salvage mortality (code 4114).

4232 Sanitation cut: intermediate cutting to remove dead, damaged or susceptible trees and help prevent or control the spread of insects and diseases. The sanitation and salvage terms are often used interchangeably but this usage is incorrect. For example, removal of dead trees in a root-disease center would be considered sanitation if the harvest helps slow the spread and intensification of root disease; it would be coded as salvage if the harvest has little or no effect on the root disease.

In other words, under a Sanitation cut healthy trees that are anticipated to be attacked by beetles, etc. could be cut to prevent them from potentially being attacked, even while they are completely green and healthy. There may be a time and a place for this, but allowing for sanitation cuts opens the door to its indiscriminate use to potentially avoid the requirements that would otherwise apply. Humans are also notorious for mis predicting the future. Nearly a decade ago when the West Slope was hard hit with a Mountain Pine Beetle (MPB) epidemic it was fully expected that we would see the same damage on this side of the Divide. Forsythe I was even written partially as a response to the presumed epidemic: “In addition, the amount of flammable fuels has increased due in part to . . . mountain pine beetle (MPB) infestation.” (p. 1 Forsyth I DN) However we never saw the MPB epidemic that was predicted on this side of the divide. If sanitation cuts for similarly mis predicted events occur the effects on the forest could be disastrous, especially at a large scale. The use of sanitation cuts should be removed from the project.

Fire. The PN states appropriately that fire must be consistent with historical fire regimes. Id. at 13. Thus fire needs to be gradually reintroduced into the lower elevations of the project area. But will the public accept fire, especially managed wildfire, in light of recent fires, like the one in New Mexico that got out of control, resulting in a major conflagration? We fully approve the use of fire to reduce fuels and restore historic, natural conditions, but only where it can be safely implemented. What will the agency do to demonstrate that it can safe manage prescribed fires in CO?

In order to use fire on the landscape, fuels would have to be reduced considerably in some places. Fuel treatments have a limited life span, and if fire is to be reintroduced to the landscape it must be done within a certain time frame (probably within 0-7 years depending on aspect and tree species). Forethought must be given to the entirety of prescriptions for any location before implementation to render them useful.

To manage unplanned ignitions, the project proposes advanced preparation of potential control lines (called “potential operational delineations” or PODs), at high and low elevation. PN at 14.

While we have in general fully supported the POD concept the acreage to be treated to create them is concerning because of the extensive treatment needed: POD areas will typically be 300-500 feet wide and could be up to 1000 feet wide (PN at 34), and comprise approximately 13,034 acres. PN Table 2, p. 36. Appendix E, Map 8 shows that these corridors would be constructed throughout the project area, with some of them extending to the boundary of the Indian Peaks Wilderness.

Have the ARP’s wildlife biologists’ been consulted in drawing the lines for the PODs? Constructing these control areas would massively fragment wildlife habitat and render much of it ineffective, given that these areas will be accessible by road and have roads within them. Indeed, with the removal of trees to a spacing of up to 1.5 crown widths between trees (PN at 35), motor

vehicle access could be unrestricted in some locations. Barriers could be set up, but it would be impossible to establish effective barriers for all or a major portion of all the POD boundaries. The easiest barriers to erect might be buck and rail fencing, which would be fuel for future fires and thus defeat the purpose of the control areas.

POD lines are not locations where mastication or chipping should be used to dispose of activity fuels given their availability as surface fuel during a fire. Fires hitting PODs after treatment might be low intensity, but they may move very quickly, creating a different challenge for fire suppression. Fires may potentially burn through treated areas before firefighters can reach them.

Ground vegetation will likely re-establish after the control lines/areas are constructed. Such vegetation would carry a fire rapidly across any area if not maintained on a consistent basis. There must be a viable plan in place to maintain these boundaries, possibly on an annual basis (with the emphasis on *viable plan*).

The PODs should be evaluated (like treatments) for effectiveness/usability under and up to certain fire severities. This would help determine where they are most useful, and where the sacrifice in habitat connectivity is most warranted.

Tree planting/reforestation. Given the expense and the uncertainty of success, planting should be avoided where possible. I.e, treatments should be done in a way that encourages and facilitates the near-future establishment of adequate natural regeneration. Where planting is deemed necessary to sufficiently establish forest cover, seeds from local trees must be used to grow the seedlings to be planted. Seeds should be gathered from roughly the same elevation as where they will be planted. We believe it is well established that trees are adapted to their environments. A difference of no more than about 300 feet elevation may determine whether planted trees survive.

We also note that planting including “seedlings of species novel to the site” (PN Appendix B at 13) may occur “where species planted can be better adapted to the changing climate or other desired conditions” (PN at 23) and “[s]trategic tree planting will be an important project feature for adapting forests to climate change” (PN at 25). In other words, species not known to have existed at a given location could be planted there.

On what basis would species be considered “better adapted” to a given site? The Forest Service needs to provide research showing this to be the case for any sites where planting of non-native (to the specific location) tree species is contemplated. The Pike San Isabel Forest did this decades ago with a different basis of reasoning. However many of those trees are now being targeted under the Upper Monument Creek Project to be removed. In any case, planting non-native species may introduce foreign elements into the project area’s ecosystems, one that may not be appropriate for a given area. In no cases should trees not native to the Arapaho-Roosevelt National Forest be planted or seeded in the project area.

Meadow restoration. The PN (pp. 18, 38) notes the importance of meadows, now being encroached by conifers, for wildlife and for fire breaks. A study of openings in ponderosa pine-Douglas-fir forests on part of the Pike-San Isabel National Forest found that it was mostly small (<50 meters long) meadows that had disappeared with fire suppression, and that abundance of larger openings (more than 50 m across) had remained stable. Openings were found primarily on gentle south to southeast-facing slopes at lower elevations. See Dickinson 2014. The goal in the St. Vrain Project area should be to restore small meadows where appropriate and feasible.

Treatment effectiveness. For all treatments aimed at changing fire behavior or the outcomes post fire it should be kept in mind that assessing treatment effectiveness is an ongoing study, with multiple challenges. When designing treatments clear objectives need to be laid out with the opportunity for the public to comment and/or object to. Will the treatment aim to: reduce soil heating, improve structure protection, reduce rate of spread, create a barrier to spread, reduce flame length, support suppression activities, increase tree survivorship, or reduce burn severity?

On Oct. 21st, 2021 Tony Vorster, post doctorate at CSU's Natural Resource Ecology Lab gave a presentation to the Landscape Restoration Team on Treatment & Fire Interactions in Recent Colorado Fires. One of his takeaways was that "Treatment effect can be slight, especially relative to influence of weather and topography."

On the Dec. 15th, 2021 Front Range Roundtable meeting Camille Stevens-Rumann from CFRI talked about Fuel Treatment Interactions with 2020 Colorado Fires. One of her takeaways was that: "Thinning combined with prescribed fire, and past wildfires are two of the most effective ways to change wildfire behavior. These treatments tend to be more effective than thinning only, or thinning coupled with pile burning." A similar conclusion is expressed by Nicholas Povak's research (see Exhibit 3). To be most effective this project should prioritize locations for treatment that can be burned, either initially, or following first entry treatment. Other treatments intended to affect fire behavior should be carefully evaluated for their likely effectiveness based on the newest science before being implemented.

IV. PROTECT WATERSHEDS. We appreciate the desire to protect the water supplied by the area to an estimated 100,000 to 2000,000 people. PN at 16. High intensity wildfire can cause problems with water quality, as described, *ibid*. However, treatment can have some of the same adverse impacts as fire: increase in soil erosion and sediment transport to waterbodies, destabilization of slopes, and increased difficulty in reestablishing vegetation. Soils compacted by the use of heavy equipment in logging can function similar to soils subjected to high-intensity fire: they will repel water. However, soils burned usually lose their hydrophobicity within a few years or less, whereas soils compacted by heavy equipment use may take decades to recover (Rhodes, 2007).

Advanced control lines (PODs) are essentially roads; indeed, they would be used for access by firefighters and equipment. Actual control lines could be up to 12 feet wide. PN Appendix B at

30. How would the Forest Service prevent public motor vehicle use of these roads? The Forest Service already has a road system it cannot manage. As the PN notes (p. 16), the project area already has 345 miles of road, with another 30-50 miles of temporary road expected to be constructed (Table 3, p. 40).

Creation of the control areas may conflict with another goal of the project: improve water security. The PN states a specific goal under this subject as:

improving water reliability and quality by reducing sedimentation from existing roads, trails, ditches, and other diversions and restoring the natural hydrologic function of soils, meadows, and fens; ...

PN at 36. If there is already an issue with sedimentation of water bodies, the proposed project, with creation of roads and control areas, will make this issue considerably worse.

If control lines are located near water bodies, transport of sediment into water becomes an issue. Even without close proximity to water, potential control lines might add to connected disturbed area in their respective watersheds. The PN, *ibid.*, states that some of the existing roads in the project area are contributing to watershed problems, especially where roads are hydrologically connected to stream.

Many of the proposed PODs are along streams. Compare PN Appendix A Maps 4 and 8. Treating them would likely violate Plan GL 104, which requires riparian areas to be managed to provide wildlife travel corridors (with minimum interruptions no longer than 60 feet). The project must be designed to retain vegetative cover in riparian areas. The proposed action might also violate GLs 114 and 115 (Plan at 31), which limit how much sediment can be added to streams.

We recommend minimal use of PODs near riparian areas, and preferably none within such areas.

The Forest Service's Watershed Conservation Practices Handbook requires the following:

In each watershed containing a 3-rd (sic) order and larger stream, limit connected disturbed areas so the total stream network is not expanded by more than 10%. Progress toward zero connected disturbed area as much as practicable. Where it is impossible or impracticable to disconnect a particular connected disturbed area, minimize the areal extent of the individual connected disturbed area as much as practicable. In watersheds that contain stream reaches in diminished stream health class, allow only those actions that will maintain or reduce watershed-scale Connected Disturbed Area.

FSH 2509.25, Management Measure 11.1, design criterion 1a. The project must be designed to limit connected disturbed area.

Maintenance for system roads could include:

removing all vegetation from the top of the road cut to the toe of the fill slope where needed to ensure the stability of cut and fill slopes.

PN at 39. This is counter-intuitive. Any native vegetation on cut and fill slopes should be encouraged, not removed. Removal would reduce the stability of these slopes, as the lack of vegetation means the soil could more easily erode.

PDF HSWF 2a would require buffer protection (in which ground-disturbing activities are prohibited or limited) for lakes over one acre. PN Appendix C at 4. There may be some lakes less than one acre that deserve protection. This PDF should be written to make clear that lakes and wetlands of any size are to be protected with buffers.

Woody riparian vegetation should never be cut, as possibly allowed by PDF HSWF 2d (id. at 5). Such vegetation grows in very wet areas that will not easily burn. Cutting, even by hand, could damage riparian areas.

All temporary roads should be completely obliterated after work is completed in an area. This should include: constructing barriers at both ends of the road and wherever the road to be closed crosses an open road or motorized trail; ripping the entire road surface to reduce soil compaction; and establishing native vegetation, including trees where appropriate, as soon as possible. All of the methods for road decommissioning listed at PN p. 40 are good as far as they go, but leaving any part of the road on the land means it will get used. In other words, partial decommissioning by blocking the road or obliterating only a small part of it are not sufficient.

The Management Card For Non-System Road Decommissioning states, under Description:

This activity involves placing a non-system road into non-use status. If a future management activity is determined to be implemented and the decommissioned road prism is utilized, it would be decommissioned again to discourage off-road use.

PN Appendix B at 26. This indicates that some roads wouldn't really be decommissioned. Rather, they would be put into "non-use status", the same as the management card for Road Storage (id. at 25), but not removed from the ground. This contradicts PDF HSWF 6a, which states:

All temporary road construction and road widening for implementation will be obliterated and decommissioned by reclamation of the disturbed areas.

PN Appendix C at 9.

The Forest Service needs to be clear about road storage vs. road decommissioning, and what will be done to decommission roads. We recommend that all unneeded roads be fully physically removed, as described above.

Use of future control lines would also help spread non-native vegetation, already a major issue in national forests. See section below.

To ensure protection of watersheds and compliance with the Forest Plan and other agency direction, fire control lines should not be constructed in riparian areas.

V. LIMIT TREATMENT IN SPECIAL AREAS

Roadless Areas. There are 20,128 acres of roadless area (i. e., in Colorado Roadless Areas, or CRAs) within the proposed project area. PN at 31. The integrity of roadless areas must be maintained. Specifically, the roadless area characteristics in the Colorado Roadless Rule (CRR, 36 CFR 294.41; see also PN Appendix A at 32⁴) must be retained. Control lines 300-1000 feet wide could be implemented in roadless areas, and only the largest trees, widely spaced, would be retained. Ibid. This is inappropriate, especially in the higher elevation roadless areas, where fire suppression has not likely caused a change in the forest species composition or structure. It is also inappropriate for upper tier roadless areas. The question of “Under what conditions are PODs effective?” is also relevant here, knowing that higher elevation (roadless) areas are likely to only burn under extreme fire conditions. The scoping letter correctly acknowledges that: “We know humans cannot stop a fire during 100 mph winds or a fire that moves 20 miles in an hour and crosses the Continental Divide. There is no forest management project that will “protect” our communities from wildfire in those conditions, and many people who live in the interface of wildlands accept that risk.”

A good portion of the roadless acreage in the project area is upper tier. See PN Appendix E, map 3. Upper tier CRAs include a lower-elevation area adjacent to and southeast of the North St. Vrain Research Natural Area, as well as most of the RNA itself. Ibid. In upper tier roadless areas, cutting, sale, and removal of trees are prohibited, except where such activities are “incidental to the implementation of a management activity not otherwise prohibited by this subpart” (36 CFR 294.42(b)(1)) or “needed and appropriate for personal or administrative use” (id. at (b)(2)). Neither of these exceptions apply.

For non-upper tier CRAs, cutting sale, and removal can only occur if the activity is consistent with the forest plan and would maintain or improve one or more of the roadless characteristics. 294.42(c). Furthermore, activities to protect municipal water supply

⁴ PN Appendix A does not list the ninth characteristic, “[o]ther locally identified unique characteristics”.

will focus on cutting and removing generally small diameter trees to create fuel conditions that modify fire behavior while retaining large trees to the maximum extent practical as appropriate to the forest type.

294.42(c)(1)(iii) and 2(i). Under this limitation, thinning to reduce fuels in stands dominated by ponderosa pine would be allowed, but cutting in lodgepole pine and spruce-fir would not be allowed.

Most of the project area's non-upper tier CRA acreage is in the Indian Peaks Adjacent Roadless Areas, all of which are near or above 10,000 feet elevation. Lodgepole pine and spruce-fir dominate the forest in these areas, with some aspen. These areas do not need to be treated outside the HIZ, as is discussed throughout these comments.

Similar to cutting, sale, and removal of trees, the CRR has limitations on road construction in CRAs. Note that even in non-upper tier CRAs, there is no authorization for constructing a road more than one-half mile into the "community protection zone". See 294.43(c).⁵

Any cutting or road construction could degrade roadless characteristics. The following characteristics would be especially vulnerable: undisturbed land (and maybe water); habitat for "species dependent on large, undisturbed areas of land"; "[n]atural-appearing landscapes with high scenic quality", and reference landscapes. Broadcast burning might be consistent with these characteristics, but major logging, with slash piles, landings, and road construction, would not be.

North St. Vrain Research Natural Area. This area contains ponderosa pine old growth and "the largest known expanses" of the antelope bitterbrush/mountain muhly plant community, and diverse and high quality riparian vegetation. Plan at 349, PN at 33.

A desired condition for research natural areas on the ARNF is "Maintain natural (relatively pristine or presettlement) conditions by allowing ecological processes to prevail with minimum human intervention." Plan at 345. Therefore, treatment in this area should be minimal other than prescribed fire, where such fire can be safely implemented. The Plan allows prescribed fire to improve bighorn sheep habitat in this RNA (id. at 346), but the use of "heavy ground-disturbing equipment" is generally prohibited for fires in RNAs (id. at 347).

The desired conditions include:

The Research Natural Area boundaries may reflect the following conditions:

⁵ See also 294.41, under which a community protection zone can be more than a half mile from the boundary of an at-risk community only if the area has: 1) sustained steep slopes, 2) has geographic features that aid in creating a fire break, and 3) is in fire regime condition class 3. Only the lower-elevation areas could possibly (but not automatically) be in class 3, i. e., significantly departed from historic conditions. See discussion section III above.

The total width of the treated area along control lines (e.g., roads, trails, etc.) is sufficient for firefighters to safely work without risking burn injury from fire behavior produced further in the roadless area. This width is typically 300 to 500 feet, but could be up to 1,000 feet.

Canopy fuels are limited to the biggest and most mature trees with high crown base heights.

Where there are no such trees, it may be appropriate to completely remove canopy fuels.

Remaining trees are widely spaced with little clumping. ...

PN Appendix A at 34. Does this mean these conditions would only be sought around the boundaries of the RNA? The large swaths of very open area (up to 1000 feet wide) and having no trees in some areas if there are no high crown base height trees and little clumping would probably not be a natural condition, and thus would not be desirable inside the RNA, nor would it be desirable in the roadless area, which includes most of the of the RNA and some land adjacent to it. The Forest Service needs to clarify what the desired conditions are for the RNA and the land immediately surrounding it. As the Forest Plan requires, natural conditions must be maintained in the RNA with little human intervention.

Todd Gulch Quaking Fen. As described at PN p. 38, the Todd Gulch Quaking Fen Special Interest Area is a unique place that needs to be protected. See also Plan at 352. Under the Forest Plan, “Management emphasis is on preserving and enhancing the character of the area.”. Ibid.

We are glad to see the commitment to preserving this fen (see PN at 38). To accomplish this, we recommend that no heavy equipment use and no removal of vegetation be allowed in the fen nor in a buffer zone of 100 feet or so surrounding it.

VI. PROTECT SOILS. The passage of heavy equipment used in logging and skidding will compact or displace soils. The agency must follow the Region 2 Soil Management Handbook (R2 Supplement No. 2509.18-92-1), which requires that outside of the permanent transportation system,

No more than 15 percent of an activity area will be left in a detrimentally compacted, displaced, puddled, severely burned, and/or eroded condition...

Id. at 2.2 (3). This Handbook further requires that

Where excessive soil impacts already exist from prior activity, the emphasis shall be on preventing any additional detrimental impact, and on reclamation where feasible.

Id. at 2.03 (2).

At a minimum, areas with recent (last 15 years or so) activity where soils may have been compacted or otherwise destructively affected and where treatment may occur under the St. Vrain project, soils should be tested, and any activity be designed to ensure that detrimental compaction and other soil problems will not occur or be exacerbated with any new treatment.

The PN (p. 24) describes masticating and chipping as two practices that would be used to treat woody slash, understory vegetation, and small trees. Spreading this material over more than a small area in any treatment unit creates a continuous fuel bed and prevents the growth of any new vegetation after treatment, including trees. This might contradict desired conditions for reintroduction of fire and tree regeneration.

This material will decay very slowly, and may use up most of the available soil nitrogen while doing so. No vegetation other than perhaps a few weeds would grow as long as chips or chunks cover the ground. The slow decay would result in an acid pulse into the soil which would inhibit the growth of any vegetation other than conifer trees and weeds. Thus the coverage of chunks from mastication and chips must be limited.

PDF HSWF 4 (PN Appendix C at 7) would allow depth of up to 5 inches over 5 percent of a treatment unit. That is essentially sacrificing any such area to be devoid of vegetation, as decay would take a very long time. This PDF also allows chip coverage of up to 30 percent of an activity area with less than an average depth of 3 inches. For mastication, chunks “shall be distributed to avoid dense accumulations...”. Ibid. This does not provide a sufficient requirement for avoiding problems of chunk coverage.

We recommend that: chipping and mastication be used sparingly: coverage of any treatment unit should be no more than about five percent to a depth of two inches or less, and that the deposits of chips and chunks be discontinuous, i. e., in small patches.

VII. PROTECT AND RETAIN WILDLIFE HABITAT

One of the potentially serious impacts from the project is fragmentation of wildlife habitat. With large areas opened up via thinning (with wide crown spacing) and clearcutting, habitat for various species, including but not limited to big game and late-successional species, could be cut into pieces too small to use.

Note the following forest plan goals addressing this subject:

(GO) Establish or maintain landscape linkages, where needed and feasible, which provide connections among large, contiguous blocks of late-successional forest.

(GO) Maintain, and restore where necessary, habitats of sufficient area and appropriate spatial pattern, to minimize the adverse effects of human-caused fragmentation.

(GL) Protect landscape linkage areas (patterned matrix, corridors, stepping stones, etc.) which facilitate multidirectional movement of species between important habitats such as late-successional forests, high-elevation tundra, meadows and forests, lower-elevation forests, shrublands and prairies.

Plan Goals 38 and 39, and Guideline 40, respectively, p. 17.

Despite the fact that the Habitat Effectiveness map from the Forest Plan contains a substantial amount of “least disturbed wildlife habitat” in the project area, there is no mention of effective habitat in the PN, except in the Glossary, and only two mentions of it in Appendix C.

With a large amount of land proposed for treatment (though we don’t know how much) in a 103,000-acre project area, a comprehensive analysis of habitat and the likely impacts on it from the project must be prepared in the NEPA document for the project.

A wide variety of wildlife likely inhabits, or at least uses, the project area. The Forest Plan provides the following direction:

When competing uses arise, favor habitat specialists that are characteristic of restricted niches present in rare or declining habitats, over species which are habitat generalists, characteristic of common or expanding habitats.

Plan Goal 53, pp. 18-19.

It is important that this direction be followed. The proposed treatments, if not limited, would tend to degrade or destroy niche habitat and create or perpetuate generalist habitat.

A part of the project could include “identifying potential climate refugia for special management”. PN at 25. This is a commendable feature and should be retained and applied. Potential refugia should be identified before any ground-disturbing activity is approved. The potential refugia must be managed to retain the features that provide existing and possible future habitat for various species. In most cases, this will mean little or no treatment, as the refugia are likely to be at higher elevations of the project area, where existing conditions do not vary much from historical conditions. This is especially the case for species needing continuous forest canopy cover, or screening, as any treatment would reduce or eliminate this habitat.

Maintain effective habitat. To be usable by some wildlife species, habitat needs to have minimal human use, especially via motor vehicles. Roads open to public motorized use are especially detrimental to habitat effectiveness. On closed roads, barriers are often ineffective in preventing use.

The Forest Plan has four guidelines requiring maintenance of habitat effectiveness. See Plan at 30-31, GLs 106-109. The proposed project's PODs would open forests and have road access, diminishing habitat effectiveness, making compliance with these guidelines difficult or impossible. At the time the Forest Plan was completed, two of the Geographic Areas that partially overlap the proposed project area, Brainard (48 percent) and Sugarloaf (41 percent) were below the 50 percent minimum habitat effectiveness required by GL 109. No further reduction in habitat effectiveness can occur in these areas if they are still below 50 percent effectiveness, and no geographic areas above 50 percent effectiveness can be reduced to less than 50 percent.

Conditions on the ground with regard to habitat effectiveness have probably changed for the worse since the Plan was approved, i. e., there are probably more roads and trails, including those created by users, than existed back then. Also, use of mountain bikes has increased considerably. Recent research confirms a strong wildlife avoidance response from mountain bikes. See Naidoo and Burton, 2000. New roads and open areas are likely to be used by mountain bikers, among other vehicles.

Therefore, the Forest Service needs to re-assess the habitat effectiveness for the geographic areas that would be affected by the proposed project. Any user-created or other non-system roads and motorized/mechanized trails as well as existing roads and trails must be included in the calculations of habitat effectiveness.

Snags. It is extremely important to retain snags, i. e., dead trees, and also trees with dead tops. Snags are used by numerous cavity-nesting species, a few of which are discussed in more detail below, and are essential for many species. The Forest Plan minimums of 1-2 snags per acre (Standard 56, Table 1.8, p. 19) are grossly inadequate. We recommend retaining most larger (say 12 inches DBH, 10 inches DBH in lodgepole pine) snags in clumps of live and dead trees. The PDF requiring retention of an average of five of the largest snags per acre over each unit (PDF Terrestrial Wildlife 1 j, PN Appendix C at 12) is probably sufficient.

Lynx (*Lynx Canadensis*). The project area includes 16,189 acres of mapped suitable lynx habitat for lynx (PN Appendix A at 30), a species listed as threatened under the Endangered Species Act. Treatment is proposed in this habitat, and could include broadcast burning, thinning, and patchcutting/clearcutting. Ibid.

We believe these treatments, at least in spruce-fir stands, are unnecessary, inappropriate, and potentially quite detrimental. These stands usually have lynx habitat: accumulations of down dead logs for denning habitat, and younger trees and/or low branches on middle-age subalpine fir trees forming the dense horizontal cover needed by snowshoe hare, lynx' favorite prey. Any kind of treatment, especially logging, is likely to degrade or eliminate this habitat. As discussed above, broadcast burning in spruce-fir is unnecessary and virtually impossible to implement safely, and thus must not be approved.

According to IBLT, 2013, cutting understory trees may reduce or eliminate dense horizontal cover, and thereby degrade or lynx habitat or make it unsuitable.

Boreal owl (*Aegolius funereus*) and marten (*Martes americana*) are two additional species that could be affected if there is more than very minor treatment in the spruce-fir ecosystem. Both species need mostly closed-canopy spruce-fir forest. The down dead component is critically important for marten. The potential impacts on these species must be disclosed, though if no treatment will be done in spruce-fir as we recommend, there would be no impact.

Goshawk (*Accipiter gentilis*). This raptor “nests in older-aged stands that have a high density of large trees, high tree canopy cover, and high basal area”. Reynolds et al, 1992, at 15. The post-fledging family area (PFA) habitat for this species needs patches of dense, large trees, snags, and some small trees for hiding cover near the ground. Id. at 16. Finally, goshawk foraging habitat needs a variety of features, including large trees, snags, and downed logs. Ibid. Goshawks do not directly use snags, but several likely prey species use them.

Almost any of the treatments proposed for the St. Vrain Project area could degrade or destroy goshawk habitat. In fact, as discussed above, the PODs would fragment habitat, especially for species like goshawk that need sizable areas with tree canopy cover. Thus before any vegetation manipulation is approved, surveys for goshawk and other late-successional species should be conducted. Any active or inactive raptor nesting area should be avoided. A Forest Plan requires protection of “known raptor nest areas”. Plan at 30, Standard 101.

Reynolds et al, 1992 recommend 180 acres for nesting, to accommodate three suitable nest sites and three replacement sites per home range. Id. at 22. For the PFA, they recommend 420 acres, not including the acres for the nest sites, with 60 percent in the older structural stages. Id. at 23. The foraging area can have a greater variety of forest structure and openings, but 60 percent of these areas should be in the older age classes. Id. at 26-27.

Aberts squirrel (also called tassel-eared squirrel, *Sciurus aberti*). This species is a ponderosa pine obligate, as it depends on this tree species for “most of [its] life requirements”. Keith, 2003 at 4.

It requires the clumpy structure found in natural ponderosa pine stands. While these squirrels consume ponderosa pine seed and can reduce tree growth,

they contribute to the well-being of the pine by dispersing spores of hypogeous fungi that facilitate water and nutrient uptake by the trees and thereby enhance seedling survival, forest regeneration, and growth.

Ibid. Keith also stated that “logging degrades the quality of Aberts squirrel habitat and reduces squirrel abundance”. Id. at 15; citations omitted.

Patton, 1977, recommended clumps have a minimum at 6 trees and preferably 10-13 trees, with crowns touching. He also recommended that there be no more than 50 feet between clumps. Keith found that “clusters of larger pines provide greatest benefits to squirrels”. Id. at 18. See also Patton, 1975, at 11.

The Forest Service must carefully design treatments to retain Abert squirrel habitat, both occupied and potential habitat. We do not believe that conserving this habitat would seriously conflict with project goals. Removing many (but not all) smaller trees and retaining clumps of large trees would help restore the natural structure of lower elevation Front Range ponderosa pine stands: open stands of large trees with a clumpy structure. This would reduce ladder fuels and the associated chance of large crown fires in the ponderosa pine type across the landscape.

Flammulated owl (*Otus flammeolus*). This insectivorous, cavity-nesting, neo-tropical migrant mostly nests in ponderosa pine and Douglas-fir stands. Hayward and Verner, 1994 at 10 et seq. This species prefers older forests, with some open areas for foraging insects. Id. at 23-24. Snags are absolutely essential for breeding, as the flammulated owl is a secondary cavity nester. Id. at 26.

As with Aberts squirrel, any manipulation of vegetation will have to be carefully designed to avoid destroying owl habitat. By maintaining snags in clumps of older ponderosa pine and Douglas-fir trees with openings between the clumps, habitat will be retained for flammulated owl while reducing the potential for a large, high-intensity fire. We see no reason for direction to remove conifers (unless they contain cavities) from riparian areas. See PDF Terrestrial Wildlife 1 k, PN Appendix C at 12.

Big game. Implementation of the project as currently proposed could remove too much hiding and/or thermal cover for deer and elk. There needs to be an analysis of big game cover needs over the entire project area before approval of the project or any activities under it. The data from CPW’s current elk collaring project should also be incorporated into project planning.

Forest Plan standard 106 requires exclusion of human activity in key elk calving areas and deer and elk winter range during the respective seasons. Plan at 30.

A PDF states that severe winter range and winter concentration areas should be avoided from December 1 to March 30. PDF Terrestrial Wildlife 5 c, PN Appendix C at 14. That should probably be extended until at least April 15, as parts of the project area that have big game habitat in the snow-free season may still be covered with snow at the end of March, and spring green-up does not start until late April or May except at the lowest elevations within the project area. Once again data from CPW's elk collaring study would be extremely informative of actual migration dates.

MA 3.5, which covers a sizable portion of the project area, has the following theme:

Management emphasis is on providing adequate amounts of quality forage, cover, escape terrain, solitude, breeding habitat, and protection for a wide variety of wildlife species and associated plant communities.

Plan at 358. This MA also has a standard that requires the Forest Service to “[d]iscourage or prohibit human activities and travel... to allow effective habitat use” at least during elk calving, deer fawning, and bighorn sheep birthing seasons. Another standard here requires limiting or prohibiting human activities “to allow effective habitat use by other wildlife species, especially during the seasons of birthing and rearing of young.” Plan at 359. This requirement must take into account potential increased recreation access resulting from and following project implementation. (See below under The Project Would Exacerbate Recreation Problems for further explanation.)

VIII. REINTRODUCE BEAVERS.

Forest Restoration is not full restoration without considering the ecosystem as a whole. One of the native animal species largely, or entirely missing from the project landscape is the beaver. Rocky Mountain National Park, which borders the project area, reports: "Beaver populations have declined in many areas of Rocky Mountain National Park since the 1940's. Beaver surveys in the past 10 years indicate that beaver are rare. Recent park surveys suggest that beaver occupy only 10 percent of the most suitable stream side habitat in the park."

However these creatures offer invaluable benefits that would further at least 3 of the 6 stated project goals: Improve Forest Resilience, Improve and/or Maintain Water Security, and Maintain and Conserve Biodiverse Ecosystems that provide diverse site characteristics across the landscape. In brief CPW summaries the benefits of Beaver as: “Beavers are habitat engineers whose dams slow water, which recharges groundwater, reduces erosion, provides a barrier to wildfires and provides ecological benefits.” These are invaluable benefits in the face of climate change.

The PN specifically lays out the desire to retain more water on the landscape throughout the year, and enhance riparian habitat. For example

managing vegetation conditions (e.g., species composition and structure) in riparian and adjacent areas to maintain and improve riparian function and ecological services. Properly functioning riparian areas provide for water quality, sediment filtration, stream channel stability, floodplain maintenance and healthy riparian and aquatic habitats as identified in the Forest Plan desired condition for soil, water, and aquatic resources.”

PN p. 37

Maintaining water on site, through restoration of soils, roads, meadows, and fens is vital for reducing negative drought stress and helping maintain water flows in perennial channels longer into the summer and fall.

PN p. 17

There is general support for beaver reintroduction from the USFS wildlife biologists at both the Forest, and District level in which the St. Vrain Forest Health Project is proposed. As of 2021 CPW is also offering annual funding through the Wetlands Program Priority Species for wetland/ riparian restoration projects that are designed to benefit beavers. This addition to the project proposal would help further its stated goals, as well as provide long term ecosystem resilience.

IX. THE PROJECT WOULD EXACERBATE RECREATION PROBLEMS

Much of the project area is heavily used for various forms of recreation year-round. Any activities must be designed to accommodate recreation. This is especially true in the Brainard GA, for which there is the following Plan direction:

Limit vegetation treatments in the area to those necessary to address critical matters of visitor safety, forest health, or aesthetic protection. Emphasize retention of existing old-growth sites. Limited timber harvest may take place, but none is scheduled. ...

Maintain the undeveloped character of that portion of the area away from roads and trails...

Plan at 57. Brainard GA lies at high elevation within the project area, 9,700 – 11,300 feet. (Plan at 57). It is highly unlikely that any tree stands in this GA have become denser than they were historically because of fire suppression. Treatment in this GA should be minimal and limited to ensuring safety of recreational users.

Before any activities occur anywhere in the project area, notice must be given, via the ARNF's web pages and news media, in advance of commencement of activities. This would increase safety and allow recreationists to find other areas to go to, if necessary.

Unmanaged recreation is a major problem on national forest lands across our nation, including the ARNF. Motor vehicle operators and mountain bicyclist pioneer new routes at will, causing impacts to wildlife and habitat, soils, and non-motorized/non-mechanized recreational opportunities.

The Forest Plan contains the following for the James Creek Geographic Area:

There may be significant road and trail closures and obliteration to help restore important meadows and wildlife winter range,...

Manage recreational uses and road and trail networks to reduce erosion or deterioration of riparian areas and watershed conditions. Evaluate road and trail impacts to aquatic and riparian ecosystems during travel management planning.

Plan at 70-71. In other words, the need for closures and obliterations in this GA was recognized well before the proposed project was ever conceived.

The project would make the problem worse by creating many miles of new roads, including potential control lines (the latter is discussed above in section IV). Tree stands in these areas would be opened up considerably to reduce potential fuel for wildfires and include the construction of control lines (PODs) up to 12 feet wide (PN Appendix B at 30), meaning the areas would be inviting to motor vehicle operators.

Given the large area of PODs that would be created under the project, it is hard to imagine that the Forest Service, even with help of volunteers, could erect and maintain enough barriers to significantly control the increased unmanaged motorized recreation that would likely occur as a result of the project.

This issue would be prominent in winter, when snowmobiles would have fewer barriers to off-route travel. This could disturb big game animals on their winter ranges.

At the June 2 webinar, Forest Service representative repeatedly stressed that the project would only disclose potential impacts on recreation but not address travel management issues (including access). This is not acceptable. Creation of the control areas and some other treatments would create easy paths for motor vehicles on a landscape already suffering from unmanaged recreation via user-created routes. There must not only be disclosure of potential impacts, but also consideration of practicable mitigation measures that could reduce unmanaged recreation. The NEPA document for the project must discuss such measures and their likely

effectiveness in reducing off-route and non-system route motorized and mechanized use and the damage (to soils, wildlife habitat effectiveness, quiet recreation, etc.) therefrom.

The analysis must also recognize the reality that all new access created by the proposed project (even unintentional access) can never be 100% managed, especially based on current USFS staffing levels. The reality of the USFS's ability to enforce public closures of temporary roads, skid trails, and POD boundaries, must be thoroughly considered in evaluating the impact of the proposed actions.

Increased recreational access is also a growing concern for two other reasons 1) Damages to restoration projects and 2) increased fire starts.

On the Aug. 15, 2019 LRT field trip to the Pike National Forest the field trip included a conversation about recreation issues following implementation of a forest restoration project at Painted Rocks:

- There were visible signs of damage from recreators in one of the drainages.
- Prescribed fire can open up the forest and encourage people to recreate further into the forest. There was a question about whether it is possible to close down an area for recreation after a prescribed burn. Closing the area for recreation would allow the USFS to manage the area for both the forest structure and other management concerns, like recreation.
- The USFS has not done this in the past, but it is possible. People normally view closure unfavorably, so the USFS would need support from other groups to make this possible. The USFS would also need a way to enforce these closures.

p. 6 Pike Field Trip Final Summary 9/10/19

From 1992 - 2015 97% of the homes threatened by wildfire in the US were from human-caused ignitions. (Mietkewkz et al. 2020). From 2017 - 2021 USFS law enforcement data shows that citations for either Building or Using a Fire When Prohibited, and/or Leaving a Fire without Completely Extinguishing it were in the top 7 issues annually on the ARP. Building or Using a Fire When Prohibited was the top offense when looking at data from the ARP, PSI, and White River National Forests from 2017-2021, with fire related offenses accounting for 21% of the top 25 offenses over that time period (these numbers do not include firearm offenses, or off road offenses, both of which have the potential to ignite fires as well).

Fire prevention starts with reducing human ignitions, and by extent the areas they ignite. Each time there is a new entry into the forest, particularly with mechanical equipment, it becomes an open invitation to recreationists, regardless of efforts to redirect, or block such an entry. Given the data on current issues faced by the USFS it is reasonable to assume that as recreationists spread out further into the forest, so too will the human caused fire starts. This very real issue must be balanced with the desire for forest restoration. If a treatment is implemented, only to draw in a previously unknown ignition source to that location the net effect to improving forest resilience, and protecting communities may be negative. This concern also emphasizes the need for additional recreational, and law enforcement staff to manage the outcomes resulting from forest restoration. One of each on the entire BRD is nowhere near sufficient.

X. FIGHT INVASIVE, NON-NATIVE PLANTS AND PROTECT RARE PLANT SPECIES.

The PN observes that

Invasive species are among the most substantial environmental and economic threats facing our Nation's forests, grasslands, and aquatic ecosystems.

Id. at 40.

Removing seed heads and/or fruiting bodies prior to seed set is an efficient, productive, and proactive approach as described in the invasive plant management plan.

Chemical methods, including [Glyphosate](#) (the active ingredient of Roundup) and [Indaziflam](#) (the active ingredient of Esplanade and Rejuvra), both commonly used to control cheatgrass, are harmful to our ecosystem. Glyphosate is associated with a wide range of illnesses, including Non-Hodgkin's Lymphoma. It also causes environmental damage, including water contamination and harm to amphibians. Indaziflam is known to be extremely toxic to fish, aquatic plants, and terrestrial plants, as well as a neurotoxin to mammals.

As we are facing a water and biodiversity crisis, chemical methods need to be replaced by highly effective alternatives that are already implemented in Colorado and elsewhere.

Prescribed burning, also known as hazard reduction burning, can successfully control cheatgrass at our altitude and within Boulder County's ecosystem as the [presentation](#) "Fire, Cheatgrass, Mammals, Birds, and Butterflies - A Study of Ecosystem Interaction" demonstrated during the [Parks & Open Space Advisory Committee](#) meeting of December 16, 2021. Prescribed burning will also control other potential ladder fuel and avoid the use of toxic herbicides.

[Goat Green LLC](#) offers another inspirational example of successful pesticide-free weed management and fire mitigation. Goats grazing in a controlled manner can remove weeds and return the land to a healthy and natural ecosystem. You can watch the inspiring presentation "[Using Goats for Habitat Restoration on Public lands](#)" of Hilary Boyd, a wildlife biologist at the BLM Colorado River Valley Field Office. The Roaring Fork Transportation Authority also uses the goats of Goat Green along the Rio Grande Trail to manage weeds. This [short video](#) presents their efforts and goals. Brett Meredith, RFTA Trails and Corridor Manager, and his team don't just rely on goats, they also mow, pull, harvest, remove noxious weed seeds, and revegetate with native seeds. [Here](#) is a vegetation management study that they conducted over the last 3 years. Lastly, goats can help [mitigate fires](#) by controlling ladder fuels without the use of herbicides.

Prior to any ground-disturbing activity, including prescribed fire, proposed treatment locations and access routes to them should be surveyed for non-native plants. Any populations discovered should be eradicated to the greatest extent possible, preferably with non-chemical means. After

completion of work in a given area, follow-up surveys should be conducted to see if any weed species have established. Any occurrences found should be eradicated as much as possible.

The factors to be considered in prioritizing weed populations for treatment (under “Triggers” for the Invasive Plant Species Management Card, PN Appendix B at 14) are good.

Surveys for weeds can also be used to identify populations of rare plants. Areas with these plants and a surrounding buffer must be avoided in any treatments. The buffer must be sufficient to allow the plant populations to expand considerably.

XI. PROTECT SCENERY. Scenery is an important value in the project area, as people visit the area in part for its natural appearing landscapes. The Forest Plan requires that the scenic integrity objectives shall be met:

Prohibit management activities that are inconsistent with the scenic integrity objective unless a decision is made to change from the scenic integrity objective. A decision to change from the scenic integrity objective will be documented in a project level NEPA decision document.

Plan standard 154, as amended by Forest Plan Amendment 9.

All of the project area has a scenic integrity objective (SIO) of high or moderate. See map with Forest Plan Amendment 9. See also Forest Plan FEIS, Table 3.136, p. 402, which lists the prominent visual quality objectives (VQOs) for each management area. The VQOs for the MAs in the project area are retention and partial retention, which correspond to SIOs high and moderate, respectively. See Amendment 9.

In areas with a high SIO, “the valued landscape character ‘appears’ intact”. In moderate SIO areas,

the valued landscape character ‘appears slightly altered.’ Noticeable deviations must remain visually subordinate to the landscape character being viewed.

Amendment 9, p. 2.

Any treatments must be designed and implemented to meet the assigned SIO for each part of the project area.

XII. OTHER FOREST PLAN REQUIREMENTS

The proposed project would occur in areas assigned to several management areas under the Forest Plan. Each has some guidance applicable to the proposed project. While no MA would prohibit all of the proposed treatments, all MAs have some limitations on such treatment which must be considered in the design and implementation of activities.

MA 1.3, Backcountry Recreation. A desired condition states:

New human-caused changes to vegetation that may occur are limited in scale and are not visually evident. For short time periods in small areas, some vegetation manipulation may occur that is noticeable; however, it resembles natural patterns.

Plan at 337. Also, new road construction is not allowed. Id. at 338. The intent here is to limit human impacts. This MA is mostly assigned to higher elevation areas within the project area where little vegetative manipulation is needed. See PN Appendix E, Map 2.

1.41 Core Habitats – Existing. Management is allowed to “restore physical and biological attributes”, but

Plant and animal species native to the area will be maintained and restored, where feasible, with emphasis on endangered, threatened and sensitive species. Management manipulation of forests and nonforest terrestrial vegetation and aquatic systems will be limited to that necessary to maintain and restore habitat quantity and quality for native plant and animal species.

Plan at 339. In these areas, motorized use and road construction are prohibited. Id. at 340.

MA 2.2, Research Natural Areas. See section V above.

MA 3.1, Special Interest Areas. See section V above.

MA 3.3 Backcountry Recreation – Motorized. A desired condition for this area is:

New human-caused changes to vegetation that may occur are limited in scale and are not visually dominant. For short time periods, some vegetation manipulation may occur which may be noticed; however, it resembles natural patterns.

Plan at 356.

MA 3.5, Forest and Fauna Habitats.

Retain all existing lodgepole pine and spruce-fir old growth, except for natural losses that are not human caused, and provide like amounts in the future. Provide for rapid

development of future lodgepole pine and spruce-fir old-growth conditions. Protect areas and communities that are providing important habitat components such as wintering areas, birthing areas (especially for calving, fawning, lambing and kidding), rearing areas, and migration routes. Manage and protect healthy forested and nonforested riparian areas to retain their value as quality habitats for terrestrial and aquatic wildlife.

Plan at 358. A standard prohibits treatment of inventoried lodgepole pine and spruce-fir old growth. Two other standards requires that habitat effectiveness be maintained or increased, except for legally required access, and that human use be discouraged or prohibited if necessary to maintain effectiveness during calving, fawning, and wintering seasons. *Id.* at 359.

MA 4.2 Scenery. Desired conditions for this MAA include:

Vegetation management activities are, however, kept visually subordinate to the surrounding landscape. ...

Opportunities exist to view high-quality scenery that represents the natural character of the Forests and Grassland.

Plan at 364.

MA 4.3, Dispersed Recreation. The theme of this MA is:

Dispersed recreation areas are managed to provide recreational opportunities in natural or nearly natural-appearing landscapes.

Plan at 366. A guideline affects the timing of operations:

Restrict vegetation management operations during periods of high recreational use (weekends, holidays, high-use seasons, etc.) as needed, to maintain the desired recreational setting or to reduce interference with the recreational activities.

Id. at 367. This same guideline appears in MA 8.22, Developed Recreation Complexes. Plan at 383.

XIII. MISCELLANEOUS ISSUES

The Proposed Action section of the PN (p. 22) describes patchcuts as up to five acres, and patch clearcuts as 5-40 acres. Forty acres is a full-sized clearcut, not a “patch”. It is the largest clearcut allowed under the NFMA in this Forest Service region for commercial timber projects without

having to use a special procedure which requires a 60-day public comment period and review by the Regional Forester.

There is no reference in either the PN or any of the appendices to treatment of Limber Pine (with the exception of planting). However in Table 1 (p. 34 PN) 488 acres of limber pine is listed with treatment options including: 2) Variable Density Thinning and Prescribed Fire. There is no justification provided for variable density thinning in limber pine. Only options 1) Stand-alone Prescribed Fire and 3) Thinning from Below and Prescribed Fire should remain for treatment options.

In Appendix A, the photo purporting to show the desired future condition (DFC) for lodgepole pine stands shows a landscape picture that may not even include lodgepole pine, and certainly doesn't depict a DFC for this vegetation type. The ground level view of the current condition and the aerial view of the desired condition are not comparable.

In PN Appendix C, there are two Preliminary Design Features (PDFs) named HSWF 5. Id at 6-7. These PDFs should be renumbered to avoid confusion.

CONCLUSION.

The project should be documented with a programmatic EIS, followed by EAs for individual projects or groups of them.

The project must be redesigned to be the most effective in reducing fire susceptibility and restoring natural conditions, with the least adverse impact, particularly to wildlife habitat. The newest studies on fire burn severity, especially in relation to lodgepole pine treatments must be incorporated into project planning. Treatments should be concentrated in the home ignition zone and in lower-elevation ponderosa pine, where site-specific analysis shows that stands have significantly departed from historical conditions. Spruce-fir should not be treated, and treatment, if any, in aspen should be minimal. Lodgepole pine should only be treated in the home ignition zone, and within POD boundaries, and the treatments must be maintained.

Wildlife habitat, especially for species needing late-successional forest habitat, and wildlife migration corridors must be protected. Beavers should be re-introduced to their native habitat, which will further the goals of the proposed project.

The problem of user-created routes and unmanaged recreation must be addressed and mitigated, and must not be exacerbated by project implementation. Potential future fire control lines should not be created unless they can be blocked to public motorized and mechanized uses. All unneeded roads, whether used for the project or not, should be obliterated.

Watersheds and soils must be protected, in part by limiting and obliterating roads. Any treatment in special areas must retain the characteristics that make the areas special.

The character of the project area that makes it desirable for recreation and scenic viewing must be retained.

USFS resources, in particular human resources, must be thoroughly and realistically evaluated for the USFS's capacity to take on a project of this size as currently described.

Thank you for your consideration of the issues, as well as additions that we have outlined above.

Sincerely,

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EXHIBIT 1

PHOTO FROM THE CAMP FIRE AT PARADISE, CA, 2018



EXHIBIT 2

PHOTO FROM FORSYTHE II LODGEPOLE REGENERATION UNIT - green trees in the background were outside of the patchcut.



EXHIBIT 3: PRESENTATION BY NICHOLAS POVAK - UB = under burn (controlled), PB = pile burn.

