COMMENTS ON THE DRAFT REVISED PLAN AND DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE RIO GRANDE NATIONAL FOREST

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I. **INTRODUCTION**

We are pleased to see the following in the draft revised Plan and DEIS:

--inclusion of alternative D, which is similar to the alternative we submitted as part of our scoping comments;
--the proposed addition of a standard to the Southern Rockies Lynx Amendment, acknowledging that lynx are still using stands with substantial spruce mortality; and
--the recommendation of some areas for wilderness designation.

However, there are many weaknesses in the plan that will need substantial correction before finalization. Overall, the plan provides very weak, and in some cases non-existent, direction for protection of important resources and on limitation of activities that could adversely affect these resources. The proposed Plan is much weaker than the existing plan in this regard. Considerable changes must be made to strengthen the draft plan.

There are also problems with the determination of lands suitable for timber production and the accompanying calculation of long-term sustained yield of timber, and with the analysis of rangeland suitability for livestock grazing.

More areas should be recommended for wilderness and special interest area designations, as applicable.

II. **RECOMMEND ADDITIONAL AREAS FOR WILDERNESS DESIGNATION**

The opportunity to inventory and evaluate wilderness-quality lands is an integral component of the forest planning process and presents a rare opportunity to provide administrative protection to some of the most spectacular and ecologically important undeveloped lands on our national forests. These areas provide our drinking water; habitat for imperiled wildlife; physical, mental, and spiritual renewal for millions of Americans; and a buffer to the impacts of climate change. That is, wilderness areas are a crucial management strategy for assuring that the planning rule's goal of ecological sustainability and its requirements for diversity and ecosystem integrity are achieved.

Alternative B recommends 59,000 acres for wilderness.[1] The proposed areas are well-conceived recommendations in that they would provide protection for ecosystems that are currently under-represented in the wilderness system on the forest and federally. However, there are many more areas on the Rio Grande National Forest that deserve to be recommended for wilderness on the forest because of their outstanding scenery, recreation, ecosystem services, and ecological

[1] The DEIS has a discrepancy in the acres recommended for wilderness. On page 29, the DEIS says Alternative B recommends 59,000 acres while page 303 says that Alternative B recommends 52,860 acres.

values. Alternative D, in contrast to Alternative B, recommends 284,870 acres for wilderness (about 29% of lands in the final wilderness inventory), including many of the most deserving areas. The areas recommended for wilderness in Alternative D contribute significantly to landscape scale connectivity of wildlands, protection of under-represented ecosystems, conservation of at-risk species' habitat, and opportunities for non-motorized backcountry recreation. We described these values at length in our submissions during scoping.[2] For these reasons, the Record of Decision for the final plan should adopt the wilderness recommendations in Alternative D.

A. BACKGROUND AND REGULATORY FRAMEWORK

The 2012 Planning Rule requires forests undergoing a plan revision to "[i]dentify and evaluate lands that may be suitable for inclusion in the National Wilderness Preservation System [NWPS] and determine whether to recommend any such lands for wilderness designation." 36 C.F.R. § 219.7(c)(2)(v). Chapter 70 of the Forest Service Land Management Planning Handbook (FSH) 1909.12 prescribes a four-step process for doing so: (1) inventory all lands that may be suitable for inclusion in the NWPS based on their size, roadless nature, and lack of improvements that are substantially noticeable in the area as a whole; (2) evaluate the wilderness characteristics of each inventoried area pursuant to the criteria in the Wilderness Act of 1964; (3) analyze a range of alternatives for recommended wilderness in the plan EIS; and (4) decide which areas or portions of areas to recommend for inclusion in the National Wilderness Preservation System (NWPS). Chapter 70 requires opportunities for public participation "early and during each step of the process." FSH 1909.12, ch. 70, § 70.61.

Given the myriad ecological and social benefits of wilderness and other highly protected lands, the wilderness recommendation process is a key component of satisfying the substantive requirements of the 2012 planning rule. The overarching purpose of the rule is to provide for the development of plans that:

> will guide management of [National Forest System] lands so that they are ecologically sustainable and contribute to social and economic sustainability; consist of ecosystems and watersheds with ecological integrity and diverse plant and animal communities; and have the capacity to provide people and communities with ecosystem services and multiple uses that provide a range of social, economic, and ecological benefits for the present and into the future.

36 C.F.R. § 219.1(c). To accomplish these ecological integrity and sustainability goals, the rule imposes substantive mandates to establish plan components – including standards and guidelines – that maintain or restore healthy aquatic and terrestrial ecosystems, watersheds, and riparian areas; air, water, and soil quality; and the diversity of plant and animal communities, ecosystems, and habitat types. *Id.* §§ 219.8(a)(1)-(3), 219.9. Plans also must provide for sustainable recreation. *Id.* §§ 219.8(b)(2), 219.10(b)(1)(i). The Forest Service must use the best available scientific information to comply with these substantive mandates, *id.* § 219.3, and include in the decision document "[a]n explanation of how the plan components meet [those] requirements, *id.* § 219.14(a)(2).

[2] The Wilderness Society submitted a scoping letter dated October 28, 2016. A number of other signatories to this letter submitted a joint scoping letter with the same date.

For areas recommended for wilderness designations, plans must include plan components, including standards and guidelines, "to protect and maintain the ecological and social characteristics that provide the basis for their suitability for wilderness designation." 36 C.F.R. § 219.10(b)(1)(iv). "Any area recommended for wilderness or wilderness study designation is not available for any use or activity that may reduce the wilderness potential of an area." Forest Service Manual 1923.03(3).

B. THE DEIS FAILS TO ANALYZE A REASONABLE RANGE OF ALTERNATIVES.

The analysis of alternatives under NEPA is the "heart" of an EIS. 40 C.F.R. § 1502.14. An agency must "[r]igorously explore and objectively evaluate all reasonable alternatives" to a proposed action. *Id.* § 1502.14(a); *see also* 42 U.S.C. § 4332(2)(E) (agencies must "study, develop and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources"). Consistent with NEPA's basic policy objective to protect the environment, this includes more environmentally protective alternatives. 40 C.F.R. § 1500.2(e) (agencies must "[u]se the NEPA process to identify and assess reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment"); *see also, e.g., Kootenai Tribe of Idaho v. Veneman*, 313 F.3d 1094, 1121-22 (9th Cir. 2002) (citing cases), *abrogated on other grounds by The Wilderness Soc'y v. U.S. Forest Serv.*, 630 F.3d 1173, 1178-80 (9th Cir. 2011) (en banc). "The existence of a viable but unexamined alternative renders an [EIS] inadequate." *Mont. Wilderness Ass'n v. Connell*, 725 F.3d 988, 1004 (9th Cir. 2013) (quotations and citation omitted). The "touchstone" of the inquiry is "whether an EIS's selection and discussion of alternatives fosters informed decision-making and informed public participation." *Id.* at 1005 (quotations and citation omitted).

The alternatives as crafted include a range for recommended wilderness from 0 acres (Alternatives A and C) to 284,870 (Alternative D). Alternative B recommends 59,000 acres. The draft wilderness evaluation included as a link in Appendix A of the DEIS lists the polygons with wilderness character. Summarizing the rankings, there are 973,137 acres listed in the potential wilderness inventory and evaluation; 580,144 acres have moderate to high-upper tier (UT) rankings, while 385,356 acres have mod-high to high UT rankings. Or said another way, over half of the potential wilderness acres have moderate to high degree of wilderness character. See Table 1.

Table 1. Summary of wilderness quality rankings of areas with wilderness character on the Rio Grande National Forest.

Rankings	# of polygons	Total acres	Fraction of evaluated acres
High Upper Tier	6	121,293	0.12
High	15	88,602	0.09
Moderate-High	10	175,461	0.18
Moderate	14	194,788	0.20
Low-Moderate	8	70,761	0.07
Low	44	322,232	0.33

The Wilderness Society in its scoping comments requested that at least one alternative analyze recommending all or almost all of the inventoried & evaluated areas, and at least one other alternative analyze the areas recommended in the conservation proposal submitted by The Wilderness Society and other organizations[3]:

> "The RGNF in the Draft EIS, therefore, should include a broad range of wilderness recommendations across the alternatives with one or more alternatives, including the preferred alternative, recommending all or almost all of the qualifying areas for wilderness. Analyzing a broad range will enable a robust analysis of the trade-offs and impacts associated with recommending most (if not all) of the inventoried areas.[4] In addition to analyzing at least one alternative that recommends all or nearly all qualifying wilderness inventory areas for wilderness, the RGNF should also analyze at least one alternative that includes all the areas recommended by The Wilderness Society in this letter. Both of these suggested alternatives are reasonable and will foster informed public participation and decision-making."

Alternative D generally reflects the conservation proposal recommendations and is the upper bookmark of the range of alternative considered in the DEIS. Alternative D recommends 284,870 acres for wilderness. This is 29% of the inventoried acres, and 49% of the evaluated acres with rankings from moderate to high-UT. This makes the range for recommended wilderness provided in all the alternatives from 0% to 29%, if we assume that all the polygons in the wilderness evaluation have wilderness character. If we assume that areas ranked as low in the evaluation do not have wilderness character, the range for recommended wilderness would be from 0% to 49%, which still is far from adequate. See Table 2.[5]

Table 2. Summary of recommended wilderness by alternative in the DEIS for the Rio Grande National Forest.

Alternative in Draft EIS	Acres Recommended Wilderness[6]	Recommended Wilderness Acres as a Percent of all Lands in the Wilderness Evaluation[7]	Recommended Wilderness Acres as a Percent of Lands Ranked as Moderate to High-UT in the

[3] See scoping comments submitted on October 28, 2016 by The Wilderness Society at 13-14.

[4] *See, e.g.,* Council on Environmental Quality, *NEPA's Forty Most Asked Questions*, 46 Fed. Reg. 18,026 (Mar. 23, 1981) ("When there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. An appropriate series of alternatives might include dedicating 0, 10, 30, 50, 70, 90, or 100 percent of the Forest to wilderness.").This approach conforms with the 9th Circuit Court of Appeals decision in *California v. Block*, 690 F.2d 753, 765, 768-69 (9th Cir. 1982) (despite considering an alternative that allocated 100% of inventoried roadless areas to wilderness, "it was unreasonable for the Forest Service to overlook the obvious alternative of allocating more than a third of the RARE II acreage to a Wilderness designation").

[5] Appendix A of the DEIS at 481 states that "For the most part all numbered polygons that were ranked as moderate-high, high, or high-upper tier are considered in this analysis." It does not explain why the floor for analysis was set at moderate-high.

[6] From page 304 of the DEIS

[7] Appendix A references the draft wilderness evaluation that found a total of 937,137 acres with wilderness character. Each qualifying polygon was ranked for the overall degree of wilderness character from low to high-upper tier.

			Wilderness Evaluation
A	0	0%	0%
B	52,860	5%	9%
C	0	0%	0%
D	284,870	29%	49%

The range of alternatives does not satisfy NEPA because the upper end of the range and intermediate alternatives are still missing. *Compare California v. Block*, 690 F.2d 753, 765, 768-69 (9th Cir. 1982) (despite considering an alternative that allocated 100% of inventoried roadless areas to wilderness, "it was unreasonable for the Forest Service to overlook the obvious alternative of allocating more than a third of the RARE II acreage to a Wilderness designation"), *with Mont. Wilderness Ass'n*, 725 F.3d at 1004-05 (range of alternatives that included opening between 0 and 10 of 10 existing airstrips, with three intermediate options, was reasonable). Similar to the situation in *California v. Block* – where the Ninth Circuit invalidated an EIS that "uncritically assume[d] that a substantial portion of the [roadless] areas should be developed and consider[ed] only those alternatives with that end result," 690 F.2d at 767 – the Rio Grande DEIS assumes that less than one-half of the inventoried areas should not be protected as recommended wilderness and considers only those alternatives with that end result.

We request that you rectify this deficiency by supplementing the DEIS with alternatives that fill in the upper end of the range. Logical options are to include an alternative that analyzes all or almost all of the qualifying acres, and another alternative that analyzes all the acres ranked high to moderate. This would ensure an adequate range of alternatives and a robust analysis of the trade-offs and impacts associated with recommending most (if not all) of the inventoried areas.

C. THE DEIS DOES NOT ADEQUATELY ANALYZE OR ACCOUNT FOR THE ECOLOGICAL EFFECTS OF RECOMMENDED WILDERNESS.

1. Ecological benefits of unroaded natural lands.

Undeveloped natural lands provide numerous ecological benefits. They safeguard biodiversity, enhance ecosystem representation in protected areas (Dietz *et al.* 2015); facilitate connectivity (Loucks *et al.* 2003; USDA Forest Service 2001; Crist *et al.* 2005; Wilcove 1990; The Wilderness Society 2004; Strittholt and DellaSala 2001; DeVelice and Martin 2001; Belote *et al.* 2016); and provide high-quality or undisturbed water, soil, and air resources (Anderson *et al.* 2012; DellaSala *et al.* 2011). They also serve as ecological baselines to facilitate better understanding of our impacts to other landscapes and as reference areas for ecological restoration (Arcese and Sinclair 1997).

Forest Service roadless lands, in particular, are heralded for their conservation values. Those values are described at length in the preamble of the Roadless Area Conservation Rule (RACR), 66 Fed. Reg. 3244, 3245-47 (Jan. 12, 2001), and in the Final Environmental Impact Statement

(FEIS) for the RACR.[8] They include: high-quality or undisturbed soil, water, and air; sources of public drinking water; diverse plant and animal communities; habitat for threatened, endangered, proposed, candidate, and sensitive species and for those species dependent on large, undisturbed areas of land; primitive, semi-primitive non-motorized, and semi-primitive motorized classes of dispersed recreation; reference landscapes; natural appearing landscapes with high scenic quality; traditional cultural properties and sacred sites; and other locally identified unique characteristics (e.g., uncommon geological formations, unique wetland complexes, exceptional hunting and fishing opportunities).

Numerous articles in the scientific literature similarly recognize the contribution of roadless and undeveloped lands to biodiversity, connectivity, and conservation reserve networks. For example, Loucks *et al.* (2003) examined the potential contributions of roadless areas to the conservation of biodiversity, and found that more than 25% of Inventoried Roadless Areas (IRAs) are located in globally or regionally outstanding ecoregions[9] and that 77% of IRAs have the potential to conserve threatened, endangered, or imperiled species. Arcese and Sinclair (1997) and Aycrigg *et al*. (2015) highlighted the contribution that IRAs could make toward building a representative network of conservation reserves in the United States, finding that protecting those areas would expand ecosystem representation, increase the area of reserves at lower elevations, and increase the number of large, relatively undisturbed refugia for species. Crist *et al.* (2005) looked at the ecological value of roadless lands in the Northern Rockies and found that protection of national forest roadless areas, when added to existing federal conservation lands in the study area, would: (1) increase the representation of virtually all land cover types on conservation lands at both the regional and ecosystem scales, some by more than 100%; (2) help protect rare, species-rich, and often-declining vegetation communities; and (3) connect conservation units to create bigger and more cohesive habitat "patches."

Roadless lands are also responsible for higher quality water and watersheds. Anderson *et al.* (2012) assessed the relationship of watershed condition and land management status, and found a strong spatial association between watershed health and protective designations. DellaSala *et al.* (2011) found that undeveloped and roadless watersheds are important for supplying downstream users with high-quality drinking water, and that developing those watersheds comes at significant costs associated with declining water quality and availability. The authors recommend

[8] Final Environmental Impact Statement, Vol. 1, 3–3 to 3–7, *available at* http://www.fs.usda.gov/roaddocument/roadless/2001roadlessrule/finalruledocuments.

[9] Loucks *et al.* utilized an ecosystem ranking system developed by Ricketts *et al.* (1999):

> Ricketts *et al.* (1999) classified the biological importance of each ecoregion based on species distribution, i.e., richness and endemism, rare ecological or evolutionary phenomena such as large-scale migrations or extraordinary adaptive radiations, and global rarity of habitat type, e.g., Mediterranean-climate scrub habitats. They used species distribution data for seven taxonomic groups: birds, mammals, butterflies, amphibians, reptiles, land snails, and vascular plants (Ricketts *et al.* 1999). Each category was divided into four rankings: globally outstanding, high, medium, and low. The rankings for each of the four categories were combined to assign an overall biological ranking to each ecoregion. Ecoregions whose biodiversity features were equaled or surpassed in only a few areas around the world were termed "globally outstanding." To earn this ranking, an ecoregion had to be designated "globally outstanding" for at least one category. The second-highest category, or continentally important ecoregions, were termed "regionally outstanding," followed by "bioregionally outstanding" and "nationally important" (Ricketts *et al.* 1999).

a light-touch ecological footprint to sustain healthy watersheds and the many other values that derive from roadless areas.

The U.S. Forest Service, National Park Service, and U.S. Fish and Wildlife Service recognize that protecting and connecting undeveloped areas is an important strategy to enhance climate change adaptation. For example, the Forest Service National Roadmap for Responding to Climate Change establishes that increasing connectivity and reducing fragmentation are short- and long-term actions the agency should take to facilitate adaptation to climate change (USDA Forest Service 2011). The National Park Service also identifies connectivity as a key factor for climate change adaptation, along with establishing "blocks of natural landscape large enough to be resilient to large-scale disturbances and long-term changes." The agency states that "[t]he success of adaptation strategies will be enhanced by taking a broad approach that identifies connections and barriers across the landscape. Networks of protected areas within a larger mixed landscape can provide the highest level of resilience to climate change."[10] Similarly, the Climate Adaptation Strategy adopted by a partnership of governmental agencies including the U.S. Fish and Wildlife Service calls for creating an ecologically connected network of conservation areas (National Fish, Wildlife and Plants Climate Adaptation Partnership 2012).[11] The 2012 planning rule's substantive ecological sustainability provision sanctions this reserve design and landscape connectivity approach, requiring the Forest Service to formulate "plan components, including standards and guidelines, to maintain or restore [the] structure, function, composition, and connectivity" of terrestrial and aquatic ecosystems and watersheds, taking into account stressors such as climate change. 36 C.F.R. § 219.8(a)(1).

The designated areas chapter of the Rio Grande's forest assessment report does a very good job cataloguing the ecological – as well as social and economic – benefits associated with wilderness and roadless area protection.[12] The assessment recognizes that "[i]ncreasing the size of current designated wilderness areas is . . . an important option that can help support biological diversity and protect habitat for rare and endangered plant and animal species."

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[10] National Park Service, Climate Change Adaptation webpage, http://www.nps.gov/subjects/climatechange/adaptation.htm (last visited Sept. 8, 2015). *See also* USDOI National Park Service (2010) (Objective 6.3 of agency's Climate Change Response Strategy is to "[c]ollaborate to develop cross-jurisdictional conservation plans to protect and restore connectivity and other landscape-scale components of resilience").

[11] Relevant goals and strategies include:

> Goal 1: Conserve habitat to support healthy fish, wildlife, and plant populations and ecosystem functions in a changing climate.
>
> > Strategy 1.1: Identify areas for an ecologically-connected network of terrestrial, freshwater, coastal, and marine conservation areas that are likely to be resilient to climate change and to support a broad range of - fish, wildlife, and plants under changed conditions.
> >
> > Strategy 1.2: Secure appropriate conservation status on [high priority areas] to complete an ecologically-connected network of public and private conservation areas that will be resilient to climate change and support a broad range of species under changed conditions.
> >
> > Strategy 1.4: Conserve, restore, and as appropriate and practicable, establish new ecological connections among conservation areas to facilitate fish, wildlife, and plant migration, range shifts, and other transitions caused by climate change.

[12] Rio Grande National Forest, Assessment 15: Designated Areas at 16-26 (March 2016), *available at* http://www.fs.usda.gov/detailfull/riogrande/landmanagement/projects/?cid=fseprd479414&width=full

2. The DEIS Fails to Take a Hard Look at the Effects of Recommending Wilderness to Various Resources**.**

The DEIS does not adequately analyze the effects of the wilderness recommendation on various resources under each alternative. The section on recommended wilderness (DEIS starting at 302) discusses the impacts on the wilderness recommendations under each alternative from various management activities (e.g., road management, timber activities, grazing), but does not analyze the effects of the wilderness recommendations under each alternative on resource values such as ecosystem integrity, rare communities, watershed and aquatic resources, invasive species, non-forested ecosystems, or at-risk species.

The ecological benefits of choosing Alternative D over Alternative B for recommended wilderness are likely to be highly significant – particularly given that 71% of the non-recommended wilderness inventory lands in Alternative B will be available for potentially damaging activities including timbering, off-road vehicle riding, and mineral & energy development. See Table 3. The failure to meaningfully analyze those impacts is a violation of NEPA, which requires the Forest Service to take a "hard look" at the environmental consequences of a proposed action, including its direct, indirect, and cumulative effects. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348 (1989); 42 U.S.C. § 4332(2)(C); 40 C.F.R. §§ 1502.16, 1508.7, 1508.8. The required hard look encompasses effects that are "ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative." 40 C.F.R. § 1508.8.

Table 3. The approximate allocation of wilderness quality lands under each alternative.

Alternative	Acres Recommended for Wilderness	Wilderness Inventory Acres Allocated to General Forest Matrix Geographic Area	Wilderness Inventory Acres Allocated to Special Designations Geographic Area	Wilderness Inventory Acres Allocated to Roadless Geographic Area	Wilderness Inventory Acres Allocated to Primitive Wilderness Geographic Area
A	0	n/a	n/a	n/a	n/a
B	53,300	396,000	56,500	467,000	52,800
C	0	423,000	56,500	493,000	0
D	285,000	328,000	153,000	211,000	281,000

In Table 4, we describe how the DEIS analyzes the effects on various resources from recommended wilderness allocations and other designations under each alternative. As you can see, the analysis for certain resources is weak to non-existent. The identified deficiencies should be corrected in the final EIS.

Table 4. Summary of the effects analysis of recommended wilderness allocations and other conservation designations by alternative on various resources in the DEIS. Deficiencies in the analysis are identified.

Resource Value	Description of Effects from Designations	DEIS Pages	Deficiencies	Relevant Citations
Rare communities and special				

habitats				
Potential Conserva-tion Areas (PCA)	• Describes the overlap of PCA with proposed special interest areas	100-101, 81-86	• Does not disclose or describe the PCAs that remain unprotected under each alternative as a result of varying wilderness and special area designations, and the related consequences. Does not describe the species and habitats that are protected by the various PCAs or the aggregate ecological value to rare habitats resulting from the protection of PCAs through designations under each alternative.	See the conservation proposal submitted by The Wilderness Society in Appendices E and G in The Wilderness Society's scoping letter dated October 28, 2016. Each narrative provides information on overlapping PCAs, along with the ranking and rationale for the PCA.
Fens and Wetlands	• States that Alt. D would be most protective of fens and wetlands and Alt. C would be the least.	101	• Does not describe or disclose where the high value wetlands are and which would remain unprotected under each alternative as a result of varying wilderness and special area designations, and the related consequences.	Page 1 of the assessment report entitled *Rio Grande National Forest – Assessments 1 and 3 Aquatic and Riparian Ecosystem Integrity, Systems Drivers and Stressors* cites information sources related to wetlands and fens on the forest: • Rio Grande National Forest Riparian Inventory Project – USDA Forest Service Washington Office (Abood 2015) • Assessment of Wetland Condition on the Rio Grande National Forest (Colorado Natural Heritage Program) • Ecological Driver Classification and Analysis for Aquatic Systems – R2 Regional Office (Winters 2016) • Smith, G. J. Lemly, P. Smith, and B. Kuhn. 2016. Fen Mapping for the Rio Grande National Forest. Colorado Natural Heritage Program, Colorado State University, Fort Collins, Colorado. • Rio Grande National Forest Monitoring Report Summary 1997-2012
Low elevation riparian areas	• States that there are 977 acres of low elevation riparian areas on the forest and Alt. D and Alt. B are generally more protective of them. States that livestock grazing is an impact, and grazing will be the same under all	101-102	• Does not describe or disclose where the 977 acres of low elevation riparian areas are, and which would remain unprotected under each alternative as a result of varying wilderness and special area designations, and the related consequences. • Does not disclose or discuss the fact that roads, motorized	See above

	alternatives.		use, and more generally dispersed recreation are common stressors to low elevation riparian areas, and does not discuss how these uses and resulting impacts will vary by alternative.	
Alpine Fell Fields	• Identifies that there are 53,024 acres of alpine fell fields in wilderness, and that Alt. D affords this system the most protection, and Alt. C the least. Cites various stressors including dispersed recreation, stating "Forest visitors can participate in motorized or nonmotorized activities anywhere on Forest lands, which makes it difficult to assess recreation impacts."	102-103	• The scientific literature contains discussions of the impacts of dispersed recreation on alpine systems. The DEIS is deficient for not incorporating this science. • The DEIS (103) is inaccurate in that forest visitors cannot participate in motorized activities anywhere on the forest, and where they can go will vary by alternative (e.g., acres of recommended wilderness; suitability of motorized recreation, ROS settings). • The DEIS is deficient for not showing where the alpine fell habitat is located, which acres would be protected by recommended wilderness and other proposed designations, and the resulting relative impacts under each alternative.	See Exhibits 3 and 4 containing relevant peer-reviewed articles addressing summer and winter off-road vehicle impacts and management.
Non-forested ecosystems	• States that just under 30% of the forest is covered by non-forested ecosystems.	134-135	• Does not describe or disclose non-forested ecosystems' ecological values or the location and percent of each ecosystem that would remain unprotected under each alternative as a result of varying wilderness and special area designations, and the related impacts. (With the exception of the Poncha Pass area as sagebrush habitat for Gunnison sage-grouse DEIS 220 & 222)	See RGNF Terrestrial Assessment 1 & 3, p. 3, Figure 1. See RGNF Wildlife Overviews (Brewer's Sparrow, Gunnison's Prairie Dog) https://www.fs.usda.gov/detail/riogrande/landmanagement/projects/?cid=fseprd534370 See Seglund, S.E. and P.M. Schnurr. 2010. Colorado Gunnison's and White-tailed Prairie Dog Conservation Strategy. CO Division of Wildlife. Denver, CO, 218 pp.
Aquatic and Terrestrial Nonnative Invasive	• States that alternatives A, B, and C that allow more road building and	143-145	• Fails to disclose or describe how specific invasive species (or generally how the category of invasive species) would fare	See Exhibit 2 containing relevant peer-reviewed articles addressing summer off-road vehicle impacts and management. ("In addition to trampling

Species/Noxious Weeds	timber harvest would increase terrestrial invasive species on the forest. • States that the fate of aquatic invasive species would be the same under all alternatives because the forest uses best management practices for preventing aquatic invasive species transport through fire-fighting equipment.		under each alternative as a result of recommended wilderness and other designations. Areas with protective management that disallow off-road vehicle use have ecosystems of higher integrity in part because invasive species do not spread as readily from motorized vehicles. • Fails to disclose or describe the terrestrial invasive species of specific concern and where they are occurring.	effects, ORVs are a major vector for non-native invasive plant species.) Also see Gelbard, J. L. and J. Belnap. 2003. Roads as conduits for exotic plant invasions in a semiarid landscape. Conservation Biology 17:420-432. Available at http://onlinelibrary.wiley.com/doi/10.1046/j.1523-1739.2003.01408.x/abstract Wyoming State Wildlife Action Plan, Conservation Threats, Chapter 2 ("[The fact that invasive species colonize disturbed places] contributes to invasive species being a principal component of, or compounding, other negative effects associated with habitat impacts such as rural subdivision, energy development, disruption of natural disturbance regimes, overgrazing, and off-road vehicle use.") Available at https://drive.google.com/drive/folders/0B1iN5AyJdrYPa2JMMjh6Q2RseVE
Watersheds and Riparian, Wetlands, and Fens	• States that alternative D followed by B are the most protective of these resources because they limit the activities that are most harmful. • States that the mining legacy in the area has left watersheds and water quality diminished.	173-191	• While the analysis provides a good overview, it is missing a few crucial pieces of information. The EIS is deficient because it does not discuss and disclose: o That impacts associated with mining activities will be less under Alternative D because 285,000 of recommended wilderness will be withdrawn from mineral entry; o The location of the categorized watersheds in relationship to proposed designated areas under each alternative, and the effect of the designations on Class 1 watersheds (e.g., will likely keep them in	• Watershed Condition Framework ratings for RGNF watersheds. • RGNF Assessment Reports 1 and 3, and other Forest Service data on the location and quality of watershed, riparian, and wetland resources.

			Class 1) and Class 2 watersheds (e.g., might focus management attention on moving the watersheds from class 2 to 1); o The location of fens, wetlands, and riparian areas in relationship to proposed designated areas, and the effect of the designations under each alternative on these resources.	
Ecosystem Represen-tation	The DEIS does not discuss the concept of ecosystem representation in the analysis, except for mentions in Appendix A when describing potential recommended wilderness areas. Ecosystem representation is a metric of ecosystem integrity. It refers to the proportion of an ecosystem that is contained within protective designations and therefore managed primarily for its natural attributes. Conservation biologists agree that the continued viability of naturally occurring habitats depends on having a certain percentage of each ecosystem in protection.		The DEIS needs to address the concept of ecosystem representation, including how ecosystem representation differs under each alternative. Appendices E and G of The Wilderness Society's scoping letter dated October 28, 2016 provided information on how the areas that conservationists proposed for designation (and reflected in Alternative D) would increase ecosystem representation. The Wilderness Society in its scoping letter at 14 requested that the DEIS include this analysis.[13]	Dietz, M.S., R.T. Belote, G.H. Aplet, & J.L. Aycrigg. 2015. The world's largest wilderness protection network after 50 years: An assessment of ecosystem representation in the U.S. National Wilderness Preservation System. Biological Conservation, 184: 431-438. Available at http://www.sciencedirect.com/science/article/pii/S0006320715000944
At risk species	• The DEIS states designations would benefit lynx "overall," variation between alternatives would have little/no impact but D would be the	217, 222, 253	The DEIS must quantify how much potential at-risk species habitat would be protected by designations for each alternative for each at-risk species.	Rio Grande National Forest FSVeg GIS data layer. RGNF Assessment 5: reference for statement, "Biologists have identified approximately 1,762 acres of suitable and 947 acres of potential willow

[13] Excerpted from the Wilderness Society's scoping letter: "In the Draft EIS, the RGNF should analyze how the alternatives representing a broad range of wilderness recommendations contributes to ecological and aquatic integrity and the diversity of plant and animal species. Indicators of these outcomes include, but are not limited to, representation of under-represented ecosystems, protection of areas with high biodiversity, and protection of areas important to connectivity."

	most beneficial. • For Gunnison sage-grouse, the DEIS determines alternatives B, C, and D have the same impact. • The DEIS states "designations would be generally protective" of SCC but may limit invasive species and fuel objectives; overall a positive impact, with D being highest.			flycatcher habitat" (p. 25); data for Mexican spotted owl modeled habitat map (p. 24) See RGNF Wildlife Overviews (data for habitat maps) https://www.fs.usda.gov/detail/riogrande/landmanagement/projects/?cid=fseprd534370
Climate change	The DEIS does not discuss or disclose how the wilderness recommendations and other conservation designations under each alternative would impact the RGNF's capacity to adapt to climate change.		The DEIS needs to address how conservation designations, including wilderness recommendations, under each alternative, will impact the RGNF's capacity to adjust to a rapidly changing climate as predicted with climate models for the region. The Wilderness Society in its scoping letter at 14 requested that the DEIS include this analysis.[14]	Appendix F of The Wilderness Society's Scoping Letter (Pages 13-14 in the section entitled *Benefits of Roadless Areas and Roadless Area Networks to Climate Change Adaptation)* provides an in-depth description of the values of unroaded and undeveloped lands.

D. DEIS APPENDIX A – WILDERNESS ANALYSIS PROCESS

1. General comments

While the narratives of recommended wilderness areas provide much useful information, we noted the following deficiencies.

- The proposed wilderness area narratives in Appendix A do not consistently delve into the specifics of expanding ecosystem representation within wilderness on either the RGNF or nationally. Ecosystem representation refers to the representation of ecosystems in protected areas, and is a well-accepted metric of ecological sustainability. See Appendix B of The Wilderness Society's scoping letter dated October 28, 2017, and reattached to this letter as Exhibit 3. Some unit analyses mention in passing that ecosystem representation could be enhanced, while for others there is discussion of specific ecosystems, but the analyses do not evaluate their uncommonness, or how substantial a

[14] Excerpted from the Wilderness Society's scoping letter: "[The DEIS] should also evaluate how well each alternative prepares the RGNF to adapt to a rapidly changing climate by, for instance, providing for a connected network of wild lands in which species can move without major impediments to and through a variety of ecosystems (including aquatic)."

contribution the unit would make if designated to enhancing representation. See Appendices B and E of The Wilderness Society's scoping letter dated October 28, 2017.

- The narratives never discuss landscape connectivity or how any particular area fits into a larger landscape context. Contributions to lynx linkage areas is not addressed, and the overall picture of landscape conservation is not addressed as a value associated with wilderness designation. Along with ecosystem representation, these are important supplemental values that should be documented in the area descriptions.[15]

The narratives do appropriately generally describe solitude and primitive recreation opportunities that contribute to the overall outstanding nature of wilderness resources present. They also appropriately incorporate discussion of supplemental ecological values such as native cutthroat trout, Colorado Natural Heritage Program Potential Conservation Areas, and T&E species habitat.

While deficiencies in the narratives and analysis clearly exist, we thank the RGNG for giving the wilderness recommendations submitted in our conservation proposal careful scrutiny in the DEIS.

2. Specific Comments on areas recommended for wilderness only in Alternative D

i. Antora Meadows/Bear Creek

The description in the DEIS is complete and offers a compelling rationale for recommending the area for wilderness designation.

The narrative appropriately notes the ecological and social characteristics that enhance the area's wilderness quality and potential, including the presence of pure Rio Grande cutthroat trout in East Middle Creek, habitat for lynx and Mexican spotted owl, and the diversity of forest ecosystems. The analysis highlights the lack of recreation conflicts with wilderness designation, noting the existence of more than 20 miles of non-motorized trails that are closed to mechanized use as well. The area is managed for backcountry primitive recreation presently. There are outstanding opportunities for solitude owing to the topography, elevational range, and compact configuration of the area.

The narrative does not include specific consideration of the area's contribution to enhancing ecosystem representation with the National Wilderness Preservation System either within the Rio Grande NF or at a national scale. By protecting this area, the Rio Grande NF could substantially increase the ecological representation within its wilderness areas of Rocky Mountain Lodgepole Pine Forest, Rocky Mountain Aspen Forest and Woodland, and Southern Rocky Mountain Montane-Subalpine Grassland. Specifically, Antora Meadows by itself contributes over 10,000 acres of lodgepole pine forest and would bring acreage of lodgepole within wilderness on the forest well above 20%. It also includes about 6,500 acres of aspen forest and woodland, which would be half of the additional acreage needed to reach 20% representation.

[15] The Forest Service is required to evaluate and document supplemental values as part of the wilderness evaluation process. See FSH 1909.12, chapter 72.1 (4).

ii. Elkhorn Peak

The narrative describes the ample outstanding opportunities for solitude and primitive and unconfined recreation. There is mention that ecosystems are present that are under-represented within wilderness on the forest, but it does not specifically identify which ecosystems and how much they would contribute. By protecting this area, the Rio Grande NF can substantially increase the ecological representation within its wilderness areas of Southern Rocky Mountain Montane-Subalpine Grassland, Southern Rocky Mountain Ponderosa Pine Woodland, Rocky Mountain Lodgepole Pine Forest, and Rocky Mountain Aspen Forest and Woodland. Wilderness designation of Elkhorn would specifically increase lodgepole pine forest by 3,700 acres, or about one-half the 20% target, and would increase aspen forest and woodland by 3,600 acres, or about one-fourth the 20% target. It also incorporates 1,600 acres of montane-subalpine grassland and about 900 acres of ponderosa pine woodland, both more modest contributions.

The narrative concludes that Elkhorn Peak retains "a feeling of seclusion and remoteness can be experienced as well as a high degree of self-reliance, challenge and risk." Combined with the opportunity to significantly enhance ecosystem representation on the forest, a recommendation for wilderness designation would be a very appropriate management choice.

iii. North Fork Rock Creek

The narrative describes accurately the wilderness character of the unit, the outstanding opportunities for solitude, and the primitive non-motorized recreation opportunities present. It also notes that designation would increase ecological representation for Southern Rocky Mountain Montane-Subalpine Grassland, Southern Rocky Mountain Ponderosa Pine Woodland, Rocky Mountain Pinyon-Juniper Woodland, and Southern Rocky Mountain Mesic Montane Mixed-Conifer Forest and Woodland.

iv. Pole Creek Mountain – Sheep Mountain

The analysis unit in the DEIS is the entire Pole Mountain-Finger Mountain roadless area, significantly larger than our recommended unit centered on Sheep Mountain. The analysis mentions there are 28 miles of motorized trails that would require closure under a wilderness recommendation, but this ignores the reality of our proposal that would necessitate no closures of motorized trails. Given the acknowledgment that this area is perhaps the most remote location on the entire national forest, the analysis would benefit from honing in on the smaller unit we recommended that is free of motorized trail conflicts.

The narrative details the many outstanding ecological values of the proposed wilderness, including habitat for T&E species including lynx and Uncompahgre fritillary butterfly. It mentions the area contains one of the only known occurrences in the world of stonecrop gilia. It also highlights the area's value for lynx movement across the core of the San Juan Mountains. Recommending this area for wilderness would help achieve the RGNF's requirement under the 2012 planning rule to provide for ecological integrity and species diversity. The narrative overall captures the outstanding wilderness character of the area, its vast expanses contributing to

outstanding sense of solitude, and the extraordinary primitive recreation opportunities present in this remote alpine and subalpine environment.

v. Saguache Creek-Four Mile Creek-Taylor Canyon

The narrative aptly describes the outstanding wilderness character of this potential wilderness. It literally gushes about the area's inherent wilderness values:

> "This premier destination for trout fishing is a popular recreational activity. Fly fishermen avidly cast the seven-mile length of Saguache Creek for brown and rainbow trout using flies and lures only. Hikers and backpackers enjoy the stream corridor as well, relishing the rugged grandeur of the 1,500-foot deep canyon. Hikers can find complete isolation trekking into the lower reaches of Fourmile Creek and Luders Creek amidst lush riparian zones surrounded by stately ponderosa pines along infrequently maintained trails."

The narrative is somewhat lacking, however, in its discussion of the tremendous contribution to expanding ecosystem representation within the wilderness on the forest and nationally. The analysis briefly mentions the ponderosa pine forests and grasslands that occur within the area, but does not do justice to the significance of these ecosystem types. The proposed Saguache Creek wilderness includes the largest expanses of grassland and ponderosa pine forest available for addition to the National Wilderness Preservation System among all of the available candidate areas on the RGNF. These two ecosystem types are critically under-represented among existing wilderness both regionally within the Southern Rockies and at the national level, with less than 5% representation. Wilderness designation would add over 11,000 acres of Southern Rocky Mountain Montane-Subalpine Grassland to wilderness, fully one-third of what is needed to reach 20% representation. It would also increase representation of Southern Rocky Mountain Ponderosa Pine Woodland by over 5,500 acres which amounts to about one-half the acreage needed to reach 20% representation The narrative should be supplemented to highlight this unique ecological benefit of wilderness designation of the area.

vi. Sawlog

The narrative appropriately describes the wilderness character and ecological features of the area. It notes the specific under-represented ecosystem types that would be enhanced through wilderness designation.

vii. Snowshoe Mountain

The narrative appropriately describes the wilderness character and highlights ecological and geologic features of the area. It notes the specific under-represented ecosystem types that would be enhanced through wilderness designation.

viii. Wannamaker Creek – Deep Creek addition to La Garita Wilderness

The narrative highlights the area's wilderness values, and notes that adding to the adjacent wilderness would enhance the ecological effectiveness of the existing La Garita Wilderness by increasing the size of the Wilderness.

ix. Wason Park addition to La Garita Wilderness

The narrative describes the area's outstanding opportunities for solitude and primitive recreation, and notes its designation would contribute to expanding under-represented ecosystem types.

3. Specific comments on recommended wilderness areas in Alternative B

i. Beartown-Indian Ridge addition to Weminuche Wilderness

The narrative could be improved by highlighting that wilderness designation would enhance the experience offered by the Continental Divide National Scenic Trail (CDT) and importantly would add a couple of miles of the CDT into the wilderness around Kite Lake and leading up to Hunchback Pass. This would place the entirety of the CDT into wilderness from Stony Pass to Wolf Creek Pass and further protection of the longest continuous wilderness extent of the CDT in the southern Rockies. The section of the CDT through the Beartown-Indian Ridge roadless area is currently the only non-wilderness portion for 85 miles.

The narrative notes that additions to the adjacent wilderness would incorporate important lynx habitat into the wilderness, which would benefit long-term habitat conservation for this threatened species and frequent inhabitant of wilderness.

ii. Cumbres–Elk Creek addition to South San Juan Wilderness

The narrative could be improved by focusing the description of wilderness character and current uses and management on the portion of the area recommended for wilderness designation. The narrative mentions evidence of timber harvest and historical mining, but none of that has occurred within the area proposed for addition to the wilderness. That distinction should be emphasized in the narrative. In contrast, the narrative does note that Chama Basin was removed from the analysis area and is managed separately.

The narrative implies that only after getting away from non-motorized trails can one experience remoteness and seclusion. To the contrary, once a visitor is a short distance along the Elk Creek Trail, there is a tremendous sense of remoteness and seclusion owing to topographic isolation. The stream valley narrows and the trail winds along steep slopes or in the bottom of a deep valley. Moreover, this criterion for wilderness is whether the area possesses outstanding opportunities for solitude *or* for a primitive and unconfined type of recreation.[16]

The narrative fails to describe the outstanding opportunities for primitive and unconfined recreation present in the area. A key attribute is the non-motorized Elk Creek trail that traverses the length of the proposed wilderness addition to the wilderness boundary approximately four

[16] See FSH 1909.12, chapter 72.1 (2). ("The word "or" means that an area only has to possess one or the other.")

miles distant from the trailhead. Elk Creek is an easily accessible and popular wilderness access point for both hikers and horse users. Many day-hikers and overnight backpackers enjoy outstanding opportunities for fishing, photography, and wildlife viewing. Horsepackers share the trail and similarly enjoy access to the longest wilderness valley in the South San Juan Wilderness Area. The proposed addition provides excellent habitat for elk and mule deer, which in turns leads to high-quality backcountry hunting opportunities in the fall.

The narrative briefly notes that the area would expand ecosystem representation within the South San Juan Wilderness. This could be significantly bolstered by noting that the lowermost elevations of Elk Creek at less than 9,000 feet include impressive stands of several-hundred-year-old ponderosa pines, many of which display old-growth characteristics. The low-elevation ponderosa pine-grassland ecosystem adds substantial diversity to the existing wilderness, and the majestic trees offer an appealing contrast to the generally subalpine and alpine character of the wilderness.

iii. Tobacco Lakes–Gold Creek–Cascade Creek addition to South San Juan Wilderness

The narrative could be bolstered with more description of the outstanding opportunities for primitive and unconfined recreation opportunities. The Adams Fork trail provides outstanding opportunities for primitive and unconfined recreation in the form of wilderness-related activities such as hiking, backpacking, horsepacking, angling, and backcountry hunting. The addition enhances the primitive recreation experience by ensuring protection of the wilderness qualities of the landscape that envelops the Three Forks wilderness trailhead. Both trailheads are easily accessed from Platoro Reservoir.

The narrative notably recognizes the significant ecological values present in the proposed wilderness addition. These include high value for lynx habitat, and the existence of Rio Grande cutthroat trout in the Adams Fork.

iv. Sangre de Cristo–Pole Creek–Crestone–Cotton Creek–Hot Springs–Miller Creek–Butterfly additions to the Sangre de Cristo Wilderness

The narrative of this extensive and diverse wilderness addition should be significantly expanded to account for the extraordinary ecological diversity that it would add to the wilderness system, the remarkable primitive recreation opportunities present in mountaineering challenges associated with three 14ers within the proposed unit, and the uncommon solitude present in the many isolated watersheds draining off the west slope of the Sangres.

In general, the proposed wilderness addition significantly expands wilderness representation of many ecosystem types, as is detailed more extensively below. The Sangres addition is the single most significant opportunity on the RGNF to expand representation, as ecosystem types along the lower slopes of the proposed addition are poorly represented within the forest's existing wilderness areas. Wilderness designation of the Sangres addition would increase ecological representation of Southern Rocky Mountain Montane-Subalpine Grassland, Southern Rocky Mountain Ponderosa Pine Woodland, Southern Rocky Mountain Pinyon-Juniper Woodland, and Rocky Mountain Gambel Oak-Mixed Montane Shrubland, each of which occur in designated

wilderness at less than 5% on the forest. The analysis does not describe the very significant contributions the proposed wilderness additions make to expanding representation of these ecosystems.

The Butterfly Creek and Miller Creek components at the north end of the Sangres are particularly valuable wilderness additions for their contribution of Rocky Mountain Gambel Oak-Mixed Montane Shrubland to the range of ecological representation within Rio Grande National Forest wilderness areas. This is a very poorly represented ecosystem both within the Rio Grande as well as nationally. Wilderness designation of these two additions will bring representation of this oak savanna ecosystem to over 20% on the forest. The rare oak savanna at the lowest elevations of the Butterfly Creek and Miller Creek additions lies within the Sangres Alluvial Fan Potential Conservation Area, ranked by the Colorado Natural Heritage Program as High Biodiversity Significance. The Sangres Alluvial Fan PCA supports an excellent and large occurrence of an unusual association of Gambel's oak (*Quercus gambelii*) with needle-and-thread grass (*Hesperostipa comata*), the only documented occurrence in the world. In addition, the creeks that run through the savanna from the Sangre de Cristo mountains exhibit unusually high-quality occurrences of riparian forest dominated by either aspen or oak.

The Butterfly Creek and Miller Creek addition bring the Sangre de Cristo Wilderness boundary to a more logical contour along the range's lower slopes in the northern San Luis Valley. Large undulating alluvial fans characterize the wilderness additions, and a rare oak savanna ecosystem occurs across the lower slopes and riparian corridors of the two areas. It also includes sagebrush habitat for the only population of Gunnison sage grouse in the San Luis Valley. The addition creates a continuous wilderness ecosystem transition from sagebrush, oak and grasslands at the foot of the range through aspen and spruce-fir forests to the alpine ecosystems near and at the crest of the Sangre de Cristo mountains.

The Crestone and Cotton Creek addition contains significant ecological values that should be incorporated into the analysis. This section of proposed wilderness spans six Potential Conservation Areas (PCA) identified by the Colorado Natural Heritage Program. Each of these incorporates several miles of drainages that possess uncommon riparian forest and streamside ecological communities in excellent condition.

- Starting at the northernmost end of the addition, Valley View PCA is a site of High Biodiversity Significance that includes the slopes and stream bottom of Hot Springs Canyon. The site was identified because of the excellent example of bristle cone pine distributed throughout the canyon.
- The Garner Creek PCA supports a dense stand of Douglas-fir with an understory of Rocky Mountain maple. Garner Canyon is wider than most of the other gorges draining the western flank of the Sangre de Cristo Mountains, and the valley bottom is less steep. It is of Moderate Biodiversity Significance.
- The lower end of the Cotton Creek PCA includes a streamside community that is a very diverse collection of aspen, river birch, Rocky Mountain maple, Drummond's willow, and Woods rose. A key feature of the Cotton Creek PCA is its unusually healthy and large stands of river birch occurring in a high-quality montane riparian forest, along with adjacent foothills riparian shrubland. It ranks as a site of High Biodiversity Significance.

- The addition includes the lower segment of the Wild Cherry Creek PCA, where a good example of a quaking aspen and red-osier dogwood community fills the canyon and ranks as Moderate Biodiversity Significance.
- The upper portion of Rito Alto Bosque PCA is located within the wilderness addition and ranks as High Biodiversity Significance. Extensive stands of aspen/western birch and narrow-leaf cottonwood/western birch riparian forests line the riparian corridor that extends along the alluvial fan from the mouth of Rito Alto Canyon.
- The Dimick Gulch PCA is the highest ranked site within the wilderness addition, and is considered of Very High Biodiversity Significance. The entirety of this 1,747-acre conservation area is situated within the proposed wilderness addition. The site contains very uncommon narrowleaf cottonwood and Rocky Mountain juniper dominated riparian areas, and occurs here because of the narrow character of this steep-sided canyon.

As to be expected with the abundance of lower elevation slopes along the foot of the Sangre de Cristo range, the Cotton Creek–Crestone addition would significantly contribute to several ecosystem types most under-represented within the Rio Grande's existing designated wilderness. The most substantial increases in ecological representation occur for Southern Rocky Mountain Montane-Subalpine Grassland, Southern Rocky Mountain Ponderosa Pine Woodland, and Southern Rocky Mountain Pinyon-Juniper Woodland. Collectively, the addition would add over 6,000 acres of these poorly represented ecosystem types for which less than 5% of available acreage is presently contained within designated wilderness.

The Kit Carson Peak addition also spans another six Potential Conservation Areas identified by the Colorado Natural Heritage Program. These encompass each of the primary drainages that flow west off the crest of the Sangres – Willow Creek, Spanish Creek, Cottonwood Creek, and Deadman Creek. As with the drainages farther north of Crestone, the biodiversity values are associated with healthy riparian corridors.

- The upper portion of the Willow Creek-Western Sangres PCA in Copper Gulch is located within the proposed wilderness addition. The PCA is ranked as High Biodiversity Significance, but primarily for a narrowleaf cottonwood–Rocky Mountain juniper woodland at the lowest elevations below the proposed wilderness. At the elevation of subalpine forest within the potential wilderness unit, the riparian corridor is a mixed conifer and deciduous forest and shrubland that includes Douglas-fir, white fir, blue spruce, Engelmann spruce, aspen, Rocky Mountain maple, and mountain spray.
- The Head of Spanish Creek PCA site encompasses the ridge and south-facing open slopes above Spanish Creek and below Challenger Point, and is entirely within the proposed wilderness. This 110-acre site is ranked as High Biodiversity Significance for a globally rare mustard species.
- The entire length of the Spanish Creek drainage comprises the Spanish Creek PCA, most of which is located within the proposed wilderness. This is a site of Very High Biodiversity Significance owing to its narrowleaf cottonwood–Rocky Mountain juniper montane riparian forest. The upstream watershed is included within the site boundary to protect the floodplain and the sources of both surface and groundwater recharge and flow, which are responsible for supplying water to the riparian plant community.
- Cottonwood Creek–Western Sangres is another PCA of Very High Biodiversity Significance, also for its globally imperiled narrowleaf cottonwood–Rocky Mountain

juniper montane riparian forest. In addition, the site includes a Douglas fir–water birch community, which is considered globally rare. As with Spanish Creek, the majority of the PCA is within the proposed wilderness, and the upstream watershed is included to protect water sources.

- The central portion of the Deadman Creek–Western Sangres PCA is located within the proposed wilderness. Deadman Creek is ranked as Very High Biodiversity Significance owing to the state's exemplary and largest occurrence of narrowleaf cottonwood–Rocky Mountain juniper montane riparian forest. The PCA also includes an excellent example of aspen–Rocky Mountain maple, a breeding colony of the pale lump-nosed bat and a hybridized Rio Grande cutthroat trout population.
- Cedar Canyon is another PCA with a quality example of narrowleaf cottonwood–Rocky Mountain juniper montane riparian forest. It is also ranked Very High Biodiversity Significance. The creek is a clear stream that runs over the alluvial fan at the canyon's mouth.

The narrative should mention that the Kit Carson Peak addition greatly improves wilderness manageability by placing the wilderness boundary on a topographic contour rather than the straight-line and 90-degree corner that the current boundary follows as a historic remnant of the prior national forest/private land boundary. The Baca Mountain Tract acquisition eliminated this artificial boundary and provided the Rio Grande NF with the opportunity to propose a more sensible wilderness boundary.

The narrative appropriately describes in detail the cultural significance of the Blanca Peak addition to native tribes. In addition to the cultural significance, the proposed Blanca Peak addition enhances the ecological effectiveness of the Sangre de Cristo Wilderness by expanding the size of the protected area. It specifically interconnects to the Huerfano River headwaters and Lily Lake on Blanca Peak's northern slope on the adjacent Pike-San Isabel National Forest, creating overarching protection for the entirety of the Blanca Peak massif when considered in conjunction with the conserved lands on the adjacent Trinchera Ranch to the south. See more below under "Blanca Peak Area Recommended Wilderness Addition.

The proposed Sangres wilderness addition collectively includes a large expanse of diverse watersheds. Some receive substantial recreational use, such as the access to Kit Carson Peak, but the many other drainages are lightly used, topographically isolated and provide outstanding solitude.

The narrative includes in its description of social characteristics a misleading and inaccurate statement that the popular Lake Como road accessing Blanca Peak is within the area. The Lake Como jeep road is excluded from the analysis area that is proposed for wilderness, and is managed for dispersed recreation in the proposed plan. The Rio Grande National Forest Draft Wilderness Evaluation Report (Sept 2016) is specific about this point, noting that NFSR 975 (Lake Como Road) is outside and adjacent to the proposed wilderness.

E. MANAGEMENT OF RECOMMENDED WILDERNESS

We support the management strategy for recommended wilderness areas, and not allowing motorized or mechanized uses within these areas. This approach is consistent with the agency's obligation to manage those areas to preserve their suitability for wilderness designation by Congress. *See* 36 C.F.R. § 219.10(b)(1) (plans must "protect and maintain the ecological and social characteristics that provide the basis for [a recommended wilderness area's] suitability for wilderness designation"); FSM 1923.03(3) ("Any area recommended for wilderness . . . designation is not available for any use or activity that may reduce [its] wilderness potential.").

F. BLANCA PEAK AREA RECOMMENDED WILDERNESS ADDITION

We support the proposal to recommend adding land to the Sangre de Cristo Wilderness west of Mt Blanca.

As proposed in alternative B, the GIS data provided by the RGNF indicates that the end segment of the Mt Blanca road #975 would be closed at a point (37°34'13.02"N3 105°31'30.94"W) approximately 0.54 miles before its current designated end point at the west shore of Lake Como.

This action would help protect Lake Como and the riparian area around it. It would also help protect additional land and forage for Bighorn Sheep in a CPW identified summer concentration area.

Closing this segment of road would further enhance the safety and desired experiences of the estimated 1000-3000 individuals who hike on this route and trail 886 to climb Mt. Blanca each year. The vast majority of these individuals hike road 975 from points far below and to the west. Due to the rough and extreme nature of Forest Road 975, it is possible that foot travel exceeds motor vehicle travel on this route.

This proposal could help prevent the continued unauthorized motorized use that is regularly occurring beyond Como Lake. Closing the road at the proposed point would offer the advantage of a more defensible and enforceable pinch point than that which currently exists at the lake.

It would also remove about 460 yards of motorized use that appears to be intruding within the existing designated Sangre de Cristo Wilderness area boundary. Segments of this road appear to be up to 70 yards inside the designated Wilderness boundary.

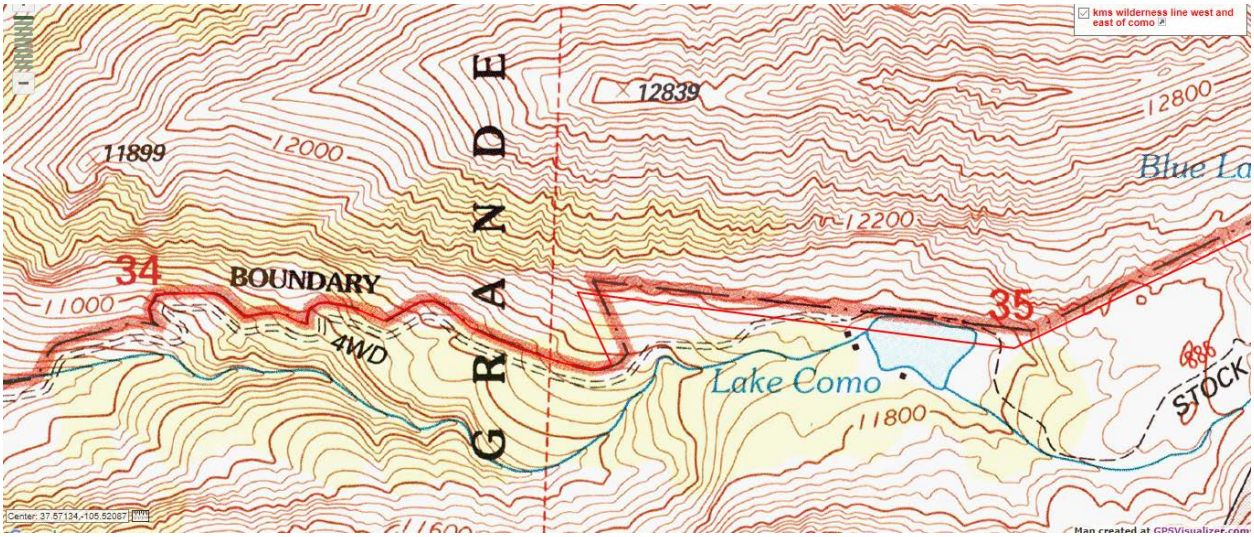
Existing conditions on the ground and use are resulting in unauthorized motor vehicle use within a designated Wilderness area. By law, non-emergency motorized use is not permitted in designated Wilderness areas.

We believe that the evidence presented below indicates that the current Conejos Peak District MVUM is improperly suggesting and facilitating unauthorized motorized use in a designated Wilderness area. It also indicates that the existing route on the ground is located within the

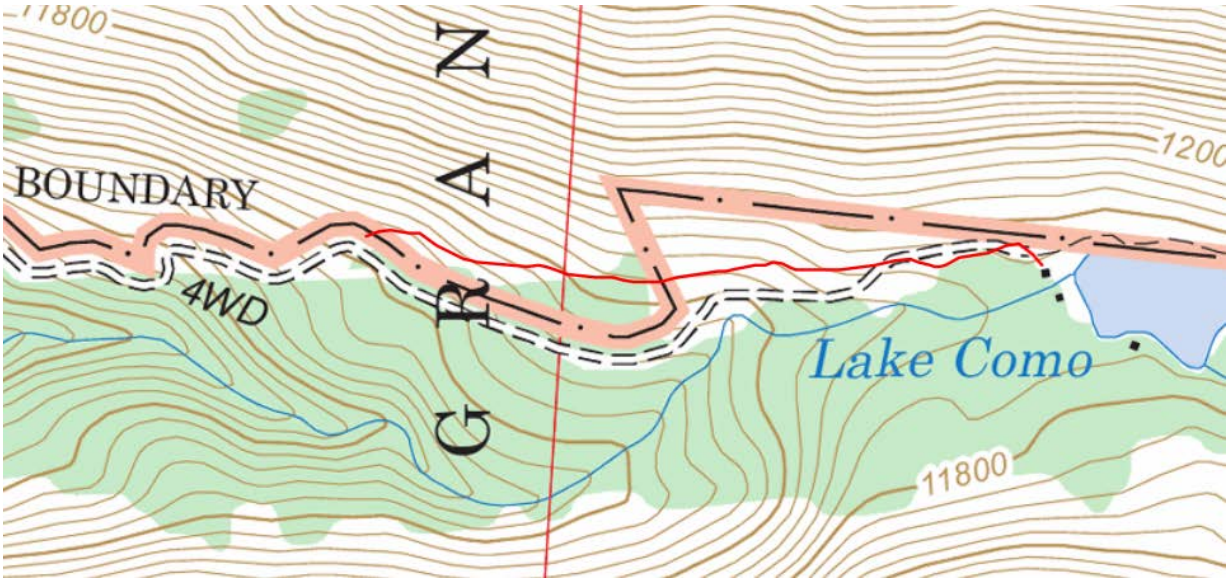
designated Wilderness area. Motorized users are violating the Wilderness Act, and causing significant negative impacts upon Wilderness characteristics, by driving on the road all the way to Como Lake.

We strongly support the proposal to correct this situation by closing the road before it enters the Wilderness Area.

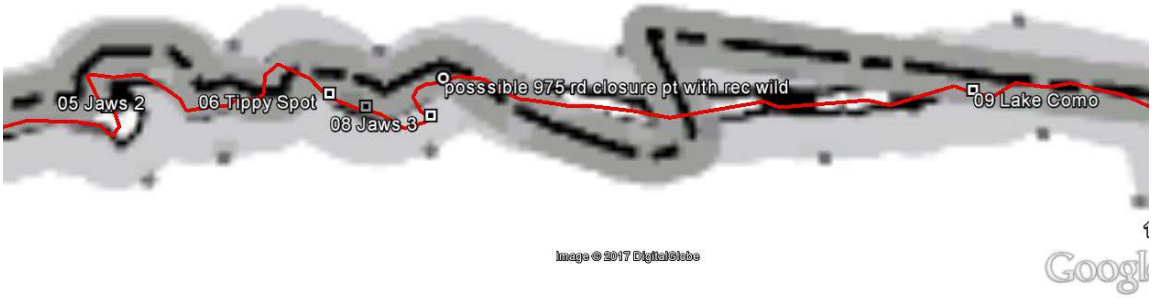
Road shown in red intruding into Wilderness. All data used is USFS GIS data from RGNF Alt. B, USFS GIS Data Clearinghouse, and the MVUM.



Red wilderness line USGS GIS data overlayed on USGS map



Existing road in red with mapped and currently existing and used road on the ground in relation to Wilderness Boundary



Location of the road as depicted on the MVUM, the Wilderness boundary line, and with actual route alignment (red) with common public names for features and obstacles/ You can see that the depicted (and currently existing and used) road on this map clearly crosses into the existing Wilderness area.

G. SUMMARY OF OUR RECOMMENDATIONS

The RGNF should adopt the wilderness recommendations in Alternative D in the final plan and Record of Decision.

The final EIS must recognize and analyze the significant ecological benefits associated with recommended wilderness and other conservation designations and integrate that information into the analysis of alternatives for recommended wilderness and into the analysis of how the plans provide for ecological sustainability, ecosystem integrity, species diversity, and climate change adaptation.

The RGNF should supplement the DEIS to include alternatives with wilderness allocations that reflect larger percentages of inventoried acres. Logical options include an alternative that analyzes all or almost all of the inventoried acres, and another alternative that analyzes all the acres ranked high to moderate. This would ensure an adequate range of alternatives and a robust analysis of the trade-offs and impacts associated with recommending most (if not all) of the inventoried areas.

Appendix A needs supplementation to improve the descriptions of wilderness characteristics of the proposed units, particularly for the various elements of the Sangres additions and for the Cumbres addition to the South San Juans.

III. **PROPOSED SPECIAL INTEREST AREAS AND RESEARCH NATURAL AREAS**

A. BACKGROUND

A required element in forest planning is to determine whether to administratively designate (or recommend for designation) additional areas to recognize and protect special values, features, and resources,[17] including those that "carry out the distinctive role and contributions of the plan area in the broader landscape or contribute to achieving desired conditions for the plan area." FSH 1909.12, chapter 20, section 24(b). Designated areas may include areas defined in FSM 2372.05 such as botanical areas, zoological areas, recreation areas, as well as other types of areas that embody the culture, niche, unique characteristics, or ecological conditions of a specific forest or landscape.[18] Forests in the past have established a variety of designations, and, as the RGNF has done in the past, referred to them as speical interest areas.

Designated areas can play a critical role in ensuring ecological integrity and biological diversity as required in §219.8 and §219.9 of the 2012 planning rule. For example, the RGNF can establish designated areas that specifically protect rare or imperiled species, rare or imperiled ecosystem elements, wildland recovery areas, wetland complexes (including recharge zones),

[17] 36 C.F.R. §§ 219.7(c)(2)(vii), 219.19 (A designated area is "[a]n area or feature identified and managed to maintain its unique special character or purpose….Examples of administratively designated areas are experimental forests, research natural areas, scenic byways, botanical areas, and significant caves.")

[18] The list of administrative designation categories provided in Exhibit 01 in FSH 1909.12, section 24 is not intended to be comprehensive, as explained in the response to comments in the final planning rule. *See* 77 Fed. Reg. 68 (21245) ("the Department clarified the definition of designated areas to explicitly show that the list of examples is not exhaustive…") Section 24 affirms this ("Exhibit 01 lists some types of designated areas that the Responsible Official may consider recommending for designation.")

specific wildlife corridors, and other important ecological elements and processes. Individual designated areas, if designed with purpose, can contribute to the establishment of a larger mosiac of protected areas across the national forest that, in aggregate, contributes to achieving the rule's substantive ecological and diversity provisions.

Establishing designated areas is also an effective way to draw people to visit and learn about the national forests and its unique resources, thereby connecting people with nature, as addressed in 36 CFR §219.10(a)(10). This concept is reinforced in the Forest Service's Framework for Sustainable Recreation that emphasizes the important role that designated areas play in providing for recreation: "[The Forest Service] will evaluate other areas within the National Forest System that have outstanding recreational, scenic, historic, or other values of high attractiveness for designation and management as special areas."[19]

Forests are required to develop management direction for each special designated area to provide for its appropriate management based on the applicable authorities and the specific purposes for which each area was designated or recommended for designation. FSM 2370, section 2372.03(5) ("Include management direction for each area in the forest plan.") and 36 CFR §219.10(b)(1)(vi). Plan components and management direction can only allow uses and activities to occur that are in harmony with the purpose for which the area was designated and compatible with the basis of the recommendation." FSH 1909.12, Chapter 20, section 24.2(1)(b), FSM 2370, section 2372.4 In addition, Forest Service policy is generally to keep developments such as roads, trails, and facilities to the minimum necessary for public enjoyment and interpretation of the area. FSM 2370, section 2372.4. In developing management direction, forests should consider how designated areas contribute to sustainability and advance the overarching objectives of the planning rule. FSH 1909.12, chapter 20, section 24.2(1)(d).

B. DESIGNATE THE SPECIAL INTEREST AREAS IN ALTERNATIVE D

We heartily support the special interest areas proposed in Alternative D because they contain special resources and values deserving of special recognition, interpretation, and conservation. As the DEIS notes, these areas "contain features unique to and of special interest in the forest ecosystem. Many designations would enhance habitat connectivity, native fish habitat, and watershed protection." DEIS at 313. Also see Appendix 7 of Rocky Smith et al's scoping comments, and Appendix G of The Wilderness Society's comments both submitted on October 28, 2017. Establishing special interest area may be the best available planning strategy to ensure that the areas' values are retained. We ask that the RGNF establish these special interest areas in the final plan.

Unfortunately, the draft plan (Alternative B) fails to designate deserving special areas, eliminates one current special interest area entirely without providing for the protection of an important resource therein, and reduces the acreage of another area. This approach puts unique and remarkable resources at risk.

[19] USFS. Connecting People with America's Great Outdoors: A Framework for Sustainable Recreation. June 25, 2010. Sec. IV, p. 6.

C. REVISION TOPIC DESCRIPTION IS INACCURATE

The DEIS describes *Revision Topic 1: Special Designations* inaccurately. While the DEIS acknowledges that the public submitted proposals for additional special designations, it then states:

> A need to revise forest plan direction was related to changes in the management of:
> - Inclusion of direction for the Old Spanish National Historic Trail,
> - Regional and national direction for the Continental Divide National Scenic Trail,
> - Inclusion of the Sangre de Cristo National Heritage Area,
> - Inclusion of the Rio Grande del Norte National Monument,
> - Inclusion of the Cumbres & Toltec National Historic Landmark,
> - Evaluation of Mt. Blanca Massif as a significant area,
> - Evaluation of the Natural Arch as a significant area, and
> - Evaluation of the existing boundary of the John C. Fremont Winter Camp Special Interest Area.

DEIS at 17.

There is no mention of the need to evaluate additional areas proposed by the public. In contrast, the Need for Change document, published in July 2017 includes item C8 that says, "Evaluate additional areas for special designation, including areas with cultural values, ecosystem types known to be heavily fragmented, and areas important for the protection of plant communities and special habitats vulnerable to climate change. Evaluate additional protection of two critically significant areas, Mt. Blanca Massif and the Natural Arch, while maintaining motorized access." The draft plan's language concerns us, as it makes it seem as if the RGNF does not have the intention to consider additional special interest areas in the final decision.

D. OVERLAPPING DESIGNATIONS

Alternative D has fewer acres allocated to the Roadless Management Areas because the acres are assigned instead to Special Interest Areas. See DEIS at 313 ("Alternative D addresses the roadless designation the same as alternative B, with fewer areas considered due to additional designations for special interest areas, research natural areas, and recommended wilderness."). While it makes sense to allocate roadless areas recommended as wilderness to MA 1.1a (because the management of recommended wilderness is stricter than the management of Colorado Roadless Areas), it does not necessarily make sense to switch roadless areas from management area 3.5 and 3.6 to management area 3.1. The requirements of the Colorado

Roadless Rule still apply to Colorado Roadless Areas regardless if they are proposed as special interest areas. Therefore, we recommend that the final plan overlap management areas 3.5/3.6 with 3.1 where applicable.[20]

E. PLAN COMPONENTS FOR MANAGEMENT AREA 3.1

We are concerned that the plan components for Management Area 3.1 do not provide adequate direction for the management, interpretation, and conservation of the proposed special interest areas, all of which are unique and special in their own right. The entirety of the plan components for all the special interest areas are one guideline and one desired condition statement. The draft plan also includes four management approaches. The aggregate management direction is anemic and will not provide the management direction for the proposed special interest areas necessary to ensure the protection of the areas' primary values.

Further, Forest Service policy requires the forest plan to include management direction for each area. FSM 2370, section 2372.03(5) ("Include management direction for each area in the forest plan.") This makes sense, as each area requires specific customized direction to ensure that the primary values for which areas are established are not diminished. We therefore recommend that the final plan create nested management areas under Management Area 3.1 (e.g., 3.1a, 3.1b) for each designated special interest area. The nested management areas should have their own set of plan components designed to complement the overarching plan components of Management Area 3.1. The narratives for each nested management areas should describe the primary values or resources for which the area is being established. In our comments below, we first propose additional over-arching plan components for Management Area 3.1 that would apply to all special interest areas, and then propose area-specific plan components for the special interest areas proposed in Alternative D.

Given that special interest areas contain unique or remarkable examples of plant and animal communities, geological features, scenic grandeur, or other special attributes that merit special management[21], we recommend the following modifications and additions to the plan components proposed in the draft Plan for Management Area 3.1. These recommendations are designed to ensure that management is consistent with Forest Service policy discussed above.

DESIRED CONDITIONS

> Special interest areas are places with unique or remarkable characteristics that merit special management. Special interest areas typically contain unique botanical, geologic, historical, scenic, or cultural locations and values.
>
> - Forest Service management maintains or enhances the primary values of the special interest areas. Other activities are allowed so long as they do not diminish the

[20] Similarly, Research Natural Areas that are within Colorado Roadless Areas should also be overlapped for the same reason.
[21] See FSM 2370, page 3 where this concept is articulated.

resources and values for which the area was designated (or recommended for designation).

- Management emphasizes interpretation of the area's resources and values.
- Each area has a management plan. The Forest Service encourages and invites participation by the public and relevant entities in the development and implementation of these area-specific management plans.
- The public feels an enhanced level of pride about the forest and the special places within, and enjoys visiting and learning about the special interest areas and their remarkable resources and values.

OBJECTIVES:

- Develop and implement management plans for each special interest area in partnership with interested stakeholders. Encourage continued engagement by stakeholders in the management and monitoring of the area.
- Provide interpretive services to enhance visitor's understanding and appreciation of the area's special features.

STANDARDS:

- Allow occupancy and use of the area to the extent they neither diminish the primary values for which the area was established nor negatively affect the visitor's experience.
- Where applicable or deemed important to protect area values, the area shall be withdrawn from mineral entry under the General Mining Law of 1872.[22]
- Restrict motorized and mechanized travel to designated routes, and prohibit motorized game retrieval off designated routes.

GUIDELINES:

- Allow development of facilities and infrastructure only to the degree that it is necessary for public enjoyment of and education around the principal features of the area and ensures protection of the of the special values for which the area was established.

[22] The standard is included for administrative special designations in the Shoshone National Forest 2015 Land and Resource Management Plan. See, for example, MA2.2A-STAND-08.

SUITABILITY

- Unsuitable for energy leasing and development (fossil fuel or renewable).
- Unsuitable for commercial timber production.
- Unsuitable for common variety mineral extraction for administrative or commercial use.

MANAGEMENT APPROACHES

- Decommission and reclaim unauthorized routes and unneeded system roads.
- In travel management planning, consider the primary values of the area when identifying the minimum road system and unneeded roads for decommissioning pursuant to 36 CFR 212 subpart A.

F. COMMENTS ON SPECIFIC SPECIAL INTEREST AREAS IN ALTERNATIVE D

We offer the following comments on the specific areas for your consideration. For each area, we have proposed a list of primary values and area-specific plan components intended to complement the general plan components for MA 3.1 suggested in the previous section. Each special interest area should be a nested management area within the larger MA 3.1.

1. Spruce Hole/Osier/Toltec Special Interest Area

This area is important for regional scale wildlife connectivity and for numerous species of conservation concern and rare habitats. DEIS at 314. Designating it would help achieve the 2012 planning rule's requirement to enhance ecosystem integrity at 36 CFR 219.8(a)(1) and 36 CFR 219.9. The area is adjacent to the 117,035-acre San Antonio Management Area proposed by the Carson National Forest in the December 2017 version of the Carson National Forest's Proposed Preliminary Draft Plan.[23] See Figure 1 showing the location of the proposed San Antonio Management Area. As proposed, the San Antonio Management Area emphasizes the sustainability of wildlife and fish species by reducing barriers to movement and human disturbance, and the enjoyment of the area by the public for primitive and semi-primitive recreation and wildlife watching. Designating the adjacent Spruce Hole/Osier/Toltec Special Interest Area would facilitate multi-scale management and enhance the diversity and resilience of the biological communities in this sub-region.

The Final Plan should describe the primary values of this area as:

- Wildlife migration and connectivity for large game species, including mule deer, elk, pronghorn, and Rocky Mountain bighorn sheep, as well as for carnivores such as Canada lynx, mountain lions, and black bears. DEIS at 314.

- High quality wildlife habitat for species of conservation concern and federally protected species, including boreal owl, peregrine falcon, Brewer's sparrow, flammulated owl, Rio Grande cutthroat trout, Gunnison's prairie dog; Ripley's milkvetch, slender cliffbrake,

[23] See Proposed Preliminary Draft Land Management Plan for the Carson National Forest, Version 2 that is available at: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd566266.pdf. Pages 222-224.

Plumber's cliff fern, Colorado divide whitlow grass, and flowered gilia; federally protected species such as Mexican spotted owl, southwestern willow flycatcher, yellow-billed cuckoo, and New Mexico meadow jumping mouse; migratory birds including ferruginous hawks, black swifts, sage sparrows, burrowing owls, Cassin's finches, Grace's warblers, gray vireos, juniper titmouse, Lewis's woodpeckers, loggerhead shrikes, long-billed curlews, mountain plovers, pinyon jays, and Virginia's warblers. (See DEIS at 314.)

Site specific plan components and management approaches should include:

DESIRED CONDITIONS

- This SIA is managed for wildlife movement and habitat connectivity and for the enjoyment of the public as they recreate, learn about, and observe wildlife. Natural conditions prevail in the area while providing an opportunity for interpretation, education, and research.
- Habitat conditions and functions support sustainable and healthy populations of at-risk species and provide educational and research opportunities.
- Interpretive signing is used to explain major features of the area and explain protection of sensitive ecosystems.
- Management activities will limit the surface disturbance footprint temporally and spatially to minimize adverse impacts to wildlife.
- The Forest Service in cooperation with permittees, Colorado Department of Transportation, Colorado Department of Parks and Wildlife, and other stakeholders implements projects to reduce and minimize barriers to wildlife movement such as fences and dangerous road crossings.

STANDARDS

- Authorized activities shall be harmonious with the primary values of wildlife movement, habitat connectivity, and habitat condition for at-risk species.

- New permanent roads within the corridor will not be constructed in order to maintain unfragmented habitat for wildlife migration and dispersal.
- Temporary roads will only be constructed if necessary, and with the smallest impact possible, and will be reclaimed and obliterated within one year of the termination of the project for which they were authorized to protect watershed condition, minimize wildlife disturbance, and prevent illegal motorized use.
- New or reconstructed fencing shall allow for wildlife passage and prevent wildlife entrapment, taking into consideration seasonal migration and access to water resources (except where specifically intended to exclude wildlife -- e.g., elk exclosure fence -- and/or to protect human health and safety).
- New rights-of-way for energy development that would negatively impact wildlife, their habitat and its connectivity will not be issued.

- Projects will consider the cumulative impacts of ground-disturbing projects that are occurring or will occur on adjacent lands and will strive to minimize as possible the spatial, temporal, or other design features can mitigate impacts to connectivity.
- The area is not suitable for timber production.
- The area is suitable for oil and gas leasing with no surface occupancy

GUIDELINES

- Do not exceed a motorized route density of one mile per square mile generally, or a threshold determined by best available science for specific at-risk species.[24]

MANAGEMENT APPROACHES

- Where motorized route densities exceed one mile per square mile, develop and implement a strategy to reduce the densities to below this threshold level.
- In coordination with the Colorado Department of Transportation, develop and implement a strategy for mitigating highway related barriers to wildlife movement.
- As possible, augment wildlife values through purchase from willing sellers, exchange, transfer, or donation of additional acreage of crucial wildlife habitat for their migration, movement and dispersal.
- Work with livestock permittees to identify fencing that is not critical for livestock operations. Remove fencing that is not critical for livestock operations and that is impeding wildlife movement. As possible, modify existing fencing that is not wildlife friendly.

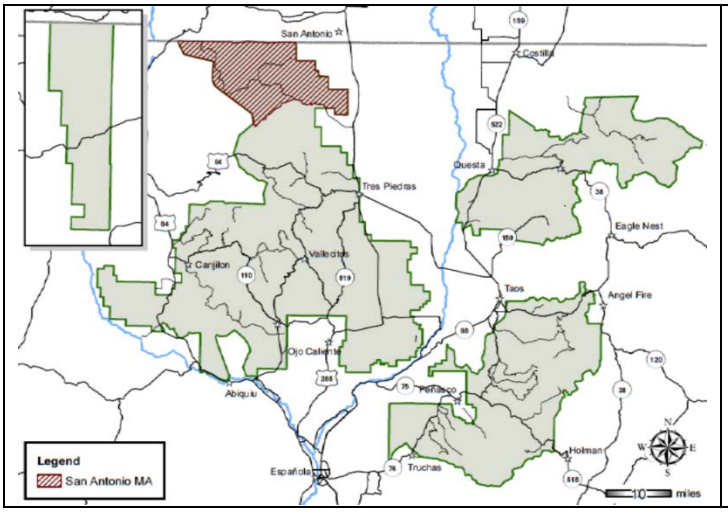


Figure 1. Location map of the Carson National Forest showing the location of the proposed San Antonio Management Area.

2. Chama Basin Special Interest Area

[24] See Lyon 1979; Van Dyke et al. 1986a, b; Fox 1989; Trombulak and Frissell 2000; Reed et al. 1996; Strittholt and DellaSala 2001; Davidson et al. 1996 for discussions of route density thresholds.

This area is important for the protection of an entire intact watershed with remarkable occurrences of montane riparian forest systems. See DEIS at 85 and 314. It is the municipal watershed for Chama, New Mexico. Designating it would help achieve the 2012 planning rule's requirement to enhance ecosystem integrity at 36 CFR 219.8(a) and protect the values of eligible river segments at 36 CFR 219.10(b)(1)(v). The Final Plan should describe the primary values of this area as:

- An entire intact and undisturbed headwaters watershed with a remarkable montane riparian forest ecosystem; and
- Remarkable biodiversity elements including mountain willow (*Salix monticola)/*mesic graminoid montane riparian willow carr, and a narrowleaf cottonwood/thinleaf alder (*Populus angustifolia/Alnus incana*) montane riparian forest.

Site specific plan components should include:

DESIRED CONDITIONS

- The Chama Basin is a place where natural processes dominate, water quality is high, and hydrologic processes are unimpeded.
- Visitors enjoy the stunning vistas hiking, on horseback, and in vehicles.
- The few travel routes in the area provide visitors the opportunity to explore while preserving the natural features and function.
- Grazing is allowed so long as it does not impede hydrologic function or degrade water quality. Eligible wild and scenic rivers are managed to retain their eligibility.

STANDARDS

- New permanent roads will not be constructed.
- Temporary roads will only be constructed if necessary, and with the smallest impact possible, and will be reclaimed and obliterated within one year of the termination of the project for which they were authorized to protect watershed condition and prevent illegal motorized use.
- New rights-of-way for energy development that would negatively impact hydrologic function or condition are prohibited.
- Eligible wild and scenic rivers are managed to retain their eligibility. (See plan components for Management Area 3.4.)
- Disallow ground disturbing activities or placement of infrastructure within buffers around streams and wetlands unless activities' primary purpose is to improve riparian and aquatic health.

- The area is not suitable for timber production.
- The area is discretionary no lease for oil and gas.

GUIDELINES

- Best management practices for water are in place and monitored regularly to ensure effectiveness.

MANAGEMENT APPROACHES

- Work with grazing permittees to prevent cattle from encroaching on stream and riparian buffer zones.

3. Summer Coon/La Ventana Special Interest Area

We are glad to see that the Natural Arch/La Ventana area will be added to the existing Elephant Rocks SIA under Alternative B. DEIS at 27. However, what is proposed in Alternative B for addition is much less than what deserves recognition and protection as a special area. The addition under Alternative B is only about 270 acres. This includes the volcanic dike that has the actual natural arch, and a little more adjacent acreage on the east side of this dike. This is far short of the 22,000-acre area we believe should be in a special interest area here, as we proposed in our alternative, submitted with our organizations' scoping comments.

Alternative D's Summer Coon La Ventana Special Interest Area offers a unique opportunity to explore the well-exposed interior of a composite volcano (similar in scale to today's Mount Rainier) that formed in the Southern Rocky Mountain Volcanic Field and that has been preserved along the edge of the younger Rio Grande Rift. This proposed area incorporates much of an ancient stratovolcano (a composite layered structure built up from sequential outpourings of eruptive materials), a nearly perfect pattern of radial dikes, and the La Ventana Natural Arch eroded into the center of one of the most prominent dikes. The area has significant tribal, botanical and ecological values in addition to its notable geological importance.

The proposed addition to the existing special interest area in Alternative D protects a much larger expanse of the ancient volcanic system than the Alternative B addition, and overlaps the Elephant Rocks and Eagle Mountain Potential Conservation Areas identified by the Colorado Natural Heritage Program. The Elephant Rocks Potential Conservation Area is a complex of volcanic boulders, rock outcrops, and shrublands separating the prairie of the valley floor from the San Juan Mountains and contains both rare plant and animal species, which results in its rank of High Biodiversity Significance. Specific biodiversity elements present include a medium-sized population of the rock-loving Neoparrya – an herb that is restricted to south-central

Colorado; a rare milkvetch (*Astragalus cerussatus*) with only 20 known occurrences; and a silky pocket mouse subspecies population found here that is restricted to the San Luis Valley and is rare within its range.[25]

The Eagle Mountain PCA is also located within the proposed Summer Coon La Ventana Geologic Area. The PCA includes the cliffs around Eagle Mountain and Eagle Rock, and is identified as being of General Biodiversity Interest because of its nesting habitat for peregrine falcons.[26] The proposed geologic area is rated by the Colorado Department of Parks and Wildlife as very high priority habitat for bighorn sheep, containing important winter range and lambing grounds, and a high priority habitat for elk containing over 15,000 acres of a winter concentration area.[27]

The Final Plan should designate the Elephant Rocks/La Ventana Special Interest Area proposed in Alternative D (as opposed to the much smaller expansion proposed in Alternative B). This proposed special interest area appropriately encompasses more of the geologic outcrops that tell the story of this ancient volcano, along with rare and remarkable biological values. Moreover, this area is getting much more use than it formerly did. Having a larger area would make it easier for the RGNF to manage visitation as needed to best protect the values, resources, and character of the area and provide a rich interpretive experience and ecotourism opportunity.

The Final Plan should describe the primary values of this area as:

- The rare opportunity to explore the well-exposed interior of an ancient volcano on the size of Mt. Rainier.
- The educational and scientific opportunities to study an ancient volcano.
- The cultural value of the Natural Arch to the local tribes.
- The high-quality bighorn sheep, peregrine falcon, and winter elk habitat.
- Various rare plants and animals including rock-loving Neoparrya – an herb that is restricted to south-central Colorado, a rare milkvetch (*Astragalus cerussatus*) with only 20 known occurrences, and a silky pocket mouse subspecies population found here that is restricted to the San Luis Valley and is rare within its range.

Site specific plan components should include:

DESIRED CONDITIONS

- The Summer Coon/Elephant Rocks Special Interest Area provides visitors a relatively unique experience of exploring the well-preserved interior of an ancient and massive volcano.

[25] See CHNP Potential Conservation Area Report, 2015. Available at http://www.cnhp.colostate.edu/download/gis/pca_reports.asp.
[26] *Ibid.*
[27] Colorado Department of Parks and Wildlife 2017. Available at http://www.arcgis.com/home/item.html?id=190573c5aba643a0bc058e6f7f0510b7

- Visitors can drive or bike a day-long interpretive tour where they can learn about the significance of the imposing and beautiful geologic formations and the rare biological resources throughout the area. The tour loops between Del Norte and Monte Vista providing ecotourism opportunities to both communities. The grasslands and scrub lands that comprise the lower elevations of the area provide a stunning backdrop to the unusual geologic features.

- The area is in a substantially natural condition and ecosystems primarily reflect the influence of natural processes.

- Local residents and communities are proud of this unusual and special place, and assist the Forest Service in managing and monitoring the area.

STANDARDS

- New permanent roads will not be constructed.
- Trails will only be constructed if they advance the understanding, appreciation, enjoyment, and protection of the primary values.
- Rock climbing on the dike on which the arch is located is prohibited to protect cultural values.

- Temporary roads will only be constructed if necessary, and with the smallest impact possible, and will be reclaimed and obliterated within one year of the termination of the project for which they were authorized to protect primary values and prevent illegal motorized use.
- New right-of-ways for energy development that would negatively impact the primary values or the scenic vistas are prohibited.

GUIDELINES

- Best management practices for water are in place on all access routes and monitored regularly to ensure effectiveness.

MANAGEMENT APPROACHES

- Develop an interpretive program for the area that includes, but is not limited to, an interpretive driving/biking tour that teaches about the area's unique and special qualities. The Forest Service should consider developing non-motorized interpretive trails as well. Interpretation of cultural values should be done in close cooperation with Native American tribes.

- Allow non-disturbing research to continue (e.g., rock sampling).

- Monitor impacts of dispersed recreation and implement necessary management actions to address impacts, including obliterating unauthorized routes.

4. Carnero Creek and Jim Creek Special Interest Areas

Carnero Creek and Jim Creek are strongholds for native Rio Grande cutthroat trout. Both possess outstanding recreational and scenic values, as well as high-quality water resources such as wetlands and riparian zones. Restoration and habitat improvement work has occurred in both Carnero and Jim Creek proposed special interest areas. We support the designation of these special interest areas because conserving entire watersheds is an important and possibly necessary measure to ensure long-term viability of the Rio Grande Cutthroat Trout in the context of a warming and changing climate (USFWS 2014). Designating the areas would contribute to achieving the 2012 planning rule's requirement to enhance ecosystem integrity and maintain and restore watersheds at 36 CFR 219.8(a).

Establishing the Carnero and Jim Creek Special Interest Areas to conserve the Rio Grande Cutthroat Trout and the riparian and aquatic ecosystems is consistent with recent direction from the Washington Office issued in a September 30, 2015 memo to regional foresters clarifying the that forests can identify conservation watersheds in land management plans. The memo explained that "Conservation Watersheds are . . . strategic and long-term designations helping to provide conditions that maintain or restore habitat for aquatic species in highly dynamic environments over the duration of a land management plan."[28] Attachment A to the memo explains that conservation watersheds are a dynamic and flexible designation that generally "1) conform[] to sub-watershed boundaries and generally rang[e] in size from 10,000 to 40,000 acres, 2) contain[] threatened, endangered, or at-risk species, and 3) form[] a connected network of aquatic habitats important for ensuring the long-term persistence of those species." In addition, the recently revised *Rise to the Future: National Fish and Aquatic Strategy* identifies conservation watersheds as a major strategy for conserving species on national forest lands and sets a goal that the agency will identify conservation watersheds throughout the system by 2020.[29]

Other forests are adopting the concept in land management plan revisions under the 2012 planning rule. For example, the Flathead National Forest proposed a Conservation Watershed Network in its recent draft revised forest plan.[30] Similarly, the Sierra, Sequoia, and Inyo National Forests are developing an aquatic conservation strategy that will include designation of "critical aquatic refuges" as part of their ongoing plan revisions.

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[28] Memo from Chris French & Robert Harper to Regional Foresters Re "Clarification on Conservation Watersheds in Land Management Plans" (Sept. 30, 2016) (Attached as Exhibit 7).

[29] Rise to the Future: National Fish and Aquatic Strategy. December 2017 at 10. Available at https://www.fs.fed.us/naturalresources/fisheries/resources/risetothefuturestrategynov2017.pdf.

[30] *See* Flathead National Forest Draft Revised Plan at 20-22 & Appendix E, *available at* http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd502201.pdf. While the Flathead's draft plan components for designated conservation watersheds were generally too weak to accomplish the objectives of the network, the concept is a good one.

The Final Plan should describe the primary values of the Carnero Creek area as:

- Critical habitat for Rio Grande cutthroat trout (over 275 km). All of the populations in the proposed area are considered to be genetically pure conservation populations.
- Over one thousand acres of mapped wetlands. Most are associated with Carnero Creek and its tributaries, and consist of freshwater emergent wetlands, freshwater ponds, and freshwater forested/scrub shrub wetlands.
- Community occurrences of globally rare montane grasslands (*Festuca arizonica-Muhlenbergia montana*), shrublands (*Alnus incana*/mesic graminoid), and woodlands (*Pinus aristata/Festuca thurberi*).

The Final Plan should describe the primary values of the Jim Creek area as:

- Critical habitat for Rio Grande Cutthroat Trout (about 37 km). All of the populations in Jim Creek are considered to be genetically pure conservation populations, with less than 1% of foreign genes detected.
- 53 acres of mapped wetlands. The majority of these wetlands are associated with Jim and Torsido Creeks and their tributaries, and consist of freshwater emergent wetlands, freshwater ponds, and freshwater forested/scrub shrub wetlands.

Site specific plan components should include:

DESIRED CONDITIONS

- The Rio Grande Cutthroat Trout habitat is conserved and restored.
- The watersheds provide multi-scale connectivity for the Rio Grande Cutthroat Trout and other aquatic species, and the ecosystem components needed to sustain long-term persistence of species.
- Partners work with the Forest Service to survey, implement habitat restoration projects, and monitor.
- The public enjoys the scenery and recreation that naturally functioning watersheds provide.

OBJECTIVE

• Establish measurable water quality and riparian health standards and a monitoring protocol, and monitor regularly.

STANDARDS

- Disallow ground disturbing activities or placement of infrastructure within buffers around streams and wetlands unless the activities' primary purpose is to improve riparian and aquatic health.

- Permanent roads will not be constructed or reconstructed unless doing so clearly will improve riparian and aquatic health overall. No net increase in permanent road mileage will occur.
- Temporary roads will only be constructed if necessary, and with the smallest impact possible, and will be reclaimed and obliterated within one year of the termination of the project for which they were authorized to protect watershed condition and prevent illegal motorized use.
- Best management practices for water are in place and monitored regularly to ensure effectiveness.

- New rights-of-way for energy development that would negatively impact hydrologic function or condition are prohibited.

MANAGEMENT APPROACHES

- Include the removal of unneeded or unauthorized roads and trails in project designs.

- Work with grazing permittees to prevent cattle from encroaching on stream and riparian buffer zones.

G. ADDITIONAL AREAS OF CONCERN

1. Protect of stonecrop gilia with a designation

The draft plan documents do not fully consider measures to protect stonecrop gilia (*aliciella sedifolia, gilia sedifolia).* According to USFS information, the only two worldwide locations at which this extremely rare critically imperiled endemic plant exists are on Rio Grande National Forest lands. (See https://www.fs.fed.us/wildflowers/Rare_Plants/profiles/Critically_Imperiled/aliciella_sedifolia/index.shtml Referenced online December 2017). To ensure that the rare occurrences of this plant are protected, the RGNF should recommend a Research Natural Area (RNA) or Special Interest Area (botanical) where the species occurs and is likely to occur.

SLVEC et al proposed the Half Peak Research Natural Area in their October 28, 2016 scoping letter. We are disappointed that no alternative proposed designating the Half Peak area for the purpose of conserving the stonecrop gilia. Our proposal was reasonable and should have been included in one or multiple alternatives. Failing to do so violates NEPA's requirement to "[r]igorously explore and objectively evaluate all reasonable alternatives" to a proposed action. 40 C.F.R. § 1502.14(a). Since this proposal was not included in any of the DEIS alternatives, we

are resubmitting here and request that the RGNF supplement the DEIS to include a recommendation for the Half Peak Research Natural Area or Special Interest Area.

The Colorado Natural Heritage Program has identified the Half Peak area as having the best occurrences of this plant in the world, and gave it an outstanding biodiversity significance, the highest level of ranking provided by the Colorado Natural Heritage Program. We thus believe that this area is more deserving of a special management area designation than the Sheep Mountain area (although we thank you for including that as a potential Research Natural Area in alternative D). We are particularly concerned as the Half Peak location is not currently protected from potentially damaging recreation such as off-route travel. Recreation has been identified as a threat to this plant and the Continental Divide National Scenic Trail passes directly through habitat for and occurrences of this plant. This trail may provide a vector for invasive species, also considered a threat to this plant.

We believe the presence of the designated trail through this area warrants additional action by the agency that will proactively manage public use and recreation in order to preserve and protect these plants and their habitat. Public recreation, especially in this remote location, is one of the most difficult uses to manage, and proactive measures are necessary to ensure that this use does not negatively impact this area.

Stonecrop gilia may be the most significant example of a rare species occurring on the Forest. Since this species is found nowhere else in the world, habitat for this species deserves full consideration for all forms of special management area designations. While we thank and support the Forest's consideration of a Research Natural Area for additional populations of these plants in alternative D, we strongly believe the Half Peak proposal must be included in the final plan, and that the Half Peak population of the plant must be protected with an RNA, special interest area, or other protective designation.

2. Protect Ripley's Milkvetch with a protective designation

The plant *Astragulus ripleyi* is found only in southern Colorado and northern New Mexico, i.e., on or near the RGNF. See Draft Plan at 174. The current plan has a special interest area designation for this plant on the southeast side of the Conejos Ranger District. The proposed plan would remove this designation and instead protect the plant with forest-wide direction. DEIS at 23, 27. However, we find no direction in the proposed Plan that would protect this plant, as is further discussed below.

The acres formerly in the special area would be assigned to MA 5.41, big game winter range. Interestingly, a 1999 amendment to the exiting Forest Plan reduced the area of the Ripley's SIA by 1166 acres (out of 5090 acres[31]) and assigned the removed acreage to MA 5.42, Bighorn Sheep. See Decision Notice (DN) for the November Analysis Area, June 18, 1999, available at: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd511488.pdf. This was considered appropriate because: "[i]t will allow us to better manage the area for bighorn sheep habitat while

[31] The total SIA acreage figure is found in 1997 Plan FEIS Table 3-81, p. 3-375.

at the same time still protecting Ripley's milkvetch." November Decision Notice at 2. However, the 5.42 MA would be removed under the proposed Plan.

The 5.41 MA would not protect Ripley's milkvetch, as there are no plan components or even management approaches addressing it. Land in this MA is timber-suitable, and livestock grazing occurs. Draft Plan at 88-89. From the timber suitability maps that accompany the Draft Plan and DEIS, it is clear that a sizable chunk of the current Ripley's Milkvetch Special Interest Area would be suitable for timber production under the proposed revised Plan.

Note the following mitigation measure incorporated into the decision transferring part of the special interest area to MA 5.42:

> Avoid timber harvest and prescribed fire in potential Astragalus ripleyi [Ripley milkvetch] habitat (i.e., open ponderosa pine / Arizona fescue stands with some Douglas-fir where canopy coverage by trees is less than 25%). Keep timber harvest and prescribed fire above the 9,200 feet contour line in the Analysis Area to protect Astragalus ripleyi.

November Analysis Area Decision Notice at 2.

We see no comparable protective measure in the proposed Draft Plan. One possibly applicable forest-wide management approach under Wildlife and Plants, WLDF-MA-17, states that "actions should avoid or otherwise mitigate adverse impacts in unique or rare plant community types". Draft Plan at 29; emphasis added. Ripley's milkvetch is not specifically mentioned, and it is very hard to imagine how a management approach, already optional and not a plan component, that should be applied (but is not required) to plant communities, not necessarily this individual species, would prevent harm to this plant.

The plant is also a species of conservation concern, which has been rated "extremely vulnerable to negative effects from changes in temperature and precipitation regimes." Plan at 174. Also: "There are 22 known occurrences of this species last observed in 2016. The entire global distribution of this species is on or near the Forest." *Ibid.*

The Forest Service must provide specific plan components to protect Ripleys milkvetch if plan components designed to protect and maintain ecosystem integrity and diversity are insufficient to ensure viability. See 36 CFR 219.9(b)(1). To protect this plant and ensure its long-term viability, we believe that specific components, especially standards and guidelines, will be necessary to accomplish this. If components specific to this plant are not included in the final Plan, the Forest Service must show how all applicable plan components will, collectively, provide adequate protection for Ripley's milkvetch and provide an opportunity for the species to recover to full viability.

Land in the current special area that protects Ripley's milkvetch should not be applied to MA 5.41. Since there is no forest-wide or management area direction to protect this plant, we believe a special area is still warranted for it, even if an area smaller than the current one is truly justified based on the geographic extent of the plant.

3. Retain more of the Fremont Area

We are concerned to see that the acreage of the John C. Fremont Winter Camp SIA would be reduced by about 1400 acres to "correspond with recent surveys and analysis that better identifies the camp area" in all action alternatives. DEIS at 23; see also id. at 27 for alternative B. Most of the removed acreage would be added to MA 5.13, forest products. Id. at 27. This is inappropriate. Land at the high altitude of the Fremont SIA should not be suitable for timber production. Indeed, under the analysis of timber suitability, areas over 11,000 feet elevation on south and southwest aspects were excluded from suitable timber lands because there is no assurance of adequate restocking within five years of regeneration harvest. Plan at 164. Some of the acreage proposed for removal from the SIA appears to be at this altitude and at least partially on south- or southwest-facing slopes.

The National Forest Management Act prohibits timber harvesting where there is no assurance of adequate restocking within five years after cutting. See 16 U. S. C. 1604(g)(2)(D)(ii). Thus some of the area proposed for removal from the SIA cannot legally be suitable for timber production. Some of the land removed and added to MA 5.13 is also on very steep slopes, so it could likely not be logged with ground-based equipment without irreversible damage to the soil.

If acreage is removed from the Fremont SIA because it is truly not needed to protect the resources therein, it should not be assigned to the timber MA, 5.13. Instead, close and obliterate the roads in the area and assign it to MA 4.3, dispersed recreation or another appropriate MA that would ensure protection of fragile, high altitude lands.

H. THE DEIS FAILS TO TAKE A HARD LOOK AT THE EFFECTS OF SPECIAL INTEREST AREAS AND RESEARCH NATURAL AREAS (HERETOFORE IN THIS SECTION REFERRED TO AS SPECIAL DESIGNATIONS)

1. Direct and indirect effects section does not accurately reflect the differences between Alternatives A, B, C, and D.

The DEIS starting at 316 offers a very brief discussion of the direct and indirect effects of the proposed special designations under the four alternatives. Unfortunately, the section lacks detail, and fails to provide analyses or data to support the conclusions about effects. Worse, the section does not distinguish differences in the effects between the four alternatives, implying that the effects from the proposed designations will not vary across the four alternatives. This is hard to believe given that Alternative D proposes about 174,000 acres[32] for special designations, Alternative C proposes 49,894 acres, Alternative B proposes 50,834 acres, and Alternative A, the no action alternative, retains the 58,534 acres currently in special designation. The DEIS at 316 describes the direct and indirect effects of special designations as follows:

[32] Note that page 32 of the DEIS says that Alternative D proposes 316,000 acres of special designations. The chart on page 38, however, shows that Alternative D proposes 174,074 acres.

> The majority of additional acreage tied to the proposed special areas in alternative D is already managed as roadless in alternatives A, B, and C. These areas would be managed in a substantially natural condition, where ecosystems primarily reflect the influence of natural processes. Plant and wildlife habitat values for which the special area was identified would be maintained. Invasive plant species would be controlled. Educational and research opportunities would be provided, featuring the ecological and plant communities associated with the special areas. Suitable vegetation management or other activities near special areas would be evaluated for potential impacts to the plant species, plant communities, and other associated qualities."

It is hard to tell from this description if the RGNF is saying that the impacts under all the alternatives are essentially the same because the proposed special interest areas in Alternative D overlap roadless area designations in Alternatives A, B, and C. If this is the intent of the paragraph, it is factually incorrect. Special interest areas, as we discussed above, are managed to not diminish the values and purposes for which they are designated and emphasize public enjoyment and interpretation. Roadless areas are managed pursuant to the direction in the Colorado Roadless Rule, which is generally to retain roadless character. Moreover, Alternative D proposes several special interest areas to protect rare and remarkable values that are not included in the other alternatives. Alternative B actually proposes to remove current special interest area protections currently in Alternative A.

2. <u>The DEIS fails to take a hard look at effects, and draws unsupported and arbitrary conclusions</u>.

The DEIS does not adequately disclose and analyze the effects resulting from special designations under the four alternatives. Understanding the costs and benefits of designating special interest areas is fundamental to deciding which areas merit designation. The failure to meaningfully analyze these impacts is a violation of NEPA, which requires the Forest Service to take a "hard look" at the environmental consequences of a proposed action, including its direct, indirect, and cumulative effects. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348 (1989); 42 U.S.C. § 4332(2)(C); 40 C.F.R. §§ 1502.16, 1508.7, 1508.8. The required hard look encompasses effects that are "ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative." 40 C.F.R. § 1508.8.

a. The analysis of effects on special designations from various activities is inadequate

The DEIS fails to take a hard look at the effects on special designations from various activities, and reaches several conclusions about the effects of special designations that are unsupported and therefore arbitrary. For instance,

- In evaluating the impacts on special designations from livestock grazing, the DEIS at 317 states that "[i]nvasive species control would occur throughout areas as needed using the appropriate control methods. Control of invasive species would have a positive impact on

the native plant species and communities." However, the plan components in the draft plan for MA 3.1 do not address invasive species. Further, the forestwide management direction for invasive species says that the RGNF will "within ten years of plan approval reduce terrestrial or aquatic nonnative invasive species on 300 acres" (Plan at 31, OBJ-NNIS-1) or stated another way, the RGNF will treat an average of 30 acres per year for invasive species. Three hundred acres comprises less than 0.2% of the special interest area acres proposed in Alternative D, which hardly justifies the DEIS' conclusion that "[i]nvasive species control would occur throughout areas as needed using the appropriate control methods. Control of invasive species would have a positive impact on the native plant species and communities."

Further, the DEIS provides no information on current grazing within proposed special interest areas and how that activity is currently affecting and likely to affect the primary values of proposed special interest areas. Without this information, the reader cannot discern how the primary values for which special interest areas are proposed would fare under each alternative from livestock grazing.

- In evaluating the impacts on special designations from roads, the DEIS at 317 states that no new roads will be allowed in special interest areas. The plan components for MA 3.1 and for infrastructure management (Draft Plan at 59-61) do not establish this prohibition, and thus this statement is unsupported.

- In evaluating the impacts on special designations from recreation, the DEIS at 317 states that "[a]ccess and recreational uses would be restricted in special areas, protecting the qualities associated with the areas. Developed recreation would be limited and linked to interpretation of the unique values of the area." The plan components for MA 3.1 and Recreation Management (Draft Plan at 64-47) do not address management of dispersed or developed recreation in special interest areas, and thus this statement is unsupported.

- In evaluating the impacts on special designations from fire management, the DEIS at 316 states that "[d]esired conditions in special areas maintain an ecosystem that primarily reflects the influence of natural processes. These natural processes would include fire in some areas. Most wildfires would require suppression measures for purposes of protecting values both within and outside the special areas. Wildland fire would be implemented in special areas for purposes of maintaining natural processes and desired vegetation conditions." These sentences are contradictory in that they say that 1) natural processes will prevail, 2) most wildfires will be suppressed, and 3) wildfires will occur to promote natural processes. Further, the effects analysis does not look at relevant factors such as the spatial overlap of proposed special interest areas and wildfire zones, or the role of natural fire in the maintenance or restoration of primary values, or the habitats within the proposed special interest areas. Without this basic information, the reader cannot discern the impact of the designations under the four alternatives from fire management.

- In evaluating the impacts on special designations from mineral resources, the DEIS states "While the withdrawal of locatable minerals may be encouraged in management direction for special areas, all designations of special areas on the Forest are subject to valid and existing rights. The existence of such rights and the potential for exploration are factors considered in the recommendation of special areas and the feasibility of maintaining the values for which these areas would be created." The DEIS does not provide information on valid existing mineral rights within proposed special interest areas (with the exception of the Chama Basin Watershed Protection Area), such as whether there are any valid existing rights within the areas. It also does not provide any information on whether there is mineral potential in the special designation areas proposed under each of the four alternatives. The reader thus cannot discern the impact of the designations under the four alternatives from potential development of mineral resources.

b. The analysis of effects to specific resources from special designations is inadequate.

The DEIS fails to analyze the effects on various resources (such as ecosystem integrity, rare communities, watershed and aquatic resources, invasive species, non-forested ecosystems, or at-risk species) from special designations under the various alternatives. In Table 4 in the section on recommended wilderness, we illustrate how the DEIS analyzes the effects on various resources from recommended wilderness allocations and special designations. The table shows that the analysis for certain resources is weak to non-existent. The identified deficiencies must be corrected in the final EIS.

I (eye). **THE DEIS FAILS TO ANALYZE AND DISCLOSE INFORMATION RELATED TO RESEARCH NATURAL AREAS**.

1. Background

One type of designated area that the Forest Service is expected to address in the land management planning process is Research Natural Areas (RNAs).[33] Forest Service policy requires each forest to establish and periodically amend, primarily through additions, RNAs that achieve the eight objectives listed in FSM 4063. Two of these objectives are

> maintain a wide spectrum of high quality representative areas that represent the major forms of variability found in forest, shrubland, grassland, alpine, and natural situations that have scientific interest and importance that, in combination, form a national network of ecological areas for research, education, and maintenance of biological diversity.

[33] FSM 4063.03 ("The selection and establishment of Research Natural Areas within the National Forest System primarily emerges from continuing land and resource management planning and associated environmental analyses (FSM 1920 and FSM 1950). Forest plans shall include analysis of, and recommendations for, the establishment of proposed Research Natural Areas.")

> [p]reserves and maintains genetic diversity, including threatened, endangered, and sensitive species.[34]

In selecting and establishing RNAs, Forest Service policy directs that RNAs should be "large enough to provide essentially unmodified conditions within their interiors which are necessary…to protect the ecological processes, features, and/or qualities for which the Research Natural Areas were established."[35] The policy also emphasizes that "landscape-scale RNAs that incorporate several ecosystem elements are ideal, where feasible."[36] Proposed areas, to the degree possible, should be free from major human disturbance for the past 50 years, and should, where possible, encompass entire small drainages because they are easier to delineate and protect, and because they better maintain the interrelationships of terrestrial and aquatic systems.[37]

Forest Service Manual 4060, section 4063.02 enumerates eight objectives for establishing RNAs:

- Maintain a wide spectrum of high quality representative areas that represent the major forms of variability . . . that, in combination, form a national network of ecological areas for research, education, and maintenance of biological diversity
- Preserve and maintain genetic diversity
- Protect against human-caused environmental disruptions
- Serve as reference areas for the study of natural ecological processes including disturbance
- Provide onsite and extension educational activities
- Serve as a baseline area for measuring long-term ecological changes
- Serve as control areas for comparing results from manipulative research
- Monitor effects of resource management techniques and practices

While the Forest Service Manual 4060 does not explicitly speak to climate change, the forest planning rule establishes an expectation that climate change considerations will be integrated into the three phases of planning.[38]

2. <u>The DEIS contains almost no information on RNAs</u>

[34] FSM 4063.02.
[35] FSM 4063.1.
[36] *Ibid.*
[37] FSM 4063.2.
[38] 36 C.F.R. §219.5 ("The intent of this [planning] framework is to create a responsive planning process that informs integrated resource management and allows the Forest Service to adapt to changing conditions, including climate change, and improve management based on new information and monitoring."); 36 C.F.R. 219.9(a)(1)(iv) ("The plan must maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area….taking into account:…. (iv) System drivers, including …. climate change; and the ability of terrestrial and aquatic ecosystems on the plan area to adapt to change.")

Despite the fact that Forest Service policy directs that "[f]orest plans shall include analysis of, and recommendations for, the establishment of proposed Research Natural Areas"[39] the DEIS contains almost no information about RNAs. It does not describe the current RNAs and whether in aggregate they meet the policy objectives of the RNA system, nor does it offer insight into whether other areas on the forest might be good candidates for RNA designation. In fact, the extent of the substantive discussion on RNAs is confined to three paragraphs on page 313 in which the DEIS explains that Alternative D proposes one additional RNA – the Sheep Mountain RNA. The short section does not explain why Alternatives B and C do not propose the designation of the Sheep Mountain RNA as well.

Interestingly, Chapter 15 of the Assessment Report at 13 suggests that the RGNF intended to take another look in the land management plan revision at how well the RNA system meets the RNA criteria described in FSM 4063.02, and whether additional areas are warranted:

> "We also may need an update to the 1994 potential research natural area candidate inventory to determine if, based on changed conditions or new information, we should consider additional areas as potential candidate research natural areas."

Regardless, the DEIS is considerably deficient in analyzing and disclosing information about RNAs, and considering deserving candidate areas for possible designation. At this point, likely the best approach for addressing the deficiency is to supplement the DEIS with a robust analysis that would guide modifications to the alternatives. The robust analysis should take a hard look at the distribution, size, representation, and functions of current RNAs and evaluate the sufficiency of the RGNF's RNA system relative to the RNA criteria at Forest Service Manual 4060, section 4063.02. In doing so, the DEIS should identify opportunities to establish RNAs that are large enough to provide for unmodified conditions and processes in the area's core, and, to the degree possible, landscape-scale RNAs that incorporate several ecosystem elements, as directed in the Manual and by the principles of conservation biology. Protecting as RNAs several adjacent intact habitats enables the protection and study of the individual systems and their interactions. Further, redundant areas may be necessary to maintain a range of study areas and sufficient population sample sizes.[40] In addition, the RGNF should use the ecosystem representation information presented in Exhibit 3 to inform this effort.

Climate change presents a special challenge, with the potential for ecosystem boundaries and characteristics to shift within relatively short timeframes. In evaluating possible RNA designations, the RGNF must consider the possible effects of climate change on the existing RNAs by, for instance, recommending expansions to RNA boundaries to give ecosystems and species room to adapt. The Forest Service should recommend landscape-scale RNAs when possible that protect multiple and proximal intact ecosystems as well as protect zones between RNAs to enable plant and animal species migration. The RGNF in a final EIS must analyze and disclose the effect of climate change on the proposed RNA system and explain how the RGNF is

[39] FSM 4063.03

[40] Spatial redundancy of ecological subsystems is desired for purposes of experimentation and replication. Redundancy of subsystems or components of an ecosystem is also important to conservation planning. Redundancy can reduce the likelihood that elements (e.g., species, rare habitats) will be lost as a result of stochastic events or other stressors.

meeting its substantive responsibilities for establishing an RNA system that achieves the identified objectives under each alternative.

IV. **ENSURE PROTECTION OF COLORADO ROADLESS AREAS**

We support the creation of MAs 3.5 and 3.6 that integrate the Colorado Roadless Rule's direction into the draft revised plan. See 36 CFR 294 Subpart D. This approach provides clarity on the location and management of upper and lower tier roadless areas, and integrates the management direction for these areas (which comprise almost one third of the forest) into the overall land management plan structure and strategy.

A. Proposed Management Area 3.5

We noticed that the management direction for Proposed Management Area 3.5 (Draft Plan at 82-84) is not entirely consistent with the direction in the Colorado Roadless Rule, with the Colorado Roadless Rule being stricter on where tree cutting and road building is allowed. While we recognize that these omissions may reflect a desire to keep the plan language short, it is important to communicate the intent of the Colorado Roadless Rule accurately. Management direction for Management Areas 3.5 and 3.6 must at a minimum be as strict as the Colorado Roadless Rule direction. For example, regarding direction on non-upper tier timber activities, the Draft Plan states that tree cutting will only be allowed when:

> [O]ne or more of the roadless area characteristics will be maintained or improved over the long-term, with exceptions and only if one of the following conditions exist:
>
> 1. The regional forester determines that tree cutting, sale, or removal is needed to reduce the amount of hazardous fuels in an at-risk community.
> 2. The regional forester determines that tree cutting, sale, or removal is needed outside of the community protection zone and where wildland fire disturbance is a significant risk that could adversely affect a municipal water supply system or the maintenance of that system.
> 3. Tree cutting, sale, or removal is needed to maintain or restore the characteristics of ecosystem composition, structure, and processes.

Draft Plan at 82-83. The Colorado Roadless Rule provides sideboards, noted in italics, to these exceptions. The Rule states:

> (1) The Regional Forester determines tree cutting, sale, or removal is needed to reduce hazardous fuels to an at-risk community or municipal water supply system that is:
> *(i) Within the first one-half mile of the community protection zone, or*
> *(ii) Within the next one-mile of the community protection zone, and is within an area identified in a Community Wildfire Protection Plan.*

(iii) Projects undertaken pursuant to paragraphs (c)(1)(i) and (ii) of this section 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.

(2) The Regional Forester determines tree cutting, sale, or removal is needed outside the community protection zone where there is a significant risk that a wildland fire disturbance event could adversely affect a municipal water supply system or the maintenance of that system. A significant risk exists where the history of fire occurrence, and fire hazard and risk indicate a serious likelihood that a wildland fire disturbance event would present a high risk of threat to a municipal water supply system.

(i) Projects 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.

(ii) Projects are expected to be infrequent.

(3) Tree cutting, sale, or removal is needed to maintain or restore the characteristics of ecosystem composition, structure and processes. *These projects are expected to be infrequent.*

See 36 CFR 294.42.

Similarly, the Draft Plan provides a number of conditions when road construction or reconstruction will be allowed, but the direction does not include the sideboards provided in the Colorado Roadless Rule. Compare the language in the Draft Plan at 83 to the regulatory language at 36 CFR 294.43(c)(1) and (2).[41]

The section on linear construction zones (LCZ) also does not reflect the sideboards provided in the Colorado Roadless Rule. See 36 CFR 294.44(c). Specifically, the rule provides clear direction that: 1) LCZs needed for construction or maintenance of water conveyance structures are only permitted for those structures operated *pursuant to a pre-existing water court decree*; 2) LCZs needed for construction or maintenance of power or telecommunication lines can only be authorized *if there is no opportunity for the project to be implemented outside of a Colorado Roadless Area without causing substantially greater environmental damage*, and 3) LCZs needed for construction or maintenance of oil and gas pipelines are authorized *when the construction through a roadless area would cause substantially less environmental damage than alternative routes. Pipelines that transport oil and gas through roadless areas (i.e., the source and destination of the pipeline are outside of the roadless area) are not authorized.*

Recommendation: The RGNF must correct the land management plan direction where substantive differences between the land management plan language and the Colorado Roadless Rule exist and the Colorado Roadless Rule's language is more restrictive. In other words, the Plan must be at least as restrictive as the Colorado Roadless Rule.

[41] In addition to leaving out sideboards, Point 6 (Plan at 83) misstates when temporary road construction is allowed in non-upper tier roadless areas by conflating 294.43(c)(1)(iv) and (v), under which temporary road construction is allowed for water conveyance structures (iv) and to protect public health and safety in the face of an imminent treat (iv). These are separate situations for authorization for temporary road construction.

B. Proposed Management Area 3.6

The Draft Plan rightly notes the two exceptions for road building allowed in upper tier roadless areas by the Colorado Roadless Rule. See 36 CFR 294.43(b). However, the Draft Plan fails to include the sideboards provided in the Colorado Roadless Rule related to road building in upper tier areas at 36 CFR 294.43(b)(3).

Recommendation: The Final Plan must incorporate these important sideboards necessary for the long-term conservation of roadless area characteristics.

C. Decommissioning Direction in the Colorado Roadless Rule

While the Colorado Roadless Rule provides direction on the decommissioning of roads and LCZs, the direction for MA 3.5 and 3.6 does not. The Colorado Roadless Rule's direction is as follows:

> Decommission any road and restore the affected landscape when it is determined that the road is no longer needed for the established purpose prior to, or upon termination or expiration of a contract, authorization, or permit, if possible; or upon termination or expiration of a contract, authorization, or permit, whichever is sooner. Require the inclusion of a road decommissioning provision in all contracts or permits. Design decommissioning to stabilize, restore, and revegetate unneeded roads to a more natural state to protect resources and enhance roadless area characteristics. Examples include obliteration, denial of use, elimination of travelway functionality, and removal of the road prism (restoration of the road corridor to the original contour and hydrologic function).

36 CFR 294.43(d)(2). And,

> All authorizations approving the installation of linear facilities through the use of a linear construction zone shall include a responsible official approved reclamation plan for reclaiming the affected landscape while conserving roadless area characteristics over the longterm. Upon completion of the installation of a linear facility via the use of a linear construction zone, all areas of surface disturbance shall be reclaimed as prescribed in the authorization and the approved reclamation plan and may not be waived.

36 CFR 294.44(e).

Recommendation: The Final Plan must incorporate as a standard the Colorado Roadless Rule's direction to decommission roads and reclaim LCZs in Colorado Roadless Areas.

D. Use and Designation of Roads in Roadless Areas

The Colorado Roadless Rule directs that roads constructed in roadless areas shall prohibit public motorized vehicles including off-highway vehicles except where specifically used for the

purpose for which the road was established or where motor vehicle use is specifically authorized under federal law or regulation. See 36 CFR 294.43(d)(4). The Colorado Roadless Rule also specifies that a temporary road generally cannot be changed to a system road. See 36 CFR 294.43(d)(3).

Recommendation: The Final Plan should incorporate these prohibitions as standards.

E. Absence of Plan Components

We really like the fact that the Draft Plan provides direction on activities and uses in upper and lower tier roadless areas. We are confused, however, about whether the language constitutes standards, guidelines or other plan components. We understand that the text is describing the management of these lands pursuant to the Colorado Roadless Rule direction and that the Colorado Roadless Rule is enforceable. However, if the Colorado Roadless Rule were to be modified substantially or revoked, the plan language would be the only guiding direction for these areas and would as currently crafted lack plan components. Hence, we ask that you add plan components, including standards, to this section. At a minimum, the limitations on tree cutting, sale, and removal; road construction and reconstruction; and the use of linear construction zones must be standards.

F. Correction Needed

Under MA 3.6 – Upper Tier Colorado Roadless Area, there is a mis-cite to the Code of Federal Regulations: "Road and trail construction and reconstruction follows direction outlined in the 2012 Colorado Roadless Rule (36 CFR 223)." Plan at 84. The proper citation is 36 CFR 294.43.

V. **PROTECT SPECIES OF CONSERVATION CONCERN AND OTHER AT-RISK SPECIES**

A. INTRODUCTION – LEGAL AND REGULATORY BACKGROUND

1. Diversity of Plant and Animal Communities

NFMA codified an important national priority to ensure forest management plans "provide for the diversity of plant and animal communities based on the suitability and capability of the specific land area" (16 U.S.C. § 1604(g)(3)(B) (2012)). The National Forest Management Act (NFMA) established a process for integrating the needs of wildlife with other multiple uses in forest plans. Most important, the law set a substantive threshold Forest Service management actions must comply with for sustaining the diversity of ecosystems, habitats, plants and animals on national forests. This comment section is primarily on the species diversity and ecological sustainability aspects of management planning. Determinations of compliance with the NFMA diversity requirement must be based on plan components.

In the context of at-risk species, a desired condition must meet a two-part test (219.7(e)(1)(i)): 1) "a description of specific…ecological characteristics," and 2) "that must be described in terms that are specific enough to allow progress toward their achievement to be determined." For at-risk species, the ecological characteristic must be the ecological condition necessary to meet the requirements of 219.9. It is very important to note that desired conditions within a plan area must not work against each other and must be mutually achievable. In addition, all other plan components must be based on desired conditions and must be integrated with each other.[42]

Furthermore, the rule requires standards or guidelines for at-risk species. 36 CFR 219.9. And without such standards and guidelines, any assertion or finding that forest plan direction will lead to better outcomes, including increased population numbers, greater genetic diversity, maintenance and restoration of relevant habitat characteristics, long-term viability, and other measurable goals, will be arbitrary and capricious.

There is a legitimate process to evaluate whether plan components meet planning rule diversity requirements, as described below. Clearly the first step is to develop initial plan components that attempt to meet planning rule requirements by integrating the necessary ecological conditions for at-risk species into the ecosystem plan components. This should be followed by an analysis of what species-specific plan components can be tailored to provide ecological conditions necessary for at-risk species, which are often identified by BASI and information provided by other state and federal agencies.

Ecosystem plan components are intended to maintain or restore the structure, function, composition, and connectivity of terrestrial and aquatic ecosystems and the diversity of ecosystems and habitat types (219.9(a)). Ecosystem components would generally be those that describe biological conditions at the scale of the selected ecosystems.

The distinguishing characteristic of species-specific plan components in the planning rule is that they are designed for species not otherwise fully provided for by ecosystem plan components. Species-specific components may be those that need to be applied at the project level: standards and guidelines that provide mitigation for certain activities known to cause adverse effects on the species or its habitat. They may also be desired conditions for species populations or for conditions at a finer scale relevant to a species' needs. Plan components to address ecological conditions related to human uses and structures may also tend to be directed at the needs of specific species.

A "coarse filter strategy" that relies heavily on ecosystem components is appealing because of the apparent efficiency of addressing multiple species in an integrated manner, and because it can be developed using familiar available metrics for vegetation attributes. However, a single, generalized characterization of habitat is unlikely to provide a reliable basis for multi-species

[42] See NFMA Section 6(f)(1) (16 U.S.C. § 1604(f)(1)), which requires "one integrated plan," as described in 219.1(b) and 219.2(b) in the rule. The rule describes all of the other required plan components in terms of the desired condition in 219.7(e).

conservation efforts (Cushman et al. 2008). Reliance on habitat characteristics can be expected to conserve a species only if the following assumptions are met (Noon et al. 2003):

- The selected characteristics are adequate as surrogates for the species.
- The selected characteristics include those threatening the species' persistence.
- The spatial resolution of the coarse filter matches the scale at which the species responds to environmental heterogeneity.

The likelihood of these assumptions being valid for most species is low (Noon et al. 2003), and therefore some or most at-risk species are likely to require species-specific plan components. The coarse filter approach will be more defensible as a primary conservation strategy for at-risk species if a robust set of enforceable, detailed plan components is developed with an understanding of those species-specific conservation needs.

2. Ecological Integrity and At-risk Species

Following the development of meaningful plan components that include the ecological conditions necessary to meet the needs of at-risk species, the DEIS can then perform an evaluation to determine and demonstrate whether plan components meet the rule requirements. The diversity evaluation results in a "status" determination for ecosystem diversity, ecological integrity and species persistence and viability.

The planning rule requires that plan components maintain or restore ecological integrity, which occurs (by definition, 219.19) when the dominant ecological characteristics (such as composition, structure, function, connectivity, and species composition and diversity) are within a range of reference conditions which would allow them to recover from perturbations. This set of reference conditions is referred to as the natural range of variation (NRV). NRV is generally based on natural disturbance regimes during a historic reference period, but may also include any additional information that indicates that something other than this historic range may be more appropriate as a future reference condition. It is important to note that BASI related to current or likely foreseeable impacts from climatic changes should be incorporated into the discussion, modeling, and planning related to NRVs for forest ecosystems. Climate change and associated changes in water availability, vegetative structure, and species composition should not merely be framed as a separate challenge needing separate planning, but rather as a necessary and critical component of the NRV. NRVs cannot merely be based on arbitrary, point-in-time historical reference conditions.

The status of ecological integrity is determined by comparing the expected future conditions under proposed plan components for selected integrity characteristics to the NRV for those characteristics. In determining the status, the responsible official must consider the effects of *all* plan components on the characteristics; not just those intended to be beneficial. Departures from NRV indicate that the ecological integrity of the ecosystem is not sustainable (219.8(a)), and therefore diversity will not be achieved (219.9(a)).

The RGNF proposed plan has not successfully provided specific, detailed and enforceable coarse and fine-filter plan components that are tiered off the habitat needs and threats to viability and recovery for at-risk, SCC, and listed species. See Appendix A for species-specific management guidelines and recommendations. The DEIS has not provided a sufficiently detailed analysis that clearly explains the connection between proposed coarse and fine-filter plan components and the viability and recovery of at-risk, SCC and listed species, and how the proposed plan components meet the requirements of the Endangered Species Act (ESA) and NFMA.

3. Threatened and Endangered Species

The 2012 planning rule establishes an affirmative regulatory obligation that forest plans "provide the ecological conditions necessary to: contribute to the recovery of federally listed threatened or endangered species" (36 C.F.R. § 219.9(b)(1)). The provision supports the "diversity requirement" of NFMA (16 U.S.C. § 1604(g)(3)(B)). Forest planning regulations and forest plans make conservation decisions and are vehicles to demonstrate compliance with NFMA, as well as the ESA.

The ESA requires the Forest Service and other federal agencies to, "utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation[43] of (listed species)" (16 U.S.C. §§ 1536(a)(1)). Therefore, the ESA requires that the Forest Service must use its authorities, including NFMA and its planning process and resulting plans, in furtherance of recovery of listed species. Moreover, the preamble to the planning rule specifically links this requirement to its responsibility under the ESA for recovery of listed species, stating, "[t]hese requirements will further the purposes of § 7(a)(1) of the ESA, by *actively* contributing to threatened and endangered species recovery and maintaining or restoring the ecosystems upon which they depend" (emphasis added) (77 Fed. Reg. 21215).

Under the ESA, delisting or preventing listing requires adequate regulatory mechanisms, which courts have determined forest plans can provide—if plan components are legally binding (*Greater Yellowstone Coalition v. Servheen*). Consequently, when developing plan components to provide ecological conditions for plant and animal diversity in accordance with 219.9, planners should avoid vague or discretionary plan components.

Standards (and determinations of unsuitability) should be encouraged as a means of meeting requirements to provide "necessary" ecological conditions for listed species. Using standards to meet this diversity requirement in 219.9 is consistent with the rule's emphasis on using standards when mandatory constraints are needed to meet legal requirements (219.7(e)(1)(iii)). The threat of species extinction, or extirpation, from the RGNF is something the Forest Service needs to take seriously and address with increased specificity within the forest plan. Ecosystem-level

[43] "Conservation" is defined by the ESA to mean "the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary."

guidance cannot ensure recovery of listed species. A more detailed and nuanced approach is necessary, and recovery plans created by the FWS should be the baseline for the Forest Service's approach.

[Designating certain plant, animal, and fish species as species of conservation concern (SCC), per 219.9, is a very important component of any forest plan. SCC designation can help focus attention on species that could, without monitoring and appropriate management, slide toward extinction and a need to be listed under the Endangered Species Act.] [PROBABLY DELETE]

B. SAGEBRUSH ECOSYSTEM ASSOCIATED AT-RISK SPECIES

1. Introduction

Plan components are not adequate to restore and maintain ecological integrity for the sagebrush ecosystem. Gunnison sage-grouse, a threatened species, and Brewer's sparrow, a potential SCC, require this habitat.

The Poncha Pass area is within the Gunnison sage-grouse historic range (see 79 Fed. Reg. 69192, 69194, 2014), though habitat conditions must be improved to contribute to the recovery (79 Fed. Reg. 69313, November 20, 2014). Higher elevation sagebrush steppe like Poncha Pass may be key to the species' persistence as climate change continues to affect lower elevation habitat elsewhere (TNC et al. 2011; Coop 2015). Including lands managed by the Bureau of Land Management (48%), the Forest Service (26%), private parties (24%), and the Colorado State Land Board (2%), GSRCS (2005) estimated the range of the population to be 20,400 acres (GSRCS 2005: 91).

Terrestrial Ecosystems Assessment 1 and 3 was inadequate to determine the ecological condition of sagebrush on the RGNF, and this may be a contributing factor as to why the proposed plan falls short of providing the conditions to achieve integrity, sage-grouse recovery, and Brewer's sparrow persistence. The Assessment concluded that the ecosystem was "slightly departed" from NRV, but how the results of the Assessment's modeling data have been interpreted to make this determination is not clear. Important information about the vegetation composition, function, and connectivity does not seem to be included. For example, what percentage of the ecosystem contains sagebrush verses perennial and annual grasses, such as cheatgrass, and pinyon-juniper woodlands? What is the extent of fragmentation in the system to enable an assessment of connectivity? It's not clear how heavily the model weighted wildfire data in Table 19 of the Assessment 1 and 3 (at 65).

Despite the Assessment's limitations, a sufficient collection of best available scientific information (BASI) exists to improve proposed plan components in a way that they better assure sagebrush integrity can be maintained or restored. The proposed plan includes no components specific to the sagebrush ecosystem. We make the assumption that improving and developing plan components to provide the conditions that would contribute to the recovery of Gunnison sage-grouse and the viability of the Brewer's sparrow would promote the integrity of the ecosystem.

2. Key Ecosystem Characteristics and Plan Components

For the most part, the Gunnison sage-grouse and Brewer's sparrow depend on similar key ecosystem characteristics. The DEIS (Table 58 at 244) identified "sagebrush" as the only key ecosystem characteristic associated with the Gunnison sage-grouse. We outline essential key characteristics with references to BASI and comment on corresponding plan components and management approaches below.

Large, contiguous, unfragmented patches of sagebrush across the landscape. Sage-grouse are a landscape species (Connelly et al. 2011a). Migratory populations have large annual ranges that can encompass 1,042 mi^2 (667,184 ac) (Knick and Connelly 2011, *citing* Dalke et al. 1963; Schroeder et al. 1999; Leonard et al. 2000) (the species may use up to 2,500 mi^2 per population (Rich and Altman 2001)). Large-bodied birds are generally more strongly affected by habitat loss and fragmentation (Winter et al. 2006). Conserving large expanses of sagebrush steppe is the highest priority to conserve sage-grouse (Aldridge et al. 2008; Connelly et al. 2011b; Manier et al. 2013: 25-26). Maintaining or restoring so that at least 70 percent of the land cover is sagebrush steppe essential for supporting sage-grouse (SGNTT 2011: 6; Doherty et al. 2010; Wisdom et al. 2011; SGNTT 2011: 7; Karl and Sadowski 2005; Doherty 2008; Connelly et al. 2000: 977, Table 3; Knick et al. 2013: 5-6) with 15 to 40 percent sagebrush canopy cover (Connelly et al. 2000; SGNTT 2011; Hagen et al. 2007). (See also Winter et al. 2006; Connelly et al. 2011b; Manier et al. 2013: 25-26; RGNF undated, *Centrocercus minimus*;). For information more specific to the Brewer's sparrow, see RGNF (undated, *Spizella breweri*).

Developing and implementing conservation strategies at regional or landscape scales will have the greatest benefit for sage-grouse and their habitat (*see* Doherty et al. 2011), and for Brewer's sparrows. Protecting large expanses of sagebrush steppe must be high priorities (Connelly et al. 2011a; Wisdom et al. 2005b). Given the importance of public lands to sagebrush conservation, the sensitivity of these lands to disturbance, longer recovery periods and variable response to restoration, and their susceptibility to invasion by exotic plants (Knick 2011), land uses that negatively affect these lands should be avoided or prohibited in key habitat areas to conserve sage-grouse habitat. Establishing a system of habitat reserves in sagebrush steppe will also help conserve essential habitat and ecological processes important to sage-grouse conservation.

DC-WLDF-3: *Sufficient habitat connectivity is present in each vegetation type to facilitate species movement within and between daily home ranges, for seasonal movements, for genetic interchange among species (including Canada lynx and others), and for long-distance movements across boundaries. (Forestwide)*

The word "sufficient" must be quantified. There is no way to measure progress toward the achievement of the desired condition (DC). A DC should be developed to be specifically applicable to sage-grouse in relation to the species' connectivity needs based on the BASI referenced above.

DC-SCC-1: *A healthy sagebrush steppe ecosystem meets the needs of sagebrush obligate species including, but not limited to, Brewer's sparrow. (Forestwide)*

Healthy is too subjective and vague for this DC to meet planning rule requirements. While the Assessment is flawed, it claimed the sagebrush ecosystem is outside of its NRV. The DC should outline the natural range of variability (NRV) for the key characteristics necessary for Brewer's sparrows (and sage-grouse) and describe how restoring the ecosystem toward NRV can be achieved.

DC-TEPC-1: *Occupied or potential Gunnison sage-grouse habitat is maintained for habitat integrity and diversity using information provided by the local interagency working group and/or Range-wide Conservation Plan. (Forestwide)*
DC-TEPC-2: *Occupied or potential Gunnison sage-grouse habitat provides for habitat integrity and diversity using information provided by the local interagency working group and/or Range-wide Conservation Plan. (Forestwide)*

Plan at 24.

DC-TEPC-1 and **DC-TEPC-2** are virtually identical. Both require additional specificity regarding how to provide for "habitat integrity." It's not clear what "diversity" means, and this must be clarified. The revised plan cannot simply refer to external policy for direction. It is fine to use such direction when it reflects the BASI, but the direction must be written into the revised plan. In the case of these two proposed plan components, it's not clear: 1) what precisely the "local interagency working group" or the "Range-wide Conservation Plan" are, 2) what "information" will be used, and 3) how the "information" will be used. We're assuming the "Range-wide Conservation Plan" is the 2005 plan of which the Forest Service is a signatory. If so, this plan is outdated. The Gunnison sage-grouse was listed as threatened under the ESA by the USFWS in part because this and other plans were found to be inadequate to conserve and recover the species.

Tall and medium height grasses and shrub cover at nest sites, >7.5 inches. Gregg et al. (1994: 165) noted that "[l]and management practices that decrease tall grass and medium height shrub cover at potential nest sites may be detrimental to sage grouse populations because of increased nest predation. … Grazing of tall grasses to <18 cm would decrease their value for nest concealment. … Management activities should allow for maintenance of tall, residual grasses or, where necessary, restoration of grass cover within these stands." Hagen et al. (2007) conducted a quantitative meta-analysis of existing research on greater sage-grouse nesting and brood-rearing habitat and confirmed that female sage-grouse typically select nesting sites with greater sagebrush cover and grass height compared to random locations, and that brood areas usually had less sagebrush, taller grasses, and greater forb and grass cover than at random sites. (Gregg et al. 1994; Hagen et al. 2007); Connelly et al. 2000; Hagen et al. 2007; Braun et al. 2005)

> ***S-WLDF-6:*** *Retain residual grass cover from the previous growing season where tall, dense cover is desired for ground-nesting birds. (Forestwide)*

Plan at 27.

We agree with the concept of this standard, and believe it's an important standard with some added specificity. A standard must be developed to provide for the specific requirement of >7.5 inches of grass height during nesting season that is specific to the Gunnison sage-grouse.

High quality winter habitat. Sage-grouse typically show high fidelity to winter habitat, and a single area may support several different breeding populations. Consequently, the loss or fragmentation of wintering areas can have a disproportionate impact on sage-grouse population size. Scientists have also observed that the quality of winter habitat appears to influence the abundance and condition of female sage-grouse and their nesting effort and clutch sizes in spring (Moynahan et al. 2007; Caudill et al. 2013). Again, the plan must provide specific components related to sage-grouse and habitat that, in aggregate, will contribute to the recovery of the species; this means identifying winter habitat and assessing the conditions of this habitat.

Riparian areas and wetlands. Sage-grouse use riparian areas and wetlands.

> ***G-TEPC-3:*** *To limit impacts to Gunnison sage-grouse habitat:*
>
> - *Manage riparian areas and wet meadows to meet proper functioning condition while striving to attain reference state vegetation relative to the ecological site description.*

Plan at 24-25.

This is also an important guideline. It must be linked to a DC that describes target ecological conditions (the "reference state"). The plan must define "properly functioning condition." See Connelly et al. (2000).

3. Ecosystem Stressors and Threats

Sagebrush areas are underrepresented in that national wilderness preservation system and have been underappreciated as habitat essential for sagebrush obligate species. Livestock grazing, roads, and invasive species are stressors, for example, and both the sage-grouse and Brewer's sparrow are sensitive to human disturbance.

> ***G-SCC-4:*** *Avoid impacts to Brewer's sparrow habitat by:*
> - *Mitigating fragmentation of sagebrush by motorized and mechanized activities*
> - *Use grazing systems that discourage fragmentation and promote and maintain late seral understory plant composition*
> - *Maintaining large patches of sagebrush that provide suitable habitat and display a variety of structural conditions. (Forestwide)*

Plan at 20.

Again, the guidelines must be linked to a DC that describes the conditions for which the guideline is intended to provide direction. For example, if "late seral understory plant composition" is necessary for Brewer's sparrow viability, this must be provided for by DCs, guidelines, and standards. What are the structural conditions?

Livestock grazing. Domestic livestock and other ungulates alter vegetation, soils, hydrology, and wildlife species composition and abundances that exacerbate the effects of climate change on western landscapes. Removing or reducing livestock grazing across large areas of public land would alleviate a widely recognized and long-term stressor and make ecosystems less susceptible to the effects of climate change. Cattle grazing exacerbates cheatgrass (*Bromus tectorum*) dominance in sagebrush steppe by decreasing bunchgrass abundance, shifting and limiting bunchgrass composition, increasing gaps between perennial plants, and trampling biological soil crusts. Grazing was also not found to reduce cheatgrass cover, even at the highest grazing intensities. (Beschta et al. 2012; Reisner et a. 2013)

See additional comments on livestock grazing elsewhere.

> ***S-WLDF-7:*** *Manage livestock grazing from April 15 to July 1 provide cover for ground-nesting bird species that prefer undisturbed cover. (Forestwide)*

Plan at 27.

This is an important standard. However, it must be clear what "manage" means in order to provide unambiguous direction. Additional strategies could then be described in management approaches. Restrict grazing until the completion of sage-grouse breeding and nesting period, and seasonally remove livestock from late brood-rearing habitat to allow sufficient regrowth of native grasses to ensure adequate residual height.

> ***G-TEPC-3:*** *To limit impacts to Gunnison sage-grouse habitat:*
>
> - *Design projects or activities to mitigate or avoid the direct or indirect loss of habitat necessary for maintenance of the local population. …*
> - *Ensure livestock grazing is compatible with nesting and brood-rearing objectives in sage habitats and riparian areas.*

Plan at 24-25

This is potentially an important guideline, but it must be modified. The proposed plan has provided no "nesting and brood-rearing objectives." What are these objectives? Native, perennial grass cover must exceed 7.5 inches during nesting and brood-rearing season, in accordance with the BASI, and this must be a standard. Livestock grazing should be restricted where cheatgrass (*Bromus tectorum*) occurs in sagebrush (Reisner et al. 2013; Chambers 2008; Reisner 2010). Utilization levels should not exceed 25 percent annually on uplands, meadows, flood plains and riparian habitat (Holecheck et al. 2010; BLM & USFS 1994).[44] This guideline must be linked to a DC that is clear and specific about the ecological conditions necessary to achieve integrity for the sagebrush ecosystem. It's not enough to "maintain" the local population. The RGNF must work toward restoring conditions and recovery of the population.

> ***MA-RNG-1:*** *After all other solutions have been extensively considered, remove livestock from the grazing unit or allotment when further utilization on key areas will exceed allowable-use criteria, allotment management plan guidance, or annual operating instructions. Damage from use can result from many things including but not limited to wildlife, recreation, flooding, and livestock grazing, none of which should push the use beyond what is allowed. (Forestwide)*

This should be a standard. See our comments on this under Specific Issues with Forest-wide Management Direction.

Additionally, we recommend plan components that support limits on winter grazing to enable sufficient residual grass height for nesting for the next breeding season (See *W. Watersheds*

[44] "A community is considered to be at its natural potential when the existing vegetation is between 75-100 percent of the site's potential natural plant community." BLM & USFS 2004: 3-26.

Project v. Salazar, 843 F.Supp.2d 1105, 1115 (D. Idaho 2012), *citing* Braun (2006, unpublished); *W. Watersheds Project v. Dyer*, 2009 WL 484438, at * 21 (D. Idaho 2009)). Components are also needed to provide direction to avoid new structural range and livestock water developments in essential habitat, and institute best management practices to prevent, or limit and mitigate, the potential spread of West Nile virus (SGNTT 2011: 17).

Ground disturbing activities by humans. Sage-grouse require sagebrush-dominated landscapes containing minimal levels of anthropogenic disturbance. Ninety-nine percent of remaining active sage-grouse leks were in landscapes with less than 3 percent disturbance within 5 km of the lek, and 79 percent of the area within 5 km was in sagebrush cover (Knick et al. 2013).

> ***S-WLDF-1:*** *Avoid or minimize disturbances as much as possible during the local nesting season (April 15 – July 1 for most passerine birds). Evaluate the effects of projects and activities on migratory and resident birds, with a focus on species of management concern (species of conservation concern, and birds of conservation concern identified by the U.S. Department of Interior Fish and Wildlife Service). Consider important life history needs such as nesting requirements, post-fledging areas, and stop-over habitats. Incorporate conservation measures and principles, as applicable and needed, from local bird conservation plans (e.g., Colorado Bird Conservation Plan, Rio Grande National Forest Avian Monitoring Analysis documents) and/or other references into project design to eliminate or minimize potential adverse effects. (Forestwide)*

Plan at 26-27.

Define what "disturbance" means for this DC. Change the first sentence to: "Avoid disturbances during the local nesting season (April 15 – July 1 for most passerine birds) as needed to contribute to recovery of sage-grouse and the viability of Brewer's sparrows and protect other breeding birds." Be specific about which "conservation measures and principles" should be followed from the listed documents. The BASI demonstrates the importance of limiting surface disturbance to less than 3 percent per section in habitat (SGNTT 2011: 21, 24; Holloran 2005; Doherty et al. 2010; Doherty 2008).

Energy development. The proposed plan does not provide adequate direction for protecting sagebrush and sage-grouse and Brewer's sparrows. There should be no surface occupancy associated with energy development in sagebrush habitat (Moynahan et al. 2007; Walker 2007; Doherty et al. 2008; Carpenter et al. 2010).

> ***MA-WLDF-21:*** *Locate and design wind energy structures to minimize or prevent wildlife mortality. (Forestwide)*

Plan at 30.

Exclude renewable energy development in sage-grouse habitat as recommended by the BASI (SGNTT 2011: 13; Jones 2012). If development is permitted (e.g., valid existing rights), locate turbines and infrastructure at least four miles from sage-grouse leks (Manville 2004; Jones 2012). Do not site wind energy development in or adjacent to sage-grouse wintering areas.

Invasive plants. Pinyon-juniper encroachment and the spread of the non-native, annual cheatgrass are detrimental to sagebrush and incompatible with sage-grouse and Brewer's sparrow occupancy.

G-TEPC-3: *To limit impacts to Gunnison sage-grouse habitat:*

- *Design fuels treatment objectives to protect existing sagebrush ecosystems, modify fire behavior, restore native plants, and create landscape patterns that benefit habitat. (Forestwide)*

Plan at 24-25.

The guideline is necessary but does not provide sufficient specificity to allow for project-level direction. Develop plan components that provide direction for the following, based on BASI: In areas of pinyon/juniper, avoid treating old-growth or persistent woodlands. In areas where sagebrush is prevalent or where cheatgrass is a concern, utilize mechanical methods rather than prescribed fire. Prohibit prescribed fire in sagebrush steppe with less than 12 inches annual precipitation (SGNTT 2011: 26, *citing* Connelly et al. 2000; Hagen et al. 2007; Beck et al. 2009) or areas with moderate or high potential for cheatgrass incursion (Miller et al. 2011). Prohibit herbicide application within 1 mile of sage-grouse habitats during season of use; prohibit use of insecticides (Blus et al. 1989). Restore non-native seedings with native vegetation where it would benefit sage-grouse (SGNTT 2011: 16-17).

Roads and power-line rights of way. The proximity of transmission lines was, among other factors, predictive of nest location for common ravens in/near sagebrush steppe. The research supports other findings that transmission lines provide favorable conditions for ravens, a predator of sage-grouse. (Howe et al. 2014)

MA-INFR-8: *Manage road use by seasonal closure if:*

- *Use is causing unacceptable damage to soil and water resources due to weather or seasonal conditions*
- *Use is causing unacceptable wildlife conflicts or habitat degradation*
- *Use is resulting in unsafe conditions due to weather conditions*
- *The road(s) serve a seasonal public or administration need*

- *The area accessed has seasonal need for protection or non-use. (General Forest Geographic Area, Specially Designated Geographic Area)*

Plan at 61.

To protect sagebrush and associated at-risk species from road effects, specific plan components—not merely management approaches—must be developed based on the BASI. See below:

- Exclude new rights-of-way in sagebrush habitat (SGNTT 2011: 12).

- Develop valid existing rights-of-way in essential habitat in accordance with National Technical Team report prescriptions (SGNTT 2011: 13).

- Limit motorized travel to designated routes trails in essential habitat (SGNTT 2011: 11). Implement appropriate seasonal restrictions on motorized travel to avoid disrupting sage-grouse during season of use (Holloran 2005; Aldridge et al. 2012).

- Close existing trails and roads to achieve an open road and trail density not greater than 1 km/1km^2 (.6 mi/.6 mi^2) in sage-grouse habitat (Knick et al. 2013).

- Where valid existing rights-of-way are developed, restrict road construction within 1.9 miles of sage-grouse leks (Holloran 2005).

- Bury existing transmission lines in essential habitat, where possible (SGNTT 2011: 13).

- Install anti-perching devices on transmission poles and towers (SGNTT 2011: 64). Dismantle unnecessary infrastructure.

See additional comments on Infrastructure components under Specific Issues With Forest-Wide Direction.

Anthropogenic noise. Anthropogenic noise from energy development and roads can cause greater sage-grouse to avoid otherwise suitable habitat and increase stress responses in birds that do remain, which could adversely affect disease resistance, survival and reproductive success. The effects of noise from many common activities in the sagebrush biome significantly expands the human footprint on the landscape and impacts on sage-grouse (Blickley et al. 2012). The RGNF plan should have a standard that prohibits noise levels associated with any anthropogenic activity to not exceed 10 dBA above scientifically established natural ambient noise levels at the periphery of sage grouse mating, foraging, nesting, brood-rearing, and winter habitat during each season of use by sage-grouse (Patricelli et al. 2013; SGNTT 2011: 64, citing Patricelli et al.

2010). Patricelli et al. (2012) recommend measuring compliance with noise objectives at the edge of areas critical for foraging, nesting and brood-rearing rather than at the edge of the lek.

4. Additional Recommended Plan Components

Measures for ameliorating the effects of climate change on species and landscapes include increasing the size and number of protected areas, maintaining and enhancing connectivity between protected areas, and identifying and protecting areas likely to retain suitable climate/habitat conditions in the future (even if not currently occupied by the species of concern). Management should also repulse invasive species, sustain ecosystem processes and functions, and restore degraded habitat to enhance ecosystem resilience to climate change (Chester et al. 2012; NFWPCAS 2012).

Designate restoration sage-grouse habitat to focus habitat restoration efforts to extend sage-grouse habitat and mitigate for future loss of priority habitat (BLM Memo MT-2010-017). Restoration habitat may be degraded or fragmented habitat that is currently unoccupied by sage-grouse, but might be useful to the species if restored to its potential natural community. Restoration habitat should be identified in management planning based on its importance to sage-grouse and the likelihood of successfully restoring sagebrush communities (Meinke et al. 2009; Wisdom et al. 2005a). Effective restoration requires a regional approach (e.g., sub/regional EISs) that identifies appropriate options across the landscape (Pyke 2011). Passive restoration is preferred for restoring these areas over active restoration methods.

Although cooperation among many federal and state agencies and private land owners will be necessary to conserve sage-grouse and sagebrush habitat (Stiver et al. 2006), the federal government and federal public land are key to achieving these goals. Federal agencies must prioritize sagebrush conservation if sage-grouse are to persist (Connelly et al. 2011a).

5. Unauthorized Motorized Use In Gunnison Sage Grouse Habitat

A small population of Gunnison Sage Grouse (*Centrocercus minimus*) may exist near Poncha Pass. This species is critically imperiled on a global scale, and was listed as a threatened species by the US Fish and Wildlife Service in November of 2014.

There are 5060 acres of Forest land near Poncha Pass considered to be part of the overall range of this species. DEIS at 219.

We believe significant unauthorized motorized use on Forest land is resulting in negative impacts to Gunnison sage grouse and grouse habitat near Poncha Pass.

We conducted field surveys by walking routes on the ground within Colorado Parks and Wildlife identified Gunnison Sage Grouse overall range in the 2016 and 2017. We located and documented over 30 separate undesignated routes, totaling approximately 12.5 miles, that are being used by motorized vehicles on Forest land in this area.

One area, south of the Decker Creek road #990, contains a high density of unauthorized routes within a Colorado Parks and Wildlife identified Gunnison sage grouse production area. The density unauthorized routes exceeds 1.2 miles of route per square mile in this area.

None of these routes are legally open to public motorized use according to the most recent 2016-2018 Motor Vehicle Use Map for the Saguache Ranger District. This map indicates that there are only five designated system roads, totaling approximately 4.5 miles in length, within this area. Thus, there are 2.8 times more miles of unauthorized motorized use occurring within this area than miles of legal motorized use.

It is not known if any of these routes are permitted (e. g., by special use) or administrative routes. Some may be decommissioned or closed Maintenance Level 1 forest roads. We did not observe any informational signage on the ground that would inform the public that these routes were not available to public motorized use. We did observe a few gates on routes at the forest boundary, but these gates were all open, unlocked, and there was no evidence of locks or chains being used on these gates. Regardless of the above, all of these routes are still receiving regular motorized use by the public.

There are a few routes on the ground which may receive authorized or permitted motorized use, but we did not observe evidence of unauthorized public motorized use.

GIS data detailing this unauthorized motorized use is attached (see Exhibit 6), and depicted in the enhanced aerial image below.

This unauthorized motorized use has probably resulted in adverse effects to grouse in this area which has not been fully considered and assessed in the DEIS. It may have caused the apparent near-disappearance of the Poncha Pass area population. See DEIS at 218.

The DEIS states:

> Use of existing, designated routes will not cause further harm to current sage-grouse habitat, but may harass any remaining birds. There is a moderate chance of some adverse effect resulting from unintentional harassment by motor vehicle users and other recreationists; however, this risk is not new and was analyzed when the reintroductions were planned.

DEIS at 221. The plan only considers harassment to grouse from the use of motorized system routes, but impacts from unauthorized routes has not been fully considered.

We agree that:

> illegal off-route travel by off-highway vehicles continues to be a problem on the Forest, as well as on many other federal lands. Most of this occurs in the form of short-distance loops or spurs off existing routes, especially in riparian areas. These have the same impacts as those of planned routes and may have additional, more severe, impacts due to their unplanned nature.

DEIS at 239. Although we documented some short unauthorized routes in this area, others exceeded 1.8 miles in length and loops exceeding 2 miles in length are being used.

The following negative effects are likely occurring due to the presence and use of these routes:

- loss of and degradation of habitat due to route presence and disturbance on the ground(see Trombulak and Frissell 2000; Connelly et al. 2011)
- increased noise disturbance (Blickley et al. 2012)
- facilitation of overnight occupancy and use from dispersed motorized camping, which results in additional impacts including noise, loose dogs, human presence, recreational target shooting, etc.
- spread of invasive species
- impacts to waterways and riparian areas
- fragmentation of habitat due to routes extending into what otherwise would be solid blocks of habitat
- a high route density
- facilitation of additional human presence, both motorized and non-motorized, as a route on the ground permits additional, easier, and more widespread access.

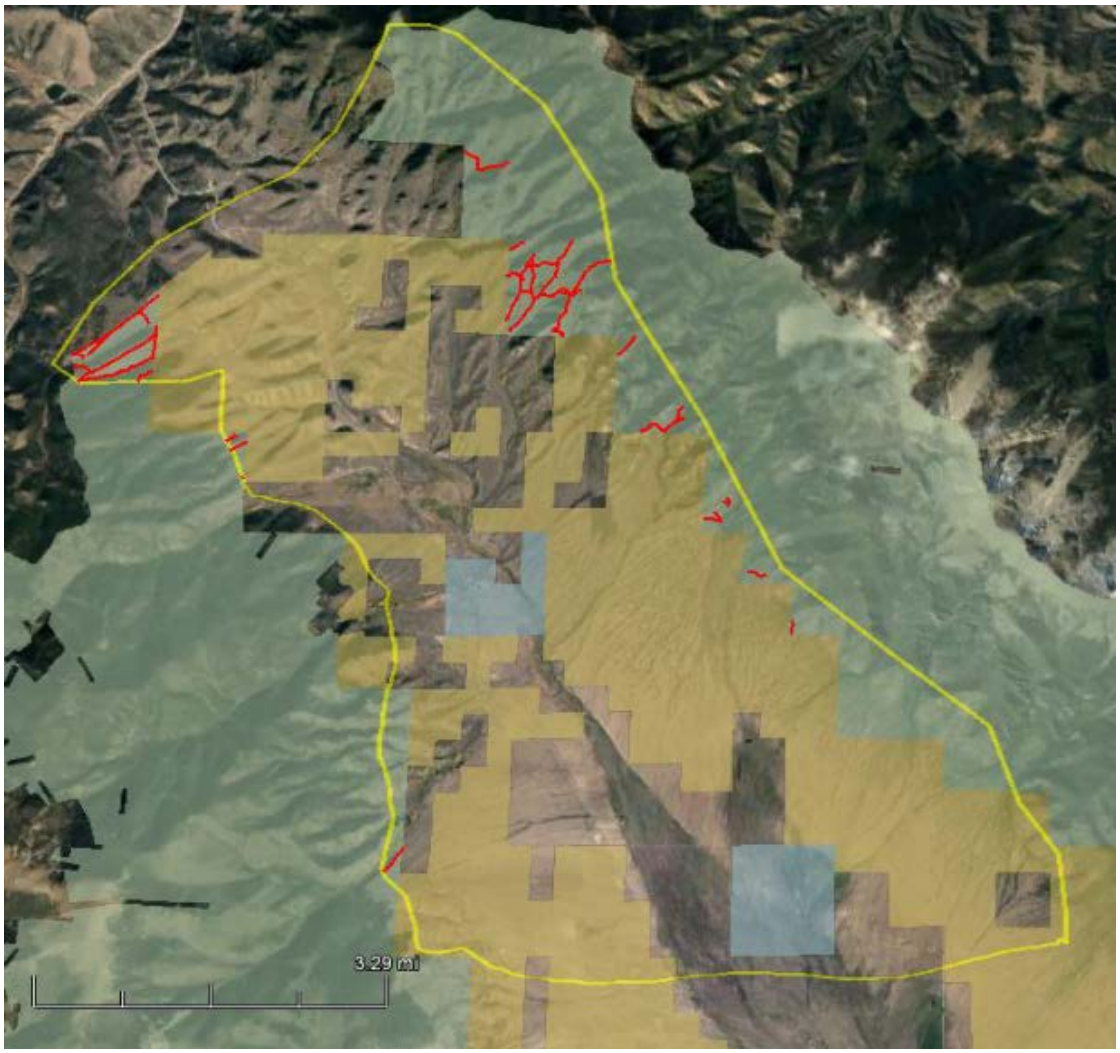
We believe that the volume, extent and intensity of this unauthorized motorized use was not fully analyzed when grouse reintroductions were planned. The popularity of OHV use has increased tremendously in the last 15 years, and this has resulted in a corresponding increase in unauthorized use. Our observations indicate that unauthorized motorized use in grouse habitat on the forest has been increasing each year. Decisions by the BLM and adjacent Salida Ranger District (on the Pike-San Isabel National Forest) to add additional public OHV routes on their lands will likely result in additional use of the RGNF.

The Forest plan must include stronger language that directs the Forest to implement existing travel management decisions through the installation of signage and structures, and to close and decommission unauthorized routes. Draft Plan direction at Recreation Standard 3 currently states: “Close, rehabilitate and otherwise mitigate dispersed sites” when certain conditions are met. Plan at 65. This must be broadened to include linear undesignated routes and areas, and not simply specific sites.

Many of these unauthorized routes originate from system and non-system routes on BLM land. Some unauthorized routes originate from USFS designated roads. Other routes originated from private land, cross BLM land, and then extend into the Forest. The Forest must not depend upon the BLM or private landowners to take action to properly manage damaging unauthorized use on land under Forest jurisdiction, though it should encourage efforts by other landowners to close unneeded or damaging roads.

We agree with DEIS statements that potential wilderness designation of Forest lands in this area would be beneficial to grouse, and that this would ensure that no additional roads are constructed in this area. Id. at 222. Recommended wilderness areas in alternative B and D do not include some of the highest concentrations of unauthorized routes south of the Decker Creek Road 990.

Wilderness and other designations may be helpful, but past and future administrative decisions, do not benefit a species unless they are properly implemented and managed on the ground.



Enhanced aerial image depicting land ownership with USFS land shaded in green, 2017 Colorado Parks and Wildlife grouse overall range (yellow line) and unauthorized motorized use on USFS lands (red lines)

C. CANADA LYNX (*Lynx canadensis*)

1. The Plan's Lynx Provisions Need Clarity and Strengthening

As an initial matter, we are pleased that the DEIS states the Forest will consult under Section 7 of the ESA with the U.S. Fish and Wildlife Service (USFWS) (DEIS at 198). The Forest Service should make its Biological Assessment available to the public and should also promptly post the Biological Opinion from USFWS on the RGNF's plan revision website as soon as it is complete and received by the Forest. We look forward to seeing the result of this legally required consultation process.

The changed ecological conditions in the forest resulting from the recent multi-year, large-scale spruce bark beetle outbreak necessitate a precautionary approach to forest management, with a high priority on maintaining or restoring ecological conditions necessary to contribute to the recovery of Canada lynx (lynx). Generally, viable populations of native wildlife species are resilient to natural disturbances, even large-scale changes. The assessment presented inconsistent science regarding whether the current forest conditions are outside of their NRV based on structure, composition, function, and connectivity characteristics. Though population estimates and trend data for the Southern Rockies' lynx population do not exist, there is no indication that numbers are sufficient to consider the population viable. Given the likelihood that the population has remained small, it may be more vulnerable to perturbations, even those that occur naturally.

The management actions and projects that are within the Forest Service's control and have the potential to impact lynx and lynx habitat must only occur with extreme care and strict adherence to strong and clear direction from the forest's management plan. We are pleased that the proposed plan has retained the Southern Rockies Lynx Amendment (SRLA) plan components. Now is not the time to make radical changes in management direction. The SRLA components are necessary to contribute to lynx recovery but we are concerned that they are not fully sufficient, owing to the condition on the forest. We recommend strengthening plan components, incorporating additional direction, and modifying some definitions in the SRLA to meet the threatened and endangered species recovery requirement of the planning rule (219.9(b)(1)) (see above).

The RGNF was prudent to help support a study on the response of lynx to mass spruce tree mortality associated with the beetle outbreak. The progress report (Squires et al. 2017) providing preliminary results should inform the revision and refinement of plan components as should final results, when these are available. The study results should be considered a significant part of the BASI informing lynx direction. The progress report noted that lynx depend on forest stands of value for salvage harvest. The Squires et al. (2017) progress report noted the following:

- "Lynx actively selected forest stands with high horizontal cover and high snowshoe hares density." At 11. They tended to prefer "areas with ≥50% horizontal cover in the summer and ≥40% in the winter." At 9.
- "Lynx selected forest stands with abundant ABLA [subalpine fir] in the understory." At 11.
- "Canopy cover (live + dead) is higher in stands selected by lynx relative to random…". At 11.

- "Lynx selected forest stands with high tree (i.e., ≥3 inches DBH [diameter at breast height]) densities; generally >400 trees/acre …". At 11.
- "Abundant large live trees, and medium, large, and very large dead trees appear to be important forest components selected by lynx." At 11.
- "Live ABLA [subalpine fir] and PIEN [Engelmann spruce] tree (i.e., ≥3 inches DBH [diameter at breast height]) densities as well as beetle-killed PIEN tree densities appear to be the species-specific components selected for by lynx. At 12.

Salvaging trees in significant areas of beetle-affected spruce-fir forest could have devastating effects on lynx habitat without a comprehensive set of plan components that fully account for the changed condition. Vegetation management (e.g., timber harvest, salvage or sanitation harvest, precommercial thinning, and fuels treatment), is considered a "first tier" threat according to the RGNF's wildlife overview for the lynx (RGNF Undated, *Lynx canadensis*), which references the Interagency Lynx Biology Team's Canada Lynx Conservation Assessment and Strategy (LCAS 2013) (ILRB 2013). The LCAS 2013 provides a compilation and synthesis of the BASI up to 2013. Vegetation management can create forest openings that lynx avoid, forest fragmentation that present barriers to movement, and risks to den sites from disturbance, for example.

Other anthropogenic stressors to lynx habitat include snow compaction resulting from over-snow vehicle use and roads and trails, livestock grazing—particularly in riparian-willow areas, and disturbance to lynx from recreational activities. Management can limit the impacts of these activities. Climate change is also a stressor. With climate change impacts already apparent on the forest, it is imperative that the forest plan provide protection to lynx and lynx habitat from threats it can control.

We make the following recommendations to improve the revised plan's ability to contribute to lynx recovery.

Desired Conditions

The plan must include desired conditions for the ecological characteristics necessary for lynx recovery in relation to structural, compositional, functional, and connectivity elements of ecosystem integrity. The proposed plan includes a variety of desired conditions related to vegetation types as defined by the RGNF, including the spruce-fir forest type. However, the existing desired conditions are too vague, general, and incomplete, in the aggregate, to provide meaningful guidance and the ability to determine progress toward their achievement as required by the planning rule. For example, DC-WLDF-3 (Plan at 25) pertaining to connectivity, which states, "[s]ufficient habitat connectivity is present in each vegetation type to facilitate species movement…" must define what "sufficient" means. As we've stated elsewhere, we believe DC-VEG-4 and DC-VEG-5 (Plan at 38) should be modified to be plan guidelines; but desired conditions to retain green tree patches and maintain mature late-successional spruce-fir forest must also be developed and linked to the guidelines.

Objectives

OBJ-LYNX-1: *Over the planning period, reduce adverse highway effects on Canada lynx by working with other agencies to provide for movement and habitat connectivity, and to reduce the potential for mortality. (Forestwide)*

It is not clear which desired condition this objective is linked with.

Standards and Guidelines

Part of the proposed new standard – VEG S7 (S-LYNX-7) – is a needed addition to the existing direction for the SRLA. It recognizes that lynx are still using areas with substantial, or even complete, overstory mortality that have an understory that provides dense horizontal cover. Standard Veg S 7 (Plan at 22) would apply limitations on vegetation management in areas with less than 40 percent canopy cover that still have enough understory to provide quality lynx habitat. Importantly, however, the definition for what qualifies as a Standard VEG S7 stand is not part of the actual standard itself. We request that this definition be moved into the standard itself so that there is no ambiguity as to the nature of this definition. Additionally, the relationship between this definition and the SRLA Definition 24 for "Lynx habitat in an unsuitable condition" should be explained. We believe that SRLA definition 24 is outdated and while in part correct, should be read along with the new definition related to Standard VEG S7.

However, part 2 of this standard would allow salvage harvest "when incidental damage to understory and standing green trees is minimized." "[M]inimized" is not defined. Damage to the understory during project implementation should not be allowed unless the lynx habitat remains suitable with no loss of quality, and that it will remain connected to adjacent habitat. Similarly, any damage to live trees must be minimized.

Additionally, the standard does not describe who has the obligation to minimize damage. Is the burden on the Forest Service in designing salvage projects? Or is the burden only on the third-party operator to minimize damage as they implement the activity, and if so, what is the penalty for non-compliance?

The VEG S7 standard should also be modified to clearly define whether the 200-foot vegetation management zone articulated in the standard's paragraph 1 applies to all recreation sites, as defined by the Plan at 138, or to either dispersed recreation sites or developed recreation sites. While we understand that this language tracks the language in SRLA Standard VEG S6, we would encourage the Forest to eliminate ambiguity. We also encourage the Forest to have the 200-foot vegetation management zone only apply to developed recreation sites.

Additionally, we believe this standard does not do enough, and additional direction must be added to the standard or additional standards must be developed. The Squires et al. (2017) progress report demonstrated the importance of retaining live trees in lynx habitat, and a standard that will accomplish that is necessary. There are important conservation measures included in the LCAS (ILBT 2013: 86-96), based on BASI, that have not been incorporated in the Plan. For example, there is additional direction to prevent or limit: impacts of recreation (ILBT 2013: 94), forest/backcountry roads and trails (ILBT 2013: 94), and livestock grazing in riparian-willow areas (ILBT 2013: 94). Furthermore, several of the lynx-related Management Approaches are

written as if they were standards, and should be reframed as standards in the final Plan. We discuss those in the section related to Management Approaches below.

The Supplement to Standard S1 (Plan at 24) should be clarified to reflect that this is a supplement to Standard VEG S1.

With regard to the existing SRLA requirements that are being incorporated into the revised Plan, we offer several suggestions for improvement of the SRLA to modernize it and reflect the best available scientific information.

SRLA Standard VEG S2 must be amended to reflect the new definition for unsuitable habitat found in what the draft Plan lists as MA-LYNX-2. VEG S2 specifically contemplates salvage harvest in insect-killed stands and allows such harvest to occur without contributing to the 15 percent regeneration of lynx habitat when such treatment would not change lynx habitat to an unsuitable condition, and then cites to current SRLA definition 24. The revised plan should tie the definition for unsuitable habitat to that in MA-LYNX-2 to ensure that there is no loophole allowing logging of what we now know is suitable lynx habitat.

We also recommend that certain SRLA guidelines be upgraded to standards. In particular, we believe that SRLA Guidelines VEG G5 and VEG G11 should be standards. Given that MA-LYNX-2 seems intended to protect primary prey habitat (i. e., for hare), the SRLA Guideline VEG G5, which seeks to protect secondary prey habitat, should be a standard. Guideline VEG G11, which relates to lynx denning habitat, should also be a standard.

Denning habitat is vitally important for lynx, and seems to be overlooked in many Forest Service planning processes in lynx habitat. The USFWS discussed the importance of denning habitat to lynx, and included denning habitat as a Primary Constituent Element "that provide[s] for a species' life-history processes and [is] essential to the conservation of the species" when determining which lands should be designated as Canada lynx critical habitat. 79 Fed. Reg. 54782, 54811-2 (Sept. 12, 2014). USFWS explained that "a feature or habitat variable need not be limiting to be considered an essential component of a species' habitat. Both denning and matrix habitats are essential components of landscapes capable of supporting lynx populations in the DPS because without them lynx could not persist in those landscapes." 79 Fed. Reg. at 54786.

Because lynx denning habitat "is an essential component of the boreal forest landscapes that lynx need to satisfy a key life-history process (reproduction)," USFWS identified "denning habitat to be a physical or biological feature needed to support and maintain lynx populations over time and which, therefore, is essential to the conservation of the lynx [distinct population segment]." 79 Fed. Reg. at 54810. The LCAS also notes: "Maintaining good quality and distribution of denning and foraging resources within a LAU will help to assure survival and reproduction by adult females, which is critical to sustain the overall lynx population." LCAS at 87. Given the clear and undeniable importance of denning habitat to lynx, SRLA Guideline VEG G11 should be converted to a standard (reword "should" to "must") in the revised Plan. Not only should the Forest do this of its own accord, but it is also required to do so given the 2012 planning rule's

requirements related to recovery of ESA-listed species, as discussed elsewhere in these comments.

Management Approaches

As discussed above, management approaches are optional plan content intended to describe strategies or priorities, relate to desired conditions, and describe processes such as inventory and monitoring (FSH 1909.12.22.4). They are meant to provide additional clarity and detail. Several of the following management approaches are confusing and don't seem to provide any additional guidance regarding how to meet desired conditions. Additionally, some of the management approaches highlight areas that would be appropriate for inclusion in the monitoring program.

We believe and appreciate that some of the provisions captured in these management approaches are meant to guide vegetation management activities and salvage harvest projects now, under the existing plan. However, they must comply with the requirements of the 2012 planning rule for the plan revision.

Most importantly, management approaches are not regulatory mechanisms. If any are necessary to contribute to lynx recovery, they must be revised to meet planning rule requirements for plan components and incorporated into the plan as components.

> ***MA-LYNX-1:*** *The Forest intends to use existing lynx habitat baseline conditions or other existing information, new science, data, and/or analysis tools to assess whether a lynx analysis unit meets Southern Rockies Lynx Amendment standards S1 (30 percent total unsuitable limit) and S2 (15 percent management induced unsuitable limit over 10-year period). If the limit for either standard is attained, further conversion to unsuitable (stand initiation) cannot occur unless a site-specific plan amendment is developed. (Forestwide)*

This list: "existing lynx habitat baseline conditions or other existing information, new science, data, and/or analysis tools" does not assure that information sources and methodologies will be based on BASI. In fact, the approach may be undermining the BASI requirement or any scientifically accepted method for selecting the most accurate and highest quality of information and analysis. For example, "data" sets no acceptable scientific threshold for quality relative to other available data. Once this list is updated to properly incorporate planning rule requirements related to BASI, this information should all be included in the monitoring program, so that the Forest has an official process by which to continuously monitor and report related to these changes.

The second sentence seems to restate the requirements of Standard VEG S1 and VEG S2. It's not clear what the purpose of this management approach is. A management approach cannot set a threshold for when a standard cannot be met that would trigger a plan amendment.

> ***MA-LYNX-2:*** *Definitions used to determine suitable versus unsuitable lynx habitat due to the conditions associated with the spruce beetle outbreak are:*

- *Unsuitable habitat: stands with less than 25 percent live (green) canopy without understory that provides at least 20 percent horizontal density (e.g., 1 to 3 meters above average snow depth or snowshoe hare winter foraging habitat condition).*

- *Suitable habitat: stands that have greater than 25 percent live canopy with or without understory, or stands that contain 0 to 25 percent live canopy and understory trees that provide at least 20 percent horizontal density in winter snowshoe hare foraging habitat condition. (Forestwide)*

Based on the BASI, these two definitions are necessary to contribute to lynx recovery; they seem to be intended to help maintain habitat for snowshoe hares – lynx primary prey. However, as with the other definitions for terms referenced in the SRLA, these definitions must be tied to specific plan components. The definition for "suitable habitat" is new and not tied to any plan components. For it to truly take effect, it must be incorporated into and referenced by a SRLA standard or a new standard specific to the Plan. If "unsuitable habitat" is intended to substitute for "lynx habitat in an unsuitable condition," defined in the SRLA (Southern Rockies Lynx Management Direction, Record of Decision, October 2008, Attachment 1-12), the mechanism for making that change must be explained and appropriately documented in the plan.

We recommend the two definitions be re-developed as standards to assure that they will serve as regulatory plan direction. The new standards must show the direct linkages between the SRLA plan components and the new definitions. The plan must show how the definitions will be applied with sufficient clarity to enable project planners to understand how they are to serve as management direction.

We understand MA-LYNX-2 is intended to provide direction that would allow for making changes without amending the plan. We appreciate that definitions related to lynx direction may need to change when the Squires et al. study is finalized and when other science indicates other necessary changes. However, in the case of changing plan direction that might change how management could affect habitat for a federally threatened species, an amendment is the most appropriate, and likely necessary, mechanism for modifying plan direction.

Finally, we recommend that the phrase "due to the changed conditions associated with the spruce beetle outbreak" be changed to "on the Forest." These definitions should apply regardless if a stand has been struck by spruce beetle kill or some other event that decreases canopy cover or horizontal density, such as fire, a different insect outbreak, windthrow, climate change, or vegetation management. Although spruce beetle outbreak is indeed the largest landscape level changed condition that the Forest is currently dealing with, it is unlikely to be the only changed condition that the Forest experiences during the life of the revised Plan, and therefore should anticipate that its provisions will apply to other situations as well.

> ***MA-LYNX-3:*** *Prioritize the placement of snag clumps and/or other leave areas around good or high-quality winter foraging habitat to meet multiple wildlife habitat objectives. (Forestwide)*

This is written as a plan standard, and likely should be a plan standard with some modification. For example, "good" and "high-quality winter foraging habitat" must be defined. It is not clear if these concepts are meant to be different or synonymous. To which proposed plan objectives is this referring? The "multiple wildlife habitat objectives" must be spelled out in the plan. Furthermore, it is questionable that the Forest Service could reasonably meet MA-LYNX-3 because it lacks the necessary information on the location of good or high-quality winter foraging habitat, whatever those are, across the forest, thereby negating its ability to prioritize placement of snag clumps and/or other leave areas near such areas. The Forest Service should define what good and high-quality winter foraging habitat is, and also add "good-quality foraging habitat" and "high-quality winter foraging habitat" to the monitoring program so that the Forest identifies where this habitat exists, keeps it up to date based on changing conditions, and then is able to use it to identify priority placement of snag clumps and/or other leave areas.

> ***MA-LYNX-4****: Under the landscape conditions associated with the spruce beetle outbreak, additional considerations may be needed to provide for habitat connectivity within and between lynx analysis units. These considerations include: …*

The RGNF's Canada lynx overview makes clear that habitat connectivity between and within LAUs is a necessary condition for recovery (RGNF undated, *Lynx canadensis*), and this is supported by the 2013 LCAS (ILBT 2013: 93). The importance of protecting areas that enable lynx movement between core habitat areas is supported by a great body of science, including several recent studies that should further inform the plan (c.f., ILBT 2013; Squires et al. 2013; Kosterman 2014; Holbrook et al. 2017; Vanbianchi et al. 2017). Therefore, the bulleted points must be more than mere considerations. The threshold or trigger for when and where this direction is "needed to provide for habitat connectivity" should be specified. We have some concerns about the four bullet pointed "considerations," and these must be clarified.

- *Assessing habitat connectivity at multiple scales at the project level. Recommended foundation for assessment is an established sub-basin (e.g. 8th-level hydrologic unit code).*

It's not clear what this means. The various scales must be specified (e.g., the patch-scale, the LAU-scale, the project-scale?). What is the rationale for the HUC-8 foundation for this assessment?

- *Use remaining and recently changed late successional stands as foundations for connectivity patches. Recognize that both stand and landscape-level patches may be influential.*

This is written as a standard and should be modified to be a standard. It implies plan direction but does not provide sufficient information for a project planner to apply the provision. The second sentence is vague to the point of being meaningless. What does "influential" mean, for example? Influential on what? If influential, what does that mean for project planning and implementation? Furthermore, the phrase "recently changed" should be clarified as we assume the intent is recently changed as of now, but readers of the plan in 2025 may have a different view of what "recently changed" means.

- *Consider using some stream corridors for movement within and between the planning area and lynx analysis units. Stream corridors that are intended to provide functional habitat connectivity for lynx and other meso-carnivores should be at least 400 to 600 feet wide in total, and designed to promote movement within and between suitable habitat patches, sub-watersheds, and lynx analysis units, where desired based on existing landscape conditions.*

This management approach seems like it could be helpful. It reads like a guideline, and we recommend modifying it to be a guideline. It's not clear what "using" means. Are the 400-600 feet wide (minimum) corridors to become corridors through management activities? Appropriate terminology based on planning rule language would be "maintaining or restoring" with details on how to identify and protect such corridors. For example, how would these stream corridors be maintained or restored in places where livestock grazing or impactful recreational activities occur?

- *Recognize contiguous understory patches of 0.5 acre or larger as particularly valuable to snowshoe hare densities. (Forestwide)*

Specify the plan component linked to this management approach. The word "[r]ecognize" is vague here and conveys no guidance in terms of strategy or prioritization, etc. Clarify the intent of this statement.

Finally, we recommend that the phrase "associated with the spruce beetle outbreak" be deleted. These items should be considered now in response to the spruce beetle outbreak, but should also apply in the future to other potential events in the future that may be broader than the spruce beetle outbreak. Although the spruce beetle outbreak is indeed the largest landscape level changed condition that the Forest is currently dealing with, it is unlikely to be the only changed condition that the Forest experiences during the life of the revised Plan, and therefore should anticipate that its provisions will apply to other situations as well.

> ***MA-LYNX-6:*** *Where desired, based on use information or other local conservation criteria, provide additional considerations for lynx denning habitat and/or known current or past denning areas. These considerations include: …*

As has been recommended in previous comments (see Defenders of Wildlife's scoping comments on the RGNF's Proposed Action, October 28, 2016) that denning areas and known den sites must be better protected by plan components, including standards, given the changed forest condition. The introductory language is also vague and leaves too much room for interpretation down the road. For example, the phrase "where desired" implies that there could be scenarios where the Forest Service does not care about lynx denning habitat and would choose to ignore these considerations. The phrase "where needed" or "where denning habitat is degraded" would improve this provision. Similarly, the phrase "local conservation criteria" is vague and open to too much interpretation. The Forest must be more specific. <u>It is vitally important that this be rewritten as a standard</u>, as it is highly doubtful any project planner would incorporate these considerations if given the leeway provided by the phrase "where desired."

- *Use existing den site layer to inform historic and potential denning activity during management activities, as needed.*

What is the "existing den site layer"? This management approach must be clarified to enable the public to understand what this means. This may be an appropriate management approach with some necessary details and specificity.

- *Use local denning model to inform presence and extent of potential denning habitat. Combine with local knowledge and field review to define potential high-quality denning habitat.*

Our recommendation for the management approach direction just above applies to this management approach as well.

- *Protect known or potential high quality denning habitat through considerations for habitat connectivity, snag patch leave areas, or through suitable lynx habitat retention needs.*

This is direction that is necessary to contribute to lynx recovery. It is written as a standard, and must be a standard in the revised plan. And "protect" must be defined in a way the project planners can apply it.

- *Recognize that lynx may use several maternal den sites in the vicinity of a natal den until the post-denning period (August). Provide for continuing availability of lynx foraging habitat in proximity to denning habitat where applicable.*

Again, this should be a standard. The language must be modified to meet the requirements of a plan standard. For example, project planners must do more than "recognize." This is supported by conservation measures recommended in the 2013 LCAS (ILBT 2013: 91). Further, "provid[ing]" for continued availability of lynx foraging habitat is too vague and needs additional clarification so that it can be a useful provision for project planners.

Monitoring and Reporting

The SRLA imposes several reporting requirements on the Forest Service regarding its implementation of the SRLA. The Forest should ensure that in the final revised plan, it is clear that any monitoring and reporting obligations related to SRLA implementation or deviations from SRLA guidelines do not just extend to the provisions listed in the SRLA itself, but should be expanded to include anything related to items in the Plan. While the USFWS may not technically require that as part of the SRLA, the Forest should still endeavor to do this as a partner in lynx recovery.

The draft Plan's monitoring program contains several requirements for USFS monitoring, including several related to Canada lynx. And while the list in the proposed plan is a good start, the Forest should fine tune the monitoring program to reflect the various lynx-specific

components so that it can ensure that accurate, up-to-date information is available to project planners and the public. In particular, while the broad monitoring questions seem to cover a wide-variety of potential items to monitor, the indicators that are actually monitored are relatively limited. Any habitat metric that is mentioned in a standard, guideline, objective, desired condition, or management approach should be tied to the monitoring program in some way. Some missing indicators that should be included are:

- Acres/Location of suitable/unsuitable lynx habitat.
- Acres/Location of good/high-quality lynx denning habitat
- Acres/Location of disturbance and management actions for lynx linkage areas and areas identified as providing connectivity between lynx analysis units.

2. The DEIS Analysis is Inadequate

The DEIS for the Rio Grande National Forest Revised Land Management Plan lacks sufficient analysis of the effects of the revised Forest Plan on a variety of wildlife species, but in particular Canada lynx. As an initial matter, the DEIS repeatedly directs readers to a wildlife report, but fails to identify where it can be found, its title, its author, or a website where a reader might find it to see any additional analysis contained therein. For example, the DEIS at page 214 states: "More detailed consideration of the effects of vegetation management on lynx habitat can be found in the wildlife report in the project record." However, review of the RGNF's forest plan revision website does not contain any such document, nor is one included in the references section of the DEIS.

The approach taken by the Rio Grande National Forest does not meet the planning rule's emphasis on transparency in the plan revision process. Without identifying with particularity what document this is referencing, where it can be found, and actually making it available to the public, the Forest is violating NEPA's primary goals: to inform to the public of the potential environmental impacts of its actions before making a decision. Nor can the Forest rely on anything contained in the wildlife report because it has not met NEPA's requirements for incorporation by reference, which requires "incorporated material [to be] cited in the statement and its content briefly described" and additionally the material must be available for inspection by interested persons. 40 C.F.R. § 1502.21.

We did, however, request the Wildlife Report from the Forest Service and were provided with an expanded, but draft, version of the DEIS Chapter 3 effects on wildlife section that appeared to be a draft (containing track changes and comment bubbles from USFS staff). The language in the DEIS implies that there was a separate and finalized Wildlife Report containing additional analysis – in our mind, similar to a Biological Evaluation or Wildlife Specialist Report prepared for a project-level NEPA analysis. We were disappointed to discover that there is no such document, but rather only an early draft version of a DEIS chapter section (though admittedly, containing more information than the eventual DEIS).

Even though this document was provided promptly to us on request, we still assert that the Forest Service has not made the Wildlife Report available to the public and it has also failed to comply

with the NEPA requirements for incorporation by reference. The Forest Service cannot rely on any information contained within the purported Wildlife Report to meet its NEPA obligations to analyze the direct, indirect, and cumulative impacts of the new forest plan.

The Rio Grande National Forest represents some of the best Canada lynx habitat in Colorado. As such, it is vitally important that the RGNF employ the precautionary principle and ensure that the Forest is providing conditions conducive to lynx recovery. Of particular concern is that the RGNF is in the middle of very important lynx habitat in Colorado, both for resident populations, and serving as a corridor for lynx movement into northern New Mexico. Theobald and Shenk (2011) show that the Forest overlaps with areas of high, moderate, and low intensity lynx use (based on data generated from 1999-2010). *See* Theobald, David and Shenk, Tanya, Areas Of High Habitat Use From 1999 - 2010 For Radio Collared Canada Lynx Reintroduced To Colorado (March 31, 2011) at 11. Ivan (2012) similarly shows that predicted winter *and* summer use by lynx in the Project area is incredibly high. Ivan, Jake et al., Predictive Map Of Canada Lynx Habitat Use In Colorado (2012).

Although the U.S. Fish and Wildlife Service declined to designate lynx critical habitat in Colorado, Dr. Tanya Shenk – one of the leading lynx researchers in Colorado – stated that Colorado, including the Project area, "may serve as one of the best 'higher elevation habitats within the range of the DPS [distinct population segment] that would facilitate long-term lynx adaptation to an elevational shift in habitat should one occur.' As such, the Southern Rocky Mountains, including areas in Colorado, northern New Mexico and southern Wyoming should be included as critical habitat." Shenk, Tanya, Peer Review Comments On Revised Designation Of Critical Habitat For The Contiguous U.S. Distinct Population Segment Of The Canada Lynx And Revised Distinct Population Segment Boundary, Communication to Jim Zelenak–USFWS (January 29, 2014). This all underscores the importance of the Rio Grande National Forest to Canada lynx, and counsels extreme caution in undertaking any management activities that may be detrimental to this important threatened species.

NEPA has dual goals: it "is intended to foster 1) informed agency decision-making and 2) informed public participation in the agency decision-making process." *Sierra Club v. U.S. Forest Service*, No. 1:09-vs-131 (March 7, 2012) (citing *Citizens' Comm. to Save Our Canyons v. Krueger*, 513 F.3d 1169, 1177-78 (10th Cir. 2008)). NEPA imposes an obligation on the Forest Service to disclose and analyze environmental information and consequences of federal action. *Baltimore Gas & Elec. Co. v. Nat. Res. Def. Council*, 462 U.S. 87, 97 (1983) (agency must take a "hard look" at environmental consequences before taking action). "The purpose of the 'hard look' requirement is to ensure that the 'agency has adequately considered and disclosed the environmental impact of its actions and that its decision is not arbitrary and capricious.'" *Colo. Envtl. Coal. v. Salazar*, 875 F. Supp. 2d 1233, 1250 (D. Colo. 2012) (citing *Baltimore Gas & Elec. Co.*, 462 U.S. at 97).

Federal "[a]gencies must 'take a hard look at the environmental consequences of proposed actions utilizing public comment and the best available scientific information.'" *Biodiversity Cons. Alliance v. Jiron*, 762 F.3d 1036, 1086 (10th Cir. 2014) (internal citation omitted). This

hard look "assessment of all 'reasonably foreseeable' impacts must occur at the earliest practicable point, and must take place before an 'irretrievable commitment of resources' is made." *Colo. Envtl. Coal. v. Ofc. of Legacy Mgmt.*, 819 F. Supp. 2d 1193, 1208 (D. Colo. 2011) (citing *New Mexico ex rel Richardson v. Bur. of Land Mgmt.*, 565 F.3d 683, 718 (10th Cir. 2009) reconsid. granted in part on other grounds, 2012 WL 628547 (D. Colo. Feb. 27, 2012). "An agency meets the 'hard look' requirement when it has 'made a reasoned evaluation of the available information and its method was not arbitrary or capricious.'" *Jiron*, 762 F.3d at 1086 (internal citation omitted).

An EIS must "furnish such information as appears to be reasonably necessary under the circumstances for evaluation of the project." *Utahns for Better Transp. v. U.S. Dep't of Transp.*, 305 F.3d 1152, 1176 (10th Cir. 2002). *See also Hillsdale Envtl. Loss Prevention, Inc. v. U.S. Army Corps of Eng'rs*, 702 F.3d 1156 (10th Cir. 2012) ("NEPA imposes procedural, information-gathering requirements on an agency"); *Nat'l Parks & Conservation Ass'n v. Babbitt*, 241 F.3d 722, 731 (9th Cir. 2001) ("The purpose of an EIS is to obviate the need for speculation by insuring that available data are gathered and analyzed prior to the implementation of the proposed action."). As explained throughout this comment subsection, the Forest Service fails to provide necessary baseline information to allow for informed, meaningful public comment.

NEPA statutory standards found in Council on Environmental Quality (CEQ) regulations recognize that intelligent decision-making can only derive from high quality information. *See* 40 C.F.R. §§ 1500 *et seq*. "Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in [EISs]." 40 C.F.R. § 1502.24. Information included in NEPA documents "must be of high quality. Accurate scientific analysis . . . [is] essential to implementing NEPA." 40 C.F.R. § 1500.1(b). If an agency has outdated, insufficient, or no information on potential impacts, it must develop information as part of the NEPA process or in the very least explain the lack of information. The draft Plan and DEIS do not meet this standard. At a minimum, the Forest must more adequately explain what information it has, what information it lacks, and why it cannot obtain any lacking information, especially as it relates to Canada lynx and the baseline conditions for its habitat on the RGNF.

Specifically, NEPA requires the Forest Service to disclose and analyze the direct, indirect, and cumulative impacts and consequences of its activities. 40 C.F.R. §§ 1502.16(a), 1502.16(b), 1508.25(c), 1508.27(b)(7). Direct effects include those "which are caused by the action and occur at the same time and place." 40 C.F.R. § 1508.8(a). Indirect effects are those "which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." 40 C.F.R. § 1508.8(b). Cumulative impacts include "impact on the environment which results from the incremental impact of the action when added other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions." 40 C.F.R. § 1508.7. Importantly, "[c]umulative impacts can result from individually minor but collectively significant actions taking place over a period of time." *Id*. Largely, the DEIS fails to disclose and analyze the direct, indirect, and cumulative impacts and consequences of implementation of the revised Forest Plan, especially as it relates to Canada lynx.

Lynx avoid areas that have been clearcut, logged, and even thinned. The Interagency Lynx Conservation Assessment and Strategy (August 2013) (LCAS) includes vegetation management as one of the top four anthropogenic threats to lynx. *See* LCAS at 71. The LCAS also recognizes that managing forests to the extent that the canopy is opened discourages use of those stands by lynx. LCAS at 73. Further, reduction in horizontal cover, one of the potential results of plan implementation, degrades the quality of winter habitat for lynx. *Id*. The LCAS also notes that lynx avoid clearcut areas, especially during winter. *Id*. Dr. John Squires, a leading lynx researcher, also emphasizes the importance of maintaining and recruiting lynx winter habitat—as opposed to winter hare habitat—because that is what is most important to conserve lynx, especially in winter when lynx are most taxed. *See* Squires, John et al., Seasonal Resource Selection Of Canada Lynx In Managed Forests Of The Northern Rocky Mountains, 74 J. Of Wildlife Mgmt. 1648–1660 (2010).

The impact of forest management activities on lynx habitat frequently is limited to an analysis of effects on snowshoe hare, a primary prey species for lynx. However, lynx winter habitat may actually be more important than producing habitat for snowshoe hare. In other contexts, the Forest Service has confused these two things and has failed to analyze and disclose the effects of forest management activities on lynx winter habitat, as well as any effects on snowshoe hare. The NEPA analysis must fully disclose and analyze effects to lynx winter habitat, both in terms of retention and recruitment of lynx, and it currently does not. This violates NEPA.

Although lynx winter habitat is of great importance, the Forest Service still must analyze the effects of the project on snowshoe hare densities, including an analysis of the baseline, and of anticipated effects. Curiously, the DEIS does not discuss or analyze hare densities and how they may be impacted by the various proposed lynx provisions in the revised Forest Plan. Further, because lynx in Colorado tend to consume greater proportions of secondary prey in their diets than elsewhere, the Forest Service must thoroughly examine potential effects to lynx secondary prey, including red squirrel. The LCAS (2013) explains that, in "Colorado, 66.4±5.6% of annual documented kills by lynx (n=604) were hares, varying annually from 30.4–90.8%, while an average of 22.6±5.7% were red squirrels (Shenk 2009)." LCAS (2013) at 18. In contrast, in "Montana, Squires and Ruggiero (2007) reported that even in areas with consistently low densities (0.1–0.6 hares/ha [0.04–0.02 hares/ac]), snowshoe hares still accounted for 96% of biomass in the lynx diet, with red squirrels and grouse accounting for only 2% each of the biomass in lynx diets during winter." *Id*. Because of the particular importance of red squirrel to lynx in Colorado as a secondary prey source, the Forest Service must thoroughly examine the baseline for red squirrel abundance and habitat on the Forest, as well as anticipated effects to red squirrel populations and habitat on the Forest from implementation of the revised Forest Plan.

The DEIS is also deficient in its discussion of effects on lynx denning habitat. The U.S. Fish and Wildlife Service discussed the importance of denning habitat to lynx, and included denning habitat as a Primary Constituent Element "that provide[s] for a species' life-history processes and [is] essential to the conservation of the species" when determining which lands should be designated as Canada lynx critical habitat. 79 Fed. Reg. 54782, 54811-2 (Sept. 12, 2014). FWS explained that "a feature or habitat variable need not be limiting to be considered an essential component of a species' habitat. Both denning and matrix habitats are essential components of landscapes capable of supporting lynx populations in the DPS because without them lynx could

not persist in those landscapes." 79 Fed. Reg. at 54786. Because lynx denning habitat "is an essential component of the boreal forest landscapes that lynx need to satisfy a key life-history process (reproduction)," FWS identified "denning habitat to be a physical or biological feature needed to support and maintain lynx populations over time and which, therefore, is essential to the conservation of the lynx [distinct population segment]." 79 Fed. Reg. at 54810. As such, extensive discussion of denning habitat and effects to it from implementation of the alternatives are needed in the DEIS. The LCAS (2013) explains that areas with large amounts of dead trees can actually enhance lynx habitat in both the short term and long term:

> After large dead trees fall to the ground, they provide cover and may enhance lynx foraging habitat in the short term and potential denning habitat in the longer term, depending on post-disturbance stand conditions. Standing snags also may provide sufficient vertical structure and cover to allow lynx to traverse long distances (>1 km [>0.6 mi]) across burned habitat (Maletzke 2004).

LCAS at 76.

Because lynx denning habitat must occur near lynx foraging habitat (see LCAS at 29), the Forest Service must discuss and analyze the current state of lynx denning habitat on the Forest, especially as it relates spatially to lynx foraging habitat. Without this baseline, there can be no legitimate determination of the effects of the revised Forest Plan on lynx denning habitat. The environmental analysis should disclose (preferably on a map) and analyze what portions of the project area currently is considered to be lynx denning habitat, what portions of the project area are considered to be foraging habitat for lynx, what portions of that lynx denning habitat would be subject to treatments, what portions of lynx denning habitat would be degraded as a result of treatments, and how long it would take for degraded or destroyed denning habitat to once again become lynx denning habitat.

Importantly, the NEPA analysis must disclose what percentage of each LAU is made up of lynx denning habitat, how much coarse woody debris currently exists within the denning habitat in each LAU, or what anticipated changes to coarse woody debris in each LAU's denning habitat would result from the Project's implementation. These issues should be addressed both qualitatively and quantitatively. If the Forest Service does not have this information, it must explain what information it lacks and why it cannot reasonably obtain that information or data.

The DEIS mentions that there are four lynx linkage areas on the Forest, and then names two of them: Wolf Creek Pass and North Pass. DEIS at 209. NEPA requires that the Forest Service discuss all four linkage areas by name and location, how the lynx provisions in the draft forest plan might help protect them, and how imp[lamentation of the alternatives might impact the linkages. In particular, we recommend that the Forest Service include a map in the FEIS clearly showing all four linkage areas so that the public has a better sense of where they are located and how they might impact management of forest resources.

Similarly, there is no list of the Lynx Analysis Units (LAUs) on the Forest. This should be a necessary component of the DEIS. In addition to a list, a map of the LAU locations (which could be combined with the linkage map) would be very helpful to the public and future project

planners. Information on the LAUs should also be provided, including all information that is reported to the USFWS about each LAU under the SRLA's reporting requirements. The size of the LAUs, their current condition, how much habitat is suitable, how much management each LAU has seen, and any other information that the Forest has on LAUs should be documented in the DEIS, along with a discussion of potential effects from implementation of the revised Forest Plan on the LAUs.

The Rio Grande National Forest is uniquely situated in that it shares a border with both the State of New Mexico and the Carson National Forest. Despite this, the Canada lynx section of the DEIS contains no discussion about connectivity and lynx movement between the RGNF and the Carson NF. This section of the DEIS should also discuss the Carson's revised Forest Plan lynx provisions and how they relate to the Rio Grande's similar provisions. The DEIS does note the importance of linkages: "Connective habitat between administrative units in the San Juan Mountains and beyond is essential for facilitating movement of Canada lynx across the landscape." Id. at 209.

The DEIS provides several statistics for the amount of suitable and unsuitable lynx habitat on the Forest. There is no indication, however, as to what definition of suitable and unsuitable lynx habitat the Forest is using. While we anticipate that the total amount of lynx habitat on the Forest based on flights conducted from 2010 to 2014 reflects the SRLA's suitable lynx habitat definition, it is unclear for the 2017 statistic related to baseline conditions for unsuitable lynx habitat. *See* DEIS at 209. We recommend that the Forest Service clarify what definition it is using for the various statistics related to lynx habitat in the DEIS.

Under Threats and Risk Factors for lynx, the DEIS discusses a number of threats and risk factors from the 2000 LCAS and the 2008 SRLA. *See* DEIS at 211-212. Although helpful, there is no specific analysis as to how implementation of the revised Forest Plan or any alternatives might impact these threats and risk factors. And while the Forest does include some threats and risk factors specific to the post-spruce beetle environment, DEIS at 212, it also omits some threats and risk factors. In particular, there is no mention of the considerably newer LCAS from 2013 which identifies additional threats. In particular, the 2013 LCAS describes two tiers of "anthropogenic influences." LCAS 2013 at 68. The first tier includes: climate change, vegetation management, wildland fire management, and habitat fragmentation. *Id*. The second tier includes: incidental trapping, recreation, minerals/energy development, illegal shooting, forest roads/trails, and grazing. LCAS 2013 at 78-85. Although we assert that few of these identified "anthropogenic influences" are considered by the DEIS, in particular, there is no analysis of climate change or habitat fragmentation as it relates to lynx and the revised Forest Plan. This violates NEPA's requirement that the Forest Service take a hard look at all potential direct, indirect, and cumulative effects.

Although the SRLA can provide a framework for analysis, the Forest Service must remember that the SRLA is nearly 10 years old and is outdated. The Forest Service has an obligation to update its analysis, including the scope of that analysis, based on new scientific information about lynx and threats to its recovery. Similarly, page 213 of the DEIS states: "The Southern Rockies Lynx Amendment provides an overview of all activities that might influence Canada lynx…". But as already discussed, this statement is inherently wrong as there is considerable

new scientific information since the SRLA came out in 2008 about activities that might impact lynx, and as such, the DEIS must be updated to account for this.

For the various "Effects on Canada lynx" sections on a variety of threats (DEIS at 214 et seq.), the Forest Service fails to consider new information since 2008. This includes climate change, the 2013 LCAS, new published papers related to Canada lynx, including Dr. Squires and Dr. Ivan's work (as well as the work of others) in Colorado and specifically on the RGNF related to lynx. As such, it is inappropriate and a NEPA violation to merely rely on the SRLA analysis of effects and to conclude "[t]here is no expected increase in effects to lynx or lynx habitat" from vegetation management. DEIS at 214. This conclusion is unjustified, especially given the large salvage logging program under the proposed plan and alternatives. The Forest Service must complete a thorough effects analysis that the public has an opportunity to comment on.

In particular, the Forest is adding a number of new provisions to the Forest Plan related to lynx, including a new standard, new definitions, and various Management Approaches. See discussion above in subsection 1. None of these were analyzed in the SRLA or either LCAS, and therefore potential effects from their implementation must be analyzed in the DEIS. Failure to do so violates NEPA. As part of this analysis, the Forest must disclose sufficient baseline data about the state of the Forest. Obviously the Forest has seen dramatic changes in recent years as a result of beetle kill, but the Forest should still disclose additional baseline data, including: amount and location of the different types of lynx habitat (denning, foraging, winter habitat) and hare habitat, and information on Lynx Analysis Units on the Forest.

Furthermore, the Forest Service must also disclose and analyze the effects of implementation of the various new lynx provisions on other at-risk species, such as American marten, boreal owl, and other Species of Conservation Concern, as well as on the provision of ecosystem services from implementation of these new lynx-specific provisions. Although the provisions are designed to aid lynx recovery, they will have impacts on other Forest resources, and those impacts need to be analyzed to comply with NEPA's obligation that the Forest Service disclose and analyze all potential direct, indirect, and cumulative effects of its proposed revised Forest Plan and alternatives to it.

Table 53 on page 216 of the DEIS must be updated. It is not appropriate to use a table from a 2007 document as baseline information for a 2018 revised Forest Plan. The Forest should update the table based on current information, or explain in detail why it cannot do so. Additionally, this table should include information on temporary roads that exist on the Forest, including ones that have been administratively closed or that are scheduled for decommissioning in the future. Temporary roads have significant effects on a variety of Forest resources when they are present on the landscape, and baseline information about their presence should be included in the DEIS, along with a discussion of their effect on Forest resources, including lynx.

The USFWS is under a court-ordered deadline of January 15, 2018 to complete a recovery plan for Canada lynx. *See Friends of the Wild Swan v. Ashe*, Case No. 13-cv-57-DWM, Docket Number 30 at 1 (D. Mont. June 25, 2014). Given that USFWS has not yet released a draft recovery plan or completed the required public notice and comment period, it will be impossible for USFWS to meet the January 15, 2018 deadline. When and if the final Recovery Plan is

released for lynx, the Forest Service must review and consider it as significant new information and determine what, if any, effect it has on the proposed revised Forest Plan. The Forest should also allow the public to submit comment on the effect of the recovery plan on the proposed revised Plan.

D. PROPOSED AND CANDIDATE SPECIES FOR LISTING UNDER ESA

1. Wolverine

Forest plans must contribute to the conservation of ESA proposed and candidate species (36 CFR 219.19(b)). The wolverine (*Gulo gulo luscus*) is proposed for listing under the ESA. The proposed plan does not mention wolverines, and the DEIS does not assess potential impacts of the proposed plan on wolverines.

The RGNF is within the historic range of the wolverine. The DEIS notes that a disputed sighting occurred in 1997 in the Forest. The narrative in the DEIS seems to imply the lack of verified sightings is a rationale for ignoring the species in the management plan, which is not valid basis for failing to include a proposed or candidate species in planning under the planning rule. If lack of sightings is the rationale for ignoring the species, the RGNF is ignoring information provided in its wolverine overview prepared for the plan assessment (RGNF undated, *Gulo gulo luscus*), which lists sightings on the Forest in 1911, 1973, 1978, 1992, and 1997. A wolverine with a GPS collar was confirmed in Colorado, having traveled from Wyoming, in 2009 (CPW undated). See Need et al. (1985) for information on additional confirmed occurrence records from Colorado. The RGNF plan must include plan components to contribute to the conservation of the wolverine, and must analyze effects of the plan to wolverines in the environmental impact statement.

E. SPECIES THAT SHOULD BE DESIGNATED SPECIES OF CONSERVATION CONCERN (SCC)

In addition to the species proposed for designation as SCC in Plan Appendix D, we believe the following species should also be designated:

1. Pika (*Ochotona princeps*).

This species should be an SCC. Many studies have been done on it, indicating that it is very sensitive to increases in temperature. It could this serve as an indicator for the effects of climate change on the RGNF. The rationale in Plan Appendix B for not including it as an SCC states that “occasional monitoring may be warranted”. Plan at 182.

2. Bighorn sheep (*Ovis canadensis canadensis*).

It is well known that disease transmission from domestic sheep to bighorns is potentially very detrimental to the latter (see DEIS at 226), and can lead to decimation, or even elimination, of bighorn populations. Bighorn herds on the RGNF are threatened by respiratory disease and other factors:

> …loss of alpine habitat due to changing temperature and precipitation patterns, and unintentional human harassment can also represent added stressors further impacting persistence of local herds and populations.
>
> Currently, several bighorn sheep herds are still recovering from die-off events in the 1990's.

Plan at 183. There are 11-12 herds[45] who reside at least partially on the RGNF, and "some type of respiratory pathogen has been confirmed in 8 herds." Ibid. Only 3-4 of the RGNF's bighorn herds are considered secure. See DEIS Table 55 at 233. One herd has a 2016 estimated population of only 15 animals with a status of "disease – stagnant/decreasing". Ibid. Overall, the arguments in Plan Table 22, ibid., for why bighorn sheep supposedly does not need to be an SCC read more like reasons why it should be an SCC.

Given the past problems with the persistence of bighorn sheep herds and the continuing uncertainty about their long-term viability, we believe this species should be an SCC. That would help ensure that proper attention was paid to this species. Notably, bighorn sheep was listed as an SCC in the August 16, 2016 letter entitled "List of Species Of Conservation Concern For the Rio Grande National Forest", from then-Acting Regional Forester Jacqueline Buchanan to the Rio Grande Forest Supervisor.

A major justification for removing bighorn from the SCC list is apparently current and future management. For example, the "Rationale for not including species as Draft SCC" states, "While long-distance movements from other herds could potentially move pathogens into these herds, this is a relatively low likelihood concern and these herds are considered secure based on management actions under Forest authority," Plan at 184, Table 22, Appendix D, and,

> Population management by Colorado Parks and Wildlife will contribute to the persistence of bighorn sheep through establishing population objectives, managing hunting opportunities and potentially through population augmentation via translocations. Lastly,

[45] Plan at 183 says there are 12 herds at least partially on the RGNF, while DEIS at 233 shows 11 herds in Table 55.

> through collaborative monitoring with Colorado Parks and Wildlife and other partners will help provide information on the effectiveness of management actions and help identify potential changes in management needed to support the persistence of bighorn sheep.

Plan at 185, Table 22, Appendix D

Current and potential management is not one of the criteria for identifying SCC. See FSH 1909.12, section 12.52c. Identification of SCC must be based on current conditions, and potential management threats; how these are actually addressed may change as a result of the planning process. A June 16, 2016, SCC guidance letter to regional foresters from Deputy Forest Service Chief Weldon states:

> Species should not be eliminated from inclusion as SCC based upon existing plan standards or guidelines, proposed plan components under a new plan, or threats to persistence beyond the authority of the Agency or not within the capability of the plan area, such as climate change.

The above said, there are some good forest-wide plan components for protecting bighorn sheep, but some need to be strengthened, as is discussed below.

It is most important to prevent contact between domestic and bighorn sheep to the maximum extent possible. Thus we are pleased to see Standard S-WLDF-10, which requires management to "maintain effective separation" of bighorns and domestic sheep on active allotments. Plan at 27. However, preparation of "separation plans" for keeping the two types of sheep apart would only be a Management Approach (hereafter "MgtApr") (MA-WLDF-13, id. at 29).

Another standard, S-WLDF-3, states the following: "Provide security habitat in…lambing areas…from December 1 to March 31. However, the specified time period is not when ewes give birth:

> The birthing season for Rocky Mountain bighorn sheep begins in late April and early May, and it coincides with the timing of vegetation green-up and milder climatic conditions.

Beecham et al, 2007, at 25. Thus this standard provides little or no protection for bighorn lambs at a critical time in the species' life cycle. On the other hand, S-WLDF-11 would protect bighorn sheep production areas from April 15 to July 1 (Plan at 28), which covers this critical period.

Mgt Apr MA-WLDF-12 states “Discourage recreational activities that disturb bighorn sheep, particularly around primary use or reproduction areas”. Plan at 29. It should be at least a guideline, probably a standard.

MgtApr MA-WLDF-11 states:

> …asses Forest bighorn sheep populations to understand overall population status and inform effectiveness of management actions to support the persistence of bighorn sheep on the Forest.

This should be a guideline. It fits right in with a monitoring indicator. See Plan Table 14 at 100.

Under the action alternatives, the areas in MA 5.42, Special Wildlife Areas – Bighorn Sheep, are transferred to MA 5.41, Big Game Winter Range. DEIS at 24. This is not appropriate. Bighorns rely on long sight distances and rugged, steep terrain to avoid predators, while deer and elk seek milder terrain with vegetative cover and other features to hide from predators. Deer and elk typically winter at considerably lower elevations than do bighorn sheep. Also, livestock grazing occurs in 5.41 areas. Plan at 88. This presumably could include sheep grazing, which could facilitate contact between bighorn and domestic sheep.

Other than goats, which are probably an exotic, introduced species, the habitat used by bighorn sheep is largely unique among wildlife on the RGNF. We recommend retaining management area 5.42 for bighorn sheep, with strong standards for protecting the animals and their habitat from adversely-impacting projects and activities, as well as ensuring separation between bighorns and domestic sheep.

3. *Woodsia neomexicana* Windham, common name, New Mexico cliff fern.

This species was considered for SCC status but not designated. Plan at 186. The reason given for not designating it as an SCC is that, even though occurrences are small and isolated, “this is not enough to substantiate a local concern for continued persistence”. Ibid. If this is not sufficient to establish viability concern, what is? Note that the plant is S2, state imperiled, and there are only three known occurrences on the RGNF.
See: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd534788.pdf.

The same reason as above is used to not to designate *Woodsia plummerae* Lemmon, common name Plummer's cliff fern, as an SCC.. This species is S1, state critically imperiled, and there are only two known occurrences on the RGNF.
See: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd534789.pdf.

G. THESE SCC NEED BETTER COMPONENTS

Measures in the proposed Plan to protect the following SCC need to be corrected:

1. Boreal owl (*Aeogolius funereus*)
2 Flammulated **owl** (*Otis flammeolus*).

One of the Design Features for raptors says to protect aspen clones with boreal owl or flammulated owl nests. Plan (Appendix G) at 208. However, there is no indication that flammulated owls nest in aspen. This species clearly prefer older stands where ponderosa pine is dominant, though Douglas-fir may be present. See Hayward and Verner, 1994 at 22, 23. Boreal owls may occasionally nest in aspen, but they prefer Englemann spruce/subalpine fir forests. See Id. at 99.

Therefore, the stated feature for flammulated owl provides absolutely no protection, and the one for boreal owl provides minimal protection at best. Both should be replaced with features that provide a buffer around nesting trees and stands or other appropriate protection for these species.

Even if the features were written to provide appropriate protection, they are only guidelines. See G-WLDF-1, Plan at 28, which references Plan Appendix G. They should be standards.

F. OTHER SPECIES

Beaver

The ecological benefits beavers provide cannot be overstated. By building dams that impound water, beavers alter the surrounding environment to the benefit of a wide variety of plants, fish, and wildlife. We strongly recommend that the RGNF design plan components to protect and restore beaver to the forest and retain beaver as a focal species[46] to help monitor integrity of aquatic and riparian ecosystems on the forest. The Forest Service and U.S. Fish and Wildlife Service have a restoration guides for restoring beavers and the ecosystem services they provide (USFS undated; USFWS et al. 2015).

Beavers are considered keystone, or strongly interacting, species. A technical conservation assessment of beavers prepared for the Rocky Mountain Region (Region 2) acknowledged the interactive role of the rodents in riparian systems (Boyle and Owens 2007). Studies have

[46] Plan at 94 states the intent to have beaver as a focal species. However, we do not find a list of proposed focal species in the Plan or DEIS. See further discussion in section X.

demonstrated the negative consequences of beaver losses as well as the ecosystem services beavers provide through their dam building (Naiman et al. 1994; Gurnell 1998; Wright et al. 2002; Butler and Malanson 2005; Westbrook et al. 2006; Stevens et al. 2007; Bartel et al. 2010; Westbrook et al. 2011). Miller et al. 2003: 188, citing Naiman et al. (1988) and Gurnell (1998), presented a long list of documented ecological impacts of beaver engineering:

> stabilization of stream flows; increased wetted surface area (i.e. benthic habitat); elevation of water tables causing changes in floodplain plant communities; creation of forest openings; creation of conditions favoring wildlife that depend upon ponds, pond edges, dead trees, or other new habitats created by beavers; enhancement or degradation of conditions for various species of fish; replacement of lotic invertebrate taxa (e.g., shredders and scrapers) by lentic forms (e.g., collectors and predators); increased invertebrate biomass; increased plankton productivity; reduced stream turbidity; increased nutrient availability; increased carbon turnover time; increased nitrogen fixation by microbes; increased aerobic respiration; increased methane production; reduced spring and summer oxygen levels in beaver ponds; and increased ecosystem resistance to perturbations.

Allowing beavers to play their role as nature's engineers will result in a variety of other benefits to the surrounding ecosystem including reconnected and expanded floodplains; more hyporheic exchange; higher summer base flows; expanded wetlands; improved water quality; greater habitat complexity; more diversity and richness in the populations of plants, birds, fish, amphibians, reptiles, and mammals; and overall increased complexity of the riverine ecosystems. These attributes are the hallmarks of properly functioning and resilient ecosystems.

Beaver ponds provide winter habitat for Rio Grande cutthroat trout (Pritchard and Cowley 2006) and breeding habitat for boreal toads (Keinath and McGee 2005), two potential species of conservation concern that occur on the RGNF. Additionally, the presence of beaver dams and the functional populations of beaver in suitable habitats contribute to resilience in the face of climate change (Bird et al. 2011). Indeed, beavers are often precisely the prescription that scientists and agencies identify as necessary to improve habitat conditions for degraded habitats and imperiled species.

Here, the Forest Service acknowledges precisely these benefits, DEIS at 165,184, and that beavers likely played a significant role in shaping the landscape of the National Forest. *Id*. at 200. The Forest Service then goes on to conclude that the reduced numbers of beavers have diminished the positive impacts resulting from their presence. *Id*. Finally, the Forest Service appears to have determined that seeing beaver return to the landscape will help achieve the goals laid out in the Plan. *See* Plan at 14 ("Riparian ecosystem composition, structure, and function can generally be restored and enhanced by beaver habitat."); *Id.* at 15 ("Beaver reintroduction, and the persistence of beaver habitat, can contribute to channel recovery and floodplain function.").

Despite this, the Forest Service has failed to propose any measures to ensure that the beavers already found on the Forest are retained or that will result in beavers returning to the Forest in areas where they would be beneficial. Instead, the plan does little more than note the potential benefits of beavers and suggests a plan for monitoring for "watersheds with beaver activity over time." *Id.* at 94. The Forest Service claims this is a "cost-effective strategy that allows the Forest to track beaver presence and range expansion, identify potential areas where beaver introduction may be appropriate." *Id.* While all of that may be true, by not prescribing specific actions to protect and recruit beavers, the Forest is missing an opportunity to make substantial gains toward achieving its objectives.

As a result, we strongly encourage the Forest Service to develop the desired condition, objectives, standards, and guidelines for Aquatic Ecosystems and Native Animals directed at: 1) protecting existing beaver populations and 2) identifying areas that would benefit from the addition of beavers into the watershed, and establishing the mechanisms for seeing that beavers return to those areas.

Focal species have two primary functions in the planning process, as indicators of integrity and as measures of effectiveness of plans in providing ecological conditions for diversity and species persistence, including the persistence of at-risk species. There is also sufficient interest and concern in the health of the watersheds and riparian areas to justify the beaver being selected as a focal species. The rising temperature due to climate change has water supplies becoming increasingly scarce, leading to conflict between competing uses of water resources. There has been a negative transformation of the landscape due to the increased frequency of drought, wildfire, flooding, and invasive species. Clearly, as described above, beavers are indicators of ecological integrity, and should be selected as a focal species for this reason. They should also be selected as focal species based on their ability to provide ecological conditions needed for at-risk species, including increased habitat and habitat heterogeneity for at-risk fish species in the forest planning area.

Designating beavers as focal species, and identifying beaver habitat characteristics as key/desired ecological conditions, would result in the monitoring of beaver populations and habitat conditions in the watershed and riparian areas of the RGNF. This monitoring information would be a reliable source to longitudinally measure and study the health of these ecosystems through variations of climate change.

VI. **THE PROPOSED MANAGEMENT DIRECTION IN THE DRAFT REVISED PLAN IS UNACCEPTABLY WEAK.**

Direction, both forest-wide and for MAs, is one of the most important parts of a forest plan. It shows the public and agency line officers what limitations will be placed on activities to protect resources. The direction in the draft revised Plan is unconscionably weak, and in some cases, non-existent.

A. GENERAL CONCERNS

Overall, we believe the forest-wide direction in the draft revised plan is quite weak. There is too little restriction placed on management. More standards need to be in the plan.

Since not all alternatives use the same management areas (MAs), or necessarily even the same forest-wide direction, both the MAs and forest-wide direction used in each alternative should be provided for public review, perhaps in a DEIS appendix.

Management Approaches. A considerable amount of the forestwide direction in the proposed revised plan is under "management approaches" (MgtAprs). This is mentioned in the Planning Rule (36 CFR 219.7(f)(2)) and further described in the Planning Directives (FSH 1909.12, section 22.4) as "optional content". A passage at the latter states:

> This optional content must not be labeled or worded in a way that suggests it is a plan component. In addition, optional content must not include, or appear to include, a "to do" list of tasks or actions.

Emphasis added.

Most notably, since MgtAprs are not plan components, they can be changed without a plan amendment: "Optional plan content can be changed through administrative changes". Ibid. See also Plan at 6 and DEIS at 25

The Planning Directives, ibid., further describe management approaches as follows:

> If used, management approaches would describe the principal strategies and program priorities the Responsible Official intends to employ to carry out projects and activities developed under the plan. The management approaches can convey a sense of priority and focus among objectives and the likely management emphasis. Management approaches should relate to desired conditions and may indicate the future course or direction of change, recognizing budget trends, program demands and accomplishments. Management approaches may discuss potential processes such as analysis, assessment, inventory, project planning, or monitoring. Use care not to create unrealistic expectations regarding the delivery of programs.

However, many of the MgtAprs are direction, rather than just priority, focus, or emphasis, as is discussed in detail below. They are more properly designated as guidelines, and in some cases standards, rather than MgtAprs.

> To insure for management accountability, the Forest is proposing standards, guidelines, and suitability determinations to reflect [an] adaptive management strategy while ensuring for ecosystem integrity, sustainability, habitat connectivity, and the viability of species of conservation concern.

DEIS at 12-13. Note that management approaches are not listed here as ensuring accountability, because they don't. Yet they are used liberally in the draft plan.

The draft plan must be changed to greatly reduce the use of management approaches, especially where real direction and real plan components are needed to address issues, meet desired conditions and objectives, or minimize impacts, as is discussed in further detail below. Management approaches, if they are used at all, must be used only as intended: to denote priority, focus and management emphasis. Management approaches cannot be substitutes for real plan components.

Management Approaches are abbreviated "MA" in the draft plan. However, this is also be used as a common shorthand for management areas, such as in DEIS Table 5 at p. 38. Note that there are management approaches in the management areas, i. e., MAs within the MAs. Thus to avoid confusion, we recommend using a different abbreviation for management approaches. We use "MgtApr" (and "MA" for management area), but when citing or quoting the Plan, we use the description used therein, such as "MA-GDE-2".

Forest-wide and MA direction is weak overall, partly due to the over-use and mis-use of management approaches.

B. SPECIFIC ISSUES WITH FOREST-WIDE DIRECTION

Below, we discuss many problems we see with weak, or even non-existent, forest-wide management direction. Please be aware that some specific direction is also addressed in other sections of these comments.

The **Fisheries** (FISH) section (Plan at 11 et seq.), needs a standard that requires action where needed to prevent genetically pure or nearly pure native aquatic species from interbreeding with non-native species and thereby destroying part of the native gene pool. Or there could be special provisions for the watersheds that have native populations of high genetic quality. The following streams likely have such populations: the East Tributary of the Middle Fork and the West Tributary of San Francisco Creek, West Alder Creek, Medano Creek, Lake Fork of the Conejos River, Rio de los Pinos, Osier Creek, and the South and Middle Forks of Carnero Creek. See FWS, 2014, Appendix C, Table C 14.

Under **Groundwater Dependent Ecosystems**, (GDE) (Plan at 13-14), Guideline G-GDE-1 says to protect such ecosystems, including fens, especially large ones. This must be a standard.

The Forest Service Region 2 policy on fens states:

> …the goal is no loss of existing habitat value, and that every reasonable effort should be made to avoid impacting these habitats. Mitigation for loss of fens is problematic, as there are no known methods to create new functional fens.

Fen Policy, letter from Marisue Hilliard, Director, R-2 Renewable Resources, to Forest Supervisors, March 19, 2002.

A draft plan MgtApr, MA-GDE-2 observes that fens are "an irreplaceable ecological feature". The DEIS states calls fens "unique and irreplaceable wetland types". DEIS at 80. We agree, and therefore insist that the revised plan contain a standard requiring fen protection and conservation.

In the introduction to the **Riparian Management Zones** (RMZ) section (Plan at 14-15), the plan mentions the process for determining the width of riparian management zones, as required by the Planning Rule at 36 CFR 219.8(a)(3)(ii). The process is described in Plan Appendix F. However, the plan does not further mention this process, and it is not included in any plan component. There should be a least a guideline, if not a standard, that requires this process to be used, unless another process is later developed or discovered that incorporates the best available science.

There should be standards in the RMZ section requiring the limitation of roads and livestock grazing. The DEIS notes the need for limits on activities and protection for riparian resources:

> Conflicts between some human uses, however, and the resources dependent on resilient riparian conditions may continue unless management provides for sufficient land use limitations and resource protections that maintain the disturbance processes and pathways associated with resilient riparian conditions…

Id. at 163; citations omitted. The DEIS also ties avoidance of impacts to application of plan components:

> The impacts [to riparian, wetlands, and fens for livestock grazing] described above are typically avoided through proper rangeland management, which entails the application of the standards, guidelines, and management approaches detailed in this forest plan revision, along with a variety of other tools.

Id. at 187.

The one guideline on grazing in RMZs, G-RMZ-3, only addresses a peripheral issue: "prevent or minimize the introduction and spread of cowbirds in riparian willow systems. We are not aware that livestock grazing helps spread cowbirds, but it likely helps introduce and spread non-native plant species. The guideline should be a standard and incorporate or reference efforts to minimize introduction and spread of noxious weeds.

Is the Watershed Conservation Practices Handbook (WCPH), FSH 2509.25, incorporated into the proposed revised plan? It is only mentioned once, under soils (Plan at 35[47]). We do not see it mentioned under Watershed (pp. 15-17). While the Plan need not repeat existing direction from sources outside the plan, it must specifically incorporate this direction. We recommend the following standard under **Watershed** (WA): "Incorporate the Watershed Conservation Practices Handbook (WCPH), FSH 2509.25, in all projects and activities, as applicable".

There is only one standard in the Watershed section, S-WA-1. It refers to "Forest Service 990 A". Plan at 16. This is the National Best Management Practices for Water Quality Management on National Forest System Lands Volume 1: National Core BMP Technical Guide. A passage from this document states:

> The national core set provides general, nonprescriptive BMPs for the broad range of activities that occur on NFS lands. Nearly every BMP in the national core set already exists in current regulations, guidance, or procedures. Adopting a standard national core set of BMPs may change what some national forests and grasslands refer to as their BMPs, but it will not change the substance of site-specific BMP prescriptions. Those prescriptions will continue to be based on State BMPs, regional Forest Service guidance, land management plan standards and guidelines, BMP monitoring information, and professional judgment.

Id. at v-vi.

Clearly, the national BMPs are not intended to override or replace the regional guidance like the WCPH. Therefore, even though supposedly "Forest Service handbook and manual direction is incorporated into all forest plans and project-level proposals" (DEIS at 154[48]), the revised plan needs to specifically incorporate the WCPH.

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[47] The text there states, accurately: "The 199[7] plan use the watershed conservation practices handbook as standards and guidelines. ….These practices will continue be used to protect soils as regional direction." However, the WCPH should specifically be incorporated into the plan as a standard for both soils and watershed to make clear these practices are to be followed in implementing projects and activities the revised plan.

[48] Like the previous quote about applicability of the WCPH, this also appears under soils.

Under **Pollinators** (PLTR) (Plan at 17-18), MgtApr MA-PLTR 2, to maintain and improve pollinator habitat, should be at least a guideline.

Two objectives under **Species of Conservation Concern –Animal and Plant** (SCC) (Plan at 18-20), SCC-OBJ-1, to mitigate impacts to insects designated as SCC caused by insecticides and other pesticides, and SCC-OBJ-2, the same for SCC plants, should both be standards.

DC-SCC-9, ensure continued viability of SCC plants (id. at 19), must be a standard.

S-WLDF-3[49] states: "Avoid or mitigate impacts to boreal toad breeding sites and winter hibernacula within 100 feet from May 15 to September 30". This should be rewritten to also provide protection of winter hibernacula when the toads are likely to be there, i. e, from September 30 to May 15. The bullet points under this standard (id. at 20), are commendable: consider summer movements of toads and avoid dropping fire retardant on their habitat.

How would habitat for Gunnison's prairie dog be maintained or restored via livestock grazing? See G-SCC-5, Plan at 20. This should be deleted, as livestock grazing is likely to reduce or degrade grouse habitat.

Part of the proposed new **Canada Lynx** (LYNX) standard is a needed addition to the Southern Rockies Lynx Amendment (SRLA). It recognizes that lynx are still using areas with substantial, or even complete, overstory mortality that have an understory that provides dense horizontal cover. Standard Veg S 7 (Plan at 22) would apply limitations on vegetation management in areas with less than 40 percent canopy cover that still have enough understory to provide quality lynx habitat. However, part 2 of this standard would allow salvage harvest "when incidental damage to understory and standing green trees is minimized". "Minimized" is not defined.

Parts of MgtApr MA-LYNX-6 (Plan at 23), to provide foraging habitat near denning habitat and to protect "known or potential of high quality denning habitat", should be standards.

The plan should contain a desired condition to maintain, restore and enhance lynx habitat connectivity, including across highways. Standards and guidelines may also be needed to address connectivity.

See a detailed discussion of lynx direction and analysis of impacts in section V C 1 and 2 above

Most or all of the guidelines under **Other Threatened, Endangered, Proposed, and Candidate Species** (TEPC) (Plan at 24-25) should be standards. These measures are needed to ensure that

[49] Though in the SCC section, this standard has a WLDF label. It should be renamed SCC-2 or SCC-3, as there is another WLDF-3 standard on p. 27.

these species will have an opportunity to recover to full, viable populations, and to ensure agency compliance with the Endangered Species Act.

Under Wildlife and Plants (WLDF) (Plan at 25-30), DC-WLDF-4 says to provide security habitat for big game on their winter ranges. This should be at least a guideline, if not a standard.

DC-WLDF-7, providing wood legacies, including snags, needs to be a standard. The previous plan had a standard for retention of snags and down wood. See current plan at III-12.

There are 27 MgtAprs under WLDF. Many of them should be at least guidelines, and some should be standards. At a minimum, the following must be upgraded to enforceable plan components:

MA-WLDF-6: continue to support avian species monitoring "with the goal of providing valid trend data for applicable threatened, endangered, proposed, candidate, and species of conservation concern and priority bird species". Having trend data is crucial to assessing viability. This must be a standard.

MA-WLDF-12: "[d]iscourage recreational activities that disturb bighorn sheep, particularly around primary use or reproduction areas".

MgtApr MA-WLDF-13: developing separation plans for livestock grazing allotments where there is a high risk of contact between domestic and bighorn sheep.

MgtApr MA-WLDF-17: "…avoid or otherwise mitigate adverse impacts in unique or rare plant community types that have a biodiversity significance of B1 (outstanding) or B2 (very high)…". Projects should completely avoid these areas unless strong mitigation is designed to nearly eliminate impacts and the mitigation is highly likely to be effective.

MgtApr MA-WLDF-21: locate and design wind energy structures to minimize or prevent wildlife mortality. Also impose operational constraints to reduce or eliminate mortality, like prohibiting wind turbine operation during times of migration.

MgtApr MA-WLDF-22: "[m]anage off-road travel on big game winter ranges, including over-the-snow track machines during the primary use seasons for big game. Exceptions may be authorized under special use permit". This is similar to, but weaker than, 5.41-S-1, under MA 5.41, big game winter range, which outright prohibits off-road use, including snow machines, during the primary use season of December 1-March 31. To avoid confusion and to ensure that wintering big game are protected, MgtApr MA-WLDF-22 must be removed.

MA-WLDF-24: maintain habitat needed for connectivity of seasonal habitats.

MA-WLDF-25: "[r]etain large, unique, legacy trees where feasible". Without being a plan component, and without some specifics on size, height, and number of trees to retain per acre, this MgtApr is meaningless.

MA-WLDF-27: "[i]dentify and assess habitat connectivity needs at various spatial scales when conducting forest management activities at the project level…".

Noxious weeds are a major, and growing, problem on Colorado's national forest lands. It is especially important that new populations be attacked as soon as possible after discovery, and that projects and activities do not introduce or spread weed populations. Therefore, the **Aquatic and Terrestrial Non-Native Invasive Species and Noxious Weeds** (NNIS) section (Plan at 30-31) needs a standard that should read approximately as follows:

> For all projects and activities that involve ground disturbance, survey and eradicate noxious weeds to the greatest extent practicable before and during project or activity implementation, and for at least three full growing seasons after completion. The areas to be surveyed and the frequency and intensity of the surveys should be commensurate with the size of the proposed project or activity and its location vis a vis existing weed populations.

As currently written, the Plan has only 1 weak MgtApr, MA-NNIS-5, addressing weed introduction and spread during project implementation. There are no standards in this section at all, and the only guideline addresses only aquatic invasive species.

To help ensure that chemical herbicides are used only when necessary, we recommend the following standard or guideline:

> Chemical herbicides should be used only where other methods are not likely to be effective in eradicating or minimizing noxious weed populations.

A guideline or MgtApr should make the following the top priorities for weed treatments, in descending order:

--populations of weeds not previously known to be present on the RGNF,
--new populations of weed species known to be present,
--rapidly expanding existing weed populations, and

--small existing weed populations.

Note that the current plan has such a guideline at III-24, III-25.

Make MA-NNIS-2 a guideline and expand to cover terrestrial weeds and encourage cooperation with the Colorado Department of Agriculture as well as with the Division of Parks and Wildlife.

The DEIS states:

> Direction to use locally adapted seed mixes and limit the use of certified weed-free hay increase[sic][50] Forest defenses against nonnative invasive species. This direction does not change across the alternatives being considered.

Id. at 145. We do not see either issue addressed in the Plan. The revised Plan should have a standard requiring the use of certified weed-free hay on the RGNF, as the current plan does. See Standard 2 under Undesirable Species, current plan at III-24. It should also have a standard requiring the use of native plants for revegetation, as the current plan does. Id. at III-12.

In the **Range** (RNG) section (Plan at 32-35), guideline G-RNG-2, recommends a phase-out of grazing systems occurring during the entire vegetative growth period, unless the desired plant community is achieved or maintained (Plan at 34). This must be a <u>standard</u>, as it is in the current plan (id. at III-14).

Livestock use of riparian management zones must be minimized to retain riparian characteristics and values. However, guideline G-RNG-3 (Plan at 34) would allow livestock to use these areas as long as an unspecified stubble height was met. But the impact to riparian areas from livestock use is not limited to vegetation consumption. Stock, especially cows, compact soil and degrade water quality via solid and liquid waste deposition. The DEIS states:

> Grazing pressure in sensitive areas may degrade watershed conditions through the direct, physical removal of riparian and wetland vegetation, and trampling of streambanks and wet areas, or through indirect changes to vegetation species composition, decreased shading/increased water temperatures, and changes in water chemistry.

Id. at 180.

[50] We assume this is intended to mean "limit use of hay to that this is weed-free". This needs to be reworded to clarifiy.

This guideline must be replaced with a standard requiring minimization of livestock use in riparian areas and the minimization of damage to soils and water quality.

MgtApr MA-RNG-1 would recommend removal of stock if allowable use criteria, allotment management plan guidance, or annual operating instructions are exceeded. This must be a standard. Note the following from the Forest Service's National BMPs: "Modify, cancel, or suspend the permit in whole or in part, as needed, to ensure proper use of the rangeland resource and protection of water quality". BMPs at 84.

MgtApr MA-RNG-4 says to "[d]iscourage livestock use in openings created by fire or timber harvest that would delay successful regeneration of the shrub and tree component". This must be a standard. Protecting young trees is important, given that much salvage logging is proposed in the first decade on the RGNF. Livestock could easily trample, or even eat, planted or naturally regenerating trees, and delay forest regeneration. The DEIS notes that:

> Reforestation goals also often require that livestock be excluded from an area until trees have become established and reach a size that limits damage from livestock.
>
> … grazing within regenerating stands is generally limited or prohibited until trees have grown to a size at which cattle impacts are minimal.

Id. at 139, 141.

Thus the Plan must contain direction to prevent this. Change "discourage" to "prohibit", and make this provision a standard.

MgtAprs MA-RNG-3 and MA-RNG-6 are the same. Delete one of them, and make the other a desired condition. Managing rangelands to provide a variety of benefits is a desirable and needed condition to be achieved and maintained, not just a discretionary management emphasis.

For **Soils** (SOIL) (Plan 35-36), see discussion of the applicability of the WCPH in the **Watershed** section above. Also, Under S-SOIL-1, the following statement is contradictory:

> In areas where more than 15 percent detrimental soil conditions exist from prior activities, the cumulative detrimental effects from project implementation and restoration should not exceed the conditions prior to the planned activity and should move toward a net improvement in soil quality.

Plan at 35-36. If the area to be treated already has over 15 percent in a detrimental condition, it has already "exceed[ed] the conditions prior to the planned activity". Remove this statement and replace with the following: "In areas where more than 15 percent detrimental soil conditions exist from prior activities, do not authorize new activities until the detrimental condition affects less than 15 percent of the area".

Guideline G-SOIL-1, for operating on sensitive soils, including those with high mass-wasting potential, should be a standard.

MgtApr MA-SOIL-1, requiring native, weed-free seed for revegetation, should be a guideline or standard.

MA-SOIL-3 reads:

> Project-specific best management practices and project design features should be incorporated into land management activities as a principle mechanism for protecting soil resources.

Plan at 36. Change "should" to "must" and make this a <u>standard</u>.

Under **Vegetation Management** (VEG) (Plan at 36-45), DC-VEG-1 references table 5 for retention of snags and coarse woody debris. In the current plan, a slightly different version of this is a <u>standard</u>! See current plan at III-12, Table III-1. It should be a standard in the revised plan also. See the discussion the importance of snags and down wood at Plan p. 37.

The Table has criteria which can be met in projects that manipulate vegetation. Indeed, they can be part of timber prescriptions, as the DC says. But if it is only a desired condition, it is too easy to ignore the need to provide for important ecological components.

Also, the criteria in Table 5 apply to the *planning unit*, whereas under the current plan, the "amounts are to be calculated as a per-acre average over a project area". Current Plan at III-12. "Planning unit" is not defined in either Glossary in the draft Plan and DEIS, nor in the 2012 Planning Rule. This term has been used previously to mean the national forest unit for which a plan applies, like the RGNF. This needs to be clarified, but if the criteria in Table 5 are meant to apply to the entire RGNF, the direction is meaningless at the project level. How could managers apply a forest-wide design criteria to a project? Snags and down wood in most project areas would contribute only a small amount to the forest-wide averages for snags and down wood. In other words, a project area, after implementation, could be devoid of snags and down dead but probably still meet the forest-wide design criteria.

This is especially true in the spruce-fir zone, where high levels of snags throughout wilderness and roadless areas would satisfy planning unit criteria, even if no snags at all were left behind following salvage logging. The whole point of setting criteria for snag retention is to ensure that this structural legacy that is so critical to wildlife is well distributed across the forest. The DEIS (at 96) claims that "snag retention amounts in the action alternatives, as well as determinations made at the project-level, would help ensure that large openings created during salvage have sufficient amounts of snags and downed wood". But unless snag retention requirements apply to the project area, there is no guarantee that snags would be protected.

This would be an issue in the many acres of salvage logging expected to occur in the first decade under the proposed plan, should it be approved in its current form.[51]

Requirements for retention of snags and down-dead wood must be a standard to be applied at the project level.

See additional discussion of snags and down wood in Appendix 1.

DC-VEG-4, to retain remaining green trees in spruce-fir stands with 60 percent or greater bark beetle mortality, should be a guideline. Retaining such trees will almost always be "integral to ecosystem or species habitat-related goals", and be an action needed to helping reestablish forest cover.

DC-VEG-5, maintain old forests per Plan Appendix A "to provide ecological conditions necessary to maintain viable populations of at-risk species", should be at least a guideline. This is another action needed for reestablishing older forests.

Taken together, these two desired conditions statements suggest a need for a guideline to protect large live spruce wherever they exist. According to Table 27 (DEIS at 74), spruce-fir forest is currently below desired levels of late successional habitat. Beetle-affected stands should be protected from salvage, even if they contain considerable volume of dead spruce, as long as they meet the criteria for old forest.

DC-VEG-9, retain tall snags and those in riparian areas during salvage treatment of burned areas, should be a standard or guideline. It is a condition that can easily be attained, and the Plan should direct that it be achieved. Also, this condition should not be limited to salvage of burned areas; it should extend to salvage logging following beetle outbreaks and indeed all logging projects.

[51] The DEIS admits that salvage logging would result in lower retention of snags and down wood in the treated areas. Id. at 97.

Table 6 on Plan p. 40 shows 27 percent of spruce-fir in mature-open structural stage and 22 percent in mature-closed stage. That seems very high, given that almost all the mature Engelmann spruce on the RGNF has been killed by spruce bark beetle. This table needs to be updated.

In general, the whole approach to characterization of desired conditions of vegetation needs to be overhauled. The current approach, which relies on vectors of vegetation structural stages downloaded from the LANDFIRE website (and modified locally), is insufficient to characterize the desired range of variation. Indeed, this static characterization of desired condition is the exact opposite of what was intended by the original conception of historical range of variability (Morgan et al. 1994). The "range of variability" should not be presented as a fixed distribution of structural stages. Such a characterization is the consequence of the State Transition Simulation (STS) Model used to derive desired condition, not a realistic characterization of vegetation dynamics. The STS model simply cannot represent the effects of the periodic disturbances that drive vegetation dynamics in the Rocky Mountains (instead, the effects of periodic disturbances are divvied up among annual time steps and modeled as though they occur every year; such modeling results in the static representation of historical vegetation that passes for desired conditions in Table 6).

That said, we understand the appeal of the characterization of desired condition as a static distribution of structural stages: it is simple. It also makes it very easy to describe what needs to change to achieve desired conditions: if there is "too much" of one structural stage and "not enough" of another, managers simply need to convert one structural stage to another. This leads predictably to the kind of management to be expected under this plan, where "too much" mature warm-dry mixed conifer, for instance, will be converted to make up the "deficit" of young forest, and too much mature-closed, cool-dry mixed conifer will be thinned to make up the shortage of mature-open forest. The problem is that setting desired conditions as a static distribution of (bounded) proportions of structural stages fails to accurately represent the true range of values to be expected in non-equilibrium forests driven by periodic disturbance. It makes for convenient management but is no more reflective of the dynamics of real forests than is the mythical "regulated forest."

Perhaps the biggest problem with this approach, though, is that it leads to the conclusion that any management that is intended to move the forest toward desired conditions is good for the forest. This is reflected in the ludicrous effects analysis on pages 91-94 of the DEIS that ignores the impact of management and assumes that more management would lead to more rapid achievement of desired conditions and "a larger suitable timber area also means there would be more control over manipulating vegetation and creating particular old forest characteristics." The emphasis on transitions among structural stages at the scale of whole forest types also leads to the dismissal of meaningful differences among alternatives with statements like, "This effect

(of alternatives) is minor in that the distribution and diversity of vegetation structural stages across the Forest is predominantly determined by successional and natural disturbances such as fire, insects, and disease, and the fact that about half the forested area is already in protected areas…" DEIS at 92. The analysis of environmental effects among alternatives cannot be dismissed simply because the aggregate distribution of structural stages is controlled by factors other than management.

OBJ-VEG-1, "[d]iversify the structure class distribution for various forest types via management", should not apply to the specially designated geographic area. Vegetation treatment in these areas is likely to harm the values of the areas for which the areas are designated.

S-VEG-3 references Table 7, concerning restocking levels for the various timber types. Only 75 ponderosa pine trees per acre would be required for an area to be adequately restocked. That is a tree every 24.1 feet (if they were evenly spaced, which in naturally-regenerated stands, they usually are not). Only 100 Douglas-fir trees per acre would be sufficient to certify the stand as restocked; that is only 20.9 feet between trees. These levels seem quite low.[52] What is the justification for this stocking requirement? For ponderosa pine, planting should be in clumps of 2-10 trees, similar to how this species naturally regenerates.

Though text below Table 7 states that the numbers therein are the minimums, the standard states: "[e]xceptions to these levels are allowed if supported by a project-specific determination of adequate restocking". Plan at 41 and 40, respectively. The Plan needs to clarify if the minimum levels in Table 7 always need to be met, or if they do not have to be met under a site-specific analysis.

Guideline G-VEG-1, prohibiting cutting before stands have reached the culmination of mean annual increment of growth (CMAI) unless certain exceptions are met, must be a standard. The prohibition on cutting before CMAI is reached is required by the National Forest Management Act, 16 U.S.C. 1604(m), and by the Planning Rule at 36 CFR 219.11(d)(7).

Table 8 (Plan at 43), referenced in MA-VEG-1, lists the appropriate silvicultural system for each timber type. Clearcutting is listed as acceptable for spruce-fir stands, but it should not be, because spruce does not regenerate well, if at all, in the open.

MgtApr MA-VEG-2 should be amended to state that efforts to regenerate aspen must not damage or degrade old-growth conifer characteristics. It should be a guideline.

[52] Under the current plan, the minimum stocking for ponderosa pine and Douglas-fir is 150 trees per acre. See current Plan at III-18.

MgtApr MA-VEG-7, "Preserve or defer from harvest some old-forest/late-successional stands…" (emphasis added) should apply to almost all stands, given the loss of old spruce. The assumption should be that old/late successional forests are not cut unless there is a specific need for public safety or other urgent need.

MgtApr MA-VEG-8 (Plan at 54, contains criteria for determining when an opening is no longer considered an opening. It should be at least a guideline, as it is in the current plan. See current Plan at III-21).

In **Air Quality** (AIR) (Plan at 46), measures limiting emission and deposition of pollutants, DC-AIR-1, -2, -6 and G-AIR-2, should be standards, to ensure the RGNF complies with the Clean Air Act.

The **Congressionally Designated Trail**s (CDT) section of forest-wide direction (Plan at 49-53) applies to the Continental Divide National Scenic Trail (CDNST) and the Old Spanish Trail (OST). It is important to retain Standards S-CDT-1 and -2, making the trail corridors unsuitable for leasable minerals and prohibiting extraction of common variety minerals. This section should also contain a standard stating that land in the trail corridors is not suitable for timber production.[53] Vegetation could still be managed for non-timber purposes, such as removal of hazard trees and treatments in the wildland-urban interface to reduce the fire hazard to homes and infrastructure.

The following standard and guideline are similar and should be consolidated into one standard:

S-CDT-4 states:

> Management activities in the congressionally designated trail corridors shall be consistent with, or make progress toward achieving, high or very high scenic integrity objectives to protect or enhance scenic qualities.

G-CDT-2 states:

> To protect or enhance the scenic qualities of the Continental Divide National Scenic Trail, management activities should be consistent with, or make progress toward achieving scenic integrity objectives of high or very high within the foreground of the trail (up to 0.5 mile on either side).

[53] DEIS at 91 states that the CDT and the OST, "are removed from the suitable timber acreage along with a one-half mile buffer on each side of the trail" for alternatives B, C, and D. However, we no such indication of this in the Plan.

We recommend converting the guideline to a standard and amending it to apply to both the CDNST and the OST.

Standard S-CDT-3 states:

> Motorized events and motorized special use permits shall not be permitted on nonmotorized segments of the Continental Divide National Scenic Trail. Motorized events and special use permits could be authorized along existing motorized trail segments not yet converted to nonmotorized use.

If a trail segment is part of the CDNST, it is supposed to be non-motorized. Even if it has not been "converted" to non-motorized, neither motorized special events nor special use permits for mass use should be allowed. Permitting such use could make it more difficult to close the trail to motorized uses at any time in the future. Note that G-CDT-4 states: "In order to promote a nonmotorized setting, the Continental Divide National Scenic Trail should not be permanently relocated onto routes open to motor vehicle use." S-CDT-3 would conflict with this guideline.

Guideline G-CDT-9, prohibiting use of the CDNST for landings and as a temporary road, must be a <u>standard</u> to ensure the nature and purposes of the trail are maintained.

Under **Cultural Resources** (CRT) (Plan at 53-56), MgtApr MA-CRT-1 is confusing:

> Protect fire-sensitive sites from activities that may include vegetation treatment, including prescribed fire and thinning, in and adjacent to site boundaries provided that appropriate protective measures are in place. Erosion, severe fire effects, and livestock congregation can result from "islanding" if sites are only avoided and not treated.

Is the intent here to protect sites from vegetation management, or to make sure they are not subject to "islanding"? The CRT section should have a standard protecting cultural sites from any kind of management, and from vandalism. At a minimum, rewrite and clarify DC-CRT-1 and make it a <u>standard</u>.

Fire Management (FIRE) (Plan at 57-58)

The plan and the other two action alternatives would direct that all human-caused wildfires be suppressed. S-FIRE-1, Plan at 57; DEIS at 23. This would be true even in the Resource Restoration Fire Management Zone (WFMZ-R), the zone where "managing wildfire to meet resources objectives is the least constrained" (DEIS at 23, 98), and there is "minimal emphasis

on suppression" (Plan at 73). While many human-caused fires will likely have to be suppressed, it should still be an option to let such fires burn under certain conditions, to be decided at the time of the fire. These fires may, in some situations, help meet ecosystem needs and desired conditions. We recommend rewriting S-FIRE-1 and the description of WFMZ-R accordingly.

Under **Forest Products** (FP) (Plan at 58-59), there should be a guideline providing for the establishment of limitations on how much of any forest product can be removed, per person and/or per time period, if needed to reduce adverse impacts on ecosystems or to ensure that the product(s) is/are available to everyone.

One of the most important parts of infrastructure on the RGNF is roads. Thus in the **Infrastructure** (INFR) section of the draft revised plan (id. at 59-61), MA-INFR-4 should be made a guideline or standard and rewritten to make clear that roads can be closed to public motorized use if <u>any</u> of the listed conditions exist.

Rewrite MA-INFR-5 as a standard, per below:

> On all lands except designated travelways, motorized use is <u>prohibited</u> unless the motor vehicle use map or a forest order indicates that such use is specifically allowed. This applies to motor vehicles operating over snow as well as on dry land.

There should be no non-emergency off-road travel in the snow-free season. This allows illegal creation of routes, which are then used by others, and become very difficult to decommission. Off-road motorized use is also very damaging to soils, especially in wet, non-rocky areas. See DEIS at 153.

We agree with, and fully support, the statement on page 90 of the Draft Plan that "mechanized travel is only suitable on designated routes." Mechanized travel, including mountain biking, fat biking, and other forms bicycle and other mechanical transport, can result in significant impacts on resources. There must be a standard limiting mechanized use to designated routes to ensure there is no confusion about where this use is allowed, and to guide future development/revision of a travel management plan.

MA-INFR-8 should be a standard, or at least a guideline. It should be amended to state that road use should be managed with seasonal closures if <u>any</u> of the listed conditions exist.

The **Lands** (LAND) section of forest-wide direction (Plan at 61-64) should have standards and/or guidelines on priorities for acquisition and conveyance of lands. Note that the current plan has guidelines for this at III-31, -32.

S-LAND-2 states: "Do not authorize conflicting uses of activities in transportation and utility corridors". Where are the transportation and utility corridors on the RGNF? We find no information on their location, or possible location, in the Plan or DEIS. The planning documents must provide this information if there are any plan components for these corridors. We recommend a standard that prohibits transmission corridors in roadless areas.

MA-LAND-3, requiring activities in corridors to be compatible with the management areas through which the corridors pass, should be at least a guideline.

MA-LAND-4, having a land ownership pattern that supports meeting plan goals and objectives, should be a desired condition.

Under **Minerals** (MIN) Plan at 63-64), the instream activity maps referenced in G-MIN-3 are really "fisheries activity period maps", and are not in Plan Appendix H. Rather, they are found on the plan's map page on the web.

G-MIN-4, requiring vehicles to stay on legally open routes, must be a <u>standard</u>.

Though there is no current oil and gas activity on the RGNF, nor demand for leases, the Plan should have a standard for which lease stipulations will be required under what conditions. The current plan has a guideline for this at III-3. It is possible that oil and/or gas prices could rise during the life of the plan, generating industry interest in leasing and producing. See further comments below.

Under **Recreation** (REC) (Plan at 64-67), amend S-REC-3 to make clear that campsites should be closed if any of the listed conditions are present.

G-REC-2 references Table 9. The preface to this table defines the recreation capacity ranges used in the table: "Very low and low apply to…clearcuts 1 to 20 years old. Moderate applies to…clearcuts 80-120 years old… High applies to… clearcuts 20-80 years old." The clearcut age for moderate and high seem reversed – intuitively, older (80-120 years) clearcuts would have a higher capacity than younger (20-80 years) ones.

G-REC-1, managing recreation in lynx analysis units to maintain or improve connectivity of lynx habitat, should be a standard.

In the **Scenery** (SCNY) section (Plan at 67 et seq.), OBJ-SCNY-1 states: "…meet or improve scenic integrity and stability through vegetation management within two watersheds" over the life of the Forest Plan. It is very doubtful that scenery can be improved with vegetation management, because such management itself degrades the scenery. The presence of slash piles, other waste, skid roads, etc. results in lower scenic quality.

In S-SCNY-2, the time for which "[s]hort-term impacts inconsistent with the scenic integrity objectives [SIOs] may occur" should be reduced to 1-3 years. Five years is too long for inconsistency with the SIOs.

C. GEOGRAPHIC AREAS, FIRE MANAGEMENT ZONES, AND MANAGEMENT AREAS

Geographic Areas (GAs). Under the proposed plan, there would be four GAs. Each would cover the area in two or more management areas of similar emphasis. But there would be no additional direction under any of the GAs. Thus it is hard to see the usefulness of the GAs in the proposed plan.

Fire Management Zones (FMZs). The two proposed FMZs provide different emphasis – one on wildland restoration, the other on resource protection. The two FMZs proposed for designation are assigned to two each of the four proposed GAs. Plan at 73. The GAs in turn are comprised of groups of management areas. Thus direction on fire could be contained in the direction for MAs and/or in forest wide direction.

See additional comments about fire management in the zones in the **Fire Management** section above under forest-wide direction.

D. MANAGEMENT AREA DIRECTION ISSUES

1. General concerns.

One change from the current plan was to combine three wilderness management prescriptions into one. This is acceptable as long as impacts of recreation in heavy used areas are addressed.[54] See further discussion under MA 1.1 below.

Each MA should state if lands assigned to it are available for oil and gas leasing, and if so, what lease stipulations will be required. Stipulations for leasable minerals are deliberately omitted from the action alternatives. See DEIS at 103. This is not acceptable.

The description of each MA should state what class(es) in the recreation opportunity spectrum is/are likely to apply, and what the scenic integrity objective(s) is/are for the MA.

Off-road travel for recreation and firewood gathering is allowed under four MAs. See Table 12, p. 91. Limitations are needed on this form of travel for any purpose.

Since not all alternatives use the same management areas (MAs), or necessarily even the same forest-wide direction, complete descriptions of both the MAs and forest-wide direction used in each alternative, at least how these differ from the proposed Plan, should be provided for public review, perhaps in a DEIS appendix. Only with this information can the public fully understand what is being proposed in the alternatives.

2. Specific Management Area Direction Comments

MA 1.1, Designated Wilderness (Plan at 75 et seq.):
The following statement is unclear: "Livestock grazing is present except where previously delineated". Plan at 75. Where were livestock ever "delineated" in wilderness and what does that mean?

Under 1.1 S-2, maximum group size for activities authorized by special use permit could be exceeded if the activity "will benefit the wilderness character" or "is necessary for public health and safety". Plan at 76.

How could a large party possibly benefit the wilderness character? Indeed, party size limits are established specifically to prevent or reduce damage to the wilderness character. It is equally difficult to imagine how a party exceeding the established size limit would ever be necessary for public health and safety. This part of 1.1 S-1 must be deleted from the final plan.

[54] In the current plan, MA 1.13 – Wilderness Semi-Primitive addresses high use areas, which may need more intensive management to retain wilderness character. Current plan at IV-6 through IV-8.

Two MgtAprs here are good: limit signs to trail intersections and build bridges only for user safety, not convenience. 1.1-MAs -2 and -4. These should be standards or guidelines, but in any case, they should be retained.

MgtApr 1.1 MA-1, discourage trail duplication, should be a guideline or standard.

MgtApr 1.1-MA-6 would encourage management to "emphasize a wild fishery" and prohibit the stocking of non-native fish in wilderness. This is a good measure but it must be a standard to have any effectiveness.

MgtApr 1.1-MA-7 would limit rockhounding to 50 pounds per person per day. There should also be a limit of the number of days per year per person, as otherwise, a sizable amount of rock could be hauled out over time from areas near wilderness boundaries, with potential adverse impact on the wilderness character. In any case, this must also be a standard.

MgtApr 1.1-MA-8 states: "Minimize controlled driving of permitted livestock in designated wilderness". Does this mean that *uncontrolled* driving should be allowed? If livestock are allowed in wilderness, as they generally are, they may need to be controlled or driven to reduce over-utilization. This MgtApr should be clarified.

MgtApr 1.1-MA-10, possible actions to limit human impact to wilderness, needs to be a guideline or standard.

The "active weed management" allowed under MgtApr 1.1-MA-13 should emphasize non-chemical control whenever possible. In other words, use of herbicides should be a last resort, not a first resort.

We are pleased to see that the provisions of MA 1.1 would also apply to 1.1a, areas recommended for wilderness. Plan at 77. However, there may be some activities currently occurring in the 1.1a areas that do not conform to wilderness requirements. See, e.g., DEIS at 305, which states:

> Motorized trails would not be authorized and would have to be converted to nonmotorized trails. Mountain bike trails would be allowed if previously authorized and would only be discontinued if congressional designation of wilderness occurred.

The DEIS should identify the parts of 1.1a areas where activities that now occur would not be allowed if the respective areas were designated as wilderness. This should be done for both alternatives B and D, which recommend various acreages for wilderness. By identifying the

possible non-conforming areas, the Forest Service can enlist the public's help in monitoring them to ensure retention of wilderness character.

Also:

> Recommended wilderness areas are not withdrawn from mineral entry and are available for new leases or claims as long as the social and ecological characteristics that provide a basis for wilderness designation are maintained and protected. The proposed action must preserve and protect wilderness character.

DEIS at 306. The Plan should at least make all recommended wilderness areas discretionary no lease for leasable minerals.

MA 2.2, Research Natural Areas (Plan at 78):
MgtAprs 2.2-MA-1, -2, and -6, which allow recreation and special uses that do not conflict with the values or RNA establishment, need to be at least guidelines, if not standards, to ensure protection of RNA values.

MA 3.1, Special Interest Areas – Use And Interpretation Emphasis (Plan at 79):
See section III above for a detailed discussion od special area designations, including this MA.

MA 3.4, Designated Suitable and Eligible Wild, Scenic, and Recreational Rivers (Plan at 79-82):

Guidelines WSR-G-2, -3, and -4 state the ROS classifications and SIOs for wild, scenic, and recreational rivers, respectively. However, for scenic and recreational, it states: "Activities will meet the adopted scenic integrity objective." Plan at 81-82. Does this mean the SIO adopted at the time a management plan or determination of suitability is approved? Normally, SIOs are adopted at the plan level. The SIO for scenic river segments should be high, and for recreational segments, it should be moderate.

3.4-MA-1 states that a suitability study should be done whenever a proposed action threatens the free-flowing nature or any of the outstandingly remarkable values of one or more river segments. This needs to be a <u>standard</u>. It should be noted that when there is already a proposed action that threatens the free flow or ORVs, there may be intense pressure to approve it, to the detriment of the eligible river segment(s). To reduce this pressure, begin the suitability analysis at the earliest

possible time in the planning and analysis process for a project that could adversely affect free-flowing river segments or their ORVs.

MA 4.21 Scenic Byways and Railroads (Plan at 85):
Lands in this MA would be part of the suitable timber base. However, Table 12 at p. 91 shows that commercial timber harvest is not allowed in this MA. (It is only allowed in MAs 5.11 and 5.13).

While vegetation treatment may be desired at times (e. g., to remove hazard trees adjacent to roads and trails), these lands are managed for scenery: "All activities and interactions are managed to maintain the scenic beauty for which the area is designated." The *Integrated Desired Conditions* section for this MA states that activities like commercial timber harvest occur but "are not dominant or visible". However, it might be difficult to implement these activities without them becoming visible and dominant, due to the relatively narrow corridors to which this MA is applied. (See proposed forest plan management areas map.)

Land assigned to MA 4.21 should not be part of the suitable timber base.

Developed recreation facilities are acceptable in this MA

MA 4.3, Dispersed and Developed Recreation (Plan at 86):
The description here should explicitly state that these lands are not part of the suitable timber base.

MA 5.11, General Forest and Intermingled Rangelands (Plan at 86-87):

Under 5.11-MA-2, off-road use of motor vehicles would be allowed to retrieve game between noon and 5 PM, as long as no resource damage occurred. Use of vehicles off-road during big game rifle hunting season will almost always be damaging, as soils are often wet from melting snow. But even if not, off-route use illegally creates new routes and makes enforcement of travel management difficult. This provision must be removed from the final plan.

See our comments on dispersed recreation and off-road vehicle travel.

MA 5.13, Forest Products (Plan at 87-88):

5.13-MA-1, coordinating livestock grazing with vegetation management to "ensure adequate regeneration and prevent impacts on range improvements and natural barriers", needs to be a standard. If it remains a MgtApr, it will be too easy to ignore. Some provisions to provide coordination need to be in every timber sale or other vegetation management contract. Having this as a standard in the revised Plan would help ensure this occurs.

MA 5.41. Big Game Winter Range (Plan at 88-89):

The Integrated Desired Conditions section here states: "This management area is included in the suitable timber base." However, Table 12, Plan at 91, shows that commercial timber harvest is not suitable in this MA. It makes no sense to include the land in this MA in the suitable base if it will not be harvested. Also, management in this MA should retain hiding and thermal cover for wintering big game animals, but any commercial logging would likely reduce such cover. Therefore, land in this MA should not be suitable for timber production.

Under Integrated Desired Conditions, "[v]egetation treatments occur during the winter to mitigate impacts to habitat security values." Plan at 88. This is inappropriate. It makes no sense to do non-emergency vegetation treatment when the animals are likely to be on winter range, especially since such treatment could more easily be done in the longer period of each year when they are not present. Also, veg treatment, like cutting trees and implementing controlled burns, can be more difficult in cold winter weather. Access may be more difficult then due to snow cover or muddy roads.

We are happy to see 5.41-S-1, which prohibits off-road travel, including over-snow vehicles, form December 1 through March 31. This standard should be strengthened to state that no off-road motorized use is allowed any time during the season of possible use by big game, say November 1 to April 15. (See additional comments under Infrastructure above.)

We recommend a standard that encourages closure of all routes to motorized use on big game winter ranges during the season of big game use, subject to valid existing rights, emergency and needed administrative uses, etc.

MgtApr 5.41-MA-2, "[a]void placing new roads in locations with important forage and cover", should be a standard.

MA 8.22 Ski-based Resorts (Plan at 89-90)

The description says that "grazing is not authorized or permitted", but MgtApr 8.22-MA-2 states that grazing can be authorized on a limited basis with agreement and cooperation of the permit holder. This apparent contradiction needs to be corrected in the final revised plan.

A standard should state that lands in this MA are not suitable for timber production.

VII. **THE TIMBER SUITABILITY AND SALE QUANTITY ANALYSES NEED CORRECTION**

A. THE TIMBER SUITABILITY ANALYSIS DEFIES LOGIC.

The DEIS fails to consider alternatives that would reduce the area suitable for timber production, to provide additional protection to watersheds and ecosystems. Instead, each of the action alternatives significantly increases the area suitable for timber production. There is not much difference in suitable timberland in the action alternatives, with no alternative having less than 401,000 ac (as in Alt D) suitable. The proposed plan, alternative B, has many more acres suitable for timber production (468,311) than does the current plan (320,567). DEIS at 22, 25, 45. Notably the acreage suitable in alternatives B and C is not much less than the total acres that may be suitable – 499,936. (Plan at 164.) In other words, few acres are removed from the "may be suitable" category for not being appropriate for timber production given the emphasis of the alternative. That might be expected to be the case for alternative C, which emphasizes active management, but not for alternative B, where the emphasis is on "water quality and quantity, ecosystem resilience and sustainability, and economics and services provided through public land management". DEIS at 24. This is not a sufficient range of alternatives with regard to timber suitability, and does not comply with 40 CFR 1502.14(a).

Also, "[m]ost of the management areas [MAs] are the same as [the current plan], with a few exceptions" for proposed action Alternative B. Ibid. Comparing the MA maps of the current and proposed plans, the allocations for the two MAs that have the most timber-suitable land, 5.11 and 5.13, there appear to be only minor differences. The acreages of both 5.11 and 5.13 are less in the proposed plan versus the current plan:

TABLE 1
ACREAGE IN MAs 5.11 AND 5.13 IN ALTERNATIVES A AND B

DEIS Alternative	MA 5.11	MA 5.13
Proposed Plan Alt. B	155,330	248,689
Current Plan Alt. A	183,676 or 172,940	265,016 or 297,110[55]

[55] The first figure in the entries on this row come from the DEIS at 35. The second entries are from the 1997 Plan FEIS for selected alternative G at S-3. These difference are not explained.

With fewer acres in the most timber-friendly MAs, the proposed plan should have *fewer* acres suitable for timber production compared to the current plan, but it has over 46 percent *more* suitable acres.

Management emphasis in the current plan has not changed much in the draft plan, so the land suitable for timber production should not have increased, especially not by as much as it has in alternatives B and D.

The DEIS should include an estimation of the number of acres that would be cut per year under each alternative. Presumably this has been calculated, as the narrative on DEIS p. 158 qualitatively compares the alternatives in terms of acres to be cut. However, there is no narrative or table in the Plan or DEIS with the number of acres that may be cut.

According to Plan Appendix C, which details the timber suitability analysis[56], the following will be considered for timber suitability:

> 1M and 2S areas with low canopy cover (10 to 25 percent) that key out as grasslands or other non-timber types and which are not previously treed.

Plan at 165. Why should such areas be considered as potentially suitable for commercial timber production, especially those that have not had forest cover? Given the large area with dead overstory due to spruce bark beetle, whatever tree cover exists on these areas should be conserved. Or conversely, if the minimal tree cover is the result of meadow invasion and preservation of the meadows is desired, the trees would be removed one time and the areas would be kept un-forested. Either way, the areas described in the quote should not be considered suitable for timber production.

Similarly, and probably related to the above, grassland resources areas (MA 6.6) and bighorn sheep areas (former MA 5.12; still in alternative A) are now suitable for timber production:

> The grassland resource production management areas are being considered suitable for timber production in alternatives B, C, and D, a change from alternative A, where they are not suitable. In addition, the bighorn sheep management areas in alternative A were merged with winter range to create the big game winter range management areas in alternatives B, C, and D. As a result, these areas are now considered suitable for timber production.

DEIS at 129.

[56] DEIS Appendix B is identical to Plan Appendix C.

Grassland areas likely have few, or only scattered, trees, and should not be considered suitable for the reasons discussed above. Most winter range areas should not be suitable for timber production because any logging could remove forest cover needed by the big game as protection from wind and snow, i. e., thermal cover. Areas currently assigned to the bighorn sheep management area should also not have any suitable land because such areas are likely open with few trees, as bighorn sheep need long sight distances to navigate terrain and avoid predators. See additional comments below under Species Of Conservation Concern, Bighorn Sheep.

There is even some area of alpine terrain in the suitable timber base. See DEIS at 102. There should be no land in the alpine in the suitable timber base because alpine areas, by definition, have no trees.

Proposed action alternative B has over 150,000 acres of timber-suitable land in areas with high soil erosion potential, versus just over 100,000 acres for no action alternative A. DEIS Figure 15 at 156. Overall, 33-35 percent of the timber-suitable lands by alternative are on lands with high soil erosion potential. Id. at 155. In any case, lands with high soil erosion potential should not be suitable for timber production.

DEIS Figure 17, p. 157 shows almost 50,000 acres of land with poor reforestation potential is timber-suitable under alternative B, almost double the figure for alternative A. These lands should also not be suitable for timber production.

B. THE LONG-TERM SUSTAINED YIELD QUANTITY IS MUCH TOO HIGH.

The calculation of long-term sustained yield (LTSY) appears to violate the letter and intent of Handbook Chapter 60 guidance, as it includes land that should not have been included and because it was based on obsolete data. The direction for calculation of lands that "may be suitable" (DEIS at 506) explicitly instructs that "[l]ands on which technology to harvest timber is not currently available without causing irreversible damage" be excluded from the calculation. Therefore, lands that cannot be harvested with available technology should have been excluded. However, page 508 makes clear that "some inclusions in the suitable timber base many not be currently feasible for timber production," including areas that are too steep or isolated to harvest. These lands should have been excluded from the calculation of LTSY in step one because they cannot be harvested without irreversible damage. The fact that technology (helicopters) exists that could be, but likely never will be, deployed[57] does not justify inclusion of these lands in the suitable base. These lands should not have been carried forward into the calculation of suitable acres.

[57] Helicopters are very expensive to use, and timber from the RGNF is not likely to ever be sufficiently valuable to permit economical use of copters.

In addition, the estimation of LTSY appears to have been based on old, if not obsolete, data. According to DEIS at 507, the data used to calculate growth were collected "over the last 20 years." Almost half of the plots used to calculate LTSY came from spruce-fir forests, but according to the 2015 Report on the Health of Colorado's Forests, spruce beetles did not really begin to take off in southern Colorado until about 2010. With more than 610,000 acres infested by 2016, most of the spruce-fir plots that went into the calculation of LTSY have been likely been "significantly altered" (DEIS at 65) since the plot data were collected.

Much (but not all) of the spruce-fir forest on the Rio Grande is dominated by Engelmann spruce, and when spruce beetle kills the overstory, volume growth drops to near zero, unlike stands that share basal area with subalpine fir (Derderian et al. 2016). Because recovery of stand productivity in spruce-fir forests following stand-initiating disturbance can take decades (Aplet et al. 1989), it can be expected that it will be decades before much of the spruce-fir identified as "may be suitable" will achieve rates of production equal to those in the plots that went into calculation of LTSY. Thus, it is highly likely that not only is LTSY based on acres that should have been removed from the calculation, it is also based on estimates of productivity that are far higher than those likely to actually occur over at least the life of the revised plan. LTSY should thus be recalculated using an appropriately reduced forest base and an up-to-date assessment of forest growth.

Likely at least in part because of the lands described above are considered suitable for timber when they should not be, the maximum quantity of timber that can be sold is much too high. Plan at 41 (Standard S-VEG-7) states that the maximum amount of timber that can be sold (the long-term sustained yield capacity, LTSY) will be 73,749 ccf per year. This assumes that all 499,936 suitable acres could be harvested. Obviously, that is not the case, as with all of the beetle-killed spruce, there is much less live timber on the RGNF than there was before the spruce bark beetle outbreak. The areas hit by bark beetles will not have spruce trees old and large enough to harvest for commercial timber products for more than a century. Stands where the spruce overstory has been killed should not be considered suitable for timber production, because regeneration of spruce is uncertain. The exception could be stands where there is a well-developed understory that contains enough spruce to meet the restocking standard in Table 7 (Plan at 41).[58]

The maximum sale volume does not include any timber from salvage or sanitation of stands affected by natural disturbances or in imminent danger of being affected. Plan at 41. With or without salvage of beetle kill, but especially without it, there is nowhere enough timbered acreage to cut the stated maximum amount of timber.[59]

[58] Note that we disagree with the proposed stocking standards for ponderosa pine and Douglas-fir, which are a substantial change from the current plan. See comments in Forestwide Direction, on S-VEG-3.
[59] We recognize that even under the most favorable conditions imaginable for timber production, the annual LTSY quantity is not likely to be cut during the life of the plan. However, having such a grossly over-stated LTSY may

C. THE PROPOSED SALVAGE LOGGING IN THE FIRST DECADE IS UNREALISTICALLY HIGH.

It is not at all clear how the salvage volume in each alternative was estimated. The DEIS states that 610,000 acres of spruce-fir have been "affected" (DEIS at 65), and the plan proposes that between 0 and 62,800 CCF be salvaged each year, but it does not state anywhere how many acres will need to be cut to achieve this volume or where the salvage logging will occur on the forest. Thus, it is impossible to assess the environmental impacts of alternatives.
The DEIS (at 76) also notes that while spruce mortality may exceed 90 percent of the overstory, it is also "highly variable across the landscape." This variability may result in stands being targeted for salvage that are, in fact, suitable for retention as old growth. As Appendix A makes clear, a stand need only contain 10 live trees over 200 years old and 16" DBH (and snags and down wood) to qualify as old forest, conditions that would be expected in stands that have been "affected" but where not all large trees were killed. It is highly likely that much of the "affected" area meets these criteria and should not be targeted for salvage. The plan should contain standards to protect these stands, and it should describe precisely the areas where salvage logging is anticipated so that the EIS can effectively evaluate environmental consequences of the alternatives.

Each action alternative would have a high salvage volume in the first decade. For proposed action alternative B, 32,100 CCF would be cut annually in this time period. DEIS at 130. It is unlikely that all of this timber would still be merchantable by the end of the first decade. In fact, most of it may be commercially unusable by the time the revised plan is finalized.

The overstory spruce trees have been dead for some time, or at least they will have been by the time: the Plan is finalized, project-level NEPA is prepared with the required public involvement, projects are approved, contracts are let, and cutting begins, all of which might take another 4 years or so to begin. Our understanding is that dead trees begin to deteriorate significantly within 2-3 years of death, and are seriously degraded within 5 years.[60] They soon develop splits and checks that will make them useless for dimension lumber products like 2 X 4s. They could

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upwardly skew the calculation of Projected Timber Sale Quantity and Projected Wood Sale Quantity for each action alternative.

[60] Webb, 2015, states: "In a recent letter to the US Forest Service, Rocky Mountain Regional Forester, Intermountain Forest Association (IFA) observes that beetle-killed spruce is deteriorating much faster than anticipated." Id. at 2-3. Also:

> Montrose Forest products and Rocky Mtn. Timber Products personnel have both mentioned that beetle kill much older than 5 years may be problematic because lumber recovery is significantly affected by cracks and checks."

Id. at 3.

possibly be used for house logs, poles, and fence posts, but there is likely fairly low demand for these products, certainly not enough to justify anywhere near 32,100 CCF of salvage timber per year for up to 10 years. There would be some demand for firewood, but again not anywhere near enough to justify huge salvage volume.

The DEIS notes the problem of wood deterioration:

> As the larger dead trees decay, there may be a large volume of low-value material available. It may be difficult to find a market for this lower quality woody biomass.

DEIS at 128. A study cited there states:

> Once the trees are no longer suitable for [saw logs or house logs] it may be difficult to find a market for lower quality woody biomass.

Forest Stewardship Concepts, Ltd., 2014, at 25.

Because of the anticipated deterioration of wood quality, it is highly likely that salvage sales would have to get progressively larger over the duration of the plan in order to meet volume targets. The Plan should be clear about the anticipated acreage affected by salvage over time, including accounting for the effect of deterioration, so that the DEIS can evaluate environmental impacts.

Who would buy the wood offered for sale from the RGNF? Even assuming that product(s) desirable to industry is/are made available, there may be only one mill that could purchase any large sales from the RGNF. And even it, the mill in Montrose, CO, is likely to be saturated with opportunities to buy dead standing Englemann spruce. Much dead spruce exists on the GMUG NF, which is closer to the Montrose mill than anything on the RGNF. Also, most of the dead spruce on the GMUG, some of which will be offered from the SBEADMR Project[61], has not been dead for as long as the timber in the project area, so anything on the GMUG might be more attractive to any potential buyers.

It is also questionable whether the RGNF would be given enough money to prepare, offer, and administer the proposed volume of salvage timber. Appropriations for federal agencies have dropped greatly over the past 25 years, and they are likely to drop quite a bit more in the near future.

[61] Up to 68,121 acres of spruce could be cut under selected alternative 2, along with another 37,038 of "aspen-spruce mix", some of which would be spruce. SBEADMR FEIS, Table 9 at 57.

In short, there is no way the RGNF will be able to offer 32,100 CCF of salvage timber per year under the proposed revised forest Plan. The EIS should have a wider range of salvage volumes in the alternatives.

D. THE DEIS FAILS TO ADDRESS THE EFFECTS ON SOILS AND FIRE BEHAVIOR FROM SALVAGE LOGGING, AND APPEARS TO UNDERESTIMATE LIKELY PROBLEMS WITH REGENERATION

The DEIS fails to account for the effect on fire behavior of salvage logging. Contrary to the expectation that salvage logging will reduce fuel loads and therefore lower fire danger, logging often results in the deposition of large amounts of fuel on the forest floor all at once, rather than over decades, as would occur if the trees were left standing (Peterson et al. 2009). This effect may be exacerbated in Engelmann spruce because of the long residence time of standing snags in this species, and by the slow decomposition of wood in a cold environment. Logging slash is commonly piled and burned, but conditions are not always right for slash disposal and burning. The EIS should evaluate the effect on fire danger of salvage logging compared to leaving the trees to fall and rot gradually over time.

Similarly, the DEIS does not evaluate the long-term soil impacts of the removal of beetle-killed or burned trees. The DEIS (at 94) acknowledges that snags will eventually fall over, decompose, and "become part of the soil," and (at 153) it notes that "coarse woody debris would be an important nutrient source in the future as well as an important carbon sink." In some forests, decaying trees become "nurse logs" that support germination and growth of the next generation (Hunter 2003), and several authors report that Engelmann spruce seems to show a preference for regeneration on rotting coarse woody debris (e.g., Daubenmire 1943, Whipple and Dix, 1979, Knapp and Smith 1982, Alexander 1987). The EIS should evaluate the long-term implications for germination, growth, and soil development/carbon sequestration of removing the nurse logs of the future, as well as existing ones that will be piled and maybe burned as part of logging operations.

Any logging, and especially salvage logging, is well known to kill established seedlings (Donato et al. 2006, Peterson et al. 2009), as felling, skidding, and yarding break and uproot young trees. Salvage logging in Colorado spruce-fir forests, in particular, was shown to hinder recovery following blowdown (Rumbaitis- del Rio 2006). Given the concern expressed in the DEIS (at 156) about the difficulty of reforesting sites that are exposed to increased sun exposure, the effect of salvage logging on reforestation should not be dismissed but instead should be evaluated in the DEIS. It is not enough to assume that any impacts on regeneration can be mitigated by planting, as planting is very expensive (several hundred dollars per acre), and only a limited acreage on the RGNF can reasonably be expected to be planted.

E. JUSTIFY USE OF THE PROPOSED CUBIC FOOT-BOARD FEET CONVERSION FACTORS.

The conversion factor for translating cubic feet into board feet seems high – "4.4 board feet per cubic foot for mixed-conifer and ponderosa pine and 5 board feet per cubic foot for the spruce salvage sales." DEIS at 130. These appear to be for logs larger than those commonly cut on the RGNF. The Forest Service should state why it chose these conversion factors and why they are appropriate for use on the RGNF. Such analysis and disclosure are necessary to meet the Planning Rule's requirement to use the best available science. See 36 CFR 219.3.

VIII. **SUITABILITY FOR OIL AND GAS LEASING SHOULD BE DETERMINED FOR ALL ALTERNATIVES, AND LEASE STIPULATIONS MUST BE STATED FOR MANAGEMENT AREAS WHERE LEASING WOULD BE ALLOWED**.

A. INTRODUCTION

Exploration, drilling, and production of oil and gas and related operations on national forest lands can have many impacts to: wildlife and habitat, including connectivity and fragmentation; soils, water quality; scenery; recreation opportunity; etc. When a lease is held by production, impacts can persist for decades.

Numerous scientific studies point to potential problems with human health related to oil and gas operations. See, e. g., McKenzie et al, 2012; Colborn et al, 2011; and Concerned Health Professionals of New York et al, 2016.

The planning team should not assume that there will be no oil or gas activity on the RGNF during the life of the plan. Prices are low right now, but they could rise fairly quickly. That could generate interest from industry in parcels on the Forest. Indeed, oil prices have risen recently. Also, in 2008, 140,000 acres of land, much of on the RGNF, was nominated for leasing. (It has been deferred since then.) All or part of this area could be re-nominated any time.

B. CONSIDER A NO-LEASING ALTERNATIVE

The Forest Service should consider alternatives that are responsive to the urgent need to address climate pollution, including not allowing leasing for fossil fuels. Every ton of carbon dioxide and

other greenhouse gases (especially methane[62]) added to the atmosphere contributes to climate change, and any additional fossil fuel development permitted on the Rio Grande and the subsequent combustion of those fossil fuels will worsen climate change. Therefore, due to the urgent need to protect humankind and federal public lands from the potentially devastating impacts of global warming, the Forest Service should consider and analyze an alternative that eliminates new fossil fuel leases on the Rio Grande.

An alternative is "reasonable" if it falls within the agency's statutory mandate and meets at least a part of the agency's purpose and need. When determining whether an EIS analyzes sufficient alternatives to allow the Forest Service to take a hard look at the available options, courts apply the "rule of reason." *New Mexico ex rel. Richardson v. Bureau of Land Mgmt.*, 565 F.3d 683, 709 (10th Cir. 2009) (citing *Westlands Water Dist. v. U.S. Dep't of the Interior*, 376 F.3d 853, 868 (9th Cir. 2004)).

The reasonableness of the alternatives considered is measured against two guideposts. First, when considering agency actions taken pursuant to a statute, an alternative is reasonable only if it falls within the agency's statutory mandate. *Westlands*, 376 F.3d at 866. Second, reasonableness is judged with reference to an agency's objectives for a particular project.[63] *See Dombeck*, 185 F.3d at 1174–75; *Simmons v. U.S. Army Corps of Eng'rs*, 120 F.3d 664, 668–69 (7th Cir. 1997); *Idaho Conservation League v. Mumma*, 956 F.2d 1508, 1520 (9th Cir. 1992).

A no-leasing alternative would meet both tests. First, the Forest Service has decision-making authority with respect to oil and gas leasing on national forests. 30 U.S.C. § 226(h). Second, a no-leasing alternative would meet the Rio Grande's purpose and need for a forest plan revision, which states that to meet the 2012 Planning Rule's requirement to provide for ecological sustainability,

> management direction is also needed that addresses ecosystem integrity and diversity, including key ecosystem characteristics, in light of changes in climate, landownership, and recreational use patterns, as well as other threats and stressors to those ecosystems.

DEIS at 10.

Climate change is driving many of these ecological changes, including increases in temperature, precipitation changes, and increased frequency of extreme weather events, that influence forest

[62] Methane and other heat-trapping gases are commonly emitted during drilling for, and production of, oil and gas.
[63] While an agency may restrict its analysis to alternatives that suit the "basic policy objectives" of a planning action, *Seattle Audubon Soc'y v. Moseley*, 80 F.3d 1401, 1404 (9th Cir. 1996), it may do so only as long as "the statements of purpose and need drafted to guide the environmental review process ... are not unreasonably narrow," *Dombeck*, 185 F.3d at 1175.

ecosystems. Limiting or eliminating oil and gas leasing on the Rio Grande would help mitigate climate change by reducing emissions from fossil fuel extraction and use. A desired outcome for a reasonable alternative could be reducing the planning area's contribution to climate pollution. It could establish that certain uses—including fossil fuel production—would be allowable only on current leases, which would enable the Forest Service to achieve a desired outcome of reducing the intensity of climate change that will negatively impact the Rio Grande. As such, a no-fossil fuel leasing alternative would meet the purpose and need for the forest plan revision.

The DEIS' alternatives appear to be identical with regard to oil and gas issues, though, as mentioned previously, there is very little information in the DEIS on this important resource issue. The alternatives, given their different management emphases, should be different with regard to oil and gas. For example, Alternative C, "proposes to increase the acreage available for multiple uses on the Forest" and does not recommend any areas for wilderness (DEIS at 28), while Alternative D "emphasizes less active management of resources while increasing the amount of area available for recreation opportunities that provide for a more solitary experience" (id. at 29), and would recommend 285,000 acres for wilderness designation (id. at 31). Surely this would result in different application of stipulations, even if the forest-wide acreage of land available for leasing was the same.

The issue needs to be addressed, and the EIS alternatives must encompass a range of activity on oil and gas. See the CEQ Regulations at 40 CFR 1502.14(a), which require agencies to "rigorously explore and objectively evaluate all reasonable alternatives".

C. THE PROPOSED PLAN WOULD PROVIDE LESS PROTECTION FROM OIL AND GAS IMPACTS THAN THE CURRENT PLAN, BUT THIS SUBJECT IS NOT ANALYZED IN THE DEIS

Under the proposed action, considerable acreage, (e. g, that currently assigned to the 3.3 Backcountry MA) would be assigned to others MAs proposed in the Plan. Under the current plan, in MA 3.3:

> Areas with high [oil or gas] potential are available for oil and gas leasing with the NSO stipulations. All other areas are administratively unavailable.

Id. at III-17.

Under the proposed Plan, about 58,700 acres that currently allow leasing would not do so under the proposed action. These are all areas that are recommended for wilderness designation under proposed action B. However, approximately 148,100 acres now with NSO would not have the

NSO stipulation under the proposed plan. Acres currently in MA 3.3 (backcountry) and 5.42 (special wildlife areas - bighorn sheep) would be assigned to MAs like 5.41 (big game winter range), where leasing is allowed with stipulations, if any besides standard terms, other than NSO. In other words, the proposed revised RGNF plan would have less protection overall from the impacts of oil and gas activities on areas where leasing would be allowed compared to the current plan. See Exhibits 4 and 5.

However, this is not discussed anywhere in the Plan or DEIS. Indeed, as discussed above in section VII D(1), these and all other MAs have no direction at all for lease stipulations.

D. DETERMINE SUITABILITY OF LANDS FOR OIL AND GAS ACTIVITY FOR ALL ALTERNATIVES THAT WOULD ALLOW LEASING.

Suitability is a plan component:

> Specific lands within a plan area will be identified as suitable for various multiple uses or activities based on the desired conditions applicable to those lands. The plan will also identify lands within the plan area as not suitable for uses that are not compatible with desired conditions for those lands.

See the Planning Rule at 36 CFR 219.7(e)(1)(v). Though "[t]he suitability of lands need not be identified for every use or activity" (ibid.), we believe it should be for oil and gas, given the potential for oil-gas activities to create impacts, which can be severely adverse and/or persistent.

Therefore, we ask that a determination of which lands are suitable for oil and gas leasing, especially for surface occupancy, and what stipulations need to be applied in each MA, be done for all EIS alternatives. At a minimum, the RGNF should find the following areas unsuitable for surface disturbing activities associated with oil and gas leasing and development: all roadless areas; all research natural areas; all special areas; wild, scenic, and recreational river corridors; riparian areas; moderate or higher quality lynx habitat; alpine areas; big game winter range; deer and elk fawning/calving areas; bighorn sheep habitat, especially lambing grounds; Gunnison sage grouse habitat; slopes with 40 percent or greater steepness; areas with high erosion or mass wasting potential; priority watersheds; watersheds where function is impaired; campgrounds; picnic grounds; and trailheads.

The revised Plan must ensure, through plan components and lease stipulations, that impacts from oil and gas activity to ecosystem integrity and all resources, especially wildlife habitat and water quality, will be minimized.

IX. **PROBLEMS WITH THE ANALYSIS OF LIVESTOCK GRAZING**.

There is very little or no difference among the alternatives in the area considered suitable for livestock grazing:

> Acreage of suitable rangeland does not vary by alternative…
>
> Among all alternatives, the acreage of suitable rangeland remains nearly constant with the exception of small alterations based on special area designation. As a result, livestock grazing impacts to riparian and wetland ecosystems are expected to remain consistent with those observed in the previous planning period, and will not vary significantly by alternative.

DEIS at 21, 101.

The DEIS at 136 states that 581,556 acres of land were determined to be suitable for livestock grazing in 2002, and that no change is assumed for the current analysis. But shouldn't suitability change with the management emphasis of each alternative? For example, alternative D, which emphasizes less active management of resources while increasing the amount of area available for recreation opportunities that provide for a more solitary experience" (DEIS at 29), would intuitively have less land suitable for livestock grazing. Or if not, another alternative should be formulated that would have, among other things, less land suitable for livestock grazing than the other action alternatives.

Nevertheless,

> There is no difference among alternatives in terms of total permitted animal unit months. Where that grazing will specifically occur would vary in alternative D, based on the potential designation of special interest areas and/or research natural areas that do not allow for ongoing livestock grazing.

DEIS at 238. This means that under alternative D, the same number of livestock would be concentrated on fewer acres, increasing the impacts from grazing. Under the less-management emphasis of alternative D, there should, if anything, be *less* impact from livestock grazing. However, the AUMs would be the same in alternative D, but would be done on fewer acres, due to there likely being less grazing in the special interest and research natural areas proposed for designation in alternative D versus what would occur in other alternatives (that would not designate these areas). See DEIS at 238. That means that the impacts of livestock grazing under alternative D would be *greater* than under any of the other alternatives on the acres where such

grazing would occur, because the same amount of grazing would occur under D as in the other alternatives but on fewer acres.

The Planning Rule describes "suitability of lands" as follows:

> Specific lands within a plan area will be identified as suitable for various multiple uses or activities based on the desired conditions applicable to those lands. The plan will also identify lands within the plan area as not suitable for uses that are not compatible with desired conditions for those lands. The suitability of lands need not be identified for every use or activity. Suitability identifications may be made after consideration of historic uses and of issues that have arisen in the planning process.

36 CFR 219.7(e)(1)(v).

The analysis does describe historic livestock use of the RGNF, noting that:

> High elevations and shorter growing seasons make impacts from past grazing practices still visible in places. Sheet and gully erosion is apparent in many areas as a result of these past improper practices on lower-elevation rangelands. Because these areas were most impacted and receive limited annual precipitation, recovery takes more time.

DEIS at 138.

At least some of the areas still showing the effects of poor management practices should be closed to grazing, i. e., be considered unsuitable until fully recovered.

Troublingly, the acreage found suitable for livestock grazing appears to exceed, by a considerable margin, the land found capable of this activity. See Table 44 at 140-141. Totals for the capability numbers are not provided, but a quick rounding and adding of number appears to show that alternative B has about 478,000 acres considered capable for cattle and 50,000 acres capable for sheep. But according to DEIS p. 159, 540,310 acres are capable for livestock grazing in alternative A, and 539,935 acres are so capable in the action alternatives.

Both sets of figures are well short of the 581,556 acres found suitable for all alternatives, even if all acres considered capable for cattle are not capable for sheep and vice-versa. (In the field, there is probably some overlap.) Similarly, for alternative D, about 488,000 acres are found capable for cattle grazing, and 49,000 acres for sheep grazing.

The DEIS Glossary defines "capability" and "suitability for grazing" as follows:

Capability
The potential of an area to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity. Capability depends on current management practices at a given level of management intensity. It is also dependent on existing resource and site conditions such as climate, slope, landform, soil, and geology, as well as the application of management practices, such as silviculture or the protection from fire, insects, and disease. …

Suitability for grazing
The appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of economic and environmental consequences, and the alternative uses forfeited. A unit of land may be suitable for a variety of individual or combined management practices. Suitability is a determination of the appropriateness of grazing on the capable lands based on economic and environmental consequences and consideration of alternative uses forfeited if grazing is allowed.

DEIS at 437, 474, respectively; emphasis added.

Since suitable range land is the portion of the lands capable for grazing where grazing is considered appropriate, the acres of land considered suitable for grazing could theoretically (but unlikely) be equal to the acres capable, but could never be more than the latter. Yet in the DEIS, there is clearly more land identified as suitable than capable for livestock grazing. This must be corrected.

X. **MONITORING**

Table 13 in Plan chapter 4 (pp. 97 et seq.) with the details of the monitoring program should have triggers, i. e., what is the approximate change in each indicator that would or might necessitate further action or at least a closer or more detailed analysis.

One indicator for improving priority watersheds is “number of projects completed in priority watersheds”. Plan at 99. We recommend that this be reworded to say “number and percent of essential projects identified in the watershed restoration action plan completed in priority watersheds.” This metric makes way more sense as it measures the progress the RGNF is making in implementing the watershed restoration action plan, and not just potentially random projects that happen to be located in the watershed.

For monitoring the status and trend of riparian and wetlands areas, an indicator is "changes in riparian vegetation (forest pasture, willow, grass/forb, grassland, shrub)". Does this mean only increased or decreased presence of these vegetation types? Or increase/decrease in riparian vegetation overall? Or does it mean a change in natural range of variability with regard to the proportion and structure of composition of these species in riparian and wetland areas? This should be clarified.

Under Monitoring Question 15, Plan at 105, one indicator states: "CWD (same as for MQ)" This needs to be filled in corrected, or deleted.

One of the indicators under Monitoring Question 18, addressing range condition is: "Number of surveyed allotments not meeting, moving toward or meeting desired conditions". Are the desired conditions stated here the ones developed in allotment management plan or the proposed forest plan? The desired conditions for the proposed forest plan on range are very general. See Plan at 33. Monitoring them alone might not reveal much about range condition. This needs to be clarified.

We do not see any monitoring question or indictors for addressing recreation conflicts, such as motorized vs. non-motorized, mechanized versus horse riders, etc. Monitoring Question 20 address "satisfaction" with recreation, but conflicts are not specifically mentioned in the Question or the associated indicators.

Under the Planning Rule, plans must include "monitoring questions and associated indicators" for "[t]he status of focal species to assess the ecological conditions required under § 219.9". 36 CFR 219.12(a)(5). The Proposed Plan Monitoring Framework does have such questions and indicators, but to be clear exactly which species will be monitored, the final plan should list all focal species, along with rationale for their selection.

XI. **THE PLAN AND DEIS MUST COMPREHENSIVELY ANALYZE THE POTENTIAL EFFECTS OF CLIMATE CHANGE AND PROVIDE PLAN COMPONENTS FOR MITIGATING THESE EFFECTS**.

Climate change is already affecting the Rio Grande, and future impacts are likely to increase in severity. The DEIS for the Rio Grande's draft plan identifies climate change as one of the "drivers and stressors" affecting the forest, and notes that climate projections for the Rio Grande indicate likely increases in temperature, increased tree mortality, increased fire risk, precipitation changes, earlier snowmelt, and habitat shifts for both plants and animals.[64] It is critical for the

[64] DEIS at 63-64.

Rio Grande forest plan to address these issues and provide management direction relating to climate impacts, adaptation, and mitigation on the Rio Grande.

Below, we briefly summarize the legal requirements for alternatives analysis under NEPA and explain why the Rio Grande must incorporate climate change into its analysis. We then summarize some key U.S. Forest Service (USFS) climate policies and guidance materials that emphasize the importance of managing our national forests to increase climate resilience and adaptive capacity, and to mitigate climate change by maintaining and, when possible and consistent with other forest management objectives, increasing the forests' ability to effectively sequester carbon. Finally, we offer suggestions to revise the Rio Grande draft plan to ensure that it reflects USFS's commitment to addressing climate change.

A. ALTERNATIVES ANALYSIS UNDER NEPA

Below we provide a brief overview of the legal requirements for considering reasonable alternatives under NEPA. We explain that the Rio Grande failed to adequately consider climate change in its alternatives analysis in the draft plan DEIS, making this analysis legally insufficient under NEPA. The Rio Grande must rectify this deficiency in the final plan and final EIS.

1. Legal Framework.

Compliance with NEPA is essential to ensure that the Rio Grande produces an effective and well-informed forest plan revision. NEPA "is our basic national charter for protection of the environment"[65] and provides action-forcing tools to ensure reasoned and informed agency action. Because its substantive intent is too often forgotten, it is helpful to remember that NEPA is designed to:

> [E]ncourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; [and] to enrich the understanding of the ecological systems and natural resources important to the Nation.[66]

Notably, NEPA expressly calls on agencies to provide for intergenerational equity, stating that it is intended to "fulfill the responsibilities of each generation as trustee of the environment for succeeding generations."[67] This is particularly significant given the long-lasting impacts of climate change, which will affect the entire planet—and the Rio Grande specifically—for many generations.

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[65] 40 C.F.R. § 1500.1(a).
[66] 42 U.S.C. § 4321; *see also id.* § 4331.
[67] 42 U.S.C. § 4331(b)(1).

As the U.S. Supreme Court has noted, "the thrust of [NEPA] is . . . that environmental concerns be integrated into the very process of agency decision-making."[68] Thus, while "NEPA itself does not mandate particular results, but simply prescribes the necessary process,"[69] agency adherence to NEPA's action-forcing mandates helps achieve NEPA's purpose and policies.[70] NEPA's implementing regulations clearly articulate this:

> Ultimately, of course, it is not better documents but better decisions that count. NEPA's purpose is not to generate paperwork—even excellent paperwork—but to foster excellent action. The NEPA process is intended to help public officials make decisions that are based on [an] understanding of environmental consequences, and take actions that protect, restore, and enhance the environment.[71]

The "heart" of NEPA is an agency's duty to consider "alternatives to the proposed action" and to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources."[72] An agency must "[r]igorously explore and objectively evaluate all reasonable alternatives" and specifically "[i]nclude the alternative of no action."[73]

Operating in concert with NEPA's mandate to take a hard look at impacts, an agency's fidelity to alternatives analysis allows agencies to "sharply defin[e] the issues and provid[e] a clear basis for choice among options by the decision maker and the public."[74] NEPA's implementing regulations emphasize the importance of fully informed and well-considered decisions that "foster excellent action" and "protect, restore, and enhance the environment."[75] As the D.C. Circuit has explained:

> NEPA requires that an agency must—to the fullest extent possible under its other statutory obligations—consider alternatives to its actions that would reduce environmental damage. That principle establishes that consideration of environmental matters must be more than a pro forma ritual. Clearly, it is pointless to "consider" environmental costs without also seriously considering action to avoid them.[76]

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[68] *Andrus v. Sierra Club*, 442 U.S. 347, 350 (1979).
[69] *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989).
[70] *See* 42 U.S.C. §§ 4321, 4331.
[71] 40 C.F.R. § 1500.1(c) (emphasis added).
[72] 42 U.S.C. §§ 4332(2)(C)(iii), 4332(2)(E); 40 C.F.R. § 1502.14(a).
[73] 40 C.F.R. §§ 1502.14(a), (d).
[74] 40 C.F.R. § 1502.14.
[75] 40 C.F.R. § 1500.1(c); *see also* 40 C.F.R. § 1500.2(e).
[76] *Calvert Cliffs' Coordinating Comm. v. U.S. Atomic Energy Comm'n*, 449 F.2d 1109, 1128 (D.C. Cir. 1971) (emphasis added).

Detailed consideration of reasonable alternatives provides interested parties with an informed basis to question any initial predispositions and "to rethink the wisdom of the action."[77] Failure to engage in such consideration in inconsistent with NEPA: "The existence of reasonable but unexamined alternatives renders a [NEPA analysis] inadequate."[78]

To inform the alternatives analysis, agencies must consider direct, indirect, and cumulative impacts, ensuring that the agency takes a hard look at the consequences of its actions.[79] The significance of these impacts must be assessed in terms of both context and intensity.[80] In light of the increasingly urgent need to transition away from fossil fuels and account for climate change, it is important to note that an agency's hard look at impacts should evaluate the "[e]nergy requirements and conservation potential of various alternatives and mitigation measures," "[n]atural or depletable resource requirements and conservation potential of various alternatives and mitigation measures," and "[m]eans to mitigate adverse environmental impacts."[81]

We emphasize that the Rio Grande must not limit its hard look at impacts to the projected lifespan of the plan itself, but should account for the lifespan of the impacts—both positive and negative.[82] For example, as the Forest Service Planning Handbook explains, "[i]n light of possible changes in species composition under the effects of climate change and with a focus on restoration, the Agency designs plan components to provide ecological conditions to sustain functional ecosystems based on a future viewpoint."[83] NEPA itself does not justify confining the hard look to the lifespan of the plan, but rather to the lifespan of all predicted and reasonably foreseeable impacts, even when those impacts may only be understood qualitatively rather than quantitatively. Climate change must also be properly integrated into the hard look analysis, in particular in terms of assessing: (1) the efficacy of management measures intended to protect or restore ecological values on the Rio Grande; and (2) the combined, cumulative impact of forest management actions and predicted or reasonably foreseeable impacts.

NEPA's success as a planning tool is contingent, in significant part, on effective public involvement, in particular in terms of developing actionable alternatives. NEPA's implementing regulations provide that, "Federal agencies shall to the fullest extent possible . . . encourage and facilitate public involvement in decisions which affect the quality of the human environment" and "[m]ake diligent efforts to involve the public in preparing and implementing their NEPA

[77] *Nat. Resources Def. Council v. Hodel*, 865 F.2d 288, 296 (D.C. Cir. 1988); *see also Citizens Against Burlington v. Busey IV*, 938 F.2d 190, 196 (D.C. Cir. 1991) ("the rule of reason does not give agencies license to fulfill their own prophecies, whatever the parochial impulses that drive them).
[78] *Friends of Southeast's Future v. Morrison*, 153 F.3d 1059, 1065 (9th Cir. 1998) (citation omitted).
[79] 40 C.F.R. §§ 1508.7, 1508.8, 1508.25(c).
[80] 40 C.F.R. § 1508.27.
[81] 40 C.F.R. §§ 1502.16(e), (f), (h).
[82] 40 C.F.R. § 1508.27(b)(1).
[83] FSH 1909.12, § 23.11.

procedures."[84] As the Ninth Circuit has explained, NEPA works "through the creation of a democratic decision-making structure that, although strictly procedural, is 'almost certain to affect the agency's substantive decision[s].'"[85] By requiring agencies "to place their data and conclusions before the public . . . NEPA relies upon democratic processes to ensure . . . that 'the most intelligent, optimally beneficial decision will ultimately be made.'"[86] This process, in turn, ensures open, honest and public discussion "in the service of sound decision-making."[87]

2. Lack of Climate Analysis in the Proposed Alternatives.

Notably, the DEIS acknowledges that "management direction is . . . needed that addresses ecosystem integrity and diversity, including key ecosystem characteristics, *in light of changes in climate*."[88] The DEIS also identifies "climate change vulnerabilities" as a "need for change" topic warranting revision of the current plan.[89] Despite this recognition, however, the Rio Grande has failed to develop an alternative that addresses climate change at even a cursory level, let alone the in-depth consideration the issue warrants. There is literally *no* discussion of climate change in any of the four alternatives, and no explanation of how the Rio Grande may address climate change differently under the proposed alternatives. This is unreasonable and legally insufficient under NEPA.

We are deeply troubled that none of the four alternatives even mentions climate change, let alone discusses that alternative's approach to addressing climate change impacts, adaptation, and mitigation. It is unreasonable for the Rio Grande to completely ignore climate change in its alternatives analysis, given the far-reaching and long-lasting impacts that climate change will cause, and is already causing, on the Rio Grande. We emphasize the importance of climate change as an overarching theme that the forest plan revision must account for across all focal and resource areas. We are unaware of any element of forest management that is not, in some significant way, impacted by a changing climate, in particular given the reliance of all multiple uses on foundational forest resources, especially water. Although the DEIS contains some discussion of how climate change is affecting and is projected to affect the Rio Grande, this information is fairly sparse and disaggregated; notably, there is no section specifically dealing with climate change in the DEIS.

In the final EIS, the Rio Grande must rectify this omission by clearly explaining how each proposed alternative addresses climate change impacts, adaptation, and mitigation. This analysis will enable the public to understand how the alternatives differ in their approaches to climate

[84] *Id.* at §§ 1500.2(d), 1506.6(a).
[85] *Or. Nat. Desert Assoc. v. BLM*, 531 F.3d 1114, 1120 (9th Cir. 2008) (quoting *Robertson*, 490 U.S. 332, 350).
[86] *Id.* (quoting *Calvert Cliffs' Coordinating Comm.*, 449 F.2d 1109, 1114).
[87] *Id.* at 1143.
[88] DEIS at 10 (emphasis added).
[89] *Id.* at 11.

change, and will enable the Rio Grande to make an informed decision about how to address climate change in the forest plan. Failure to include climate change in any of the proposed alternatives, as the Rio Grande has done in the DEIS, is unreasonable and would render the final EIS legally insufficient under NEPA. To ensure that the Rio Grande fulfills its obligation under NEPA to take a "hard look" at climate change in its analysis, we urge the agency to include a full and robust discussion of the issue in the final EIS.

B. USFS CLIMATE POLICIES AND GUIDANCE

USFS recognizes the importance of proactively addressing climate change. Numerous agency publications and guidance materials emphasize the need to effectively manage national forests and grasslands to increase their resilience to climate impacts and other stressors, using the principles of adaptive management.

USFS also recognizes the importance of establishing practices that help mitigate climate change by reducing atmospheric levels of greenhouse gas (GHG) emissions. For example, the Forest Service Global Change Research Strategy states that forests "play an important role in reducing the buildup of greenhouse gases in the atmosphere by sequestering carbon." [90] In the research strategy, USFS commits to identifying best management practices that will increase carbon sequestration while supporting ecosystem health.[91]

The USFS National Roadmap for Responding to Climate Change also addresses the importance of climate change adaptation and mitigation in our nation's forests. It identifies several adaptive management strategies that USFS will use, including building resistance to climate-related stressors, increasing ecosystem resilience, and when necessary, facilitating large-scale ecological transitions.[92] The Roadmap notes a connection between mitigation and adaptation, stating that healthy, resilient forest ecosystems are better able to store carbon.[93]

Carbon sequestration is the primary mitigation strategy of USFS, which has committed to "[p]romoting the uptake of atmospheric carbon by forests and the storage of carbon."[94] The Roadmap identifies the following actions that USFS is taking to promote carbon storage:

- Actively managing carbon stocks in forests, grasslands, and urban areas over time by doing the following:
    - Rapidly reforesting land damaged by fires, hurricanes, and other disturbances, consistent with land management objectives.

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[90] *The Forest Service Global Change Research Strategy,* 5, 2009-2019.
[91] *Id.*
[92] *USFS National Roadmap for Responding to Climate Change,* 19-20 (2010) [hereinafter *Roadmap*].
[93] *Id.* at 21.
[94] *Id.*

- Conserving working forests and grasslands.
- Providing technical assistance for programs designed to enhance carbon sequestration potential through afforestation, reforestation, and practices that increase and maintain productivity and ecosystem health.
- Encouraging cities to retain green space and to plant and maintain trees.
- Using available tools to understand the impacts of management actions on carbon stocks and fluxes.[95]

The Climate Roadmap also directs USFS to "work with partners to sustain or increase carbon sequestration and storage in forest and grassland ecosystems."[96] There are limits to our ability to increase carbon sequestration on USFS land while achieving other management goals (such as fuel reduction programs to prevent uncharacteristically severe wildfires), and the Roadmap therefore states that USFS should consider tradeoffs as it develops management strategies to achieve the agency's carbon sequestration goals consistent with other agency objectives.

USFS also developed a Climate Change Performance Scorecard that each National Forest must complete annually. Scorecard element #9 concerns carbon sequestration. Each National Forest must determine whether "information relevant to the Unit level [has] been developed and synthesized to assess carbon stocks and the influence of land management activities and disturbances on potential changes in carbon stocks."[97] A detailed handbook, Navigating the Scorecard, was developed to assist USFS officials in determining whether they are meeting the Scorecard objectives. The handbook further elaborates on the importance of managing National Forests to effectively promote carbon sequestration:

> Our nation's forests and grasslands play a critical role in storing carbon and helping to reduce the amount of greenhouse gases that are released into the atmosphere. We as an Agency continue to play a strong role in helping to mitigate greenhouse gas emissions by conserving and restoring forest and grassland ecosystems . . . Being a "carbon literate" Agency means understanding how carbon storage varies across the landscape and how disturbances and management actions have affected carbon stocks in the past and may affect them in the future. This understanding is even more critical when climate change may exacerbate stressors, creating even more carbon losses in some ecosystems.[98]

These USFS policies and guidance materials recognize the crucial role that the agency plays in safeguarding our national forests' ability to sequester carbon on a long-term basis, and more generally commits USFS to addressing climate change by improving the sustainability of its operations.

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[95] *Id.* at 24.
[96] *Id.* at 21.
[97] *The Forest Service Climate Change Performance Scorecard* (2011).
[98] *Navigating the Climate Change Performance Scorecard,* 40 (2011).

We urge the Rio Grande to ensure that the draft plan, which contains no management direction pertaining to carbon sequestration, and very little pertaining to climate change more generally, is revised to ensure that the final plan is consistent with these priorities. Specifically, the final plan should address how the Rio Grande will address climate impacts, adaptation, and mitigation in the forest.[99] We expect the Rio Grande to fully account for these issues in its forest plan or to provide a reasoned and informed explanation for why the plan does not address them in a meaningful way.[100]

C. CLIMATE ADAPTATION AND RESILIENCE IN THE DRAFT PLAN

The Rio Grande's draft plan almost entirely fails to mention climate change, let alone incorporate climate considerations into plan direction. This is an egregious omission in light of the negative impacts that climate change is already causing on the Rio Grande, which will likely increase in severity over the life of the plan. Failing to address climate change in the plan is misguided, inconsistent with agency policy, and fails to adequately protect forest resources for the American public. The likely impacts of climate change in the Rio Grande are already known with reasonable certainty, as the DEIS makes clear,[101] and failing to account for these impacts in the plan sets the Rio Grande up for challenges down the road when the Forest will inevitably have to grapple with these issues. Failing to prepare for the reasonably foreseeable impacts of climate change in the forest plan will make it more difficult for the Rio Grande to effectively address these impacts when they occur, ignores the fact that proactive management may be needed to avoid or mitigate some impacts, and needlessly imperils plant and animal species that are vulnerable to climate change. The American public deserves better, and so do the many species of wildlife and plants that live in the Rio Grande and depend on competent management from USFS, particularly in light of the climate-related threats many of these species face.

At best, the draft plan contains the absolute minimum required under the 2012 Planning Rule to address climate change, notwithstanding the increasingly urgent necessity for all sectors of society, including government agencies like USFS, to address the issue in a meaningful way. The 2012 Rule requires each forest plan's monitoring program to include "[m]easurable changes on the plan area related to climate change and other stressors that may be affecting the plan area."[102] Accordingly, the Rio Grande included some monitoring questions and sample adaptive management questions pertaining to climate change in the draft plan.[103] This is critical because developing and implementing a robust monitoring program is essential to track climate impacts

[99] *E.g.* Protecting wildlife and ecosystems, fuel reduction programs to reduce the risk of uncharacteristically severe wildfires.
[100] *See* 5 U.S.C. § 706(2)(a).
[101] *See, e.g.*, DEIS at 63-64.
[102] 36 C.F.R. § 219.12(a)(5)(vi); *see also* Draft Plan at 92-93.
[103] Draft Plan at 100 (Table 14).

in the Rio Grande and determine what management strategies are most effective at addressing these impacts. These questions and indicators will be used to assess the Rio Grande's progress in achieving Goal 2, "[to] maintain and restore sustainable, resilient terrestrial ecosystems."[104]

However, the draft plan contains no mandatory requirements that would actually require the Rio Grande to increase the forest's ecological resilience in the face of climate change. The *only* plan component that expressly addresses climate adaptation is MA-VEG-9, which states that vegetation management shall be "done in a manner that supports *one or more* of the following: . . . [8] Anticipates climate-related plant succession changes (such as favoring heat- or drought-resistant tree species as leave trees)."[105] Since this condition is only one of eight, any one of which is sufficient, there is no guarantee that *any* vegetation management will take climate-related plant succession changes into account. MA-VEG-9 is thus so limited as to be ineffective. It should be revised to *require* vegetation management to anticipate climate-related plan succession changes. Moreover, while the Rio Grande certainly should account for climate-related plant succession changes in vegetation management, there are a whole host of other climate-related issues (such as anticipated increases in temperature, increases in wildfire risk, and impacts on plants and wildlife, among other things) that the Rio Grande should account for in its forest plan, but which the draft plan completely ignores.

For example, the draft plan fails to include any plan components that address climate impacts on wildlife and plant species, including threatened or endangered species and species of conservation concern. In fact, the draft plan does *not even mention* climate-related threats to species apart from Table 21, which identifies climate change as a threat to numerous species of conservation concern, including the white-veined arctic butterfly,[106] boreal toad,[107] Rio Grande cutthroat trout,[108] boreal owl,[109] Brewer's sparrow,[110] southern white-tailed ptarmigan,[111] fringed myotis bat,[112] Townsend's big-eared bat,[113] and numerous plant species. Climate threats to other species, including threatened or endangered species, are not even identified in the draft plan. Moreover, nowhere in the draft plan is there *any* management direction that would require the Rio Grande to manage species in ways that would reduce climate-related harms. How does the Rio Grande expect species that are vulnerable to climate change to withstand climate-related impacts if the forest plan does not specify how USFS should address these issues? Failing to

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[104] Draft Plan at 100. This goal notes: "Diversifying age classes and structure, seral stage, and habitat classes, where appropriate . . . would provide benefits including, but not limited to . . . responsiveness to anticipated changes in climate."
[105] Draft Plan at 45 (emphasis added).
[106] *Id.* at 169.
[107] *Id.* at 170.
[108] *Id.*
[109] *Id.* at 171.
[110] *Id.*
[111] *Id.* at 172.
[112] *Id.* at 173.
[113] *Id.*

include management direction to help species vulnerable to climate change cope with climate-related impacts is a grave error and will likely reduce the ability of species in the Rio Grande to cope with and adapt to climate change.

The Rio Grande must revise the draft plan to incorporate clear, enforceable plan components that address climate change adaptation. It is especially important to address climate impacts on plant and wildlife species, as well as large-scale impacts due to changes in temperature and increased wildfire risk. We recognize that some plan components in the draft plan may be intended to increase ecological resilience and foster adaptation to climate change, even if they do not explicitly say so. However, we believe any such plan components should include direct references to climate adaptation and resilience to make it clear that desired conditions are intended to facilitate climate adaptation and resilience.

D. CLIMATE MITIGATION IN THE DRAFT PLAN AND DEIS

Although the Rio Grande is not a large source of greenhouse gas emissions (GHGs) that contribute to climate change, there are GHGs associated with current or potential operations on the forest, including timber harvest, oil and gas development, facilities management, and motor vehicle use, among other things. The forest plan should include clear, enforceable plan components that enable the Rio Grande to effectively reduce emissions from these and other activities on the forest. Unfortunately, the draft plan largely misses the opportunity to mitigate climate change. The Rio Grande should rectify this in the final plan by adding or modifying plan components to address carbon sequestration and reduction of GHGs from various operations.

1. Carbon Sequestration. The DEIS contains a fairly comprehensive section on carbon sequestration, which provides an overview of current and projected carbon storage on the Rio Grande and explains how modeling was used "to simulate the carbon storage consequences of four management alternatives proposed."[114] While the modeling analysis is helpful, we suggest providing a fuller explanation of what input was used for the model. It appears that the input was limited to the information in Tables 29, 30, 31, and 32, but this is not entirely clear. More explanation would be helpful to understand precisely what aspects of the proposed alternatives were included in the carbon sequestration modeling analysis.

According to the model, there were differences in carbon storage among the four alternatives: "alternatives B and C involved less carbon storage over the next 30 years than Alternative A, while alternative D led to more storage."[115] However, the DEIS concludes that these differences are probably not significant:

[114] DEIS at 123.
[115] *Id.* at 124.

> [W]hile a difference among scenarios of nearly a million metric tonnes is large in absolute terms, it is not a large amount in relation to either the total stored by the Forest or the uncertainty of the monitoring system. Expanded natural disturbances likely would affect carbon storage in the Forest much more than the difference among any of these alternatives.[116]

While we acknowledge that uncertainties exist and that natural disturbances play a role in the amount of carbon stored in the Rio Grande, we do not agree that these considerations basically moot the differences in carbon sequestration among the four alternatives. Alternative D is evidently preferable from a carbon storage perspective based on the information available at this time, notwithstanding the fact that natural disturbances may end up playing a greater role in influencing carbon storage than management direction. The Rio Grande should do what is in its power to protect carbon storage in the forest, even though there is some uncertainty and other factors besides forest management also play a role. It is also worth noting that although "insect and fire patterns" are natural disturbances, climate change is exacerbating them.[117] The Rio Grande should not choose an alternative (Alternative B, the proposed action) that does less to protect carbon storage and mitigate climate change based on the rationale that climate-driven disturbances will also likely affect carbon storage in the forest.

While we appreciate the carbon sequestration analysis in the DEIS, we are concerned that the draft plan does not include any explanation of how the plan components influence carbon sequestration, or indeed, why carbon sequestration is important. The 2012 Planning Rule[118] requires forest plans to provide for ecosystem services by including "plan components, including standards or guidelines . . . to provide for ecosystem services . . . in the plan area."[119] Because the Planning Rule identifies carbon storage as an ecosystem service,[120] the Rio Grande must include plan components that address carbon sequestration in the planning area.

Unfortunately, the draft plan does a very poor job of incorporating plan components that will protect carbon sequestration in the Rio Grande. In fact, not a single plan component in the entire plan even mentions carbon sequestration, which is only mentioned once in the entire plan—in the glossary, as an example of an "ecological process."[121] It is unclear how various plan components will affect carbon storage in the forest, and there is no indication whether or how the Rio Grande will consider carbon storage in its management decisions. This omission fails to

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[116] *Id.* at 125.
[117] *Id.* at 75 ("Disturbances such as large fires and insect outbreaks are predicted to increase in frequency due to climate change.").
[118] 36 C.F.R. Part 219.
[119] 36 C.F.R. § 219.10(a).
[120] 36 C.F.R. § 219.19.
[121] Draft Plan at 121.

implement USFS policy to manage national forests and grasslands to effectively maintain, and, where appropriate, enhance the long-term storage of carbon.

Most notably, the plan components for vegetation and soil contain no mention of carbon sequestration, even though management practices for these resources influence how much carbon is stored in the Rio Grande. The plan components for riparian management zones (such as bogs and fens, which act as carbon sinks), likewise fail to mention carbon storage. We encourage the Rio Grande to add plan components for relevant resources, including vegetation, soil, and riparian management zones, that require the Rio Grande to manage these resources in ways that maintain or increase their ability to sequester carbon.

The Rio Grande draft plan should be revised to acknowledge the importance of carbon sequestration in mitigating climate change by offsetting GHG emissions. As a starting point, the introduction should explain how the plan addresses carbon sequestration. The plan should also explain how different types of forest ecosystems and resources (including vegetation, soils, and riparian areas) contribute to carbon storage, based on data from the carbon assessment[122] or other reliable sources. It should describe the carbon sequestration value of geographic and management areas as well.

Most importantly, plan components should explicitly require management strategies that maintain, and, where feasible, increase carbon storage in the Rio Grande, consistent with the forest's carbon carrying capacity and other management objectives. Plan components that address carbon sequestration should be included where relevant, including forest-wide plan components for all vegetation types, soils, other ecosystems as appropriate (e.g. riparian management zones), and geographic and management areas as appropriate.

2. Sustainable Operations. USFS policies and guidance recognize the importance of reducing the agency's footprint and reducing emissions from operations on USFS lands. The USFS National Climate Roadmap includes climate mitigation strategies, including a commitment to reduce GHG emissions "through more prudent consumption in facilities, fleet, and other operations."[123] Specific strategies include:

- Incorporating and maintaining long term programs, practices, tools, and policies that integrate sustainable consumption principles throughout the organization by removing barriers and promoting the use of efficient appropriate technologies, and behavior changes.

[122] Rio Grande National Forest Assessment 4: Carbon, https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd493827.pdf.
[123] *Roadmap* at 21.

- Institute a culture that emphasizes education, rewards positive actions, and recognizes achievements that reduce our environmental footprint in long lasting ways.
- Integrate sustainable consumption activities into daily decisions, habits, planning and operations.
- Increase leadership capacity and day-to-day capabilities to implement sustainable consumption patterns at and between all levels of the organization.

Navigating the Climate Change Performance Scorecard furthermore notes that a number of sustainable operations requirements are legally required under the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007.[124] This guidance observes:

> To fulfill the Forest Service's obligation to present and future generations, our land stewardship mission must be strategically integrated with practices that reduce our resource consumption. Instituting a culture of sustainable consumption by integrating environmental footprint reduction principles into all our programs, practices, and policies will help us to reach our goals.

The draft plan should incorporate plan components that establish sustainability metrics for USFS operations like those contained in the USFS National Climate Roadmap. Including such plan components would establish a framework for sustainable operations and ensure that USFS takes sustainability into consideration in decisions about buildings,[125] transportation, recreation, and other operations on the Rio Grande.[126] We encourage the Rio Grande to lead by example by using energy-efficient building materials, low-flow toilets, low- or zero-emission vehicles, solar energy, and other strategies to reduce emissions and increase long-term sustainability. We also note that the DEIS mentions "implementation of 'green' operations" as a national focus area for sustainable recreation. The draft plan should reflect this priority in plan components.

The draft plan contains one plan component, DC-AIR-5, that addresses GHGs: "The ecological footprint is minimized to promote sustainable natural resource management and emit the lowest practicable greenhouse gas emissions. (Forestwide)."[127] While this is better than including *no* plan components that address GHGs, it is weak and should be strengthened. First, we suggest rewording this plan component to make it clearer. It is unclear what the "ecological footprint" encompasses. At a minimum, it should include all USFS activities in the Rio Grande (including facilities management and vehicle use). The need to reduce emissions from other sources, including timber harvest and energy development, should also be addressed. Finally, DC-AIR-5

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[124] *Navigating the Climate Change Performance Scorecard* at 42.
[125] DC-INFR-1 requires USFS buildings and related facilities to be "energy-efficient." Draft Plan at 59. This is a good start, but we recommend adding additional plan components to require emission reductions from transportation and other sources of emissions.
[126] DEIS at 269.
[127] Draft Plan at 46.

is just a "desired condition" and thus is not binding, but merely "present[s] a vision of what the Forest should look like in the future."[128] The urgency of climate change requires *mandatory* GHG reductions, not just unenforceable and potentially ineffective "desired conditions." DC-AIR-5 should be changed to a standard or at the very least, a guideline.

XII. **PROHIBIT OFF-ROAD MOTORIZED GAME RETRIEVAL**

As SLVEC et al wrote in their scoping comments dated October 28, 2016, the allowance of driving off-road to retrieve game should be ended. It presents confusing direction on travel management, and makes any limitations on motorized use difficult to enforce.

The DEIS states:

> Management actions to reduce motorized cross-country travel and limitations on off-road game retrieval and dispersed camping have the potential to reduce unauthorized roads and trails, which typically have greater impacts than National Forest System roads.

Id. at 181. The DEIS also states:

> Illegal off-route travel by off-highway vehicles continues to be a problem on the Forest… Most of this occurs in the form of short-distance loops or spurs off existing routes, especially in riparian areas. These have the same impacts as those of planned routes and may have additional, more severe, impacts due to their unplanned nature.

Id. at 239.

We agree with and support other statements included in the DEIS, which indicate that eliminating driving off-road to retrieve game would:

- help "eliminate off route all-terrain-vehicle travel in general" and protect soil resources. DEIS at 160.
- minimize impacts to water resources. DEIS at 182.
- reduce the creation and use of unauthorized routes, which typically have greater impacts than roads. DEIS at 182.
- minimize impacts to species of conservation concern and prevent harm to plant species of conservation concern. DEIS at 252.

[128] *Id.* at 1.

In addition, the elimination of driving off-road to retrieve game would reduce adverse impacts not fully considered in the DEIS, such as:

- Damage to archaeological, cultural and historic resources
- Damage to vegetation
- Conflicts with other hunters and forest users
- Wildlife disturbance and degradation of wildlife habitat
- The spread of noxious weeds
- Unauthorized intrusion and negative impacts on Wilderness, Roadless, other management areas, private land, BLM land, State land, and national forests who do not allow driving off-road to retrieve game
- Damage from widening of single track trails
- Confusion over travel management rules
- Impede enforcement of motorized travel designations.

We believe that the long-term practice of allowing driving off-road to retrieve game on the Forest is not sustainable. There are locations on the RGNF legally open to this form of off-road driving that are over 4 miles away from the nearest designated open motorized route. This means that multiple paths of potentially damaging cross-country motorized use of at least four miles' length is permitted in some areas. The distances traveled are likely greater in order to avoid obstacles and terrain as the four-mile distances would require a straight line there and back.

If the popularity of hunting increases, the number of hunters that travel off-road using an ATV to retrieve game may also increase. If so, the damage to soils, water quality, and other resources would increase. The use of vehicles off-route to retrieve game by some hunter could scare game away from other hunters.

Currently, Colorado Parks and Wildlife 2017 hunting regulations permit the sale/purchase of an unlimited number of over-the-counter licenses to hunt elk during various seasons in the Game Management Units that include Forest land (especially units 68, 681, 80, 81 and 82, but also unit 79). Unlimited over-the-counter licenses are available to hunt pronghorn are also available in unit 76. There is no existing limit on the number of hunters that might travel off-road using ATVs each year. This means that the number of hunters who could potentially travel off-road in an ATV to retrieve game on the forest is only limited by the number of hunters who desire to hunt on the Forest, their success in harvesting an animal, and the populations of big game available. The population of the San Luis Valley is increasing, as is the population of Colorado and the U.S. in general. This may result in more hunters on the Forest. Elk populations total in the thousands, so there are potentially thousands of opportunities to legally retrieve harvested elk.

We thus support alternative D's proposal to eliminate driving off-road to retrieve game forest wide.

We support the prohibition and elimination of motorized game retrieval in management areas 1.1, 1.1a, 2.2, 3.1, 3.4, 3.5, 3.6, and 4.21, as suggested in the suitability Tables 7 and 9 for alternatives B and D. DEIS at 40, 42. Off-road motorized game retrieval can damage natural features, negatively impact resources, and conflict with desired conditions, settings and users of these areas (as well as being prohibited within designated Wilderness).

We also support the continued prohibition of driving off-road to retrieve game in management areas 1.1, 1.12, 1.13, 1.5, 2.2, 3.1, 3.3, 3.4, and 4.21 as presented in Table 6 for alternative A. DEIS at 39. Driving off-road to retrieve game should not be permitted in these areas as it has the potential to damage and negatively impact natural features and resources and conflict with desired settings, conditions and users of these areas.

We support the proposed elimination of this form of game retrieval in management area 4.8 Ski based resorts as proposed in Table 8 for alternative C (DEIS at 41), and in MA 8.22 under alternative D (id. at Table 9, p. 42). Ski based resorts may have sensitive and fragile equipment, infrastructure, and other facilities which could be unknowingly damaged by the use of ATVs off designated roads. Ski resorts may be moving and packing early season snowfall during hunting season, in an attempt to open as early as possible. ATV use off designated routes could interfere with and/or significantly damage early season snow (by rutting it, introducing dirt and debris into it, etc.). In years with low early snowfall, ATV use off-routes could cause soil erosion. As climate changes, adequate snowfall at ski resorts is not guaranteed, and protecting any snow that does fall (and the soils beneath the snow) may become more and more important.

A ski area might conceivably open during big game hunting season if there is adequate early season snow, and off-route ATV use in the area would directly conflict with operation and use of that area. Off-road ATV use must be prohibited in ski areas for the same reasons snowmobile use is prohibited.

Part of the description of alternative C states: "This alternative would synchronize the off-road game retrieval policies with the forest motor vehicle use map [MVUM] and would shift time frames for retrieval". DEIS at 28. This implies that the other alternatives would not make off-road game retrieval consistent with the MVUM. It also suggests that time frames for game retrieval would be modified from the currently allowed noon to 5pm, but no further details are provided in any of the draft plan documents. Although we could envision some potential advantages to modifying the time period for off-road motorized game retrieval (if allowed to continue), we and the public cannot adequately evaluate, consider or comment on a possible proposed shift in time frames without further information.

The areas where off-road motorized game retrieval is legally permitted are most commonly shared with the public as areas depicted on the MVUM. We would hope that areas that permit off-route motorized game retrieval but that have no legally designated publicly available and open motorized route accessing them would be eliminated as game retrieval areas on the MVUM (if this practice is allowed to continue). There are numerous areas depicted as open to this form of game retrieval on the current MVUM that require unauthorized travel across BLM, private, or other forest lands that prohibit motorized game retrieval for access. We previously shared a list of twelve of these areas with the Forest.

We strongly object to the unsupported claims made in the DEIS that the elimination of off-road motorized game retrieval in alternative D may negatively impact recreational spending in the various counties. Although there are hunters who may hunt on the forest because they prefer an off-road motorized game retrieval option, no documented evidence is provided that these hunters would hunt in other locations if motorized game retrieval were prohibited on the Forest. There are also other hunters who specifically avoid hunting on the Forest because they prefer more traditional and quiet human-powered backcountry hunting experiences, which can be and have been disrupted by motorized game retrieval.

Numerous other Forest users such as hikers, photographers, anglers, etc. avoid the Forest during hunting season because off-road ATV game retrieval can disrupt and negatively impact their desired quiet use experiences. Language in the DEIS incorrectly suggests that the current game retrieval policy only provides economic benefit, and neglects to fully account for the total economic and environmental costs of allowing this policy to continue. We thus request that the EIS be corrected by eliminating any references to the economics of motorized game retrieval unless evidence and data is also provided.

This draft plan proposes in draft alternatives B, C and D to eliminate the existing MA 3.3 Backcountry, which currently prohibits off-road motorized game retrieval. Many of these areas are proposed to be incorporated into management areas 3.5 and 3.6, which will continue to prohibit this form of game retrieval. Our analysis indicates that there are at least 22 areas, totaling over 31,000 acres, that are currently managed as backcountry and will be incorporated into other management prescription areas. See Exhibit 5. These other management prescription areas include forest products, big game winter range, dispersed recreation, etc. which all permit motorized off-road game retrieval. We point this out to indicate that unless the no-action alternative is selected, the plan will certainly be making motorized travel management decisions which will result in the modification of the MVUM. This is contrary to statements made by Forest Staff at public meetings that the plan will not be influencing motorized travel.

We request that the final EIS acknowledge and consider the potential modification of the MVUM via the likely opening of over 31,000 acres of additional land to off-road motorized game retrieval. The final EIS should consider alternatives to simply converting these acres into adjacent management prescription areas that are not Mas 3.5 or 3.6.

We strongly recommend, and have been told by Forest Staff at plan meetings, that management areas 3.5 and 3.6 will remain in place even if the Colorado Roadless Rule is somehow eliminated or modified. This indicates that management of 3.5 and 3.6 areas is not directly dependent upon roadless area management under the Colorado Rule. Thus, we suggest that the possibility of converting these 31.000 acres of 3.3 Backcountry lands to adjacent 3.5 or 3.6 MA be fully considered. This would likely eliminate significant modification of the MVUM due to a Forest Plan decision.

The current game retrieval policy as stated on the 2016-2018 MVUMs permits game retrieval "unless soil and water damage will occur". We recommend that if game retrieval is permitted to continue, that this wording be modified to state 'unless soil and/or water damage will occur.' Certainly, the intent of this wording is to prevent soil or water damage, and the potential exists to damage soil without damaging water and vice-versa. Modifying this language will help ensure that any ATV game retrieval that does occur will have minimal impacts to these resources.

We also believe that better clarification and definition of exactly what soil or water damage actually is must be developed if this game retrieval policy is allowed to continue. At some small but measurable level, every pass of an ATV could be considered to negatively impact soil (via compaction, displacement, erosion, ability to absorb water, etc.) A pass of an ATV has the potential to negatively impact water at some level (including turbidity, channeling, clarity, etc.). Certainly the passage of an ATV can deposit measurable levels of pollutants onto surrounding soil and water, including fluids such as gasoline, oil, brake, and other fluids, brake and tire dust and residue; and exhaust pollutants as a result of incomplete combustion. It could be argued that all off-road ATV use results in some level of damage to soil and water, and thus all off-road ATV use for game retrieval should not be allowed because of this damage. The amount and severity of the impacts, which constitute a level considered as damage, must be better defined if ATV game retrieval is permitted to continue.

It must be recognized that it is often difficult for an ATV rider to recognize that their use is resulting in damage to soil or water. A rider's attention must be focused on the route ahead in order to ensure safe travel at the speeds ATVs can attain. Any damage that occurs is normally not detected, as it is only visible behind the vehicle after it passes. In addition, since a rider is separated from, and not coming in direct contact with, soil or water because of the presence of their machine, it is difficult for a rider to sense that any damage is occurring.

We are also concerned about the high potential for negative impacts to individual and populations of rare and imperiled plants as a result of the legal continuation of off-road use of ATVs for game retrieval (as proposed in alternatives A, B and C). DEIS Table 52 at 198 identifies thirty-two separate species of plants as Species of Conservation Concern. Off road motorized vehicle use has been identified as a threat to many of these plants in conservation assessments and other documents. A single pass by an ATV has the potential to crush and potentially kill individual plants and groups of plants, as well as potentially significantly disturbing and disrupting habitat, as plants may not be able to grow in compacted soil for some time. Small populations of plants and specific and limiting habitat requirements increase the potential for motorized game retrieval to result in impacts that threaten the persistence of these species in the planning area.

The final EIS must evaluate and consider the site-specific distribution and occurrence of all plant species listed in Table 52 relative to where off-road motorized game retrieval is and is not proposed to be permitted. It must evaluate the individual and cumulative effects that motorized game retrieval may have on these species.

XIII. **THE PLAN MUST PROVIDE FOR SUSTAINABLE RECREATION**

A. MANAGEMENT OF OVER-SNOW VEHICLE USE

Under the newly promulgated subpart C of the Forest Service's travel management regulations, 36 C.F.R. part 212, each national forest with adequate snowfall must designate and display on an "over-snow vehicle use map" a system of routes and areas where over-snow vehicle (OSV) use is permitted based on protection of resources and other recreational uses. 36 C.F.R. § 212.81. OSV use outside the designated system is prohibited. *Id.* § 261.14. Implemented correctly, the rule presents an important opportunity to enhance quality recreation opportunities for both motorized and non-motorized winter users, protect wildlife during the vulnerable winter season, and prevent avoidable damage to vegetation, air and water quality, wilderness values, and other resources. It is important that the revised forest plan provides a strong framework for management of OSV use and for subsequent winter travel management planning under the new regulation.

While the draft plan provides some key elements of that framework that we support – such as the intention to develop winter-specific recreation opportunity spectrum (ROS) classifications – the final plan should provide additional direction to ensure timely compliance with subpart C. Programmatic forest plan decisions such as winter ROS and suitability determinations must be followed by implementation-level travel planning to designate discrete areas and routes where OSV use is allowed, based on the executive order minimization criteria and site-specific NEPA analysis. In addition, a decision to adopt existing OSV designation decisions for purposes of subpart C compliance requires an assessment of whether those decisions satisfy the minimization criteria and other relevant legal requirements. These issues are discussed in more detail below.

1. Background and regulatory framework

a. Executive order minimization criteria

In response to the growing use of dirt bikes, snowmobiles, all-terrain vehicles, and other off-road vehicles (ORVs) and the corresponding environmental damage, social conflicts, and public safety concerns, Presidents Nixon and Carter issued Executive Orders 11644 and 11989 in 1972 and 1977, respectively, requiring federal land management agencies to plan for ORV use based on protecting resources and other uses. Exec. Order No. 11,644, 37 Fed. Reg. 2877 (Feb. 8, 1972), *as amended by* Exec. Order No. 11,989, 42 Fed. Reg. 26,959 (May 24, 1977). When designating areas or trails available for ORV use, agencies must locate them to:

(1) minimize damage to soil, watershed, vegetation, or other resources of the public lands;
(2) minimize harassment of wildlife or significant disruption of wildlife habitats; and
(3) minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands.

Id. § 3(a). The Forest Service codified these "minimization criteria" in subparts B and C of its travel management regulations. 36 C.F.R. §§ 212.55, 212.81(d). The agency has struggled, however, to properly apply the criteria in its travel management decisions, leading to a suite of federal court cases invalidating Forest Service plans.[129] Collectively, these cases confirm the Forest Service's substantive legal obligation to meaningfully apply and implement – not just identify or consider – the minimization criteria when designating *each* area and trail, and to show in the administrative record how it did so. As the Ninth Circuit recently held, "[w]hat is required is that the Forest Service document how it evaluated and applied [relevant] data on an area-by-area [or route-by-route] basis with the objective of minimizing impacts as specified in the [Travel Management Rule]." *WildEarth Guardians*, 790 F.3d at 931.[130] To satisfy its substantive duty to minimize impacts, the Forest Service must apply a transparent and common-sense methodology for meaningful application of *each* minimization criterion to *each* area and trail being considered for designation. That methodology must include several key elements, including gathering and applying site- and resource-specific information to minimize both site-specific and landscape-scale impacts, providing meaningful opportunities for public

[129] *See WildEarth Guardians v. U.S. Forest Serv.*, 790 F.3d 920, 929-32 (9th Cir. 2015); *Friends of the Clearwater v. U.S. Forest Serv.*, No. 3:13-CV-00515-EJL, 2015 U.S. Dist. LEXIS 30671, at *37-52 (D. Idaho Mar. 11, 2015); *The Wilderness Soc'y v. U.S. Forest Serv.*, No. CV08-363-E-EJL, 2013 U.S. Dist. LEXIS 153036, at *22-32 (D. Idaho Oct. 22, 2013); *Cent. Sierra Envtl. Res. Ctr. v. U.S. Forest Serv.*, 916 F. Supp. 2d 1078, 1094-98 (E.D. Cal. 2013); *Idaho Conservation League v. Guzman*, 766 F. Supp. 2d 1056, 1071-74 (D. Idaho 2011).

[130] *See also id.* at 932 ("consideration" of the minimization criteria is insufficient; rather, the agency "must apply the data it has compiled to show how it designed the areas open to snowmobile use "with the objective of minimizing'" impacts). Importantly, efforts to *mitigate* impacts associated with a designated OSV system are insufficient to fully satisfy the duty to *minimize* impacts, as specified in the executive orders. *See* Exec. Order 11644, § 3(a) ("Areas and trails shall be *located* to minimize" impacts and conflicts.). Thus, application of the minimization criteria should be approached in two steps: first, the agency locates areas and routes to minimize impacts, and second, the agency establishes site-specific management actions to further reduce impacts. Similarly, the Forest Service may not rely on compliance with the relevant forest plan as a proxy for application of the minimization criteria because doing so conflates separate and distinct legal obligations. *See Friends of the Clearwater*, 2015 U.S. Dist. LEXIS 30671, at *46 ("Merely concluding that the proposed action is consistent with the Forest Plan does not . . . satisfy the requirement that the Forest Service provide some explanation or analysis showing that it considered the minimizing criteria and took some action to minimize environmental damage when designating routes.").

participation, incorporating the best available scientific information and best management practices (BMPs) for minimizing impacts to particular resources, and accounting for predicted climate change impacts and available resources for monitoring and enforcement.[131]

b. Area designations under a closed unless designated open approach

The Forest Service's substantive duty to minimize impacts associated with OSV use applies to both area and trail designations. Minimization of impacts associated with OSV area allocations is particularly important because the OSV rule permits the Forest Service to designate larger areas open to cross-country travel than in the summer-time travel planning context. The rule, however, requires that designated areas be "discrete," "specifically delineated," and "smaller . . . than a ranger district." 36 C.F.R. § 212.1 (definition of "area"). Accordingly, the Forest Service must specifically delineate discrete areas where cross-country travel is permitted. And, as described above, the Forest Service must locate any such areas to *minimize* resource damage and recreational use conflicts. As the Ninth Circuit recently held, the Forest Service must "apply the minimization criteria to *each area* it designate[s] for snowmobile use" and "provide a . . . granular minimization analysis to fulfill the objectives of Executive Order 11644." *WildEarth Guardians*, 790 F.3d at 930-31. Importantly, the agency "cannot rely upon a forest-wide reduction in the total area open to snowmobiles as a basis for demonstrating compliance with the minimization criteria," which are "concerned with the effects of each particularized area." *Id.* at 932. The agency is "under an affirmative obligation to actually show that it aimed to minimize environmental damage when designating . . . areas." *Id.* (quotations and citations omitted). Proper application and implementation of the minimization criteria almost certainly would not result in designation of open areas even close to the size of a ranger district, as sensitive resources and other recreational uses adversely affected by OSV use would most likely be present throughout the area.

Proper designation of areas in compliance with subpart C and the minimization criteria will require most national forests to undergo a paradigm shift in OSV management. In general, forests have allocated vast areas as open to cross-country OSV travel largely by default.

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[131] *See generally* The Wilderness Society. 2016. Achieving Compliance with the Executive Order "Minimization Criteria" for Off-Road Vehicle Use on Federal Public Lands: Background, Case Studies, and Recommendations. (Attached as Exhibit 8). The Journal of Conservation Planning recently published a literature review and BMPs for OSV management that provide guidelines, based on peer-reviewed science, for OSV designation decisions and implementation actions that are intended to minimize impacts to water quality, soils, vegetation, wildlife, and other recreational uses. Switalski, Adam. 2016. Snowmobile Best Management Practices for Forest Service Travel Planning: A Comprehensive Literature Review and Recommendations for Management. Journal of Conservation Planning 12: 1-28. (Attached as Exhibit 9). The Forest Service's National Core BMP Technical Guide also includes relevant BMPs, such as imposing minimum snow depth and season of use restrictions; using applicable best practices when constructing winter trailheads, parking, and staging areas; and using suitable measures to trap and treat pollutants from over-snow vehicle emissions in snowmelt runoff or locating stating areas at a sufficient distance from waterbodies to provide adequate pollutant filtering. USDA Forest Service. 2012. National Best Management Practices for Water Quality Management on National Forest System Lands, Volume 1: National Core BMP Technical Guide. Available at http://www.fs.fed.us/biology/resources/pubs/watershed/FS_National_Core_BMPs_April2012.pdf. The 2012 Planning Rule requires plans to implement these practices. 36 C.F.R. § 219.8(a)(4).

According to data obtained by Winter Wildlands Alliance through a 2014 request under the Freedom of Information Act, approximately 94 million acres – or about 60% of national forest lands that receive regular snowfall – are currently open to OSV use, while only about 30 million acres outside of designated wilderness (where motorized use is prohibited by statute) are closed to that use.[132] Subpart C, however, specifically rejects this default "open unless designated closed" approach, and instead requires the Forest Service to "designate" specific areas and trails for OSV use (consistent with the minimization criteria), and prohibits OSV use outside of the designated system. *See* 36 C.F.R. §§ 212.80(a), 212.81(a), 261.14. In other words, subpart C requires forests to make OSV designations under a consistent "closed unless designated open" approach.

To satisfy these legal requirements, the Forest Service must designate as open only those discrete, delineated areas that are appropriate for cross-country OSV use and minimize environmental damage and conflicts with other recreational uses. Open areas should have easily enforceable boundaries using topographic or geographic features such as ridgetops, highways, or watershed boundaries. All other areas that are not determined to be appropriate for open designation then must be closed (or limited to designated routes), thus moving the forest into a "closed unless designated open" management regime.

c. Trail designations

As with area designations, the Forest Service must locate any designated routes to *minimize* resource damage and conflicts with other recreational uses. Under the plain terms of the ORV executive orders, the Forest Service must apply the minimization criteria to *all* trails designated for OSV use – even if those trails are located in areas of the forest that would be designated as open to cross-country OSV use. When designated and placed on a map, trails focus the impacts of OSV use to those locations and generally increase the number of OSV users visiting the area. This is particularly true of groomed trails within areas otherwise open to cross-country travel. Groomed trails are desirable for traveling faster and further into remote areas. In addition, grooming often results in widening the footprint of the trail, which wheeled motorized vehicles may then use in summer, resulting in additional impacts and conflicts.

d. Adequate snowpack

The new OSV rule requires designation of areas and routes for OSV use "where snowfall is adequate for that use to occur." 36 C.F.R. § 212.81(a). Particularly with climate change leading to reduced and less reliable snowpack, low-elevation and other areas that lack regular and consistent snowfall should not be designated for OSV use. Closing those areas is necessary to comply with the plain language of the subpart C regulations and with the executive order minimization criteria.

To account for variable snowpack and ensure that OSV use occurs only where and when snowfall is adequate, minimum snow depth restrictions are an important tool to further minimize impacts associated with OSV area and trail designations. The best available science shows that

[132] Winter Wildlands Alliance. 2015. Winter Recreation on National Forest Lands: A Comprehensive Analysis of Motorized and Non-Motorized Opportunity and Access. Available at http://winterwildlands.org/wp-content/uploads/2015/06/2015-Winter-Rec-Report.pdf. Attached as Exhibit 9.

minimum snow depths should be at least 18 inches for cross-country travel and 12 inches for travel on groomed trails. Switalski 2016. These depths are generally sufficient to minimize impacts to water quality, soils, and vegetation and to buffer for variable snow conditions (e.g., while a shaded trailhead may have 12 inches of snow, south-facing slopes further up the trail may have little or no snow). The Forest Service should also address plans to enforce minimum snow depth restrictions, including protocols for monitoring snow depths, communicating conditions with the public, and implementing emergency closures when snowpack falls below the relevant thresholds. Minimum snow depths measurements should be taken at established locations that are representative of varying snow depths based on factors such as wind, orientation, slope, tree cover, etc. Depths should be reported regularly on the forest website and posted at popular access points.

In addition, forests should clearly identify season of use restrictions based on wildlife needs, water quality considerations, average snow depth figures, and other relevant information, with those restrictions serving as bookends, and minimum snow depth requirements providing an additional limitation on use. 36 C.F.R. § 212.81(a) (OSV rule permits agency to designate areas or trails by "time of year" to tailor designation decisions to account for snowfall patterns).

e. Existing decisions

Upon public notice, subpart C permits the Forest Service to grandfather previous decisions made with public involvement that restrict OSV use to designated areas and routes. 36 C.F.R. § 212.81(b). Prior to grandfathering existing winter travel management decisions by adopting them on an OSV use map, however, the Forest Service must ensure that those decisions were subject to the executive order minimization criteria and other relevant legal requirements.

Most critically, previous decisions must have been subject to the minimization criteria, and the administrative records for the decisions must demonstrate that the agency applied the criteria when making any OSV area or route designations. If the previous decisions were not subject to the minimization criteria, the Forest Service may not adopt them on its OSV use map without a public process.

Similarly, the Forest Service may not adopt previous decisions that rely on an "open unless designated closed" policy or fail to designate discrete open areas. The Forest Service also must ensure that previous decisions are not outdated. Older decisions likely did not account for the increased speed, power, and other capabilities of current OSV technology, which allow OSVs to travel further and faster into the backcountry and to access remote areas that were previously inaccessible. Older decisions also may not account for new scientific information on sensitive wildlife and other forest resources and how they are affected by OSV use. They may not account for current recreational use trends and increasing conflict between motorized and non-motorized winter backcountry users. And they may not account for the current and predicted impacts of climate change, which is, among other things, reducing and altering snowpack and increasing the vulnerability of wildlife and other resources to OSV-related impacts. Without this information, the Forest Service cannot demonstrate how those previous decisions minimize impacts based on current circumstances and science.

1. Elements of an OSV Framework

The current forest planning process is the appropriate place to consider the significant impacts associated with OSV use in the broader recreation context and to provide for sustainable recreation during the winter season, as required by the 2012 Planning Rule. 36 C.F.R. § 219.10(b)(1)(i). This is particularly important given the increasing numbers of participants in both motorized and human-powered winter back-country recreation, and the corresponding increase in conflicts between skiers, snowshoers, and snowmobilers in many areas. Below we provide comments on key elements of an OSV framework.

a. Winter ROS

We are pleased to see that the DEIS acknowledges the need for a winter ROS classification system and the Draft Plan includes a standard making ROS designations enforceable (S-REC-1). DEIS at 272, Plan at 65. We would prefer that the winter ROS be included in the land management plan, as it is an important element of a programmatic OSV framework. As the Flathead National Forest recently recognized in its draft revised forest plan:

> [ROS] settings change as snow blankets the Forest's landscapes. While some settings become less accessible and more remote, others change from non-motorized to accommodating [OSVs]. Although the full range of settings, primitive to rural, are still present, their location, distribution and percentages change significantly during the winter months.

Flathead National Forest, Draft Revised Forest Plan at 62. The current ROS classifications are best suited for managing summertime uses, with many areas traditionally classified as semi-primitive motorized, semi-primitive motorized, and roaded natural providing high-quality and popular opportunities for non-motorized recreation in the wintertime. For example, many visitors enjoy the opportunity to cross-country ski on snow-covered forest roads without having to contend with OSV activity in the area. At the same time, skiers and snowshoers do not always mind sharing trails or areas with OSVs *so long as they expect to encounter motorized uses*. ROS classifications provide a good tool for visitors to determine where on the forest they should go to achieve their desired experience. However, forest visitors' experiences, expectations, and desires differ in winter as compared to summer, and ROS classifications should account for those distinctions.

The Forest Service Land Management Planning Handbook recognizes that development and implementation winter-specific ROS may be necessary:

> Desired winter recreation opportunity spectrum classes can be developed to depict changes in the location, mix and distribution of setting attributes, access, and associated opportunities (both motorized and nonmotorized). In doing so, distinct seasonal changes in the recreation settings and opportunities can be integrated with other seasonally relevant multiple uses, resource values and management objectives, such as protecting crucial winter range, providing access to key winter destinations, or limiting access to avalanche prone areas.

FSH 1909.12, ch. 20, § 23.23a(1)(d)(1). The winter ROS categories included in the Flathead Draft Plan provide a good example for what those classifications might look like:

> Primitive and semi-primitive non-motorized backcountry settings offer solitude and quiet recreation for those accessing the forest on skis, snowshoes, or snow boards. Semi-primitive motorized settings cover large expanses of the forest, offering over-snow vehicles the chance to explore areas of the forest that are often non-motorized in the summer months. Roaded natural and rural settings continue to serve as convenient connections to surrounding communities and easy access to visitors. Facilities are operated to provide user comfort. Groomed motorized and non-motorized trails offer users the chance to get outside for a day trip or take longer, cross-country excursions. Rental cabins are available although some require a ski in or over-snow vehicle trip to access them.
>
> **01** Winter recreation settings provide a range of opportunities as described by the recreation opportunity spectrum. . . .
>
> **02** Winter primitive recreation opportunity spectrum settings are large, remote, wild, and predominately unmodified. Winter primitive recreation opportunity spectrum settings provide quiet solitude away from roads, and people. There is no motorized activity and little probability of seeing other people. Constructed trails that are evident in the summer months are covered by snow, making these settings appear even more natural and untouched by human management.
>
> **03** Winter semi-primitive non-motorized recreation opportunity spectrum settings provide backcountry skiing, snowboarding, and snowshoeing opportunities. Trails are un-groomed and often not marked. Rustic facilities, such as historic cabins, yurts may exist but are rare.
>
> **04** Winter semi-primitive motorized recreation opportunity spectrum settings provide backcountry skiing and snowmobiling opportunities. Routes are typically un-groomed but are often signed and marked. There are vast areas to travel cross-country in designated areas, offering visitors an opportunity for exploration and challenge. Occasionally, historic rental cabins are available for overnight use and warming huts are available for short breaks.
>
> **05** Winter roaded natural recreation opportunity spectrum settings support higher concentrations of use, user comfort, and social interaction. The road system is plowed and accommodates sedan travel. Winter trails are routinely groomed and may have ancillary facilities such as warming huts and restrooms. System roads and trails often provide staging to adjacent backcountry settings (primitive, semi-primitive non-motorized, semi-primitive motorized). Guided motorized over-snow vehicle use, dog sledding, skiing, and snowshoeing may also be present.
>
> **06** Winter rural recreation opportunity spectrum settings provide high-use ski areas such as Blacktail Mountain and Whitefish Mountain Resort. These areas are accessed from paved and plowed roads and are generally close to population centers. User comfort facilities such as toilets, restaurants, heated shelter facilities, and information and education are commonly present. Parking areas are large and plowed. Entry points and routes are signed and direct over-snow vehicles to

> adjacent roaded natural and semi-primitive motorized settings. Non-motorized trails are also typically groomed for Nordic skiing. Rural winter settings provide access for communities and families to celebrate holidays, conduct racing events, and skiing.

Flathead National Forest, Draft Revised Forest Plan at 62-63.

Even with a winter-specific ROS classification system, it is important to remember that OSV area designations and ROS categories are distinct, albeit related, management tools. While motorized ROS classifications provide a good starting point for where to designate OSV areas and trails, the Forest Service should not assume that OSV use is appropriate across the entirety of those areas. Instead, as part of implementation-level winter travel management planning, the agency needs to designate discrete, specifically delineated areas and trails *within* the motorized ROS classifications and areas suitable for OSV use that are located to minimize environmental damage and conflicts with other recreational uses.

b. OSV suitability

We are pleased to see that the RGNF determined suitable and unsuitable places for OSVs. DEIS at 272, 283-285. However, we are not clear how the RGNF reached these determinations. The DEIS does not explain its methodology, and presents conflicting information. On page 271-272, the DEIS says:

> Motorized *Over-Snow Vehicle Use Suitability* maps for alternatives A through D…. reflect areas on the Forest where motorized over-snow vehicle use would be suitable and unsuitable for each alternative. This process does address motorized and nonmotorized settings during the winter season to determine suitability of these activities throughout the Forest. Over-snow vehicle use suitability determinations were made based on considerations for recreation user group preferences, wilderness areas, wildlife habitat, and areas of the Forest under long-term closure orders where applicable.

However, on page 284, the DEIS explains that it determined OSV suitability by management area, and did not use the factors listed on page 272. Moreover, page 272 sys that one of the factors used in determining OSV suitability was motorized and non-motorized settings, although we are confused how this could be if the winter ROS classifications will be developed in a subsequent winter travel management planning process. DEIS at 271.

The RGNF in the final EIS should provide a clear methodology and supporting rationale that clearly explains how it determined OSV suitability. Further, suitability determinations should address more than legal suitability (e.g., OSVs are unsuitable in designated wilderness because the Wilderness Act prohibits motorized uses), and should also address functional suitability and operability. For instance, steep slopes and windswept ridgelines, low elevation areas without adequate snowpack, areas with dense tree cover, and important habitat for wintering wildlife should all be found unsuitable. The final plan should include an objective that areas found unsuitable for OSV use will be subject to appropriate closure orders within one year of plan approval.

The final plan and EIS should include additional clarifying language that OSVs will not necessarily be permitted in all suitable areas. *See* FSH 1909.12, ch. 20, § 22.15(1) (a suitability determination "is not a commitment to allow such use but only an indication that the use might be appropriate"). Rather, suitable areas are a starting point for conducting implementation-level travel planning to designate particular areas and trails in accordance with the minimization criteria.

We want to bring to your attention a recent study conducted on the adjacent Grand Mesa-Uncompahgre-Gunnison and the San Juan National Forests that can help shed light on conducting OSV suitability determinations. Olsen et al (2017) modeled terrain selection of motorized and non-motorized recreationists, including snowmobile, backcountry ski, and snowmobile-assisted hybrid ski to better understand the environmental characteristics favored by winter recreationists, and thus predict areas of potential conflict or disturbance. Field locations were Vail Pass and the San Juan Mountains. Areas predicted to have only motorized recreation were more likely to occur further from highways, with greater forest road densities, lower canopy cover, and smoother, less steep terrain, while areas with only non-motorized recreation were closer to highways, with lower forest road densities, more canopy cover and steeper terrain. This work provides spatially detailed insights into terrain characteristics favored by recreationists, allowing managers to maintain winter recreation opportunities while reducing interpersonal conflict or ecological impacts to sensitive wildlife.

Also, the DEIS at 13 says that "[t]he Forest intends to re-evaluate the suitability of its National Forest System lands to support other multiple uses, including over-snow vehicle use". We are not sure what this means. The DEIS should clarify this statement, and explain if the RGNF intends to do a plan amendment to modify suitability (a plan component) in the future.

Finally, the final plan should include an objective that areas found unsuitable for OSVs will be subject to appropriate closure orders within one year of plan approval.

c. Minimum snow depth restrictions

The RGNF should establish a minimum depth of snow required to permit safe and responsible travel by an OSV. OSV use on inadequate snow has the potential to damage soils, vegetation, rocks, infrastructure and other features. As written, the plan permits use of an OSV on any amount of snow, conceivably including travel on just a trace or dusting of snow.

The adjacent San Juan National Forest plan contains the following Desired Condition: "2.14.37 Motorized oversnow travel should only occur when snow levels are adequate to protect the ground surface from disturbance due to snow machine use. For SJNF lands, 12-inch snow depth will be used as the standard."[133] This plan component reflects accepted best management practices for OSV. *See* (Switalski , 2016 at 11.

[133] San Juan Plan at II-118. Volume II: Final San Juan National Forest and Proposed Tres Rios Field Office Land and Resource Management Plan, 2013, accessed online December 2017 at https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5435985.pdf.

> Require a minimum snow depth of at least 0.3m (12 in), or sufficient depth to protect water quality, soils, and vegetation before a contingency plan and implement emergency closures if snowpack goes below this threshold. Require a minimum snow depth of at least 0.45 m (18 in), or sufficient depth to protect water quality, soils, and vegetation before allowing snowmobiling off-trail. Have a contingency plan and implement emergency closures if snowpack goes below this threshold.

We recommend, therefore, that the RGNF adopt a standard that says: "Motorized oversnow travel should only occur when snow levels are adequate to protect the ground surface from disturbance due to snow machine use. For on-trail travel, 12-inch snow depth will be used as the standard. For off-trail travel, 18-inch snow depth will be used as the standard." The plan should also adopt a management approach that says: "Develop a method for identifying when designated OSV open areas or designated trails are below the minimum snow depth and therefore must be closed temporarily."[134]

d. Closed unless open paradigm

The draft plan currently states "MA-INFR-5: Over-the-snow motorized vehicle use on snow is allowed unless specifically restricted." Draft Plan at 60-61. This approach is inconsistent with the travel management rule that clearly establishes a "closed unless marked on the over-snow vehicle use map" management approach. This needs to be corrected in the final plan with a standard that says: "Over-the-snow motorized vehicle use is prohibited off the designated system."

3. Subsequent winter travel management planning

We are pleased that the RGNF intends to undertake travel management planning after the revision of the land management plan. *See* DEIS at 271 and 277. Travel management is an incredibly important element of sustainable recreation. We support this approach, provided that the revised forest plan establishes an adequate programmatic framework – including suitability determinations, winter-specific recreational opportunity spectrum (ROS) classifications, minimum snow depth restrictions, and other programmatic direction – for management of OSV use and subsequent implementation-level travel planning that will designate particular areas and routes based on the minimization criteria and other relevant regulatory requirements.[135]

[134] See Hatchett, Ben. May 15, 2017. Evaluation of Observed and Simulated Snow Depths for Commencing Over Snow Vehicle Operation in the Sierra Nevada, Prepared for the Winter Wildlands Alliance. The author is developing a method for land managers to estimate trailhead snow depth by correlating SNOWTEL data with snow conditions at trailheads.

[135] The Forest Service's recently revised travel management directives encourage this approach: "Approval of a . . . plan revision should not include a final decision designating roads, trails, or areas for . . . OSV use or otherwise restricting those uses. Rather, the land management plan provides information and guidance for travel management decisions." Forest Service Handbook (FSH) 7709.55, ch. 10, § 11.2(1); *see also id.* § 11.2(3) ("The Responsible Official generally should avoid including travel management decisions in land management plans prepared or revised under current planning regulations . . . .").

The final plan and EIS should clarify that the RGNF will start winter travel management planning within one year of the finalization of the land management plan.[136] The final plan should include this as an objective.

4. OSV Trails

Tables 53 and 73 of the DEIS (at 216 and 276) list 613 miles of snowmobile trails on the forest. Table 53 includes 613 miles of snowmobile trails as "Designated Routes". Table 73 labels trails by the "Primary Managed Use Type". It further states, "While there are no official snowmobile trails in INFRA, these trails represent those currently permitted and established."

The USFS defines a Trail as "A route 50 inches or less in width or a route over 50 inches wide that is identified and managed as a trail. A National Forest System Trail is defined as "a forest trail, other than a trail which has been authorized by a legally documented right-of-way held by a state, county, or other local public road authority." FSM 2353.05; 36 CFR 212.1. A snow trail is defined as "A trail that has a surface consisting predominantly of snow or ice and that is designed and managed to accommodate use on that surface." FSM 2353.05. FSM 2353.12 states "For each NFS trail or NFS trail segment, identify and document its TMOs, including the five Trail Fundamentals, Recreation Opportunity Spectrum classifications, design criteria, travel management strategies, and maintenance criteria."

Managed use is one of the five trail fundamentals, and is a term from the USFS Trail Classification System and is defined as "A mode of travel that is actively managed and appropriate on a trail, based on its design and management." FSM 2353.05. Other Trail Fundamentals include trail type, trail class, designed use and design parameters. FSH 2309.18 chapter 23.33 establishes design parameters for officially designated snowmobile trails. No documented information is available regarding the TMO, trail type, class, designed use and design parameters for these 613 miles of trails.

A designated National Forest System trail under these definitions must be actively designed and managed as a trail, must be included in INFRA, and must have the five trail fundamentals identified in a TMO. If these 613 miles of trails are not in INFRA, and do not have completed Trail Management Objectives documenting the intended purpose and management of these trails, they are not NFS trails. If there are no official snowmobile trails on the forest, there cannot be any designated trails on the forest with a Primary Managed Use of snowmobiling. The creation or establishment of a route by mere use does not make that route a designated forest trail.

Permitted uses are, by definition, a temporary use of forest land for a specific period of time. (36CFR 251.51). Permitted uses should not be included as part of the designated route system on the forest.

[136] In the event the Forest Service intends to make winter travel management decisions as part of or simultaneously with forest plan approval, it must ensure compliance with the minimization criteria and other subpart C requirements and adequate site-specific NEPA analysis. *See id.* § 11.2(3) ("If travel management decisions are approved simultaneously with a . . . plan revision, the travel management decisions must be accompanied by appropriate environmental analysis.").

The RGNF should correct the tables to clearly show that there are not designated OSV trails on the RGNF unless documentation as discussed above is available in the administrative record.

5. Additional issues that need to be addressed in the DEIS and Draft Plan

We offer the following additional comments on inaccuracies and deficiencies in the analysis related to OSV recreation in the DEIS.

- The DEIS does not discuss hybrid use (people who ride snowmobiles to access backcountry skiing and snowboarding). This is becoming a more popular use in Colorado and the west and should be discussed in the plan in terms of desired terrain, ecological impacts, and conflict management.
- The DEIS and draft plan do not mention the travel management rule's requirement that motorized trails and areas must be located to minimize damage to forest resources and conflicts with other recreational uses. The final EIS should provide information on whether or how this requirement is met. The final plan should include a standard that reiterates this requirement.
- The DEIS needs to clarify that wheeled vehicles that travel over snow are not over-snow vehicles and are only allowed on the designated system displayed on a motor vehicle use map. We agree with and support a determination that only vehicles that are over snow vehicles are allowed to travel off designated routes over snow. *See* DEIS at 272. Wheeled vehicles, both motorized and non-motorized, are not over snow vehicles and are subject to the same restrictions that apply to motorized and mechanized use whether snow is present or not. Wheeled vehicles have a high potential of disturbing soil and vegetation under the snow, as they do not provide the necessary floatation provided by tracks or skis that over snow vehicles possess. In addition, wheeled vehicles have the potential to rut prepared and unprepared snow, and dig underlying soil into the snow. Rutted and or dirty snow can make any travel which uses skis or tracks difficult and dangerous, and such snow may damage skis. Wheeled vehicle use on snow surfaces can result in conflicts with users seeking to glide or slide using skis on those surfaces.

  The White River National Forest recognized the potential for this conflict. They state "Any other vehicle other than defined by 36 CFR 212 for winter use, including wheeled vehicles such as full-sized vehicles, all-terrain vehicles, motorcycles, mountain bikes, and mechanized vehicles, are prohibited, unless on a plowed or maintained road. "The intent of this provision is to maintain the integrity of the groomed snow surface and to protect the investment made in maintaining these winter routes for their intended purpose."[137]

  The RGNF should clarify this in the final EIS.

- The RGNF needs to correct the misstatement in the DEIS at 274 that "motorized vehicle use is currently limited to designated routes outside wilderness or Colorado Roadless

[137] WRNF TMP ROD at 17 20ll accessed online Dec 2017 at http://a123.g.akamai.net/7/123/11558/abc123/forestservic.download.akamai.com/11558/www/nepa/1118_FSPLT2_048796.pdf.

Areas." OSV use is currently allowed off routes, and motorized use is allowed and occurs in Colorado Roadless Areas.

- We do not understand DC-REC 2. Please clarify.

6. Summary of Recommendations for OSV planning

The final plan should provide a stronger programmatic framework for management of OSV use and subsequent implementation-level winter travel planning that will designate particular areas and routes based on the minimization criteria and other relevant regulatory requirements. To provide for sustainable winter recreation and timely compliance with subpart C, the RGNF should:

- Develop a winter-specific ROS classifications and associated plan components;
- Include an objective that implementation-level winter travel planning will be completed within three years of forest plan approval;
- Include a standard setting a minimum snow depth of 18 inches for cross-country OSV travel and 12 inches for on-trail travel;
- Develop suitability determinations for OSV use based on terrain, snowpack, wildlife habitat, and other conditions that impact OSV travel, and provide a clear methodology and supporting rationale for the determination.
- Add an objective that unsuitable areas will be subject to appropriate closure orders within one year of plan approval;
- Include clear statements that subsequent area and route designations will be consistent with suitability determinations and winter ROS classifications, but that all suitable, motorized areas will not necessarily be open to OSV use; instead, the forest will designate discrete open areas and trails within those areas that are located to minimize resource impacts and conflicts with other recreational uses.
- Add a standard that says: "Over-the-snow motorized vehicle use is prohibited off the designated system";
- The final plan and EIS should clarify that the RGNF will start winter travel management planning within one year of the finalization of the land management plan. The final plan should include this as an objective;
- Clarify that there are not designated OSV trails on the RGNF;
- Clarify that wheeled vehicles that travel over snow are not over-snow vehicles and are only allowed on the designated system displayed on a motor vehicle use map; and
- Clarify that motorized use is currently allowed in Colorado Roadless Areas.

B. NON-OSV RECREATION ISSUES

1. Management of Mechanized Uses

Mountain biking is an expanding use throughout Colorado and nationally. We agree with, and support, the RGNF's proposed approach to limit mechanized travel to a designated system. *See* DEIS at 90 ("mechanized travel is only suitable on designated routes"); DEIS at 39, 40, 41 and

43 ("mechanized travel is suitable only on designated routes" for all draft alternatives); and DEIS at 273 ("mechanized use is restricted to designated routes").

Mechanized off route travel has a high potential to impact wildlife, natural resources, cultural and archaeological resources, vegetation, soils, other forest users and public safety. This is due to the speeds a mechanical advantage allows a user to achieve, which increases the distance traveled and land areas impacted. Allowing cross-country use by mechanized vehicles can also lead to trail proliferation. Travelers often will ride the same track repeatedly until a user-created route is formed. The presence and use of non-system routes can confuse responsible travelers.

Restricting mechanized travel to designated routes will promote consistency with adjacent federal lands. The Gunnison National Forest[138] and San Luis Valley BLM already restrict all mechanized travel to designated routes. The International Mountain Bike Association agrees, "Environmental degradation can be substantially avoided or minimized when trail users are restricted to designated formal trails."[139]

We believe the following statement must be corrected: "Alternatives B and D would also reduce mechanized dispersed recreation opportunities, such as mountain biking, when recommended wilderness areas are congressionally designated as wilderness study areas or wilderness areas." DEIS at 373. It must be noted that the wilderness recommendations in Alternative D contain very few designated forest trails that allow mountain biking. The trails within the recommended areas that are open to mountain biking do not provide significant mountain bike opportunities or desired experiences. They are very short (normally ~ one mile long or less), rough, and steep routes. These would only provide a less than desirable short out and back ride to a designated Wilderness boundary and back. None of these trails are managed for mountain bike use.

We believe the definition of "Mechanized" on page 455 of the DEIS and page 130 of the Draft Plan must be clarified. These definitions currently state, "Wheeled forms of transportation, including nonmotorized carts, wheelbarrows, bicycles, and any other nonmotorized, wheeled vehicle." DEIS at 455. This definition is not a definition of mechanized per se, but of mechanized travel or transportation. It is possible to have a mechanized device which does not possess wheels and does not enable travel (such as a chainsaw). We suggest modifying this definition so it is a definition of "mechanized travel" and not simply "mechanized".

The plan components should reflect the RGNF's approach to managing mechanized travel. Specifically, include: a standard that restricts mechanized travel to a designated system, an objective that all trails will have trail management objectives and are included in corporate data bases, a management approach that travel planning (to be done immediately after the land

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[138] The adjacent Gunnison National Forest determined that restricting mechanized travel to designated routes contributed to beneficial conditions for wildlife, including improved wildlife security and reduced disturbance. *See* FEIS Gunnison Basin Federal lands Travel Management, USDA Forest Service GMUG, page 3-123, 2010 Accessed online December 2017.
http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5182985.pdf.

[139] Environmental Impacts of Mountain Biking: Science Review and Best Practices, Conclusion 1, Accessed online December 2017 https://www.imba.com/resources/research/trail-science/environmental-impacts-mountain-biking-science-review-and-best-practices.

management plan is revised) will include designation of motorized and mechanized systems, an objective to close and obliterate un-designated routes within three years of finalizing the travel management plan, and a management approach that the mechanized travel designated system will be displayed on a map made readily available to the public.

a. Recreation Opportunity Spectrum

We are pleased to see the inclusion of a standard that enforces the Recreation Opportunity Spectrum (ROS) classes (S-REC-1)

It should be reworded to be consistent with the travel management rule's language as follows: "Recreation development and designated systems of roads, trails, and areas shall be consistent with the recreation opportunity spectrum class designations."

While this standard is very helpful, the final plan needs to have a more robust complement of plan components that will contribute to achieving the desired ROS settings over the life of the plan. The Planning Rule requires that a plan "must include plan components, including standards or guidelines, for integrated resource management to provide for ecosystem services and multiple uses," including outdoor recreation. 36 C.F.R. § 219.10(a)(1). In addition, plans "must include plan components, including standards or guidelines, to provide for: Sustainable recreation; including recreation settings, opportunities, and access; and scenic character. Recreation opportunities may include non-motorized, motorized, developed, and dispersed recreation on land, water, and in the air." *Id.* § 219.10(b)(1)(i); *see also* FSH 1909.12, ch. 20, § 23.23a(2)(g) (plans "must include plan components, including standards or guidelines, to provide for sustainable recreation," including "[s]pecific standards or guidelines where restrictions are needed to ensure the achievement or movement toward the desired [ROS] classes").

The ROS classification system plays an important role in achieving the goal of sustainable recreation by providing the framework for where particular recreational opportunities, activities, and expected experiences are located across the forest. Zoning areas for quiet, non-motorized forms of recreation through the ROS is an important component of achieving both the sustainable recreation and ecological sustainability mandates of the 2012 Planning Rule.

Offered below are examples of plan components that we recommend for inclusion in the final forest plan:

DESIRED CONDITIONS

- The primitive ROS class provides recreation opportunities in unroaded and nonmotorized settings. Unmodified natural and natural-appearing settings dominate the physical environment.

- The semi-primitive non-motorized ROS class provides for non-motorized recreation opportunities in unroaded and nonmotorized settings. A natural-appearing setting dominates the physical environment, with only subtle or minor evidence of human-caused modifications.

OBJECTIVES

- Within 10 years, all motorized roads and trails within primitive and semi-primitive nonmotorized ROS classes will be decommissioned or converted to non-motorized trails.

STANDARDS

- Roads and motorized trails that are inconsistent with primitive and semi-primitive nonmotorized ROS classes and will be prohibited.

MANAGEMENT APPROACHES

- Evaluate the differences between current and desired ROS settings, and develop a strategy to move towards desired ROS settings through project-level actions.

Lastly, we are disappointed that the DEIS does not provide an analysis of the ROS settings of inventoried roadless areas (IRAs) – whether existing roadless areas protected under the Colorado Roadless Rule or newly inventoried areas under the Chapter 70 process. Establishing primitive or semi-primitive non-motorized ROS settings for areas identified in the wilderness evaluation process as having moderate to high-upper tier ranks is a good strategy to maintain the wilderness and natural characteristics of areas that do not benefit from a wilderness recommendation in the final plan. We therefore ask that the final EIS include this analysis, and in at least one alternative adopt primitive or semi-primitive non-motorized settings for the majority of areas ranked moderate to high-UT. This may require a revised or supplemental DEIS. *See* 40 C.F.R. § 1502.9(a) & (c).

b. Recreation niche

In the assessment report, the RGNF identified its recreation niche as:

> Solitude in every Season
>
> From the Sangre de Cristo to the San Juan Mountains, the jagged peaks and rushing rivers of the San Luis Valley public lands wrap themselves around this Rocky Mountain basin. Whether viewing the mountain scenery from roads or finding challenge on trails, visitors discover solitude and self-reliance through uncrowded year-round recreation opportunities. As recreation pressures increase in other parts of Colorado, the public lands of the San Luis Valley maintain their remote spirit and traditional culture.

The recreation niche statement is an important planning tool as it helps inform project level decisions related to recreation and access. Specifically, forest managers can evaluate proposed projects against the niche to ensure that they are managing to maintain the niche and not detract from it or shift it.

We notice that nowhere in the DEIS or draft plan is the recreational niche statement mentioned. We recommend that the DEIS discuss the concept, and evaluate how well each alternative adheres to the niche statement. We also recommend the addition of a desired condition statement that reflects managing to the niche such as: "Recreational activities, settings, and experiences are consistent with the recreational niche."

C. BALANCING RECREATION AND WILDLIFE CONSERVATION

The final EIS must fully analyze and consider the impacts of recreational use and development on wildlife, and plan components must include direction to balance recreational use and development with the needs of wildlife.

Increasingly, we are recognizing that human recreational use can have detrimental effect on wildlife, and that careful planning and management to minimize these impacts is important. This includes all forms of recreation and use, including non-motorized recreation such as hiking, biking etc., which were previously considered to have minimal or lesser impacts on wildlife.

Increasing trail use and new trail development is a good example of the potential impacts recreation can have on wildlife. Trails can fragment previously undisturbed habitat. With increasing volumes and intensities of public land recreation and new technologies, managers must devote more resources to ensure that recreation is well-managed and wildlife habitat is maintained. A recent study, for example, found that development and use of a new trail primarily used by mountain bikers resulted in impacts to Bighorn Sheep at the population level.[140] In addition, a recent literature review determined that outdoor recreation, including non-motorized recreation, can result in significant adverse effects on animals and biodiversity.[141]

The growth of human population and associated recreation along with the resulting potential impacts on wildlife and habitat is recognized as a concern by Colorado Parks and Wildlife. Colorado Parks and Wildlife (CPW) recently updated and released the 2016-2026 Statewide Trails Strategic Plan, which is tied to the 2015 Colorado Parks and Wildlife Strategic Plan.[142] The importance of conserving wildlife and habitat is the top priority for the 2015 CPW Strategic Plan. The Statewide Trails Strategic Plan (2016) recognizes this direction for CPW and highlights its significance as a top priority through the objectives and actions of the Statewide Trails Strategic Plan."[143] The Trails Strategic Plan contains numerous statements regarding balancing trail development and wildlife, including:

- "Continually strive to achieve the desired balance for trail recreation with wildlife habitat"[144]

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[140] Weidmann and Bleich 2014, Demographic Responses of Bighorn Sheep to Recreational Activities: A Trial of a Trail, Wildlife Society Bulletin 38(4):773–782; 2014. https://www.researchgate.net/publication/264625966_Demographic_Responses_of_Bighorn_Sheep_to_Recreational_Activities_A_Trial_of_a_Trail. Accessed online December 2014.

[141] Larson CL, Reed SE, Merenlender AM, Crooks KR, 2016, Effects of Recreation on Animals Revealed as Widespread through a Global Systematic Review. PLoS ONE 11(12). http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0167259. Accessed December 2017.

[142] Trails Strategic Plan at http://cpw.state.co.us/Documents/Trails/CO-Trails-Strat-Plan.pdf#search=trail%20strategic%20plan and Colorado Parks and Wildlife 2015 Strategic Plan, November 2015 available at: http://cpw.state.co.us/Documents/About/StrategicPlan/2015CPWStrategicPlan-11-19-15.pdf. Accessed December 2017.

[143] Trails Strategic Plan at , available at http://cpw.state.co.us/Documents/Trails/CO-Trails-Strat-Plan.pdf#search=trail%20strategic%20plan.

[144] *Id* at 3.

- "Accentuate the importance of natural resources conservation, including wildlife and habitat, in the design, construction, maintenance, and enjoyment of trails."[145]
- Regarding trail development, there is a "criticality of protecting wildlife and wildlife habitat, and in giving wildlife experts representation in where trails might be constructed or how trails should be managed to protect wildlife resources."[146]
- "Develop long-range … trail plans" to protect "natural resources, including wildlife sensitive species, habitat and overall environmental quality."[147]
- "Emphasize sustainable trails that protect the environment, sensitive species, and wildlife habitat."[148]
- "Identify areas where plant and wildlife values should be prioritized"[149]
- "Prioritize trail design and development to protect important habitat, sensitive species, and other natural resources."[150]
- "Accentuate the importance of natural resources conservation, including wildlife and habitat, in conjunction with trail recreation, in the design, construction, maintenance, and enjoyment of trails."[151]

CPW also uses a handbook it produced entitled *Planning Trails with Wildlife in Mind*.[152] CPW wildlife biologists believe that to support the goal of balancing trails and wildlife, trail projects in Colorado need to be informed by a landscape-level planning approach, which includes:

- Avoiding large natural areas;[153]
- Concentrating use;[154]
- Considering a "zone of influence;[155]
- Considering wildlife [stress] responses to human disturbance;[156]

CPW has also developed "Best Management Practices to Minimize Adverse Impacts to Wildlife."[157] These offer general and species-specific recommendations developed using best available science, and represent preferred management actions to protect wildlife and wildlife habitat. Some of these actions are already incorporated into the Draft Plan such as seasonal route closures. Although these practices were developed for oil and gas development, they also apply

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[145] *Ibid.*
[146] *Id. at* 7
[147] *Id. at* 11
[148] *Id. at* 12
[149] *Id. at* 14
[150] *Id. at* 15
[151] *Id. at* 16
[152] Planning Trails with Wildlife in Mind, 1998, Colorado State Parks and Hellmund Associates, http://cpw.state.co.us/Documents/Trails/TrailsPlanningPrimer.pdf. Accessed December, 2017.
[153] *Id.* at 8.
[154] *Id.* at 21.
[155] *Id.* at 6.
[156] *Id.* at 19.
[157] https://cogcc.state.co.us/documents/reg/OpGuidance/Colorado%20DOW%20Final%20BMPs_090309.pdf and https://nhnm.unm.edu/sites/default/files/nonsensitive/news-files/Colorado%20Final%20Species_Specific%20BMPs_Oct%2017_101716.pdf Accessed December 2017.

to recreational use. CPW Best Management Practices for wildlife should be used to guide suitability determinations for recreational use and plan components. It is suggested, for instance, that new development be precluded in specific areas, such as Bighorn Sheep production areas. New development could include route construction.[158]

CPW has also developed a list of moderate, high and very high priority habitats for many wildlife species in Colorado. See Exhibit 10, House Bill 1298 Species Impact Assessment. This considers economic species and species considered at risk including rare, threatened and endangered wildlife.

We recommend that the RGNF include additional plan components to help strike the correct balance between recreation and wildlife habitat conservation. CPW best management practices should be considered for standards and guidelines for actions such as the seasonal closure of routes in certain elk migration corridors. This will help the RGNF be proactive in managing recreational use to protect wildlife and habitat, because as once recreational use is established, it is difficult to modify or terminate. By the time monitoring indicates that recreation is impacting wildlife, it can be too late to reverse those impacts. Most members of the public are willing to comply with actions such as seasonal restrictions that protect wildlife as long as education is provided which includes reasons for the action. Please consider these specific recommendations:

- In order to account for dispersed recreation impacts writ large, modify the following forest-wide desired condition to read (red denotes added text):

  > DC-WLDF-5: Security habitat for big game and other species ~~in winter range~~ is provided in very high and high priority habitats. Motorized and nonmotorized route travel, on and off existing roads and dispersed recreation activities do not negatively affect ecological conditions necessary to maintain viable populations of species." Draft Plan at 25.

- Modify the proposed standards as follows:

  > S-WLDF-3: Provide security habitat in winter range, winter concentration areas, severe winter range, ~~and lambing areas~~ during big game primary use seasons from December 1 to ~~March 31~~ April 15. Employ access restrictions and seasonal closures as necessary. Dates may vary depending upon variations in winter use."

  Winter is typically not lambing season. CPW generally considers the winter use season for elk and mule deer to be between December 1 and April 15, and Bighorn Sheep

[158] The presence of a route is considered surface occupancy by CPW. Surface occupancy is defined as "any physical object that is intended to remain on the landscape permanently or for a significant amount of time. Examples include houses, oil and gas wells, tanks, wind turbines, roads, tracks, etc." (Colorado Division of Wildlife, 2008, Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors. At 5. https://cpw.state.co.us/Documents/WildlifeSpecies/LivingWithWildlife/RaptorBufferGuidelines2008.pdf. Accessed December 2017.

between November 1-April 15. See additional comments on bighorn sheep in section V E 2.)

S-WLDF-8: Limit disturbance, including but not limited to rock climbing and use of unmanned aerial systems, within one-half mile of:

- Active peregrine and prairie falcon nest sites from March 15 ~~April 15~~ to July 31 to maintain nest site integrity.
- Active golden eagle nest sites from December 15 to July 31

The dates should be changed to match current CPW direction. (

- Add additional standards:

  Provide security habitat in Bighorn Sheep lambing (production) areas from April 15 to June 30. Employ access restrictions and seasonal closures as necessary. New development will be located outside these areas.

  Provide security habitat in elk calving (production) areas from May 15 through June 30. Employ access restrictions and seasonal closures as necessary. New development will be located outside these areas.

- Modify MA-WLDF-22 to read:

  Manage off-~~road~~route travel on big game winter range areas, including over-the-snow track machines, during the primary use seasons for big game. Exceptions may be authorized under special use permit.

- Add additional guidelines:

  New trails and other routes within the planning area are planned and designed with the goals of preserving settings, complementing the landscape, and minimizing impacts on wildlife.

  Dispersed sites or routes should be closed, rehabilitated, or otherwise mitigated if there are social-use conflicts, wildlife impacts and/or resource impacts, or where dispersed use conflicts with the management of developed recreation sites.

  Timing restrictions for recreational use may be employed in wildlife habitat areas or due to ground conditions (to prevent damage to soil or tread surfaces, recreational snow surfaces, etc.).

  Developed dispersed campsites will be located outside riparian zones and other sensitive resource areas. Campsites may be closed, repaired, rehabilitated, and/or hardened when unacceptable environmental or social impacts occur.

D. SUMMARY OF RECOMMENDATIONS

The plan components should reflect the RGNF's approach to managing mechanized travel. Include a standard that restricts mechanized travel to a designated system, an objective that all trails will have trail management objectives and are included in corporate data bases, a management approach that travel planning (to be done immediately after the land management plan is revised) will include designation of motorized and mechanized systems, an objective to close and obliterate un-designated routes within three years of finalizing the travel management plan, and a management approach that the mechanized travel designated system will be displayed on a map made readily available to the public.

Include a more robust complement of plan components that will contribute to achieving the desired ROS settings over the life of the plan.

ROS settings should reflect roadless values, with the large majority of IRAs ranked moderate to high-UT zoned for primitive or semi-primitive non-motorized uses. This may require a revised or supplemental DEIS. *See* 40 C.F.R. § 1502.9(a) & (c).

The DEIS should discuss the recreational niche, and evaluate how well each alternative adheres to the niche statement. The final plan should include a desired condition statement that reflects managing to the niche such as: "Recreational activities, settings, and experiences are consistent with the recreational niche."

The DEIS should analyze and disclose impacts on wildlife from recreation and develop appropriate plan components. In doing so, the RGNF should incorporate Colorado Parks and Wildlife information.

XIV. **ADDITIONAL RIVER SEGMENTS NEED TO BE ANALYZED FOR ELIGIBILITY UNDER THE WILD AND SCENIC RIVERS ACT**

The 2012 forest planning rule requires the forest to identify the eligibility of free-flowing streams for potential inclusion in the National Wild & Scenic Rivers System. 36 CFR 219.7(c)(2)(vi). A river is eligible if it is free-flowing and has at least one river-related outstandingly remarkable value of national or regional significance (ORVs). Segments found eligible must include a preliminary classification (wild, scenic, or recreational; 16 U. S. C. 1273(b), FSH 1909.12 section 82.8).

Chapter 80 of Forest Service Handbook (FSH)1909.12 provides detailed guidance on the required inventory of eligible rivers and on interim management of those rivers to protect their ORVs and free-flowing nature. The forest is required to inventory all rivers named on standard USGs 7.5-minute quadrangle maps to determine and document their eligibility. In doing so, the forest must provide opportunities for public participation and utilize the best available scientific information. The plan must provide plan components—including standards and guidelines—for

all eligible river corridors “to protect the values that provide the basis for their suitability for inclusion” in the wild and scenic rivers system. 36 CFR 219.10(b)(1)(v). Projects and activities must not adversely modify eligible rivers’ free-flowing character, must protect their ORVs, and must maintain their preliminary classification of wild, scenic, or recreational.

We are very pleased to see that additional segments have been considered, ones that were not studied for the previous plan revision, and nine segments on the Baca Tract, which the RGNF acquired since the last revision. Streams for which conditions have changed should also be identified and considered for eligibility. (See FHS 1909.12, section 82.2.)

The draft plan revision (at 156) accurately concurs that the forest may rely on previous wild & scenic eligibility reviews if there are not changed circumstances. However, the draft plan’s assertion that no changed circumstances have occurred (*ibid*) is inaccurate, and additional river segments must be evaluated for eligibility before completing the final plan revision.

We believe changed conditions make it appropriate to re-evaluate Wild and Scenic River eligibility for the upper Rio Grande, from its headwaters at Stony Pass to Rio Grande Reservoir. The plan revision DEIS did not undertake an updated eligibility determination of this segment and instead relied upon the 1996 plan eligibility baseline for the forest. However, it is not clear from the 1996 plan why this remote, generally pristine headwaters segment of the forest’s namesake river was determined not eligible as a Wild and Scenic River. We believe that updated CNHP inventories from the early 2000s provide justification for changed conditions to encourage a fresh look at eligibility.

This 15-mile segment of the Rio Grande has an extraordinary wetland ecosystem characterized by expansive beaver ponds in a textbook glacial valley in the most remote section of the national forest. Colorado Natural Heritage Program has identified two Potential Conservation Areas (PCAs) on this segment of the Rio Grande, and a portion also passes through the Weminuche Wilderness.

The Rio Grande at Pole Creek Mountain is a B3 high biodiversity site according to CNHP ranking. This PCA is recognized for its montane riparian willow carr community and extends along a 2-mile length of the Rio Grande. It is a wide, open glaciated valley with beaver ponds. CNHP notes, “Upper reaches of the site characterized by a willow carr are dominated by a consistent, dense tall shrub layer of Geyer's willow (Salix geyeriana) and park willow (Salix monticola) concentrated around large, open deep-water beaver ponds.” Nied and Jones, 2008. In 2008, CNHP documented improvements to the site condition, “The site appears to be recovering from past grazing with more native species cover and less trampling and livestock use than the last survey in 1995.” Ibid.

Another 2-mile segment of the Rio Grande is located within the Pole Creek PCA, also a B3 high biodiversity site. The mapped site is based on field inventories from 2002 and a 2008 survey of critical wetlands and riparian corridors in Hinsdale County. Lyon and Culver. 2002. See also Neid and Jones, 2008. According to CNHP, the site is drawn for good (B-ranked) occurrences of two globally vulnerable (G3/S3) riparian plant communities, Booth's willow (Salix boothii) / mesic forbs shrubland and Wolf's willow (Salix wolfii) / mesic forbs shrubland.

The uppermost 4 miles of this segment is within the Weminuche Wilderness, starting at Stony Pass. There are no private lands along the entire 15-mile segment from Stony Pass to just above Rio Grande Reservoir.

Outstandingly remarkable values along the segment include wildlife, scenery, recreation, geology, and botanic/vegetative communities. The area likely receives use by lynx. It may provide denning habitat, and help foster movement between the RGNF and the San Juan National Forest. See DEIS at 490. The scenic values include a broad, sweeping U-shaped glacial valley with abundant beaver ponds and beaver lodges. The volcanic cliffs of Pole Creek Mountain provide a further scenic backdrop to the river corridor. Recreation values include a remarkable sense of isolation, emphasized by the fact this is the most remote location on the Rio Grande National Forest, as noted at DEIS p. 490. Scenic driving, dispersed camping, and fishing are all recreational activities enhanced by the setting of the valley. The geologic values include the textbook glacially scoured valley, which creates the conditions for abundant beaver ponds and a robust wetland system. The river corridor includes the northern topographic wall of the Ute Creek caldera and excellent exposures of the Ute Ridge Tuff. Colorado Natural Heritage Program has well documented the significant biodiversity value inherent in four miles of the segment mapped within sites of high biodiversity value primarily for outstanding condition of the montane riparian plant communities.

We strongly encourage re-evaluation of the upper Rio Grande's eligibility under as a Wild and Scenic River, and suggest that it easily qualifies as a scenic or recreational river segment.

The draft plan revision notes (at 158) that additional stream segments were reviewed for possible wild & scenic eligibility, but that none of those segments warrant a finding of eligibility. We disagree with that blanket conclusion and call on the forest to more thoroughly review the outstandingly remarkable values found on many of those segments.

In keeping with the planning rule requirement to consider best available scientific information, the forest should reconsider wild & scenic eligibility in relation to key species and plant communities, as provided by Colorado Natural Areas Program, Natural Heritage Program, Rocky Mountain Wild, among others.

The Colorado Natural Heritage Program (CNHP) published, in April 2016, a relevant report, Fen Mapping in Rio Grande National Forest. That report defines fens as ground-water fed wetlands that typically support sedges and low stature shrubs, and identifies potential fen areas within the forest, including a total of 2,532 likely fen areas in the forest. The report highlights in particular three watersheds with very high numbers of likely fens: Elk Creek; Headwaters of Alamosa River; Ute Creek.

While these fens rely most directly on groundwater, the interplay between groundwater and surface flows in streams is likely sufficient that nearby streams should be carefully studied for protection as part of the forest's fen assessment. Specifically, the following streams should be considered or retained for wild & scenic eligibility (or, if currently eligible, should retain that eligibility), focusing on the possible ORVs of fens and related plant communities:

Elk Creek watershed

- Elk Creek
- Rio Colorado
- South Elk Creek

Alamosa River Headwaters

- Bitter Creek
- Cascade Creek
- Cataract Creek
- Iron Creek
- Gold Creek
- Prospect Creek
- Treasure Creek

Ute Creek watershed

- East Ute Creek
- Middle Ute Creek
- West Ute Creek
- Ute Creek

The following alpine streams should be more carefully studied or retained for wild & scenic eligibility (or, if currently eligible, should retain that eligibility), focusing on stream-supported wetlands and the plant communities they support in order to recognize and protect those values:

- Benito Creek

- Halfmoon Creek
- Machin Creek
- headwaters Middle Fork Saguache Creek
- headwaters South Fork Saguache Creek
- Spring Creek
- Twin Peaks Creek
- Wannamaker Creek
- Whale Creek

- Adams Fork
- North Fork (Conejos)
- Middle Fork (Conejos)
- Rito Azul

- Mesa Creek
- Rito Hondo
- Spring Creek
- Willow Creek

- Bear Creek
- Pole Creek
- Rio Grande above Rio Grande Reservoir
- West Fork Pole Creek

When considering streams for wild & scenic eligibility study, the forest should reference CNHP listings of riparian-dependent rare plants in the vicinity. For RGNF, these may include Barneby's fever-few, blue-eyed grass, Bodin milkvetch, broadfruit, bur-reed, Colorado watercress, marsh-meadow Indian-paintbrush, mud sedge, slender spiderflower, small-winged sedge.

The forest should also use data and analyses prepared by CNHP for Potential Conservation Areas location within the forest, including reports entitled Adams Fork of Conejos River, Baca Grande and Reserve, Conejos River at Platoro, Conejos River at Spectacle Lake, Conejos River Springs, El Rito Azul, Elephant Rocks, Great Sand Dunes, Pole Creek, Ra Jadero Canyons, Rio Grande at Pole Creek Mountain, Rito Hondo Creek, Saguache Creek, Sangre de Cristo Creek, Sangres Alluvial Fan, South Fork of the Conejos River and Hansen Creek, Upper Medano Creek, Upper Pole Creek, and Zapata Falls.

The forest should also evaluate for wild and scenic eligibility streams that contain Rio Grande cutthroat trout, or that once contained that fish, or that contain habitat suitable to assisting with that fish's recovery. Additional information for this purpose is available in the Rio Grande

Cutthroat Trout Conservation Strategy 2013, and the Conservation Agreement for Rio Grand Cutthroat Trout 2013, both prepared in cooperation among the states of Colorado and New Mexico and the U.S. Forest Service.

Wild & scenic eligibility should also be reconsidered for Lake Fork Conejos River, similar as it is to other wild & scenic-eligible forks of the Conejos River.

The revised plan should correct management prescription errors applied, in the 1996 plan, to wild & scenic-eligible Saguache Creek, which was classified as wild. While other wild-classification eligible streams included in the 1996 plan are currently managed under 1.5 Eligible Wild River, seven miles of Saguache Creek are managed under 3.4 Eligible Scenic River. This discrepancy in management prescriptions has consequences relative to mineral withdrawal, oil & gas leasing, ROS, motorized travel, and roadless status (including distinction between upper and lower tier roadless). The new plan should affirm the wild classification of eligible Saguache Creek and ensure that is managed as wild-eligible.

XV. **SOCIO-ECONOMIC ISSUES**

The following is our response to DEIS 270-290:

The Rio Grande is considered to be one of the most remote forests in the southern Rockies and the deferred maintenance backlog has been impacting the Forest since the budgets starting declining in 1996. This situation is creating its own set of challenges that the Planning team has to contend with moving forward.

The good news is, the RGNF has always been considered a place for remote adventure, solitude, scenic corridors and backways. Further inaccessibility to some remote areas may be a worthy attribute in some cases and might be looked at as a planning opportunity or tool, instead of an obstacle.

There is still plenty of access to the Forest, with its 156 developed recreational sites and over 3,000 miles of roads and trails. That said, it is understood that safety, access to fire mitigation, downed timber, and the ability to travel to existing infrastructure continue to be of major concern.

These comments are not intended to minimize the responsibilities that the Forest Service faces, but to accept the current and expected budget limitations, and to maximize (people) management effectiveness by focusing efforts on the areas where populations are more likely to concentrate.

The contribution of volunteer hours for the Rio Grande is impressive, 45,740 hours. We will most likely see these volunteer hours grow over the next decade. Management of volunteers and citizen monitoring will become a very important tool for the RGNF, so steps need to be taken

through the planning process to prepare for this investment of citizenry, which will include setting up some kind of training infrastructure.

The following responses are editing considerations in the draft Plan:

For starters, the Contents table does not include the italicized titles under listed sections (making it hard to retrieve some important content)

For example ---**270-273 ---** Under Sustainable Recreation Opportunities "Overview" is listed, but the titles underneath it are not.

1. "Recreation Opportunity Spectrum" is an important concept but you can't find it in the Contents table.

2. We understand that the Contents table is long, but to better clarify, it needs to include the following:

Sustainable Recreation Opportunities, Access, Use, Settings
- Overview
  - Sustainable Recreation
  - Recreation Opportunities Spectrum
  - Application of the Opportunities Spectrum
- Affected Environment, Existing Conditions, and Trends

333 --- *Area of Influence (referred to in tables as "Social and Economic Area of Influence")*
This is the broader 16-county area. We understand having to use it because that is the area reported on in the National Visitor Use Monitoring program. This may be the only way to get visitation data. That's fine, but it makes the analysis more confusing and not sure how useful it actually is because the broader area may not reflect the actual impact to the RGNF.

San Luis Valley counties are included in the "secondary area of influence". We are not sure how connected the SLV counties are to the larger 16-county geography. Also, Hinsdale County is added on to the SLV mix, but Hinsdale more likely relates to the Gunnison area.

347 --- Table 92. Forest value that is important to the American public:
There is no mention that the forest is an important carbon sink to offset global warming. Ecosystem Services is not being given its just due here.

349 --- Table 98. Factors of economic sustainability in the Forest's area of influence:
Rio Grande County is categorized as "Nonspecialized" under the Economic Dependence Typology. But it may reflect more "farm dependence."

351-352 --- The concepts of "Creative Class Employment", Measure of Productivity", and "Economic Diversity" are interesting ways to analyze the forest influence, but aren't they more for urban areas?

355 --- Figure 21. Should be in color

358-359, Under Multiple Uses and Ecosystem Services, concept of "Final Ecosystem Goods and Services". It appears that the Forest Service is trying to say the "Final Ecosystem Goods and Services" are only important for "people who obtain benefits from nature", but the fact that these basic ecosystems are essential to maintaining the presence of the forest itself, and all the benefits thereon, is overlooked.

As the reader plunges further into the document, it is clear that wherever the authors had a chance to put ecosystems on par in forest management with other factors, they failed to do so.

361 --- Saleable Minerals --- Should also include gravel for road construction and not just stones for rock collectors.

372 --- "San Juan County used the majority of its water for aquaculture" --- can this be true?

374 (and previous pages) --- There is nothing about birding as a bonafide recreational activity.

375-376 --- Forest Service Presence in the Community
Estimates seem too small, and so much more could be added. It is questionable if everything that should have been counted has been counted. This very important summary information should be given more prominence in the document. It is not clear if these estimates relate only to the 5-county SLV area of influence. Also, the forest contribution as the origin of water supply to the region for agriculture and everything else has not been given its just due.

377 --- It is not clear what the "Key ecosystem services" are.

Discussion of plan alternatives can get confusing, but thanks for trying. It would be ideal if the Forest Service would just come out and say Alternative D is best for ecosystem management and sustainability to keep the forest intact.

384 --- County-Level Summaries
Seeing this analysis county-by-county is the best way to "ground-truth" the massive amount of examination given in the document. But it appears these county profiles are viewed through the eyes of the typology constructs, which is a strange sort of view to base analysis on.

384-385 --- Alamosa County
"The Direct Basic *percentage* may be the lowest among the 7-county area of influence", but the absolute amount of direct may represent a very large share of all the direct in the 7-county area.

387-388 --- Conejos County
The context that Conejos County is "more diverse" does not make sense, in relation to the other SLV counties. Is this a mistake? Also, why are tourism predictions so pessimistic in this and other counties?

Overall, this section had a lot of very good, useful information. We applaud the authors for trying to examine the economy and forest influence from multiple data sources, but in doing so, it appears to be confusing, probably to most readers, and no clear conclusions can be reached. The challenge appears to be in tying this information and creating a conclusive summary. For example, we know what the Forest budget is, but we do not have a clear understanding of how much the Forest gives back, which is significant.

It would be great to be able to tie this together, because the RGNF does so much for the region and the headwaters of the Rio Grande. It would be great to be able to say, for every dollar spent by the tax payer, the multiplier effect brings in another $xx.00 to the region.

XVI. **ADDITIONAL CONCERNS**

The DEIS section on Congressionally designated trails (id. at 288-290) does not disclose much of the impacts of the alternatives on the corridors for the Continental Divide National Scenic Trail and the Old Spanish National Historic Trail. Management such as salvage logging could adversely affect the CDNST corridor.

DEIS p. 7 states that people in Custer County rely on the RGNF for recreation activities, firewood gathering, etc. However, Custer County is on the far side of the Sangre de Cristo mountain range. It is thus unlikely that many people from there get to the RGNF for firewood gathering, and only occasionally do they come to the RGNF for recreational activities.

There are no totals of the columns in DEIS Table 14, p. 46.

In Table, p. 40, it is not clear if prescribed fire is allowed in MA 1.1a, or if off-road game retrieval is allowed in MA 4.21.

ON DEIS 106, a discussion of fire suppression states that when factors are not properly aligned, “fires are not typically not successfully suppressed.” We assume that to convey the proper meaning here, one of the “not”s should be deleted.

On DEIS p. 234, what is meant by the following, which appears in a discussion of small game hunting: “Some bird species may only be hunted with hawks and falcons”?

On DEIS p, 260, the definitions for scenery that is “moderately altered” or “heavily altered” both read “A viewshed where no more than 20 percent of the area is visually modified” in the footnote to Table 63. If this is the case, then there is no difference between moderately and heavily altered. The proper definitions, whatever they are, should be described here.

In the DEIS section describing proposed special interest areas, no acreage figure is given for the proposed Cumbres and Toltec National Historic Landmark SIA. See id. at 313. There is also no acreage given for this area in DEIS Table 28 at 84.

DEIS suitability Tables 7 for alternative B (DEIS at 40), indicates that communication sites are not allowed in seven MAs: Wilderness, recommended wilderness, wild/scenic/recreational river segments, RNAs, SIAs, and the two roadless MAs. (The same for alternative D, which also would not allow them in MA 3.3. Id. at 42.)

We agree with and support this determination. The construction, presence, and general desired access (likely requiring a road in each case) to use and maintain communication sites would significantly detract from the predominantly natural characteristics and settings in these seven MAs. Although the development of all communication sites is subject to project level review, we support the determination to prohibit communication site development in these seven areas. In fact, this should be a plan component, with a forest-wide standard prohibiting communication sites in these areas, or with such a standard in each of the MAs.

We believe these areas should remain unsuitable to communication site development, even if the Forest re-evaluates the suitability of its lands to support these sites in the future. (The intent to do the latter is stated at DEIS p. 13.)

CONCLUSION

Numerous changes are needed in the plan and EIS, as described above. For example, management direction must be much stronger, with more standards. Lands suitable for timber production and the long-term sustained yield quantity of timber must be recalculated, using proper data and realistic assumptions. Additional areas should be recommended for wilderness designation and designated as special areas in the proposed action.

A comprehensive analysis of the possible impacts of climate change on management, and how management would interact with climate change impacts is needed. The analysis of lands potentially capable and suitable for livestock grazing must be corrected. The DEIS must display and analyze the effects on lands where oil and gas leasing could occur that would no longer be subject to NSO stipulations.

The Plan must have stronger direction to protect lynx and the connectivity of this species' habitat.

EXHIBITS

1. Switalski, Adam, 2016. *Snowmobile Best Management Practices for Forest Service Travel Planning: A Comprehensive Literature Review and Recommendations for Management – Introduction to Snowmobile Management and Policy.* Journal of Conservation Planning Vol 12, pages 1 – 7.

2. Switalski, Adam and Alison Jones,2012. *Off-road vehicle best management practices for forestlands: A review of scientific literature and guidance for managers.* Journal of Conservation Planning. Vol 8, pages 12 – 24.

3. Ecosystem Representation Analysis Methods and Results. Submitted by The Wilderness Society in Oct. 28, 2016 scoping letter and reattached here.

4. NSO MA acres analysis

5. Map of current MA 3.3 areas lost to less protective MAs

6. Unauthorized Motorized use in Gunnison Sage Grouse Habitat – photo map

7. Memo from Chris French & Robert Harper to Regional Foresters Re "Clarification on Conservation Watersheds in Land Management Plans" (Sept. 30, 2016)

8. Achieving Compliance with the Executive Order "Minimization Criteria" for Off-Road Vehicle Use on Federal Public Lands: Background, Case Studies, and Recommendations.

9. Switalski, Adam. 2016. Snowmobile Best Management Practices for Forest Service Travel Planning: A Comprehensive Literature Review and Recommendations for Management. Journal of Conservation Planning 12: 1-28.

10. Winter Wildlands Alliance. 2015. Winter Recreation on National Forest Lands: A Comprehensive Analysis of Motorized and Non-Motorized Opportunity and Access. Available at http://winterwildlands.org/wp-content/uploads/2015/06/2015-Winter-Rec-Report.pdf

11. House Bill 1298 Species Impact Assessment.

REFERENCES

REFERENCES USED IN THE RECOMMEND ADDITIONAL AREAS FOR WILDERNESS DESIGNATION SECTION

Anderson, H.M., C. Gaolach, J. Thomson, and G. Aplet. 2012. Watershed Health in Wilderness, Roadless, and Roaded Areas of the National Forest System. Wilderness Society Report. Available at http://wilderness.org/resource/watershed-health-wilderness-roadless-and-roaded-areas-national-forest-system.

Arcese P. and A.R.E. Sinclair. 1997. The Role of Protected Areas as Ecological Baselines. The Journal of Wildlife Management, 61(3): 587-602. Available at http://www.jstor.org/stable/3802167?seq=8&uid=3739584&uid=2&uid=4&uid=3739256&sid=21106003242731#page_scan_tab_contents.

Aycrigg JL, Davidson A, Svancara LK, Gergely KJ, McKerrow A, et al. (2013) Representation of Ecological Systems within the Protected Areas Network of the Continental United States. PLoS ONE 8(1): e54689. doi:10.1371/journal.pone.0054689.

Aycrigg, J. L., J. Tricker, R. T. Belote, M. S. Dietz, L. Duarte, and G. H. Aplet. 2015. The Next 50 Years : Opportunities for Diversifying the Ecological Representation of the National Wilderness Preservation System within the Contiguous United States. Journal of Forestry 114:1–9.

Belote, R. T., M. S. Dietz, B. H. McRae, D. M. Theobald, M. L. McClure, G. H. Irwin, P. S. McKinley, J. A. Gage, and G. H. Aplet. 2016. Identifying Corridors among Large Protected Areas in the United States. PLoS ONE 11:e0154223.

Crist, M.R., B.O. Wilmer, and G.H. Aplet. 2005. Assessing the value of roadless areas in a conservation reserve strategy: biodiversity and landscape connectivity in the northern Rockies. Journal of Applied Ecology, 42: 181-191.

DellaSala, D., J. Karr, and D. Olson. 2011. Roadless areas and clean water. Journal of Soil and Water Conservation, 66(3): 78A-84A. Available at http://www.jswconline.org/content/66/3/78A.full.pdf+html.

DeVelice, R. and J.R. Martin. 2001. Assessing the extent to which roadless areas complement the conservation of biological diversity. Ecological Applications 11(4): 1008-1018. Available at http://www.jstor.org/stable/3061008?seq=1&uid=3739584&uid=2&uid=4&uid=3739256&sid=21106003975961#page_scan_tab_contents.

Dietz, M.S., R.T. Belote, G.H. Aplet, & J.L. Aycrigg. 2015. The world's largest wilderness protection network after 50 years: An assessment of ecosystem representation in the U.S. National Wilderness Preservation System. Biological Conservation, 184: 431-438. Available at http://www.sciencedirect.com/science/article/pii/S0006320715000944

Gelbard, J. L. and J. Belnap. 2003. Roads as conduits for exotic plant invasions in a semiarid landscape. Conservation Biology 17:420-432. Available at http://onlinelibrary.wiley.com/doi/10.1046/j.1523-1739.2003.01408.x/abstract

Loucks, C., N. Brown, A. Loucks, and K. Cesareo. 2003. USDA Forest Service Roadless areas: Potential Biodiversity Conservation Reserves. Conservation Ecology 7(2): 5. Available at http://www.ecologyandsociety.org/vol7/iss2/art5/.

Smith, G. J. Lemly, P. Smith, and B. Kuhn. 2016. Fen Mapping for the Rio Grande National Forest. Colorado Natural Heritage Program, Colorado State University, Fort Collins, Colorado.

Strittholt, J. and D. DellaSala. 2001. Importance of Roadless Area Conservation in Forested Ecosystems: Case Study of the Klamath-Siskiyou Region of the United States. In Conservation Biology 15(6): 1742-1754. Available at http://www.researchgate.net/publication/255439281_Importance_of_Roadless_Areas_in_Biodiversity_Conservation_in_Forested_Ecosystems_Case_Study_of_the_Klamath-Siskiyou_Ecoregion_of_the_United_States.

Switalski, Adam and Alison Jones,2012. *Off-road vehicle best management practices for forestlands: A review of scientific literature and guidance for managers.* Journal of Conservation Planning. Vol 8, pages 12 – 24.

Switalski, Adam, 2016. *Snowmobile Best Management Practices for Forest Service Travel Planning: A Comprehensive Literature Review and Recommendations for Management – Introduction to Snowmobile Management and Policy.* Journal of Conservation Planning Vol 12, pages 1 – 7.

The Wilderness Society. 2004. Landscape Connectivity: An Essential Element of Land Management. Policy Brief. Number 1.

USDA Forest Service. 2001. Final National Forest System Road Management Strategy Environmental Assessment and Civil Rights Impact Analysis. Available at http://www.fs.fed.us/eng/road_mgt/Final-Forest-Service-EA/HTML/FINAL%20EA.htm.

USDA Forest Service. 2011b. National Roadmap for Responding to Climate Change. Available at http://www.fs.fed.us/climatechange/advisor/roadmap.html.

Wilcove, D.S. 1990. The role of wilderness in protecting biodiversity. Natural Resources and Environmental Issues: Vol. 0, Article 7. Available at http://digitalcommons.usu.edu/nrei/vol0/iss1/7/.

Wyoming State Wildlife Action Plan, Conservation Threats, Chapter 2 ("[The fact that invasive species colonize disturbed places] contributes to invasive species being a principal component of, or compounding, other negative effects associated with habitat impacts such as rural subdivision, energy development, disruption of natural disturbance regimes, overgrazing, and off-road vehicle use.") Available at https://drive.google.com/drive/folders/0B1iN5AyJdrYPa2JMMjh6Q2RseVE

REFERENCES USED IN THE PROPOSED SPECIAL INTEREST AREAS AND RESEARCH NATURAL AREAS SECTION

Davidson, Diane W., William D. Newmark, Jack W. Sites, Jr., Dennis K. Shiozawa, Eric A. Rickart, Kimball T. Harper, and Robert B. Keiter. 1996. Selecting Wilderness Areas to Conserve Utah's Biological Diversity. Great Basin Naturalist 56(2):95-118.

Forest Service. 2008. Southern Rockies Lynx Management Direction, Final Environmental Impact Statement Volume 1.

Fox, R.A. 1989. Mule Deer (Odocoileus hemionus) Home Range and Habitat Use in an Energy-Impacted Area of the North Dakota Badlands. Masters Thesis, University of North Dakota. Grand Forks, ND.

Lyon, L. J. 1979. "Habitat Effectiveness for Elk as Influenced by Roads and Cover." Journal of Forestry, October, 658-660.

Reed, S.E., D.M. Theobald and D. Harrison-Atlas. 2012. Developing key datasets to support prioritization of wildlife habitat protection in Colorado and New Mexico. Colorado State University, Fort Collins, CO.

Stritthold, J.R., and D.A. DellaSala. 2001. Importance of Roadless Areas in Biodiversity Conservation in Forested Ecosystems: A Case Study—Kalmath-Siskiyou Ecoregion, U.S.A. Conservation Biology 15(6):1742-1754.

Trumbulak, S.C., and C.A. Frissell. 2000. Review of Ecological Effects of Roads on Terrestrial and Aquatic Communities. Conservation Biology 14(1):18-26.

VanDyke, F. G., Brocke, R. H., Shaw, H. G., Ackerman, B. B., Hemker, T. P., and Lindzey, F. G. (1986b). Reactions of Mountain Lions to Logging and Human Activity. Journal of Wildlife Management. 50(1): 95-102.

VanDyke, F. G., Brocke, R. H., and Shaw, H. G. (1986a). Use of Road Track Counts as Indices of Mountain Lion Presence. Journal of wildlife Management. 50(1):102-109.US Fish and Wildlife Service. 2014. Species status assessment report for the Rio Grande cutthroat trout. Albuquerque, NM.

REFERENCES USED IN THE SAGEBRUSH ECOSYSTEM ASSOCIATED AT-RISK SPECIES SUBSECTION

Aldridge, C. L., S. E. Nielsen, H. L. Beyer, M. S. Boyce, J. W. Connelly, S. T. Knick, M. A. Schroeder. 2008. Range-wide patterns of Greater Sage-grouse persistence. Diversity and Distrib. 14(6): 983-994.

Aldridge, C. L., D. J. Saher, T. M. Childers, K. E. Stahlnecker, and Z. H. Bowen. 2012. Crucial nesting habitat for Gunnison sage-grouse: a spatially explicit hierarchical approach. Journal of Wildlife Management 76: 391-406.

Beck, J. L., J. W. Connelly, K. P. Reese. 2009. Recovery of greater sage-grouse habitat features in Wyoming big sagebrush following prescribed fire. Restoration Ecol. 17(3): 393-403.

Beschta, R. L., D. L. Donahue, D. A. DellaSala, J. J. Rhodes, J. R. Karr, M. H. O'Brien, T. L. Fleischner, C. Deacon-Williams, Cindy. 2012. Adapting to climate change on western public lands: addressing the ecological effects of domestic, wild, and feral ungulates. Environmental Management, available at http://fes.forestry.oregonstate.edu/sites/fes.forestry.oregonstate.edu/files/PDFs/Beschta/Beschta_2012EnvMan.pdf.

Blickley, J. L., K. R. Word, A. H. Krakauer, J. L. Phillips, S. N. Sells, C. C. Taff, J. C. Wingfield, G.L. Patricelli. 2012. Experimental chronic noise is related to elevated fecal corticosteroid metabolites in lekking male greater sage-grouse (*Centrocercus urophasianus*). PLoS ONE 7(11): e50462. doi:10.1371/journal.pone.0050462.

BLM & USFS (Bureau of Land Management, U.S. Forest Service). 1994. Rangeland Reform ’94 Draft Environmental Impact Statement. U.S. Department of Interior, Bureau of Land Management; U.S. Department of Agriculture, Forest Service. Washington, DC.

Braun, C. E., J. W. Connelly, M. A. Schroeder. 2005. Seasonal habitat requirements for sage-grouse: spring, summer, fall and winter. Pages 38-42 *in* N. L. Shaw, M. Pellant, S. B. Monsen (compilers). Sage-grouse Habitat Restoration Symposium Proceedings; June 4-7, 2001; Boise, ID. RMRS-P-38. U.S. Forest Service, Rocky Mountain Research Station. Fort Collins, CO.

Carpenter, J., C. Aldridge, M. S. Boyce. 2010. Sage-grouse habitat selection during winter in Alberta. J. Wildl. Manage. 74(8): 1806-1814.

Caudill, D., T.A. Messmer, B. Bibles, and M.R. Guttery. 2013. Winter habitat use by juvenile greater sage-grouse on Parker Mountain, Utah: implications for sagebrush management. Human-Wildlife Interactions 7(2): 250.

Chambers, J. C. 2008a. Climate change and the Great Basin. Pages 29-32 in J. C. Chambers, N. Devoe, and A. Evenden (eds.). Collaborative Management and Research in the Great Basin—Examining the Issues and Developing a Framework for Action. Gen. Tech. Rep. RMRS-GTR-204. USDA-Forest Service, Rocky Mountain Research Station. Fort Collins, CO.

Chambers, J. C. 2008b. Fire and the Great Basin. Pages 33-37 in J. C. Chambers, N. Devoe, and A. Evenden (eds.). Collaborative Management and Research in the Great Basin—Examining the

Issues and Developing a Framework for Action. Gen. Tech. Rep. RMRS-GTR-204. USDAForest Service, Rocky Mountain Research Station. Fort Collins, CO.

Chester, C. C., J. A. Hilty, S. C. Trombulak. 2012. Climate change science, impacts and opportunities. Pages 3-15 *in* Climate and Conservation: Landscape and Seascape Science, Planning, and Action. J. A. Hilty, C. C. Chester, M. S. Cross (eds.). Island Press. Washington, DC.

Connelly, J. W., E. T. Rinkes, C. E. Braun. 2011a. Characteristics of Greater Sage-grouse habitats: a landscape species at micro and macro scales. Pages 69-83 *in* S. T. Knick and J. W. Connelly (eds). Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and its Habitats. Studies in Avian Biol. Series, vol. 38. Cooper Ornithological Society. Univ. Calif. Press. Berkeley, CA.

Connelly, J. W., S. T. Knick, C. E. Braun, W. L. Baker, E. A. Beever, T. J. Christiansen, K. E. Doherty, E. O. Garton, C. A. Hagen, S. E. Hanser, D. H. Johnson, M. Leu, R. F. Miller, D. E. Naugle, S. J. Oyler-McCance, D. A. Pyke, K. P. Reese, M. A. Schroeder, S. J. Stiver, B. L. Walker, M. J. Wisdom. 2011b. Conservation of Greater Sage-grouse: a synthesis of current trends and future management. Pages 549-563 *in* S. T. Knick and J. W. Connelly (eds). Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and its Habitats. Studies in Avian Biol. Series, vol. 38. Cooper Ornithological Society. Univ. Calif. Press. Berkeley, CA.

Connelly, J. W., M. A. Schroeder, A. R. Sands, C. E. Braun. 2000. Guidelines to manage sage-grouse populations and their habitats. Wildl. Soc'y Bull. 28(4): 967-985.

Dalke, P. D., D. B. Pyrah, D. C. Stanton, J. E. Crawford, E. F. Schlatterer. 1963. Ecology, productivity and management of sage grouse in Idaho. J. Wildl. Manage. 27: 811-841.

Doherty, K. E., D. E. Naugle, B. L. Walker, J. M. Graham. 2008. Greater sage-grouse winter habitat selection and energy development. J. Wildl. Manage. 72(1): 187-195.

Doherty, K. E., D. E. Naugle, H. E. Copeland, A. Pocewicz, J. M. Kiesecker. 2011. Energy development and conservation tradeoffs: systematic planning for greater sage-grouse in their eastern range. Pages 505-529 in S. T. Knick and J. W. Connelly (eds). Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and its Habitats. Studies in Avian Biol. Series, vol. 38. Cooper Ornithological Society. Univ. Calif. Press. Berkeley, CA.

GSGRSC (Gunnison Sage-grouse Rangewide Steering Committee). 2005. Gunnison sage - grouse rangewide conservation plan. Colorado Division of Wildlife, Denver, Colorado, USA. http://cpw.state.co.us/learn/Pages/GunnisonSagegrouseConservationPlan.aspx.

Hagen, C. A., J. W. Connelly, M. A. Schroeder. 2007. A meta-analysis of greater sage-grouse *Centrocercus urophasianus* nesting and brood-rearing habitats. Wildl. Biol. 13 (Suppl. 1): 42-50.

Holechek, J. L., R. D. Pieper, C. H. Herbel. 2010. Range Management: Principles and Practices. 6th ed. Prentice-Hall. Upper Saddle River, NJ.

Holloran, M. J. 2005. Greater sage-grouse (Centrocercus urophaisianus) population response to natural gas field development in western Wyoming. PhD Diss., Univ. of Wyoming. Laramie, WY.

Holloran, M. J., B. J. Heath, A. G. Lyon, S. J. Slater, J. L. Kuipers, S. H. Anderson. 2005. Greater sage-grouse nesting habitat selection and success in Wyoming. J. Wildl. Manage. 69(2): 638-649.

Howe, K. B., P. S. Coates, D. J. Delehanty. 2014. Selection of anthropogenic features and vegetation characteristics by nesting Common Ravens in the sagebrush ecosystem. Condor 116: 35-49.

Jones, A. L. (ed). 2012. Best Management Practices for siting, developing, operating and monitoring renewable energy in the intermountain West: a conservationist's guide. Special publication. Wild Utah Project. Salt Lake City, UT.

Knick, S. T. 2011. Historical development, principal federal legislation and current management of sagebrush habitats: implications for conservation. Pages 13-31 in S. T. Knick and J. W. Connelly (eds). Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and its Habitats. Studies in Avian Biol. Series, vol. 38. Cooper Ornithological Society. Univ. Calif. Press. Berkeley, CA.

Knick, S.T. and J. W. Connelly (eds). 2011. Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and its Habitats. Studies in Avian Biol. Series, vol. 38. Cooper Ornithological Society. Univ. Calif. Press. Berkeley, CA.

Knick, S. T., S. E. Hanser, K. L. Preston. 2013. Modeling ecological minimum requirements for distribution of greater sage-grouse leks: implications for population connectivity across their western range, U.S.A. Ecology and Evolution, available at http://onlinelibrary.wiley.com/doi/10.1002/ece3.557/pdf.

Leonard, K. M., K. P. Reese, J. W. Connelly. 2000. Distribution, movements and habitats of sage grouse *Centrocercus urophasianus* on the Upper Snake River Plain of Idaho: changes from the 1950s to the 1990s. Wildl. Biol. 6: 265-270.

Manier, D. J., D. J. A. Wood, Z. H. Bowen, R. M. Donovan, M. J. Holloran, L. M. Juliusson, K. S. Mayne, S. J. Oyler-McCance, F. R. Quamen, D. J. Saher, A. J. Titolo. 2013. Summary of science, activities, programs, and policies that influence the range-wide conservation of greater sage-grouse (*Centrocercus urophasianus*). U.S. Geological Survey, Open-File Report 2013–1098; available at http://pubs.usgs.gov/of/2013/1098/.

Manville, A. M. 2004 Prairie Grouse Leks and Wind Turbines: U.S. Fish and Wildlife Service Justification for a 5-mile Buffer from Leks; Additional Grassland Songbird Recommendations (briefing paper). U.S. Fish and Wildlife Service, Division of Migratory Bird Management. Arlington, VA. Available at www.environment.ok.gov/documents/OKWindEnergy/PrairieGrouseLeksWindTurbines.pdf.

Meinke, C. W., S. T. Knick, D. A. Pyke. 2009. A spatial model to prioritize sagebrush landscapes in the intermountain west (U.S.A.) for restoration. Restoration Ecol. 17(5): 652-659.

Miller, R. F., S. T. Knick, D. A. Pyke, C. W. Meinke, S. E. Hanser, M. J. Wisdom, A. L. Hild. 2011. Characteristics of sagebrush habitats and limitations to long-term conservation. Pages 145-184 *in* S. T. Knick and J. W. Connelly (eds). Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and its Habitats. Studies in Avian Biol. Series, vol. 38. Cooper Ornithological Society. Univ. Calif. Press. Berkeley, CA.

Moynahan, B. J., M. S. Lindberg, J. J. Rotella, J. W. Thomas. 2007. Factors affecting nest survival of Greater Sage-grouse in northcentral Montana. J. Wildl. Manage. 71(6): 1773-1783.

NFWPCAS (National Fish, Wildlife and Plants Climate Adaption Partnership). 2012. National Fish, Wildlife and Plants Climate Adaption Strategy. Association of Fish and Wildlife Agencies, Council on Environmental Quality, Great Lakes Indian Fish and Wildlife Commission, National Oceanic and Atmospheric Administration, and U.S. Fish and Wildlife Service. Washington, DC.

Patricelli, G. L., J. L. Blickley, S. L. Hooper. 2013. Recommended management strategies to limit anthropogenic noise impacts on greater sage-grouse in Wyoming. Human-Wildlife Interactions 7(2): 230-249.

Patricelli, G.L., J.L. Blickley, and S. Hooper. 2010. Incorporating the impacts of noise pollution into greater sage-grouse conservation planning. 27th Meeting of the Western Agencies Sage and Columbian Sharp-tailed Grouse Technical Committee Workshop. Twin Falls, Idaho, USA.

Pyke, D. A. 2011. Restoring and rehabilitating sagebrush habitats. Pages 531-548 *in* S. T. Knick and J. W. Connelly (eds). Greater Sage-Grouse: Ecology and Conservation of a Landscape

Species and its Habitats. Studies in Avian Biol. Series, vol. 38. Cooper Ornithological Society. Univ. Calif. Press. Berkeley, CA.

Reisner, M. D. 2010. Drivers of plant community dynamics in sagebrush steppe ecosystems: cattle grazing, heat and water stress. PhD Diss. Oregon State Univ. Corvallis, OR.

Reisner, M. D., J. B. Grace, D. A. Pyke, P. S. Doescher. 2013. Conditions favouring *Bromus tectorum* dominance of endangered sagebrush steppe ecosystems. J. Applied Ecol., available at http://onlinelibrary.wiley.com/doi/10.1111/1365-2664.12097/pdf.

Rich, T. D., and B. Altman. 2001. Under the sage grouse umbrella. Bird Cons. 14: 10.

Rio Grande National Forest. Brewer's Sparrow (*Spizella breweri*). Fish and Wildlife Overview. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd534286.pdf.

Rio Grande National Forest. Gunnison sage-grouse (*Centrocercus minimus*). Fish and Wildlife Overview. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd534300.pdf;

Schroeder, M. A., J. R. Young, C. E. Braun. 1999. Sage grouse (*Centrocercus urophasianus*). Pages 1-28 *in* A. Poole and F. Gill (eds.). The Birds of North America, No. 425. The Birds of North America. Philadelphia, PA.

SGNTT (Sage-grouse National Technical Team). 2011. A Report on National Greater Sage-grouse Conservation Measures. Available at www.blm.gov/pgdata/etc/medialib/blm/wo/Information_Resources_Management/policy/im_fs/2012.Par.52415.File.dat/IM%202012-044%20Att%201.pdf.

Stiver, S. J., A. D. Apa, J. R. Bohne, S. D. Bunnell, P. A. Deibert, S. C. Gardner, M. A. Hilliard, C. W. McCarthy, M. A. Schroeder. 2006. Greater Sage-grouse Comprehensive Conservation Strategy. Western Association of Fish and Wildlife Agencies. Cheyenne, WY.

Walker, B. L., D. E. Naugle, K. E. Doherty. 2007. Greater sage-grouse population response to energy development and habitat loss. J. Wildl. Manage. 71(8): 2644-2654.

Winter, M., D. H. Johnson, J. A Shaffer. 2006. Does body size affect a bird's sensitivity to patch size and landscape structure? Condor 108(4): 808-816.

Wisdom, M. J., M. M. Rowland, R. J. Tausch. 2005b. Effective management strategies for sagegrouse and sagebrush: a question of triage? Trans. N. Wildl. Nat. Res. Conf. 70: 206-227.

Wisdom, M. J., M. M. Rowland, L. H. Suring, L. Schueck, C. W. Meinke, S. T. Knick, B. C. Wales. 2005a. Habitats for groups of species. Chap. 7 in part II: Regional assessment of habitats for species of conservation concern in the Great Basin. Pages 205-231 in M. J. Wisdom, M. M. Rowland, L. H. Suring (eds.). Habitat Threats in the Sagebrush Ecosystem: Methods of Regional Assessment and Applications in the Great Basin. Alliance Communications Group. Lawrence, KS.

REFERENCES USED IN THE CANADA LYNX SUBSECTION

Aubry, K.B., G.M. Koehler and J.R. Squires, 2000. Ecology of Canada lynx in southern boreal forests. Pp. 373-396 In L.F. Ruggiero, K.B. Aubry, S.W. Buskirk, G.M. Koehler, C.J. Krebs, K.S. McKelvey, and J.R. Squires, eds; Ecology and Conservation of Lynx in the United States. University Press of Colorado, Boulder, CO.

Holbrook, J.D., J.R. Squires, L.E. Olson, N.J. DeCesare, and R.L. Lawrence, 2017. Understanding and predicting habitat for wildlife conservation: the case of Canada lynx at the range periphery. Ecosphere 8(9): Article e01939.

ILBT - Interagency Lynx Biology Team, 2013. Canada lynx conservation assessment and strategy. 3rd edition. USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service. Forest Service Publication R1-13-19, Missoula, MT. 128 pp.

Ivan, J., M. Rice, T. Shenk, D. Theobald, E. Odell, Predictive Map of Canada Lynx Habitat Use in Colorado. Undated. 17 pp.

Koehler, G.M., 1990. Population and habitat characteristics of lynx and snowshoe hares in north central Washington. Canadian Journal of Zoology. 68:845-851.

Koehler, G.M. and J.D. Brittell, 1990. Managing spruce-fir habitat for lynx and snowshoe hares. Journal of Forestry 88: 10-14.

Kosterman, M. K., 2014. Correlates of Canada Lynx Reproductive Success in Northwestern Montana. Thesis. University of Montana, Missoula, Montana.

RGNF (Rio Grande National Forest), *Lynx canadensis*. Undated. Canada Lynx (*Lynx canadensis*). Species Overview. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd534290.pdf.

Ruediger, B., J. Claar, S. Gniadek, B. Holt, L. Lewis, S. Mighton, B. Naney, G. Patton, T. Rinaldi, J. Trick, A. Vandehey, F. Wahl, N. Warren, D. Wenger, and A. Williamson, 2000. Canada lynx conservation assessment and strategy (2nd. Edition). USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service. Forest Service Publication #R1-00-53, Missoula, MT.

Shenk, T.M. 2009. Lynx Update, May 25, 2009. Colorado Division of Wildlife, Ft. Collins, CO.

Shenk, Tanya, Peer Review Comments On Revised Designation Of Critical Habitat For The Contiguous U.S. Distinct Population Segment Of The Canada Lynx And Revised Distinct Population Segment Boundary, Communication to Jim Zelenak–USFWS (January 29, 2014).

Squires, John et al., Seasonal Resource Selection of Canada Lynx in Managed Forests of the Northern Rocky Mountains, 74 J. of Wildlife Mgmt. 1648–1660 (2010).

Squires, J.R., N.J. DeCesare, L.E. Olson, J.A. Kolbe, M. Hebblewhite, and S.A. Parks, 2013. Combining resource selection and movement behavior to predict corridors for Canada lynx at their southern range periphery. Biological Conservation 15: 187-195.

Squires, J., J., J. Holbrook, L. Olsen, J. Ivan, R. Lawrence, and R. Ghormley, 2017. Response of Canada Lynx and Snowshoe Hares to Spruce-beetle Tree Mortality and Wildfire in Spruce-fir Forests of Southern Colorado. June 2.

Theobald, David and Shenk, Tanya, Areas Of High Habitat Use From 1999-2010 For Radio Collared Canada Lynx Reintroduced To Colorado (March 31, 2011).

Vanbianchi, C., W.L. Gaines, M.A. Murphy, J. Pither, and K.E. Hodges, 2017. Habitat selection by Canada lynx: making do in heavily fragmented landscapes. Biodiversity and Conservation 26(14): 3343-3361.

REFERENCES USED IN THE OTHER SPECIES – BEAVER SUBSECTION

Bartel, R.A., N.M. Haddad, and J.P. Wright. 2010. Ecosystem engineers maintain a rare species of butterfly and increase plant diversity. Oikos. 119: 883-890.

Bird, B., M. O'Brien, M. Petersen. 2011. Beaver and Climate Change Adaptation in North America: A Simple, Cost-Effective Strategy. WildEarth Guardians. September.

Boyle, S. and S. Owens. North American Beaver (Castor canadensis): a technical conservation assessment. USDA Forest Service, Rocky Mountain Region. February 6. Available: http://www.fs.fed.us/r2/projects/scp/assessments/northamericanbeaver.pdf.

Butler, D.R. and G.P. Malanson. 1995. Sedimentation rates and patterns in beaver ponds in a mountain environment. Geomorphology. 13: 255-269.

Gurnell, A.M. 1998. The hydrogeomorphological effects of beaver dam-building activity. Progress in Physical Geography 22(2): 167-189.

Keinath, D. and M. McGee. 2005. Boreal Toad (Bufo boreas boreas): A Technical Conservation Assessment. Prepared for USDA Forest Service, Rocky Mountain Region. May 25.

Miller, B., D. Foreman, M. Fink, D. Shinneman, J. Smith, M. DeMarco, M. Soule, R. Howard. 2003. Southern Rockies Wildlands Network Vision. Southern Rockies Ecosystem Project. July.

Stevens, C.E., C.A. Paszkowski, and A.L. Foote. 2007. Beaver (Castor canadensis) as a surrogate species for conserving anuran amphibians on boreal streams in Alberta, Canada. Biological Conservation. 134: 1-13.

U.S. Forest Service. Undated. Beaver Restoration Toolbox. http://www.martinezbeavers.org/wordpress/wp-content/uploads/2013/10/Beaver-Restoration-Toolbox-Karl-Malcolm-2013.pdf.

USFWS (US Fish and Wildlife Service), National Oceanic and Atmospheric Administration, Portland State University, and US Forest Service. 2015. The Beaver Restoration Guidebook. Version 1.0. June 30.

Westbrook, C.J., D.J. Cooper, and B.W. Baker. 2006. Beaver dams and overbank floods influence groundwater---surface water interactions of a Rocky Mountain riparian area. Water Resources Research. 42.

Westbrook, C.J., Cooper, D.J. and Baker, B.W. 2011. Beaver assisted river valley formation. River Research and Applications. 27: 247-256.

Wright, J.P., C.G. Jones, and A.S. Flecker. 2002. An ecosystem engineer, the beaver, increases species richness at the landscape scale. Oecologia. 132: 96-101.

REFERENCES CITED IN THE SUSTAINABLE RECREATION SECTION

Colorado Division of Wildlife, 2008, Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors. At 5. https://cpw.state.co.us/Documents/WildlifeSpecies/LivingWithWildlife/RaptorBufferGuidelines2008.pdf. Accessed December 2017.

Colorado Parks and Wildlife 2015 Strategic Plan, November 2015. Available at: http://cpw.state.co.us/Documents/About/StrategicPlan/2015CPWStrategicPlan-11-19-15.pdf. Accessed December 2017.

Colorado Parks and Wildlife, 2016-2026 Statewide Trails Strategic Plan available at http://cpw.state.co.us/Documents/Trails/CO-Trails-Strat-Plan.pdf#search=trail%20strategic%20plan

Hatchett, Ben. May 15, 2017. Evaluation of Observed and Simulated Snow Depths for Commencing Over Snow Vehicle Operation in the Sierra Nevada, Prepared for the Winter Wildlands Alliance.

Larson CL, Reed SE, Merenlender AM, Crooks KR, 2016, Effects of Recreation on Animals Revealed as Widespread through a Global Systematic Review. PLoS ONE 11(12).

Lucretia E. Olson, John R. Squires, Elizabeth K. Roberts, Aubrey D. Miller, Jacob S. Ivan, and Mark Hebblewhite, 2017. Modeling large-scale winter recreation terrain selection with implications for recreation management and wildlife. In Applied Geography, Volume 86, Pages 66-91.

Planning Trails with Wildlife in Mind, 1998, Colorado State Parks and Hellmund Associates, http://cpw.state.co.us/Documents/Trails/TrailsPlanningPrimer.pdf. Accessed December, 2017.

Switalski, Adam. 2016. Snowmobile Best Management Practices for Forest Service Travel Planning: A Comprehensive Literature Review and Recommendations for Management. Journal of Conservation Planning 12: 1-28.

Switalski, Adam. 2016. Snowmobile Best Management Practices for Forest Service Travel Planning: A Comprehensive Literature Review and Recommendations for Management. Journal of Conservation Planning 12: 1-28.

USDA Forest Service. 2012. National Best Management Practices for Water Quality Management on National Forest System Lands, Volume 1: National Core BMP Technical Guide. Available at http://www.fs.fed.us/biology/resources/pubs/watershed/FS_National_Core_BMPs_April2012.pdf.

Weidmann and Bleich 2014, Demographic Responses of Bighorn Sheep to Recreational Activities: A Trial of a Trail, Wildlife Society Bulletin 38(4):773–782; 2014. https://www.researchgate.net/publication/264625966_Demographic_Responses_of_Bighorn_Sheep_to_Recreational_Activities_A_Trial_of_a_Trail. Accessed online December 2014.

REFERENCES USED IN THE REMAINDER OF THE COMMENTS

Alexander, R. R. 1987. Ecology, silviculture, and management of the Engelmann spruce-subalpine fir type in the central and southern Rocky Mountains. Agric. Handb. 659. Washington, DC: U.S. Department of Agriculture, Forest Service. 144 p.

Aplet, G. H., F. W. Smith and R. D. Laven. 1989. Changes in stemwood biomass and production during spruce-fir forest development. Journal of Ecology 77:70-77.

Beecham, John J., Cameron P. Collins, and Timothy D. Reynolds, 2007. Rocky Mountain Bighorn Sheep(Ovis canadensis): A Technical Conservation Assessment. Prepared for the USDA Forest Service, Rocky Mountain Region, Species Conservation Project, February 12, 2007.

CPW (Colorado Parks and Wildlife). Undated. Wolverine, Species Profile. http://cpw.state.co.us/learn/Pages/SpeciesProfiles.aspx

Colborn, Theo et al., Natural Gas Operations from a Public Health Perspective, 17 Human & Ecol. Risk Assess. 1039 (2011), available at: https://www.biologicaldiversity.org/campaigns/fracking/pdfs/Colborn_2011_Natural_Gas_from_a_public_health_perspective.pdf.

Concerned Health Professionals of New York & Physicians for Social Responsibility, 2016. Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking, 4th ed. (Nov. 17, 2016). Available at: http://concernedhealthny.org/compendium/

Daubenmire, R.F. 1943. Vegetational zonation in the Rocky Mountains. Botanical Review 9:326-393.

Derderian, D., H. Dang, H. G.H. Aplet and D. Binkley. 2016. Bark beetle effects on a seven-century chronosequence of Engelmann spruce and subalpine fir in Colorado, USA. Forest Ecology and Management 361:154-162.

Donato, D.C.; Fontaine, J.B.; Campbell, J.L.; Robinson, W.D.; Kauffman, J.B.; Law, B.E. 2006. Post-wildfire logging hinders regeneration and increases fire risk. Science. 311: 352.

Forest Stewardship Concepts, Ltd., James Webb and Molly Pitts, December, 2014. Rio Grande Basin Watershed Health and Forest Biomass Opportunities Evaluation. Report prepared for the Rio Grande Watershed Emergency Action Coordination Team. 28 pp.

FWS, 2014. Species Status Assessment Report for the Rio Grande Cutthroat Trout. U. S. Fish and Wildlife Service, Region 2, Albuquerque, NM, August, 2014.

Hayward, G. D. and J. Verner, tech. editors. 1994. Flammulated, boreal, and great gray owls in the United States: A technical conservation assessment. Gen. Tech. Rep. RM-253. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 214 p., 3 maps.

Hunter, Jr., M.L 2003. Wildlife, Forests and Forestry: Principles of Managing Forests for Biological Diversity. Prentice Hall, New York.

Knapp, A.K., W.K. Smith. 1982. Factors influencing understory seedling establishment of Engelmann spruce (Picea engelmannii) and subalpine fir (Abies lasiocarpa) in southeast Wyoming. Canadian Journal of Botany. 60:2753-2761.

Lyon, P., and D. R. Culver, 2002. Colorado Natural Heritage Program field surveys.

McKenzie, Lisa M., Roxana Z. Witter, Lee S. Newman, and John L. Adgate, 2012. Human Health Risk Assessment of Air Emissions from Development of Unconventional Natural Gas Resources, 424 Sci. Total Env't 79. Available at: https://fromthestyx.files.wordpress.com/2012/09/health-risk-assessment-of-air-emissions-from-unconventional-natural-gas-hmckenzie2012-1.pdf

Morgan, P., G. H. Aplet, J. B. Haufler, H. C. Humphries, M. M. Moore and W. D. Wilson. 1994. Historical range of variability: a useful tool for evaluating ecosystem change. Journal of Sustainable Forestry 2:87-111.

Need, D.M., J.C. Halfpenny, and S. Bissell. 1985. The status of wolverines in Colorado. Northwest Science. 8(4): 286-289.

Neid, Stephanie. L., and Jennifer R. Jones, 2008. Final Report: Survey of Critical Wetlands and Riparian Areas in Hinsdale County. Colorado Natural Heritage Program, Fort Collins, CO.

Peterson, D.L., J.K. Agee, G.H. Aplet, D.P. Dykstra, R.T. Graham, J.F. Lehmkuhl, D.S. Pilliod, D.F. Potts, R.F. Powers, and J.D. Stuart. 2009. Effects of timber harvest following wildfire in western North America: issues and scientific evidence. USDA Forest Service General Technical Report PNW-GTR-776. Pacific Northwest Research Station, Portland, OR.

Peterson, D.L., J.K. Agee, G.H. Aplet, D.P. Dykstra, R.T. Graham, J.F. Lehmkuhl, D.S. Pilliod, D.F. Potts, R.F. Powers, and J.D. Stuart. 2009. Effects of timber harvest following wildfire in western North America: issues and scientific evidence. USDA Forest Service General Technical Report PNW-GTR-776. Pacific Northwest Research Station, Portland, OR.

RGNF (Rio Grande National Forest). Undated. North American Wolverine (Gulo gulo luscus). Wildlife Overview. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd534367.pdf

Rhodes, Jonathan J., 2007. The Watershed Impacts Of Forest Treatments To Reduce Fuels And Modify Fire Behavior. Pacific Rivers Council.

Rumbaitis del Rio, C.M. 2006. Changes in understory composition following catastrophic windthrow and salvage logging in a subalpine forest ecosystem. Canadian Journal of Forest Research 36(11): 2943-2954.

Webb, James, 2015. Spruce Sawlog Quality Changes Due to Spruce Bark Beetle Mortality, Rio Grande National Forest. Rio Grande Watershed Emergency Action Coordination Team.

Whipple, S.A., R.L. Dix. 1979. Age structure and successional dynamics of a Colorado subalpine forest. American Midland Naturalist. 101:142-158.

APPENDIX 1
SNAGS AND DOWN WOOD

Snags and down wood were identified as key ecosystem characteristics in the assessment for evaluating ecological integrity. The document used in Appendix A (Plan at 153) to set snag and downed wood targets is over 25 years old. While some species information published around that time, and even before, is still relevant, much research conducted after 1992 has provided new information about species' habitat requirements and characteristics. Compare the proposed plan recommendations with snag and down wood targets for forest-dependent at-risk species. For example, we find the desired conditions that outline snag metrics for spruce-fir associated species must be modified to better protect snag and downed wood requirements for wildlife.

The snag recommendations in **DC-VEG-1** aren't sufficient to provide for the habitat needs of, for example, the American marten and boreal owl—both potential SCC. As stated above, there is a need to clarify the definition of "planning unit" as applied to this DC; it must apply to the appropriate scale, i.e., the project scale.

A portion of Table 5 (Plan at 37): Recommended snags and downed wood for wildlife habitat and ecosystem processes (Spruce-fir)

Forest Type	Snags			Downed Wood[1]
	Minimum diameter at breast height	Minimum/Acre in Planning Unit	Minimum height (feet)	Tons/Acre
Spruce-fir	[2]12	6	25	10–15

[2] At least 50 percent of the required snag numbers should represent the largest size classes available

We are especially concerned about snag desired conditions in relation to boreal owl and American marten needs; they do not square with BASI synthesized in the RGNF's wildlife overviews (RGNF undated, *Martes americana*; RGNF undated, *Aegolius funereus*) and additional BASI related to the marten (Hargis et al. 1999; Powell et al. 2003; Buskirk and Ruggiero 1994; Buskirk and Zielinski 1997; Ruggiero et al. 1998) and owl (Ryder et al. 1987; Hayward et al. 1987, 1993; Hayward 1994; Herren et al. 1996).

Boreal owls are subalpine secondary cavity nesters and the largest cavity nesting species in the Southern Rockies (Hayward 2008). They need large snags and trees for nesting: a minimum of 9 snags per acre at 13 inches in diameter at breast height (dbh). To enable retention of sufficient snags for boreal owl nesting, projects cannot manage to the minimum. The average snag size is 25 inches dbh, and some snags must be retained at much larger diameters than 12 inches (the recommendation in DC-VEG-1). The American marten requires snags greater than 16 inches dbh.

American martens are depended on snags and down wood. They need at least 9 snags per acre at >16 inches dbh and at minimum 47 logs per acre at >16 inches in diameter (see scientific references above).

> ***DC-VEG-9:*** *When salvaging timber following wildfire, retain tall snags for snag-associated species and snag location in the riparian management zone. (Forestwide)*

This DC is written as a standard. As written, it doesn't meet the planning rule requirements for a DC or standard. This should be a standard, because it provides a constraint on protect activities. We state more about this below.

> ***DC-SCC-5:*** *Large log (generally greater than 18" diameter) components contribute to the downed woody material remaining in the post-treatment environment. Log decks and slash piles provide supplementary habitat features for marten and other forest species. (General Forest Geographic Area)*

Down wood related to species' habitat characteristics tends to be measured by metrics including stem and log density and stem and log size vs. by weight. Table 12 on page 38 of the Terrestrial Ecosystems Assessment provides a down wood metric by density. We appreciate the inclusion of a DC that helps capture some of the understory requirements of at-risk species, e.g., the American marten and also Canada lynx. Including a density target to this DC is necessary to better assure that the plan contributes to viability and recovery of at-risk species.

> ***MA-VEG-10:*** *In areas suitable for timber production, dead or dying trees (due to fire, insects, disease) are salvaged to recover the economic value of the wood while providing for ecosystem function, including but not limited to retention of downed woody material, habitat, and snags as well as public safety. (General Forest Geographic Area)*

To achieve DCs (with the modifications we recommend), a standard or standards and guidelines must be developed to put constraints on vegetation management activities that impact snag and downed wood retention. This is necessary to meet requirements for at-risk species. A management approach is not adequate to achieve this.

The following is an example of a standard from the Flathead National Forest's Revised Draft Plan of May 2016 (at 45-46) that lays out parameters for snag retention. Though we do not necessarily endorse the substance of the standard, it demonstrates how a standard can be written

to provide clearer direction to project planners and evaluative criteria for monitoring achievement toward the associated DC.

> In the absence of a site-specific analysis that supports an alternative prescription for snags or decadent live trees, timber harvest areas shall retain at least the minimum number of snags and/or decadent live trees displayed in table 16. The intent is to provide sufficient habitat both short and long term, well distributed across the landscape, for wildlife species associated with snags and decadent live trees, particularly those that are larger and longer lasting (refer to appendix C). All western larch, ponderosa pine, and black cottonwood snags greater than 20 inches shall be left. If present, decadent live trees greater than 20 inches d.b.h., especially those with evidence of wildlife use, may be used as a substitute for 20 inch d.b.h. snags, to achieve minimum levels in table 16. Exceptions to this snag retention standard may occur, for example in areas where the minimum number or snags or decadent live trees are not present prior to management activities; where there are issues of human safety (i.e., developed recreation sites); and in areas within 200 feet of a road that is open to firewood cutters. Refer to appendix C for guidance on implementing this snag retention guideline.

Table 16. Snag levels to retain (where they exist) in timber harvest areas

Biophysical setting	Minimum number of snags per acre	
	Greater than or equal to 15 inches d.b.h.[ab]	Greater than or equal to 20 inches d.b.h. [c]
Warm-Dry	3	1.4
Warm-Moist	8	2
Cool-Moist/Mod. Dry	5	2
Cold	3	1

a. This minimum number includes snags greater than or equal to 20 inches d.b.h.
b. If snags greater than 15 inches are not available, then snags greater than 12 inches should be retained.
c. If snags greater than 20 inches are not available, then additional snags or decadent live replacement trees greater than 20 inches d.b.h. should be left if available.

Below is a corresponding guideline example from the Flathead National Forest's draft plan (at 48). Again, we do not necessarily endorse the guideline, but it illustrates a guideline that is linked to a specific DC and describes the intent of the guideline and constraint.

> In the absence of a site-specific analysis that supports an alternative prescription for downed wood retention, retain a minimum of approximately 10 tons per acre of down woody material greater than 3 inches in diameter within timber harvest units, where available. The maximum amount of total downed woody material should generally not exceed 35 tons per acre. Retained material should consist of the longest and largest available, and where possible, consist of intact pieces of a variety of species, sizes and stages of decay, including cull tops and cull logs. The intent is to contribute to forest structural diversity and provide forest components that are important to many wildlife species. Exceptions may occur, for example when there is insufficient material of suitable size prior to harvest, within developed recreation sites, or where fuel reduction is desired to decrease expected fire behavior (e.g., within wildland-urban interface).

We urge the RGNF to revised its plan components related to retaining sufficient snag and down wood components in forested ecosystem based on key characteristics needed by at-risk species.

Literature Cited in this Appendix

Buskirk, S.W. and L.F. Ruggiero. 1994. American marten. In Ruggiero, L.F, K.B. Aubry, S.W. Buskirk, L.J. Lyon, and W.J. Zielinski, tech eds. The scientific basis for conserving forest carnivores: American marten, fisher, lynx, and wolverine in the western United States. USDA Forest Service, Gen. Tech. Rep. RM-254. 184 pp.

Buskirk, S.W. and W.J. Zielinski. 1997. American marten (*Martes americana*) ecology and conservation. In J.E. Harris and C.V. Ogan (eds). Mesocarnivores of Northern California: Biology, Management, and Survey Techniques, Workshop Manual. August 12-15, 1997. Humboldt State Univ., Arcata, CA. The Wildlife Society, California North Coast Chapter, Arcata, CA. 127 pp.

Hargis, C.D., J. Bissonette, and D. L. Turner. 1999. The influence of forest fragmentation and landscape pattern on American martens. Journal of applied Ecology 36(1): 157-172.

Hayward, G.D. 2008. Response of Boreal Owl to Epidemic Mountain Pine Beetle-caused Tree Mortality Under a No-action Alternative.

Hayward, G.D., P.H. Hayward, and E.O. Garton. 1987. Movements and home range use by boreal owls in central Idaho. Pages 175-184. in R.W. Nero, C.R. Knapton, and R.H. Hamre, editors. Biology and conservation of northern forest owls. Symposium proceedings, Winnipeg, Manitoba.

Hayward, G.D. Review of Technical Knowledge+Boreal Owls. 1994. Pages 92-127 in Hayward, G. D. and J. Verner. 1994. Flammulated, boreal, and great gray owls in the United States: A technical conservation assessment. USDA Forest Service, GTR RM-253.

Hayward, G.D., P.H. Hayward, and E.O. Garton. 1993. Ecology of boreal owls in the northern Rocky Mountains, U.S.A. Wildlife Monographs 124: 3-59.

Herren, V., S.H. Anderson, and L.E. Ruggiero. 1996. Boreal owl mating habitat in the northwestern United States. Journal of Raptor Research 30: 123-129.

Powell, R. A., Buskirk, S. W. and Zielinski, W. J. 2003. Fisher and marten (Martes penanti and Martes americana). In Wild mammals of North America: biology management and conservation. (Second ed): 635-649. Feldhamer, G. A., Thompson, B. C. and Chapman, J. A. (Eds.). The Johns Hopkins University Press, Baltimore, Maryland, USA.

RGNF undated, *Aegolius funereus*. Wildlife Overview. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd534283.pdf.

RGNF undated, *Martes Americana.* Wildlife Overview. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd533052.pdf.

Ruggiero, L.F., K.B. Aubry, S.W. Buskirk, L.J. Lyon, and W.J. Zielinski. 1994. The scientific basis for conserving forest carnivores: American marten, fisher, lynx, and wolverine in the western United States. U.S. Department of Agriculture, Forest Service. GTR-RM-254. 184 p.

Ruggiero, L.F., D.E. Pearson, and S.E. Henry. 1998. Characteristics of American marten den sites in Wyoming. Journal of Wildlife Management 62(2): 663-673.

Ryder, R. A., D. A. Palmer, and J. J. Rawinski. 1987. Distribution and status of the boreal owl in Colorado. Pages 169-174. in R.W. Nero, C.R. Knapton, and R.H. Hamre, editors. Biology and conservation of northern forest owls. Symposium proceedings, Winnipeg, Manitoba.