High Country Conservation Advocates
Rocky Smith ● Black Canyon Audubon Society ● Western Slope Conservation Center
Defenders of Wildlife ● Rocky Mountain Wild ● Sheep Mountain Alliance ● San Juan Citizens Alliance
Central Colorado Wilderness Coalition ● Conservation Colorado ● WildEarth Guardians
Eagle Summit Wilderness Alliance ● Grand Valley Audubon Society ● Wilderness Workshop
Great Old Broads for Wilderness – Grand Junction Area Broadband ● Center for Biological Diversity
Western Colorado Alliance ● Great Old Broads for Wilderness – Northern San Juan Broadband
San Luis Valley Ecosystem Council ● Quiet Use Coalition ● The Wilderness Society
Barbara Vasquez ● Western Environmental Law Center ● Western Watersheds Project

November 24, 2021

Grand Mesa, Uncompahgre, and Gunnison National Forests
Attn: Plan Revision Team
2250 Highway 50
Delta, CO 81416
Submitted via the Online Feedback Tool

Re: Comments on the Draft Revised Land Management Plan and Draft Environmental Impact Statement for the Grand Mesa, Uncompahgre, and Gunnison National Forest

Dear GMUG Planning Team,

Please accept the following comments on the GMUG's Draft Plan and Draft Environmental Impact Statement on behalf of High Country Conservation Advocates, Defenders of Wildlife, Rocky Smith, Black Canyon Audubon Society, Center for Biological Diversity, Central Colorado Wilderness Coalition, Conservation Colorado, Defenders of Wildlife, Eagle Summit Wilderness Alliance, Grand Valley Audubon Society, Great Old Broads for Wilderness – Grand Junction Area Broadband, Great Old Broads for Wilderness – Northern San Juan Broadband, Quiet Use Coalition, Rocky Mountain Wild, San Juan Citizens Alliance, San Luis Valley Ecosystem Council, Sheep Mountain Alliance, The Wilderness Society, Western Colorado Alliance, Western Environmental Law Center, Western Slope Conservation Center, Western Watersheds Project, WildEarth Guardians, Wilderness Workshop, and Barbara Vasquez.

We appreciate the tremendous amount of effort and resources this process has required of the Forest Service to date. We are glad that the GMUG has remained committed to public outreach and has held meetings at every step, as well as offered many opportunities for comment along the way. We look forward to continuing to work with you as the process moves forward. Thank you for considering these comments. If you have questions, please do not hesitate to contact us to discuss.

Sincerely,

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Contents

I. INTRODUCTION

The Grand Mesa, Uncompahgre, and Gunnison (GMUG *or* Forest) National Forest[1] is a superlative gem in the National Forest System (NFS). The Forest forms the foundation for the health and well-being of the diverse communities within and around its geographic nexus and offers a source of inspiration and pride for all signatories to this comment letter. The GMUG's wildlands provide essential wildlife habitat, outstanding backcountry recreational opportunities, jaw-dropping scenery, and clean air and water. The Forest serves as the headwaters for the Gunnison, North Fork of the Gunnison, Uncompahgre, San Miguel, and Dolores Rivers that all flow into the Colorado River. The GMUG's mountains and streams attract people from local communities and afar to hunt, fish, paddle, hike, ski, camp, horseback ride, bird-watch, study nature, and drive for pleasure. As the future unfolds, these values will only be magnified.

We have thoroughly examined the GMUG Draft Revised Land Plan (Draft Plan), Draft Environmental Impact Statement (DEIS), and related documents to the best of our ability during this public comment opportunity. We appreciate that the Forest Service took numerous recommendations we made during the "working draft" comment period serious and made some substantive improvements in plan components in some places. In these comments, we identify and provide information, questions, and recommendations on a variety of issues, resources, and uses that – for better or worse – will likely be tied to the final revised land management plan for decades to come. The long life of the final plan – coupled with the factors of climate change, drought, increased visitation, and other forest stressors – make it critical that the plan serve as a solid foundation for a healthy and sustainable future. In some ways, the Draft Plan does that. In many ways though it does not. We have attempted, in these comments, to address the good and the bad to the greatest extent possible – focusing on overall Draft Plan framework – but also on specific geographies, species, uses, and respective plan components.

Our overarching concerns with the Draft Plan are centered on several themes: generally, the proposed plan components are insufficient to properly protect resources; Wilderness recommendations and Special Management Area designations are undervalued, underrepresented, and inexplicably absent from the GMUG's "preferred" vision for the Forest; the timber suitability analysis is at odds with a healthy and sustainable future forest, and with many communities and people; and native wildlife, from big game to rarer species, are not adequately protected under the Draft Plan's framework.

We are troubled that the "conservation" alternative falls far short of adequately capturing the conservation-side of the alternatives spectrum. As elaborated on throughout our comment letter, in many ways Alternative D is not a conservation alternative at all. It certainly does not provide a sustainable, conservation-centric vision for the GMUG to the same degree that Alternative C showcases an unsustainable, extractive-focused vision. Some of our concerns with Alternative D include: it

[1] Though technically three national forests, the GMUG makes up one planning unit and, therefore, referred to in the singular.

recommends only 261,000 acres for wilderness, or approximately 17% of the total inventoried acreage on the GMUG (Alternative C on the other hand includes 0 acres of recommended wilderness); it includes 757,800 acres of suitable timber, which is almost 300,000 more acres than is found suitable in the current Forest Plan; it has a huge amount of timber-suitable acreage in the high and very high scenic integrity objective class; and there is inexplicably more land assigned to the roaded natural recreational opportunity spectrum category in alternative D (530,000 acres) than in Alternatives A (414,000 acres) or B (417,000 acres).

We are concerned the Draft Plan and DEIS may not be in full compliance with a range of requirements mandated in the Forest Service's 2012 Planning Rule, which revised the 36 CFR 219 subpart of the National Forest Management Act implementing regulations—NFMA; 16 US. 1600 et seq. The Draft Plan and DEIS may be violating requirements in the National Environmental Policy Act—NEPA; 42 USC 4321 et seq., the Endangered Species Act—ESA; 16 USC 1531 et seq., and other statutes. We describe these problems throughout these comments.

At the same time, we strive to identify places in the Draft Plan that indicate a commitment to sustainable resource management, including some specific plan components, important concepts like Wildlife Management Areas, and management of recreation.

The Forest Service will play a pivotal role in mitigating and adapting to the effects of climate change, and the agency must fulfill its responsibility to help stem the extinction and biodiversity crises by managing National Forest System (NFS) lands for ecological integrity to contribute to the recovery of threatened and endangered species and maintain viable populations of other species at risk.[2]

There is overwhelming scientific consensus that we are facing a global biodiversity crisis (described as the looming "The Sixth Extinction"). In 2019 the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), an independent intergovernmental body representing 130 member countries, delivered a stark and alarming scientific consensus: human activity has devastated the natural world, and biodiversity "is declining faster than at any time in human history."[3] Based on an exhaustive compilation of nearly 15,000 information sources,[4] the IPBES estimates that up to one million species—nearly a quarter of the known life on earth—could face extinction within decades.[5] The drivers of this decline include habitat loss, overexploitation of species, pollution, invasive species, and climate change, which is both accelerating and exacerbating the effects of the other threats.

[2] 36 CFR 219.8 & 219.9.

[3] IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services). (2019). Report of the Plenary of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services on the work of its seventh session, Addendum: "Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services," Key Message A. May 29.

[4] UNEP (United Nations Environment Programme). (2019). IPBES Global Assessment underscores need for transformational change to safeguard life on Earth (press release). May 6.

[5] IPBES, Summary for Policymakers *op. cit*., Key Message A5.

With the need to help tackle the climate and biodiversity crises, the Forest Service's enduring statutorily mandated challenge to provide for sustainable multiple uses, including wildlife conservation, has never been more important. The number of federally protected species that occur on NFS lands continues to rise. Climate change is significantly harming forest ecosystems around the country. According to the Fourth National Climate Assessment, "It is very likely that more frequent extreme weather events will increase the frequency and magnitude of severe ecological disturbances, driving rapid (months to years) and persistent changes in forest structure and function across large landscapes."[6] Fortunately, the Forest Service has both a solid foundation in climate adaptation policy, and a planning rule framework that can help operationalize this policy at the unit level and across the NFS. The signers of this letter believe that the GMUG Land Management Plan can be significantly improved to better align with adaptation principles and goals.

While not exhaustive, we believe the information contained in this letter and the appendices represents a thorough review of the draft revised plan and DEIS using the best available scientific information, which the agency is required to utilize.[7] We ask that you regard it as such, or clearly document why you disagree, while providing the scientific basis for your analysis and conclusions.

[6] US Global Change Research Program. 2018. Impacts, Risks and Adaptation in the United States: Fourth National Climate Assessment Volume II. https://nca2018.globalchange.gov/.

[7] 36 CFR 219.3.

II. RECOMMENDED ADDITIONAL AREAS FOR WILDERNESS DESIGNATION

The opportunity to inventory, evaluate, and recommend wilderness-quality lands for protection is an integral component of the forest planning process,[8] and presents an opportunity to provide administrative protection to some of the most spectacular and ecologically important undeveloped lands on the GMUG. These areas provide our drinking water; habitat for imperiled wildlife; physical, mental, and spiritual renewal for millions in an increasingly busy and chaotic world; opportunities for scientific research in areas least affected by humans; and a buffer to the impacts of climate change. Recommending areas for wilderness designation and protecting them is 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.

However, based on the Draft Plan, the GMUG does not see wilderness as a crucial management strategy. Signatories to this letter have been disappointed throughout this process by the antipathy of the GMUG to the concept of wilderness generally,[9] and to the Forest's opposition to community-driven wilderness recommendations specifically. That strain has permeated this multi-year process, running counter to direction in the 2012 Planning Rule, and to overwhelming recommended direction from the public. It diverges significantly from what the GMUG recommended in 2007,[10] and also diverges from the recent decision of the adjacent Rio Grande National Forest. That Forest – approximately half the size of the GMUG – recommended more acres – and a greater percentage of its wilderness-quality lands – for wilderness in its recently-finalized Forest Plan than the GMUG is recommending.[11]

A. Alternative B does not reflect the demonstrated need and opportunity for additional wilderness

Alternative B recommends 34,000 acres for wilderness,[12] which is approximately 2% of the GMUG's wilderness inventory,[13] or about 1% of the total Forest. There are many more areas on the GMUG

[8] See the Planning Rule at 36 CFR 219.7(b)(2)(v).

[9] See Webb, D. 2021. *GMUG explains hesitancy to seek more wilderness*, Grand Junction Sentinel August 18.

[10] The GMUG's proposed 2007 Forest Plan recommended approximately 125,000 acres in 19 areas. U.S. Forest Service, *Proposed Land Management Plan, Grand Mesa, Uncompahgre, and Gunnison National Forests* (March 2007), at 93, 152. [Hereinafter 2007 Forest Plan].

[11] Out of 1.83 million acres, the Rio Grande revised plan recommended 40,052 acres for wilderness designation. 2020 Rio Grande ROD at 2, 7.

[12] USDA Forest Service, Draft Revised Land Management Plan, Grand Mesa, Uncompahgre, and Gunnison National Forests (August 2021), at 80. [hereinafter Draft Plan]

[13] Based on the 1,542,052 acres included in the GMUG's 2018 Wilderness Evaluation. See Exhibit 1_GMUG Wilderness Evaluation Acreage.

National Forest that deserve to be recommended for wilderness because of their ecological values, outstanding scenery, recreation, and ecosystem services, than are captured in Alternative B. And while Alternative D is missing some critically important wilderness recommendations (more details below), the areas that are contained in Alternative D are well-conceived because they would 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 and pre-scoping.

Importantly, Chapter 70 of the Planning Directives requires opportunities for public participation "early and during each step of the process."[14] While the GMUG has met the letter of this requirement, it has not met its spirit. In almost completely forgoing the community-driven wilderness recommendations in the *Community Conservation Proposal*,[15] Gunnison Public Lands Initiative (GPLI),[16] and Outdoor Alliance Vision,[17] the Forest Service has accepted – but failed to integrate – public input.

Elected official input has likewise been ignored. The GMUG asks: "Has a need or opportunity for specific designated areas been identified in the plans of States, Tribes, counties, and other local governments?"[18] It replies:

> San Miguel County has provided written support for the San Juan Mountain Wilderness Act; Gunnison County has provided written support for and was a member of the Gunnison Public Land Initiative described under the "Are there other proposals for designated areas before Congress, in proposals from collaborative efforts or from previous plans?"[19]

Other local governments that have identified a need and opportunity for additional wilderness recommendations include Ouray County,[20] the Town of Crested Butte,[21] Town of Ridgway,[22] Town of Paonia,[23] Town of Ophir,[24] and Town of Telluride.[25]

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[14] FSH 1909.12, ch. 70, 70.61. [emphasis added]

[15] See Community Conservation Proposal, GMUG Forest Plan Revision at www.gmugrevision.com.

[16] See Gunnison Public Lands Initiative at www.gunnisonpubliclands.org.

[17] See Outdoor Alliance. 2020. Outdoor Alliance GMUG Vision. V2. August. Outdoor Alliance, GMUG National Forests at www.outdooralliance.org/gmug-national-forests.

[18] *GMUG National Forests Revised Draft Forest Assessments: Designated Areas* (March 2018) at 47.

[19] Id. at 48.

[20] See Exhibit 2_Ouray County Letter.

[21] See Exhibit 3_Town of Crested Butte Letter.

[22] See Exhibit 4_Town of Ridgway Letter.

[23] See Exhibit 5_Town of Paonia Letter.

[24] See Exhibit 6_Town of Ophir Letter.

[25] See Exhibit 7_Town of Telluride Letter.

The GMUG has been unwilling to include any wilderness recommendations in Alternative B that don't come with explicit county support. It stands to reason then that Alternative B should include all wilderness recommendations that do come with county support. If the GMUG is going to emphasize local politics in management decisions for a national forest, then it should at least be consistent.

The GMUG's failure to include more acreage – across all action alternatives – ignores years of consistent calls from the public for additional wilderness on the Forest. As part of the mid-2000s GMUG revision process, citizens and scientists developed the *Mountains to Mesas* (M2M) conservation management alternative, which was submitted to the agency in June 2005.[26] A key component of this citizen proposal was its identification of potential wilderness additions on the GMUG, totaling 787,528 acres.[27] In addition, the Forest Service in its proposed 2007 GMUG Forest Plan (a Plan that was developed and released during the Bush II administration) recommended approximately 125,000 acres in 19 areas for additional wilderness.[28] In an administration committed to protecting 30% of the nation's lands by 2030,[29] the Forest Service can and must do better than the Bush administration. The combination of established local interest, previous agency recommendations, and positive public opinion supporting wilderness demonstrates a need and opportunity for expanded wilderness recommendations on the GMUG.

- Recommendation: The preferred alternative in the Final Environmental Impact Statement and the Final Plan should incorporate the wilderness recommendations in Alternative D.

B. The DEIS fails to analyze a range of reasonable alternatives

In scoping comments, signatories to this letter requested that at least one alternative consider recommending all, or almost all, of the inventoried and evaluated areas, and at least one other alternative analyze the areas recommended in the *Community Conservation Proposal* and GPLI.[30] 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:

[26] High Country Citizens' Alliance, Sheep Mountain Alliance, Southern Rockies Ecosystem Project, Western Colorado Congress, Western Slope Environmental Resource Council, *Mountains to Mesas: Conservation Management Alternative for the GMUG* (June 2005). [Hereinafter M2M]. This was submitted as Appendix 6 in our January 17, 2017 Pre-Assessment Letter, labeled: Smith-TWS et al 2017 GMUG Pre-Assessment Letter.

[27] Ibid., at 49.

[28] 2007 Forest Plan at 93, 152.

[29] On January 27, 2021, President Biden issued *Executive Order 14008, Tackling the Climate Crisis at Home and Abroad, which committed his administration to the ambitious conservation goal of protecting 30 percent of U.S. lands and waters by* 2030. Colorado's Senator Michael Bennet and Congressman Joe Neguse are original cosponsors of the 30x30 resolution in Congress, and Congresswoman Diana DeGette, Senator John Hickenlooper, and many others have expressed support.

[30] See scoping comments submitted on June 1, 2018, labeled: HCCA - TWS et al 2018 GMUG Scoping Comments at 22.

> 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.[31]

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."[32] 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 NWPS.[33]

The analysis of alternatives under NEPA is the "heart" of an EIS.[34] An agency must "[r]igorously explore and objectively evaluate all reasonable alternatives" to a proposed action.[35] Consistent with NEPA's basic policy objective to protect the environment, this includes more environmentally protective alternatives.[36] "The existence of a viable but unexamined alternative renders an [EIS] inadequate."[37] The "touchstone" of the inquiry is "whether an EIS's selection and discussion of alternatives fosters informed decision-making and informed public participation."[38]

The proposed alternatives fail to comply with the requirements of NEPA because they do not consider a sufficiently varied range of recommended wilderness. The recommended acreages are as follows:

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[31] 36 CFR 219.1(c).

[32] 36 CFR 219.7(c)(2)(v).

[33] FSH 1909.12, ch. 70, 70.61.

[34] 40 CFR 1502.14 (1978). The GMUG began its NEPA process for the plan revision under the 1978 CEQ NEPA Rule. This applies to our subsequent cites of NEPA below.

[35] *Id.* 1502.14(a); *see also* 42 USC 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").

[36] 40 CFR 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).

[37] *Mont. Wilderness Ass'n v. Connell*, 725 F.3d 988, 1004 (9th Cir. 2013) (quotations and citation omitted).

[38] *Id.* at 1005 (quotations and citation omitted).

34,000 (B); 0 (C); 261,000 (D). This is not a meaningful range of alternatives because the high end of the range of recommended wilderness is not included, while at zero acres the low range certainly is.

While it doesn't appear that the GMUG has disclosed to the public the total inventoried and evaluated wilderness acreage on the Forest, our calculation based on the 2018 wilderness inventory and evaluation is that the Forest identified 1,542,052 acres in that exercise.[39] Alternative B therefore recommends approximately 2% of the inventoried lands and Alternative D recommends approximately 17% of lands in the wilderness inventory. The GMUG chose not to consider in detail an alternative that would have included the high end of the range (i.e., all or nearly all of the 1.5-million acres of inventoried areas).

Alternative D is the upper bookmark of the range of alternatives considered in the DEIS. This makes the range for recommended wilderness provided in all the alternatives from 0% to 17%, if we assume that all the polygons in the wilderness evaluation have wilderness character. If we assume that areas ranked as low/no in the evaluation do not have wilderness character, that still leaves 1,275,917 acres at the opposite end of the spectrum from Alternative C, meaning that Alternative D includes approximately 20% of lands with High or Moderate ratings. This is still far from adequate.

To satisfy the range, the GMUG must provide an alternative that fills in the top 80% of the range that is missing. We request that the GMUG fill these gaps in its analysis to satisfy the requirements of NEPA.

- Recommendation: Include an alternative that recommends more wilderness-quality lands for designation. The environmental implications of recommending these lands should be analyzed in detail, just as the implications of recommending zero acres of recommended wilderness were considered.

C. The Forest Service should analyze and account for the ecological effects of recommended wilderness on various resources

1. Ecological representation of recommended wilderness

The ecosystem representation analysis and results that Defenders of Wildlife first provided to the GMUG in 2017[40] highlight a need and opportunity to conserve under-represented ecosystem types on the GMUG National Forest. Consistent with the forest's distinctive role and contribution, the plan revision process presents an important opportunity to begin to remedy the under-representation of certain ecosystems in the NWPS.

[39] See Exhibit 1_GMUG Wilderness Evaluation Acreage.

[40] See Appendix 1 of our January 17, 2017 Pre-Assessment Letter.

The DEIS does not analyze the contribution of recommended wilderness areas to ecosystem representation. 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.[41]

The GMUG summarizes the lack of ecosystem representation within the NWPS:

> Generally, all of the wilderness areas on the GMUG National Forest are high elevation. An objective of the National Wilderness Preservation System is a system of lands that reflect the rich ecological diversity of all of the lands across the United States, including ecological types and vegetation communities such as aspen, whitebark pine,[42] sagebrush, grasslands, and xeric shrublands, and the living organisms that rely on those communities.[43]

But the agency then fails to examine this in any detail, lumping wilderness together with other designated areas in its consideration. Immediately following the statement above, the GMUG states:

> For the current GMUG planning process, the terrestrial assessment identifies 15 ecosystems on the GMUG. Alpine uplands have a high level of protection via designated areas on the GMUG (81% of the ecosystem is in a designated area). Most ecosystems have about half of their area in these special categories. Some exceptions include sagebrush, ponderosa pine, and bristlecone-limber pine, which all have less than 20% in these categories (See Terrestrial Assessment for more detail regarding ecosystem representation in designated areas on the GMUG).[44]

Turning then to the Terrestrial Assessment, that document does not delineate between wilderness and other types of designated areas in considering ecosystem representation. Table 5 in that document breaks down the "percentage of each ecosystem in designated areas, including wilderness, other congressionally designated areas, Colorado roadless areas, research natural areas, and special interest areas."[45] But the public cannot determine between alternatives how much difference there would be towards achieving the "rich ecological diversity" objective of the NWPS. Combining wilderness and recommended wilderness with other designated areas does not address the degree that the alternatives contribute to that objective.

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[41] Dietz, M. S., Belote, R. T., Aplet, G. H., & Aycrigg, J. L. (2015). The world's largest wilderness protection network after 50 years: An assessment of ecological system representation in the US National Wilderness Preservation System. *Biological Conservation*, *184*, 431-438.

[42] Whitebark pine is not native to Colorado.

[43] USDA, *GMUG National Forests REVISED DRAFT Forest Assessments: Designated Areas* (March 2018), at 46.

[44] Ibid.

[45] USDA, *GMUG National Forests REVISED DRAFT Forest Assessments: Terrestrial Ecosystems: Integrity and System Drivers and Stressors* (March, 2018), at 15.

There are frequent references in individual polygon narratives in DEIS Volume 2, Appendix 6 to how many acres of underrepresented ecosystems are present in the polygons. However, there are no conclusions drawn from these statements, or calculation of how much the acreage would add to the goal of achieving adequate ecosystem representation.

The DEIS states:

> The concept of accounting for underrepresented ecosystems is included in applicable analysis polygon narratives below. Underrepresented ecosystems are ecological groups that are not currently represented, or minimally represented (less than 17 percent of their total area within the National Wilderness Preservation System in the GMUG (Woodley et al. 2012). Thirteen terrestrial ecosystems represented in the GMUG were used to evaluate ecosystem underrepresentation across the analysis polygons. Of the thirteen terrestrial ecosystems, eight were determined to be underrepresented in existing wilderness areas in the GMUG.[46]
>
> The specific evaluation criteria used in the GMUG wilderness process originates from Forest Service Handbook 1909.12, chapter 70, section 72.1 (Evaluation of Wilderness Characteristics), is interpreted by the GMUG forest plan revision team, and is revised based on public input. The evaluation criteria represent specific attributes to fact-find what is, or is not, present within each polygon. The analysis step begins with the forest supervisor determining which evaluated areas, if any, to further analyze in the Environmental analysis process as part of the forest plan proposed action alternatives. The analysis step will look more closely at considerations such as the ecological diversity of an area and/or the ecosystem representation that an area could offer should that area (or portion of the area) be recommended for inclusion in the National Wilderness Preservation System.[47]

Turning to the narratives though in Appendix 6, they do not examine the specifics of expanding ecosystem representation within wilderness on either the GMUG or nationally. Where present, narratives reference the acreage within an area that would contribute to ecosystem representation within the NWPS, but the analyses do not evaluate their uncommonness. Nor does the DEIS examine how the different alternatives – through their different wilderness area recommendations – would specifically contribute to achieving ecosystem representation within the NWPS. While we appreciate the GMUG's identification of underrepresented ecosystems in narratives, there is no discussion, analysis, or conclusions drawn from that, or how it varies across alternatives.

- Recommendation: The DEIS needs to more fully address the concept of ecosystem representation, including how ecosystem representation differs under each alternative.

[46] At 355. [emphasis original]

[47] Id. at 180.

2. Effects of recommended wilderness on climate change adaptation

We appreciate that the draft plan contains plan components intended to guide making forest infrastructure resilient to effects of climate changes, such as extreme weather events. However, while the DEIS generally discusses the impacts of the wilderness recommendations under each alternative from various management activities, it does not analyze the effects of the wilderness recommendations under each alternative on climate change. The DEIS does not discuss or disclose how the wilderness recommendations and other conservation designations under each alternative would impact the GMUG's capacity to adapt to climate change. One benefit of retaining natural areas, e. g., would be for carbon storage.

- Recommendation: The DEIS needs to address how conservation designations, including wilderness recommendations, under each alternative, will impact the GMUG's capacity to adjust to a rapidly changing climate as predicted with climate models for the region.

D. Specific area comments

Signatories to this letter have spent years developing, submitting, and supporting recommendations to the GMUG for specific areas to be managed as wilderness. We offer below critiques, questions, and recommendations on a handful of areas.

1. Gunnison Public Lands Initiative (GPLI)

Many groups that are signatories to this letter have supported the GPLI Proposal and process consistently over the years. While all of the GPLI recommendations have been incorporated into Alternative D, only a fraction of lands bordering the existing West Elk Wilderness that are within the GPLI Proposal made their way into Alternative B. We continue to support all of those recommended wilderness areas within the GPLI Proposal being included in the GMUG's Final Plan.

2. Colorado Outdoor Recreation and Economy (CORE) Act

We are supportive of Alternative B's inclusion of wilderness recommendations in the San Juan Mountains that are contained in the CORE Act, and ask that those be brought forward and included in the GMUG's Final Plan.

3. Colorado Wilderness Act

The DEIS fails to acknowledge existence of the Colorado Wilderness Act, H.R. 803, which designates as wilderness several areas on the GMUG, including Cataract, Unaweep, and the Horsefly Canyon portion of Hanks Valley, along with several other small additions. The Colorado Wilderness Act has been moving through Congress similar to the CORE Act, receiving favorable passage through the House of

Representatives on February 26, 2021, as well as in the previous Congress. The GMUG included lands contained in the San Juan Mountains Wilderness Bill (CORE Act) in its wilderness inventory and evaluation for consideration in the GMUG wilderness process.48 However, it omits any mention of lands contained in the Colorado Wilderness Act. The GMUG must treat pending congressional wilderness legislation consistently in its analysis and add into its wilderness evaluation lands contained in the Colorado Wilderness Act.

4. Recommended Wilderness in the North Fork

We support Alternative D's recommended wilderness designations in the North Fork. In Alternative D, the Forest Service analyzed recommended wilderness for the Mendicant Ridge, Electric Mountain, Chalk Mountain, and Elk Park areas. We support management of these areas as recommended wilderness. As outlined in comments, these areas retain a great degree of naturalness, including varied vegetation and excellent habitat value. They also retain outstanding opportunities for solitude or unconfined primitive recreation. These areas are large and free of roads, and as discussed in prior comments, readily manageable as wilderness.[49] We urge the Forest Service to designate these areas as Recommended Wilderness in any final plan.

5. Coal Mountain (Mount Lamborn)

The Forest Service failed to take a hard look at protecting wilderness values in the citizen-proposed Coal Mountain Wilderness. While the Forest Service did consider protecting 8,219.23 acres as Recommended Wilderness in Alternative D, the agency failed to take a hard look at managing the full 15,200 acres of wilderness quality lands proposed for protection by citizen groups.[50] The *Community Conservation Proposal* provided a thorough assessment of the full area's naturalness, outstanding opportunities for solitude and unconfined recreation, its roadless character, and detail on the area's numerous important supplemental values. The *Community Conservation Proposal* also makes a strong case for the manageability of the full 15,200 acre Recommended Wilderness. The agency must take a hard look at protecting the wilderness values identified in the full citizen proposal, not just the substantially smaller area considered in Alternative D.

6. Turret Ridge, Little Cimarron, and Failes Creek/Soldier Creek

It is unjustified that these three additions to the Uncompahgre Wilderness are not included in an action alternative. To leave these outstanding areas out of even Alternative D is a specific example that

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[48] USDA Forest Service, Draft Environmental Impact Statement for the Land Management Plan Revision, Grand Mesa, Uncompahgre, and Gunnison National Forests, Volume 2, at 340. [hereinafter DEIS Vol. 2]

[49] See Citizen Proposals for Recommended Wilderness for Mendicant Ridge, Electric Mountain, Chalk Mountain and Elk Park at www.gmugrevision.com and Exhibit 8_North Fork Wilderness.

[50] See Citizen Proposal for Coal Mountain Recommended Wilderness (West Elk Wilderness Addition) at www.gmugrevision.com and Exhibit 9_Coal Mountain Recommended Wilderness.

underscores the failure of Alternative D to reasonably capture the opposite end of the alternative's spectrum from Alternative C.

a. Turret Ridge (Area O1-E)

The GMUG summarizes Turret Ridge as follows:

> Area O1-E was evaluated to possess a ***High*** degree of wilderness characteristics. This finding is due to very natural-appearing vegetation and wildlife communities, lack of improvements, and high-quality opportunities for solitude or primitive/unconfined recreation. The area also possesses scenic and geologic traits. The shape of the area is mostly contiguous, with one long cherry-stemmed road and some excluded lands along the eastern side. The area is adjacent to the Uncompahgre Wilderness, and nearly all of the polygon is currently managed as Turret Ridge Colorado Roadless Area.[51]

Turning to Volume 2 of the DEIS, the rationale for excluding Turret Ridge from *Alternative D* consists of:

> This alternative responded to requests for wilderness additions in which there was relatively broad public support. Areas proposed for wilderness without County-level support were not carried forward in this alternative.[52]

The last sentence above is incorrect. There are several areas without County-level support that are carried forward in Alternative D (Sawtooth, Kelso Mesa, Elk Park, Chalk Mountain, etc.). Furthermore, Turret Ridge has the support of Ouray County and the Town of Ridgway as recommended wilderness.

This area was recommended for wilderness in the 2007 GMUG planning process.[53] It has been contemplated within the GPLI process for wilderness for years.[54] It is included in the *Community Conservation Proposal*.[55] This should satisfy the requirement of "relatively broad support" language from the GMUG. Given this area's high degree of wilderness characteristics, Upper Tier roadless acreage, and diverse public support, it should be included – at the very least – in Alternative D. See the *Community Conservation Proposal* narrative for this area for supplemental information.[56]

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[51] DEIS, Vol. 2 at 310. [emphasis original]

[52] DEIS, Vol. 2 at 473.

[53] 2007 GMUG Forest Plan at 93.

[54] Gunnison Public Lands Initiative, *Revised GPLI Proposal* (January 2019), at 103. Available at https://www.gunnisonpubliclands.org/gpli-proposal.

[55] See Exhibit 10_Cover Letter supplemental comment.

[56] See citizen proposal for Failes Creek/Soldier Creek, Little Cimarron, Turret Ridge additions to Uncompahgre Wilderness at www.gmugrevision.com and Exhibit 11_Uncompahgre additions-turret-cimarron-failes.

b. Little Cimarron and Failes Creek/Soldier Creek (Area OG-1)

The GMUG identifies 26,163 acres as Little Cimarron.[57] The *Community Conservation Proposal* identifies 11,900 acres of this polygon as the Little Cimarron Recommended Wilderness and Failes Creek/Soldier Creek Recommended Wilderness.[58]

The GMUG summarizes Little Cimarron as follows:

> Area OG1 was evaluated to possess a ***Moderate*** degree of wilderness characteristics. This finding is due to generally natural-appearing vegetation and wildlife communities throughout the majority of the polygon, scattered evidence of human activity and improvements, and opportunities for solitude or high-quality primitive/unconfined recreation. The majority of the area is currently managed as the Failes Creek/Soldier Creek, Failes Creek/Soldier Creek Upper Tier, and Little Cimarron Upper Tier Colorado Roadless Areas. The shape of the area is partially contiguous in the central portions adjacent to Uncompahgre Wilderness, but fragmented in some sections by cherry-stemmed roads and excluded lands.[59]

The rationale for excluding Little Cimarron and Failes Creek/Soldier Creek from *Alternative D* consists of:

> This alternative responded to requests for wilderness additions but balanced those with the degree to which the area contained wilderness characteristics. Low and many moderate areas were not carried forward in any alternative.[60]

This area was recommended for wilderness in the 2007 GMUG planning process.[61] It has been contemplated within the GPLI process for wilderness protection for years.[62] It is included in the *Community Conservation Proposal*.[63] This area should have been included in at least one action alternative.

7. Baldy (Area O2a)

[57] DEIS Vol. 2 at 326.

[58] See citizen proposal for Failes Creek/Soldier Creek, Little Cimarron, Turret Ridge additions to Uncompahgre Wilderness at www.gmugrevision.com and Exhibit 11_Uncompahgre additions-turret-cimarron-failes.

[59] DEIS Vol. 2 at 326.

[60] Id. at 483.

[61] 2007 GMUG Forest Plan at 93.

[62] Revised GPLI Proposal at 103.

[63] See citizen proposal for Failes Creek/Soldier Creek, Little Cimarron, Turret Ridge additions to Uncompahgre Wilderness at www.gmugrevision.com and Exhibit 11_Uncompahgre additions-turret-cimarron-failes.

Ouray County and the Town of Ridgway support Baldy as recommended wilderness, and our recommendations for this area are consistent with Alternative D. We note especially the acknowledgment by the GMUG of this area's underrepresented ecosystem types:

> Additionally, this area represents an opportunity to add 1,860 acres of underrepresented ecosystems to the National Wilderness Preservation System through 500 acres of aspen, 950 of montane shrubland, oak-serviceberry and mountain mahogany, 180 acres of montane-subalptowine grassland and 230 of pinyon-juniper woodland.[64]

The narrative for Baldy should be supplemented with the additional information in the August 2011 GMUG Roadless document:

> This area is critical bighorn sheep habitat and is actively managed for this species with extensive habitat improvements. The northern half includes potential lynx habitat. This area is a black bear summer and fall concentration area, elk winter range and winter concentration area, elk production area, and is mapped as mule deer winter and summer range, as well as Merriam turkey overall range.[65]

8. Bear Creek (Area O3a)

Ouray County and the Town of Ridgway support Bear Creek as recommended wilderness, and our recommendation for Bear Creek[66] is generally consistent with Alternative D. However, for Winter ROS, it should be found Pristine, with exceptions for lands adjacent to Engineer Road; and Diamond Creek should at least be Primitive (not SPNM as reflected in Alternative D). The SIO here is very high. In addition, the area should not be found suitable for timber, except possibly around the Portland Mine. We oppose suitable timber determination along New Horsethief Trail in Alternative D. We also note the following wildlife and botanical values referenced in the *Community Conservation Proposal*; elk winter concentration; potential Canada lynx habitat; CNHP Dexter Creek Potential Conservation Area with Moderate Biodiversity Significance. CNHP has documented 2 occurrences of the state imperiled plant Mountain wild mint (*Monardella odorotissima*) G4/G5 S2 (D ranked) in this area.

Even if Bear Creek is not recommended for wilderness, it is important that the agency correct these settings. The Semi-Primitive Non-Motorized winter and summer ROS in Alternative B are unacceptable. The SIO rating in Alternative B of "high" only along the gorge and "moderate" in the region indicates reliance a on GIS analysis with limited or no on-site evaluation.

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[64] See citizen proposal for Baldy addition to Uncompahgre Wilderness at www.gmugrevision.com and Exhibit 12_Baldy.

[65] USDA Forest Service, Rocky Mountain Region, *Profiles of Grand Mesa, Uncompahgre, and Gunnison National Forest Roadless Areas* (July 23, 2008), at 6.

[66] See citizen proposal for Bear Creek addition to Uncompahgre Wilderness at www.gmugrevision.com and Exhibit 13_Bear Creek.

9. Lone Cone

The Lone Cone Area contains significant wilderness characteristics (these are extensively described in San Miguel County comments dated October 9, 2018)[67] and has also been noted to have important wildlife habitat.[68] For these reasons, as well as the detailed descriptions we provided in our conservation community comments starting in 2017, we believe that the Lone Cone area should be recommended for wilderness management at this stage of the Forest planning process. In 2018, San Miguel County noted an area slightly over 5,000 acres to have significant wilderness characteristics.[69] The *Community Conservation Proposal* has been revised to reflect that 5,600 acres should be eligible for wilderness inclusion.[70] In accordance with the findings of wilderness characteristics it is clear that in the absence of a scientifically based reason to eliminate it, this area should be managed in a manner that would maintain these characteristics going forward.

E. Management of recommended wilderness (MA 1.2)

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."[71] "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."[72]

- Recommendation: **MA-STND-RECWLD-02** needs to be changed to prohibit ***all*** non-conforming uses.

We recommend the GMUG follow the direction in the Custer Gallatin plan[73] below for an example of plan components to include.

Desired Conditions:

- Recommendation: Recommended wilderness areas maintain their existing wilderness characteristics, to preserve opportunities for inclusion in the National Wilderness Preservation System.

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[67] See Exhibit 14_San Miguel County Letter.

[68] See citizen proposal for Lone Cone Special Interest Area at www.gmugrevision.com.

[69] See Exhibit 14_San Miguel County Letter.

[70] CCP revised boundary GIS data.

[71] 36 CFR 219.10(b)(1)(iv).

[72] Forest Service Manual 1923.03(3).

[73] At 124.

- Recommendation: Recommended wilderness areas provide outstanding opportunities for solitude or primitive and unconfined recreation. Impacts from visitor use do not detract from the natural setting.

- Recommendation: Recommended wilderness areas are characterized by a natural environment where ecological processes such as natural succession, wildfire, avalanches, insects and disease function as the primary forces affecting the environment.

- Recommendation: System trails support wilderness experiences and preserve wilderness characteristics.

- Recommendation: Outfitter and guide recreation special uses support identified public need and provide service for realizing the recreational purposes of the recommended wilderness areas.

Standards:

- Recommendation: New permanent or temporary roads shall not be allowed.

- Recommendation: New energy or utility structures shall not be allowed.

- Recommendation: New commercial communication sites shall not be allowed.

- Recommendation: New developed recreation sites shall not be allowed.

- Recommendation: New recreation events shall not be authorized.

- Recommendation: Extraction of saleable mineral materials shall not be allowed.

Guidelines:

- Recommendation: To maintain limits on structures in recommended wilderness, new range improvements associated with existing allotments should be authorized only for the purpose of enhancing wilderness characteristics or for resource protection.

Notably, the Draft Plan lacks a standard or suitability plan component that prohibits motorized use, as well as mountain biking and other forms of mechanical transport in recommended wilderness. Allowing non-conforming uses such as motorcycles or mountain bikes degrades opportunities for solitude and other wilderness characteristics and imposes a significant barrier to achieving permanent protection through congressional designation, thereby reducing wilderness potential.

- Recommendation: The final plan should include a standard or suitability plan component that prohibits motorized use, mountain biking, and other forms of mechanical transport in recommended wilderness areas.

- Recommendation: The final plan should include a standard or suitability plan component that prohibits timber harvest, mechanical timber cutting, and mineral leasing and sales.

- Recommendation: Recreational Opportunity Spectrum (ROS) classifications in the plan should categorize recommended wilderness as primitive or semi-primitive non-motorized, and another standard should require that the areas be managed to maintain, restore, and enhance those settings.

III. OTHER MANAGEMENT AREA DESIGNATIONS, DIRECTION, AND RECOMMENDATIONS

A. Designate special management areas

There is a need to consider additional Special Management Areas (SMAs) for designation, including areas suitable for inclusion in the NWPS, eligible wild and scenic rivers, and other places with special character or purpose to protect and connect highly deserving areas and resources, meet ecological needs for species, maintain ecosystem integrity, and enhance sustainable recreation opportunities.

The best available scientific information documents the numerous ecological benefits and services provided by roadless and other undeveloped natural areas. These areas play a key role in conserving biodiversity.[74] They enhance the representation of different ecosystems, thereby preserving refugia for species.[75] They facilitate connectivity of habitat.[76] They provide high-quality or undisturbed water, soil, and air resources.[77] And they serve as ecological baselines to facilitate better understanding of our impacts to other landscapes and as reference areas for ecological restoration.[78] Land management plans are required to provide for these and other ecological services.[79] In addition, undeveloped natural areas provide important social services, including unsurpassed recreational and scenic opportunities, and places to connect with nature and spirit.

The GMUG states:

> "Another indicator of the influence of management is the amount of an ecosystem that is in a designated area. These areas tend to have more restrictions, less active management, and overall more protections that promote ecological integrity …."[80]

[74] Loucks, C., Brown, N., Loucks, A., & Cesareo, K. (2003). USDA Forest Service roadless areas: potential biodiversity conservation reserves. *Conservation Ecology*, *7*(2).

[75] Dietz, M. S., Belote, R. T., Aplet, G. H., & Aycrigg, J. L. (2015). The world's largest wilderness protection network after 50 years: An assessment of ecological system representation in the US National Wilderness Preservation System. *Biological Conservation*, *184*, 431-438.

[76] Belote, R. T., Dietz, M. S., McRae, B. H., Theobald, D. M., McClure, M. L., Irwin, G. H., ... & Aplet, G. H. (2016). Identifying corridors among large protected areas in the United States. *PLoS One*, *11*(4), e0154223.

[77] 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; See also DellaSala, D. A., Karr, J. R., & Olson, D. M. (2011). Roadless areas and clean water. *journal of soil and water conservation*, *66*(3), 78A-84A.

[78] Arcese, P., & Sinclair, A. R. (1997). The role of protected areas as ecological baselines. *The Journal of Wildlife Management*, 587-602.

[79] 36 CFR 219.8-219.9.

[80] USDA Forest Service*, REVISED DRAFT Forest Assessment: Terrestrial Ecosystems*, at 14. [emphasis added]

Designated areas – such as the SMAs in Alternative D – are a key tool to help achieve the ecological integrity that is a central purpose of the 2012 Planning Rule.[81]

Regarding the benefits of SMAs – especially in conjunction with Wildlife Management areas (WMAs) and recommended wilderness – we note that:

- 48% (approximately 118,000 acres) of the 246,000 acres of SMAs within Alternative D are outside of Colorado Roadless Areas.[82] When added to the 313,200 acres of WMAs in Alternative D that are also outside of roadless,[83] the combination of WMAs and SMAs in Alternative D protects approximately 431,000 acres outside of roadless. Alternative B's WMAs protect just 310,800 acres outside of roadless.[84]

- Looking just at WMAs and SMAs (including where they overlap with MA 3.1 – Colorado Roadless Area), more acres of Alternative D overlap with occupied critical Gunnison Sage-grouse habitat (54,321 acres) because of the addition of its SMAs than in Alternative B (53,383 acres).[85]

- Alternative D's combination of SMAs and WMAs contain more acres that would be subject to route density standards than Alternative B's WMA-only approach.[86] If you add the 261,000 acres of recommended wilderness in Alternative D that would preclude new motorized and mechanized route development, that is even higher.

- Even in those SMAs that are identified as "Limited New" motorized or mechanized suitability, that suitability determination "indicates that ***specific additional trails*** would, subject to site-specific, subsequent environmental analysis and decisions, be appropriate."[87] (See comment further below in this section regarding use of "would".) Unlike the WMAs, the GPLI Proposal would only allow specific trails – only those clearly contemplated in the Proposal. The Draft Plan specifically directs the public to those trails, stating: "For more context, see the separate citizen proposals, which contain more narrative about each specific area."[88] This is unlike the WMAs, which have no clear articulation of what trails might be allowed.

[81] 36 CFR 219.1(c).

[82] DEIS, Vol.1, Table 2 at 30-31.

[83] Id. Table 113, at 220-221.

[84] Ibid.

[85] Id. Table 105, at 192.

[86] Id. Table 113, at 220-221.

[87] Table 21. [emphasis added]

[88] Draft Plan at 94.

- Where WMAs and SMAs overlap, SMAs reduce the amount of acreage that would be subjected to an administrative exception for road-building to facilitate timber production.[89] Road use, even on temporary roads, causes significant impacts to wildlife, watersheds, and other forest values. The DEIS acknowledges this impact: "The magnitude of impacts to watershed resources from roads and trails would depend primarily on the number of acres that are designated for uses that could result in expanded road or trail networks, including temporary roads. The primary expansion potential for temporary roads comes from projected timber harvest. [….] Expansion of the road and trail network, including temporary roads, represents the largest potential impact to watershed resources."[90]

- 119,482 acres of SMAs are identified as acres that "increase connectivity effectiveness", contributing to Alternative D being identified as providing the "Most relative benefit to connectivity."[91] We ask though that the GMUG explain how it arrived at this figure, i.e., which SMAs qualify as increasing connectivity and which don't according to the GMUG, and update it as appropriate in response to the specific SMA corrections proposed below in this section.

➢ Recommendation: Designate the Special Management Areas in Alternative D.

We disagree with several conclusions reached in the DEIS and Draft Plan regarding SMAs:

(1) "Some proposed areas would emphasize recreation."[92]

We are unaware of any proposed SMAs emphasizing recreation exclusively, or of any accompanying plan direction warranting this statement. (As discussed further below in this section, several of the recreation prescriptions in the Draft Plan on page 95 (et seq.) in Table 21 do not accurately reflect the intent of the citizen proposals). Two areas were identified in the GPLI Proposal as Recreation Management Areas (Double Top and Horse Ranch Park). However, Double Top precludes new motorized and mechanized use,[93] and its emphasis is on "recreation and conservation [as] primary purposes."[94] Horse Ranch Park currently has no motorized trails, and would preclude future motorized trails, while allowing for future NEPA consideration of the proposed Crested Butte to Carbondale mechanized trail.[95] It too states a balanced "emphasis on recreation and conservation as primary purposes."[96]

[89] Ibid.

[90] DEIS at 294. [emphasis added]

[91] Id. Table 115, at 228-229.

[92] Id. at 14.

[93] Revised GPLI Proposal, at 57.

[94] Id., at 58.

[95] Id. at 67.

[96] Ibid.

Because two SMAs – out of 22 SMAs in total – contain a recreation emphasis alongside a conservation emphasis – the GMUG should provide additional context for its general statement that some proposed areas would emphasize recreation.

> (2) "Some public and cooperating agency input reflected a desire to maintain relatively unfragmented big game habitat and associated hunting opportunities. Other commenters wanted more developed recreation across the landscape; they indicated that wildlife habitat should be managed alongside such increasing recreation. This issue is primarily addressed via the amount of land in wildlife management areas in each alternative. Plan direction for these areas is to maintain existing, relatively unfragmented big game habitat, and other wildlife habitat, in the context of increasing pressure from recreation trail development. Conversely, areas not identified as Wildlife Management Areas would be the starting point for future new trails."[97]

In addition to WMAs, this issue is also primarily addressed via the amount of land in SMAs, which would maintain existing wildlife habitat in the context of increasing recreation pressure by greatly restricting new route development. As such, it is incorrect to include SMAs within the box of "areas … [that] would be the starting point for future new trails."

> (3) "A difference between alternatives with implications for Gunnison sage-grouse is that the Flat Top Wildlife Management Area in alternative B prohibits any new route development, but the Flat Top Special Management Area in alternative D allows for limited new mechanized routes. The Flat Top area is Gunnison sage-grouse designated critical habitat and the largest area of occupied contiguous Gunnison sage-grouse habitat on the GMUG National Forests. <u>New routes allowed</u> in alternative D could add habitat and disturbance impacts that alternative B would prevent."[98]

Per the GPLI Proposal, there is one route, not routes, that is subject to a savings provision within the Flat Top SMA.[99] The GPLI Proposal states:

> "Some also have a similar stipulation, but with a special additional provision known as a "savings clause" providing that a specific proposed trail or use would not be affected by the SMA designation ('No new motorized or mechanized vehicle uses beyond those existing at the time of enactment, with a savings provision….'). Such, provisions would ensure that any consideration of the activity or proposal by the land management agencies at a future date would not be positively or negatively influenced by the designation."[100]

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[97] DEIS at 13.

[98] Id. at 225. [emphasis added]

[99] Revised GPLI Proposal, at 76.

[100] Id. at 46.

Specifically, for Flat Top the GPLI Proposal states:

> "The group has varied opinions about the potential construction of a Gunnison to Crested Butte Trail. The group agreed to a savings clause … that does not preclude the building of the trail. The savings clause does not take a stand to either build or not build the trail and would leave construction and management subject to agency determination. The group agreed to general savings clause language that reads, 'Nothing in this section [i.e. the designation of the SMA(s)] affects the Secretary's authority to construct or reject a non-motorized recreation trail proposed by Gunnison Trails and CBMBA, called the Gunnison to Crested Butte Trail, in accordance with applicable law".[101]

We note also the statement in the DEIS:

> "We do not anticipate increased trail development in critical habitat."[102]

Given the importance of Flat Top for grouse, it is unlikely that the Forest Service – or the community – would ever support any new trail development in this area, regardless of its SMA or WMA designation. This contradicts the conservation theme of that area, and the conservation theme of Alternative D.

> (4) "With few exceptions, most special management areas do not allow new route development or limit new route development. For those, we anticipate that the effects of a special management area designation would have similar effects to wildlife as compared to those same acreages that would otherwise be included in the wildlife management area under alternative B. For those few special management areas that allow new motorized and mechanized route construction without restrictions, impacts to wildlife could include reduced wildlife security areas, reduced connectivity causing changes in species distribution and movement patterns, habitat impacts (new routes could add vectors for invasive plants), and species avoidance depending on frequency and timing of route use."[103]

We are unaware of any exceptions to the statement above that "with few exceptions, most special management areas do not allow new route development or limit new route development." On the contrary, all SMAs either do not allow new route development or limit new route development, per the direction in the respective citizen proposals. There should be no exceptions via the prescriptions in Table 21 that would allow exceptions. Thus, it is incorrect to characterize potential development of routes as being "without restrictions." In addition, any new routes proposed in SMAs would likely be subject to a variety of restrictions in any future NEPA project-specific process.

[101] At 76-77. [emphasis added]

[102] DEIS at 190.

[103] Id. at 224. [emphasis added]

(5) "The draft environmental impact statement analyzes the trade-offs between the areas that are more recreation development-oriented in alternative D (due to their special management area prescriptions) than alternative B's wildlife management areas."[104]

It is incorrect to characterize SMAs as "more recreation development-oriented." As discussed above, there are two SMAs that emphasize recreation and conservation as primary purposes but preclude new route development (with the exception of a savings clause for one specific trail). No other SMAs include that recreation management co-emphasis. On the other hand, the majority of WMAs in Alternative B allow route construction; 21 of the 33 WMAs in Alternative B would allow new route construction because their current route density is below 1.0 (excluding Flat Top), totaling approximately 544,100 acres that would be subject to new route development (or 555,800 if Yellow Mountain is added … Table 114 does not show a route density for that area) out of that Alternative's 740,000 acres of WMA.)[105] Taking the GMUG's statement above, one could argue that by allowing new route construction, many of the WMAs are also recreation development-oriented. In addition, the DEIS clearly states that SMAs do in fact benefit one type of recreation:

"Alternative D may result in the greatest economic benefit related to wildlife-related recreation because it proposes the greatest amount of wildlife management areas, recommended wilderness, and special management areas, which would likely benefit wildlife, fishing, and hunting recreation opportunities and associated spending in the local economy. However, it would also result in more restrictions on future trail development, with fewer opportunities potentially resulting in less trail-based recreation spending."[106]

(6) "Within motorized and mechanized suitability columns, "limited new" indicates that specific additional trails would, subject to site-specific, subsequent environmental analysis and decisions, be appropriate."[107]

Given the speculative nature of the specific routes delineated for certain SMAs, "would" should be changed to "could."

(7) "Alternative B would designate a much greater amount of critical habitat [for Gunnison Sage-grouse] in wildlife management areas compared to D, but the special management area designation under D would provide similar benefits over a similar amount of area. However, the difference between the special management areas in alternative D and the wildlife management areas in alternative B is that the special management area under alternative D in the Flat Top

[104] Id. at 23. [emphasis added]

[105] Id. Table 114, at 222.

[106] Id. at 302.

[107] Draft Plan Table 21, at 95. [emphasis added]

> Mountain area would allow limited trail development. The wildlife management area for Flat Top Mountain in alternative B would not allow for any new trail development. This is the biggest trade-off between the two."[108]

To be clear, Alternative D contains more protected acres of occupied Gunnison Sage-grouse habitat than Alternative B.[109] In addition, while Flat Top "could potentially allow"[110] (a more accurate description also used by the GMUG in describing potential trail development in that area than "would allow") limited trail development under Alternative D, given that it would be subject to future NEPA project analysis, the Endangered Species Act, plan components protecting Gunnison Sage-grouse and other wildlife, and rounded out with statements in this DEIS such as "[w]e do not anticipate increased trail development in critical habitat",[111] even limited trail development is very unlikely.

> (8) "Effects from trail and recreation management are more likely to occur in alternative A. Alternatives B and C provide similar protections spatially because both have the same wildlife management area designation for the Flat Top Mountain area. Alternative D provides similar protections per the special management area designation but could potentially allow for new trail development."[112]

It is a stretch to equate Alternative D with Alternative C. Alternative C provides less than half of the WMA overlap with critical habitat that Alternative B provides, and less than half of the overlap that WMAs and SMAs provide in Alternative D.

> (9) "Wildlife management areas would contribute to maintaining intact habitats for big game and other wildlife in the context of increasing recreational pressures. The concept of wildlife management areas is most pronounced in alternative B, adding balance to sustainable management of both wildlife and recreation. Alternative D would also add this balance through the combination of special management areas and wildlife management areas."[113]

This undervalues the importance of Alternative D in maintaining intact habitat in the context of increasing recreational pressure. The DEIS states that this value is most pronounced in Alternative D.[114]

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[108] DEIS at 193.

[109] Comparing occupied acreage in Alternative B and D in DEIS Table 105, at 192.

[110] Id. at 193. [emphasis added]

[111] Id. at 189.

[112] Id. at 193.

[113] Id. at 230. [emphasis added]

[114] Id. at 218.

(10) "On the GMUG National Forests, the wildlife management areas proposed in alternatives B and D would prevent or restrict cumulative increases in recreation trails in 33 and 17 percent of designated critical habitat, respectively."[115]

This should be coupled with a percentage comparison between Alternative D's SMA, WMA, and Wilderness recommendations that overlap with occupied habitat, which would also prevent or restrict increases in trails.

(11) "Wildlife management areas have served as a cornerstone of our work with Colorado Parks and Wildlife to maintain wildlife connectivity."[116]

While this may be true, and we appreciate the efforts that have been made by both the Forest Service and CPW to address this issue, the DEIS clearly states that Alternative D, with its SMAs, is the best for maintaining wildlife connectivity.[117]

(12) "Furthermore, special management areas in alternative D would set many non-motorized parameters for over-snow travel decisions (draft revised forest plan, table 19). <u>This would cause a substantial loss of motorized recreation opportunities in winter months over the life of the plan.</u>"[118]

First, this apparently references the wrong Table, as Table 19 doesn't relate to this statement. If the Forest Service instead means Table 21, it is unclear what in that table supports this statement. The Forest Service should describe where the losses would occur. Just because an area is technically open to OSV travel doesn't mean that it can be – or is being – utilized. Thus, saying that the result would be a substantial loss of motorized recreation opportunities is incorrect. Specific key areas that are known to be important for OSV use are retained in Alternative D's SMAs, for example: American Flag, Deer Creek, Union Park, Whetstone, Beckwiths, Horse Ranch Park, and Munsey Creek/Erickson Spring. SMAs identified for non-motorized winter use were collectively agreed upon by the GPLI by consensus.[119]

This is supported by the GMUG's own characterization of the GPLI Proposal:

"<u>The proposal was designed to not close any roads or trails</u>, essentially retain existing trail uses, allow for future trail projects in some areas through agency processes, <u>does not affect snow</u>

[115] Id. at 194.

[116] Id. at 20.

[117] Id. at 229.

[118] Id. at 352. [emphasis added]

[119] Revised GPLI Proposal, at 9.

riding areas, protects quiet uses in areas with high ecological value, ensures ranching operations and water uses can continue, and protects habitat for big game and Gunnison sage-grouse."[120]

To conclude, the DEIS states:

> The recreational structure of alternative D would be the most protective of wildlife because it would include less motorized use and less developed use than any other alternative. This would likely equate to less harassment of wildlife, less accidental wildfire ignition, and less human-wildlife conflict associated with animals becoming accustomed to human food.[121]
>
> Alternative D would likely have the greatest benefit to wildlife, due to the conservation emphasis it provides from adding the greatest amount of combined recommended wilderness, special management areas, and wildlife management areas (there are more wildlife management areas in alternative B).[122]

With much of this additional protection coming from SMAs and wilderness recommendations championed by the counties in which they occur, there is a tremendous opportunity for the GMUG to actually choose a path that is the most protective of wildlife and has deep and broad support. That can be achieved in part by including the SMAs in Alternative D in the Final Plan.

1. Management of special management areas

Much of the acreage identified for SMAs in Alternative D overlaps directly with WMA acreage identified in Alternative B. And both flavors of management – WMA and SMA – offer benefits to wildlife significantly above and beyond General Forest and other management area types. As such, we urge the GMUG to consider incorporating SMAs into its various wildlife-related plan components.

- Recommendation: For the Flat Top Wildlife Management Area, **FW-GDL-SPEC-50** closes that area from December 1 to June 15 to all forms of public use. If the Final Plan designates Flat Top as an SMA, this direction should still apply.

- Apply **FW-OBJ-SPEC-03** (During each 10-year period following plan approval, restore or enhance at least 20,000 acres of habitat. Of acres treated, 30 percent should be conducted in wildlife management areas (MA 3.2) ….)" to SMAs, where appropriate, as well.

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[120] USDA, *GMUG National Forests REVISED DRAFT Forest Assessments: Designated Areas* (March, 2018), at 43-44. [emphasis added]

[121] DEIS at 218.

[122] Id. at 230.

2. Corrections required for Table 21 to be accurate

There are several prescriptions in Table 21 that are inconsistent with the provisions of the SMAs as contemplated in the CORE Act and for Lone Cone.[123]

- Hope Lake/Sheep Mountain – For motorized suitability, the CORE Act includes administrative exceptions in addition to heli-skiing.[124] Mechanized suitability should be changed to "Limited new."[125]

- Liberty Bell Corridor Special Management Area – This should be removed as a separate SMA in Table 21, as the "corridor" is encapsulated within the Liberty Bell East SMA.

- Liberty Bell East Special Management Area – "None identified" should be changed to "Limited new" to allow for mountain bike use in the "corridor" within Liberty Bell East.[126]

- Lone Cone – This area should be included in one of the action alternatives as recommended wilderness.

- Naturita Canyon – This area is not an SMA in CORE Act, rather it is a mineral withdrawal, and should be removed from Table 21.[127]

3. Citizen-Proposed SMAs in the North Fork

The Forest Service failed to take a hard look at special management areas in the North Fork Valley that were proposed by citizen groups. The agency should take a hard look at these special management area proposals, include protections for these areas in one or more alternatives considered in the EIS, and ultimately adopt a plan that protects these areas as proposed.

Specifically, the Mule Park Important Bird Area, Muddy Country Watershed and Wildlife Conservation Area, Pilot Knob Backcountry Wildlife Conservation Area, and the Lamborn Special Interest Area proposals were submitted by the Western Slope Conservation Center, Wilderness Workshop, National Wildlife Federation, Audubon Rockies, and Black Canyon Audubon Society,[128] and subsequently adopted

[123] For those specific areas within the GPLI Proposal that are captured in Table 21, we defer to the GPLI Working Group's assessment.

[124] See CORE Act, Sec. 203(c)(2)(B) and 203(c)(3)(A).

[125] Id. at 203(c)(3)(C)(i).

[126] Id. at 203(c)(3)(C)(ii).

[127] Id. at 205(h).

[128] See Exhibit 15_North Fork Cover Letter.

into the *Community Conservation Proposal*.[129] The Forest Service failed to include any of these proposals in alternatives analyzed in the DEIS, and failed to take a hard look at the potential benefits of proposed management.

The proposals provide detailed descriptions of these unique areas, catalogue important biological values as well as historical and recreational uses, and outline proposed management, including desired conditions and standards. Subsequent comments were filed with more detailed discussion related to timber and vegetation management.[130] Nonetheless, none of these proposals got a hard look in DEIS alternatives.

The DEIS also fails to acknowledge comments submitted by Mr. Pat Stucker identifying an area around Hubbard Creek as meeting the criteria for inclusion in the Forest Service's inventory of lands that may be suitable for Wilderness designation. Mr. Stucker provided the Forest Service with compelling evidence demonstrating that the area meets the criteria outlined in the agency's planning regulations for having highly-rated wilderness characteristics. This proposal also received significant support in public comments. This too should be considered in alternatives, and the agency should take a hard look at the potential benefits of proposed management.

It is inadequate for the Forest Service to say that these areas are largely roadless and, therefore, adequately protected under alternatives in the DEIS. The SMA designations proposed and listed above would provide important additional protections for these areas. For example, roadless boundaries do not perfectly overlap with boundaries of the proposed SMAs discussed above. Further, the proposed SMAs highlight values that are not the subject of the Colorado Roadless Rule. Several of the SMA proposals include explicit protection for sensitive and rare species of plants and animals. Since the Colorado Roadless Rule was not implemented to protect these values, the Forest Service cannot simply assume that the Rule will provide adequate protection for them.

4. Other specific area comments

a. Hayden Mountain

Hayden Mountain is left as General Forest in all of the action alternatives. Over time this could sacrifice wildlife habitat for Canada lynx, bighorn sheep, bear, elk, moose, deer, raptors, etc., as well as the area's Scenic Integrity Objective. We remain committed to it being a Special Interest Area.[131]

If keeping with the qualifier of "less than 3 miles from motorized route" for primitive rating, given that Hayden is bordered by Hwy 550, CR 361, and Black Bear Road, we would have to accept the ROS settings

[129] See proposals for the Muddy Country Watershed and Wildlife Conservation Area, Pilot Knob Backcountry Wildlife Conservation Area, and the Lamborn Special Interest Area at www.gmugrevision.com and Exhibit 16_North Fork SMAs.

[130] See May 2020 follow up letter attached as Exhibit 17_North Fork Follow Up.

[131] See proposal for Hayden Mountain Special Interest Area at www.gmugrevision.com and Exhibit 18_Hayden.

of Semi-Primitive Non-Motorized. However, we feel strongly that this landscape should be managed for Primitive ROS for both winter and summer.

Hayden should be managed as "very high" SIO, at least in the north section at higher elevations (specifically between Richmond Trail and Neosha Trail above 11,000 feet).

There should be no timber harvesting anywhere in this area, especially not on slopes greater than 40%, and absolutely no harvesting above the Ironton Fen. Even Alternative D has a small area of suitable timber that is very concerning.

We highlight the additional values including bighorn sheep production; elk summer concentration; potential Canada lynx habitat; moose habitat; raptor nesting and four unique CNHP Potential Conservation Areas with Very High Biodiversity Significance (Imogene Pass, Ironton Park, Mineral Basin & Ouray Canyons.) CNHP has also reported the occurrence of three globally or state imperiled plants in the polygon: New Mexican cliff fern *(Woodsia neomexicana*) G4 S2/B ranked; Western polypody (*Polypodium hesperium*) G5 S1S2/B ranked; and San Juan Draba *(Draba graminea*) G2 S2/A ranked as well as one plant association in the adjacent Ironton Fen identified as Dwarf birch/Sphagnum shrubland (*Betula glandulosa/Sphagnum*) G2 S2/B ranked.

b. Mount Abram/Brown Mountain

This area deserves some form of elevated conservation. At the same time, we offer the following specific recommendations: the ridgeline of Brown and Abram and the area between FS Rd 884 and 878/876 should be Semi-Primitive Non-Motorized; the SIO should be high (consistent with Alternative D and acknowledging the San Juan Skyway Corridor); and there should be no suitable timber. Personal observations include Canada lynx and moose habitat and regular moose sightings.[132]

B. Wildlife Management Areas (MA 3.2)

1. Designate WMAs

We support the concept of Wildlife Management Areas (WMAs) and ask that those be retained and strengthened with additional plan components. The Draft Plan is a good start, but the plan components for WMAs need to be significantly strengthened to provide meaningful conservation of wildlife habitats and populations, as is further discussed in subsection 3 below. This important management area designation could help protect habitat for a variety of wildlife species. However, in places where Alternative D's wilderness and SMA recommendations overlap with the WMA-base identified in Alternative B, we support the stronger management prescriptions that Alternative D's wilderness and SMA areas provide.

[132] See proposal for Abrams Mountain Scenic Special Interest Area at www.gmugrevision.com and Exhibit 19_Abram.

Identifying areas on the forest that are important to wildlife and subject to route density standards is absolutely appropriate to balance recreation with other values such as wildlife habitat effectiveness. The agency recognizes its limits in providing recreation:

> "It is not the agency's obligation to provide increasing and unlimited 'supply' to respond to increasing 'demand' for all recreational activities. Rather the agencies are tasked to provide quality recreation opportunities in those areas where it is appropriate based on other multiple-use concerns such as wildlife habitat, watersheds, fragile ecosystems, and desires for other forms of recreation including 'quiet' recreation."[133]

Impacts analysis in the planning process, in tandem with ongoing community feedback, should succeed in identifying "quality recreation opportunities in those areas where it is appropriate based on other multiple-use concerns …."[134] Other multiple-use concerns that the agency should evaluate include wildlife, hunting, grazing, water quality, vegetation, and soils, as well as likely limited agency funding. WMAs are distinct locations on the forest where further recreational growth and development should be discouraged.

Human activities related to trails have varying effects on wildlife species depending on many factors, including the level of human use, the type of activities, habitats involved, time of day and season, and the species affected. Essentially all activities related to trails will have an effect on wildlife. The widespread, detrimental impacts of human disturbance on wildlife are well documented in the literature. No positive benefits to wildlife have been identified from increases in recreational access. Direct and indirect effects on wildlife that have been identified in the literature indicate negative impacts on all studied species as motorized, mechanized, foot, and horse uses increase.[135] Loss of quality or quantity of habitat, disturbance or displacement of species, physiological reactions to stress, and exploitation of specific wildlife species are examples of general effects of human activities related to roads and trails on wildlife species.

2. Need for additional wildlife-focused management in the Cochetopa Hills

The East Gunnison Basin Ungulate Corridor is a critically important corridor for big game migration. In many ways Alternative D – and to a lesser extent Alternative B – would provide good conservation for this corridor through wilderness, WMAs, and SMAs. However, there is one very important geographic component of that Corridor that all of the action alternatives neglect: its southern end through the Cochetopa Hills.

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[133] USDA Forest Service, Gunnison Travel Management Plan FEIS at 176.

[134] Ibid.

[135] Id. at 112. [emphasis added]

Colorado Parks and Wildlife Species Activity Mapping identifies elk migration corridors crossing the Cochetopa Hills in at least four locations including areas over and near Cochetopa Pass and North Pass, areas near West Baldy and Middle Baldy peaks, ridges above Tank Seven Creek, and other locations. Research in progress at Colorado Parks and Wildlife confirms the presence and importance of crossings in this region.

While Alternative B proposes WMAs at Sawtooth and on the far northern flank of the Cochetopa Hills, it posits no WMAs, SMAs, Wilderness, or other specific management areas between those geographic bookends that would help sustain the important ungulates that utilizes that southern corridor. Coupled with the Semi-Primitive Motorized and Roaded Natural ROS settings contemplated for much of the area, there is little to ensure viability of migratory big game there. Relegating such an important link in the East Gunnison Basin Ungulate Corridor to General Forest would allow new route construction and other development that incompatible with that resource.

- Recommendation: The Final Plan should extend additional management area conservation – through WMAs, SMAs, and/or recommended wilderness – to ensure better protection of the southern end of the East Gunnison Basin Ungulate Corridor.

3. Management of WMAs

Many potential impacts to wildlife can be avoided by ensuring that trails avoid the most sensitive or critical wildlife habitats. The best course of action is to avoid impacts whenever possible, emphasizing no new development in priority habitat areas.

The DEIS states:

> "Cooperating agency feedback requested that the forest plan reduce existing trail densities within key wildlife management areas when the current trail density exceeds 1 mile per square mile. Although the forest plan is not making travel management decisions, the plan does identify broad objectives that each wildlife management area have an action plan; that actions be completed to improve connectivity (**MA-OBJ-WLDF-03**)."[136]

However, per Table 114, the majority of the WMAs (especially on the Gunnison Ranger District) have route densities that are below 1.0. Thus, less than half of the areas would be subject to potential reductions of new road and trail construction, while on the other hand many would be subject to new road and trail construction.

[136] DEIS at 26.

The Plan's management area allocations are critical to the protection of connectivity. The DEIS notes, "Forestwide direction related to connectivity does not vary among the action alternatives, but differences in management area allocations influences connectivity effectiveness."[137] Thus, the DEIS identifies Alternative D as having by far the greatest number of acres managed for increased connectivity effectiveness (1,056,080 acres, compared to Alternative B's 781,246 acres), and concludes that Alternative D provides the "most" relative benefit to connectivity.[138]

Alternative D is clearly the best alternative for wildlife and wildlife-related recreation. And while WMAs are important concepts across all three action alternatives, they would be most effective operating in tandem with the wilderness recommendations and SMA designations in Alternative D. The DEIS states: "Alternative D would likely provide the most connectivity benefit due to providing the greatest extent of recommended wilderness, special management areas, and wildlife management area categories ….*".*[139] Route density standards are a critical positive component of this Plan, and Alternative D's combination of WMAs and SMAs provides the greatest number of acres subject to this threshold.[140]

MA-STND-WLDF-02 states:

> "To maintain habitat function and provide security habitat for wildlife species by minimizing impacts associated with roads and trails, there shall be no net gain in system routes, both motorized and non-motorized, where the system route density already exceeds 1 linear mile per square mile, within a wildlife management area boundary. Additions of new system routes within wildlife management areas shall not cause the route density in a proposed project's zone of influence to exceed 1 linear mile per square mile. Within the Flattop Wildlife Management Areas in the Gunnison Ranger District, there shall be no new routes. Exception: this does not apply to administrative routes (see appendix 12, Footnotes Regarding Best Available Scientific Information for further detail)."[141]

While this standard is pretty good, 21 of the 33 WMAs in Alternative B would allow new route construction under Alternative B because their current route density is below 1.0 (excluding Flat Top), totaling approximately 544,100 acres that would be subject to new route development (or 555,800 if Yellow Mountain is added … Table 114 does not show a route density for that area) out of that Alternative's 740,000 acres of WMA. In Alternative D, 17 of that Alternative's 34 WMAs have a density that would allow new route development, totaling 311,300 acres out of that Alternative's 749,000 acres of management areas with route density standards.[142]

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[137] Id. at 228.

[138] Id. Table 115, at 228-229.

[139] Id. at 229. [emphasis added]

[140] Id. Table 113, at 220-221.

[141] Draft Plan at 93.

[142] DEIS Table 113, at 220-221.

- Recommendation: Areas assigned to this MA that are below the one mile per square mile route density threshold should be kept that way. i.e., new routes should generally not be allowed in these areas for non-emergency uses, as the blocks with the lowest road densities likely provide the most secure wildlife habitat. A guideline should be added to retain the areas within this MA having lower route densities.

- Recommendation: **MA-STND-WLDF-02**, limiting open motorized and non-motorized route density to one mile per square mile, is good, but as currently written, this standard only applies to non-administrative system routes. Even though "new permanent roads are not currently being created for timber management activities,"[143] this standard would not protect wildlife from the temporary roads typically created during timber sales. Such roads, though officially not open to public use, can attract motorized users. These roads are often not posted as being closed and do not appear on motor vehicle use maps. Therefore, this MA needs direction, preferably a standard, to minimize creation of temporary roads and close and obliterate all temporary roads as soon as possible after completion of management activities, unless the environmental documentation for the project shows a need to add any of these roads to the system as roads or trails.

- Recommendation: **MA-STND-STND-02** should also make clear whether the administrative route exception to the route density limitation applies to the entire wildlife MA or just to the portion prohibiting new routes in the Flat Top Wildlife Management Area.

- Recommendation: It is not clear how the route density will be determined for new projects and activities. For routes that might push the density over one mile, the density apparently would be calculated only in "a proposed project's zone of influence,"[144] but the direction on how to calculate this zone of influence is confusing.[145] This needs to be clarified.

The plan has a beneficial desired condition, **FW-DC-SPEC-12**, for wildlife security habitat, but a standard or guideline is needed to help ensure this desired condition is attained and maintained. Note that the 660-meter avoidance distance of big game from non-motorized trails used in this desired condition was based on a study in Oregon.[146] It led to the GMUG identifying 250-acre security blocks, but the study probably underestimated the avoidance distance because of trail use in the Oregon area being much lighter than likely on the GMUG, and other reasons, as is explained in the DEIS.[147] Thus the GMUG needs to identify larger wildlife habitat security blocks.

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[143] Id. at 393.

[144] Draft Plan at 93.

[145] Id. at 330.

[146] DEIS at 225.

[147] At 226.

The DEIS states:

> "Wildlife security areas, combined with wildlife management area polygons and other protected areas such as designated wilderness and Colorado roadless areas, are integral to maintaining connectivity for a variety of species, not just within the boundaries of the GMUG National Forests but across multiple jurisdictions."[148]

The DEIS even states that in implementation of the plan, the GMUG "would seek opportunities to work with State and Federal land management agencies and private landowners to improve connectivity between large contiguous blocks of habitat (>500 acres)."[149]

- Recommendation: An additional plan component is needed to ensure retention of security habitat for big game. We recommend a standard or guideline that requires or encourages maintenance of habitat blocks at least 500 acres in size having no roads or other human intrusions in big game habitat in all areas assigned to this MA. This standard or guideline is needed to allow achievement of **MA-DC-WLDF-01**: "Large blocks of diverse habitat are relatively undisturbed by routes, providing security for the life history, distribution, and movement of many species, including big-game species."

- Recommendation: An additional plan component is needed that requires any vegetation treatment project proposed in a WMA must be solely for the desired objective of improved wildlife habitat and that only native species will be used for re-vegetation efforts.

- Recommendation: A guideline requiring adherence to the recommendations in CPW's revised (2021) *Planning Trails with Wildlife in Mind* handbook should be added.

- **OBJ-WLDF-03**, requiring management plans for each wildlife management area to be completed within five years, is good and should be retained.

C. Recreation Management Areas (MA 4)

1. Mountain Resorts (MA 4.1)

a. Snodgrass

[148] At 227.

[149] Ibid.

In November 2009, then-GMUG Forest Supervisor Charlie Richmond denied CBMR's proposal to expand lift-served skiing onto Snodgrass Mountain. In May 2010, a Forest Service Appeal Reviewing Officer released his decision affirming the 2009 denial.[150] In July 2010, Forest Service Chief Tom Tidwell again affirmed the decision, supporting the well-reasoned determination that Snodgrass Mountain is fundamentally unsuitable for lift-served skiing.[151] Snodgrass Mountain is indeed fundamentally unsuitable for lift-served skiing, due in part to its avalanche- and erosion-prone slopes. Furthermore, it is a spectacular landscape that is important in its undeveloped state for its many values, including big game habitat, stunning viewsheds, alpine wildlife, backcountry recreation opportunities, and pristine aspen forests. In alternatives B and D, Snodgrass is changed to General Forest (MA 5); in alternative C it is retained as the Mountain Resort Management Area (MA 4.1).

- Recommendation: Per the direction in alternatives B and D, please change Snodgrass from MA 4.1 to a more protective management area, such as a WMA, across all the action alternatives. The GMUG has noted that "[t]his area provides summer range for big game species, with elk possibly using the lower elevations of Snodgrass Mountain for winter range."[152] Before the finalization of the Colorado Roadless Rule, Snodgrass was included within the Gothic Inventoried Roadless Area. We encourage the GMUG to preserve the roadless character and natural characteristics of the mountain that are evident today, and that are noted in descriptions of that area in the GMUG's 2008 roadless inventory.[153]

b. Management of mountain resorts

- Recommendation: In MA 4.1 a standard should list or reference the facilities that are specifically prohibited: tennis courts; water slides and water parks; swimming pools; golf courses; and amusement parks.[154] This should also be referenced in **DC-MTR-01**, which states that resorts "may also provide for other seasonal or year-round natural-resource-based recreational activities (e.g., hiking, mountain biking, and sightseeing)."

2. Recreation emphasis corridors (MA 4.2)

The Draft Plan changes MA 4.2 from High-Use Recreation Areas to Recreation Emphasis Corridors. We support of the added language under Recreation Emphasis Corridors and **MA-DC-EMREC-01**. We hope

[150] Letter from James M. Peña (Appeal Reviewing Officer), to Ezekiel J. Williams (Attorney for Crested Butte LLC), (May 6, 2010). Exhibit 20_Peña Appeal Decision.

[151] Letter from Gloria Manning (Reviewing Officer for the Chief), to Rick Cables (Regional Forester, Rocky Mountain Region), (July 14, 2010). Exhibit 21_Tidwell Decision.

[152] USDA Forest Service, Rocky Mountain Region*, Profiles of Grand Mesa, Uncompahgre, and Gunnison National Forest Roadless Areas* (July 23, 2008), at 25.

[153] Ibid.

[154] See the Ski Area Recreational Opportunity Enhancement Act of 2011, 16 U. S. C. 497b note.

to see these desired conditions achieved in areas where recreation may be driven from one location to new corridors as public pressure and interest in certain places ebbs and flows.

We note though that throughout the Plan and DEIS there are references to both Recreation-Emphasis Areas and Recreation-Emphasis Corridors, both of which take the place of the former High-Use Recreation Area nomenclature.[155]

We are curious as to the change in name – and presumably focus – from "Areas" to "Corridors". This appears to also correspond to a change from the 2019 Working Draft maps – which had varying sizes, some thick and some thin – for the Areas, while the maps associated with the Draft Plan appear to have the exact same width for all identified Corridors (with a few exceptions, such as Brush Creek). Why just focus on corridors, rather than larger areas? Why change some places from larger Areas to smaller Corridors (for example, along the Upper Taylor River, which had a wide management area in the Working Draft but now has the same width as all the other Corridors)? What is the width of the Corridor, and if it is uniform across the landscape, how does that accommodate on-the-ground conditions and expected trends?

- Recommendation: The plan should list the Corridors by name and where they are, along with approximate width and length or acreage.

We are confused by direction:

> **FW-OBJ-TRLS-02**: Annually, maintain at least 500 miles of National Forest System trails, per the INFRA database definition of "maintained to standard." Trails are prioritized by those located in recreation emphasis corridors (MA 4.2 – EMREC), by amount of use, and those where use is causing unacceptable resource damage (FW-STND-REC-08) and/or presenting hazards outside of the trail class.[156]

Examining the relevant management area maps, these corridors are narrow ribbons that largely follow existing roads. Additionally, they are clearly focused on management to address and alleviate dispersed camping issues, not trail impacts. Practically speaking, how many trails exist in the corridors? What is the advantage of prioritizing trails in a management area that is largely devoid of trails?

3. Management area needed for congressionally designated trails

See Section V.J. for comments.

[155] The DEIS maintains the High-Use Recreation Area designation, for example in Tables 5, 9, 13, 17, 21, 99, 100, and 105.

[156] Emphasis added.

D. Designated Wilderness (MA 1.1)

Generally speaking, the Draft Plan has some good plan components for ensuring that wilderness character on the GMUG is retained or improved over time. We offer the following suggestions to improve plan direction for this management area.

- Recommendation: **MA-STND-WLDN-09** would limit party size in wilderness to 15 people and 25 people and animals except: "Activities authorized by special use permit may exceed these group size limitations when necessary for public health and human safety." How could exceeding these already high limits in a fragile environment possibly be desirable, let alone necessary for public health and safety? This part of the standard must be deleted.

- Recommendation: **STND-WLDN-10** would prohibit the use of recreational drones in wilderness. This is a good standard and must be retained.

- Recommendation: **GDL-WLDN-11** would require dispersed camping sites to be designated or otherwise managed "when use levels result in degradation of wilderness character". This needs to be reworded as a standard and be applied before degradation of wilderness character occurs. That is, this standard should manage dispersed camping sites "when current or foreseeable future use levels may degrade wilderness character."

- Recommendation: Add the following objective: "The forest will conduct Wilderness character monitoring at least once every 5 years."

We are confused by one aspect of the relationship between the proposed plan components and the interim wilderness management area direction in Table 18 of the Draft Plan.[157] The former contains the Guideline:

> **MA-GDL-WLDN-12**: To maintain wilderness character, new trails should not be constructed in wilderness areas. If they improve wilderness character or reduce natural resource impacts, re-routes may be allowed.

At the same time, the Draft Plan also contains this Guideline:

> **MA-GDL-WLDN-14**: To achieve and maintain the quality of wilderness character, all wilderness management decisions and activities should be consistent with the wilderness management area direction from the 1991 plan provided in table 18.

[157] Draft Plan at 84.

Examining Table 18, it contains a Standard allowing for trail construction in mapped Primitive and Semi-Primitive Wilderness.[158] This Standard contradicts Guideline 12 in the Draft Plan, and following Guideline 14 would also contradict Guideline 12. New trails should not be constructed in any wilderness areas, whether mapped pristine, primitive, or semi-primitive.

Table 18 also contains the following Standard:

> "Locate and design required access roads within the management area for authorize activities to minimize the biophysical and visual impact, and to facilitate restoration."[159]

As a general rule under the Wilderness Act, "there shall be no temporary road … within any [wilderness] area."[160] Numerous exceptions exist, but it is not appropriate for the Forest Plan to include a Standard emphasizing new roads in wilderness.

Last, we are confused by one aspect of the wilderness map in Appendix 1, which depicts each of the subcategories for which table 18 would apply. It maps the GMUG's wilderness areas as either designated, pristine, primitive, or semi-primitive. It is unclear why there is a separate category for "Designated Wilderness", as it is all designated. Also unclear is why the only area on the map identified as Designated Wilderness is Fossil Ridge. The final maps need to correct this.

E. Research Natural Areas (MA 2.2)

We support the identification of 10,670 acres in Alternative D as the Lower Battlement Mesa Research Natural Area. This area overlaps with the Sunnyside Recommended Wilderness in the *Community Conservation Proposal*. We noted:

> Dry Fork Kimball Creek within the area contains rare endemic plant species. Overlaps The Nature Conservancy's Debeque South conservation site, which contains locations of *Phacelia submutica*, a candidate plant species. The area includes four PCAs, and the western half of this area has also been proposed as a research natural area. Adjacent to lands in White River National Forest that are managed as a research natural area, and that are important elk and bighorn sheep habitat. Provides important east-west and north-south connectivity for migrating wildlife. Home to the Battlement Mesa Rocky Mountain bighorn sheep herd.[161]

[158] Id. at 88.

[159] Id. at 89.

[160] 16 USC § 1133(c).

[161] See proposal for Sunnyside Recommended Wilderness Area at www.gmugrevision.com.

For these reasons, for the reasons laid out in our applicable narrative submitted to the GMUG for this area, and for the reasons cited in the DEIS, this area deserves a greater degree of protection than simply the MA 3.1 Colorado Roadless Area management proposed under Alternative B.

F. Colorado Roadless Areas (MA 3.1)

Management Area 3.1 integrates the Colorado Roadless Rule's (CRR) direction into the draft revised plan. However, there is only one desired condition, and no supporting Objectives, Standards, or Guidelines, other than referencing the final rule Direction.

While the CRR does not explicitly require that forested land in Colorado Roadless Areas (CRAs) be unsuitable for timber production, the clear intent of the CRR is to restrict timber cutting to protect roadless area values:

> The intent of this regulation is to protect roadless values by restricting tree cutting, sale, and removal; road construction and reconstruction; and linear construction zones within Colorado Roadless Areas (CRAs), with narrowly focused exceptions. Activities must be designed to conserve the roadless area characteristics listed in § 294.41…[162]

Though currently unlikely, there is always the possibility that the CRR could be weakened or even eliminated in the future. That might leave CRAs on the GMUG with little protection without standards specifically requiring retention of roadless area characteristics even in the absence of a roadless rule. Therefore, the provisions of the final rule must be included in plan direction, along with additional direction to meet the other resource values and objectives specific to the GMUG.

- Recommendation: We strongly recommend that more direction, including mandatory plan components, be developed for this management area. Standards are needed to ensure that CRAs on the GMUG are protected at least as well as the CRR does.

- Recommendation: To ensure CRAs are not subjected to inappropriate logging, they should be unsuitable for timber production.

- Recommendation: At a minimum, the CRR's limitations on the following must be standards: tree cutting, sale, and removal; road construction and reconstruction; and the use of linear construction zones, per CRR sections 294.42, .43, and .44.

- Recommendation: There should be an objective to obliterate unneeded, closed, temporary, or unauthorized roads in order to enhance roadless character and ecological integrity within CRAs.

[162] CRR at 36 CFR 294.40.

- Recommendation: Include a standard requiring that all management activities conducted within CRAs shall maintain or improve roadless characteristics. All vegetation management projects occurring in CRAs should be monitored to ensure these characteristics are retained. This needs to be added to the monitoring plan. Data should be collected regularly and reported every two years.

- Recommendation: CRAs should be unavailable for all mineral leasing, subject to prior existing rights. Any leases issued must have a no surface occupancy stipulation.

- Recommendation: Please incorporate a standard reflecting that the ROS for CRAs needs to be maintained as "Primitive" or "Semi-Primitive," and a Guideline to reflect that trail densities should be limited or reduced to the extent necessary to maintain the other characteristics that define CRAs.[163]

Finally, the Draft Plan makes no distinction between upper tier and lower tier roadless areas in MA 3.1.

- Recommendation: Clearly noting the two distinct classes of roadless areas would provide clarity on the location and the different management requirements of upper and lower tier roadless areas and would better integrate the management direction for these areas into the overall land management plan structure and strategy.

[163] See 36 CFR 294.41.

IV. TIMBER SUITABILITY ANALYSIS

A. Introduction

The draft Plan's analysis of timber suitability is unacceptable. It does not comply with the National Forest Management Act, the Planning Rule, and Forest Service policy. It seems designed to maximize the possibility of future timber harvest, even though the GMUG National Forest is much more valuable for conserving biological diversity and recreation than it ever could be for timber production.

B. Suitability for timber production in all action alternatives

We are struck by the finding of a large acreage as suitable for timber production in all alternatives.[164] Notably, all action alternatives find much more land suitable than the no action alternative A, which is the current forest plan. The magnitude of this difference is striking. Under Alternative A, 468,400 acres would be suitable for timber production, while under likely preferred alternative B,[165] 948,200 acres would be suitable. Even alternative D, which is supposed to represent a conservation vision for the GMUG, finds 757,800 acres suitable.

Stunningly, in alternative D, 274 acres of timber-suitable land are in the very high Scenic Integrity Objective (SIO) class, and a staggering 230,689 acres are in the high class. The corresponding number for these classes in alternative B are much lower.[166] Also in D, 150 acres of suitable land is in the primitive recreational opportunity spectrum (ROS) class, under which "vegetation is natural, with no treatments except fire use". (Alternative B has no acres in this ROS class.)[167] These figures give a strong indication that alternative D has many acres inappropriately found suitable for timber production.

Another surprise is that preferred alternative B has the same projected timber sale program on the same number of acres as the "active management" alternative C.[168] Table 159 shows alternatives B and C having considerably more estimated "acres of timber management" than no action alternative A (4,800 acres annually versus 2,800 for years 1-5 and 5,000 acres versus 2,700 for years 6-20).[169]

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[164] See Draft Plan Table 39, at 231.

[165] Though the DEIS does not specifically identify a preferred alternative, it is clear throughout the planning documents that the agency leans toward alternative B. See, e. g, FEIS at 388 et seq., where a section entitled "Effects of the Proposed Action" begins and frequently mentions alternative B.

[166] DEIS Table 162, at 397.

[167] Id. Table 161, at 396.

[168] Id. at 21; see also Id. at Tables 158, 159 at 386, 387; Table 44 at 105; and Table 3 at 32.

[169] We assume that the second column in Table 159 for alternative A years 1-5 is a typo and should be years 6-20.

Alternative B would also treat slightly more acres for fuel reduction than alternative C in the second decade.[170]

Lands that are suitable for timber production must be "based on the compatibility of timber production with the desired conditions and objectives for those lands."[171] It is hard to imagine how over 750,000 acres of land in alternative D could be compatible with the desired conditions and other plan components for an alternative that emphasizes protection of special areas, areas that are "excluded from timber production."[172] This includes 261,000 acres recommended for wilderness designation, 246,000 acres of special areas (MA 3.3) and 12,000 acres of research natural areas.[173]

Contrary to recent public statements from GMUG staff people, the Plan states the following:

> Lands identified as suitable for timber production have a regularly scheduled timber harvest program that contributes to Forestwide desired conditions and multiple use goals, such as providing mosaics of habitats for wildlife species, managing fuels, and contributing to the economic sustainability of local communities.[174]

It is clear from this that the GMUG intends to schedule timber harvest on all lands determined suitable for timber harvest, or at least will do so whenever this becomes economically and technically feasible. (See more below.)

For blended alternative B, land in the following MAs was excluded from the suitable timber land: 1.2, 2.1, 2.2, 4.1, and 4.2, and from eligible wild river corridors because "timber production is not compatible with the desired conditions and objectives for these areas."[175] Land in these MAs (not including eligible wild rivers) totals 99,000 acres.[176] However, the total acreage said to be suitable in alternative B is 948,200, only 48,300 acres (instead of 99,000) less than the 986,500 acres that may be suitable before land in any MAs is excluded.[177]

In alternative D, lands removed from possible timber suitability include all the areas so removed in alternative B plus: designated trails, scenic byways, MA 3.3 (special management areas), and slopes greater than 40%.[178] This brings the suitable land for this alternative to 757,800 acres, a reduction of

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[170] DEIS Table 4, at 34.

[171] FSH 1909.12, section 61.1.

[172] DEIS at 23.

[173] Draft Plan Table 17, at 80.

[174] Id. at 226.

[175] Id. at 228.

[176] See Id. Table 17, at 80.

[177] See Id. at 227-228.

[178] Id. at 230.

only 228,700 acres from the possibly suitable acres, even though the acres in the MAs removed totals 521,000 acres.[179]

C. Modification of suitability criteria

Certain lands previously excluded from suitability were included in this most recent analysis.[180] There are many problems with this approach, as is discussed below.

1. Lands that will not have harvestable trees until well after the life of the revised plan are found potentially suitable

As the Plan admits, some areas not likely to be operable during the life of the revised plan are still included in the suitable lands for the action alternatives. These areas include:

> spruce-fir and spruce-fir aspen areas with heavy mortality from the spruce beetle epidemic that are no longer merchantable, areas previously harvested that are now regenerating, areas that are un-economical to harvest due to low volume per acre or long haul distance, and areas that are isolated or far from the existing road system.[181]

Accordingly, the Plan finds 192,600 acres of spruce-fir and 191,200 acres of spruce-fir-aspen possibly suitable.[182]

It is clearly inappropriate to consider any land in any of the above-quoted categories as suitable for timber production. Such production cannot occur on lands recently cut or on lands with heavy spruce bark beetle mortality. On stands that were mixed spruce-fir prior to beetle attack, the only mature trees remaining would be subalpine fir, which have very limited timber production value due to a high decay rate in older trees,[183] high moisture content, and tendency to warp while drying.[184] Engelmann spruce will not come close to growing to a size harvestable for timber production during the life of the revised plan, as the plan admits:

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[179] This does not include land in scenic byways, on steep slopes, or near designated trails.

[180] See Draft Plan at 231-232.

[181] Id. at 232.

[182] Id. Table 50, at 233.

[183] Worrall and Nakasone 2009 determined that subalpine fir trees over 150 years old or greater than 9.5 inches diameter had average decay of 35 percent of board-foot volume. Worrall, J. J., and K. Nakasone (2009). Decays of Engelmann Spruce and Subalpine Fir in the Rocky Mountains. USDA Forest Service, Forest Insect and Disease Leaflet 150, April.

[184] Note that subalpine fir is not one of the timber strata used to calculate sustained yield. Draft Plan at 233.

> Many of the [] stands [affected by spruce beetle] are no longer feasible for timber harvest due to the deteriorated condition of the dead trees and the dominance of young trees that will take decades to grow to a harvestable size.[185]

But even so, 760 acres of spruce-fir is planned for timber harvest under alternative B for each of the first five years, and 900 acres annually for years 6-20. A separate category, spruce-fir/aspen, has identical numbers of planned timber harvest.[186]

Regeneration of spruce on the lands affected by spruce bark beetle is uncertain. With the death of the overstory, more sunlight hits the forest floor. This has likely led to an increased herbaceous ground cover (of grass, forbs, and shrubs) in beetle-affected stands. With a thick ground vegetation cover, there may be no places for new seedlings to establish. But even if there are such areas, spruce does not regenerate or survive well in the early years in open areas. In any habitat, spruce seedling mortality is quite high, especially in the first year after establishment.[187]

Planting can be done on some areas, but certainly not on anywhere near all the acres affected by spruce beetle. Also, planted seedlings do not always survive.[188] Given the high altitude and short growing season, any seedlings that do get established will grow very slowly.[189] Planting would have to be seedlings germinated from seed gathered near the sites to be planted, i. e., seeds from trees that were adapted to the altitude and climate of the sites to be planted. The availability of usable seeds for the beetle-attacked stands could be questionable - in areas where the trees have been dead for a long time (more than 5 years or so), the seed may no longer be viable.

But even with successful planting, it may be 150 years or more before any new Engelmann spruce trees are large enough to commercially log. The number of acres that could be available at that time or any later time for such logging is uncertain, due to the unpredictability of spruce regeneration. In any case, given that the life of the revised forest plan is expected to be 20 years,[190] these lands cannot be considered suitable at this time.

But still, the analysis finds 192,600 acres of spruce-fir and 191,200 acres of spruce-fir-aspen to be possibly suitable.[191]

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[185] Draft Plan at 232.

[186] DEIS Appendix B, Table 17, at 55.

[187] Alexander, R. R. (1987). *Ecology, silviculture, and management of the Engelmann spruce--subalpine fir type in the central and southern Rocky Mountains* (No. 659). US Department of Agriculture at 26-30.

[188] Id. at 29.

[189] Id. at 71-72.

[190] DEIS at 96.

[191] Draft Plan Table 50 at, 233.

2. Non-forested lands and areas with only small trees counted as suitable

Land used to calculate sustained yield includes lands in "other" categories.[192] These are described as follows:

> Additional areas that did not fit within these main strata were put into "other" categories, including "areas of nonindustrial species/cover, non-forested areas, and grassland and shrubland areas with at least 10 percent tree cover.[193]

Table 50, p. 234, includes 91,400 acres of "[o]ther – meadows and shrublands (HSS 1M, 2S)" as lands used in the sustained yield calculation. Even though they do not have any trees, or only very few trees, these lands are being considered possibly suitable since the sustained yield "is the volume that could be produced in perpetuity on lands that may be suitable for timber production."[194]

Lands possibly suitable also include 35,700 acres of "Other – forested areas (HSS 1T, 2T, 3, 4)" lands, with a possible 500 cubic feet per acre per year being cut on these lands.[195] Some of these lands cannot be suitable, as they have only small trees, i. e., in the 1T and 2T stages, which are areas that previously had trees and now have no trees (1T) or have trees than one inch in diameter (2T).[196] It will be many years, well beyond the life of the forthcoming final revised plan, before these areas could have any trees large enough for commercial timber harvest.

Including the "other" areas in the lands that may be suitable directly contradicts the following, which is said to be excluded from being found suitable:

> Nonindustrial species/cover types that were not in the suitable timber layer in 1991 or in 2007, including pinyon, juniper, cottonwood, oak, water, barren, rock, and riparian areas dominated by grass, forbs, or cottonwood.[197]

The areas in the other categories must not be considered suitable for timber production. Some of the acres in these categories do not have any trees! Other lands therein have only small trees that will not be harvestable, if at all, until well beyond the life of the revised plan. Finding these lands suitable contradicts direction to exclude from suitability any land that is not forested.[198] Some other lands in the

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[192] Id. at 234.

[193] Id. at 232.

[194] Draft Plan at 235. [emphasis original]

[195] Draft Plan Table 50, at 234.

[196] Terrestrial Vegetation Assessment, at 32

[197] Draft Plan at 227.

[198] See 36 CFR 219.11(a)(1)(vi) and FSH 1909.12, section 61.14. FSH 1909.12, section 61.14, states: "Lands that were formerly occupied by tree cover, but do not presently have tree cover, should be identified as nonforest unless the land will be naturally

other categories have species like subalpine fir and pinon-juniper that are not used or very seldom used in industrial timber production.

To be removed from the possibly suitable base as not forested, lands had to be, among other items "not in the suitable timber layer in 1991 or in 2007."[199] Areas considered forested in previous analyses could be non-forested today as a result of fire or other disturbances. Indeed, this is the case with some of the forests formerly dominated by Engelmann spruce that were considered suitable in previous analyses but have since been attacked by spruce bark beetle, as is discussed above. Again, these lands cannot be suitable because it is at best uncertain when, if ever, there will be trees on them that could be commercially harvested for timber.

3. Steep slopes

The suitability analysis considers land on steep slopes (i.e., greater than 40%)[200] to be suitable, "under the assumption that new technology and approaches would likely make timber sales economically feasible in these areas".[201] Much more important than economic feasibility is complying with NFMA's requirements at 16 U.S.C. 1604(g)(2)(E), which requires the Forest Service to:

> [I]nsure that timber will be harvested from National Forest System lands only where—
> (i) soil, slope, or other watershed conditions will not be irreversibly damaged;
> (ii) there is assurance that such lands can be adequately restocked within five years after harvest;
> (iii) protection is provided for streams, streambanks, shorelines, lakes, wetlands, and other bodies of water from detrimental changes in water temperatures, blockages of water courses, and deposits of sediment, where harvests are likely to seriously and adversely affect water conditions or fish habitat; …[202]

Timber harvesting and associated operations, such as road construction and use, skidding, and piling, can be damaging to any terrain, but are more likely to cause problems on steep slopes, since soil erosion is more likely, as is possible damage to watersheds.

For the GMUG, 18% of timber-suitable lands are in areas with high erosion potential for alternatives A, B, and C, and 12% for alternative D. Lands with moderate erosion potential make up 44% of suitable

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or artificially regenerated into forest cover in the near future (example: clearcut lands)." There is no indication that the non-forested lands included in the lands that may be suitable on the GMUG are expected to have sufficient tree cover in the foreseeable future to be considered suitable for timber production. See also Draft Plan at 227.

[199] Draft Plan at 227.

[200] Of the possibly suitable lands, 64,000 acres have slopes 40-60% and 13,000 acres are on slopes greater than 60%. Draft Plan at 234. FEIS p. 20 says 60,000 suitable acres are on slopes of 40-60% and 11,500 acres are on slopes greater than 60%.

[201] Draft Plan at 231-232.

[202] See also the Planning Rule at 36 CFR 219.11(a)(1)(iv).

lands in alternative A, B, and C, and 43% in alternative D.[203] Lands with high erosion potential should not be suitable for timber production, as the potential for irreversible damage is quite high.

The technology that might allow harvest of steep slopes without irreversible damage may already exist, i.e., aerial (helicopter or balloon) and cable yarding systems. The GMUG apparently envisions use of mixed ground-based and skyline cable harvesting systems for future timber operations in areas with slopes over 40%.[204] But with little previous use on the GMUG, it is not known if use of these systems would prevent permanent damage to soils, watershed, riparian areas, etc. Also, these systems are very expensive for an operator to purchase or rent, and/or to operate.

To make use of such systems economically feasible, large volumes of large-sized, highly valued trees would have to be reliably available to purchasers who wished to use these systems. That will be impossible on the GMUG, which has rather low productivity for timber compared with national forests in the Pacific Northwest and the southeast. This unavailability of the trees most desirable for intensive industrial forestry and the lands on which to cut them will especially be true with the lack of Engelmann spruce (probably the GMUG's most commercially valuable tree species), as is discussed above. Thus, use of systems that could possibly harvest timber on steep slopes without irreversible damage on the GMUG is simply not realistic in the foreseeable future, nor is it desirable, given the possibility of damage to other resources on the GMUG such as wildlife habitat, watershed integrity, and scenery.

While use of these systems would not require skid roads or as much ground vehicle use, operators would still have to mark and cut the trees. Also, removal of trees could destabilize the steep slopes, leading to detrimental erosion, which would be an irreversible impact. So, there would still be some impact to the steep slopes. In any case, before including lands with steep slopes in the lands considered possibly suitable for timber production, the GMUG must demonstrate that the NFMA's requirements to avoid irreversible damage can be met.

4. Lands not economical to harvest

In discussing areas likely to be operable over the life of the revised plan, the Plan notes that areas that were "the least cost efficient" to harvest were in the past excluded from suitable lands.[205] However:

> The current suitability analysis process does not exclude such areas. Therefore, areas identified as suitable for timber production in the draft revised plan may not be economically feasible for timber production during the planning period due to limited markets and operational constraints.[206]

[203] DEIS at 277.

[204] Ibid.

[205] Draft Plan at 232.

[206] Ibid.

The GMUG thus forgoes the use of economic factors in determining which lands are suitable for timber production. But the NFMA requires consideration of economic factors when determining what lands are suitable for timber production:

> In developing land management plans pursuant to this Act, the Secretary shall identify lands within the management area which are not suited for timber production, considering physical, economic, and other pertinent factors, to the extent feasible, as determined by the Secretary.[207]

The GMUG's suitability determination does not comply with this direction. Or at best, it could be said that the GMUG perhaps considered economic factors, but then ignored the results showing some marginal land not economically feasible to commercially harvest.

It is notable that the suitability analysis for the current (1991) plan found over 525,000 acres of conifer and 176,000 acres of aspen unsuitable in the following categories: rock, low productivity, isolated patches, high road cost/access, and other values.[208] It appears the analysis for the current draft plan includes a substantial portion of this acreage as suitable.

5. Clarity regarding suitability of roads

In the timber suitability analysis, roads are removed from lands that could be suitable for timber. However, it isn't clear if maintenance level (ML) 1 roads are removed.[209] They should be removed from possibly suitable lands, as they are system roads, which, by definition, means that they will not have any trees growing on them, or any trees that do grow would be removed. There are likely many miles of ML 1 roads on the GMUG. Failing to exclude them from possibly suitable timber lands distorts the amount of land that could be suitable.

6. Suitability of critical habitat for Gunnison sage-grouse

It is well known that Gunnison sage grouse, like other grouse species, avoid areas with vertical structures, including areas with trees, because such structures provide perches for predators of grouse. Presumably then, designated critical habitat for this Federally threatened species would have very few if any trees, let alone tall ones. However, 46,820 acres (of the GMUG's 175,794 acres of critical habitat for this species) is found suitable for timber production, with 22,682 acres of this is occupied, and 620 acres are within one mile of leks.[210]

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[207] 16 USC 1604(k).

[208] GMUG Timber and Vegetation Management Assessment, at 13.

[209] Draft Plan at 226.

[210] DEIS at 186.

This acreage must be removed from the timber-suitable lands. If it somehow has trees on it that could be cut for timber, any logging-related activity on the occupied acres of critical habitat would disturb the species. If there is a need to remove forest cover from critical habitat or adjacent land to improve grouse habitat,[211] it could be done as a one-time project on unsuitable land, versus if it was suitable, it would be cut and reforested, then cut again in the future, minimizing or eliminating its potential as grouse habitat.

7. Other lands that must not be suitable

There should be no lands deemed suitable for timber along Nate Creek Trail (western edge of Cimarron Ridge Roadless Area) nor along the Dallas Trail (north of Sneffels Range and ***adjacent to*** Mount Sneffels Wilderness and Whitehouse Roadless Area. (A majority of the Whitehouse RA is included in the CORE Act's Whitehouse Addition to the Mount Sneffels Wilderness.)

8. Discrepancies in the plan documents

DEIS Table 159[212] shows two columns each for alternatives A-C years 1-5 and 6-20, with different figures for sawtimber and "other products (aspen)" (rows A1 and A2) in each respective column. Rows B1, E, and G also have different figures. Similarly, Table 159[213] has duplicate columns for Alternative A year 1-5 with slightly different figures. These discrepancies need to be corrected.

D. Summary and conclusion

Currently, timber harvest is not likely to be feasible on many acres found suitable for timber production. Steep slopes (excluded only in alternative D), areas distant from roads appropriate for timber haul, lands containing non-industrial tree species, lands with spruce that are a century or more from having harvestable trees, and even lands without trees are determined to be suitable for timber production.

Finding suitable those lands that cannot be harvested economically, or in some cases, that cannot be harvested at all during the life of the revised plan, leads to artificially inflated calculations for sustained yield limit, projected timber sale quantity (PTSQ), and projected wood sale quality (PWSQ). It misleads the timber industry and the public, as well as present and future agency staff people about how much timber can or should be cut on the GMUG. It could lead to lands with trees actually suitable for timber production being overcut to meet an inflated PTSQ or PWSQ that was based in large part on thousands of acres of lands that cannot be harvested during the life of the plan and likely long afterward.

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[211] Ibid.

[212] At 386.

[213] Id. at 387.

The timber suitability analysis is fatally flawed and must be re-done. Lands on steep slopes and where there is no chance or only a very slight chance of them ever being economical to harvest commercially without irreversible damage must not be found suitable for timber production. Lands affected by spruce bark beetle that have no spruce or only very young spruce must also be excluded from lands found suitable.

Please see additional discussion on timber and related issues in section V.O. below.

V. PROPOSED FOREST-WIDE MANAGEMENT DIRECTION

A. Air quality

Air resources on national forests are important to protect. Not only does the public value the fresh air and sweeping views that national forests provide, but poor air quality can affect forest health, water quality, and fisheries, as well as human health. The goal of air quality management should be to meet human health standards, to achieve visibility goals in areas of high scenic value, and to address and respond to other air quality concerns, such as critical atmospheric pollutant loads and potential atmospheric deposition of acidic chemical compounds.

To protect visibility in the national parks and wildernesses of high scenic value, Congress designated all wildernesses over 5,000 acres and all national parks over 6,000 acres existing as of August 1977 as mandatory Federal Class I areas, making these areas subject to the strict visibility protection requirements in the Clean Air Act.

- Recommendation: **FW-AQ-DC-02** must be a standard. The Clean Air Act requires maintenance of high air quality in class I areas.

The GMUG may be at risk of ozone impacts as the trend in volatile organic compounds, an ozone precursor, are increasing from natural gas development.

> Currently, there are no violations to the National Ambient Air Quality Standards in the GMUG region, based on data available from 2012 through 2019 for seven counties (EPA 2021). Likewise, there are currently no documented violations of ozone standards in the GMUG area, per monitoring by the Colorado Department of Public Health and Environment. However, recent ozone monitoring data in cities in proximity to the GMUG area during the last several years shows that ozone levels remain just below the established health standard of 70 ppb. Further, the Environmental Protection Agency (EPA 2011) models indicate increased cancer rates in the Grand Junction area due to hazardous air pollutant emissions from fossil fuels development and production.[214]

We note that background concentrations of ozone in the adjacent BLM Uncompahgre Field Office (UFO) planning area already hit or exceed the National Ambient Air Quality Standards ("NAAQS"), leaving virtually no room for increased emissions. However, given the increasing development in and around the GMUG planning area, there may already be higher concentrations that should be considered. Of particular concern, background concentrations of ozone in the UFO planning area are already at or exceed the NAAQS, leaving virtually no room for increased emissions. No additional emissions that

[214] DEIS at 233.

contribute to these harmful levels of ozone pollution in the area—namely, nitrogen oxides ("NOX") and volatile organic compounds ("VOCs") – can be allowed. Any increase in emissions of ozone precursors will exacerbate the negative health and other effects of ozone in the region and is almost certain to threaten the area's compliance with the EPA's ozone standard.

While the Draft Plan includes plan components for Air Quality addressing wildland fuel loadings, dust, and prescribed fires, it does not have any plan components addressing nonrenewable energy development to achieve the stated Desired Conditions for Air Quality. It instead relies on:

> "Existing oil and gas, coal, and geothermal leases contain stipulations that were established at the time they were issued."[215]

This despite the acknowledgment that:

> "Except for wildland fire smoke, which would continue to produce the most greenhouse gas emissions, mineral resource activities would continue to produce the second greatest amount of emissions."[216]

- Recommendation: The Air Quality section of the Forest Plan needs components specifically addressing nonrenewable energy development.

We find no plan components requiring the Forest Service, in conducting its own activities, to reduce fossil fuel emissions. The agency engages in activities which emit pollutants on a daily basis, e. g., its use of motor vehicles.

- Recommendation: There should be one or more plan components for reducing greenhouse gas emissions from Forest Service activities, such as motor vehicle use.

B. Key ecosystem characteristics

DC-ECO-02: Table 1 has the "Desired Conditions for Seral and Structural Stage Distribution And Fire Regime By Ecosystem At The Forestwide Scale." Each ecological type here should have a desired percent for structural stage 5, old forests. Note that **DC-ECO-08** states that:

> Old forest…are [sic] well-distributed within all forested ecosystems, and occur in amounts and patch sizes needed to support species that depend on old growth habitat.

[215] Drat Plan at 48.

[216] DEIS at 245.

It thus makes sense to state a desired percentage of old forest for each forested ecosystem on the GMUG, especially with **ECO-08**.

FW-DC-ECO-03 mentions climate refugia for wildlife species. **DC-OBJ-04** requires identification of climate refugia within 10 years, along with monitoring. Requiring identification of climate refugia is good, but such refugia should be mostly identified much earlier than 10 years from the date the plan becomes effective, though such identification should be an ongoing process.

- Recommendation: There should be additional plan components for this important concept, including to identify and monitor refugia on an ongoing basis, and to adjust boundaries as appropriate. As the climate continues to warm, species are likely to move, often to higher elevation, so identification and adequate protection of refugia is very important.

1. Connectivity

The draft plan contains only one desired condition for this important concept (**FW-DC-ECO-05**).

- Recommendation: There should be additional components, including at least one guideline, to protect daily, seasonal, dispersal, climate-induced, and other wildlife movement.

2. Snags and down wood

We appreciate the inclusion of a snag guideline (**GDL-ECO-07).** However, snag-related guideline and guidelines must be accompanied by or redeveloped as plan standards. Retaining snags at sufficient sizes and densities and appropriate distributions cannot be optional. The revised plan should also include additional standards that will better ensure the maintenance of snag conditions sufficient to support forest species. Please provide more information on the specific habitat needs of "snag-dependent wildlife." Listing those species along with the desired condition is very helpful to readers.

The snag size and density targets proposed in the guideline are likely not sufficient to maintain viability for all vulnerable snag-dependent species that occur in the Forest. For instance, Hutto (2006) proposed that Forest Service post-disturbance snag retention guidelines in managed conifer forests were inadequate and recommended targets closer to 80-120 snags per acre (without regard to snag size in d.b.h.).[217] The Forest Service should revise the guideline based on the needs of wildlife species that require large snags. Flammulated owls, for example, are secondary cavity nesters and need a high density of large snags. The species tends to prefer ponderosa pine forests. Given a west-wide decline of large ponderosa pine trees, available snags may be a limiting factor for flammulated owl persistence and recovery, and thus, there should be particular attention paid to snag retention for the species. They

[217] Hutto, R. L. (2006). Toward meaningful snag-management guidelines for postfire salvage logging in North American conifer forests. *Conservation Biology*, *20*(4), 984-993.

prefer snags >25 in d.b.h., and the low threshold may be 2-8 snags/ac at >13 in d.b.h.[218] Nelson et al. (2009) found that a minimum threshold for snag d.b.h. may be 12 in but average at 20 in d.b.h.[219] Management practices must support sufficient snag retention and density for a variety of snag-dependent species, including flammulated owls.[220] Boreal owls, also secondary cavity nesters, tend to occur in mature and older, higher elevation and lodgepole forests with trees of large diameter and high basal area.[221] They need large snags and large trees, including aspen, for nesting: a minimum of nine snags per acre > 13 in in d.b.h. with some snags that must be at least 25 in d.b.h.[222] To enable retention of sufficient snags for boreal owl nesting, projects cannot manage to the minimum. The Draft Plan guideline is also not sufficient for lynx.

Designating one or more snag-dependent species as focal species would help test the assumption inherent in the desired condition that listed snag density targets—forest-wide and within forest PVTs—are sufficient for maintaining ecological integrity. Designating one or more woodpecker species, such as the black-backed woodpecker, and other focal species would help the forest achieve the ecological integrity requirement for terrestrial ecosystems. Woodpeckers are indicators for a range of ecosystem conditions, especially snag densities, sizes, decay rates.[223] Additionally, woodpeckers are keystone species in conifer-dominated forests as primary cavity excavators that benefit a range of secondary cavity-using wildlife.[224]

Guideline, **GDL-ECO-07,** has retention levels for snags and down wood (Table 7).

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[218] Manley, I., P. Ohanjanian, and M-A. Beaucher. (2004). Inventory of Flammulated Owls Breeding in the East Kootenay 2003. October.

[219] Nelson, M. D., Johnson, D. H., Linkhart, B. D., & Miles, P. D. (2009). Flammulated owl (Otus flammeolus) breeding habitat abundance in ponderosa pine forests of the United States. In *In: Rich, TD; Arizmendi, C.; Demarest, D.; Thompson, C., eds. Tundra to tropics: connecting birds, habitats and people. Proceedings of the 4th International Partners in Flight Conference; 2008 February 13-16; McAllen, TX. Partners in Flight: 71-81.* (pp. 71-81).

[220] Hutto, R. L. (2006). Toward meaningful snag-management guidelines for postfire salvage logging in North American conifer forests. *Conservation Biology*, *20*(4), 984-993; Hutto, R. L., Keane, R. E., Sherriff, R. L., Rota, C. T., Eby, L. A., & Saab, V. A. (2016). Toward a more ecologically informed view of severe forest fires. *Ecosphere*, *7*(2), e01255.

[221] Hayward, G. D., Hayward, P. H., & Garton, E. O. (1993). Ecology of boreal owls in the northern Rocky Mountains, USA. *Wildlife Monographs*, 3-59; Hayward, G. D. (1994). Conservation status of boreal owls in the United States. *In: Hayward, GD; Verner, J., tech. editors. Flammulated, boreal, and great gray owls in the United States: A technical conservation assessment. Gen. Tech. Rep. RM-253. Fort Collins, CO: US Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. p. 139-147*, *253*.

[222] Hayward, G.D. 2008. Response of Boreal Owl to Epidemic Mountain Pine Beetle-caused Tree Mortality Under a No-action Alternative.

[223] Hilty, J., and A. Merenlender. 2000. Faunal indicator taxa selection for monitoring ecosystem health. Biological conservation 92(2): 185-197; Haggard, M. and Gaines, W.L., 2001. Effects of stand-replacement fire and salvage logging on a cavity-nesting bird community in eastern Cascades, Washington; Bate, L. J. (2008). *SnagPRO: snag and tree sampling and analysis methods for wildlife* (Vol. 780). US Department of Agriculture, Forest Service, Pacific Northwest Research Station; Nappi, A., Drapeau, P., & Leduc, A. (2015). How important is dead wood for woodpeckers foraging in eastern North American boreal forests?. *Forest Ecology and Management*, *346*, 10-21.

[224] Tarbill, G. L., Manley, P. N., & White, A. M. (2015). Drill, baby, drill: the influence of woodpeckers on post-fire vertebrate communities through cavity excavation. *Journal of Zoology*, *296*(2), 95-103.

- Recommendation: A snag standard should be included in the plan with higher snag densities, as suggested above, and with snag retention including some large trees, at a minimum of 25 in d.b.h.

Historically, national forests throughout the country included "snag standards" in their management plans, and, with good reason, these forest legacies serve a keystone role for wildlife.

This guideline would not apply in the wildland urban interface. As argued in the Fire and Fuels Management section of these comments (see Section V.F. below), the best protection for homes and other infrastructure is to apply treatments to the structures themselves and the lands immediately surrounding them. We believe the WUI should be no more than a few hundred yards around infrastructure that has the permanent presence of people, and that fuel treatments should be concentrated in these areas rather than in backcountry areas well away from infrastructure.

Additionally, snag standards include but not be limited to:

- Recommendation: Closing maintenance roads must be considered as an alternative to hazard tree removal in areas where the snags are below desired levels.

- Recommendation: Limit access for firewood cutting to lessen snag loss in areas where snag desired conditions are not met, and where valuable wildlife habitat should be protected.

- Recommendation: Vegetation management projects must specifically define how the project design will support the disturbance regimes that create habitat conditions for species dependent on snags, logs, burned landscapes, frequent fire, etc. for their persistence.

3. Old forests

A desired condition for old forests, **FW-DC-ECO-08**, briefly describes the values of this eco-type well:

> Old growth contributes to ecosystem integrity, provides habitat for associated species, and contributes to overall ecosystem biodiversity.[225]

- Recommendation: Given these values plus the fact that much of the GMUG's old forest acreages was set back to an early stage by the spruce bark beetle outbreak, additional components are needed to ensure protection and retention of the GMUG's remaining old forests. This should include a guideline to manage some mature forests to become old forests. Notably, the GMUG

[225] Draft Plan at 17.

> has not undertaken a forest-wide assessment of old growth, so it does not know how much old forest remains nor where such forests are located.[226]

We must keep in mind that it is usually easy to create early successional forest stages via vegetation treatment, but impossible to create older stages in the short term. This highlights the importance of retaining most old growth forests and mature forests that can be expected to succeed into old growth. Old growth will be lost over time to fire, insects, disease, windthrow, and old age.

- Recommendation: The desired condition should call for retaining most old forests and mature forests that are likely to succeed into old growth if left alone.

C. Riparian management zones and groundwater dependent ecosystems

Providing clean water is one of the core functions of a National Forest. In the face of climate change, drought, and increased pressures on the GMUG, riparian health is of the utmost concern to our members, supporters, and the diverse communities in which we reside. We appreciate the changes that were made to **FW-GDL-RMGD-11**. These minor changes in how the Forest Service approaches water diversions and impoundments will ensure smooth integration of recreation management with other riparian management and water uses. However, the Forest Service needs to identify additional plan components that protect the health of riparian areas and provide more clear management direction.

The plan must provide for sustainability for riparian areas by providing plan components to maintain or restore function, composition, and connectivity of riparian areas, including components that ensure no management practices will cause detrimental changes in water temperature or chemical composition, blockages of water courses, or deposits of sediment that would adversely affect water conditions or fish habitat in riparian management zones.[227]

The DEIS states:

> In the GMUG, an average of one road crossing occurs per every 3 miles of stream, with a total of 689 miles of roads in riparian management zones. According to watershed ratings based on the watershed condition framework, the North Fork of the Gunnison River and Gunnison Basin Geographic Areas have approximately 75 percent of their watersheds rated as "poor" (Class 3) for the road and trail "proximity to water" attribute. In the Uncompahgre Plateau Geographic Area, almost half of the watersheds were rated as "fair" (Class 2) and about one quarter were rated as "poor" for this attribute.[228]

[226] DEIS at 97.

[227] 36 CFR 219.8(a)(3)

[228] At 112.

Given this sobering assessment, improving current stream crossings is critical.

- Recommendation: Add a new objective to improve or eliminate stream crossings to reduce sedimentation while supporting dynamic hydrologic and geomorphic processes.

- Recommendation: The desired conditions need to be expanded to include the importance of connected and functioning riparian areas, i.e., that they are not fragmented or constrained, and that there are natural linkages. It is important to describe how the GMUG wants to see these areas and the benefits they provide.

- Recommendation: Add to desired conditions language that healthy riparian areas support dynamic hydrologic and geomorphic processes.

- Recommendation: Objective **FW-OBJ-RMGD-06**: The GMUG should consider shorter time periods for when they will complete restoration (10 years is a long time), focusing on shorter timeframes to improve accountability and ensure projects are happening on a regular basis.

- Recommendation: Revise the term "meadow" in Objective **FW-OBJ-RMGD-06** to "wet meadow".

- Recommendation: Change **FW-STND-RMGD-07** to include all wetlands and fens, not just those that are larger than one-quarter acre. It is likely that a considerable portion of the wetlands on the GMUG are smaller than one quarter acre, even within the 100-foot minimum RMZ.

- Recommendation: Change **FW-RMGD-STND-08** to "Management activities and new structures must maintain or restore the connectivity, composition, function, and structure of riparian and wetland areas in the long-term, as consistent with the Watershed Conservation Practices Handbook and its exceptions (FSH 2509.25 and FS 990A or equivalent direction). Guideline **RMGD-GDL-09** says that new structures <u>should</u> maintain or restore the functions stated in the above-quoted standard for "new diversion and impoundments." We see no reason why riparian and wetland areas should have less protection from for new structures and impoundments than from management activities. Building structures is in essence a management activity. Combine these two plan components into one standard.

- Recommendation: **STND-RMGD-09** would prohibit clearcutting in riparian management zones. Additional restrictions are needed on logging in RMZs. See discussion of need for additional woody debris in riparian management zones below.

- Recommendation: RMZs should also explicitly include ephemeral streams, and the buffer should apply to ephemeral and intermittent surface water in addition to permanent waters. Ephemeral streams can be particularly vulnerable to erosion events.

- Recommendation: An additional Standard should be added to Locatable Minerals that prohibits mining activities within RMZs, including near ephemeral and intermittent streams. Mining for common variety (salable) minerals or mineral materials) is totally within the Forest Service's control, so mines should never be located in RMZs.

- Recommendation: **FW-GDL-RMGD-12** should be a standard. Storage of fuels and other toxic chemicals and refueling and maintenance of equipment should never occur in RMZs.

- Recommendation: Develop a Management Approach that considers having nature-based solutions, for example beaver dam analogues (BDAs) and one rock dams, as a principal strategy to utilize. There is already a tremendous of amount of BDA interest and implementation on the GMUG, and solutions like this (and others) should be considered in the suite of principal strategies employed. Wet meadow process-based restoration approaches, including one rock dams and similar water attenuation structures should be included as "principal strategy" to address watershed restoration.

There are woody debris standards for terrestrial habitat and timber operations, but not for the maintenance of aquatic habitat. In the *REVISED DRAFT Forest Plan Assessments: Watersheds, Water, and Soil Resources*, there is an assessment for aquatic habitat and large woody debris.[229] Out of 231 watersheds, only 53, or 23%, are assessed as good for this metric; 110 are noted to be in fair condition, and 68 to be in poor condition. Thus, 77% of watersheds are either in fair or poor condition for large woody debris recruitment in aquatic habitat. Clearly, large woody debris recruitment for aquatic habitat should be a management concern on the GMUG.

- Recommendation: Woody debris is essential for aquatic habitat. Riparian areas and RMZs should be managed to facilitate woody debris recruitment and retention. The GMUG should develop desired conditions and recommended standards for woody debris in aquatic ecosystems.

D. Aquatic ecosystems

- Recommendation: **STND-AQTC-05**: "temporary" structures in place for up to a year should not be exempted from this standard, which requires accommodation of flood flows and organism passage. Allowing this standard to be ignored for a year could delay or thwart recovery of fish populations.

[229] At 9.

- Recommendation: **GDL-SPEC-06**, referenced in AQTC-06, states that new infrastructure "should maintain, improve, or at a minimum reduce impacts to habitat connectivity;"[230] emphasis added. This should be a standard.

- Recommendation: **GDL-AQTC-06**, requiring screens on water structures to prevent entrapment of aquatic species, must be a standard.

- Recommendation: Given the importance of beavers to the aquatic ecosystem, **GDL-AQTC-08** must be a standard.

- Recommendation: Thank you for adding **FW-OBJ-AQTC-03**, which calls for identifying areas critical to conservation of native species within 5 years and incorporating monitoring and conservation measures to ensure long-term persistence of at-risk species. However, this should not take 5 years to accomplish since this in known information. CPW and the Forest have inventories of aquatic species occurrence, especially for at-risk species such as boreal toad and Colorado River cutthroat trout.

E. Invasive species

- Recommendation: This section should have a standard requiring that survey and monitoring for invasive species be required for all ground-disturbing activities, both before the activity commences and for at least two full growing seasons following completion.

- Recommendation: Generally, aerial spraying of herbicides should be prohibited. It is impossible to precisely target spraying from an aircraft, thus there will always be drift into non-target areas due to wind and the air current created by the aircraft. This can be harmful to native vegetation, including at-risk plants.

- Recommendation: 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, and/or the other methods would have unacceptable impacts compared to chemical use."

- Recommendation: **STND-IVSP-04** is a good measure, requiring contracts and permits to "include standard operating procedures to prevent the introduction and/**or** spread of invasive plant and aquatic nuisance species". However, the GMUG's interpretation of this is troubling: "This standard moves the responsibility for noxious weed inventory, treatment, and monitoring to the

[230] Draft Plan at 27.

contractor or permittee."[231] In other words, the contractor or permittee would supervise him/herself with regard to minimizing weed introduction and spread. The statement in the DEIS quoted above must be removed, and language should be added to this standard to clarify that the Forest Service will enforce these contract or permit provisions.

- Recommendation: **GDL-FFM-03** should be reworded to require use of minimum impact suppression tactics where sensitive resources *may* be present. Also, these tactics should be described here, or with a link to an existing description.

- Recommendation: **GDL-IVSP-06** should be a standard. Reseeding in the first year after disturbance (or at the optimal time for optimal native revegetation per site-specific characteristics) decreases the chances that non-native plant species will become established.

F. Fire and fuels management

Fuel treatments can actually increase the risk of fire in a treated area. Typical treatments involve thinning, where the density of tree stands is reduced by logging. This produces a sizable amount of small-diameter, easily ignitable fuels as trees are limbed and bucked to length. Reduction of tree density increases sunlight hitting the forest floor, which means that any fuel dries out faster without the shade it once had and is thus more easily ignited. Opening the forest also exposes the area to more wind, which is a key element in the spread of wildfires.

To be effective, fuel treatment has to be fairly intensive to compensate for the increased sunlight and wind that result from treatment and make fuels more ignitable. This intensive treatment would include removing most slash from the treated site. Slash is typically machine piled, which requires numerous passes by heavy equipment, leading to possibly detrimental soil compaction. Burning piles may sterilize the soils beneath them by volatilizing nutrients and killing microorganisms. Depending on how thoroughly slash is cleaned up, there may be insufficient down dead wood to maintain long-term soil productivity.

It is thus not desirable to apply intensive fuel management over large areas due to the likely impacts, nor is it practical considering the cost and limited availability of workers to perform the treatments. Thus, intensive fuel reduction should be concentrated in selected areas within the wildland-urban interface (WUI) where it would do the most good in protecting homes and other infrastructure.

Under the revised GMUG plan, the WUI would be very large: 666,477 acres, which is 34% of the GMUG NF.[232] The definition of WUI in the plan is:

[231] DEIS at 394.

[232] DEIS at 102, 103.

> The line, area, or zone where structures and other human developments meet or intermingle with undeveloped wildland or vegetation fuels. Describes an area within or adjacent to private and public property where mitigation actions can prevent damage or loss from wildfire.[233]

Another WUI definition is found in *A Report to the Council of Western State Foresters--Fire in the West-The Wildland/Urban Interface Fire Problem*, dated September 18, 2000:

> the urban wildland interface community exists where humans and their development meet or intermix with wildland fuel.[234]

An additional definition therein states: "[t]he Interface Community exists where structures directly abut wildland fuels".[235]

The Healthy Forest Restoration Act provides the following definition:

> The term ''wildland urban interface'' means—
> (A) an area within or adjacent to an at-risk community that is identified in recommendations to the Secretary in a community wildfire protection plan; or
> (B) in the case of any area for which a community wildfire protection plan is not in effect—
> (i) an area extending 1⁄2-mile from the boundary of an at-risk community;
> (ii) an area within 11⁄2 miles of the boundary of an at-risk community, including any land that—
> (I) has a sustained steep slope that creates the potential for wildfire behavior endangering the at-risk community;
> (II) has a geographic feature that aids in creating an effective fire break, such as a road or ridge top; or
> (III) is in condition class 3, as documented by the Secretary in the project-specific environmental analysis; and
> (iii) an area that is adjacent to an evacuation route for an at-risk community that the Secretary determines, in cooperation with the at-risk community, requires hazardous fuel reduction to provide safer evacuation from the at-risk community.[236]

If any of these definitions were applied to the GMUG, it is highly unlikely that anywhere near 666,000 acres would be in the WUI. Another indication that the GMUG's WUI is too large is that it contains

[233] Draft Plan at 169.

[234] 66 Fed Reg. 752, 753, January 4, 2001.

[235] Id. at 753.

[236] 16 USC 6511.

438,067 acres of mapped lynx habitat.[237] Lynx habitat is mostly in spruce-fir and spruce-fir-aspen,[238] which in general is the furthest away from urban areas and communities at risk. In calculating the WUI, the GMUG applies a "one-mile buffer around urban interface areas."[239] This seems excessive, as it is unlikely that all at-risk communities in the spruce-fir zone would require a buffer this large.

"[A]llowing management flexibility to meet fuels reduction objectives in wildland-urban interface areas"[240] may be desirable, but one-third of the GMUG is an excessively large area to be considered in the WUI. About 200,000 acres of the WUI could be affected by fuel treatments over the next two decades.[241]

Research by Jack Cohen, a now-retired Forest Service researcher, shows that even pure wood structures will not ignite from flame at a distance of more than about 30 meters, and probably less.[242] Treating backcountry areas, i.e., those lands not adjacent to residences and other infrastructure, is not likely to be effective in reducing home losses. The chance of a fire encountering an area that has just been treated to reduce fuels is low.[243]

It is important to recognize that fuel treatments are only effective for a short time, after which fuels reappear in the form of grasses, forbs, shrubs, and small trees. Thus, to maintain fuel treatment effectiveness, areas would have to be re-treated regularly. This intensive treatment cannot be applied to a large acreage, given limits on money and personnel availability. Thus, the GMUG plan should have an objective to prioritize areas in the WUI most in need of treatment to protect resources, where treatments can be implemented and re-applied when needed to maintain resiliency to wildfire. This will limit treatments to the most important areas to be treated, and to a number of acres that could be treated within the GMUG's budget. It would also limit the acreage on which the guideline for retaining

[237] DEIS at 166.

[238] Id. at 155.

[239] Ibid.

[240] DEIS at 103.

[241] Ibid. Objective FW-FFM-OBJ-02 calls for treating "an average of at least 110,000 acres in the first decade of plan implementation, and 150,000 acres in the second decade" via "the use of wildland fire (planned and unplanned) and mechanical methods (e.g., thinning of ladder fuels, mastication, etc.)". Draft Plan at 25. It is not clear what "average" refers to, as it is a decadal, not an annual, quantity stated here. It is also not clear that the GMUG could treat this much acreage within its expected budget over the next 20 years.

[242] See Cohen, J. D. (1999). Reducing the wildland fire threat to homes: where and how much?. In *In: Gonzales-Caban, Armando; Omi, Philip N., technical coordinators. Proceedings of the Symposium on Fire Economics, Planning, and Policy: Bottom Lines; 1999 April 5-9. San Diego, CA. Gen. Tech. Rep. PSW-GTR-173. Albany, CA: US Department of Agriculture, Forest Service, Pacific Southwest Research Station. p. 189-195*.

[243] See Rhodes, J. J., & Baker, W. L. (2008). Fire probability, fuel treatment effectiveness and ecological tradeoffs in western US public forests. *The Open Forest Science Journal*, *1*(1; Barnett, K., Parks, S. A., Miller, C., & Naughton, H. T. (2016). Beyond fuel treatment effectiveness: characterizing interactions between fire and treatments in the US. *Forests*, *7*(10), 237.

snags and down wood would not apply[244] and also limit the areas where intensive treatments would have adverse impacts like soil compaction and degraded or eliminated wildlife habitat.

G. Native species diversity

NFMA requires the Forest Service to develop planning regulations that shall "provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives" (i.e., the "diversity requirement").[245] The preamble of the Planning Rule states,

> The rule contains a strong emphasis on protecting and enhancing water resources, restoring land and water ecosystems, and providing ecological conditions to support the diversity of plant and animal communities, while providing for ecosystem services and multiple uses.[246]

Additionally, management plans must:

> Contribute to ecological, social, and economic sustainability by ensuring that all plans will be responsive and can adapt to issues such as the challenges of climate change; the need for forest restoration and conservation, watershed protection, and species conservation; and the sustainable use of public lands to support vibrant communities.[247]

These passages clearly demonstrate that the Planning Rule affirms that wildlife and habitat protection must be given the same priority as forest uses. The Rule requirements in 36 CFR 219.8 and 36 CFR 219.9 make this principle a mandate. The Rule requires forest plans to have plan components to maintain or restore the integrity of the terrestrial and aquatic ecosystems in the plan area and the diversity of ecosystems and habitat types throughout the plan area.[248] Essentially, this requires forest plans to maintain or restore the variety of ecosystems and habitat types found on national forests and grasslands (e.g., conifer forests, wetlands, grasslands), as well as the condition of the ecosystems themselves.

1. Federally threatened and endangered species

There are five species listed under the Endangered Species Act (ESA) document by the Forest Service that occur within the plan area. These include the endangered Uncompahgre fritillary butterfly (*Boloria acrocnema*), threatened Gunnison sage-grouse (*Centrocercus minimus*), threatened Canada lynx (*Lynx*

[244] See discussion in forest-wide plan components under "Snags and Down Wood" concerning GDL-ECO-07.

[245] 16 USC 1604(g)(3)(B).

[246] 77 Fed. Reg. 21163 (April 9, 2012).

[247] 77 Fed. Reg. 21164 (April 9, 2012).

[248] 36 CFR 219.8(a), 219.9(a)(1), & 219.9(a)(2).

canadensis), threatened DeBeque phacelia (*Phacelia submutica*), threatened Colorado hookless cactus (*Sclerocactus glaucus*).

In accordance with 36 CFR 219.9(b)(1), plan components must provide the "ecological conditions necessary to: contribute to the recovery of federally listed threatened and endangered species … ." This means developing desired conditions toward which management actions are achieving that can be measured through monitoring. The desired conditions must include all of the necessary ecological conditions to enable each species listed under the ESA to contribute to recovery. Additionally, providing the necessary ecological conditions to contribute to recovery means including standards and guidelines to mitigate all manageable threats to these species from uses of the Forest.

A national forest or grassland management plan revision process must be integrated with the procedures outlined in NEPA, and an EIS must be prepared as part of the process.[249] Management plans propose a program of projects and activities over the life of the plan, which is supposed to be no more than 15 years.[250] These projects and activities will have effects on at-risk species. In order to: contribute to the recovery of threatened and endangered species, conserve species that are proposed or become candidates for listing under the ESA, and maintain the viability of species of conservation concern, a plan must have significant beneficial effects and minimize adverse effects to the greatest extent possible. Adverse impacts of forest uses on at-risk species addressed by the plan must also be analyzed and disclosed in the EIS. The effects analysis must be more than a subjective, and comparative estimation—it requires in-depth analyses of significant issues, including species viability requirements.

Note that under the CEQ Regulations governing application of NEPA, agencies must, "to the fullest extent possible":

> Use all practicable means, consistent with the requirements of the Act and other essential considerations of national policy, to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon the quality of the human environment.[251]

Nowhere is this mandate more important than with at-risk species, for which impacts from human uses can drive them closer to extinction, where recovery might become impossible. A full disclosure of the impacts on these species is critical to ensuring that measures can be applied and management can be directed to facilitate their maintenance and recovery across the landscape.

Thus, the EIS must properly characterize what the plan components direct the Forest to do. The plan components comprise the "action" that must be analyzed. The analysis must detail how specific plan

[249] 36 CFR 219.5(a)(2)(i).

[250] NFMA requires that plans be "revised...from time to time when the Secretary finds that conditions in a unit have significantly changed, but at least every fifteen years." 16 USC 1604(f)(5).

[251] 40 CFR 1500.2(f) (1978).

components affect each ecological condition needed by each at-risk species. This requires an evaluation of both plan components that are directly related to at-risk species and the ecological conditions upon which they depend, and also plan components of the multiple uses that may adversely affect the species and/or the ecological conditions they depend on, such as vegetation management, livestock grazing, recreation, roads and other infrastructure, and mining. The FEIS for the proposed GMUG Plan completely fails in this regard. It is impossible to see how the GMUG can meet its NEPA obligations without producing an EIS that analyzes the effects of the desired conditions, objectives, standards, and guidelines proposed in the plan.

It is important that the Forest grasp the relationship between NEPA procedures and NFMA requirements. NEPA requires application of procedures for analyzing potential effects. However, NFMA requires that those effects meet a substantive threshold, and that determination should be based on documented analysis found in the EIS. The Record of Decision must address compliance with the viability requirement.[252] It is not sufficient to state that a plan meets this requirement because it simply analyzed effects. The EIS must explain how the effects disclosed within the EIS demonstrate contributions to recovery and viability. While this analysis may be contained in a NEPA document, it is being used to demonstrate compliance with a substantive legal requirement in NFMA, and therefore requires rigor and certainty that go beyond the disclosure purpose of NEPA. The planning documents must do more than just list or restate the plan components that "support" a conclusion; they must present a reasoned rationale for viability based on reference to specific plan components. Unfortunately, the GMUG has not met this bar.

The final revised land management plan and FEIS must comply with the ESA. ESA section 7(a)(2) requires the Forest Service to ensure that its actions are not “likely to jeopardize the continued existence” of any listed species or “result in the destruction or adverse modification of” critical habitat.[253] To ensure compliance with these prohibitions, the Forest Service must engage in a consultation with FWS upon proposing to authorize, fund, or carry out any “agency action” that “may affect” a species or its critical habitat.[254]

Section 7(a)(1) of the ESA requires that all federal agencies–including the Forest Service– “utilize their authorities in furtherance of the purposes [of the ESA]” … “by carrying out programs for the conservation of endangered species and threatened species listed” under the ESA.[255] The ESA defines “conservation” to mean “the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this [Act] are no longer necessary.”[256] In this sense, “conservation” and “recovery” are essentially

[252] 36 CFR 219.14(a)(2).

[253] 16 USC 1536(a)(2).

[254] Id., 50 CFR 402.14(a).

[255] 16 USC 1536(a)(1).

[256] 16 USC 1532(3).

synonymous. Section 7(a)(1) imposes an affirmative obligation on the Forest Service to not just avoid jeopardy to listed species but to use its resources to affirmatively provide for their recovery. The GMUG should explain how its revised forest plan furthers species conservation and recovery under the ESA, and how it is using Forest Plan revision to implement its affirmative obligations under Section 7(a)(1).

Additionally, Section 7(a)(1) of the ESA encourages programmatic review–outside of and in addition to the Section 7(a)(2) consultation process–of "Federal agency planning and program management documents" such as Forest Plan revisions. *See* Endangered Species Consultation Handbook, U.S. Fish and Wildlife Service/National Marine Fisheries Service, March 1998 at 5-1. Such a review would provide the Forest Service with "concurrence on, or recommendations for, a blueprint for conservation activities including section 7(a)(2) consultation, section 10 permits, assistance in developing and implementing recovery plans, and assistance in candidate monitoring and management programs." *Id*. Given the importance of the GMUG to many ESA-listed species, this kind of programmatic review is vital, and will ensure that the GMUG is not just preventing species from going extinct but is affirmatively contributing towards their recovery. We ask that the GMUG initiate this programmatic review process with the U.S. Fish and Wildlife Service and incorporate its results into any final revised Forest Plan.

a. Canada lynx

The Canada lynx (lynx) population in the Southern Rocky Mountains is in trouble. In 2000, the USFWS listed the species as threatened as part of the "distinct population segment" of lynx in the lower 48 states.[257] The Southern Rockies' lynx population makes up one of six lynx "geographic units" identified by USFWS within the lower 48 states.[258] The Southern Rockies' Geographic Unit is the southern-most unit and is isolated from other lynx populations. The USFWS, in its 2017 *Species Status Assessment for the Canada lynx (Lynx canadensis) Contiguous United States Distinct Population Segment* (2017 Lynx SSA) predicted the population may be extirpated by the end of the century and possibly by 2050.[259] The Southern Rockies' Geographic Unit's lynx largely depend on national forests within the Rocky Mountain Region.

i. Background

In the Region 2 forests, lynx primarily utilize high-elevation areas dominated by moist Engelmann spruce and subalpine fir forest (spruce-fir forest *or* spruce-fir), though they use aspen and lodgepole but to a lesser extent.[260] Lynx depend on snowshoe hare (*Lepus americanus*) for food. Snowshoe hares prefer the woody understory (dense horizontal cover) spruce-fir forest provides because this habitat offers hiding

[257] 65 Fed. Reg. 16052 (March 24, 2000).

[258] U.S. Fish and Wildlife Service. (2017). U.S. Fish and Wildlife Service. (2017). Species Status Assessment (SSA) for the Canada lynx (*Lynx canadensis*) Contiguous United States Distinct Population Segment. Version 1.0. Regions 1, 3, 5 and 6. Lakewood, Colorado. October at 2.

[259] U.S. Fish and Wildlife Service. (2017). SSA., Ibid., at 161, 227.

[260] Ivan, J., M. Rice, T. Shenk, D. Theobald, and E. Odell. (2012). Predictive Map of Canada Lynx Habitat Use in Colorado.

cover, and because hares eat twigs and tree bark. As everyone who observes and uses the Southern Rockies national forests knows, a spruce bark beetle epidemic that began in the early 2000s and continues to the present day has resulted in mass spruce tree mortality, especially in the San Juan Mountain—the core lynx habitat in the region.

Given the precarious state of the Southern Rockies' lynx population, it is imperative that the Rocky Mountain Region's national forests do everything they can to recover this fragile population by conserving the cats' habitat—especially by restricting logging in essential and recoverable habitat. The GMUG plan revision process provides an excellent opportunity to increase protections for the lynx and the species' habitat. The Forest includes a significant amount of lynx habitat. Yet, the Draft Plan has failed to increase habitat protections for the lynx. We appreciate that the Forest recognized Alternative A, the existing plan, is no longer a reasonable alternative for lynx and developed new plan components with the intent of adjusting to the ongoing spruce bark beetle epidemic. However, new standards would have the effect of allowing, in the best remaining habitat for the lynx, an increase in vegetation management activities, including salvage logging, which research has found to be detrimental to snowshoe hares and lynx. We provide more details about this below.

The Draft Plan cannot be considered a recovery program as required by Section 7(a)(1) of the ESA or a plan that provides for the ecological conditions necessary to recover the lynx as required by 36 C.F.R. 219.9(b)(1). We provide some relevant background below to help describe the problem. Then, we demonstrate why none of the action alternatives meet these legal obligations by assessing the effects of the new and existing plan components on lynx and lynx habitat.

(a) Current plan direction: the Southern Rockies Lynx Amendment

In 2008, the Rocky Mountain Region's national forests adopted the Southern Rockies Lynx Amendment (SRLA) into their land and resource management plan to protect lynx and snowshoe hare habitat, primarily by placing restrictions on forest uses such as logging, recreation, and fragmentation that can negatively impact this habitat.[261] Of particular importance are the plan components that guide timber harvest and other vegetation management activities, i.e., the "VEG" standards and guidelines. Lynx avoid forest openings created by harvesting trees, can be disturbed by logging activities, and can be negatively impacted by the roads constructed for logging. The SRLA included a standard (Standard VEG S6) that significantly restricted logging in what was at the time, 2008, considered the "best of the best" lynx habitat on the Forest. The SRLA[262] defined this best of the best habitat:

> Multi-story mature or late successional forest – This stage is similar to the old multistory structural stage (see below). However, trees are generally not as old, and decaying trees may be somewhat less abundant. (Definition 29)

[261] See DEIS at 163.

[262] USDA Forest Service, Rocky Mountain Region. 2008. Southern Rockies Lynx Amendment Record of Decision. October.

> Old multistory structural stage – Many age classes and vegetation layers mark the old forest, multistoried stage. It usually contains large old trees. Decaying fallen trees may be present that leave a discontinuous overstory canopy. On cold or moist sites without frequent fires or other disturbance, multi-layer stands with large trees in the uppermost layer develop. (Definition 31)
>
> Winter snowshoe hare habitat – Winter snowshoe hare habitat consists of places where young trees or shrubs grow densely – thousands of woody stems per acre – and tall enough to protrude above the snow during winter, so snowshoe hare can browse on the bark and small twigs (LCAS). Winter snowshoe hare habitat develops primarily in the stand initiation, understory reinitiation and old forest multistoried structural stages. (Definition 52)

These "VEG S6 stands," as they were called after the adoption of SRLA, are one type of suitable lynx habitat because they are optimal for snowshoe hares. The VEG S6 stands receive the highest level of protection with exceptions for cutting only around human infrastructure, for research, for incidental removal during salvage operations, or when tree harvest is specifically employed for uneven-aged management to result in multi-story attributes. The Rocky Mountain Region's national forests have a cap on cutting VEG S6 stands to not more than 0.5% per forest.[263]

(b) The spruce bark beetle epidemic

When the Forest Service began implementing the SRLA in 2008, the aggregate area of spruce-fir forest affected by spruce bark beetle outbreaks occurring across the southwestern regions of Colorado started a sharp, continuous trend upward for about six years.[264] Cumulative totals from annual aerial surveys found about 370,000 acres of GMUG spruce-fir forests have been affected by spruce beetle kill between 1996 and 2020.[265] Considering the GMUG planning Assessment calculated the forests contain about 960,331 acres of the spruce-fir and spruce-fir-aspen ecosystem types, the amount of forest, and lynx habitat affected, possibly 40%, is significant.[266] The spruce bark beetle epidemic began waning around 2014,[267] but it's not yet over in 2021. The widespread beetle-induced tree mortality substantially changed spruce-fir forest structure and considerably diminished, the Standard "VEG S6 stands," the best of the best pre-beetle habitat.

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[263] Southern Rockies Lynx Amendment, SRLA Implementation Guide: Vegetation Management. 2008; US Fish and Wildlife Service. Biological Opinion for the Southern Rocky Lynx Amendment. July 25, 2009.

[264] USDA Forest Service. Undated. Aerial Survey Highlights for Colorado 2019.

[265] USDA Forest Service. 2019. R2 Forest Health Protection. USDA Forest Service, Rocky Mountain Region; USDA Forest Service, 2020. Forest Insect and Disease Conditions in the Rocky Mountain Region, 2019. USDA Forest Service, Rocky Mountain Region. January. USDA Forest Service, 2021. Forest Insect and Disease Conditions in the Rocky Mountain Region, 2020. USDA Forest Service, Rocky Mountain Region. January.

[266] GMUG. 2018. REVISED DRAFT Forest Plan Assessments: Terrestrial Ecosystems. March.

[267] USDA Forest Service. Undated. Aerial Survey Highlights for Colorado 2019.

(c) Lessons from the Rio Grande National Forest plan revision process

The spruce beetle epidemic triggered the Rio Grande National Forest (RGNF), adjacent to the GMUG, to revise its land management plan due to the substantially changed forest conditions. The RGNF was among the first to revise its plan under the 2012 Planning Rule requirements. To the RGNF's credit, just before kicking off the revision process in 2014, the Forest Service began a study to assess how the massive changed ecological condition was affecting lynx occupancy and movement in the RGNF. By that time, about 85% of the mature spruce trees across the Forest were dead.[268] RGNF biologists and timber staff had recognized identifying and protecting lynx habitat when developing salvaging logging projects and offering timber sales was no longer possible under the existing set of SRLA "VEG" standards and guidelines. Dr. John Squires, one of the most respected lynx biologists in North America from the Forest Service's Rocky Mountain Research Station led the study (the "Squires study") that included biologists from the RGNF, Colorado Parks and Wildlife, and universities. Squires' 2018 study update,[269] used to develop the GMUG's Draft Plan, explained the purpose of the study:

> There is a strong desire by the US Forest Service and industry to salvage beetle-killed trees across broad landscapes in southern Colorado. However, the consequence of timber salvage to lynx or even what constitutes suitable lynx habitat in beetle-impacted forests is entirely unknown. Biologists are therefore in the untenable position of being required to evaluate the impact of timber salvage to lynx without a scientific basis to support their decisions. ESA requires that agencies consider the impact of timber salvage to lynx as federally listed species.
>
> The key questions that challenge lynx management in spruce-beetle impacted forest include:
>
> 1. How do spruce-beetle outbreaks affect the suitability of lynx habitat within the core use area of southern Colorado?
> 2. What forest structures and compositions are used by lynx in landscapes heavily influenced by spruce-beetle outbreaks?
> 3. How does structure and composition of insect impacted forests affect the relative density of snowshoe hares?
> 4. What areas and types of forest structure in the post-beetle landscape on the Rio Grande National Forest are most conducive to landscape restoration activities, including timber salvage, while minimizing potential impacts to lynx and snowshoe hare populations?
>
> Our overarching research goal is to both advance our ecological understandings of how Canada lynx respond to insect-related disturbance as well as provide land managers the necessary information to develop on-the-ground silviculture/forest management that addresses timber salvage and lynx conservation at multiple spatial scales (landscape- and stand-level).

[268] Squires, J. 2018. Habitat Relationships of Canada Lynx in Spruce Bark Beetle-Impacted Forests Analysis Summary. March 19.

[269] Ibid., at 2.

The Squires Study yielded valuable information. Researchers found that lynx within the RGNF were still largely using the same habitat area more than other areas in the forest despite nearly 100% spruce tree mortality in some areas. Though the structural forest habitat conditions had changed significantly, these areas contain structural elements that now make them the "best of the best" habitat in the "post-beetle" Forest.

The RGNF understood the need for its revised plan to include plan components that accounted for the changed habitat conditions to protect the remaining lynx occupying the forest and the existing best habitat, particularly from salvage logging. The final revised plan includes a new standard—Standard VEG S7—intended to serve this purpose. Yet, while the new Standard VEG S7 was to an extent informed by the science, it resulted in allowing an increase in salvage logging in the best of the best habitat available. As stated above, standard VEG S6 allows 0.5% entry. However, standard VEG S7 allows 7%. The 7% may not seem like a significant amount, yet this is a 1,400% increase from the VEG S6 level that VEG S7 allows in the RGNF and GMUG or any Southern Rockies forest that would adopt standard VEG S7 . Standard VEG S7 is not a sufficient mechanism to safeguard the best lynx habitat. Unfortunately, the GMUG has incorporated the same standard VEG S7 into alternatives B and C of its Draft Plan.

The deficiency of Standard VEG S7 is especially apparent considering alarming information about the state of the Southern Rockies' population the Squires Study brought to light. The peer reviewed, published paper presenting the study results stated,

> From 2015 to 2017, we captured 10 adult (> 3 years old) Canada lynx (6 males and 4 females) in box traps (Kolbe et al., 2003) that were set on travel paths identified by snow tracks during winter months (December to March); traps were checked every 24 h. Our sample of Canada lynx included most individuals present on the study area, based on our field observations.[270] [emphasis added]

In a presentation for an RGNF meeting that provided an update on the study in 2018, one of the "take-home" messages was that "… the species in Colorado is currently in the "emergency room'."[271] Though the statement also included that, "[l]ynx habitat in beetle-kill will improve over time …".[272] However, this raises the question about the current health of the Southern Rockies' population of Canada lynx, especially when the population is experiencing negative impacts due to a rapidly warming climate.

[270] Squires, J. R., Holbrook, J. D., Olson, L. E., Ivan, J. S., Ghormley, R. W., & Lawrence, R. L. (2020). A specialized forest carnivore navigates landscape-level disturbance: Canada lynx in spruce-beetle impacted forests. *Forest Ecology and Management*, *475*, 118400 at 3.

[271] Squires, J., J. Holbrook, J. Ivan, R. Lawrence, and R. Ghormley. (2018). Lynx Habitat in Beetle-Impacted Forests. Presentation. May 17 at 42.

[272] Ibid., at 42.

If, as Squires et al. (2020)[273] suggested, only a total of 10 individuals and perhaps a few more lynx are residing in the RGNF, this figure does not align with the state population estimate CPW has been using. CPW provided the following estimate to USFWS for the Service's 2017 SSA, which stated, "The current size of the resident lynx population in Colorado is unknown but thought to number between 100 and 250."[274] CPW repeated that figure in a 2019 press statement that says, "the lynx population is stable in the core area of the San Juan Mountains at about 150-250."[275]

The GMUG can and should play a significant role in lynx recovery, especially since the GMUG is adjacent to the Rio Grande and San Juan National Forest, with a core lynx population. The USFWS reported the GMUG had over 600,000 acres more of lynx habitat than the RGNF in 2008, including more winter habitat.[276] The GMUG also has more lodgepole pine forest than the RGNG, which can also provide lynx habitat, though it may not be used as much in the Southern Rockies as elsewhere.

Despite the Squires Study finding only 10 lynx on the RGNF, the researchers also located den sites and seven kittens during the study within the beetle-impacted area. And, importantly, the Squires Study revealed that lynx continued to occupy and reproduce in the forest despite the spruce bark beetle impact. Thus, there is hope for the lynx population in the Southern Rockies. The Rocky Mountain Region's national forests are obligated to do what they can to protect the species' remaining habitat. The GMUG has a chance to do just that, but the Draft Plan does not reflect this need.

ii. Ecological conditions required for Canada lynx recovery

The DEIS references Ruediger et al. (2000), Ruggiero et al. (2000), the Interagency Lynx Biology Team (2013) Canada Lynx Conservation Assessment and Strategy (LCAS), other science, and local information as providing the best available scientific information for the effects analysis. Much of the information in the 2013 LCAS is still relevant (with the big caveat that it didn't fully account for Colorado's spruce bark beetle epidemic). Along with the characterization of the structural, compositional, and functional conditions that comprise lynx habitat, the LCAS also identified threats to the species and habitat, including:

- climate change
- vegetation management
- habitat fragmentation
- incidental trapping
- recreation

[273] Squires et al. (2020).

[274] U.S. Fish and Wildlife Service. (2017). SSA at 45.

[275] Colorado Parks and Wildlife. 2019. Lynx reintroduced 20 years ago in Colorado; CPW monitoring shows stable population. October 22.

[276] US Fish and Wildlife Service. 2009 Biological Opinion for the Southern Rocky Lynx Amendment. July 25, Table 1 at 33.

- minerals and energy exploration and development
- illegal shooting
- forest and backcountry roads and trails
- livestock grazing[277]

Before beetle-killed trees dominated the spruce-fir forests of Southern Rockies and the Squires Study helped assess conditions preferred by lynx just following the beetle epidemic's peak, the best available scientific information identified the following key ecological conditions necessary for lynx persistence, based on a mix of information from Colorado and elsewhere across the lynx range.

Deep, soft snow. Lynx prefer deep, soft snow,[278] which makes then inclined to inhabit moist, high elevation areas in Colorado.[279] Their huge paws act like snowshoes, and this gives them a competitive advantage over other predators such as bobcats and mountain lions who avoid deep snow because their paws sink down into it.[280]

Sufficient prey base. Lynx depend on snowshoe hare for food. The 2013 Canada Lynx Assessment and Strategy reported that lynx habitat tends to have at least moderate densities of snowshoe hare.[281] Reported in Ivan et al. (2014, citing Shenk 2009), Dr. Tanya Shenk, former head of the lynx reintroduction project for CPW, estimated snowshoe hare make up about 70% of the lynx diet in Colorado.[282] Because hare populations fluctuate, alternative prey species must be available for them to survive bad years for hare. Lynx will eat cottontails and other small mammals but, by far, the most important alternative prey species in Colorado is the red squirrel (*Tamiasciurus hudsonicus*).[283] In a 10-

[277] Interagency Lynx Biology Team (ILBT). (2013). Canada lynx conservation assessment and strategy (LCAS). 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. August.

[278] Ibid.

[279] Theobald, D.M. and T.M. Shenk. (2011). Areas of High Habitat Use from 1999-2010 for Radio-collared Canada Lynx Reintroduced to Colorado. March 31.

[280] Scully, A. E., Fisher, S., Miller, D. A., & Thornton, D. H. (2018). Influence of biotic interactions on the distribution of Canada lynx (Lynx canadensis) at the southern edge of their range. *Journal of Mammalogy*, *99*(4), 760-772. (also: ILBT 2013 LCAS: citing Buskirk et al. 2000; Bunnell et al. 2006; Burghardt-Dowd 2010; and others, see pp. 80-81).

[281] 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. August.

[282] Ivan, J. S., White, G. C., & Shenk, T. M. (2014). Density and demography of snowshoe hares in central Colorado. *The Journal of wildlife management*, *78*(4), 580-594.

[283] Biological Assessment for the Rio Grande National Forest Land Management Plan. September 28, 2018, citing Buskirk, S.W., L.F. Ruggiero, K.B. Aubry, D.E. Pearson, J.R. Squires, and K.S. McKelvey. (2000). Comparative ecology of lynx in North America. Pages 397–417 in: L.F. Ruggiero, K.B. Aubry, S.W. Buskirk, S.W., 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.

year study in Colorado, researchers found that during most years, red squirrels made up at least 20% of the lynx diet, and in one year this was over 70%.[284]

Scientists have predicted that red squirrels may be more resilient to the effects of climate change than snowshoe hares. Due to climate change, hares have experienced phenological mismatch in some areas.[285] Molting between brown and white for camouflage in non-snow and snow conditions enables them to hide from predators. However, because climate warming is shortening snow seasons, their fur can be white when the ground has no snow. The overall length of time hares may experience camouflage mismatch is expected to increase with climate change severity and cause population-level impacts. And the effects are predicted to be particularly drastic in Colorado.[286] The red squirrel population in the Southern Rockies' spruce-fir forests decline significantly in response to the bark beetle epidemic, and researchers have speculated that is due to the loss of their primary food source—spruce cones that were not being produced by beetle-killed trees.[287] With uncertainty around predicting the abundance of specific lynx prey species, it is essential that habitat for both snowshoe hares and red squirrels be protected by any land management plan.

Mature, multi-story spruce-fir forest stands with large trees and dense horizontal cover. Research conducted before and after the SRLA went into effect, found that some of the most important habitat types for snowshoe hares, and thus for lynx, comprised mature, multi-story spruce-fir forest stands with large trees and dense horizontal cover.[288] Shenk (2006 & 2008) found this held true in Colorado.[289] In one of the most seminal papers on lynx habitat, especially in the Rocky Mountains, Squires et al. (2010) found that winter habitat may be the most limiting for lynx.[290] The Squires et al. (2010) paper included management implications of their study's findings, stating,

> Managers should prioritize retention of a habitat mosaic of abundant and spatially well-distributed patches of mature, multilayer spruce–fir forests and younger forest stands. Given the positive correlation between hare abundance and horizontal cover (Keith et al. 1984; Hodges 2000a, b), management actions that reduce horizontal cover, such as precommercial thinning, degrade lynx habitat. Recovery of high-elevation, spruce–fir forests following harvest

[284] Ivan, J. S., & Shenk, T. M. (2016). Winter diet and hunting success of Canada lynx in Colorado. *The Journal of Wildlife Management*, *80*(6), 1049-1058.

[285] Zimova, M., Sirén, A. P., Nowak, J. J., Bryan, A. M., Ivan, J. S., Morelli, T. L., ... & Mills, L. S. (2020). Local climate determines vulnerability to camouflage mismatch in snowshoe hares. *Global Ecology and Biogeography*, *29*(3), 503-515.

[286] Zimova et al. (2020).

[287] Ivan, J. S., Seglund, A. E., Truex, R. L., & Newkirk, E. S. (2018). Mammalian responses to changed forest conditions resulting from bark beetle outbreaks in the southern Rocky Mountains. *Ecosphere*, *9*(8), e02369.

[288] ILBT (2013). LCAS.

[289] Shenk, T.M. (2006). Wildlife Research Report, July 2005 – June 2006. Colorado Division of Wildlife; Shenk, T.M. 2008. Wildlife Research Report, July 2007 – June 2008. Colorado Division of Wildlife.

[290] Squires, J. R., Decesare, N. J., Kolbe, J. A., & Ruggiero, L. F. (2010). Seasonal resource selection of Canada lynx in managed forests of the northern Rocky Mountains. *The Journal of Wildlife Management*, *74*(8), 1648-1660.

> or thinning tends to be slow due to short growing seasons, cold temperatures, high winds, and deep snow (Fiedler et al. 1985, Long 1995). Therefore, reducing horizontal cover within multistory spruce–fir forests through thinning or harvest may degrade lynx habitat for many decades.[291]

The study results provided additional support for the high level of protection needed for the VEG S6 stands.

In Colorado, Ivan and Shenk (2016) also found that lynx might have an easier time catching hares in more open forests, concluding,

> Management of winter hunting habitat for Canada lynx in Colorado should include a matrix of vegetation types in which dense patches (>6,000 stems/ha) capable of supporting abundant snowshoe hares are closely juxtaposed with less-dense patches (2,000–4,000 stems/ha) where lynx can more successfully capture prey. Small (<5 ha), regenerating clear cuts scattered within an untreated matrix could produce this type of environment, albeit for a finite period of time when the regenerating stand is of the appropriate height and density. However, we suggest that optimal conditions can be met most effectively by managing for mature, uneven-aged spruce-fir stands, which tend to naturally include small patches of both types juxtaposed at finer scales. Additionally, the large trees within these mature stands, especially subalpine fir, often exhibit a growth form where dense lower branches fan out for some distance along the ground, creating a microhabitat with high horizontal cover in areas where stem density may otherwise be relatively sparse. Thus, thick and moderate cover can be intermingled at an even finer sub-patch scale within mature stands. Finally, mature stands provide cone crops necessary to support red squirrels, which is an important alternate prey item in Colorado.[292]

Though the authors suggest clear-cutting to attain the earlier seral conditions, natural disturbance processes including wildfire, blowdowns, and beetle epidemics historically provided for these conditions. It is likely impossible for silvicultural practices to mimic the complex early seral conditions, which promote biodiversity, resulting from natural disturbance processes.[293]

Connectivity habitat. Wild cats are particularly vulnerable to habitat loss and fragmentation because, at least in part, they are "hypercarnivores" that need large areas to find sufficient animal prey. The importance of maintained habitat connectivity and protecting movement corridors for lynx is well

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[291] Ibid.

[292] Ivan, J. S., & Shenk, T. M. (2016). Winter diet and hunting success of Canada lynx in Colorado. *The Journal of Wildlife Management*, *80*(6), 1049-1058 at 1056.

[293] Noss, R. F., Franklin, J. F., Baker, W. L., Schoennagel, T., & Moyle, P. B. (2006). Managing fire-prone forests in the western United States. *Frontiers in Ecology and the Environment*, *4*(9), 481-487; Swanson, M. E., Studevant, N. M., Campbell, J. L., & Donato, D. C. (2014). Biological associates of early-seral pre-forest in the Pacific Northwest. *Forest Ecology and Management*, *324*, 160-171.

established in the scientific literature.[294] In Colorado, Shenk (2008) identified movement corridors used by reintroduced lynx and found the cats tended to move more in the summer.[295] Shenk found lynx repeatedly used corridors that included the Cochetopa Hills and Rio Grande Reservoir – Silverton – Lizardhead Pass linkages. Buderman et al. (2017), studying collared lynx reintroduced to Colorado, diffuse corridors in Colorado and use areas.[296] Squires et al. (2020) found lynx in beetle-impacted forest tended to move toward forest areas with high levels of dead tree canopy and with an abundance of subalpine fir in winter months.[297]

Low road density. Lynx prefer low road density. Theobald and Shenk 2011 found lynx tended not to use areas with an average road density of .90 mi / mi^2 and stayed a 27 mi away from highways on average.[298]

Restrictions on the threat of vegetation management. The LCAS stated, "Management activities uninformed by consideration of negative impacts to the species were identified as being of greatest potential concern to lynx conservation (Federal Register, July 3, 2003, vol. 68, no. 28, pp. 40076-40101)."[299] Vegetation and other management can:

- Alter nutrient cycling and microsite conditions by removing standing biomass and down wood
- Fragment habitat by creating smaller patches that are more dispersed
- Increase runoff and inhibit tree growth by compacting and disturbing soil with heavy equipment
- Reduce structural complexity of forests by thinning, harvesting, planting, and applying herbicides

Holbrook et al. (2018), studying different silvicultural treatments in the Northern Rockies found,

> [U]se of any treatment (i.e., regeneration cut, selection cut, or thinning) was low up to ~10 years post-treatment. This suggests there is a cost regardless of treatment type, which is

[294] ILBT (2013). LCAS; Squires, J. R., DeCesare, N. J., Olson, L. E., Kolbe, J. A., Hebblewhite, M., & Parks, S. A. (2013). Combining resource selection and movement behavior to predict corridors for Canada lynx at their southern range periphery. *Biological Conservation*, *157*, 187-195; King, T. W., Vynne, C., Miller, D., Fisher, S., Fitkin, S., Rohrer, J., ... & Thornton, D. (2020). Will lynx lose their edge? Canada lynx occupancy in Washington. *The Journal of Wildlife Management*, *84*(4), 705-725.

[295] Shenk, T.M. 2006. Wildlife Research Report, July 2005 – June 2006. Colorado Division of Wildlife; Shenk, T.M. 2008. Wildlife Research Report, July 2007 – June 2008. Colorado Division of Wildlife.

[296] Buderman, F. E., Hooten, M. B., Ivan, J. S., & Shenk, T. M. (2018). Large-scale movement behavior in a reintroduced predator population. *Ecography*, *41*(1), 126-139.

[297] Squires, J. R., Holbrook, J. D., Olson, L. E., Ivan, J. S., Ghormley, R. W., & Lawrence, R. L. (2020). A specialized forest carnivore navigates landscape-level disturbance: Canada lynx in spruce-beetle impacted forests. *Forest Ecology and Management*, *475*, 118400.

[298] Theobald, D.M. and T.M. Shenk. (2011).

[299] ILBT (2013). LCAS at 71.

> consistent with previous work highlighting a ~10 year negative impact of precommercial thinning on snowshoe hare densities.[300]

While lynx reoccupied logged areas over time, Holbrook et al. (2018) demonstrated that re-occupancy took at least 10 years, and 100% occupancy didn't occur for close to 40 years in the case of thinning and between 50-60 years in the cases of regeneration harvest and selection cuts.[301]

The LCAS identified a range of studies that demonstrated pre-commercial thinning degrades snowshoe hare habitat. Additionally, Abele et al. (2013) found that pre-commercial thinning leads to significant losses in hare abundance in treated areas.[302]

Salvage logging can easily convert lynx habitat to unsuitable because felling and skidding during logging operations break or uproot young trees that provide dense horizontal cover needed by lynx. Soil compaction caused by the use of heavy equipment may further delay regeneration of spruce and fir trees. Research published since the 2013 LCAS has confirmed negative effects of the practice on snowshoe hares and lynx. For example, Kelly and Hodges (2020) found that post-disturbance (fire) salvage logging changed forest structure to the extent that it no longer supported snowshoe hares and red squirrels nine years after the initial disturbance when the study ended.[303] Similarly Thomas et al. (2019) found that salvage logging negatively affected snowshoe hares and lynx and reduced occupancy in logged areas.[304] Thomas et al. 2019 found that snowshoe hares avoided salvage-logged areas, even in logged areas with high retention, and stated,

> Logged stands of all ages had significantly lower occupancy than unsalvaged stands which were all >100 years old. This is contrary to findings from studies at lower latitudes, where early- and mid-successional stands (10-40 years old) supported more hares than mature coniferous forests. Forest succession may progress slowly at high latitudes, suggesting that salvage-logged stands will take a comparatively long time to recover their value for hares."[305]

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[300] Holbrook, J. D., Squires, J. R., Bollenbacher, B., Graham, R., Olson, L. E., Hanvey, G., ... & Lawrence, R. L. (2018). Spatio-temporal responses of Canada lynx (Lynx canadensis) to silvicultural treatments in the Northern Rockies, US. *Forest Ecology and Management*, *422*, 114-124 at 121.

[301] Ibid.

[302] Abele, S. L., Wirsing, A. J., & Murray, D. L. (2013). Precommercial forest thinning alters abundance but not survival of snowshoe hares. *The Journal of wildlife management*, *77*(1), 84-92.

[303] Kelly, A. J., & Hodges, K. E. (2020). Post-fire salvage logging reduces snowshoe hare and red squirrel densities in early seral stages. *Forest Ecology and Management*, *473*, 118272.

[304] Thomas, J. P., Reid, M. L., Barclay, R. M., & Jung, T. S. (2019). Salvage logging after an insect outbreak reduces occupancy by snowshoe hares (Lepus americanus) and their primary predators. *Global Ecology and Conservation*, *17*, e00562.

[305] Ibid., at 10.

Thomas et al. (2019) also found that lynx used unsalvaged forest stands and tended to avoid salvaged areas.[306] Thomas et al. (2019) concluded from their study, "The results of our study suggest that salvage-logged stands have lower value than beetle-affected forest for snowshoe hares and their terrestrial predators. Logging practices that maintain residual trees—even at relatively high retention levels—do not provide adequate cover for hares."[307] Griffin and Mills (2009) found that open forest stand structures are population sinks for snowshoe hares.[308] Other imperiled species avoid forest openings after salvage logging as well, including the marten[309]—a species that occupies the GMUG.

Logging trees in areas naturally disturbed by wildfires or insect outbreaks, called salvage logging or post-disturbance logging, is meant to capture the commercial value in dead and dying trees before decomposition makes them unmerchantable. Cutting down trees after such disturbance for human safety—when dead trees are near roads or buildings—is understandable. Some proponents of the practice argue that post-disturbance forest treatments can reduce the risk of future fires, but there is little evidence to support this[310], and salvage logging can leave behind small diameter, easily ignitable fuel materials such as dry branches that can increase fire risk.[311]

Salvage logging can damage land and sensitive wildlife habitat and reduce species richness and abundance.[312] Experts in forest ecology, wildlife ecology, biology, and geography wrote the following about the practice in a 2016 scientific paper, "the demonstrated negative ecological effects associated with postfire salvage logging are probably the most consistent and dramatic of any wildlife management

[306] Ibid., at 10.

[307] Ibid., at 11.

[308] Griffin, P. C., & Scott Mills, L. (2009). Sinks without borders: snowshoe hare dynamics in a complex landscape. *Oikos*, *118*(10), 1487-1498.

[309] Volkmann, L. A., & Hodges, K. E. (2021). Post-fire movements of Pacific marten (*Martes caurina*) depend on the severity of landscape change. *Movement ecology*, *9*(1), 1-19.

[310] Sessions, J., Bettinger, P., Buckman, R., Newton, M., & Hamann, J. (2004). Hastening the return of complex forests following fire: the consequences of delay. *Journal of Forestry*, *102*(3), 38-45.

[311] Thompson, J. R., Spies, T. A., & Ganio, L. M. (2007). Reburn severity in managed and unmanaged vegetation in a large wildfire. *Proceedings of the National Academy of Sciences*, *104*(25), 10743-10748.

[312] Beschta, R. L., Rhodes, J. J., Kauffman, J. B., Gresswell, R. E., Minshall, G. W., Karr, J. R., ... & Frissell, C. A. (2004). Postfire management on forested public lands of the western United States. *Conservation Biology*, *18*(4), 957-967; Karr, J. R., Rhodes, J. J., Minshall, G. W., Hauer, F. R., Beschta, R. L., Frissell, C. A., & Perry, D. A. (2004). The effects of postfire salvage logging on aquatic ecosystems in the American West. *BioScience*, *54*(11), 1029-1033; Lindenmayer, D. B., Foster, D. R., Franklin, J. F., Hunter, M. L., Noss, R. F., Schmiegelow, F. A., & Perry, D. (2004). Salvage harvesting policies after natural disturbance. *Science, 303(5662),* 1303; 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*(5759), 352-352; Noss, R. F., Franklin, J. F., Baker, W. L., Schoennagel, T., & Moyle, P. B. (2006). Managing fire-prone forests in the western United States. *Frontiers in Ecology and the Environment*, *4*(9), 481-487; Hutto, R. L., Keane, R. E., Sherriff, R. L., Rota, C. T., Eby, L. A., & Saab, V. A. (2016). Toward a more ecologically informed view of severe forest fires. *Ecosphere*, *7*(2), e01255; Thorn, S., Bässler, C., Brandl, R., Burton, P. J., Cahall, R., Campbell, J. L., ... & Müller, J. (2018). Impacts of salvage logging on biodiversity: A meta-analysis. *Journal of Applied Ecology*, *55*(1), 279-289.

effects ever documented for any kind of forest management activity."[313] Twenty-nine scientists that conducted a meta-analysis, a study of multiple studies, of salvage logging research in 2018 stated, "Our results suggest that salvage logging is not consistent with the management objectives of protected areas. Substantial changes, such as the retention of dead wood in naturally disturbed forests, are needed to support biodiversity."[314]

Species from bryophytes and bears use dead wood, some depend on it. The loss of standing dead trees (snags) and fallen dead and decaying trees (down wood or coarse woody debris)—also called "forest legacies"—an degrade forest habitat. While disturbances contribute to structural heterogeneity of forests and large quantities of dead wood that are so important for many species, salvage logging tends to reduce this diversity, the amount of dead wood, and the quality of remaining wood.[315] A list of salvage logging's detrimental effects include:

- removing cone seed stock from forests and alter seed dispersal, inhibiting tree regeneration[316]
- removing organic material that provides soil nutrients necessary for soil productivity[317]
- leaving an area more vulnerable to invasive species[318]
- removing organic material like fallen logs necessary to generate new forest vegetation that provides important wildlife habitat after high-severity fires[319]
- diminishing a forest's ability to store and sequester carbon[320]
- prolonging the period that soil erosion occurs after fires[321] due to the loss of trees and other organic materials that stabilize soils

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[313] Hutto, R. L., Keane, R. E., Sherriff, R. L., Rota, C. T., Eby, L. A., & Saab, V. A. (2016). Toward a more ecologically informed view of severe forest fires. *Ecosphere*, *7*(2), e01255.

[314] Thorn, S., Bässler, C., Brandl, R., Burton, P. J., Cahall, R., Campbell, J. L., ... & Müller, J. (2018). Impacts of salvage logging on biodiversity: A meta-analysis. *Journal of Applied Ecology*, *55*(1), 279-289 at 280.

[315] Ibid.

[316] Lindenmayer et al. (2004); Leverkus, A. B., Rey Benayas, J. M., Castro, J., Boucher, D., Brewer, S., Collins, B. M., ... & Gustafsson, L. (2018). Salvage logging effects on regulating and supporting ecosystem services—A systematic map. *Canadian Journal of Forest Research*, *48*(9), 983-1000.

[317] Jennings, T. N., Smith, J. E., Cromack, K., Sulzman, E. W., McKay, D., Caldwell, B. A., & Beldin, S. I. (2012). Impact of postfire logging on soil bacterial and fungal communities and soil biogeochemistry in a mixed-conifer forest in central Oregon. *Plant and soil*, *350*(1), 393-411.

[318] Leverkus et al. (2018).

[319] Swanson, M. E., Franklin, J. F., Beschta, R. L., Crisafulli, C. M., DellaSala, D. A., Hutto, R. L., ... & Swanson, F. J. (2011). The forgotten stage of forest succession: early-successional ecosystems on forest sites. *Frontiers in Ecology and the Environment*, *9*(2), 117-125; DellaSala, D. A., Bond, M. L., Hanson, C. T., Hutto, R. L., & Odion, D. C. (2014). Complex early seral forests of the Sierra Nevada: what are they and how can they be managed for ecological integrity?. *Natural Areas Journal*, *34*(3), 310-324.

[320] Powers, E. M., Marshall, J. D., Zhang, J., & Wei, L. (2013). Post-fire management regimes affect carbon sequestration and storage in a Sierra Nevada mixed conifer forest. *Forest Ecology and Management*, *291*, 268-277.

[321] Karr, J. R., Rhodes, J. J., Minshall, G. W., Hauer, F. R., Beschta, R. L., Frissell, C. A., & Perry, D. A. (2004). The effects of postfire salvage logging on aquatic ecosystems in the American West. *BioScience*, *54*(11), 1029-1033.

- removing snags that provide roosting and nesting sites for a host of species including birds and small mammals[322]

Salvage logging further opens the forest canopy after a fire. This may benefit some species that seek open areas.[323] However, natural disturbance processes create open forest patches naturally and without many of the harms described above.

The new concept of "high-use area" to inform the plan revision. The Squires Study captured what habitat features lynx were selecting during the study period, 2015-2017, shortly after the beetle epidemic began waning. Squires Study researchers presented preliminary results in a few update reports and presentations[324] and a peer-reviewed journal article[325] published in 2020. The study found, as past studies have, that lynx select for a mix of abiotic and biotic factors.[326] Biotic features[327] that lynx selected for included:

- Landscape scale:
  - Large, dead trees in both winter and summer
  - Lack of Douglas-fir, which lynx avoided in winter and summer
  - Relatively higher levels of Engelmann spruce in the canopy and subalpine fir in the subcanopy in winter
  - Presence of aspen in winter
  - Lower levels of Engelmann spruce in the canopy and higher in the subcanopy in the summer
- Home range scale:
  - High levels of horizontal cover
  - High snowshoe hare density
  - High live Engelmann spruce in the canopy
  - Large, live subalpine fir trees at high densities
  - Large, dead trees
  - High densities of Engelmann spruce trees

[322] Kotliar, N. B., Hejl, S. J., Hutto, R. L., Saab, V. A., Melcher, C. P., & McFadzen, M. E. (2002). Effects of fire and post-fire salvage logging on avian communities in conifer-dominated forests of the western United States. *Studies in Avian Biology*, *25*, 49-64; Hutto, R. L., & Gallo, S. M. (2006). The effects of postfire salvage logging on cavity-nesting birds. *The Condor*, *108*(4), 817-831; Rost, J., Hutto, R. L., Brotons, L., & Pons, P. (2013). Comparing the effect of salvage logging on birds in the Mediterranean Basin and the Rocky Mountains: Common patterns, different conservation implications. *Biological Conservation*, *158*, 7-13.

[323] Thorn (2018) at 280.

[324] Some, though not all, Squires Study updates include: J. Squires, J. Holbrook, L. Olson, J. Ivan, R. Lawrence, R. Ghormley. (2017). *Response of Canada Lynx and Snowshoe Hares to Spruce-Beetle Tree Mortality and Wildfire in Spruce-fir Forests of Southern Colorado*, Progress Report 2016. June 2; Squires, J. (2018). *Habitat Relationships of Canada Lynx in Spruce Bark Beetle-Impacted Forests Analysis Summary*. March 19; Squires et al. (2018). Brief Summary of 19 March 2018 report (Squires, et al. 2018); Squires, J., J. Holbrook, J. Ivan, R. Lawrence, and R. Ghormley. (2018). *Lynx Habitat in Beetle-Impacted Forests*. Presentation. May 17.

[325] Squires et al. (2020).

[326] Squires et al. (2020) at 6.

[327] Specific values can be found in: Squires, J. (2018). *Habitat Relationships of Canada Lynx*.

- Large, dead Engelmann spruce and subalpine fir both strongly selected in the summer

The RGNF and GMUG used this information to consider new plan components for their revised land management plans.

iii. Compliance Section 7(a)(1) of the Endangered Species Act and 36 CFR 219(b)(1)

The GMUG has largely retained SRLA direction, which is established in standard **FW-STND-SPEC-34** written below:

> ***FW-STND-SPEC-34****: The Southern Rockies Lynx Amendment direction (appendix 4), as amended and modified by the GMUG forest plan record of decision, shall be applied. See also table 6 for proposed modifications to lynx management by alternative.*

However, each action alternative effectively weakens current direction for managing lynx habitat. Both alternative B and C would allow significantly more salvage logging in the "best of the best" lynx habitat than the current plan had allowed under pre-beetle conditions. We provide more details about this below. Alternative B would also remove a key standard across lynx habitat that was important for protecting habitat under pre-beetle conditions and has continued to do this throughout the beetle epidemic. Alternative C would remove three key standards. Alternative D would allow all vegetation management to occur, not just salvage logging, on all mapped lynx habitat, not just the highest quality habitat.

The aggregate plan components in the Draft Plan that apply to lynx do not provide for the necessary ecological conditions that would contribute to Canada lynx the recovery and cannot be characterized as a conservation program under Section 7(a)(1) of the Planning Rule. In the section below, we describe how each action alternative weakens current plan direction regarding the lynx.

(a) The problem with removing standard VEG S2 in Alternatives B and C

Standard VEG S2 in the current SRLA reads as follows:

> *Timber management projects shall not regenerate more than 15 percent of lynx habitat on NFS lands within an LAU in a ten-year period. This 15 percent includes the entire stand within an even-age regeneration area, and only the patch opening areas within group selections. Salvage harvest within stands killed by insect epidemics, wildfire, etc. does not add to the 15 percent, unless the harvest treatment would cause the lynx habitat to change to an unsuitable condition.*

It is possible that salvage cuts and any other vegetation management could convert 15% of the lynx habitat in any lynx analysis unit to unsuitable. It is important to retain lynx habitat in areas hit by spruce

beetle, because the best available scientific information demonstrates that salvage logging negatively impacts both snowshoe hares and lynx. Thus, standard VEG S2 must not be removed. We do not see how doing so would allow the desired conditions for early seral spruce-fir forests to be met sooner, as asserted at DEIS p. 170. Without VEG S2, more existing early seral spruce and fir would be destroyed in logging operations where skidding and felling trees destroys smaller trees that provide the dense horizontal cover that hare need for habitat.

The Forest Service also claims here that removing VEG S2 would result in a "reduced administrative burden."[328] Lynx is a threatened species under the Endangered Species Act, thus the Forest Service needs to take reasonable measures to facilitate lynx' recovery, even if that involves some record keeping. The Forest Service must still keep track of and report to the Fish and Wildlife Service about actions affecting lynx habitat, including for Standard VEG S1, which limits the amount of habitat that can be unsuitable in any LAU. There is little additional "administrative burden" to record how much habitat becomes unsuitable in each 10-year period, as VEG S2 requires.

- Recommendation: Retain **standard VEG S2** in the revised plan for the reasons stated above.

(b) The problem with removing standard VEG S5 and standard VEG S6 from Alternative C

There are two primary problems with removing VEG S6 and VEG S5 from the revised plan. First, some VEG S6 stands (mature, multistory stands with dense horizontal cover) may still exist in the Forest, even if they are rare. If so, they may still provide some habitat and should be protected with the standard.

Standard VEG S5 is as follows:

> *Precommercial thinning practices and similar activities intended to reduce seedling/sapling density are subject to the following limitations from the stand initiation structural stage until the stands no longer provide winter snowshoe hare habitat.* [footnote omitted]

As stated above, snowshoe hare and lynx tend to avoid forests that have been pre-commercially thinned.

- Recommendation: Retain **standard VEG S5** and **standard Veg S6** in the revised plan and all the EIS action alternatives for the reasons stated above.

(c) Problems with the new standard VEG S7 in alternative B and C

The new standard **FW-STND-SPEC-35a (VEG S7)** reads:

[328] DEIS, Vol 1 at 170.

FW-STND-SPEC-35a (VEG S7)*: In stands that do not qualify for VegS6 due to overstory mortality, salvage activities in stands that represent high quality lynx habitat may occur in up to 7 percent of the high-probability lynx use area (95 percent lynx use areas shown on the High Probability Lynx Use Area Map) that overlaps the suitable timber base. Harvest activities in VEG S7 stands in combination with all vegetation management activities, including incidental damage resulting in either Stand Initiation Structural Stage conditions, a reduction of horizontal cover, or both, are tracked for 15 years from the decision date for this forest plan decision. See also appendix 4 for more background on this standard*.

The standard VEG S7 has at least four problems: 1) it does not include all the habitat elements of the "95% use area" as defined the Squires Study; 2) the mapping and maps used to estimate high/95% use area are deceptive; it is not accompanied by a "*High Probability Lynx Use Area Map"* (nor does it explain how or how frequently such a map will be developed and updated); it does not include enough information about how high-use areas or high-quality habitat will be determined; 3) its outcomes will only be tracked for 15 years; and 4) it allows for a significantly more vegetation management activity, particularly salvage logging, in the best lynx habitat.

First, the criteria used to develop standard VEG S7 does not include all the habitat elements of the 95% use area model developed in the Squires Study. The "Background Information – VEG S7/VEG S8" section in the Draft Plan on page 201 references Squires et al. (2018) regarding the high-probability use area and 95 percent use areas, stating, "Standard VEG S7 applies to stands that meet the criteria below, within the high probability lynx use area (95 percent use areas) as delineated in the Resource Selection Function model for the Rio Grande and GMUG National Forests (Squires et. al. 2018)." The Draft Plan includes the VEG S7 criteria, which are (Within identified high probability lynx use area):

- Overstories predominantly of live or dead Engelmann spruce and subalpine fir, or either species, with a sub-canopy layer dominated by subalpine fir, or a combination of either Engelmann spruce or aspen, or both (see appendix 12, Footnotes Regarding Best Available Scientific Information),

- Total live overstory canopy cover less than or equal to 40 percent, and

- Understory horizontal cover density from ground level to 3 meters above ground level is greater than or equal to 45 percent during winter foraging conditions for snowshoe hares.

However, some of the Management Approaches in the Draft Plan include these elements and should be part of the VEG S7 standard and/or criteria.

The criteria in the Draft Plan do not include the importance of large diameter live and dead trees.[329] Squires et al. (2020) stated,

> During the winter months, lynx exhibited strong selection for areas with higher canopy cover of live Engelmann spruce trees, larger live subalpine fir and quaking aspen trees, and higher densities of live subalpine fir trees 7.6–12.4 cm (3–4.9 in. in diameter). In addition, during winter lynx avoided areas with more basal area of dead trees, but lynx strongly selected areas with larger dead trees and areas with higher densities of dead Engelmann spruce trees 12.7–22.6 cm (5–8.9 in.) in diameter. During the summer months, the size of beetle-killed subalpine fir and Engelmann spruce trees were two additional covariates in our top model of lynx selecting high horizontal cover and snowshoe hare densities. Lynx exhibited selection for areas with larger dead subalpine fir trees and demonstrated strong selection for areas with larger-diameter dead Engelmann spruce trees.[330] (table references omitted)

A Management Approach in the Draft Plan suggests, "Size and basal area of dead trees: Sub-canopy development is reduced by salvage; thus, snag retention is most important in areas with high amounts of live understory."[331] This should be included in the definition of VEG S7 and be included in the standard.

The criteria do not include that lynx avoid openings.[332] This gets to the need to maintain habitat connectivity across the landscape. And, thus, the following Management Approaches[333] should be included in the standard:

- Understory conifers: Preserve understory, particularly subalpine fir and Engelmann spruce, in the sub-canopy.
- Shade retention: Dead trees and remaining live trees should be retained strategically to provide shade protection for developing understory trees.
- Retain and protect live subalpine fir from incidental damage.
- Canopy cover.
- Harvest in a mosaic framework: Consider location of harvest on the landscape in relation to lynx high-use areas.[334]

Squires et al. (2020 at 8) also reported results relevant to protecting movement paths, stating,

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[329] Squires, J. (2018). *Habitat Relationships of Canada Lynx*, See tables 2-11 at 20-29. See also: Squires et al. (2017*). Response of Canada Lynx and Snowshoe Hares*, Progress Report 2016. June 2; Squires et al. (2018). Brief Summary of 19 March 2018 report (Squires, et al. 2018); Squires et al. (2018). Lynx Habitat in Beetle-Impacted Forests; Squires (2020).

[330] Squires et al. (2020) at 7-8.

[331] Draft Plan at 35.

[332] Squires, J. (2018). Habitat Relationships of Canada Lynx, See tables 4 at 22.

[333] Draft Plan at 35.

[334] Regarding the last Management Approach, we urge the GMUG not to harvest at all in high-use areas.

> Canada lynx exhibited clear patterns of selection at our finest scale of selection along movement paths (fourth-order selection). Male and female lynx, regardless of season, tended to move toward areas with more dead canopy cover than expected given random availability along movement paths (Figs. 3 and 4). This movement pattern was consistent with selection at the broader landscape- and home-range scales, and reinforced the importance of beetle-impacted areas for Canada lynx use. Similarly, most females and males exhibited selection along movement paths for areas with abundant subalpine fir in the subcanopy during the winter.

These findings demonstrate the need to protect such movement paths and maintain habitat connectivity.

Second, the Draft Plan lacks a "*High Probability Lynx Use Area Map"* referenced in standard VEG S7. The Draft Plan itself provides no information about this apparently non-existent map. However, using the Theobald and Shenk (2011) as a proxy for high-quality habitat is inappropriate. The data are 15-years old and collected before the beetle epidemic peaked, and the authors explicitly stated in its first paragraph the analyses should not be used to "predict potential or future habitat use."[335] Using the Theobald and Shenk (2011) study, the GMUG found 581,069 acres identified as "a proxy for high-quality habitat" in one place in the DEIS (p. 162) and 10,600 acres of "more focused areas" on page 172. However, the Theobald and Shenk analysis was conducted at the state-scale, not the Forest unit or LAU-scale. Moreover, it is unclear how the 10,600-acre high-use area estimate was derived based on Squires Study resource selection function model concepts. We are assuming the concepts were applied within the circumscribed Theobald and Shenk (2011) mapped use areas.[336] Yet, we are not seeing an explanation or methodology in the DEIS or Draft Plan. These numbers are so significantly different, the public cannot know what to expect in the final revised plan. We don't understand how these estimates can be included in a legitimate effects analysis. The Forest Service is required to use the best available science information in planning.[337] Table 94 in the DEIS does more to confuse than clarify.[338] What is the agency considering to be the best available scientific information here?

We see no other alternative than for the GMUG to provide a supplemental or revised EIS to enable the public to see the map that is tied to standard VEG S7 and a discussion of the methodology used to create it. If the GMUG identifies high-use or highly valued habitat for lynx, it should show this habitat on a map, especially if such habitat comes with management requirements or limits on treatment. This habitat map should be available to the public for review and comment prior to plan approval.

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[335] Theobald, D.M. and T.M. Shenk. 2011.

[336] DEIS, Vol. 1 at 156.

[337] In determining best available scientific information, "the responsible official shall determine what information is the most accurate, reliable, and relevant to the issues being considered." 36 CFR 219.3.

[338] DEIS, Vol. 1 at 173.

Third, standard VEG S7, as written in the Draft Plan, will only be tracked for 15 years. Yet, land management plan revisions are often delayed for years, even decades.[339] Tracking should continue through the life of the plan.

Fourth, this new standard aims to respond to the massive mortality of Engelmann spruce trees and resulting changed forest structure in key lynx habitat. The standard is intended to protect from the impacts of salvage logging the "best of the best" habitat that currently exists in the forest. Standard VEG S6 had protected what was once considered the "best of the best" habitat before the beetle outbreak substantially changed forest conditions. Now, probably little of VEG S6 type forest stands currently exist on the GMUG. The aggregation of original VEG standards in the 2008 SRLA ROD and their various exemptions and exceptions enable a .5% vegetation management activity allowance in VEG S6 stands.[340] Yet, the proposed new standard VEG S7 allows for 7% entry in what is now considered the best of the best lynx habitat on the GMUG: the high probability lynx use area. This habitat should be off limits to all activity (not just salvage logging) that might degrade or destroy lynx habitat. Any kind of logging removes dead trees which may provide some cover, and also could provide future denning habitat once the trees hit the ground. Logging would also destroy understory trees that may provide the horizontal cover needed by lynx and its favorite prey, snowshoe hare. If this new standard is retained, the limits on how much habitat can be affected must apply to all vegetation management activities, not just salvage logging.

Finally, the Draft Plan in Appendix 4 states, "[s]tands that meet the VEG S7 criteria should be avoided where possible."[341] We agree. The highest quality habitat should not be adversely altered. However, there is no plan component requiring avoidance of this habitat.

- Recommendation**:** Limit vegetation management to 0.0% in VEG S7 stands.

- If any vegetation manipulation in the highest quality lynx habitat will be allowed, there must be direction, most preferably a standard, that directs managers to avoid this habitat to the greatest extent possible and to minimize the impact to lynx habitat.

- If vegetation management and/or other ground-disturbing activity would be allowed in lynx habitat, some of the management approach points listed under the last bullet point on p. 35 of the Draft Plan, such as preserving the understory and retaining horizontal cover and snags, should be standards.

(d) Problem with standard Veg S8 in Alternative D

[339] The current GMUG Plan was published in 1983, approximately 38 years ago.

[340] See the SRLA ROD (October 2008) at 8-10 and the SRLA Biological Opinion (July 25, 2008) at 48-52.

[341] Draft Plan at 202.

The new **standard VEG S8** reads:

> ***FW-STND-SPEC-35b (VEG S8)*** *(Alternative D): In stands that do not qualify for VegS6 due to overstory mortality, vegetation management activities may occur in up to 7 percent of mapped lynx habitat. Harvest activities in VEG S7 stands in combination with all vegetation management activities, including incidental damage resulting in either Stand Initiation Structural Stage conditions, a reduction of horizontal cover, or both, are tracked for 15 years from the decision date for this forest plan decision. See also appendix 4 for more background on this standard.*

Despite being included in Alternative D, the purported conservation alternative, Alternative D would likely result in more vegetation management—of any kind—in all mapped habitat, including the best lynx habitat—and we don't yet know where that occurs and how much that could be since no maps have been presented, as we discuss above. Because there is no standard VEG S7 in alternative D, we are confused as to why it is referred to in standard VEG S8. Moreover, the standard left us with a set of questions that must be answered in the revised plan or EIS. Would the GMUG use the selected resource selection function model concepts as it did for standard VEG S7—why bother if the standard would apply to <u>all</u> mapped habitat? How would the ongoing "habitat mapping" discussed but not explained in the DEIS be relevant to standard VEG S8? How would standard VEG S8 work, quantitatively, with the other SRLA VEG standards—i.e., what are the cumulative allowances? As with standard VEG S7, standard VEG S8 enables too much vegetation management to occur in what is currently the best lynx habitat.

iv. Monitoring

Both **standard VEG S7** and **standard VEG S8** call for tracking "Harvest activities in VEG S7 stands in combination with all vegetation management activities, including incidental damage resulting in either Stand Initiation Structural Stage conditions, a reduction of horizontal cover, or both" for 15 years after the revised plan goes into effect.

We urge the GMUG to designate the snowshoe hare as a focal species to monitor changes in ecological conditions on the Forest. Trends in abundance, densities, and distributions in response to vegetation management activities and changes to spruce-fir forest over time are important indicators that could trigger the need to amend the plan. Snowshoe hares are often used as a focal species, including to help understand and evaluate conditions and changes in lynx habitat.[342] Mills et al (2013) suggested the snowshoe hare could also serve as a focal species for climate change.

[342] Boutin, S., Krebs, C. J., Boonstra, R., Dale, M. R. T., Hannon, S. J., Martin, K., ... & Schweiger, S. (1995). Population changes of the vertebrate community during a snowshoe hare cycle in Canada's boreal forest. *Oikos*, 69-80; Mills, L. S., Zimova, M., Oyler, J., Running, S., Abatzoglou, J. T., & Lukacs, P. M. (2013). Camouflage mismatch in seasonal coat color due to decreased snow duration. *Proceedings of the National Academy of Sciences*, *110*(18), 7360-7365; Villette, P., Krebs, C. J., & Jung, T. S. (2017). Evaluating camera traps as an alternative to live trapping for estimating the density of snowshoe hares (Lepus americanus) and red squirrels (*Tamiasciurus hudsonicus*). *European Journal of Wildlife Research*, *63*(1), 1-9; Thomas et al. (2019). Salvage logging after an insect outbreak.

v. National Environmental Policy Act Compliance

The DEIS does not comply with NEPA in at least three ways. It has failed provide a range of reasonable alternatives by not including an action alternative that limits vegetation management in the existing best of the best lynx habitat to at least the precedent set by VEG S6 of 0.5% entry, if not 0.0%, in violation of 40 CFR 1502.14. The DEIS has failed to take a sufficiently hard look at the effects of the alternatives on Canada lynx in the GMUG in violation of 40 CFR 1502.16. It has failed to utilize high quality information, meeting the best available scientific information standard of the Planning Rule, in violation of 40 CFR 1500.1(b).

The DEIS has used an overly limiting scale of analysis—the LAU—for its effects analysis. This enables the removal of standard VEG S6, which applies forestwide, from Alternative C. Focusing at the LAU scale ignores the important role the GMUG plays in providing habitat to contribute to the recovery of the Southern Rocky Mountain Geographic Unit and further, the role the Forest plays in the lower-48 lynx DPS.

Reading the DEIS's section on lynx reminds us that there is a significant, erroneous, and ecologically harmful assumption that undergirds this Draft Plan. This is especially true when looking at the Forest Service's justification for removing standard VEG S2 from alternatives B and C. Because the GMUG has apparently still not completed a vegetation analysis that reflects anything approximating the current conditions of the spruce-fir and spruce-fir-aspen forest types. The last vegetation analysis that provided a natural range of variation baseline was 2005[343]—only a few years after the spruce bark beetle epidemic started and about a decade before it peaked. The 2021 Table 20 in the DEIS[344] is the same as Table 11 from the 2018 Terrestrial Assessment.[345] While anyone who can see the forest and the trees knows that this these tables are wrong, the GMUG has still made some key decisions about timber harvesting and lynx direction based on the assumption that the spruce-fir and spruce-fir-aspen forest ecosystems have less than 1% early seral conditions. Unless the GMUG has conducted the analysis and not presented it in the DEIS, the Forest Service cannot know how much early seral forest exists. The footnote for DEIS Table 20 states that the entry for spruce-fir is "[b]ased on the best available data that preceded the spruce beetle-outbreak. Current actual conditions on the landscape are substantially different than these data."

Despite the DEIS using the 2005 vegetation analysis as the baseline, DEIS Appendix 2 shows state-and-transition model results that incorporated aerial detection data of spruce beetle impacted forest.

[343] GMUG Revised Draft Forest Assessments: Terrestrial Ecosystems: Integrity and System Drivers and Stressors. March 2018 at 31.

[344] DEIS, Vol. 1 at 61.

[345] GMUG Revised Draft Forest Assessments: Terrestrial Ecosystems.

> For spruce-fir and spruce-fir-aspen, the current seral stage distribution was modified from what was reported in the GMUG terrestrial ecosystems assessment (USDA Forest Service 2018) to incorporate the latest spruce beetle aerial detection data (1996–2018), with areas impacted by spruce beetle added to the early seral stage.

Yet, the DEIS has used data from 2016[346] to report acres affected by spruce bark beetle when figures from 2020[347] are readily available.

The GMUG cannot call its NRV analysis from 2005 the best available scientific information. It's not merely old; it's wholly inaccurate. The problem is that the Forest Service has apparently based decisions on this inaccurate information instead of the updated best available science. See the example below.

The DEIS states the following on pages 60-61 of the DEIS, seeming to ignore the large-scale disturbance of the beetle epidemic:

> In all ecosystems, the GMUG has an under-representation of early seral stages on the landscape, paired with an over-representation of mid-seral stages in nearly all ecosystems (while seral stages refer to age, rather than structure, approximate seral stage can be inferred from structural stage and vice-versa).
>
> Future trends include the continued aging of stands and associated transitions into later seral stages, and possibly more frequent, extensive, and severe disturbances resulting from the effects of climate change (Vose et al. 2012). In combination, this could cause structural stages in ecosystems across the GMUG to move toward natural range of variation conditions, though in most ecosystems, large and severe disturbances will be required to be within natural range of variation for early seral stage proportions.

The statement sounds like it may have been written during the 2005 GMUG planning process. But the sentence below, which is the last sentence in the last paragraph in the Distribution of Structural Stages subsection acknowledges the beetle outbreak.

> Because of the ongoing spruce-beetle outbreak, spruce-fir and spruce-fir-aspen ecosystems may continue to move closer to natural range of variation for representation of early seral stages, but will likely have lower than natural range of variation percentages in late seral stages.[348]

Then, in the lynx section on page 170, the DEIS uses the need for more early seral conditions in the justification for removing standard VEG S2 from alternatives B and C:

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[346] DEIS, Vol. 1, Table 35 at 68.

[347] USDA Forest Service. (2021). Forest Insect and Disease Conditions in the Rocky Mountain Region. January. USDA Forest Service, Rocky Mountain Region. Forest Health R2-RO-21-01. January.

[348] DEIS, Vol. 1 at 61.

> If the GMUG National Forests were to increase the pace and scale of vegetation management, one potential benefit of removing VEG S2 is that movement toward desired conditions for early seral spruce-fir (currently less than 1 percent of the plan area) to the natural range of variability (27–32 percent) could be achieved sooner. This could increase spruce-fir resiliency by reducing susceptibility to beetle epidemics or wildfire. … Increasing early seral spruce-fir consistent with the Southern Rockies Lynx Amendment standards would benefit lynx habitat in the long term by increasing structural diversity and promoting future snowshoe hare habitat.[349]

Moreover, the statement just above from page 170 indicates that the removal of VEG S2 from alternatives B and C will have a positive effect. Yet, the paragraph just above it, indicates this change will have no effect, stating,

> Removing this standard will not impact lynx habitat conservation because not enough acres are treated to regenerate lynx habitat in any given lynx analysis unit to ever reach 15 percent within a 10-year period. Removing VEG S2 will not reduce lynx conservation because VEG S1 will continue to meet landscape-level (lynx analysis unit) habitat conservation, it is more biologically meaningful since it accounts for lynx reproductive needs, and adding VEG S7 reduces vegetation disturbance in high-quality habitat identified in lynx use areas. The effect of removing Veg S2 is anticipated to be limited to reduced administrative burden.[350]

The assertions in the analysis are contradictory. Additionally, the DEIS makes an assumptive leap without rationale that because the vegetation management activities have never reached the standard VEG S2 threshold, they never will. And the DEIS is not clear as to whether alternatives B and C have an adverse effect, positive effect, or no effect.

The analysis of the impacts of standard VEG S7 is not fully clear because the DEIS has not provided the methodology to understand how it applied the Squires Study model to the Theobald and Shenk (2011) data. Plus, the high probability lynx use area map that would allow us to understand where VEG S7 stands exist on the GMUG has not been provided in the Draft Plan or DEIS. Regardless, this analysis has resulted in a miniscule amount of VEG S7 area in which vegetation management activities can be conducted—867 acres in both alternative B and C.[351] This raises the questions? 1) why is the GMUG insisting on using the same VEG S7 standard as the RGNF when the Forest Service has calculated a VEG S7 allowance that couldn't possibly be worth cutting for a commercial timber operator over the life of a forest plan, and 2) why is the GMUG not considering an alternative that keeps VEG S7 stands off-limits?

[349] DEIS, Vol. 1 at 170.

[350] DEIS, Vol. 1 at 170.

[351] DEIS Table 94 at 173.

We also don't know how the "habitat mapping" discussed in the DEIS may change this area figure. Given how important this mapping project may be for decision-making for the revised plan, the GMUG should have, at minimum, included the mapping methodology, as well as the maps themselves, in an appendix in the plan documents. The Forest Service should make the new habitat map(s) and methodology used to create them available to the public as soon as possible to allow for review and comment before the plan is finalized.

In its analysis of the effects of Alternative C, the Forest Service seems to assume that there are no VEG S6 stands on the GMUG left to protect. The agency has not revealed how it made this determination. Additionally, the analysis of the effects of removing VEG S5 ignores the best available scientific information on the negative impacts of precommercial thinning on snowshoe hares and lynx that we discussed above.[352]

The new standard VEG S8 for Alternative D provides no additional limitations on vegetation management activities in VEG S7 stands beyond the 7%. Alternative D with standard VEG S8 is no more protective than standard VEG S7. And the DEIS provides an insufficient analysis of the effects of Alternative D and standard VEG S8. It's not clear how the LAU-scale analysis was conducted on standard VEG S8, considering it apply to mapped habitat forestwide.

The DEIS has not incorporated into its analysis the detrimental effects of salvage logging to hare and lynx habitat. We discussed these impacts above.[353] Additionally, the DEIS does not include the GMUG's own data from the *Spruce Beetle Epidemic-Aspen Decline Management Response Project (SBEADMR) Science Team Monitoring Questions, Results, and Interpretation* from January 2021. The data show mean snowshoe hare density highest where vegetation management has not occurred in spruce stands, though not a statistically significantly high density than treated areas. Yet, the Science Team interpretation includes the conclusion, "It is critical to continue to steer salvage away from high-quality Canada lynx habitat."[354]

- Recommendation: Include in the revised plan an alternative, which should be the preferred alternative, that limits vegetation management activity in high-use lynx areas (VEG S7 stands) to a 0.0% allowance or at most, 0.5%.

[352] ILBT. 2013. LCAS; Murray. Precommercial forest thinning alters abundance but not survival of snowshoe hares. Journal of Wildlife Management.

[353] ILBT. 2013. LCAS at 71; Holbrook, J. D., Squires, J. R., Bollenbacher, B., Graham, R., Olson, L. E., Hanvey, G., ... & Lawrence, R. L. (2018). Spatio-temporal responses of Canada lynx (Lynx canadensis) to silvicultural treatments in the Northern Rockies, US. *Forest Ecology and Management*, *422*, 114-124 at 121; Thomas (2019) Salvage logging after an insect outbreak; Kelly & Hodges (2020). Post-fire salvage logging.

[354] Grand Mesa, Uncompahgre, and Gunnison National Forest. 2021. *Spruce Beetle Epidemic-Aspen Decline Management Response Project (SBEADMR) Science Team Monitoring Questions, Results, and Interpretation*. January at 4.

- Recommendation: Given the deficiencies of the DEIS, we urge the GMUG to revise or supplement its effects analysis to include the methodologies, new habitat mapping results, and associated maps for public review and comment prior to finalizing the revised plan.

b. Colorado hookless cactus

The USFWS listed *Sclerocactus glaucus* as a threatened species in 1979.[355] The Service later recognized a taxonomy change, and split off two species, and retained the threatened listing for *S. glaucus*, known by its new common name: Colorado hookless cactus.[356]

The Recovery Outline states of the plant,

> Distribution, Abundance, and Trends: Colorado hookless cactus is an endemic plant found in Delta, Montrose, Mesa, and Garfield Counties, Colorado. There are two population centers of Colorado hookless cactus: (1) on alluvial river terraces of the Gunnison River from near Delta, Colorado, to southern Mesa County, Colorado; and (2) on alluvial river terraces of the Colorado River and in the Plateau and Roan Creek drainages in the vicinity of DeBeque, Colorado (Service 1990).[357]

The GMUG's plant overview profile noted there are "from three or four populations on the lower slopes of Battlement Mesa, Grand Mesa National Forest."[358]

i. Ecological conditions necessary for Colorado hookless cactus recovery

The Recovery Outline provides a general habitat description, excerpted here:

> Populations of Colorado hookless cactus occur primarily on alluvial benches (soils deposited by water) along the Colorado and Gunnison Rivers and their tributaries. Colorado hookless cactus generally occurs on gravelly or rocky surfaces on river terrace deposits and lower mesa slopes. Exposures vary, but Colorado hookless cactus is more abundant on south-facing slopes (Colorado Natural Heritage Program (CNHP) 2010a). Soils are usually coarse, gravelly river alluvium above the river flood plains, usually consisting of Mancos shale with volcanic cobbles and pebbles on the surface. Elevations range from 3,900 to 6,000 feet (ft) (1,400 to 2,000 meters (m)) (Heil and Porter 2004).[359]

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[355] 44 Fed. Reg. 58868 (October 11, 1979).

[356] 74 Fed. Reg. 47112 (September 15, 2009).

[357] U.S. Fish and Wildlife Service. 2010. Recovery Outline for the Colorado Hookless Cactus (*Sclerocactus glaucus*). USFWS at 3.

[358] Grand Mesa, Uncompahgre, and Gunnison National Forests. 2018. Colorado hookless cactus. Revised DRAFT Forest Assessments: Plant Species Overviews at 213.

[359] U.S. Fish and Wildlife Service. 2010. Recovery Outline for the Colorado Hookless Cactus (*Sclerocactus glaucus*). USFWS.

On the GMUG the predominant threats to the species include climate change and grazing by deer, and the remaining plants are protected by large plants and boulders that protect them from tramping and soil churning by the deer.[360] The deer were forced upslope by development in their winter habitat. The GMUG overview for the Colorado hookless cactus states that livestock grazing hasn't occurred in occupied habitat for about 40 years, livestock grazing is a major threat to imperiled cacti species across the Colorado Plateau.[361] Collection is a major threat on lower BLM lands.

Habitat connectivity for the species' pollinators is essential between clusters of cacti and individuals because pollination is the main mechanism of genetic exchange.[362] The bee *Agapostemon texanus* and other ground-nesting bee species may be the most prevalent pollinators, though ants and beetles may also be important.[363]

ii. Assessment of plan components relevant to the Colorado hookless cactus and recommendations

USFWS documents and the GMUG overview indicate trampling and soil disturbance by deer, along with climate change, may be the only threats to the species. The plan should include one or more plan components to mitigate this threat or explain in the EIS why this is not possible.

We appreciate the GMUG recognized the ecosystem services pollinators provide (e.g., desired condition **FW-DC-SPEC-08**) throughout the Draft Plan and that the Forest included the desired condition to promote pollinator connectivity in desired condition **FW-DC-ECO-05** and standard **FW-STND-LSU-06** to not grant permits for new apiaries. Guidelines **FW-GDL-IVSP-06**, **FW-GDL-IVSP-07**, and **FW-GDL-IVSP-09** that aim to protect pollinator habitat from invasive species and potential threats from invasive species mitigation may also be relevant for protecting the Colorado Hookless Cactus pollinators.

iii. National Environmental Policy Act Compliance

Additionally, the DEIS is not in compliance with NEPA.[364] The DEIS does not include an analysis of the direct, indirect, and cumulative effects of the plan components, suitability determinations, and potential land designations proposed under action alternatives 2, 3, and 4 on the Colorado hookless cactus. While

[360] Grand Mesa, Uncompahgre, and Gunnison National Forests. 2018. Colorado hookless cactus. Revised DRAFT Forest Assessments: Plant Species Overviews.

[361] Spector, T. 2013. Impacts to federally listed cacti species from livestock on the Colorado Plateau in Utah: A Review and Summary. Utah Field Office, Ecological Services, U.S. Fish and Wildlife Service, West Valley City, UT 68 pp.

[362] U.S. Fish and Wildlife Service. 2021. Species status assessment (SSA) report for Colorado hookless cactus (*Sclerocactus glaucus* and *Sclerocactus dawsonii*). Lakewood, Colorado.

[363] U.S. Fish and Wildlife Service. 2021. SSA for Colorado hookless cactus.

[364] See 40 C.F.R. 1502.16.

these impacts should be disclosed after consultation with the USFWS, they should have been included in the DEIS to allow for public comment at the Draft Plan stage.

- Recommendation: The EIS must include an analysis of direct, indirect, and cumulative effects of the revised plan on the Colorado hookless cactus. The EIS should include the impacts of deer trampling of the specie's habitat and the lack of plan components to address this problem. Given other issues in the DEIS, we have recommended elsewhere the GMUG provide a revised or supplemental EIS. If that occurs. The GMUG should include an effects analysis of this species.

iv. Additional Recommendations

We did not find any particular recommendations in the USFWS documents about how the GMUG can help contribute to the recovery of the Colorado hookless cactus. Most of the species' populations occur on BLM where the cactus is exposed to numerous additional threats.

- Recommendation: We encourage the Forest to include a management approach that recommends working with experts on ways to protect the population from the impacts of deer encroachment on the plant's habitat and other ways to advance recovery.

c. Gunnison sage-grouse

The Gunnison sage-grouse has been the subject of management attention for several decades. Multiple working groups and strategies across the grouse's range have been developed[365], and a candidate conservation agreement (CCA) was developed in 2013 to which the Forest Service was a party. Regardless of this attention, the bird was listed as threatened in 2014 under the Endangered Species Act (ESA),[366] and its numbers continue to decline. Its long-term survival appears dim.[367]
The GMUG provides 12% of the designated critical habitat yet represents over 30% of the high male counts in the Gunnison Basin core population.[368] This highlights the fact that while the GMUG habitat is disproportionately important for the sage grouse and likely will become more so as suitable habitat shifts to higher elevations.

The GMUG's approach in the revised plan is generally to use the existing management documents and strategies such as the 2005 Rangewide Conservation Plan and the CCA as a foundation for future management.[369] This approach concerns us given that the Gunnison sage-grouse has continued to

[365] See DEIS at 180.

[366] 79 Fed. Reg. 69192 (November 10, 2014).

[367] See US Fish and Wildlife Species Status Assessment for the Gunnison Sage Grouse starting at 52.

[368] See GMUG terrestrial assessment for species overviews at 98.

[369] See DEIS at 181 ("Under all action alternatives, we convert the CCA conservation measures into standards, guidelines, and objectives, with modifications based on best available science as cited in the proposed forest plan. This approach expands the

decline[370] despite the existence of these strategies, and population numbers are below recovery targets. Further, neither of these documents meaningfully considered climate change. Additionally, the Forest Service was recently sued for violating the Endangered Species Act related to its reliance on the Gunnison Candidate Conservation Agreement Biological Opinion for livestock grazing authorizations in the Gunnison Basin.[371] We therefore urge the GMUG to apply stronger conservation measures than those in the aforementioned agreements, as science and the precautionary principle warrant. We have suggested numerous modifications to plan components (see Chart GuSG-1) in our comments along with rationales and respectfully request that you give them thoughtful consideration.

Finally, we understand that the Forest Service manages a fraction of the Gunnison sage-grouse's total designated critical habitat and therefore may defer to other agencies for leadership around the grouse's recovery. But we urge the Forest Service to assert leadership, for instance by applying its considerable scientific expertise to predict and manage for habitat shifts and identify and address large landscape conservation needs (e.g., land acquisition and conservation of corridor zones), as well as spearheading collaborative strategies with its federal, state, and local government partners.

i. Ecological conditions necessary for Gunnison Sage-grouse recovery

Necessary ecological conditions for Gunnison sage-grouse recovery based on Primary Constituent Elements (PCE) for Gunnison sage-grouse designated critical habitat.[372]

- PCE#1: Extensive sagebrush landscapes capable of supporting a population of Gunnison sage-grouse. In general, this includes areas with vegetation composed primarily of sagebrush plant communities (at least 25 percent of the land is dominated by sagebrush cover within a 0.9-mi (1.5-km) radius of any given location), of sufficient size and configuration to encompass all seasonal habitats for a given population of Gunnison sage-grouse, and facilitate movements within and among populations. These areas also occur wholly within the potential historical range of Gunnison sage-grouse (RSC2005, pp. 32–35, as adapted from Schroeder et al. 2004, entire).
- PCE#2: Breeding habitat (lek, nesting, and early brood-rearing habitats typically used March 15 through July 15) composed of sagebrush plant communities with certain structural characteristics (cover and height) for sagebrush, non-sagebrush, total shrub, grass, and forb, including 15-40% shrub canopy cover, 10-40% grass cover and 5-40% forb cover.
- PCE#3: Summer-late fall habitat composed of sagebrush plant communities with certain structural characteristics (cover and height) for sagebrush, non-sagebrush, total shrub, grass,

CCA conservation measures from National Forest System lands in the Gunnison Basin Gunnison sage-grouse population to National Forest System lands in the Crawford, San Miguel, and Pinon Mesa Gunnison sage-grouse populations."

[370] Colorado Parks and Wildlife Gunnison sage-grouse monitoring data. Provided August 2021.

[371] *Center for Biological Diversity and Western Watersheds Project v. U.S. Dep't of the Interior et al.*, No. 1:20-cv-3580 (D. Colo. Dec. 7, 2020).

[372] 79 Fed. Reg. 69311.

and forb. It also includes wet meadow and riparian habitats. Total shrub canopy cover should be 10-35%, grass cover 10-35% and forb cover 5-35%.

- PCE #4: Winter habitat composed of sagebrush plant communities that, in general, have sagebrush canopy cover between 30 to 40% and sagebrush height of 15.8 to 21.7 inches (40 to 55 centimeters). Winter habitat includes sagebrush areas within currently occupied habitat that are available (i.e., not covered by snow) to Gunnison sage grouse during average winters.
- PCE #5: Alternative, mesic habitats used primarily in the summer-late fall season, such as riparian communities, springs, seeps, and mesic meadows.

Threats needed to be mitigated by plan standards and guidelines:

- Habitat loss due to development and associated infrastructure
- Climate change[373]
- Livestock grazing
- Roads and motorized routes
- Mineral and energy development
- Fences
- Invasive Plants
- Wildfire
- Disease[374]
- Large-scale water development
- Recreation
- Alteration of hydrologic regime (Table 87)
- Herbicide use (Table 85)

ii. Assessment of plan components in meeting ESA Section 7(a)(1) and 36 CFR 219.9(b)(1) requirements

The 2012 planning rule requires forest plans to have plan components to maintain or restore the integrity of the terrestrial and aquatic ecosystems in the plan area and the diversity of ecosystems and habitat types throughout the plan area.[375] Essentially, this requires forest plans to maintain or restore the variety of ecosystems and habitat types found or formerly found on national forests and grasslands (e.g., sagebrush steppe, wetlands, grasslands), as well as the condition of the ecosystems themselves. It

[373] This is not listed in the DEIS explicitly as a threat but clearly is one. The listing rule at 79 *Fed. Reg.* 69,192 (November 20, 2014) cites it as a threat.

[374] This is not listed in the DEIS but is identified by USFWS in the critical habitat rule and listing rule. See 79 Fed. Reg. 69272 (November 20, 2014).

[375] 36 CFR 219.8(a), 219.9(a)(1), & 219.9(a)(2).

also requires that plan components must provide the ecological conditions necessary to contribute to the recovery of federally listed threatened and endangered species.[376]

According to the DEIS at 182, the action alternatives add "specific Gunnison sage-grouse plan components consistent with FSM 2631.1 guidelines, and converts the CCA conservation measures into standards, guidelines, and objectives to be applied Forestwide in Gunnison sage-grouse habitat. The proposed Gunnison sage-grouse plan components are designed to reduce the effects of threats to the species, maintain or restore habitat, and contribute to recovery."

While there is no doubt that the proposed plan components are a major improvement over the current plan's approach, it is not at all clear that the suite of plan components is sufficient to contribute to the recovery of the Gunnison sage-grouse. This is because the plan components do not adequately address the array of threats facing the sage-grouse including, for instance, the paucity of quality and reliable mesic and seasonal habitats and the absence of ample connected habitat within and between satellite populations. The plan components are largely derived from the 2005 Range Conservation Plan and the CCA, both of which do not consider all best available science and climate change, as discussed above.

We have developed a list of best management practices (BMPs) along with a list of management direction provided in FSM 2631 and compared these to proposed plan components. Where major gaps exist between BMPs and the plan components, we offer recommendations for additions or modifications to plan components. See Chart GuSG-1 for this analysis and recommendations. The BMPs that we provide are based as much as possible on best available science for the Gunnison sage-grouse when species specific information exists and for the Greater sage-grouse or the bi-state sage-grouse when Gunnison sage-grouse-specific information is not available.

- Recommendation: Adopt recommended additions and modification to plan components in Chart GuSG-1 to assure that plan components are contributing to recovery of threatened and endangered species.

Chart GuSG-1. Comparison of best management practices derived from scientific literature, direction in FSM 2631, and proposed plan components. Where proposed plan components diverge from BMPs, we have recommended additions or modifications to the proposed plan components.

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
Landscape scale habitat	Designate and manage priority sage-grouse habitat to	Maintain, enhance and restore sage-grouse habitats,	FW-DC-SPEC-36: Sagebrush ecosystems support the habitat needs	Objective: Within three years, in coordination with USGS and other scientific experts identify important seasonal habitats and connective zones

[376] 36 CFR 219.9(b)(1)

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
mgmt. and connectivity	conserve large expanses of sagebrush steppe and all active sage-grouse leks, and brood-rearing, transitional and winter habitats. Connelly et al, 2011; Knick and Connelly 2011, citing Dalke et al. 1963; Schroeder et al. 1999; Leonard et al. 2000; Aldridge et al. 2008; Knick and Hanser 2011; Rich and Altman 2001; Beck et al. 2006.	populations and connectivity. Give priority to areas determined to have important sage-grouse populations, breeding sites or seasonal habitats. 2631.1	of Gunnison sage-grouse and other sagebrush obligate species, with a diversity of understory species, a diversity of age classes, and lack of soil disturbance that allow them to resist invasion by and conversion to cheatgrass. Forb and grass production and ground cover provide residual vegetation suitable for nesting cover. Natural wet meadows and riparian habitats within the sagebrush landscape are resilient despite a changing climate.	between them, as well as existing and potential connective zones between sub-populations. Management approach: Develop a Forest Service GuSG conservation strategy that addresses the PCEs. Modify FW-DC-SPEC-36 to say: Sagebrush ecosystems support the habitat needs of Gunnison sage-grouse and other sagebrush obligate species, with a diversity of understory species, ~~a diversity of age classes,~~ and lack of soil disturbance that allow them to resist invasion by and conversion to cheatgrass. Forb and grass production and ground cover provide residual vegetation suitable for nesting cover. Natural wet meadows and riparian habitats within the sagebrush landscape are resilient despite a changing climate. *We struck text out of this desired condition because the science does not support managing for a diversity of sagebrush classes. Sagebrush historically burned on a very long fire interval which means that large patches are even-aged.*[377]
Landscape scale habitat mgmt. and connectivity	Manage or restore Gunnison sage-grouse habitat so that at least 70 percent of the land cover is sagebrush steppe sufficient to support sage-grouse. NTT 2011: 6, citing Aldridge et al. 2008; Doherty et al. 2010; Wisdom et al. 2011; also NTT 2011: 7; Karl and Sadowski 2005; Doherty 2008; Connelly et al. 2000:		FW-DC-SPEC-36: Sagebrush ecosystems support the habitat needs of Gunnison sage grouse and other sagebrush obligate species, with a diversity of understory species, a diversity of age classes, and lack of soil disturbance that allow them to resist invasion by and conversion to cheatgrass. Forb and grass production and ground cover provide residual vegetation suitable for nesting cover. Natural wet	*See comment above related to FW-DC-SPEC-36.*

[377] Welch, B. L, and Criddle, C. (2003). Countering Misinformation Concerning Big Sagebrush. Research Paper RMRS-RP-40. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 28 p.; Bukowski, B. E., & Baker, W. L. (2013). Historical fire regimes, reconstructed from land-survey data, led to complexity and fluctuation in sagebrush landscapes. *Ecological applications*, *23*(3), 546-564.

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
	977, Table 3; Knick et al. 2013: 5-6		meadows and riparian habitats within the sagebrush landscape are resilient despite a changing climate.	
Landscape scale habitat mgmt. and connectivity	Where enduring and effective conservation does not exist on non-federal lands, seek to acquire nonfederal lands with intact subsurface mineral estate by donation, purchase or exchange in order to best conserve, enhance or restore sage-grouse habitat.			Objective: Evaluate, in coordination with local, state, and federal government entities and relevant NGOs such as land trusts, non-federal land parcels (surface and sub-surface) where effective and enduring conservation does not exist and where enhanced conservation would benefit Gunnison sage grouse. Prioritize parcels in seasonal habitats. Add relevant parcels to acquisition list under Great American Outdoors Act.
Seasonal habitats	Assure that Primary Constituent Elements in Gunnison Sage-Grouse critical habitat listing rule are met.			Desired Condition: The primary constituent elements as described in the Gunnison Sage-Grouse critical habitat listing rule are met.
Surface disturbance	Protect buffers around leks. For energy activity, buffers should be at least 4 miles. Manier et al. 2014.		FW-GDL-SPEC-43: To maintain, improve, or enhance occupied Gunnison sage-grouse habitat, surface-disturbing activities should not be permitted within 1 mile of active and inactive leks.	Standard: Protect buffers around leks. For energy activity, buffers should be at least 4 miles.
Surface disturbance	Connecting corridors should not contain roads, power lines, oil and gas developments, fences, or buildings and should be at least 1.6km in width to reduce predator concentrations. Braun 2006, NTT 2011: 13.			Standard: No new surface disturbance shall be allowed within 1 mile of identified connective zones. Existing disturbances are reclaimed as soon as the land management activity that caused the disturbance is completed.
Surface disturbance	Place a cumulative 1.5% surface		FW-STND-SPEC-42: Surface-disturbing	Standard: Surface disturbance shall not exceed 1.5% (counting non-FS lands) as measured per

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
	disturbance cap to protect the small, isolated populations outside of the Gunnison Basin. Bi-State FS FEIS at 89. In addition, apply a 3% surface disturbance cap to Tier 1 habitat in the Gunnison Basin. Bi-State BLM ROD at I, Bi-State FS ROD at 5, 13 &42. Braun 2006.		activities in designated critical Gunnison sage-grouse habitat shall incorporate reclamation measures or design features that accelerate recovery and native vegetation re-establishment of affected sage-grouse habitat, consistent with the best available scientific information.	section in satellite populations, and 3% in the Gunnison Basin habitat.
Road density	In occupied habitat and unoccupied habitat targeted for restoration, set a target to reduce route densities to achieve an open road and trail density not greater than 1 km/1km2 (.6 mi/.6 mi2). Oyler-McCance et al. 2001: 328, Wisdom et al. 2011: 464; Knick et al. 2013.	2361.1(14): Evaluate existing roads and trails for opportunities for closure or realignment away from these areas.	**For wildlife mgmt. areas only -MA-STND- WLDF-02:** To maintain habitat function and provide security habitat for wildlife species by minimizing impacts associated with roads and trails, there shall be no net gain in system routes, both motorized and non-motorized, where the system route density already exceeds 1 linear mile per square mile, within a wildlife management area boundary. Additions of new system routes within wildlife management areas shall not cause the route density in a proposed project's zone of influence to exceed 1 linear mile per square mile. Within the Flattop Wildlife Management Areas in the Gunnison Ranger District, there shall be no new routes.	*Apply no net gain in route miles approach in MA-STND-WLDF-02 to all critical habitat.* Objective: Remove unneeded or duplicative routes in GuSG habitat to reduce densities to 1 km/sq km.
Travel mgmt.	Restrict motorized and mechanized travel to designated		**FW-GDL-REC-12:** To reduce the impacts of motorized and	Standard: For over-snow motorized vehicles prohibit travel outside designated system routes and discrete areas.

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
	routes in priority and general habitat. NTT 2011: 11, *citing others*; Braun 1998		mechanized activities, prohibit motorized and mechanized travel outside of system routes.	*This is important for winter habitat conservation and is also required by subpart C of the travel management rule at 36 CFR 212.*
Travel mgmt.	No new road construction within 4 miles of active leks and avoid new roads in priority habitat. Wakkinen et al. 1992; Connelly et al. 2000; Holloran and Anderson 2005; Moynahan 2004; Holloran and Anderson 2005. Manier et al. 2014.	2361.1(14): Avoid developing new roads and motorized trails in or adjacent to areas of important sage-grouse populations, breeding sites or seasonal habitats.	**FW-OBJ-SPEC-38:** Within 10 years of plan approval, identify and permanently or seasonally close duplicative or redundant system routes and illegal routes (non-system, user-created) within 2 miles of active Gunnison sage-grouse leks.	Standard: Prohibit new motorized route construction within four miles of active leks. Modify the wording in FW-OBJ-SPEC-38 to say "Within five years of plan approval, identify and permanently close and restore duplicative or redundant system routes and illegal routes within 4 miles of Gunnison sage-grouse leks. When reseeding, use native seed and transplant sagebrush." *This is a species that is in significant decline so protecting its habitat should be a priority management action. Hence, the target timeframe should be five years. In addition, the Forest Service should not spend funds on redundant or illegal routes to keep them open, and hence the option to seasonally close these routes is removed in the revised text.*
Travel mgmt.	Implement seasonal closures to protect breeding, nesting, brood rearing and wintering sage-grouse.		FW-OBJ-SPEC-38: Within 10 years of plan approval, identify and permanently or seasonally close duplicative or redundant system routes and illegal routes (non-system, user-created) within 2 miles of active Gunnison sage-grouse leks. FW-GDL-SPEC-48: To minimize disturbance during the breeding season in occupied Gunnison sage-grouse habitat, seasonal timing restrictions on construction, maintenance, and access (except emergency maintenance), including public access, should be applied from March 1 through May 15 or as otherwise identified in	*For FW-GDL-SPEC-48: Expand seasonal closure window so that it extends from February through July 15 per USFWS critical habitat listing rule.* Modify the wording in FW-OBJ-SPEC-38 to say "Within five years of plan approval, identify and permanently close and restore duplicative or redundant system routes and illegal routes within 4 miles of Gunnison sage-grouse leks. When reseeding, use native seed and transplant sagebrush." Modify FW-GDL-SPEC-48 to add the following concept: Seasonally prohibit camping and restrict non-motorized recreation to designated routes within 4 miles of active sage-grouse leks from Feb. 15 through July 15. Additionally, make this a standard. Modify FW-GDL-SPEC-51 as follows: To minimize impact to Gunnison sage-grouse during ~~severe~~ winter~~s~~, area travel closures ~~**will** should~~ **must** be implemented to protect ~~identified grouse concentration~~ **identified or modeled over-winter Gunnison sage grouse** areas from December 1 to March 31. Closure decisions ~~will~~ **shall** be made in

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
			best available science. Roads should be closed to motorized and mechanized travel during this time period, with the following exceptions: permittees, access to private property, emergency maintenance, law enforcement, and administrative use. Travel associated with excepted uses should occur after 9 a.m. FW-GDL-SPEC-51: To minimize impact to Gunnison sage-grouse during severe winters, area travel closures should be implemented to protect identified grouse concentration areas. Closure decisions will be made in the context of managing for multiple resources, including big-game concentrations, public recreation, and range condition, and could occur anytime from December 1 to March 31. The following criteria should be considered to determine if winter conditions warrant an area closure: snow depth, temperature, snow condition and consistency, and prior year's forage availability and habitat condition.	the context of ~~managing for multiple resources, including big-game concentrations, public recreation, and range condition, and could occur anytime . The following criteria should be considered to determine if~~ winter conditions **such as:** snow depth, temperature, snow condition and consistency, and prior year's forage availability and habitat condition. [Redevelop as a standard.] Modify FW-GDL-SPEC-48 to say: "…~~should~~ shall be applied from March 1 through ~~May 15~~ July 15 or as otherwise identified in best available science…" *The rationale for this change of dates is that USFWS uses the window of March 15 to July 15 for primary constituent element #2 in the critical habitat listing rule.*
Infrastructure	Install anti-perching devices on transmission poles and towers. Bury power lines when	2641.1(9): Avoid building overhead power lines or other tall structures that	FW-GDL-SPEC-46: To reduce the potential for avian predation of Gunnison sage-grouse, require new authorizations	Rewrite FW-GDL-SPEC-46 to say "To reduce the potential for avian predation of Gunnison sage-grouse, require new authorizations and reauthorizations for infrastructure to include the most effective perch deterrent methods available

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
	possible. NTT 2011: 64, *citing* Lammers and Collopy 2007	provide perch sites for raptors within 3 km of sage-grouse habitats. Bury power lines when possible. Wind energy development is not recommended in sage-grouse core areas or important seasonal habitats.	and reauthorizations for infrastructure to include the most effective perch deterrent methods available on all powerline poles and other vertical infrastructure that are within nesting habitat or within line-of-site of lek sites.	on all powerline poles and other vertical infrastructure that are within 2 miles of nesting habitat or within line-of-site of lek sites. Bury powerlines on new authorizations unless doing so has a significant risk of weed invasions." [Change to a standard from a guideline.]
Infrastructure	Dismantle unnecessary infrastructure. Manier et al. 2014.	2631.1(8)	FW-OBJ-SPEC-40: Within 5 years of plan approval, assess and identify sections of fence lines in occupied Gunnison sage-grouse habitat with a high potential for sage-grouse collision and mortality based on best available scientific information. Evaluate options for removal (if no longer needed), relocation (if feasible), or fence marking to increase visibility.	Modify FW-OBJ-SPEC-40 to say: Within 5 years of plan approval, assess and identify sections of fence lines in ~~occupied~~ Gunnison sage-grouse habitat with a high potential for sage-grouse collision and mortality based on best available scientific information. Evaluate options for removal (if no longer needed), relocation (if feasible), or fence marking to increase visibility. **Also identify other infrastructure in Gunnison sage-grouse habitat that may be reducing sage-grouse survival. Prioritize work in occupied habitat.** Objective: Dismantle and remove 10% of unneeded infrastructure annually, prioritizing infrastructure within three miles of leks and nesting areas. Work with other federal agencies, permittees, NGOs and others to secure funding through grants and other means.
Recreation	Only allow special recreation permits that have demonstrated neutral or beneficial effects to priority habitat areas.			Guideline: Only allow special recreation permits that have demonstrated neutral or beneficial affects to priority habitat areas.
Recreation	Seasonally restrict permits in summer and winter as appropriate to protect sage grouse habitat.		**FW-GDL-SPEC-52:** To avoid disturbance to sage-grouse during the winter and breeding periods, approximately December 1 to May 15, recreation events, outfitting, and guiding permits should not be authorized within	*Change FS-GDL-SPEC-52 to a standard.*

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
			occupied habitat during this timeframe. For closure dates for the Flattop Mountain Wildlife Management Area, see instead GDL-SPEC-50. FW-OBJ-SPEC-41: Within 2 years of plan approval, modify authorizations for all special use permits authorizing winter activities in occupied sage-grouse habitat (including, but not limited to, those for recreation events, outfitters, and guides), to allow for management flexibility in the event of a severe winter, consistent with Species FW-GDL-SPEC-51, to include the following condition: "When severe winter conditions are identified, in order to protect Gunnison sage-grouse, the Forest Service reserves the right to restrict permittee's travel from identified areas and/or routes, consistent with restrictions that would be placed on general public access, from approximately December 1 to March 31." No cross country motorized routes in order to comply with travel mgmt. rule.	
Recreation	Keep dogs on leash in occupied habitat.		FW-OBJ-SPEC-39: Within 5 years of plan approval, install educational signs at all pertinent kiosks, trailheads, or road access points that serve as portals to occupied Gunnison	Standard: Prohibit dogs from being off-leash in Gunnison sage-grouse critical habitat. Modify FW-OBJ-SPEC-39 to say: Within 5 years of plan approval, install educational signs at all pertinent kiosks, trailheads, or road access points that serve as portals to occupied Gunnison sage-

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
			sage-grouse habitat to request the public to leash pets when recreating.	grouse habitat to **inform** ~~request~~ the public ~~to~~ **that they need to** leash pets when recreating **to protect imperiled wildlife**.
ROW	Sage-grouse habitat areas shall be exclusion areas for new ROWs permits with 2 exceptions: 1) For ROWs to honor valid existing rights, co-locate as possible with existing ROWs or along existing roads; 2) New ROWs can be co-located within existing ROWs with authorizations so long as footprint does not expand.		FW-GDL-SPEC-44: To minimize permanent habitat loss, new special use authorizations that entail new infrastructure development should be avoided in occupied Gunnison sage- grouse habitat. Exceptions: the right-of-way is the only reasonable access to a valid existing right, i.e., private property, water, a mineral right. FW-GDL-SPEC-45: To minimize loss of habitat connectivity within designated critical Gunnison sage-grouse habitat, for new infrastructure that requires temporary or permanent access routes (i.e., utility lines, communication sites, or other comparable infrastructure), siting options should be evaluated in conjunction with proposed access routes to determine the location that would cause the least amount of habitat fragmentation. Access routes should use existing impacted areas.	Modify FW-GDL-SPEC-44 to say: To minimize permanent habitat loss, **prohibit** new special use authorizations that entail new infrastructure development ~~should be avoided~~ in ~~occupied~~ Gunnison sage- grouse habitat. Exceptions: the right-of-way is the only reasonable access to a valid existing right, i.e., private property, water, a mineral right. **Co-locate ROWs as possible with existing ROWs or existing roads. Count new routes as part of disturbance cap.** And this should be revised to be a standard. Modify FW-GDL-SPEC-45 to say: To minimize loss of habitat connectivity within designated critical Gunnison sage-grouse habitat, **prohibit** ~~for~~ new infrastructure that requires **new** temporary or permanent access routes (i.e., utility lines, communication sites, or other comparable infrastructure) **unless necessary to honor valid existing rights (see FW-GDL-SPEC-44**). ~~, siting options should be evaluated in conjunction with proposed access routes to determine the location that would cause the least amount of habitat fragmentation. Access routes should use existing impacted areas~~. And this should be revised to be a standard.
Withdrawal and Disposal	Propose lands within priority sage-grouse habitat areas for withdrawal from mineral entry and location. NTT 2011.			Objective: Within one year, recommend to the Secretary of the Interior that Gunnison sage-grouse habitat be withdrawn from mineral location and entry.

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
Withdrawal and Disposal	Do not approve land disposals unless subsequent management will be consistent with conservation measures.			Guideline: Do not approve land disposals unless subsequent management will be consistent with conservation measures.
Range				Standard: Complete NEPA and revise AMP's for all permits within GuSG habitat prior to expiration. To create conditions in which the species evolved actions will be taken and objectives will be implemented to achieve 75-100% of the Historic Climax Plant Community (HCPC)
Range	Prioritize allotment condition monitoring in T&E habitat. Modify permits within one year if monitoring demonstrates need for improvement. For sage grouse, utilize measurable sage grouse habitat objectives and triggers for changed management.			Management approach: Prioritize allotment condition monitoring in T&E habitat. Standard: For grazing permits within Gunnison sage-grouse habitat, modify permits within one year if monitoring demonstrates need for improvement. For sage grouse, utilize measurable sage grouse habitat objectives and triggers for changed management.
Range	When updating allotment plans, incorporate best available climate change data and scenario planning to adjust allotment management plans and permits to assure Gunnison sage grouse habitat objectives can be met.			Standard: When updating allotment plans, incorporate best available climate change data and scenario planning to adjust allotment management plans and permits to assure Gunnison sage grouse habitat objectives can be met.
Range	Establish and maintain sufficiently large areas free of livestock as reference areas to aid in describing ecological site potential and as			Objective: Within three years, establish sufficiently large areas free of livestock as reference areas to aid in describing ecological site potential and as a measure of the comparative effects of livestock grazing—and relief from livestock grazing—on sage-grouse populations.

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
	a measure of the comparative effects of livestock grazing—and relief from livestock grazing—on sage-grouse populations.			*This is necessary for understanding the effect of grazing on ecosystems -- including those utilized by species recognized under the Endangered Species Act. This is especially important in the context of climate change.*
Range	Implement annual management actions to modify grazing management to meet seasonal sage-grouse habitat requirements. Consider singly, or in combination, changes in season, timing, and or frequency of livestock use; AUMs; distribution and intensity of livestock use; type of livestock.			Standard: Implement annual management actions necessary to meet seasonal Gunnison sage-grouse habitat requirements. Consider singly, or in combination factors such as: changes in season, timing, and or frequency of livestock use; AUMs; distribution and intensity of livestock use; and type of livestock.
Range, utilization	Utilization levels should not exceed 25 percent annually on uplands, meadows, flood plains and riparian habitat. Holecheck et al. 2010; BLM & USFS 1994; Braun, 2006 based on Holecheck et al, 1999:12		FW-STND-RNG-08: Livestock grazing shall not exceed moderate utilization (40 to 60 percent of the current above-ground biomass) or have a negative Grazing Response Index value in key areas. Exceptions may be allowed to meet objectives related to scientific studies, fuels reduction, invasive or non-desirable plant control, or other targeted grazing or site-specific objectives. Utilize the Rangeland Analysis Training Guide, 1996, and the Colorado Rangeland Monitoring Guide (Colorado Cattlemen's Association 2014), when assessing rangeland condition (as	Modify **FW-STND-RNG-08** to say**:** Livestock grazing shall not **exceed 30% utilization annually** ~~exceed moderate utilization (40 to 60 percent of the current above-ground biomass)~~ or have a negative Grazing Response Index value in key areas. **In habitat for species recognized under the Endangered Species Act, utilization shall not exceed 25% annually.** Exceptions may be allowed to meet objectives related to scientific studies, fuels reduction, invasive or non-desirable plant control, or other targeted grazing or site-specific objectives. Utilize the Rangeland Analysis Training Guide, 1996, and the Colorado Rangeland Monitoring Guide (Colorado Cattlemen's Association 2014), when assessing rangeland condition (as well as other methods and guides as they are developed). Adjust forage allocations and permits to reflect 30% maximum combined utilization, based on current forage production before reissuing permits.

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
			well as other methods and guides as they are developed).	
Range, timing	Grazing should not be allowed until after June 20 and all livestock should be removed by August 1 with a goal of leaving at least 70% of the herbaceous production each year to form residual cover to benefit sage-grouse nesting the following spring. Braun, 2006 based on Holecheck et al, 1999:12			Guideline: Grazing should not be allowed until after June 20 and all livestock should be removed by August 1 with a goal of leaving at least 70% of the herbaceous production each year to form residual cover to benefit sage-grouse nesting the following spring.
Range, drought	Reduce grazing in advance of predicted drought so that, to the degree possible, sagebrush habitat continues to meet sage-grouse habitat objectives. During drought periods, evaluate drought effects on grazed and ungrazed reference areas as one basis for modifying grazing instructions. Since there is a lag in vegetation recovery following drought, ensure that post-drought management allows for vegetation recovery that meets sage-grouse needs in sage-grouse habitat areas based on sage-grouse habitat	2631.1(11): When developing drought contingency plans, ensure that sage-grouse needs are considered, including cover requirements for nesting and brood-rearing periods.		Management approach: Reduce grazing in advance of predicted drought so that, to the degree possible, sagebrush habitat continues to meet sage-grouse habitat objectives. During drought periods, evaluate drought effects on grazed and ungrazed reference areas as one basis for modifying grazing instructions. Standard: Since there is a lag in vegetation recovery following drought, ensure that post-drought range management allows for vegetation recovery that meets Gunnison sage-grouse needs in critical habitat based on measurable habitat objectives.

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
	objectives. NTT 2011: 15.			
Range, grass height	Require that grazing strategies maintain at least 7 inches average grass height in nesting and brood-rearing habitat in sage-grouse range. Connelly et al. 2000 and Hagen et al. 2007.			Standard: Maintain at least 7 inches average grass height in nesting and brood-rearing habitat in sage-grouse range.
Range, invasives	Control grazing to avoid contributing to the spread of cheatgrass in sage-grouse habitat. Reisner et al. 2013; Reisner 2010 (dissertation).			Guideline: Control grazing to avoid contributing to the spread of cheatgrass in sage-grouse habitat.
Range, west Nile virus	Use BMPs to mitigate potential impacts from West Nile Virus. Clark et al. 2006; Doherty 2007; Walker et al. 2007; Walker and Naugle 2011.	2461.1(13): Limit the creation of, or design and manage new and existing artificial water impoundments to discourage breeding mosquitoes and prevent the spread of West Nile Virus where the virus poses a threat to sage-grouse.		Standard: Limit the creation of, or design and manage new and existing artificial water impoundments to discourage breeding mosquitoes and prevent the spread of West Nile Virus in Gunnison sage-grouse critical habitat.
Range, supplements	Evaluate existing structural range developments and location of supplements (salt or protein blocks) to document that they conserve, enhance or restore sage-grouse habitat. Christiansen 2009; Stevens 2011.		**FW-STND-RNG-06:** No salting or mineral supplementation shall occur on or adjacent to known populations and/or habitat of at-risk plant species, highly erosive soils, biological soil crusts, roads, and recreation trails within 0.25 mile of a water body or riparian management zone, or in known archeological sites	Modify **FW-STND-RNG-06** to say**:** No salting or mineral supplementation shall occur on or adjacent to known populations and/or habitat of at-risk plant species, highly erosive soils, biological soil crusts, roads, and recreation trails within 0.25 mile of a water body or riparian management zone, ~~or~~ in known archeological sites and other historic properties**, or within 2 miles of nesting, brood-rearing or lekking habitat of the Gunnison sage grouse.** See also the Forestwide guideline for soils, SOIL-07.

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
			and other historic properties. See also the Forestwide guideline for soils, SOIL-07.	
Range, transparency	Monitoring results of allotments within Gunnison sage grouse critical habitat and responsive changes to grazing permits are shared with Colorado Parks and Wildlife and the public.			Guideline: Monitoring results of allotments within Gunnison sage grouse critical habitat and responsive changes to grazing permits are shared with Colorado Parks and Wildlife and posted on the forest's website so that information is available to the public.
Range, fence	Fencing within 2k of an active lek should be discouraged due to potential for collisions in flight. Fencing should be designed with no more than 3-strands of wire with both top and bottom wires being barbless. If fencing cannot be removed provide flagging. Braun 2006.	2631.1(8): Increase the visibility of fences and other structures that may be hazardous to flying sage-grouse. Avoid construction of fences near leks or on the crest of low hills. Remove unnecessary abandoned fences.	FW-OBJ-SPEC-40: Within 5 years of plan approval, assess and identify sections of fence lines in occupied Gunnison sage-grouse habitat with a high potential for sage-grouse collision and mortality based on best available scientific information. Evaluate options for removal (if no longer needed), relocation (if feasible), or fence marking to increase visibility.	Modify **FW-GDL-RNG-12** to say**:** To minimize unintended wildlife impacts, annual operating instructions should require that new and updated livestock infrastructure incorporate best management practices in the Watershed Condition Practices Handbook and as recommended by Colorado Parks and Wildlife (Hanophy 2009), i.e., installing wildlife escape ramps in troughs, designing ponds with a gentle slope to avoid entrapping animals, covering open-topped water storage tanks, wire spacing on fencing to avoid wildlife entrapment**, and fence marking to avoid sage grouse collisions**. See also the Forestwide guidelines for connectivity SPEC-06 and the range objective RNG-04. Guideline: As possible avoid fencing within 2 km of active leks to reduce sage-grouse fence collisions.
Watershed management	No new water developments for diversion from spring or seep sources within Gunnison sage-grouse habitat unless sage-grouse habitat would benefit from the development. Analyze springs, seeps and associated water developments			Guideline: Prohibit new water developments for diversion from spring or seep sources within Gunnison sage-grouse habitat. Objective: Within five years, analyze springs, seeps and associated water developments to determine if modifications are necessary to maintain the continuity of the predevelopment riparian area within sage-grouse habitats. Make modifications where necessary, including dismantling water developments.

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
	to determine if modifications are necessary to maintain the continuity of the predevelopment riparian area within sage-grouse habitats. Make modifications where necessary, including dismantling water developments. NTT 2011: 16.			
Energy development	Close sage-grouse habitat areas to fluid mineral leasing, and within 4 miles of active sage-grouse leks. Manier et al. 2014.			Standard: No surface occupancy allowed for oil and gas operations within 4 miles of Gunnison sage-grouse leks or that exceed the applicable disturbance cap.
Energy development, noise	Reduce natural gas infrastructure with low frequencies, they can stress sage-grouse and the overlap creates masking, reducing the active space of detection and discrimination of all vocalization components so to not increase the difficulty of mate assessment for lekking sage-grouse. Blickley and Patricelli, 2012	2631.1(12): Limit noise levels at leks during the breeding season.	FW-GDL-SPEC-49: To avoid disturbance to Gunnison sage-grouse during the breeding season, noise resulting from management activities from March 1 to July 15 should not exceed disturbance thresholds in breeding habitat, as determined by best available scientific information.	
Energy development, timing and surface disturbance	Apply a seasonal restriction on exploratory drilling and related activities that prohibits surface-disturbing activities during the nesting and brood-rearing season in all	2631.1(12): Limit the amount of surface disturbance from energy and mining exploration and development, including providing appropriate buffers and timing	FW-GDL-SPEC-48: To minimize disturbance during the breeding season in occupied Gunnison sage-grouse habitat, seasonal timing restrictions on construction, maintenance, and access	For FW-GDL-SPEC-48: *Expand seasonal closure window so that it extends from February through July 15 per USFWS critical habitat listing rule.* Standard: Surface disturbance for oil and gas activities is prohibited within four miles of Gunnison sage grouse leks.

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
	priority sage-grouse habitat during this period.	restrictions around leks.	(except emergency maintenance), including public access, should be applied from March 1 through May 15 or as otherwise identified in best available science. Roads should be closed to motorized and mechanized travel during this time period, with the following exceptions: permittees, access to private property, emergency maintenance, law enforcement, and administrative use. Travel associated with excepted uses should occur after 9 a.m.	
Leaseable and saleable non-energy minerals	Close priority habitat to non-energy leasable mineral leasing and sales. This includes not permitting any new leases to expand an existing mine. USDA Forest Service 2016. NTT 2011.			Guideline: Prohibit leasing or sales of non-energy minerals (including mine expansions) within Gunnison sage-grouse seasonal (including winter) habitat.
Oil and gas, Density cap	Establish a cap on the density of energy development structures of an average of one well per 640 acres (2.5km) in all occupied Gunnison sage-grouse habitat. NWCO GrSG ARMPA (2015) at 1-9 & 2-14			Standard: The density of energy development structures shall be no more than an average of one well per 640 acres (2.5km) in all occupied Gunnison sage-grouse habitat.
Wind	Do not site wind energy development in priority sage-grouse habitat (Jones 2012). Site wind energy development	2641.1(9): Avoid building overhead power lines or other tall structures that provide perch sites		Standard: Site wind energy development at least five miles from active sage-grouse leks

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
	at least five miles from active sage-grouse leks. Manville 2002; LeBeau 2017; Manier et al. 2014.	for raptors within 3 km of sage-grouse habitats. Bury power lines when possible. Wind energy development is not recommended in sage-grouse core areas or important seasonal habitats.		
Veg. treatments	For vegetation treatments, fuels management and habitat restoration, sage-grouse habitat objectives are based on, in priority order, potential natural community within the applicable Ecological Site Description, (Connelly et al. 2000: 977, Table 3), or other objectives that have been demonstrated to be associated with increasing sage-grouse populations.			Management approach: For vegetation treatments, fuels management and habitat restoration in Gunnison sage grouse critical habitat, base habitat objectives on, in priority order, potential natural community within the applicable Ecological Site Description, Connelly et al. (2000: 977, Table 3), or other objectives that have been demonstrated to be associated with increasing Gunnison sage-grouse populations.
Veg. treatments	Any vegetation treatment plan must include pretreatment data on wildlife and habitat condition, establish non-grazing enclosures, and include long-term monitoring where treated areas are monitored for at least three years before grazing returns. Continue monitoring for five years after livestock			Guideline: In Gunnison sage-grouse critical habitat, vegetation treatment plans must incorporate pretreatment data on wildlife and habitat condition and an ecological reference site. Guideline: In Gunnison sage-grouse critical habitat, vegetation treatment plans must establish exclosures and include long-term monitoring where treated areas are monitored for at least three years before grazing returns. Guideline: In Gunnison sage-grouse critical habitat, for vegetation treatment projects, continue monitoring for five years after livestock are returned to the area, and compare to treated, ungrazed exclosures, as well as untreated areas.

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
	are returned to the area, and compare to treated, ungrazed exclosures, as well as untreated areas.			
Veg. treatments	Avoid sagebrush removal or manipulation in sage grouse breeding or wintering habitats. COT 2013: 44			Guideline: Avoid sagebrush removal or manipulation in sage grouse breeding or wintering habitats.
Veg. treatments	Prohibit herbicide application within 1 mile of sage-grouse habitats during season of use; prohibit use of insecticides. Blus et al. 1989			Guideline: In Gunnison sage-grouse critical habitat, do not apply herbicides within 1 mile of sage-grouse habitats during season of use and do not use insecticides.
Veg. treatments	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. Innes 2016. Baker 2011. Somershoe et al. 2020.			Management approach: 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.
Veg. treatments, native plant material	Only use locally adapted native plants and seeds. Consider potential changes in climate (Miller at al. 2011) when proposing post-fire seedings using native plants. Consider seed collections from the warmer component within a species' current range for		**FW-GDL-IVSP-06:** To prevent the spread and establishment of invasive plant species following surface-disturbing activities, areas identified as needing mitigation should be reseeded at the optimal time for optimal native revegetation per site-specific characteristics. Reseeding should be done with a	

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
	selection of native seed. Kramer and Havens 2009.		mixture of plant species native to the context area. Plant and seed materials used should be appropriate to the site, capable of establishment, and not invasive, and should include species preferred by pollinators.	
Veg. treatments, native plant material	Develop sustainable long-term native seed and plant plans to assure availability of appropriate plant material. Establish sagebrush ecosystem native seed harvest areas that are managed for seed production (Armstrong 2007) and are a priority for protection from outside disturbances.			Objective: Develop 5-year native seed and plant plans to assure availability of appropriate plant material. Establish sagebrush ecosystem native seed harvest areas that are managed for seed production and are a priority for protection from outside disturbances.
Veg treatments, post-treatment grazing	Grazing cannot resume until a treated site meets sage-grouse habitat objectives even if long-term rest is required to restore native vegetation. Anderson 1991; Anderson and Inouye 2001; Hormay and Talbot 1961; Mueggler 1975.			Modify **FW-STND-RNG-07** to say: Prior to reauthorizing grazing following wildland fire, rehabilitation, or seeding **or ecosystem restoration**, Forest Service rangeland management specialist(s)**, biologists and botanists** shall confirm range readiness on a case-by-case basis utilizing ecological condition, best management practices, desired conditions, and best available scientific information. **In Gunnison Sage Grouse habitat, this also includes meeting Gunnison sage grouse habitat objectives.** Livestock use may be authorized for rehabilitation treatments **in areas where weeds are the dominant vegetation** (i.e., to prepare a site before seeding, incorporate seed and organic matter into the soil, remove noxious weeds, etc.).
Veg. treatments, timing	Apply appropriate seasonal restrictions.	2631.1(5): Propose vegetation management projects where warranted by range condition, site potential, and		

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
		limiting factors for sage-grouse. Design of spatial patterns and treatment intervals should be based on an understanding of natural disturbance regimes. Select treatments that provide desired vegetation mosaics, while minimizing habitat recovery time to the extent possible. Plan the timing of projects to avoid the periods when wintering or nesting birds are present.		
Fire and fuels mgmt.	Design fuels management projects to ensure long term persistence of seeded or pretreatment native plants, including sagebrush and to achieve Gunnison sage-grouse habitat objectives.	2631.1(10): Coordinate with unit fire management personnel to identify important sage-grouse areas or sagebrush habitats particularly susceptible to wildfire, and develop options and strategies for their protection during wildfire incidents and management response.		Management approach: Ensure that Gunnison sage-grouse habitat objectives are incorporated into fire management plans and post-fire rehabilitation plans.
Restoration	Design post restoration management to ensure long term persistence. This			Modify **FW-STND-RNG-07** to say: Prior to authorizing grazing following wildland fire, rehabilitation, or seeding **or ecosystem restoration**, Forest Service rangeland management specialist(s)**, biologists and**

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	could include changes in livestock grazing management, free-roaming horse and burro management and travel management, etc., to achieve and maintain the desired condition of the restoration effort that benefits sage-grouse. Eiswerth and Shonkwiler 2006.			**botanists** shall confirm range readiness on a case-by-case basis utilizing ecological condition, best management practices, desired conditions, and best available scientific information. Livestock use may be authorized for rehabilitation treatments **in areas where weeds are the dominant vegetation** (i.e., to prepare a site before seeding, incorporate seed and organic matter into the soil, remove noxious weeds, etc.). *We inserted the restriction in the last sentence because best available science shows that livestock encourage the spread of weeds.*[378]
Restoration	Prioritize restoration in seasonal habitats that are thought to be limiting sage-grouse distribution and/or abundance and where factors causing degradation to have already been addressed (e.g., changes in livestock management).		**FW-OBJ-IVSP-02:** Annually, invasive species management actions are completed on at least 10 percent of inventoried acres so that new infestations are prevented; densities of existing infestations are reduced; total acres or areas infested are reduced; infested areas are restored/rehabilitated; existing infestations are contained, controlled, suppressed, or eradicated depending on infestation characteristics (size, density, species, location, etc.), management opportunities, and resource values at risk; and uninfested areas are maintained and/or protected. See also *Management Approaches for Invasives* for best	Management approach: Prioritize restoration in seasonal habitats that are thought to be limiting sage-grouse distribution and/or abundance and where factors causing degradation to have already been addressed (e.g., changes in livestock management).

[378] Reisner, M. D., Doescher, P. S., & Pyke, D. A. (2015). Stress-gradient hypothesis explains susceptibility to Bromus tectorum invasion and community stability in North America's semi-arid Artemisia tridentata wyomingensis ecosystems. *Journal of Vegetation Science*, *26*(6), 1212-1224; Reisner, M. D., Grace, J. B., Pyke, D. A., & Doescher, P. S. (2013). Conditions favouring B romus tectorum dominance of endangered sagebrush steppe ecosystems. *Journal of Applied Ecology*, *50*(4), 1039-1049*;* Bock, C. E., Bock, J. H., Kennedy, L., & Jones, Z. F. (2007). Spread of non-native grasses into grazed versus ungrazed desert grasslands. *Journal of Arid Environments*, *71*(2), 229-235.

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
			practices. Priority treatments will include, not necessarily in the following order: • Early treatment of new infestations so that they are eradicated before becoming entrenched. • Annual treatment of administrative sites until populations are eradicated. • Treatment of cheatgrass in sagebrush, particularly Gunnison sage-grouse designated critical habitat. See also the Forestwide objective for native species diversity SPEC-03. • Treatment of infestations that are or have the potential to negatively impact at-risk species.	
Invasives	Restrict activities in sage-grouse habitat that facilitate the spread of invasive plants. Monitor and control invasive vegetation in treated, burned or restored sagebrush steppe.		**FW-STND-IVSP-03:** For all proposed projects or activities, the risk of invasive and aquatic nuisance species introduction or spread shall be determined and appropriate mitigation measures shall be implemented using best management practices and integrated pest management practices (USDA Forest Service 2013b), including but not limited to decontamination procedures on vehicles and equipment and the use of weed-free products.	

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
Invasives	In sage-grouse habitat, ensure that soil cover and native herbaceous plants are at their ecological potential to help protect against invasive plants. Most sagebrush communities important to sage-grouse are expected to have a significant percentage of ground cover in biological crusts at most successional stages (Belnap et al. 2001). Perennial grasses and forb germination are aided by the presence of biological crusts (Belnap and Eldredge 2001).			Modify FW-DC-SPEC-36 to say: Sagebrush ecosystems support the habitat needs of Gunnison sage-grouse and other sagebrush obligate species, with a diversity of understory species, ~~a diversity of age classes,~~ and lack of soil disturbance that allow them to resist invasion by and conversion to cheatgrass. Forb and grass production and ground cover provide residual vegetation suitable for nesting cover. Natural wet meadows and riparian habitats within the sagebrush landscape are resilient despite a changing climate. *For rationale: see first row.*
Noise	Restrict noise to no more than 10 dBA above an ambient level of 17 dBA throughout occupied breeding and nesting habitat.	2631.1(12): Limit noise levels at leks during the breeding season.		Guideline: Restrict noise to no more than 10 dBA above an ambient level of 17 dBA throughout occupied breeding and nesting habitat.
Noise	Prohibit launching, landing, or otherwise operating drones in sage grouse breeding, brood rearing or wintering habitat.		**FW-STND-REC-09:** All unmanned aircraft systems, also known as drones, flown from and above National Forest System lands must comply with Federal Aviation Administration and U.S. Forest Service laws, regulations, and policies. Public recreational use, including launching, landing, and operating of unmanned aircraft systems shall be	*Add MA3 areas to the list of management areas where drone use is disallowed.*

BMP Topic	Best Management Practice	FSM 2631 Direction	Plan Components Proposed in Draft Plan Action Alternatives	Recommended Modifications and Additions to Proposed Plan Components
			prohibited within MA 1.1 (Wilderness), 1.2 (Wilderness to be Analyzed), 2.1 (Special Interest Areas), 2.2 (Research Natural Areas), 4.1 (Mountain Resorts), 4.2 (Recreation Emphasis Corridors), at developed recreation sites (campgrounds, designated campsites, trailheads, visitor centers, parking lots, overlooks, day-use areas, boat launches), on Forestwide roads and trails, and at trail summits. Consistent with Federal law, drones shall be prohibited to be flown overhead any visitor to National Forest System lands. **Exception:** Recreational operation of unmanned aircraft systems via special use permit could involve flight over or close to occupied use areas under certain circumstances, only if all permit requirements ensure compliance with Federal Aviation Administration and Forest Service laws, regulations, and policies. See *Recreation Management Approaches* section for more information on responsible recreational use of unmanned aircraft systems on National Forest System lands and links to Federal Aviation Administration regulations and guidelines.	

Chart GuSG-2: Treatment of Primary Constituent Elements[379] in the Draft Environmental Impact Statement for the GMUG Land Management Plan Revision.

Primary Constituent Element	Treatment in DEIS
PCE#1: Extensive sagebrush landscapes capable of supporting a population of Gunnison sage-grouse. In general, this includes areas with vegetation composed primarily of sagebrush plant communities (at least 25 percent of the land is dominated by sagebrush cover within a 0.9-mi (1.5-km) radius of any given location), of sufficient size and configuration to encompass all seasonal habitats for a given population of Gunnison sage-grouse, and facilitate movements within and among populations. These areas also occur wholly within the potential historical range of Gunnison sage-grouse (RSC2005, pp. 32–35, as adapted from Schroeder et al. 2004, entire).	Provides description of Gunnison sage-grouse needs and associated policy framework. DEIS p. 137 states: "Sagebrush shrubland is potentially departed from reference conditions for fire regime. However, as with most non-forested ecosystems in the GMUG, the overall ecological integrity of this cover type is uncertain due to limited information on pre-settlement reference conditions. Other risk factors include non-native plants, livestock use, roads, past management practices (including alteration of hydrologic regime, see table 87), and climate change." Beyond this paragraph, the DEIS does not discuss or evaluate the condition of sagebrush landscapes within the GMUG. Does not project the movement of sagebrush landscapes as a result of climate change and the implications of climate change to large landscape distribution of sage-grouse habitat types. Also, it does not explain why the system is partially departed from reference conditions and fails to refer to scientific literature that describes pre-settlement sagebrush conditions.[380] The DEIS does not provide information on the degree habitats are connected within and between populations and where opportunities exist to improve connections through improved conservation measures including land acquisition and restoration.
PCE#2: Breeding habitat (lek, nesting, and early brood-rearing habitats typically used March 15 through July 15) composed of sagebrush plant communities with certain structural characteristics (cover and height) for sagebrush, non-sagebrush, total shrub, grass, and forb, including 15-40% shrub canopy cover, 10-40% grass cover and 5-40% forb cover.	Does not provide information on location and quality of breeding habitat and shifts in such that are anticipated as a result of climate change. Does not provide information on specific threats to breeding habitat. At 140-141, DEIS says that montane-subalpine wet meadows and marshes are moderately departed from reference conditions but does not say how or where.

[379] As described in 79 *Fed. Reg*. 69,312 (November 20, 2014).

[380] See Baker, W. L. 2011. Pre–Euro-American and recent fire in sagebrush ecosystems. Pp. 185–201 *in* S. T. Knick and J. W. Connelly (editors). Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology (vol. 38), University of California Press, Berkeley, CA. Also see: Montana Fish Wildlife and Parks Sagebrush Bulletin (downloaded 8/30/2008); currently available at https://eplanning.blm.gov/public_projects/lup/36511/45862/49563/Western%20Watersheds/Montana%20Sage%20Brush%20Review.pdf; Welch, B. L, and Criddle, C. (2003). Countering Misinformation Concerning Big Sagebrush. Research Paper RMRS-RP-40. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 28 p.; Bukowski, B. E., & Baker, W. L. (2013). Historical fire regimes, reconstructed from land-survey data, led to complexity and fluctuation in sagebrush landscapes. *Ecological applications*, *23*(3), 546-564.

	At 99, the Terrestrial Assessment Species Overview says that many perennial, intermittent and ephemeral streams within the sagebrush-steppe habitat that provide important brood rearing habitat have sagebrush encroachment as a result of down-cutting and entrenchment of the stream channel, leading to contraction of the riparian zone. However, the DEIS does not attempt to quantify or spatially display which streams are suffering from entrenchment. The DEIS also critically fails to connect past and current grazing as a cause of riparian entrenchment.[381]
PCE#3: Summer-late fall habitat composed of sagebrush plant communities with certain structural characteristics (cover and height) for sagebrush, non-sagebrush, total shrub, grass, and forb. It also includes wet meadow and riparian habitats. Total shrub canopy cover should be 10-35%, grass cover 10-35% and forb cover 5-35%.	Does not provide information on location and quality of summer-late fall habitat and shifts in such that are anticipated as a result of climate change. Does not provide information on specific threats to summer-late fall habitat.
PCE #4: **Winter habitat** composed of sagebrush plant communities that, in general, have sagebrush canopy cover between 30 to 40% and sagebrush height of 15.8 to 21.7 inches (40 to 55 centimeters). **Winter habitat includes sagebrush areas within currently occupied habitat that are available (i.e., not covered by snow) to Gunnison sage grouse during average winters**.	Does not provide information on location and quality of winter habitat and shifts in such that are anticipated as a result of climate change. Does not provide information on specific threats to winter habitat.
PCE #5: Alternative, mesic habitats used primarily in the summer-late fall season, such as riparian communities, springs, seeps, and mesic meadows.	Does not provide information on the condition, distribution, or location of alternative, mesic habitats. Does not provide information on threats to specific habitat areas and does not quantify hydrologic restoration needs or priorities. This is a major deficiency because these habitats are often limiting for the Gunnison sage-grouse's continued survival.

Chart GuSG-3: Treatment of Threats to Gunnison Sage Grouse habitat in the Draft Environmental Impact Statement for the GMUG Land Management Plan Revision.

Threats	**Treatment in DEIS of Threats**
Habitat loss due to development and associated infrastructure	Discusses the effects of timber cutting on GuSG. Does not discuss the effects of other vegetation management activities including prescribed fire and pinyon-juniper woodland removal. Does not provide information on private lands within GuSG range that affect GuSG habitat and viability on USFS lands.
Climate change[382]	Discusses that climate change will exacerbate human-related threats and will likely lead to warming and drying. States that Gunnison Sage Grouse is highly vulnerable to climate change. Does not with specificity discuss projected shifts in habitat types important for GuSG (for instance the PCEs) and how these may vary under

[381] Krueper, D. J. (1993). Effects of land use practices on western riparian ecosystems. *Status and management of Neotropical migratory birds. USDA Forest Service General Technical Report RM-229*, 321-330. Poff, B., Koestner, K. A., Neary, D. G., & Henderson, V. (2011). Threats to riparian ecosystems in Western North America: an analysis of existing literature 1. *JAWRA Journal of the American Water Resources Association*, *47*(6), 1241-1254.

[382] This is not listed in the DEIS explicitly as a threat but clearly is one. The listing rule at 79 *Fed. Reg.* 69,192 (November 20, 2014) cites it as a threat.

	alternatives. States that the GMUG National Forests is entering a third drought year within a four-year period, affecting habitat conditions and ecological integrity which is leading to declining Gunnison sage-grouse population trend. DEIS at 179-180.
Livestock grazing	Does not report on how many permits incorporate CCA measures, past monitoring activities and findings, and allotments in substandard condition within GuSG Critical Habitat. Does say that better enforcement of regulations and CCA measures is needed. Does not describe the effect of livestock grazing on the most vulnerable habitats for GuSG, namely mesic habitats.
Roads and motorized routes	Provides motorized route densities for occupied and unoccupied habitat across the forest. Does not discuss the impact of illegal motorized activity and cross-country mechanized use (see Table 86). Does not discuss the impact of cross-country use during hunting season.
Mineral and energy development	At 322, states that approximately 900,000 acres of the GMUG have moderate to high geologic potential for oil and gas resources but contains no discussion or evaluation of impacts from ongoing or expected future oil and gas development on Gunnison sage-grouse. Similarly, states that the forest has a history of non-energy mineral development but does not evaluate or discuss potential impacts from this activity under the alternatives.
Fences	Does not evaluate the magnitude or intensity of threat or ways to address.
Invasive Plants	States that most Gunnison sage-grouse habitat is intact but that invasions are starting in some areas.
Wildfire	Does not discuss or evaluate the effects of fuel treatments on Gunnison sage-grouse and its habitat. Does not discuss the impacts (good and bad) of wildfire or fuel treatments on Gunnison sage-grouse and its habitat.
Disease[383]	Does not evaluate the magnitude or intensity of threat or ways to address.
Large-scale water development	Does not evaluate the magnitude or intensity of threat or ways to address.
Recreation	Discusses impacts of roads and motorized trails on Gunnison sage-grouse habitat.
Alteration of hydrologic regime (Table 87)	Does not provide any specific information regarding how impacted hydrology is impacting Gunnison sage-grouse despite the fact that mesic habitat is a major limiting factor for the species. Discusses stream entrenchment (see above) but does not discuss the causes, the magnitude, or distribution of this issue, or ways to address hydrologic impacts, especially in the face of climate change. Fails to connect altered hydrologic regimes to various causes including grazing and water diversions.
Herbicide use (Table 85)	Does not discuss in the context of Gunnison sage-grouse.

iii. National Environmental Policy Act compliance

(a) Best available science as required by the 2012 planning rule and NEPA

The DEIS does not incorporate recent scientific literature relevant to the management of Gunnison sage-grouse habitat. The 2012 planning rule requires that the Forest Service use the best available science[384] and when there is dispute about what that is, to explain its choices. NEPA requires the Forest Service to take a hard look at the environmental consequences of its actions which includes incorporating relevant

[383] This is not listed in the DEIS but is identified by USFWS in the critical habitat rule and listing rule. See 79 Fed. Reg. 69272 (November 20, 2014).

[384] 36 CFR 219.3.

scientific studies and finding into its analysis. Below we discuss three topics where best available science was not incorporated into the DEIS.

(i) The link between livestock grazing and invasive weeds

The DEIS does not acknowledge or analyze the role of livestock grazing in facilitating invasive weeds in ecosystems utilized by the Gunnison sage-grouse. Livestock grazing occurs in almost all the Gunnison sage-grouse critical habitat, yet the DEIS largely is silent on the connection between livestock grazing in arid environments and the introduction and spread of invasive annual grasses.

Reisner et al. (2013)[385] found that, even after controlling for other factors that may contribute to the spread of cheatgrass, there is a strong correlation between grazing effects and cheatgrass incursion.[386] Cattle grazing increases cheatgrass dominance in sagebrush steppe by decreasing bunchgrass abundance, altering and limiting bunchgrass composition and coverage, increasing gaps between perennial plants, and trampling biological soil crusts.[387] "These annual grasses tended to fill vacant spaces among native perennial plants creating a continuous fuel for wildfires to burn and spread[388], especially in areas where perennial herbs had been depleted by inappropriate livestock grazing.[389]

Bock et al. (2007: 233)[390] similarly found that "livestock grazing facilitated the invasion [of exotic grasses] into native grasslands, such that the proportion of total grass cover consisting of exotics was 2.5-fold greater on grazed than on ungrazed areas 22 years after we began this study." Their results demonstrated that livestock grazing served as an exogenous disturbance on the landscape in a manner that was more favorable to exotics than to most native southwestern grasses.[391] The latest research by

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[385] Reisner, M. D., Grace, J. B., Pyke, D. A., & Doescher, P. S. (2013). Conditions favouring Bromus tectorum dominance of endangered sagebrush steppe ecosystems. *Journal of Applied Ecology*, *50*(4), 1039-1049.

[386] Reisner, M. D., Doescher, P. S., & Pyke, D. A. (2015). Stress-gradient hypothesis explains susceptibility to Bromus tectorum invasion and community stability in North America's semi-arid Artemisia tridentata wyomingensis ecosystems. *Journal of Vegetation Science*, *26*(6), 1212-1224.

[387] Reisner (2013); Knick, S. T., Dobkin, D. S., Rotenberry, J. T., Schroeder, M. A., Vander Haegen, W. M., & Van Riper III, C. (2003). Teetering on the edge or too late? Conservation and research issues for avifauna of sagebrush habitats. *The Condor*, *105*(4), 611-634; and Chambers, J. C., Beck, J. L., Campbell, S., Carlson, J., Christiansen, T. J., Clause, K. J., Dinkins, J. B., Doherty, K. E., Griffin, K. A., Havlina, D. W., Henke, K. F., Hennig, J. D., Kurth, L. L., Maestas, J. D., Manning, M., Mayer, K. E., Mealor, B. A., McCarthy, C., Perea, M. A., and Pyke, D.A. 2016. Using Resilience and Resistance Concepts to Manage Threats to Sagebrush Ecosystems, Gunnison Sage-grouse, and Greater Sage-grouse in their Eastern Range: A Strategic Multi-scale Approach. Gen. Tech. Rep. RMRS-GTR-356. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. Fort Collins, CO.

[388] Brooks, M. L., D'antonio, C. M., Richardson, D. M., Grace, J. B., Keeley, J. E., DiTomaso, J. M., ... & Pyke, D. (2004). Effects of invasive alien plants on fire regimes. *BioScience*, *54*(7), 677-688.

[389] Reisner (2013); Pyke (2015).

[390] Bock, C. E., Bock, J. H., Kennedy, L., & Jones, Z. F. (2007). Spread of non-native grasses into grazed versus ungrazed desert grasslands. *Journal of Arid Environments*, *71*(2), 229-235.

[391] Milchunas, D. G., Sala, O. E., & Lauenroth, W. K. (1988). A generalized model of the effects of grazing by large herbivores on grassland community structure. *The American Naturalist*, *132*(1), 87-106; Milchunas, D. G., (2006). Responses of plant communities to grazing in the southwestern United States (No. RMRS-GTR-169). U.S. Department of Agriculture, Forest Service,

Williamson et al. (2019: 12)[392] further support these findings: "[o]ur results suggest a strong positive relation between the probability of presence and prevalence of cheatgrass and livestock grazing, particularly in unburned locations, where resistance to cheatgrass is greater than in burned locations."

Livestock trampling can also reduce and fragment biological soil crust in sagebrush steppe,[393] increasing the susceptibility of the landscape to invasion by Bromus and other weedy species in arid ecosystems.[394] Cheatgrass, however, may be less effective at invading areas with an intact biological soil crust. This notion is supported by field observations and growth chamber experiments that indicate that the presence of certain types of biological soil crusts decreases cheatgrass germination compared to bare soil.[395] Damage to the soil crust by livestock hooves can lead to an increase in the number of safe sites in which annual grasses can emerge and establish.[396]

As summarized by Chambers et al. (2016a: 37):[397]

> Biological soil crusts, which are an important component of plant communities in warmer and drier sagebrush ecosystems, can reduce germination or establishment of cheatgrass (Eckert et al. 1986; Kaltenecker et al. 1999). Disturbances or management treatments that reduce abundance of native perennial grasses and biological soil crusts and increase the distances between these perennial grasses often are associated with higher resource availability and increased competitive ability of cheatgrass (Chambers et al. 2007; Reisner et al. 2013, 2015; Roundy et al. 2014).

Excessive grazing may eventually lead to reductions in perennial plants, increases in B. tectorum dominance, and ultimately result in the conversion of sagebrush steppe habitats to (annual)

Rocky Mountain Research Station, Ft. Collins, CO; Bock, C. E., Bock, J. H., Kennedy, L., & Jones, Z. F. (2007). Spread of non-native grasses into grazed versus ungrazed desert grasslands. *Journal of Arid Environments*, *71*(2), 229-235.

[392] Williamson, M. A., Fleishman, E., Mac Nally, R. C., Chambers, J. C., Bradley, B. A., Dobkin, D. S., ... & Zillig, M. W. (2020). Fire, livestock grazing, topography, and precipitation affect occurrence and prevalence of cheatgrass (Bromus tectorum) in the central Great Basin, USA. *Biological Invasions*, *22*(2), 663-680.

[393] Warren, S. D., & Eldridge, D. J. (2001). Biological soil crusts and livestock in arid ecosystems: are they compatible?. In *Biological soil crusts: structure, function, and management* (pp. 401-415). Springer, Berlin, Heidelberg.

[394] Chambers, J. C., Germino, M. J., Belnap, J., Brown, C. S., Schupp, E. W., & Clair, S. B. S. (2016). Plant community resistance to invasion by Bromus species: the roles of community attributes, Bromus interactions with plant communities, and Bromus traits. In *Exotic brome-grasses in arid and semiarid ecosystems of the Western US* (pp. 275-304). Springer, Cham.

[395] Serpe, M. D., Orm, J. M., Barkes, T., & Rosentreter, R. (2006). Germination and seed water status of four grasses on moss-dominated biological soil crusts from arid lands. *Plant ecology*, *185*(1), 163-178 at 2.

[396] Pyke, D. A., Chambers, J. C., Beck, J. L., Brooks, M. L., & Mealor, B. A. (2016). Land uses, fire, and invasion: exotic annual Bromus and human dimensions. In *Exotic brome-grasses in arid and semiarid ecosystems of the western US* (pp. 307-337). Springer, Cham.

[397] See Chambers et al. 2016a, supra.

grasslands.[398] Loeser et al. (2007: 87)[399] found that high-intensity grazing had "strong directional effects that led to a decline in perennial forb cover and an increase in annual plants, particularly B. tectorum" in grasslands near Flagstaff, Arizona. In managing for "fire fuels" (including native plants), Chambers et al. (2016b: 294-295) cautioned that "any potential gains resulting from fine fuel removal by livestock may be counterbalanced by decreased resistance to B. tectorum due to herbivory of native plants that compete with *B. tectorum*, increased soil disturbance, and damage to biocrusts (Reisner et al. 2013)."

Lastly, multiple planning documents prepared as part of the National Greater Sage-Grouse Planning Strategy (BLM 2011) acknowledged that livestock grazing and "excessive grazing" can spread invasive plants (e.g., Buffalo DEIS 2013: 306; Bighorn Basin DEIS 2011, vol. 2: 4-146; Billings-Pompeys Pillar DEIS 2013: 3-88; Miles City DEIS 2013, vol. 1: 3-77; South Dakota DEIS, 2013: 361; Oregon DEIS 2013, vol. 1: 4-89). The draft Nevada/northeastern California plan observed that "[l]ivestock grazing is one of the vectors to introduce and or increase the spread of invasive weeds" and that "[m]ultiple factors can influence an area's susceptibility to cheatgrass invasion, including livestock grazing, perennial grass cover and biological soil crusts" (Nevada DEIS 2013: ch. 4, 54, citing Reisner et al. 2013).[400]

(ii) Grass height in Gunnison Sage-grouse habitat: 7 inches or more

Sage grouse inhabit wide-open habitats with abundant avian predators, are clumsy fliers, and rely primarily on hiding and camouflage to escape their predators. In this context, maintaining adequate grass cover in sagebrush habitat provides critical hiding cover.

The best available science has established that at least 7 inches of residual stubble height needs to be provided in nesting and brood-rearing habitats throughout their season of use. According to Gregg et al. (1994: 165)[401], "Land 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." Connelly et al. (2000)[402] reviewed the science of that

[398] Loeser, M. R., Sisk, T. D., & Crews, T. E. (2007). Impact of grazing intensity during drought in an Arizona grassland. *Conservation Biology*, *21*(1), 87-97Pyke, D. A., Chambers, J. C., Beck, J. L., Brooks, M. L., & Mealor, B. A. (2016). Land uses, fire, and invasion: exotic annual Bromus and human dimensions. In *Exotic brome-grasses in arid and semiarid ecosystems of the western US* (pp. 307-337). Springer, Cham

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[400] We cited the Draft Environmental Impact Statements here only because we had copies of those but did not have copies of the final Environmental Impact Statements which appear no longer to be available online.

[401] Gregg, M. A., Crawford, J. A., Drut, M. S., & DeLong, A. K. (1994). Vegetational cover and predation of sage grouse nests in Oregon. *The Journal of Wildlife Management*, 162-166.

[402] Connelly, J. W., Schroeder, M. A., Sands, A. R., & Braun, C. E. (2000). Guidelines to manage sage grouse populations and their habitats. *Wildlife Society Bulletin*, 967-985.

time and recommended an 18-cm residual stubble height standard. Hagen et al. (2007)[403] analyzed all scientific datasets up to that time and concluded that the 7-inch threshold was the threshold below which significant impacts to sage grouse occurred.[404] Prather (2010)[405] found for Gunnison sage grouse that occupied habitats averaged more than 7 inches of grass stubble height in Utah, while unoccupied habitats averaged less than the 7-inch threshold.

Heath et al (1997)[406] also found that near Farson, Wyoming, nests with taller grass heights were more successful than those with shorter heights. The exception to this 7-inch rule is found in the mixed-grass prairies of the Dakotas, where sparser cover from sagebrush and greater potential for tall grass have led to a recognition that a 26-cm stubble height standard is warranted.[407] Foster et al. (2014)[408] found that livestock grazing could be compatible with maintaining sage grouse populations, but notably, the stubble heights they observed averaged more than 18 cm during all three years of their study, and averaged more than 26 cm in two of the three years of the study. This finding is consistent with our conclusion based on the science that maintaining at least 7 inches (18 cm) of residual stubble is necessary to maintain or recover sage grouse populations. Thus, all available science to date is consistent with standards that maintain at least 7 inches of stubble height rangewide, and more than 10.2 inches in the Dakotas.

In contrast to the peer-reviewed, published studies referenced above, the Gunnison Sage-grouse Rangewide Conservation Plan is an unpublished, non-peer reviewed piece of grey literature. On residual stubble height, it recommends 4 to 6 inches as the standard, based on an unpublished Colorado Division of Wildlife report[409] which exists only in a version watermarked 'Draft' (it apparently never went final). Apa et al. (2004)[410] argues that some Colorado Plateau sites do not have sufficient soils to support a 7-inch growth of grasses, without providing any documentation to support this assertion. Indeed, the

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[403] Hagen, C. A., Connelly, J. W., & Schroeder, M. A. (2007). A meta-analysis of greater sage-grouse Centrocercus urophasianus nesting and brood-rearing habitats. *Wildlife Biology*, *13*(sp1), 42-50.

[404] Herman-Brunson, K. M., Jensen, K. C., Kaczor, N. W., Swanson, C. C., Rumble, M. A., & Klaver, R. W. (2009). Nesting ecology of greater sage-grouse Centrocercus urophasianus at the eastern edge of their historic distribution. *Wildlife Biology*, *15*(4), 395-404.

[405] Prather, P. R. (2010). *Factors affecting Gunnison sage-grouse (Centrocercus minimus) conservation in San Juan County, Utah*. Utah State University.

[406] Heath, B.J., R. Straw, S.H. Anderson, and J. Lawson. (1997). Sage grouse productivity, survival, and seasonal habitat use near Farson, Wyoming. Unpublished completion report to the Wyoming Game and Fish Department.

[407] See: Kaczor, N. 2008. Nesting and brood-rearing success and resource selection of greater sage-grouse in northwestern South Dakota. M.S. Thesis, South Dakota State Univ., 85 pp.; Kaczor, N. W., Jensen, K. C., Klaver, R. W., Rumble, M. A., Herman-Brunson, K. M., & Swanson, C. C. (2011). Chapter Eight. Nesting Success and Resource Selection of Greater Sage-Grouse. In *Ecology, conservation, and management of grouse* (pp. 107-118). University of California Press..

[408] Foster, M. A., Ensign, J. T., Davis, W. N., & Tribby, D. C. (2015). Greater sage-grouse in the southeast Montana sage-grouse core area. *Helena (MT): Montana Fish, Wildlife & Parks in partnership with Bureau of Land Management Study Completion Report*.

[409] Apa, A. D. (2004). Habitat use, movements, and survival of Gunnison Sage-Grouse in southwestern Colorado. *Unpublished Report. Colorado, USA: Colorado Division of Wildlife*.

[410] *Id.*

available science demonstrates that the 7-inch threshold is attainable; Prather (2010)[411] found that the average stubble height in occupied Gunnison sage grouse habitat across the Utah range of the species was greater than 7 inches. Indeed, Apa et al. (2004), in the data presented, documented numerous areas where this threshold was exceeded. The simplest explanation for the lack of stubble height across the range of the Gunnison sage grouse is grazing by cattle – virtually all the known Gunnison sage grouse habitats that exist today are very heavily grazed (often consuming 50% or more of available forage), which will inevitably result in shorter stubble heights.

(iii) The most up-to-date lek buffer data

Protecting sage-grouse leks and associated nesting and brood-rearing habitat are key to conserving the species. The DEIS does not provide an analysis of nesting and lek buffers or provide scientific justification for the buffers incorporated into plan components.

The USGS in 2014 published a literature review for effects from surface disturbance on lekking behavior.[412] The USGS summarized its findings in the following table:

[411] See Prather 2010, supra.

[412] Manier, D. J., Bowen, Z. H., Brooks, M. L., Casazza, M. L., Coates, P. S., Deibert, P. A., ... & Johnson, D. H. (2014). *Conservation buffer distance estimates for Greater Sage-grouse: a review*. US Department of the Interior, US Geological Survey.

Table 1. Lek buffer-distance estimates for six categories of anthropogenic land use and activity. Literature minimum and maximum values are distances for observed effects found in the scientific literature. Interpreted ranges indicate potential conservation buffer distances based on multiple sources. [Citations for literature minimum and maximum values are denoted using corresponding symbols in the References Cited section.]

Category	Literature minimum	Interpreted range (lower)	Interpreted range (upper)	Literature maximum
Surface disturbance	3.2km (2mi) *	5km (3.1mi)	8km (5mi)	20km (12.4mi) ◊
Linear features	400m (0.25mi) ‡	5km (3.1mi)	8km (5mi)	18km (11.2mi) ◊
Energy development	3.2km (2mi) ǂ	5km (3.1mi)	8km (5mi)	20km (12.4mi) ◊
Tall structures	1km (0.6mi) °	3.3km (2mi)	8km (5mi)	18km (11.2mi) ◊
Low structures	200 m (0.12 mi) §	2 km (1.2mi)	5.1 km (3.2mi)	5.1 km (3.2mi) «
Activities	400 m (0.25 mi) ‡	400 m (0.25 mi)	4.8 km (3mi)	4.8 km (3mi) Ψ

The NTT (2011)[413] report recommends a 4-mile lek buffer for siting industrial development in sage grouse habitat, a prescription in greater accord with the science. In the context of Gunnison sage grouse, Aldridge and Boyce (2007)[414] suggested that even larger buffers (10 km) are warranted. Aldridge et al. (2012)[415] examined Gunnison sage grouse nesting habits and recommended that roads and residential developments be sited more than 1.5 miles from crucial nesting habitat, not just the lek sites themselves; this would mean lek buffers for Gunnison sage grouse of 5.5 miles, assuming the 4-mile radius for nesting observed by Apa (2004).

Finally, the bi-state forest plan amendment adopted for most uses a 4-mile buffer around leks.[416]

- Recommendation: Use best available science in the DEIS related to climate change, invasive species and grazing, and surface disturbance buffers, especially around leks, to inform effects analysis and decision-making.

[413] (NTT) Sage-grouse National Technical Team. (2011). A Report on National Greater Sage-grouse Conservation Measures. Available at www.blm.gov/pgdata/etc/medialib/blm/co/programs/wildlife.Par.73607.File.dat/GrSG%20Tech%20Team%20Report.pdf.

[414] Aldridge, C. L., & Boyce, M. S. (2007). Linking occurrence and fitness to persistence: habitat-based approach for endangered greater sage-grouse. *Ecological Applications*, *17*(2), 508-526.

[415] Aldridge, C. L., Saher, D. J., Childers, T. M., Stahlnecker, K. E., & Bowen, Z. H. (2012). Crucial nesting habitat for gunnison sage-grouse: A spatially explicit hierarchical approach. *The Journal of Wildlife Management*, *76*(2), 391-406.

[416] USDA Forest Service, 2016. Greater Sage-grouse Bi-state Distinct Population Segment Forest Plan Amendment. Record of Decision. May 2016. Page 5.

(b) Assessment of Draft Plan Impacts Analysis to the Gunnison Sage-grouse in the DEIS

(i) Available population data and predictions

The Terrestrial Assessment Species Overview document at 97-98 states that the Gunnison sage-grouse population in the Gunnison Basin (the core population) is stable or even increasing:

The linear trendline indicates a slightly declining trend during this period. A longer time period would likely reflect a stable population trend due to lower high male counts in the early to mid-2000s. Actual high male counts for the Gunnison Basin population from 1996 to 2016 suggest an increasing population trend (Figure 3).

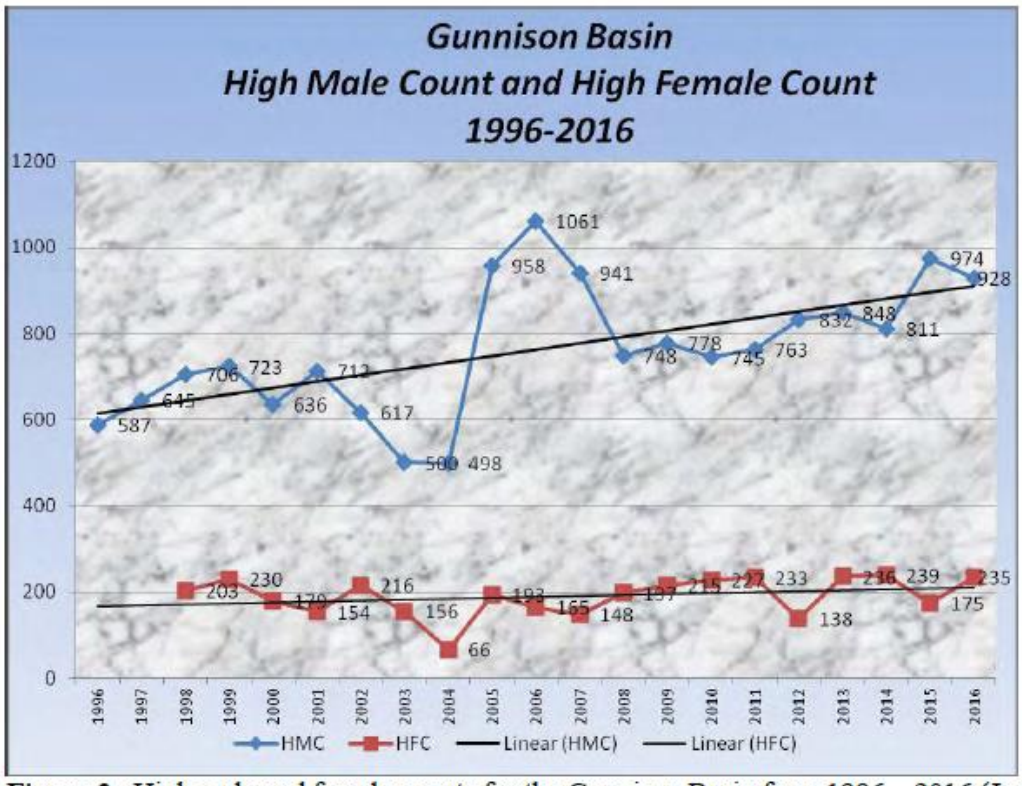
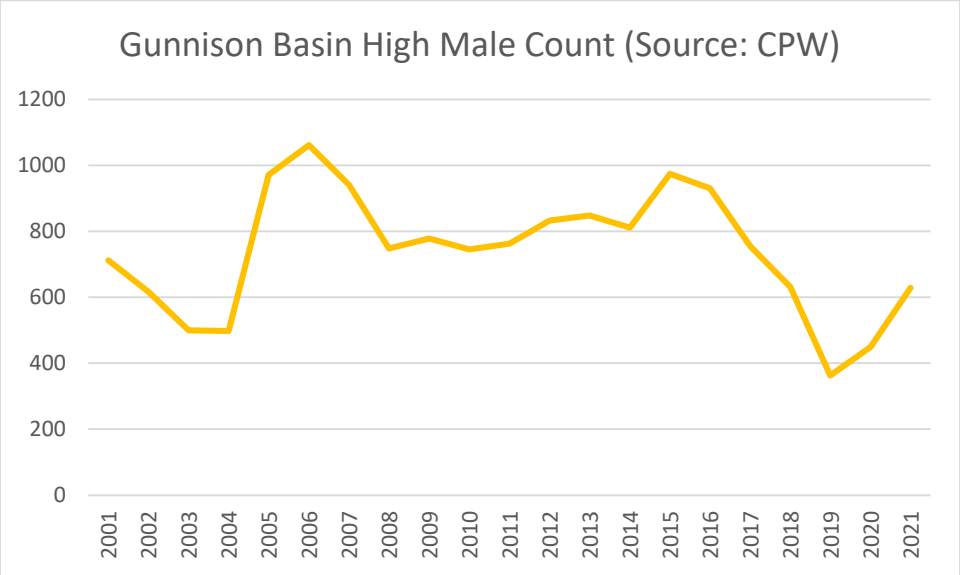


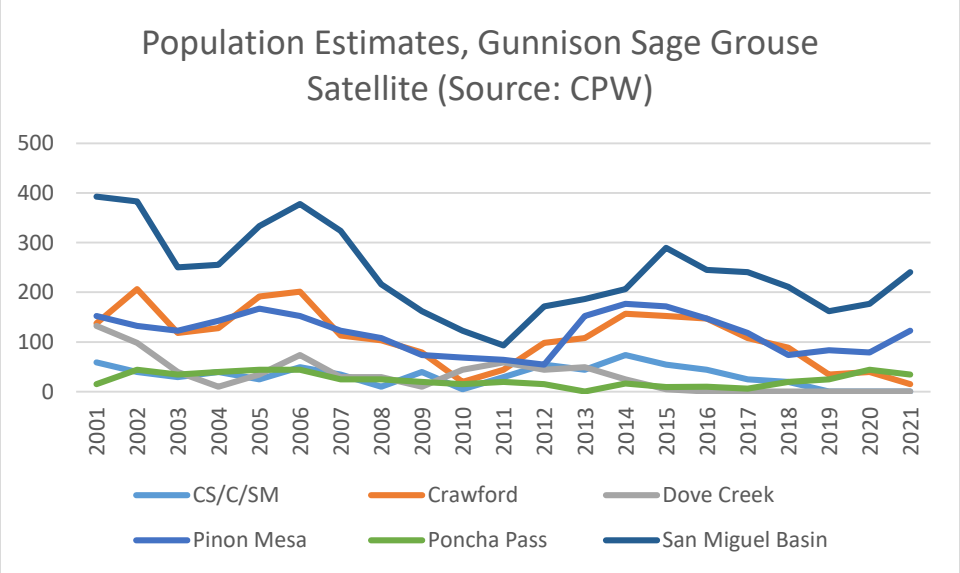
Figure 3. High male and female counts for the Gunnison Basin from 1996 – 2016 (Jackson and Seward 2016).

This conclusion, however, is not justified by the data. If we broaden out the timeframe for ascertaining population trends, we see that in fact the Gunnison Basin population (and the total population) is not faring well. To be specific, the lowest high male counts in the Gunnison Basin ever recorded were in 2019 and 2020.[417] And while the high male count rebounded to a degree in 2021, the three-year running average for the high male count at the Gunnison Basin is 480. This correlates to a current three-year

[417] We use data provided by Colorado Parks and Wildlife (CPW) Sage Grouse Program.

running average for the total Gunnison Basin population of 2,356 individuals and a 2020 three-year running average of 2,361. To put these number into perspective, the 2020 USFWS Recovery Plan set high male count recovery targets at 752 for the Gunnison Basin population.[418] Further, the Gunnison Basin CCA itself recognized a tipping point, stating that if "during the lifetime of the CCA, … the 3-year moving average of the Gunnison Basin population declines toward a population estimate of 2000 birds a) over two consecutive years, or b) over a 5-year period, CCA signatories will revisit the conservation measures and management actions outlined in the CCA."[419]





[418] USFWS Recovery Plan for the Gunnison Sage Grouse at 16.

[419] Gunnison Basin CCA at 49-50.

Similarly, the high male count and correlated total population in the San Miguel population has varied over the years. The most recent high male count running average was 39 correlating to a three-year running average for the total population of 193. The population numbers for the other satellite populations are also not encouraging.

Further, population projections are dim. The US Fish and Wildlife Service (USFWS) in its 2020 Recovery Plan established a recovery vision for the Gunnison sage grouse states that "Recovery will be signified by at least five resilient populations (Gunnison Basin, San Miguel, Pinon Mesa, Crawford and Monticello) and improved habitat in two populations (Dove Creek and CSCSM)." Yet in its 2019 Species Status Assessment Report (SSA) for the Gunnison Sage Grouse (starting on page 52), USFWS made it clear that it is highly unlikely that this recovery vision is achievable. The SSA walks through nine possible future scenarios for the Gunnison sage grouse using three condition scenarios based on climate and residential growth (continuation of current conditions, optimistic, pessimistic) and three conservation scenarios (current level of conservation, less conservation, more conservation). See Figure GuSG-1. The 2050 scenarios paint a dismal picture for the Gunnison sage-grouse. The best two scenarios -- optimistic conditions with the current level of conservation and optimistic conditions with increased conservation -- show the Gunnison Basin, San Miguel, and Pinon Mesa populations as healthy and the remaining five populations as a combination of critical, unhealthy, and moderate. No scenario – not even the optimistic conditions and increased conservation – predicts more than two satellite populations with high health. Seven of the nine scenarios result in some satellite populations in critical condition and five scenarios have at least four populations in critical condition.

The only 2050 scenario that would have a reasonable chance of achieving the recovery criteria for delisting (that is, five resilient populations) is the Optimistic, Increased Conservation scenario. It seems unlikely that this scenario will occur given that it is predicated on a "wet and warm" climate, slower residential development rates[420] with "smart" planning, decreased infrastructure and road development, effective range-wide weed management, and more aggressive habitat restoration. In other words, the likelihood that the recovery plan will lead to recovery is very small and would require a significant shift in societal values in the immediate future.[421]

Figure GUSG-1. Summary of future population conditions in 2050 as presented in the SSA, page 80. Green=high condition, yellow=moderate condition, red=low condition, and grey=critical condition.

[420] The Colorado State Demographer's Office predicts increasing human population in Gunnison, San Miguel, Mesa, and Montrose Counties through 2050. See Attachment 1. Also, the Service projected continued harm to habitat from increasing human population and residential urban and exurban development across the region containing Gunnison sage grouse populations. See 79 Fed. Reg. 69238 ("Increasing rural and exurban development in sagebrush habitats will continue impacting Gunnison sage grouse… Population increases are expected to continue into the future.…Across the six satellite populations, the human population in Colorado is forecasted to grow by about 60 percent, with most of this growth (and total number of persons) occurring in Mesa, Montrose, and Delta Counties…".

[421] Note that the recovery scenarios presume continued translocations to compensate for the lack of connectivity between populations. True recovery should not depend on unsustainable strategies such as facilitated movement.

Population Name	Current Condition	Continuation - same conservation	Optimistic - same conservation	Pessimistic - same conservation	Continuation - increased conservation	Optimistic - increased conservation	Pessimistic - increased conservation	Continuation - decreased conservation	Optimistic - decreased conservation	Pessimistic - decreased conservation
Gunnison Basin										
San Miguel										
Pinon Mesa										
Crawford										
CSCSM										
Poncha Pass										
Dove Creek										
Monticello										

In summary, the Gunnison sage-grouse long-term population trend is uncertain at best and declining at worst, and the likelihood of recovery is dim. The DEIS must include this information and incorporate it into its impact analysis.

- Recommendation: Incorporate scenario planning information from the SSA and the most recent population data from CPW into the DEIS and impacts analysis.

(ii) The DEIS fails to disclose and evaluate whether and to what degree the Gunnison sage grouse habitat on the GMUG provides the primary constituent elements.

The GMUG fails to disclose or evaluate whether and to what degree the Gunnison sage grouse habitat on the GMUG provides the primary constituent elements (PCE) as specified in the critical habitat listing rule.[422] Chart GuSG-1 above describes how the DEIS analyzes whether and to what degree the critical habitat managed by the GMUG provides the PCEs and points out ways in which the DEIS is deficient and needs improvement. Without this analysis, the GMUG cannot adequately identify plan components to assure the PCEs exist to the point that that the GMUG is contributing to the recovery of this species.

(iii) The DEIS fails to take a hard look at the threats to Gunnison sage-grouse and its habitat and how to mitigate them.

The DEIS lacks a hard look at the array of specific threats to the Gunnison sage-grouse on the GMUG and scientifically grounded approaches to mitigate them. Chart GuSG-2 describes the degree to which the DEIS describes the threats and related mitigations and identifies ways in which the DEIS is deficient and

[422] 79 Fed. Reg. 69312 (November 20, 2014).

needs improvement. This analysis is important because without a hard look at the threats (location, intensity, magnitude) the GMUG cannot adequately identify plan components to assure the threats are being adequately addressed such that the GMUG is contributing to the recovery of this species, as required by the ESA and the Planning Rule.

(iv) The DEIS fails to take a hard look at the direct, indirect, or cumulative effects of climate change on the Gunnison sage-grouse and its habitat.

The DEIS at 47 states that the Gunnison sage-grouse is highly vulnerable to climate change. Despite this, the DEIS provides virtually no analysis of the effects of climate change on the sage-grouse and its habitat. For instance, the DEIS does not discuss possible habitat shifts or the effects on seasonal habitats within the larger landscape, among other relevant issues. Climate change also is not contemplated in the cumulative effects analysis for the Gunnison Sage Grouse at 193. This absence is particularly jarring given the attention climate change is afforded in USFWS' SSA, as discussed above.

(v) The DEIS fails to take a hard look at the fact that permits are renewed without NEPA.

The DEIS fails to examine the fact that grazing permits are renewed, often multiple times over many decades, without conducting NEPA or updating terms and conditions.

- Recommendations: Address the deficiencies in the DEIS so that relevant information is being disclosed and evaluated to inform the effects analysis and decision-making.

d. Uncompahgre fritillary butterfly

The USFWS listed the Uncompahgre fritillary as endangered under the ESA in 1991.[423] The species is endemic to the San Juan Mountains of Colorado. Four known colonies occur on the GMUG.[424] It is a species with a high risk of extinction, primarily due to climate change. We acknowledge that when climate change is the most significant threat to a species with a small population, especially a high-elevation species like the Uncompahgre fritillary with limited climate refugia, the Forest Service faces a tough challenge to provide the ecological conditions to contribute to the recovery of the species. However, it is incumbent upon the agency to reduce or eliminate all anthropogenic threats to the species.

i. Ecological conditions necessary for Uncompahgre fritillary recovery

[423] 56 Fed. Reg. 28712 (June 24, 1991).

[424] DEIS, Vol. 1 at 195.

The Uncompahgre fritillary inhabits high alpine areas. The species is dependent on large patches of snow willow, which is where females lay eggs and what the larvae feed on.[425]

At the time of listing, the USFWS believed collection, small population size, trampling by human and livestock (particularly sheep), climate change, and lack of regulatory mechanisms were the primary threats.[426] The USFWS's 2018 five-year review for the species indicated these threats had lessened but not been eliminated, stating,

> Some hiking impacts continue to occur at Redcloud Peak and Mt. Uncompahgre (Alexander and Keck 2018). Trail erosion, widening, and braiding on Mt. Uncompahgre has been repaired, and trails on both mountains were moved several years ago to minimize hiking through the colonies, but portions of the trails skirt the edges of both colonies. Descending hikers have crossed the colonies, especially at Redcloud Peak (Alexander and Keck 2018). No population impacts have been noted from cross-colony hiking but recreational hiking is increasing, and it remains a potential impact.[427] [emphasis added]

The GMUG indicated in the DEIS that human and livestock trampling may still be a risk:

> … the Uncompahgre Peak population receives high visitation from hikers and people seeking to summit Uncompahgre Peak. Interpretive signing at the trailhead and along the trail informs and educates the public about this endangered species and encourages the public to stay on designated trails. We have not observed compliance issues to date.[428]
>
> The Forest does not permit livestock grazing in occupied Uncompahgre fritillary butterfly habitat. However, sheep trailing overlaps one known colony area. Sheep trailing typically occurs after the Uncompahgre fritillary butterfly flight season, and the sheep trail through the colony within a few days.[429]
>
> Minimal impacts from the livestock grazing program to the Uncompahgre fritillary butterfly may, however, occur. This would not vary among alternatives because grazing does not typically occur, except rarely due to wandering livestock, in known Uncompahgre fritillary butterfly habitat on the planning unit. Revised plan direction can provide a second level of protection

[425] 56 Fed. Reg. 28713 (June 24, 1991).

[426] 56 Fed. Reg. 28713 (June 24, 1991).

[427] U.S. Fish and Wildlife Service. (2018). Uncompahgre Fritillary Butterfly (*Clossiana improba acrocnema*) 5-Year Review: Summary and Evaluation. USFWS. Western Slope Office, Colorado Ecological Services. Grand Junction, Colorado. September 28, p. 14.

[428] DEIS, Vol. 1 at 195.

[429] DEIS, Vol. 1 at 196-197.

> from grazing, or to protect any new patches of habitat that may be discovered. This would not vary among alternatives.[430]

In its 2018 five-year review, the UFWS asserted that regulatory mechanisms were inadequate to protect the Uncompahgre fritillary, asserting,

> … the USFS closed all butterfly collecting around Mt. Uncompahgre (U.S. Forest Service 1984) prior to listing and have consulted on actions that could impact the UFB. Other areas that contain UFBs do not have butterfly collecting closures that would protect the species in the absence of listing under the ESA. Before we are able to find that adequate regulatory mechanisms exist that would protect the species upon delisting, the USFS and BLM will need to place additional closures around sites or agree to regulate collecting through special use permit issuance.[431]

The five-year review indicated that true regulatory mechanisms would need to be included in land management plans and stated,

> In conclusion, the current regulatory mechanisms that exist are not adequate to protect the UFB were the species to be delisted. We find that a management and monitoring plan that provides protection to the species and its habitat will be necessary in order to delist the species.[432]

The GMUG must include sufficient plan components in its revised plan to contribute to the recovery of the Uncompahgre fritillary; the plan's aggregate plan components should provide a conservation program to meet the Forest's ESA Section 7(a)1) obligation.

ii. Assessment of plan components in meeting ESA Section 7(a)(1) and 36 CFR 219.9(b)(1) requirements

Because of its range in high alpine altitudes, the Uncompahgre fritillary is somewhat protected from anthropogenic threats. However, livestock trailing through snow willow habitat, collection of the species for trade, and the increased level of recreation (including peak bagging) are some of the manageable threats that should be addressed in plan components.

We appreciate the inclusion of FW-STND-SPEC-26, prohibiting collection of the species without a permit. While collection of the species was once suspected of playing a role in the Uncompahgre fritillary's

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[430] DEIS, Vol. 1 at 197.

[431] U.S. Fish and Wildlife Service. 2018. Uncompahgre Fritillary Butterfly (*Clossiana improba acrocnema*) 5-Year Review: Summary and Evaluation. USFWS. Western Slope Office, Colorado Ecological Services. Grand Junction, Colorado. September 28, p. 15.

[432] U.S. Fish and Wildlife Service. 2018. Uncompahgre Fritillary 5-Year Review at 16.

decline, the FWS has reported that there has been little evidence on collection recently.[433] Illegal collection of endangered species is a significant problem for endangered species around the world. The standard would not be effective to prevent renegade collectors of the butterfly. However, we believe this is the best the GMUG can do to prevent collection of the species.

We believe the following guideline tries to accomplish too much:

> ***FW-GDL-RNG-11****: To minimize soil compaction and impacts to alpine and riparian areas and at-risk species, bed grounds for sheep should be located on rocky or otherwise hardened sites, and be located at least 0.25 mile away from riparian management zones, at-risk or rare plant species, or known at-risk butterfly habitat. Trailing sheep through these sensitive areas should be avoided.*

- Recommendation: break up guideline FW-GDL-RNG-11 and pull in the relevant pieces to create a standard that prevents sheep from trailing through Uncompahgre fritillary habitat.

We would like to see guideline **FW-GDL-SPEC-27** become a standard and be modified to strengthen its effectiveness. The guideline now reads:

> ***FW-GDL-SPEC-27****: To assist in species recovery and to avoid direct species and habitat impacts, management activities (livestock grazing and new or realigned recreation trails) should avoid occupied Uncompahgre fritillary butterfly snow willow habitat. Livestock trailing through occupied Uncompahgre fritillary butterfly habitat should conform to the biological assessment on-file with the U.S. Fish and Wildlife Service.*

We do not see how the intent of this guideline can be achieved with any departure from its terms. The GMUG must prevent livestock from moving through Uncompahgre fritillary habitat and potential recovery habitat. People should not be entering habitat or potential recovery habitat areas while hiking. The DEIS states that,

> As grazing leases cycle through permit renewal, revised management direction in all action alternatives would be taken into consideration, addressing any negative impacts associated with grazing. FW-GDL-SPEC-27 intends to avoid direct species and habitat impacts by avoiding placing management activities (livestock grazing and new or realigned recreation trails) in occupied Uncompahgre fritillary butterfly snow willow habitat, and directing livestock trailing through occupied habitat to continue to conform to the on-file biological assessment and concurrence with the U.S. Fish and Wildlife Service.[434]

[433] U.S. Fish and Wildlife Service. 2018. Uncompahgre Fritillary 5-Year Review.

[434] DEIS, Vol. 1 at 196.

Waiting for permit renewal and only taking into consideration direction to prevent livestock grazing and/or trailing in the species' habitat is not adequate and reveals the weakness of this this guideline. Permits can be amended at any time. Nearby allotments should be closed when the leases expire.

- Recommendation: change guideline FW-GDL-SPEC-27 to a standard by substituting the "should" for a "shall" or "must" to prevent human and livestock disturbance on snow willow habitat and the butterflies.

- Recommendation: adjust any grazing allotment boundaries to make them well outside of Uncompahgre fritillary habitat.

The DEIS also references guideline **FW-GDL-SPEC-19** as adding regulator certainty; it reads:

> ***FW-GDL-SPEC-19****: To maintain viable populations of at-risk species, particularly in alpine habitats, the Forest Service should limit use (motorized or non-motorized, foot, or pack stock traffic) to designated routes (seasonally or in limited areas, not Forestwide); implement seasonal closures on recreational use over limited areas; limit activities that require special use permits; and/or implement other such temporary or limited-area measures as needed to reduce impacts of recreation and forest use.*

This guideline only reaffirms the need for a species-specific, fine-filter standard to keep people and livestock out of Uncompahgre fritillary occupied habitat and potential recoverable habitat to expand occupancy.

- Recommendation: change the "should" to a "shall" (or a "must") to read, "… the Forest Service shall limit uses … ." The standard should identify the specific uses that it would employ to prevent human and livestock from entering and disturbing, degrading, or destroying snow willow areas that provide the species habitat. We would be satisfied with a standard or more that requires the Forest Service take actions to prevent human and livestock entry into habitat. The standard could provide examples of actions the agency could take, as long as the standard is clear the GMUG will employ the most effective means for achieving this objective. (An objective would also be helpful clarifying when the GMUG will take such action.)

We are glad to see Uncompahgre fritillary monitoring included in the Draft Plan. Monitoring suggests the following adaptive management action: "If populations show declining trend, consider additional management of possible risk factors via guideline SPEC-27, including domestic sheep trailing and recreation impacts."[435] However, this raises the question of why the GMUG is not taking this action now, as we suggest, now in the management plan. Including at least one standard that provides certainty that

[435] GMUG Draft Plan at 112.

livestock and people will be prevented from entering Uncompahgre fritillary habitat will prevent the need for an amendment to the plan later.

This plan will undergo consultation with the USFWS, and such consultation should already be occurring. However, the GMUG could revise plan direction now that provides management direction to eliminate livestock grazing in sensitive areas. Including a standard or two to eliminate these threats seems like low-hanging fruit for the Forest Service; it can better protect the species and contribute to its recovery and satisfy our concerns that the guidelines above do not satisfy the Planning Rule requirement or ESA Section 7(a)(1) obligations.

iii. National Environmental Policy Act compliance

Without an alternative to includes a standard that excludes livestock grazing and human intrusion into Uncompahgre fritillary occupied and potentially occupied habitat, the Draft Plan does not meet NEPA's requirement to provide a range of reasonable alternatives.[436] Additionally, the DEIS did not include an analysis of the effects of guideline FW-GDL-SPEC-19 on the species, another NEPA concern.[437] The cumulative effects analysis included standards FW-STND-SPEC-24 and FW-STND-SPEC-25 as providing regulatory certainty, assuming in relation to the Uncompahgre fritillary, but the standards do not seem to apply to the species. This makes us wonder if the GMUG might have meant to include other standards in its assessment of impacts to the species.

- Recommendation: remedy NEPA issues by including a plan standard in the proposed action and provide an adequate analysis of the standard's effects on the Uncompahgre fritillary butterfly. We believe these problems would be very easy to fix.

e. DeBeque phacelia

The DeBeque phacelia is endemic to Mesa and Garfield Counties in Colorado. The species was listed as a threatened species under the ESA in 2011[438]. Critical habitat was designated for it in 2012.[439] The GMUG manages only a small percentage of the species' occupied habitat, which totaled 13.2 ac (5.34 ha) at the time the Recovery Outline for the species was developed in 2013; there is also designated critical habitat on the GMUG.[440] Close to 87% of occupied habitat occurs on BLM land. The DEIS notes that there are 30-50 known sites in the GMUG.[441] There are nine critical habitat units for the plant, and the GMUG

[436] 40 CFR 1502.14.

[437] 40 CFR 1502.16.

[438] 76 Fed. Reg. 45054 (July 27, 2011).

[439] 77 Fed. Reg. 48367 (August 13, 2012).

[440] U.S. Fish and Wildlife Service. (2013). Recovery Outline for the DeBeque phacelia (*Phacelia submutica*). USFWS, Western Colorado Ecological Services Field Office. January, p. 4.

[441] DEIS, Vol. 1 at 129.

proportion occurs in Unit 8: Horsethief Mountain on the Grand Mesa National Forest.[442] The GMUG manages 23% of the Horsethief Mountain Unit, which is in part within the Sunnyside Roadless Area.

i. Ecological conditions necessary for DeBeque phacelia recovery

The Recovery Outline for the species describes the ecosystem and habitat features preferred by the plant:

> The plant community near DeBeque is dominated by juniper, sagebrush, and greasewood. Pinyon is present but not a dominant species because it is sparsely distributed. Within this landscape are barren areas including badlands and clay barrens that support few species. On these clay barrens, DeBeque phacelia can be found alone or in association with other "pioneer" species able to colonize dry and poor quality soils (Burt and Spackman 1995).[443]

The species faces numerous threats that must be eliminated or reduced to enable the species' recovery. The 2012 final critical habitat rule provided the following summary assessment of the Horsethief Mountain Critical Habitat Unit conditions:

> While these lands currently have the physical and biological features essential to the conservation of *Phacelia submutica*, because of a lack of cohesive management and protections, special management will be required to maintain these features in this Unit. A portion of the site on USFS lands is within a proposed Research Natural Area. … Threats to *Phacelia submutica* and its habitat in this Unit include energy development, recreation (especially OHV [off-highway vehicle] use), livestock and wild ungulate grazing and use, and nonnative invasive species, including *Bromus tectorum* and *Halogeton glomeratus*.

The GMUG plant overview profile on the DeBeque phacelia reaffirms that livestock and dirt bikes, though illegal in the area, threaten the plant's occupied habitat,

> Effects on species and habitat by current management. "The leading current disturbance to the plants and habitats of *Phacelia submutica* on the Grand Mesa National Forest is trampling by large herbivores, primarily mule deer and cattle. Livestock are not permitted on this portion of the National Forest, nonetheless there is some trampling damage at two populations from (unauthorized) trespass cattle from adjacent BLM public land. One of the sites on the Grand Mesa National Forest has been impacted by illegal off-road vehicles, mostly dirt bikes. Most of the habitats on the Grand Mesa National Forest are well-protected from access by cattle or off-road vehicles, by surrounding steep badlands and canyons. *Phacelia submutica* seems relatively

[442] 77 Fed. Reg. 48368 (August 13, 2012).

[443] U.S. Fish and Wildlife Service. 2013. Recovery Outline for the DeBeque phacelia (*Phacelia submutica*). USFWS, Western Colorado Ecological Services Field Office. January, p. 3.

> secure on National Forest System Lands, based on what we know about its populations and habitats on this National Forest.[444]

Given the threats described in the above statement, the conclusion that the species "seems relatively secure" seems overly optimistic. The overview profile indicates this information is a least six years old, and dirt biking, OHV use, and other recreational activities on Grande Mesa have increased since that time.

The Forest Service should note that the final listing rule for the DeBeque phacelia concluded that the "existing regulatory mechanisms do not address the primary threats to *P. submutica* … ."[445] The listing rule described the issues with the Forest Service:

> Trampling by mule deer and trespass cattle has damaged plants and habitat at two sites on the Grand Mesa National Forest; ORVs [off-road vehicles] have impacted another site (USFS 2010; CNHP 2010a, pp. 24–82). Most of the habitat is protected from access by steep badlands and canyons. The habitat is open to oil and gas leasing with an NSO [no surface occupancy] stipulation.[446]

The listing rule added, "[r]egulatory mechanisms on USFS lands do not protect the species, because such restrictions are not in place, and the NSO stipulation can be waived in some cases ... ," and "[s]ensitive species designations provide policies to be carried out with the resources available, but they do not provide regulations to protect this species from losing habitat and seed banks to energy development projects, cattle trampling, or ORV traffic over the next 10 to 20 years."[447]

ii. Assessment of plan components in meeting ESA Section 7(a)(1) and 36 CFR 219.9(b)(1) requirements

Despite the GMUG overseeing only this small portion of occupied habitat, the Forest Service must do everything it can to eliminate threats to the species on land it manages. This is especially true because of the large threat of oil and gas extraction on BLM lands and due to climate change impacts; it's not inconceivable that the GMUG percentage of occupied habitat for this species could grow while the BLM percentage shrinks. This notion is supported by the USFWS's final critical habitat rule for the species, which states,

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[444] Grand Mesa, Uncompahgre, and Gunnison National Forests REVISED DRAFT Forest Assessments: Plant Species Overviews. March 2018, p. 195.

[445] 76 Fed. Reg. 45072 (July 27, 2011).

[446] Ibid.

[447] Ibid.

> We believe it is necessary to conserve habitat across the entire range of the species to account for the variation in local weather events, to allow for plants to grow at some sites and not others on an annual basis. Because climatic factors dramatically influence the number of P*. submutica* individuals that are produced in a given year, we identify climate as a physical or biological feature for the plant; however, we recognize that we are unable to identify exactly what these climatic factors encompass except that the amount of moisture and its timing is critical.[448]

We are concerned by reports of the inability to keep trespass livestock and dirt biking out of occupied habitat. The plan should address these threats, and we provide an analysis of the proposed plan components, potential protective land designations, and provide recommendations for the final revised plan. In sum, we support the intent of the objectives applicable to the species. However, we believe the aggregate plan components are insufficient to contribute to the recovery of the species. We support FW-GDL-IVSP-07, FW-GDL-SPEC-31, FW-STND-SOIL-03, and FW-GDL-SOIL-07.

We provide additional commentary on the plan components below.

> ***FW-OBJ-SPEC-29****: Within 2 years of plan approval, install wildlife cameras near occurrences of Sclerocactus glaucus and Phacelia submutica to increase understanding of potential big game impacts. If evidence indicates negative impacts from wildlife are occurring, work with Colorado Parks and Wildlife to mitigate these impacts.*

We support the inclusion of objective FW-OBJ-SPEC-29. Though the area is likely used by bighorn sheep as well as elk and possibly other ungulates, the objective indicates the Forest Service is willing to protect a federally threatened species in a potential wildlife conflict situation with an imperiled plant species. As we've stated elsewhere in these comments, we support the inclusion of bighorn as SCC. But the phacelia has such a limited area of occupancy on the Forest, its protection in this area should have priority.

> ***FW-OBJ-SPEC-30****: Within 3 years of plan approval, implement actions to minimize the potential for illegal off-route motorized travel within 600 feet of known occurrences of Sclerocactus glaucus and Phacelia submutica. Such actions may include construction of adequate turn-around and pull-off areas, as well as fencing and/or physical barriers where necessary. If used, physical barriers should be compatible with the design/development/management level of trail.*

We appreciate the inclusion of an objective in the Draft Plan intended to address the threat of illegal recreation from occurring in critical habitat and other potential habitat areas. However, objective **FW-OBJ-SPEC-30** seems to accept that illegal off-route motorized recreation is going to occur, and the concern is keeping the illegal activity away from plan occurrences. The Forest Service should be asking: how can the revised plan provisions prevent illegal motorize recreation from occurring in the roadless area?

[448] 77 Fed Reg 48381 (August 13, 2012)

- Recommendation: Additionally, because objectives are budget-dependent and not beholden to strict timelines, even when stated in the objective language, we recommend a standard be included in the revised plan that explicitly prohibits motorized recreation in the DeBeque phacelia's critical habitat area and any area that may include potential occupied habitat to allow for the population to expand.

FW-OBJ-IVSP-02*: Annually, invasive species management actions are completed on at least 10 percent of inventoried acres so that new infestations are prevented; densities of existing infestations are reduced; total acres or areas infested are reduced; infested areas are restored/rehabilitated; existing infestations are contained, controlled, suppressed, or eradicated depending on infestation characteristics (size, density, species, location, etc.), management opportunities, and resource values at risk; and uninfested areas are maintained and/or protected. See also Management Approaches for Invasives for best practices. Priority treatments will include, not necessarily in the following order:*
• Early treatment of new infestations so that they are eradicated before becoming entrenched.
• Annual treatment of administrative sites until populations are eradicated.
• Treatment of cheatgrass in sagebrush, particularly Gunnison sage-grouse designated critical habitat. See also the Forestwide objective for native species diversity SPEC-03.
• Treatment of infestations that are or have the potential to negatively impact at-risk species.

We support this inclusion of objective **FW-OBJ-IVSP-02**. However, the objective won't make a difference to the DeBeque phacelia if the species' habitat is not prioritized for invasive species eradication.

FW-GDL-IVSP-09*: To prevent the introduction of invasive plant species, gravel and other soil or fill products placed on National Forest System lands should be sourced from pits that are free of invasive species.*

- Recommendation: Guideline **FW-GDL-IVSP-09** should be a standard, given the magnitude of the threat of invasive plant species to native ecosystems and species. Though the original source is unknown, the Forest Service's website cites this alarming statistic: "[i]nvasive species have contributed to the decline of 42% of U.S. endangered and threatened species, and for 18% of U.S. endangered or threatened species, invasives are the main cause of their decline."[449] There is no alternative means to achieve the intent of this guideline, and it, therefore, should be a standard.

iii. National Environmental Policy Act Compliance

[449] USDA, U.S. Forest Service website, Invasive Plants. Visited November 1, 2021.

Additionally, the DEIS is not in compliance with NEPA.[450] The DEIS does not include an analysis of the direct, indirect, and cumulative effects of the plan components, suitability determinations, and potential land designations proposed under action alternatives 2, 3, and 4 on the DeBeque phacelia. While these impacts should be disclosed after consultation with the USFWS, they must be included in the DEIS to allow for public comment at the Draft Plan stage.

- Recommendation: The Forest Service must provide a supplemental EIS or revise the DEIS and offer an opportunity for public comment on a supplemental or re-issued draft EIS before issuing a final EIS to comply with NEPA.

iv. Additional Recommendations

Despite the inclusion of plan components (objectives) to address threats to the DeBeque phacelia, the Draft Plan does not go far enough to provide the ecological conditions that will contribute to the recovery of the species as required by 36 C.F.R. 219.9(b)(1) or to represent a conservation program under Section 7(a)(1) of the ESA. We provide recommendations for achieving these essential requirements below.

- Recommendation: The Forest Service should designate the Lower Battlement Mesa Proposed Research Natural Area as proposed in Alternative D to help eliminate stressors, including motorized vehicle use, to the DeBeque phacelia. Establishing designations is a recovery action recommended in the Recovery Outline: "Work with land management agencies and other partners to formally establish land management designations to provide for long-term protection of populations and habitat."[451] It is also a special management consideration included in the final critical habitat rule: "establishment of additional protection areas that provide greater protections for the species."[452]

- Recommendation: The Forest Service should develop plan standards to limit and eliminate the threats to the species and habitat stressors for the purposes of contributing to the recovery of the DeBeque phacelia, and also to develop regulatory mechanisms, a deficiency of Forest Service policy as concluded by the species' final listing rule.[453] This includes a need for standards to prevent habitat disturbance by dirt bikes, other vehicles and trespass cattle, and waiver of an NSO stipulation. The Recovery Outline[454] actions include the following, which can provide guidance for assuring sufficient regulatory mechanisms to contribute to the recovery of the species:

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[450] See 40 CFR 1502.16.

[451] US Fish and Wildlife Service. (2013). Recovery Outline for the DeBeque phacelia (*Phacelia submutica*). USFWS, Western Colorado Ecological Services Field Office. January, p. 15.

[452] 77 Fed. Reg. 48384 (August 13, 2012).

[453] 76 Fed. Reg. 45054 (July 27, 2011).

[454] US Fish and Wildlife Service. (2013). Recovery Outline for the DeBeque phacelia.

• Implement protective measures such as fencing, controlled management of livestock use, nonnative species control and additional measures to avoid or minimize impacts to the species and its habitat.
• Coordinate with land managers, project proponents, and other partners early in the planning process to limit direct and indirect effects of oil and gas development, grazing, OHV recreation, weeds, and additional threats that arise in or near the species habitat.
• Work with land management agencies and other partners to formally establish land management designations to provide for long-term protection of populations and habitat.
• Ensure that additional oil and gas leases avoid or require no surface occupancy stipulations for leases in or adjacent to occupied and suitable habitat.
• Consider installing livestock exclosures for both protection and monitoring purposes.

- Recommendation: Provide regular monitoring for the species population and habitat, using direction from the Recovery Outline, excerpted here:[455]
  • Complete a comprehensive survey throughout the species' range, including areas designated as "potential habitat". Survey results should provide an accurate population estimate and allow us to identify core population areas so we can more effectively protect the species.
  • Establish a survey protocol to identify areas of suitable habitat during years in which few above-ground plants are found. This protocol must consider an evaluation of habitat components that support DeBeque phacelia.
  • Establish a long-term monitoring plan to document rangewide population demographics and trends, and quantify the affects from threats. An adaptive management approach that uses feedback from implemented, site-specific recovery tasks should be integrated into the plan to inform recovery activities.

2. Problems with the Species of Conservation Concern Selection Process

In accordance with the 2012 planning rule that governs national forest and grassland management planning, the Regional Forester must identify species of conservation concern (SCC). These are species that occur in the plan area of which the "best available scientific information indicates substantial concern about the species' capability to persist over the long-term in the plan area."[456] The Forest Service's planning directives provide guidance for selecting SCC.[457] The Responsible Official, in this case the Regional Forester, has some discretion over plan decisionmaking. However, determinations about which species to include as SCC cannot be arbitrary.

[455] US Fish and Wildlife Service. 2013. Recovery Outline for the DeBeque phacelia (*Phacelia submutica*). USFWS, Western Colorado Ecological Services Field Office. January, p. 15.

[456] 36 CFR 219.9(c).

[457] In this case the "directives" are found in the Forest Service's Land Management Planning Handbook: FSH 1909.12, Ch. 10, 12.52.

We contend the Regional Forester has not identified SCC for the GMUG in compliance with Forest Service regulations and policy. Particularly, we believe misinterpretations of the planning rule and directives have resulted in the exclusion from the current SCC list of several imperiled species that warrant SCC designation. In several ways, these misinterpretations of policy that set the framework for the SCC identification process defy established best available scientific principles of wildlife ecology and conservation biology. We see four primary problems with how SCC were identified for the GMUG:

1. Misinterpreting how to apply the planning directives, resulting in an inappropriately high bar for making determinations;
2. Not sufficiently considering species that fall into one or more categories under Section 12.52d(3) of the planning directives, including species identified by the State of Colorado as high priorities for conservation;
3. Making arbitrary determinations based anecdotal information, incorrect information, undefined concepts, and/or the inappropriate use of scientific concepts;
4. Failing to use and document the best available scientific information in determinations; and
5. Overly Restrictive Interpretation of Occurrence in the Plan Area.

For these reasons, we see no alternative but the Regional Forester correcting errors in the SCC selection procedure for the GMUG. Many of the species rejected from SCC designation under the Region 2 process would likely meet the appropriate thresholds for inclusion if the criteria had been used appropriately.

See Appendix.

In the Appendix, we provide a detailed review of these problems and lists of imperiled species the Regional Forester should reevaluate for SCC designation for the GMUG with justifications as to why they should be reevaluated.

3. Species of Conservation Concern

With some exceptions and a few modifications to plan components, we believe the GMUG planning team provided plan components that will maintain the viability of three fauna SCC. We believe the Draft Plan's plan components provide the ecological conditions necessary to maintain the viability of the Nokomis fritillary or great basin silverspot, river otter, and brown-capped rosy-finch in accordance with 36 C.F.R. 219.9(b)(1). We urge the GMUG to incorporate the following recommendations for other SCC species.

a. Boreal Toad

We recommend the following changes to plan components that apply to the boreal toad:

FW-GDL-SPEC-20*: To protect winter hibernacula for boreal toad (overwintering habitat such as small animal burrows), within a 1.6-mile radius (per Campbell 1970) of documented boreal toad breeding sites, operating ground-based equipment off of existing roads (temporary or permanent) during winter months (November – March) should only take place when there is at least 1 foot of packed snow or 4 inches of frozen soil. See also the Forestwide standard and guideline for aquatic ecosystems AQTC-04 and AQTC-09, and the Forestwide guideline for the conservation watershed network, SPEC-56.*

FW-GDL-SPEC-21*: To prevent incidental mortality and deleterious effects to rearing habitat, within a 0.5-mile radius of documented boreal toad breeding sites, operating ground- based equipment off of existing roads (temporary or permanent) during non-winter months should avoid the following time periods for breeding and juvenile development: May 1 – September 30 for sites below 10,000 feet; May 15 – September 15 for sites at or higher than 10,000 feet.*

We recommend no use of ground-based equipment off of designated roads within half a mile of boreal toad breeding sites from May 1-September 15 or 30 (depending on elevation). However, GDL-SPEC-22 would restrict instream and wetland disturbances and construction of new water structures for only a quarter mile around such sites. Guidelines SPEC-21 and -22 should be combined into one standard which applies the half-mile buffer around instream and wetlands to construction as well as other activities. We recommend a standard because protection of boreal toad habitat must be required to help this species recover to full, viable populations. In this case, we do not see how any departure from the terms of this guideline can satisfy the intended outcome without developing this into a standard, which is described in 36 C.F.R. 219.7(e)(1)(iv).

FW-STND-AQTC-05*: New, replacement, and reconstructed crossings (culverts, bridges, and other stream crossings) and in-stream structures (impoundments, diversions, and weirs) on perennial streams and on intermittent streams known to be used by native fishes (bluehead sucker and flannelmouth sucker) for spawning, will accommodate flood flows and allow aquatic organism passage, unless the accommodation would increase non-native species encroachment on native fish and amphibian habitat. Exceptions include temporary structures in place for less than one year. See also the Forestwide guideline for connectivity, SPEC-06.*

We recommend that “temporary” structures in place for up to a year should not be exempted from this standard, which requires accommodation of flood flows and organism passage. Allowing this standard to be ignored for a year could delay or thwart recovery of fish and amphibian populations.

FW-GDL-SPEC-06*: To conserve wildlife and fish habitat connectivity and restore natural hydrologic function, constructed features (e.g., exclosures, water developments, range improvements, fences, and culverts) should be maintained to support the purpose(s) for which they were built and removed when no longer needed or modified to provide benefits to wildlife. New infrastructure should be designed to maintain, improve, or at a minimum reduce impacts to habitat connectivity, and as*

recommended by Colorado Parks and Wildlife (Hanophy 2009) and other best available scientific information. See also the Forestwide standard for aquatic ecosystems, AQTC-05.

AQTC-05, referenced here, requires crossings and in stream structures to be maintained in a way that "allow[s] aquatic organism passage." **GDL-SPEC-06** addresses "constructed features" including water developments and culverts and requires them to be "removed when no longer needed or modified to provide benefits to wildlife." It also says that "[n]ew infrastructure should be designed to maintain, improve, or at a minimum reduce impacts to habitat connectivity."

- Recommendation: The purpose here is very similar to that of **STND-AQTC-05**, thus **SPEC-06** should be a standard or combined with AQTC-05 and retained as a standard to ensure aquatic organism passage and habitat connectivity.

- Recommendation: We recommend a Guideline implementing best available science providing a minimum herbaceous retention within amphibian habitat of 70%. See attached Literature Review and Analysis of Scientific Information for the Conservation Assessment for Columbia Spotted Frogs and Boreal Toads on the Bridger-Teton National Forest.458

b. Gunnison's Prairie Dog

The plan components in the Draft Plan are insufficient to maintain the viability of the Gunnison's prairie dog on the GMUG. We appreciate the inclusion of standard **FW-STND-SPEC-24**, "*To maintain population viability, surface-disturbing activities shall not be authorized on Gunnison's prairie dog colonies*." However, we also contend that disturbance to prairie dog colonies should be restricted year-round to prevent motorized vehicles and domestic dogs from disturbing prairie dogs. We further recommend that modification be made to **FW-GDL-SPEC-25**, which restricts disturbance only from March 1 to June 15. However, we agree that disturbance should be prevented during the breeding season.

Stressors and threats to prairie dogs and habitat include shooting, poor range condition, energy and mineral development, plague, poisoning, poor habitat connectivity, and destruction of habitat through motorized use and other activities.[459] Several of these cannot be addressed with coarse-filter, ecosystem plan components. Thus, it is important to incorporate fine-filter plan components to maintain and restore viable populations of prairie dogs and well-distributed prairie dog colonies to promote grassland integrity. We made the following recommendations in our scoping comments, and they still apply.

- Recommendation: Develop plan standards that address the following threats.

[458] DeLong, D. (2015). Literature Review and Analysis of Scientific Information for the Conservation Assessment for Columbia Spotted Frogs and Boreal Toads on the Bridger-Teton National Forest. Version 3.0. U.S. Forest Service, Bridger-Teton National Forest. Jackson, WY. May 20

[459] Pauli, J. N., & Buskirk, S. W. (2007). Recreational shooting of prairie dogs: A portal for lead entering wildlife food chains. *The Journal of Wildlife Management*, *71*(1), 103-108; Seglund, A.E. and P.M Schnurr. (2010). Colorado Gunnison's and white-tailed prairie dog conservation strategy. Colorado Division of Wildlife, Denver, Colorado, USA.

- Prohibit recreational shooting of prairie dogs.
- Prohibit lethal control of prairie dogs.
- Close and obliterate roads and motorized activity in and around prairie dog colonies and re-introduction sites to minimize disturbance and discourage shooting.
- Prevent plague by implementing a plague management and reduction programs that includes the use of insecticide dusting and vaccination.[460]

➢ Recommendation: Consider the following for developing guidelines.
- Identify and implement feasible and effective techniques to assist in prairie dog population recovery following plague epizootic events.
- Develop a public education program to expand the understanding and appreciation of the prairie dog's role in grass- and shrubland ecosystems.
- Reintroduce and translocate prairie dogs to augment the Forest's prairie dog populations.
- Work with other public land agencies and stakeholders to identify management emphasis areas where intensive management can focus on landscape scale conservation for the entire prairie dog ecosystem. Develop a plague surveillance program to enable immediate management of plague outbreaks.[461]

c. Pronghorn

Fencing to contain livestock presents a habitat stressor to pronghorn, because improper fencing can fragment their habitat and prevent them from moving to seasonal areas. Fences can also present impediments to pronghorn escaping from predators. Instead of jumping fences, pronghorn tend to pass through fences by going under them. However, this requires the bottom strand be high enough to allow passage and the avoidance of using woven wire fence.

➢ Recommendation: Develop a standard that requires the bottom strand of fences be smooth wire and no lower than 18 in (46 cm). Additionally develop an objective that sets a timeline to replace or repair not compliant fences, prioritizing pronghorn corridors.

Additionally, we recommend some modifications of the Draft Plan guidelines below.

FW-GDL-SPEC-16*: To maintain long-term population viability and herd distribution objectives, travel route re-alignment options should be considered in association with any new project proposal in order to create larger contiguous habitat blocks and security areas, ultimately reducing the amount of fragmentation. This guideline applies to big game production areas, migration corridors, severe and critical winter range, and winter concentration areas as mapped by Colorado Parks and Wildlife.*

[460] Seglund, A.E. and P.M Schnurr. (2010). Colorado Gunnison's and white-tailed prairie dog conservation strategy. Colorado Division of Wildlife, Denver, Colorado, USA

[461] Adapted from Seglund, A.E. and P.M Schnurr. (2010). Colorado Gunnison's and white-tailed prairie dog conservation strategy. Colorado Division of Wildlife, Denver, Colorado, USA

Route re-alignment to create larger contiguous habitat blocks and security areas may increase the route density in some areas on edges of these mapped habitats, provided that habitat connectivity is maintained and the overall density of routes in the interior of these habitats is reduced.

Most of this guideline should be a standard because big game need large blocks of secure habitat. Requiring route realignment in appropriate locations would help create these security blocks. The last part of this component, stating that such realignment can lead to an increase in route density on the edge of habitat, can be a guideline.

***FW-GDL-SPEC-15**: To maintain long-term population viability and desired herd distribution, new activities above and beyond the existing disturbance baseline that displace bighorn sheep, Rocky Mountain elk, mule deer, and pronghorn antelope should not be authorized in production areas during their reproductive period (table 4) and severe and critical winter range and winter concentration areas during the winter (table 5). For existing recreational use, see FW-GDL-REC-07 and -08 for adaptive management thresholds. The areas described are delineated by Colorado Parks and Wildlife and are updated as data or conditions change. Though these Colorado Parks and Wildlife-delineated areas provide baseline information, these timing limitations could be applied to additional areas.*

This guideline and Tables 4 and 5, establishing restrictions on activities that could disturb big game during their reproductive periods or while on winter range, should be a standard. It is very important to minimize disturbance to big game animals during their reproductive and early brood-rearing periods each year, as well as when they are on winter ranges. Exceptions could be allowed for emergencies (e. g., removal of hazard trees along open roads) and where a biologist determines, based on local data, that the animals can be sufficiently protected with differently dated restrictions.

Table 4. Big game timing restrictions for production area

Species	Dates of Restriction
Pronghorn antelope	May 1 – July 1
Elk	May 15 – June 30
Mule deer	June 1 – July 31
Rocky Mountain bighorn sheep lambing areas	April 15 – June 30
Desert bighorn sheep	February 1 – May 1

Table 5. Big game timing restrictions for severe, critical winter range and winter concentration areas

Species	Dates of Restriction
Pronghorn antelope	December 1 – April 30
Elk	December 1 – April 30
Mule deer	December 1 – April 30
Rocky Mountain bighorn sheep	November 1 – April 15
Desert bighorn sheep	December 1 – April 15

We appreciate the GMUG planning team giving serious consideration to the ecological conditions required for SCC persistence. We urge you to incorporate the recommendations above.

d. Desert and Rocky Mountain bighorn sheep

i. Identification of both bighorn sheep subspecies as species of conservation concern

The SCC analysis for bighorn sheep is a case study in the arbitrary application of the SCC determination criteria. See the Appendix. We urge the Regional Forester to designate the Rocky Mountain bighorn sheep and desert bighorn sheep as SCC for the GMUG and develop stronger plan components to assure the viability of these subspecies in the plan area. Both subspecies continue to be designated as Regional Forester Sensitive Species, and the Region 2 sensitive species list was updated recently—December 2018.[462] Both are CPW Species of Greatest Conservation Need.[463] Colorado Department of Natural Resources has formally requested that the GMUG include both bighorn subspecies as SCC.[464]

In addition, bighorn sheep are designated SCC in the adjacent Rio Grande National Forest. This is particularly important because core habitat for two herds (RBS-21 & RBS-22) is shared between the two national forests.

While both GMUG subspecies' populations, as a whole, look stable and even slightly increasing, they are still small and susceptible to stochastic events that could be devastating, resulting in extreme population declines and die-offs. Small populations that do not mix with other populations may die off from genetic inbreeding. And climate change is a wildcard that could change the game quickly at any moment, for the worse.

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[462] Rocky Mountain Region Forest Service Manual, FSM 2600, Chapter 2670. December 18, 2018.

[463] Colorado Parks and Wildlife. 2015. State Wildlife Action Plan.

[464] Colorado Department of Natural Resources. 2018. Letter: Grand Mesa, Uncompahgre, and Gunnison National Forests – Preliminary Draft Revised Land Management Plan. May 22.

Bighorns face a variety of threats.[465] The biggest danger to both subspecies is respiratory disease, particularly the caprinae-specific pneumonia bacterium *Mycoplasma ovipneumoniae*, which can be transmitted from domestic sheep and domestic goats.[466] Respiratory disease is a compound threat that inhibits population growth, population connectivity, and range expansion.[467] And, though there is a need for habitat connectivity to enable genetic diversity, there is also the complex risk of infected bighorns transmitting disease to uninfected populations. According to CPW additional threats include, "unregulated harvest, overgrazing, competition with other livestock, plant community succession and forestation of native ranges, and increasing human development of winter ranges have been identified as contributing to bighorn sheep declines either historically or presently."[468]

Historically, bighorn sheep were well-distributed across the West, numbering up to an estimated two million animals. Habitat loss, unregulated market hunting and disease resulted in extirpation of most U.S. populations. Efforts to reestablish populations have been ongoing since the early 1900s, with more than 22,000 bighorn sheep being transplanted in over 1,500 separate transplant actions.

Despite these efforts, die-offs continue, and the status of the species remains tenuous, with fewer than 60,000 currently in the western U.S., often occurring in small, isolated herds. It has been well established in the scientific literature that bacteria transmitted from domestic sheep results in pneumonia-related all age die-offs within bighorn populations, followed by long-term suppression of lamb recruitment.[469] These events are not uncommon.

Bighorns have experienced localized and regionalized population crashes, and lessons from other species demonstrate that disease susceptibility can result in wide-ranging and range-wide die-offs. In 2015, a perfect storm of climate change-related extreme weather conditions and the presence of the bacterium *Pasteurella multocida* killed over 200,000 saiga antelopes (*Saiga tatarica tatarica*) in central Kazakhstan within three weeks.[470] Sylvatic plague (*Yersinia pestis*) has caused the range-wide decline of

[465] Risenhoover, K. L., Bailey, J. A., & Wakelyn, L. A. (1988). Assessing the Rocky Mountain bighorn sheep management problem. *Wildlife Society Bulletin (1973-2006)*, *16*(3), 346-352; Singer, F. J., Bleich, V. C., & Gudorf, M. A. (2000). Restoration of bighorn sheep metapopulations in and near western national parks. *Restoration Ecology*, *8*(4S), 14-24.

[466] Cassirer, E. F., Manlove, K. R., Almberg, E. S., Kamath, P. L., Cox, M., Wolff, P., ... & Besser, T. E. (2018). Pneumonia in bighorn sheep: Risk and resilience. *The Journal of Wildlife Management*, *82*(1), 32-45.

[467] Butler, C. J., Edwards, W. H., Paterson, J. T., Proffitt, K. M., Jennings-Gaines, J. E., Killion, H. J., ... & Garrott, R. A. (2018). Respiratory pathogens and their association with population performance in Montana and Wyoming bighorn sheep populations. *PloS one*, *13*(11), e0207780.

[468] George, J. L., R. Kahn, M. W. Miller, & B. Watkins. (2009). Colorado Bighorn Sheep Management Plan 2009–2019. Colorado Division of Wildlife, Special Report No. 81. February.

[469] Brewer, C., Bleich, V. C., Foster, J., Hosch-Hebdon, T., McWhirter, D., Rominger, E., ... & Wiedman, B. (2014). *Bighorn sheep: conservation challenges and management strategies for the 21st century*. Wild Sheep Working Group, Western Association of Fish and Wildlife Agencies.

[470] Kock, R. A., Orynbayev, M., Robinson, S., Zuther, S., Singh, N. J., Beauvais, W., ... & Milner-Gulland, E. J. (2018). Saigas on the brink: Multidisciplinary analysis of the factors influencing mass mortality events. *Science advances*, *4*(1), eaao2314.

black-footed ferrets (*Mustela nigripes*),[471] down to about 400 individuals in the wild from millions in the 19th century.

As the Forest Service has pointed out, the GMUG's Rocky Mountain subspecies may have a slightly increasing trend forestwide in very recent years. Yet, eight of the 14 populations that are either in whole or in part within the GMUG's boundaries have downward trends, based on CPW data included in the GMUG's overview and more recent CPW figures.[472] There are just two populations of the desert bighorn on the GMUG.

The best available scientific information demonstrates a substantial concern about the persistence of the Rocky Mountain bighorn sheep and the desert bighorn sheep. Yet the Draft Forest Plan excludes bighorn from the SCC list by focusing only on category f of the six SCC criteria in 12.52d, arbitrarily concluding that bighorns do not meet category f.

We challenge both the use of category f as the sole criterion for SCC determination and the application of it. Even if category f was the primary criterion for SCC designation, all four of the sub-criteria within it need to be met. Nonetheless, Rocky Mountain bighorn sheep clearly do meet all four sub-criteria within category f:

Significant threats, *criterion 1 of category f* – The disease issues detailed above are a significant threat to bighorns. CPW has raised concerns about bighorns throughout this process due to the prevalence of disease transmission from domestic sheep. In addition, bighorns' water sources are placed at risk by climate change.

Declining trends in populations or habitat, *criterion 2 of category f* – The Forest Service analysis has chosen an arbitrarily short time span – just 19 years – and has determined there is no decline in population. But, in fact, over a period that is more scientifically reasonable for determining population trends, such as 100-200 years, bighorn populations have declined dramatically. In addition, only a small fraction of suitable habitat is now occupied by bighorns. And that suitable habitat has been reduced significantly due to fire exclusion.

Restricted Ranges, *criterion 3 of category f* – In southwestern Colorado, every population was connected to (i.e., interacted with) at least one other population and thereby maintained a good gene pool, yet are no longer. To claim there are not restricted ranges is not a legitimate argument. The overlap between domestic sheep allotments and bighorn core herd home range is the key restriction to

[471] Antolin, M. F., Gober, P., Luce, B., Biggins, D. E., Van Pelt, W. E., Seery, D. B., ... & Ball, M. (2002). The influence of sylvatic plague on North American wildlife at the landscape level, with special emphasis on black-footed ferret and prairie dog conservation.

[472] Grand Mesa, Uncompahgre, and Gunnison National Forests Revised Draft Forest Assessments: Terrestrial Species Overviews, March, 2018. p. 152; Colorado Parks and Wildlife. (2020). Colorado Rocky Mountain Bighorn Sheep 2020 Posthunt Population Estimates. December 9.

bighorn range, and that does not even incorporate development, forests impacted by fire exclusion, and increased human presence throughout the forest.

Low population numbers or restricted ecological conditions, *criterion 4 of category f* – Again, even by the Forest Service's suspect analysis, bighorns are occupying only 35% of their suitable habitat, due largely to domestic sheep allotments.

Likewise, all four sub-criteria of category f are met for desert bighorns:

Significant threats, *criterion 1 of category f* – As with Rocky Mountain bighorns, disease from domestic sheep is a major threat to desert bighorns. As is drought associated with climate change.

Declining trends in populations or habitat, *criterion 2 of category f* – The small population of desert bighorns makes them very vulnerable to die-offs. And populations numbers are very far below CPW's stated population goals.

Restricted Ranges, *criterion 3 of category f* – The desert bighorn core heard home range in the GMUG is the definition of a restricted range.

Low population numbers or restricted ecological conditions, *criterion 4 of category f* – According to the USFS, desert bighorns are currently using just 5% of suitable habitat on the GMUG.

In 2002, the adjacent White River National Forest issued a revised plan in which bighorn sheep were designated a "species of concern". White River Plan at EE-3.

- Recommendation: Because they are a R2 Sensitive Species, are identified by Colorado as a Species of Greatest Conservation Need, are listed as a SCC on the adjacent Rio Grande National Forest, and meet the four sub-criteria of category f, both bighorn species must be on the SCC list for the GMUG.

ii. Maintaining the viability of desert and Rocky Mountain bighorn sheep

The Biological Evaluation lists 18 plan components applicable to bighorn sheep; it is the same list for both subspecies.[473] We assess the most important plan components for protecting bighorn from disease transmission from sheep and goats and other threats.

We partially support standard **FW-STND-SPEC-13**:

[473] DEIS, Vol. 2, Appendix 4, Biological Evaluation, Wildlife Species, p. 119-120.

FW-STND-SPEC-13*: On active grazing allotments, maintain effective separation between domestic sheep and bighorn sheep herds. Effective separation is defined as spatial or temporal separation between bighorn sheep and domestic sheep, resulting in minimal risk of contact and subsequent transmission of respiratory pathogens between animal groups.*[474] *See associated management approach.*

We are concerned about the Management Approach that guides implementation of the standard, which is:

> To implement GDL-SPEC-13, Tier 1 bighorn sheep herds with the greatest potential to contribute to population viability in the plan area should be prioritized. Tier 2 herds, where they interact or have the potential to interact with Tier 1 herds, should also be prioritized. Use the most current version of the Western Association of Fish and Wildlife Agency's Recommendations for Domestic Sheep and Goat Management in Wild Sheep Habitat to inform management. (emphasis added)

We agree only to the extent those guidelines do not rely on Best Management Practices (BMPs). BMPs are not considered Best Available Science and reliance upon them was struck down in federal court 10 years ago. In *Western Watersheds Project v. Bureau of Land Management,* the U.S. District Court concluded that, in the absence of scientific analysis, BMPs could not be relied upon to maintain separation.[475] If BMPs were to be relied upon to maintain effective separation in this process, the GMUG would first need to provide scientific analysis of the effectiveness of those BMPs, which we would argue is not possible to do.

- Recommendation: When implementing FW-STND-SPEC-13, use the best available scientific information regarding domestic sheep and goat management to maintain separation with bighorn sheep.

As we discuss in Section VI on climate change, the identification of climate refugia in objective **FW-OBJ-ECO-04** is too long, because substantial quantities and data and approaches currently exist to accomplish refugia identification within a shorter time period. Refugia across the forest must be protect as soon as possible.

FW-OBJ-ECO-04*: Within 10 years of plan approval, identify areas of potential climate refugia (Morelli et al. 2016) in the national forests and implement monitoring for a subset of these areas.*

[474] This additional language mirrors standard S-SCC-1 from the Rio Grande National Forest final plan.

[475] *Western Watersheds Project v. Bureau of Land Management*, U.S. District Court for the District of Idaho, Civ. No. 09-0507-E-BLW, Decision and Order, October 14, 2009.

We note that Morelli et al. (2016),[476] which is cited in the objective asserts that management to maintain refugia is the essential next step after identification of refugia, and suggested some of these actions could include minimizing [livestock] overgrazing, mitigating route impacts, and managing recreation—all activities that could help restore and maintain bighorn sheep refugia. However, we credit the GMUG for including a plan component that recognizes the importance of climate refugia; we aren't aware of another forest plan that includes such an objective.

We are generally supportive of objective **FW-OBJ-SPEC-03**.

> ***FW-OBJ-SPEC-03****: During each 10-year period following plan approval, restore or enhance at least 20,000 acres of habitat. Of acres treated, 30 percent should be conducted in wildlife management areas (MA 3.2), while other priority treatment areas should include (but are not limited to) aspen, riparian areas, ecotones, winter range in pinyon-juniper communities, connectivity areas, and designated critical habitat. Actions to help accomplish this objective may include: improving wildlife or habitat connectivity by removing unneeded structures, eliminating redundant routes, converting mode of travel for specific routes, or realigning routes into less impactful settings, implementing vegetation management practices that maintain or enhance connectivity, retrofitting or designing new structures (e.g., building new or converting existing fences to wildlife-friendly fence specifications such as a lay-down fence), improving aquatic and riparian resources (e.g., remove barriers, restore dewatered stream segments, connect fragmented habitat, provide organism passage, etc.), etc. See also the desired condition for wildlife management areas, MA-DC-WLDF-01.*

However, the objective exposes one of the weaknesses of relying on a coarse-filter approach to at-risk species habitat restoration—the are too general and untargeted to assure that needed restoration will be prioritized for the at-risk species who would benefit most from restoration. This objective is listed in the Biological Evaluation as being applicable to bighorn sheep, but it's not applicable unless the management plan indicates that a specific, necessary restoration activity will occur in degraded bighorn sheep habitat.

We are not unsupportive of objective **FW-OBJ-REC-04**.

> ***FW-OBJ-REC-04****: Within 10 years of plan approval, the resiliency of alpine ecosystems is enhanced on at least 100 acres of GMUG lands through implementing recreation management plans and/or road and trail decommissioning. See the Forestwide desired condition for Key Ecosystems Characteristics ECO-03.*

However, it's not clear how 100 acres of any restoration activity or restriction on recreation is anywhere near the scale to positively affect bighorn sheep and/or sheep habitat. This area is only a small portion of a bighorn sheep's home range. We are wondering if the objective is really meant to use a linear

[476] Morelli, T. L., Daly, C., Dobrowski, S. Z., Dulen, D. M., Ebersole, J. L., Jackson, S. T., ... & Beissinger, S. R. (2017). Correction: managing climate change refugia for climate adaptation. *Plos one*, *12*(1), e0169725.

distance metric such as miles or kilometers instead of an area measure. Decommissioning 100 miles of trails and roads seems to make more sense.

Standard **FW-STND-RNG-08** does not reflect the best available scientific information on livestock grazing utilization levels.

> ***FW-STND-RNG-08****: Livestock grazing shall not exceed moderate utilization (40 to 60 percent of the current above-ground biomass) or have a negative Grazing Response Index value in key areas. Exceptions may be allowed to meet objectives related to scientific studies, fuels reduction, invasive or non-desirable plant control, or other targeted grazing or site-specific objectives. Utilize the Rangeland Analysis Training Guide, 1996, and the Colorado Rangeland Monitoring Guide (Colorado Cattlemen's Association 2014), when assessing rangeland condition (as well as other methods and guides as they are developed).*

In the era of climate change, science calls for more conservative utilization rates. Utilization recommendations may be 50-60% for southern and eastern areas, but these are definitely in the high range for the arid west, where utilization at or under 30% is more appropriate and should probably drop by 50-70% of that during drought conditions.[477] A more conservative stocking rate is more in line with maintaining ecological integrity across grazed lands.

We laud the inclusion of a livestock grazing objective, **FW-OBJ-RNG-03**, intended to respond to changes in conditions on the landscape.

> ***FW-OBJ-RNG-03****: Annually, maintain ecological integrity and productivity of all ecotypes by evaluating allotment management with permit holders to adjust timing, intensity, duration and frequency of livestock grazing when necessary to respond to changing ecological conditions or resource concerns such as drought, delayed snowmelt, extended forage season, wildfire, prescribed fire, etc. (Reported as "pastures administered to standard").*

However, there is a need to include the ability to respond to drought conditions quickly, and annual discussions with permittees is not an adequate response mechanism, though we do appreciate the need for close communication with allotment lessees. The Forest Service acknowledges that attention to management of livestock grazing can be urgent amid drought, noting that "degradation can occur

[477] Shrum, T. R., Travis, W. R., Williams, T. M., & Lih, E. (2018). Managing climate risks on the ranch with limited drought information. *Climate Risk Management*, *20*, 11-26.

quickly if drought occurs and grazing persists"[478] and that "for drought management strategies to be most effective, timely implementation is needed across large spatial scales."[479]

- Recommendation: We recommend adjustments in stocking rates be linked to the U.S. Drought Monitor for Colorado,[480] where drought conditions trigger stocking reductions.

Thank you for including an objective to remove woven wire fence from grazing allotments in FW-OBJ-RNG-04.

> *FW-OBJ-RNG-04: Within 10 years of plan approval, remove all woven wire fencing from closed allotments in the national forests, and from any active/vacant cattle allotments unlikely to be converted to sheep allotments.*

However, we urge you to not to convert any cattle allotments to sheep allotments due to the potential for disease spread to bighorn sheep and the danger of woven wire fence, generally, to wildlife.

We are generally supportive of the concept behind guideline **FW-GDL-SPEC-16**, which is:

> ***FW-GDL-SPEC-16****: To maintain long-term population viability and herd distribution objectives, travel route re-alignment options should be considered in association with any new project proposal in order to create larger contiguous habitat blocks and security areas, ultimately reducing the amount of fragmentation. This guideline applies to big game production areas, migration corridors, severe and critical winter range, and winter concentration areas as mapped by Colorado Parks and Wildlife. Route re-alignment to create larger contiguous habitat blocks and security areas may increase the route density in some areas on edges of these mapped habitats, provided that habitat connectivity is maintained and the overall density of routes in the interior of these habitats is reduced.*

However, **GDL-SPEC-16**, concerning travel route realignment to reduce habitat fragmentation and increase habitat security, should be a standard. The last part of this component, stating that such realignment can lead to an increase in route density on the edge of habitat, can be a guideline.

Additional Recommendations

We urge the GMUG to incorporate the following additional plan components into the revised plan, which are taken directly from other Forest Service unit draft or final land management plans.

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[478] Vose, J., Clark, J. S., Luce, C., & Patel-Weynand, T. (2015). Effects of drought on forests and rangelands in the United States: a comprehensive science synthesis. *Gen. Tech. Rep. WO-93b. Washington, DC: US Department of Agriculture, Forest Service, Washington Office*, *93*, 1-289, 12

[479] Vose et al. (2015) at 2.

[480] U.S. Drought Monitor, Colorado. https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?CO.

- Recommendation: Adopt the following plan components into the revised plan:
  - Desired Condition: Bighorn sheep habitats provide grass and forbs with high protein content, which is maintained by natural disturbance juxtaposed near rugged escape cover. Bighorn sheep habitat reflects its historic distribution and connectivity. Habitat is composed of native vegetation, including upland shrublands, upland grasslands, riparian shrublands, and riparian woodlands. [Nez Perce-Clearwater National Forest Draft Land Management Plan]
  - Standard: Do not authorize projects that will result in displacement of bighorn sheep during their reproductive period (generally April 15 to July 1). (Forestwide) [Rio Grande National Forest]
  - Standard: Prohibit the use of recreational pack goats in wilderness areas to eliminate potential interactions between pack goats and bighorn sheep. (Forestwide) [Rio Grande National Forest, adapted]
  - Standard: Maintain effective separation between domestic goats used for vegetation management and bighorn sheep to reduce the likelihood of contact between animal groups. (Forestwide) [Rio Grande National Forest]
  - Standard: Conversions to domestic sheep or goats should not be allowed in areas adjacent to or inhabited by bighorn sheep. [Tonto National Forest Draft Land Management Plan, adapted]
  - Standard: Allotments and other areas closed to permitted livestock grazing should remain closed. [Tonto National Forest Draft Land Management Plan, adapted]
  - Objective: Evaluate vacant allotments every 5 years to determine availability to livestock grazing at appropriate stocking levels and compatibility with other multiple use values. [Lincoln National Forest Draft Land Management Plan]
  - Guideline: When unauthorized livestock are found occupying National Forest lands, the owner should be promptly notified to remove them and prevent them from re-entering National Forest lands. If the owner is unknown or uncooperative, impoundment procedures should be initiated. [Tonto National Forest Draft Land Management Plan]

4. Automatic designation of species of conservation concern

The Forest Service should use its adaptive management authority to include a trigger that requires the addition of any species listed as threatened or endangered under the Endangered Species Act to the Species of Conservation Concern list after that species is delisted. During a meeting with GMUG forest planning and SCC staff, we specifically asked whether the Forest Service would consider such a trigger for Canada lynx, given that the U.S. Fish and Wildlife Service had announced it was planning to delist the lynx. We were told by staff that the idea made sense, and that it was something the Forest Service would strongly consider. Yet, there appears to be no public discussion about this possibility, or the reasons the Forest Service decided against including such a provision. The Forest Service asks the public to swallow adaptive management plan components that make it easier for the Forest Service to allow the exploitation of the Forest's resources, yet declines to use the 2012 Planning Rule's adaptive

management tools to innovate, or provide imperiled species with automatic additional protections when they lose federal ESA protections. We understand that adding a species to the SCC list requires additional work by the Forest Service, including the need to potentially add additional plan components as a result. However, the alternative to not including such an automatic trigger–which would allow the Forest Service to determine on the front end how such a process would work–is to force the public to submit a petition to add a species to the SCC list, and then sue the Forest Service when it neglects to adequately consider and respond to it in a timely manner. Such an outcome wastes time and money. The Forest Service should, instead, develop a process to automatically add delisted species to the SCC, including the addition of any necessary plan components in a timely, organized manner.

H. Soil Resources

We are glad to see **STND-SOIL-02**. It incorporates a key section of the Soils Management Handbook, FSH 2509.18-92-1.

- Recommendation: **FW-GDL-SOIL-4** through **7** should be standards.

I. Watersheds and Water Resources

The GMUG's rivers, streams, lakes, wetlands, and fens are the critical foundation for the entire forest, providing key ecosystem services, sustaining wildlife and entire ecosystems, and providing drinking water to downstream communities. The Draft Plan indicates that the GMUG has begun a good consideration of the importance of riparian areas, watershed health, and water management. At the same time, there remains a lot more to integrate – particularly around the need to protect and restore riparian areas and wetlands for many different ecosystem services and benefits to the forest and downstream communities. There is also an overarching need to assess and integrate how land management actions realistically impact watershed health, rather than relying exclusively on BMPs to maintain desired watershed conditions.

1. Overarching recommendation for water resources

Under Forest-wide Direction, the Draft Plan has separate, non-sequential sections for Riparian Management Zones and Groundwater-Dependent Ecosystems, Aquatic Ecosystems, and Watersheds and Water Resources. Other planning efforts across the West have approached water-related issues in a more integrated fashion, putting all of the water/aquatic information in order, or creating an overarching category for "Water Resources" that has subsections for these issues.[481]

There are benefits to creating a "Water Resources" section or having them in order. One main category allows all plan components for water management to be in one section and build on each other,

[481] See Helena-Lewis and Clark National Forest and Custer-Gallatin National Forest.

emphasizing and prioritizing the connectivity of water management. It also allows the forest to give a brief overview of the current state of watersheds/aquatic ecosystems on the GMUG, and then provide different management areas and components that encompass aquatic ecosystems.

- Recommendation: Integrate Riparian Management Zones and Groundwater-Dependent Ecosystems, Aquatic Ecosystems, and Watersheds and Water Resources into an overarching category. At the very least, we recommend sequentially ordering these three sections.

In preparation for the forest plan revision the Forest Service prepared a Revised Draft Forest Assessment for Watersheds, Water, and Soil Resources.[482] This document provided an overview of watershed conditions on the GMUG and assessed on-the-ground conditions for a number of key factors that serve as indicators of watershed health. However, when discussing land management actions, there is little reference to these assessed conditions and how they may be impacted by certain actions. Instead, there appears to be a presumption that desired watershed conditions will be achievable regardless of the alternative selected.

- Recommendation: Explicitly reference how alternatives will impact the conditions described in the Forest Service Watershed Health Assessment framework and how alternatives will accomplish the desired watershed conditions.

2. More information is needed on the ecosystem service benefits of healthy riparian areas and wetlands

The ecosystem service benefits of healthy connected and/or restored riparian areas and wetlands are numerous and diverse. Yet the Draft Plan and DEIS offer little information or guidance on the role benefits these resources provide on the GMUG. Ecosystem service highlights include:

- Water Quality: Research confirms the benefits of functioning, connected floodplains and wetlands for pollution filtration, sediment control and temperature regulation.[483] Restoring the natural filtration and water storage capacity of floodplains and wetlands addresses sedimentation and pollution runoff. Restoring native woody riparian vegetation canopies can also decrease water temperature and help mitigate climate change effects on water temperature.[484]

[482] See https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd573549.pdf.

[483] Kadykalo, A. N., & Findlay, C. S. (2016). The flow regulation services of wetlands. *Ecosystem Services*, *20*, 91-103.

[484] Trimmel, H., Weihs, P., Leidinger, D., Formayer, H., Kalny, G., & Melcher, A. (2018). Can riparian vegetation shade mitigate the expected rise in stream temperatures due to climate change during heat waves in a human-impacted pre-alpine river?. *Hydrology and Earth System Sciences*, *22*(1), 437-461.

- Snowpack/Storm Flow Attenuation: Recharge of aquifers can occur when healthy watersheds allow for slow infiltration of runoff into upland soils, floodplains, and wetlands. Studies indicate healthy natural stream systems and restored headwater floodplains and wetlands attenuate flows, decrease erosion/sediment loading, and provide natural storage during spring run-off that can be released to streams in the low-flow late summer and fall months.[485]

- Reducing Natural Disaster Risks: Restoring headwater floodplains and wetlands has been shown to reduce the risk of natural disasters, including drought, wildfires and floods. Protected and restored wetlands can provide important fire breaks for wildfires and in some instances these areas rebound more quickly post wildfire.[486] In the case of drought, restored headwater areas recharge local aquifers that allow for slow infiltration of runoff into soils, floodplains and wetlands, providing natural storage during spring runoff that is slowly released to streams during the drier late summer months. Restoring upstream wetlands and floodplains from communities and infrastructure prone to flooding can reduce flood risks by attenuating snowmelt and stormwater runoff events.

- Habitat Resiliency: Riparian and wetland areas are hotspots for biological diversity and provide refuge and movement corridors for 80% of Colorado's wildlife in all or part of their life cycle. Conserving broader floodplain habitats beyond the stream channel to the "riverscape"[487] protects valuable fisheries, wildfire dependent recreation and ecosystem services.

- Carbon Sequestration: Protection, restoration and improvement management of floodplain and wetland areas is widely recognized for the potential to increase carbon storage and avoid greenhouse gas emissions resulting from conversation of natural habitat.[488] A recent paper by Reed, et, al found that montane meadows contain high densities of soil carbon and can be large sinks of carbon.[489] The restoration of meadows and wetlands can be designed to improve the hydrologic function while also mitigating soil carbon losses.

3. Management area direction

There is a failure to connect proposed alternatives to desired watershed conditions when discussing the alternatives. The USFS has described four management alternatives proposing different land

[485] Kadykalo, A. N., & Findlay, C. S. (2016). The flow regulation services of wetlands. *Ecosystem Services*, *20*, 91-103.

[486] Fairfax, E., & Whittle, A. (2020). Smokey the Beaver: beaver-dammed riparian corridors stay green during wildfire throughout the western United States. *Ecological Applications*, *30*(8), e02225..

[487] Wheaton, J. M., Bennett, S. N., Bouwes, N. W., Maestas, J. D., & Shahverdian, S. M. (Eds.). (2019). *Low-tech process-based restoration of Riverscapes: design manual*. Utah State University Restoration Consortium..

[488] Were, D., Kansiime, F., Fetahi, T., Cooper, A., & Jjuuko, C. (2019). Carbon sequestration by wetlands: a critical review of enhancement measures for climate change mitigation. *Earth systems and Environment*, *3*(2), 327-340.

[489] Reed, C. C., Merrill, A. G., Drew, W. M., Christman, B., Hutchinson, R. A., Keszey, L., ... & Sullivan, B. W. (2021). Montane Meadows: A Soil Carbon Sink or Source?. *Ecosystems*, *24*(5), 1125-1141.

management approaches, designations, and priorities. Each alternative suggests activities that could result in significantly different landscape conditions; for instance, the amount of timber harvest proposed in the alternatives ranges from 468,400 acres of lands suitable for timber production to 974,900 suitable acres. Other marked differences include the amount of wilderness recommended in each alternative and acreage identified for special management areas. These designations and potential land uses could create significantly different watershed conditions; yet, there is not specific discussion (much less measurable impacts) of how these alternatives would each impact watershed health and related issues.

Different management activities on the landscape impact watershed health in different ways. Human use impacts may include:

- Road and trail construction. The majority of our watershed area degradation occurs because of numerous road crossings with undersized culverts, many road miles in close proximity to streams, etc. Roads have numerous impacts on hydrologic function. They increase the drainage density of, and act as a preferential pathway for, surface water and can divert a stream from the natural channel. Roads reduce the amount of water that infiltrates into groundwater system and can accelerate erosion. Road density is often used as a key element to assess watershed health. Timber activities and expanded motorized recreation may lead to an increase in roads, while special management activities may reduce, limit or prohibit road construction.

- Recreational impacts. Recreationalists may impact watersheds by removing vegetation in the riparian areas or creating new trails that intersect or run close and parallel to streams. Areas with more recreation proposed will likely experience more impacts to these particular stream conditions.

- Timber harvest. Timber harvest can alter the forest composition of a watershed in a manner that alters sediment and hydrologic regimes. Harvesting practices can cause soil compactions and a loss of woody debris recruitment for stream habitats.

The DEIS acknowledges some of these impacts in passing on page 118:

> Management activities such as timber harvest, dispersed recreation, livestock grazing, and mining activities can also cause ground disturbance and detrimentally impact aquatic and riparian resources. However, the differences in scale, extent, and distribution of these impacts are slight between alternatives. It can be reasonably assumed that the greatest future impacts to aquatic and riparian ecosystems would come from those management activities that are known to have resulted in impacts to these areas during previous planning periods, namely National Forest System roads and trails. For the purposes of this analysis, existing and potential new temporary roads associated with suitable timber base acreage offer a surrogate for future impacts to these areas.

- Recommendation: Explicitly address in the DEIS how different management area directions proposed under each alternative would impact riparian and watershed health.

Management area direction proposed under Alternative D would result in the greatest positive impacts to riparian areas and watersheds on the forest, compared to other alternatives.

> Among the action alternatives, alternative D represents a minimization of acreages that would be available for expansion of the road and trail network (including temporary roads), particularly for motorized vehicles and timber harvest. As a result, alternative D would likely have the fewest overall impacts to watershed resources.[490]
>
> In general, designation of special areas such as wilderness, wild, scenic, and recreational rivers, research natural areas, and special interest areas have the potential to limit the type of activities that result in a large portion of management-related watershed impacts. Particularly, it is assumed the reduction of suitable timber base due to an increase in the acreage of recommended wilderness would result in reduced watershed impacts from timber harvest and road construction/reconstruction.[491]
>
> Climate variability is the same across all alternatives; however, alternatives that limit disturbances or focus protection on key watershed components such as wetlands and riparian vegetation will most successfully function under a variety of climate scenarios. As a consequence, alternative D is likely to realize fewer impacts associated with climate change to watershed resources[492]

- Recommendation: For protecting watersheds, the GMUG should choose these Alternative D management actions over the other action alternatives because the Alternative D actions: (1) are most compatible with watershed protection that is critical in light of climate change; (2) result in healthier watershed; (3) reduce the negative impacts from roads, mining, and soils; and (4) improve water quality.

4. Forest-wide direction

The DEIS states that, in contrast to the current plan's prescriptive approach:

[490] DEIS 291.

[491] DEIS at 294-295.

[492] DEIS at 295.

the draft revised forest plan provides ***guidelines*** for maintaining and improving resource conditions and key ecosystem characteristics as well as providing ecosystem services like clean water.[493]

However, the plan has five desired conditions, one objective, three standards, and five guidelines addressing water resource issues in the Riparian Management Zones and Groundwater-Dependent Ecosystems section.[494] There are additional plan components under Aquatic Ecosystems,[495] and Watersheds and Water Resources.[496] Please adjust the quoted DEIS passage accordingly to avoid a possible misconception that direction for protecting watersheds and related features consists only of guidelines.

- Recommendation: The management approach for incorporating the Watershed Conservation Practices Handbook (FSH 2509.25) and National Core Best Management Practices (Forest Service 990A) should be rewritten as a standard to require application of the provisions of these documents, or the best available science, to all projects and activities. That would ensure that these practices, which are already agency direction[497], or more recent best science, will be applied at the project level to protect watersheds. Note that under **GDL-RNG-09**, compliance with the WCPH is a guideline; see comment below. Note further that the DEIS states that the WCPH "applies to all vegetation activity areas".[498]

- Recommendation: Include a standard addressing route construction: New or rerouted roads should not be located within 300 feet of water resource features (except where necessary for stream crossings or to provide for resource protection), to avoid the long-term adverse impacts associated with the occupancy and modification of floodplains and water resource features.

- Recommendation: Change **FW-DC-WTR-02** to "... to communities and water users, and to maintain healthy watersheds for the environment and recreation."

- Recommendation: **FW-DC-WTR-03** should be standard instead of a desired condition. In addition, we would like to see an increase in frequency of actions. With watershed restoration being at the forefront of the plan revisions overall vision, we'd hope to see one action per year completed in vulnerable/poor/impaired watersheds as defined.

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[493] Id at 120. [emphasis added]

[494] See Draft Plan at 17-20.

[495] Id., at 20-22.

[496] Id., at 40-42.

[497] FSH 2509.25, section 21.1 states: "The Forest Service shall apply specific WCPs (or appropriate alternatives) to its land management actions and the actions of others on NFS lands."

[498] Id., at 276.

- Recommendation: We would also request that under objective **FW-OBJ-WTR-04** an increase in the percentage of trending watersheds toward improved watershed condition be implemented. Over the life of the plan, it is a reasonable objective that significantly more than 15 subwatersheds be driven towards better conditions. We suggest the following language: "Within 5 years of plan approval, trend at 50% of all subwatersheds toward improved watershed conditions. Within 10 years of plan approval, trend the remaining 50% of all subwatersheds toward improved watershed conditions….".

- Recommendation: Include an additional objective to improve or maintain watershed function on a certain number of acres annually, which should include nature-based solutions. Restoration should align with priority watersheds or other community priorities.

- Recommendation: Change the following management approach to be a guideline: "Cooperate with Federal, State, Tribal, and local governments, and other stakeholders to identify and secure environmental flows needed to maintain riparian resources, channel conditions, aquatic habitat, and associated recreational uses such as fishing and paddling."

- Recommendation: An additional Desired Condition should be added stating that "Watersheds have sufficient instream flows to support and enhance aquatic life, riparian habitat, and river-based recreation."

5. Process-based restoration techniques and beaver

The science has changed since the existing plan was approved in 1983, pointing towards nature-based solutions and low-tech processed-based restoration as ways to provide better water security for people and wildlife. We support the GMUG Draft Plan's recognition of the critical role that beaver serve in maintaining healthy watersheds and riparian management zones. While the plan directly discusses "re-introducing beavers where they can be sustained",[499] fostering beaver habitat may require more active interventions. In some circumstances there may be a need to restore hydrologic and vegetative conditions before habitat is suitable for reintroduction. This is somewhat addressed in the Draft Plan, as it states: "If data indicate that there are watersheds or stream reaches that would benefit, consider beaver relocation and/or construction of beaver dam analogs."[500] While this is a positive management strategy overall, habitat conditions may have changed since beaver have been expatriated.

To that end, there may be a need to include mention of supporting habitat restoration to create the conditions necessary to recolonize areas previously inhabited by beaver. For instance, the GMUG and National Forest Foundation have been partnering with local organizations in the Trail Creek basin on the Gunnison National Forest to use beaver dam analogues to restore former beaver habitat. These efforts

[499] Draft Plan at 18, 179.

[500] Table 24, at 110.

should continue to be part of the management strategy of supporting the recolonization of beavers and the ecosystem services that they provide.

We also support the emphasis on management techniques used to minimize conflict between beavers and infrastructure maintenance.

- Recommendation: Develop a new standard stating that when conducting restoration and management activities, in order to support aquatic habitat quality and resiliency, beaver complexes or other nature-based solutions should be enhanced or maintained.

There is a guideline in the Aquatic Ecosystems section **(FW-GDL-AQTC-08)** that reads:

> To maintain beaver populations and the ecological functions that beavers provide, management actions should use techniques that sustain beavers (e.g., using pipes to reduce water levels, notching dams to restore streamflow).

Restoration of habitat appropriate for beavers should proactively be pursued where appropriate.

- Recommendation: This guideline should be made into a standard, with the additional language added: "Historic beaver habitat should be identified and restored or managed to preserve the conditions necessary for beaver to survive."

The Draft Plan makes passing recommendations to support wet meadows as desired condition to support critical Gunnison sage-grouse populations **(FW-DC-SPEC-36)** and conjoins wet meadows with riparian areas as important habitat for this species. We support this recognition of the important riparian ecosystems that provide critical habitat and maintain hydrologic functions in our watersheds. However, due to the critical role that these wet meadows play for Gunnison Sage Grouse habitat and in hydrologic functioning, we encourage the USFS to go one step further to create standards encouraging the protection and restoration of wet meadows.

6. Water quantity, quality, and municipal watersheds

Favorable conditions for water flows is a key mission of the Forest Service:

> "No national forest shall be established, except to improve and protect the forest within the boundaries, or for the purpose of securing favorable conditions of water flows …"[501]

Clean and reliable water is critical for several municipalities across the GMUG. There is a Management Approach in the Draft Plan that begins to address this:

[501] Forest Service Organic Administration Act, 16 U. S. C. 475.

> Coordinate across jurisdictions and consult applicable State municipal and source water protection plans to minimize long-term impacts to water quality and water quantity prior to authorization of, or conducting, management activities in public source water areas.[502]

We appreciate this coordination, but the Draft Plan does not include specific objectives or goals to target improving water supply to any measurable standard.

The Draft Plan lacks a Standard requiring compliance with State water quality standards.

The 2012 Planning Rule requires the GMUG Forest Plan, "must include plan components, including standards or guidelines, to maintain or restore … [w]ater quality …."[503] In addition, in 2014 an MOU between the Forest Service Rocky Mountain Region and the Colorado Department of Health and Environment required the former during all land management processes to define municipal supply watersheds and provide "direction and desired conditions" that protect water quality, while allowing for multiple use outputs.[504] While this recently expired, its intent is sound and should be followed in this planning process.

- Recommendation: Develop additional plan components – in the form of desired condition(s) and standard(s) – for municipal supply watersheds/source water areas to protect water quality for public water supply uses.

- Recommendation: We urge the incorporation of a standard similar to the following language: "Best management practices shall be identified and incorporated into all management activities, included but not limited to land use, transportation, infrastructure, and project plans as a principal mechanism to maintain water quality, water quantity, timing of flows, and to reduce and prevent accelerated erosion."

- Recommendation: There should be a guideline stating that special use permits related to or possibly affecting water uses should include provisions to ensure that instream flows, water quality, and other beneficial uses are fully protected.

In the DEIS there is a discussion about water quality conditions that appears to be outdated. The DEIS only references 141 miles of streams that do not meet water quality standards.[505] It appears that the review team was using an incomplete or outdated list to base this assessment off of. There are far more streams on the GMUG that do not meet water quality standards.

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[502] At 41.

[503] 36 CFR 219.8(a)(2).

[504] Available at: https://cdphe.colorado.gov/swap.

[505] Table 133, at 286.

- Recommendation: The Forest Planning team should update the discussion about water quality conditions to reflect these additional impaired streams (specifically the 303(d) listings). This will provide a far more accurate depiction of current water quality conditions on the forest.

- Recommendation: The must be a Standard requiring compliance with State water quality Standards.

7. Priority watersheds

We do not find in the DEIS any discussion of priority watersheds or the criteria used to identify these watersheds. Every plan must identify watersheds that are impaired or at risk for priority maintenance or restoration. The 2012 Planning Rule explicitly states that the Forest Service must "Identify watershed(s) that are a priority for maintenance or restoration."[506]

Plan Appendix 7 identifies Oh-Be-Joyful Creek – Slate River as the one priority watershed for the GMUG.[507] However, we find no discussion about why this watershed was designated and others were not, like Coal Creek, which provides the Town of Crested Butte's municipal water supply. Given the extent of water-related uses and the importance of the GMUG as a headwaters water supplier for the Colorado River, additional watersheds should be examined for inclusion as priority watersheds.

- Recommendation: Based on the Watershed Condition Framework, identify additional priority watersheds. Consider the following streams in and around Crested Butte for priority watershed designation: Coal Creek, Slate River, East River.

- Recommendation: We would also like to see improvements in **FW-OBJ-RMGD-06** to move towards more than 2,500 acres or 15 miles of streambank improvements in each 10-year period after plan approval. Realization of these objectives could greatly contribute to the overall watershed and wetland health of the areas directly adjacent to communities, both human and ecological, that rely on water and its associated habitat contained within the GMUG. These areas of improvement are also some of the most efficient areas to sequester carbon in restorative habitat, helping us reduce climate change.

- Recommendation: Describe the criteria that the Forest Service uses to identify priority watersheds.

8. Conservation Watersheds

[506] 36 CFR 219.7(f)(1)(i).

[507] Draft Plan at 223.

The draft forest plan identifies 12 sub-watersheds with high quality habitat and functionally intact ecosystem as Conservation Watersheds to protect specific rare aquatic species. Eleven sub-watersheds are designated to protect the resiliency of green-strain Colorado River cutthroat trout and one to protect boreal toad.[508] The only standard, **FW-STND-SPEC-55**, provided to protect Colorado River cutthroat trout in these watersheds is a limitation of ground-based equipment within the streams or adjacent riparian areas during spawning and rearing periods, generally June through August. This standard is insufficient to protect sensitive spawning beds from sedimentation, since it allows the operation of motorized vehicles and equipment both within streams and within riparian areas during the majority of the year. Cutthroat trout depend upon clean, sediment-free gravel for successful spawning. Allowing vehicles and equipment to operate within and adjacent to these streams will increase in-stream sediment and prevent reproductive success.

The only standard provided to protect boreal toad, **FW-STND-SPEC-56**, is decontamination of equipment operating within the watershed. There is no protection from vehicles or equipment for egg laying habitat within the streams themselves.

- Recommendation: Restrict motor vehicles and equipment from operating within streams and riparian areas within Conservation watersheds year-round, except for designated, hardened crossings

J. Congressionally Designated Trails

1. Designate the Continental Divide National Scenic Trail as a management area

Coalition groups in their *Community Conservation Proposal* included a proposal for Special Interest Area (SIA) management for the Continental Divide National Scenic Trail (CDNST).[509] Approximately 130 miles of the CDNST are within lands managed by the GMUG, or within one half mile of the forest boundary, including segments in Gunnison, Saguache, and Hinsdale Counties.

In response to a public comment requesting an MA for at least the CDNST, the Forests Service responds as follows:

> "Public feedback also requested the Continental Divide National Scenic Trail be identified as a management area. Because it intersects so many management areas, for ease of mapping, the Continental Divide National Scenic Trail is identified as a corridor. There is no functional difference between the implementation of the two different mapping terms."[510]

[508] Draft Plan Table 7 at 38-39.

[509] See www.gmugrevision.com.

[510] DEIS at 24.

- Recommendation: Having a separate MA for these trails, especially the CDNST which has many requirements to conserve its setting, is best for clarity. Having an overlay on top of numerous MAs with varying direction is confusing to the public and to agency staff people.

2. Management of the Continental Divide National Scenic Trail

Not having followed this path of a CDNST-specific Management Area, the GMUG is instead relying on a suite of Forestwide plan components. While the Draft Plan has some good plan components for protecting the CDNST (for example, if realized and maintained through management, the desired conditions for the CDNST will ensure compliance with the laws creating the Trail), direction would benefit from greater reference to and incorporation of the *Continental Divide National Scenic Trail Management Plan*, from FSM 2353.42 and 2353.44(b), and from the CDNST Recommended Forest Plan Components document from August 30, 2016.[511] Currently, the only reference in the Draft Plan to the Comprehensive Plan is a generic Management Approach for Congressionally Designated Trails: "Consult the … the Continental Divide National Scenic Trail Comprehensive Plan for additional management approaches."[512] There is no reference to the CDNST Recommended Forest Plan Components.

Managing this minimum half-mile buffer of the CDNST as an SIA in the revised forest plan would ensure that the minimum suggested desired conditions, objectives, standards and guidelines identified in the CDNST Recommended Forest Plan Components document are met.

- Recommendation: Identify and manage a minimum of a half-mile buffer on each side of the trail to comply with recommended CDNST Plan components and statutory obligations. Managing this minimum half-mile buffer of the CDNST as an SIA in the revised forest plan is needed for compliance with the *Continental Divide National Scenic Trail Comprehensive Management Plan* and FSM 2353.42 and 2353.44(b).

- Recommendation: The Comprehensive Plan should be incorporated into Forest Plan direction and all project proposal evaluations. A Standard should be added that management of the CDNST shall comply with the most recent version of the CDNST Comprehensive Plan.

- Recommend: Add "mechanized" use to **FW-STND-DTRL-07**. The nature and purposes of the CDNST are to provide for high-quality scenic, primitive hiking and horseback riding opportunities and to conserve natural, historic, and cultural resources along the CDNST corridor.[513] Bicycle use may be allowed on the CDNST if the use is consistent with the applicable land and resource management plan and will not substantially interfere with the nature and purposes of the

[511] Available at: https://www.fs.usda.gov/managing-land/trails/cdt/management.

[512] Draft Plan at 44.

[513] United States Forest Service, Continental Divide National Scenic Trail Comprehensive Plan, 4 (2009).

CDNST.[514] The GMUG Forest Plan revision process provides the opportunity to ensure that future trail construction adheres to the nature and purposes of the CDNST.

- Recommendation: **TGDL- DTRL-13**, discouraging "special use authorizations for new communication sites, utilities, and renewable energy sites" in the foreground (up to one-half mile) and middle ground (up to four miles) of the CDNST should be a standard, at least for the foreground.

- Recommendation: **GDL-DTRL-10**, avoiding use of the Continental Divide Trail for timber hauling or piling, should be a standard. This should also apply to the Old Spanish Trail, the Crag Crest Trail, and the Bear Creek Trail.

- Recommendation: The forest-wide direction for these trails should have a standard requiring that the "visible foreground" of the trails, up to one half mile from the trails, is not suitable for timber production. Timber production is not compatible with the scenic values of these trails.[515]

We disagree with the removal of the following Standard that was in the Working Draft:

> **FW-STND-DTRL-06**: "Existing motorized use may continue on the Continental Divide National Scenic Trail, as long as it does not substantially interfere with the trail's nature and purpose."

The Draft Plan elaborates on this removal, stating:

> "Existing motorized use will continue on motorized portions of the Continental Divide National Scenic Trail, up until if/when those routes are relocated to be separated from a non-motorized Continental Divide National Scenic Trail portion."[516]

The replacement of the Plan's statement that motorized use may continue – subject to the substantial interference test in the Comprehensive Plan – with an endorsement that motorized use will continue, is not supported by law or policy. The Plan's proposed direction ensures that motorized use on portions of the CDNST would only be discontinued via route separation, ignoring the scenario in which motorized portions of the CDNST might be changed to non-motorized in future decisions. The Plan's provision also would discourage re-evaluation of motorized use on segments of the CDNST to see if such use met legal, regulatory, and policy requirements for the Trail.

Coupled with new language in **FW-DC-DTRL-01** ("… as well as motorized vehicle use expressly allowed by administrative regulations at the time of trail designation [16 USC 1246(c)]"), the changes serve to

[514] 16 USC 1246(c).

[515] Only for alternative D are the designated trails said to be unsuitable for timber production. See DEIS at 21-24.

[516] Draft Plan at 336. [emphasis added]

deemphasize the non-motorized intent of the CDNST.[517] The nature, purpose, and intent of the CDNST are for non-motorized, primitive hiking and horseback riding recreation opportunities.[518] As such, references to motorized vehicle use in the Desired Conditions are inconsistent with the characteristics of the CDNST toward which management of the land and resources should be directed.

- Recommendation: Reinstate former **FW-STND-DTRL-06**: Existing motorized use may continue on the Continental Divide National Scenic Trail, only if it does not substantially interfere with the trail's nature and purpose.

- Recommendation: **FW-DC-DTRL-01** should remove the reference to motorized vehicle use.

K. Energy and Mineral Resources

Given the controversy surrounding mineral and energy development across the GMUG, their impacts to other uses of the forest, and the questionable future of nonrenewable energy on public lands, the approach the Plan takes to this issue is critically important. The key mission in the 1897 Organic Administration Act[519] makes front and center the three original purposes for the U.S. Forest Service:

> No national forest shall be established, except to improve and protect the forest within the boundaries, or for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of citizens of the United States…

Oil, gas, coal, and other mineral uses are not mentioned here, nor in the Multiple Use Sustained Yield Act of 1960.[520] In fact, the GMUG's continued allowance of these uses serves to undermine sustainable water flows, through the climate change impacts that these industries are responsible for and the water consumed in development that often does not return to the system. As written, the very first Forestwide plan component in the Draft Plan equates commodities – notably energy and minerals – with sustainable forest services.[521] Given the climate crisis, and its impact on the immediate and long-term viability of sustainable forest services, this is untenable. The DEIS's statement assessing the sustainability of energy and mineral resources and uses that "[a]ll action alternatives would contribute to economic sustainability at various scales[]"[522] is increasingly unsupportable. Record fires, record drought, record heat, etc. are all destabilizing economic sustainability at multiple scales.

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[517] "It is the intent of the Forest Service that the CDNST will be for non-motorized recreation." United States Forest Service, Continental Divide National Scenic Trail Comprehensive Plan, 3 (2009).

[518] Id., at 3, 4.

[519] 16 U.S.C.473 et seq.

[520] 16 U.S.C. 528-531.

[521] FW-DEC-SCEC-01, Plan at 10.

[522] DEIS at 328.

To satisfy the agency's obligations under existing law and regulations, deficiencies in the DEIS discussed below must be addressed.

1. The EIS must take a hard look at the climate impacts of fossil fuel development.

NEPA requires a meaningful consideration of GHG emissions from activities occurring within the planning area.[523] The DEIS repeatedly states that analysis of fossil-fuel development within the planning area is "beyond the scope of the forest plan revision,"[524] and will be analyzed through separate NEPA processes. Yet the agency acknowledges that 23.8% (752,478 acres) of the GMUG is available for leasing and that mineral resource activities are second only to wildland fire smoke in terms of GHG emissions.[525]

While it is true that fossil fuel permitting decisions are outside the scope of the forest plan revision, an analysis of climate change impacts that could result from such development within the planning area is squarely within it.[526] NEPA requires "reasonable forecasting," which includes the consideration of reasonably foreseeable future actions . . . even if they are not specific proposals."[527] The fact that uncertainty may exist as to how much development will occur within the GMUG does not relieve USFS of this burden.[528]

The cumulative effects analysis with regard to fossil fuels in the DEIS concludes:

> Fossil fuel development or combustion emits greenhouse gases that contribute to climate change at various local to global scales. Climate change effects have been described as having disproportionate negative effects on environmental justice populations globally. Conversely, the use of fossil fuels in power generation has ensured that reliable and affordable power supplies

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[523] *See, e.g.*, *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin*., 538 F.3d 1172, 1217 (9th Cir. 2008) (impact of incremental GHG emissions on climate change "precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct.").

[524] DEIS at 28, 242, 245.

[525] DEIS at 323, 245.

[526] *See Mid States Coal. for Progress v. Surface Transp. Bd*., 345 F.3d 520, 532, 550 (8th Cir. 2003); *High Country Conservation Advocates v. U.S. Forest Serv*., 52 F.Supp. 3d 1174, 1197-98 (D. Colo. 2014); *Montana Environmental Information Center v. U.S. Office of Surface Mining*, 274 F. Supp. 3d 1074 (D. Mont. 2017), *amended in part, adhered to in part*, 2017 WL 5047901 (D. Mont. 2017), (holding variously that agencies must analyze GHG emissions resulting from policy as well as regulatory and leasing decisions).

[527] *N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1079 (9th Cir. 2011).

[528] *Id.* ("Because speculation is . . . implicit in NEPA," agencies may not "shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as crystal ball inquiry."); *see also Sierra Club v. Federal Energy Regulatory Comm'n*, 863 F.3d 1357, 1373-74 (D.C. Cir. 2017)(rejecting the argument that it is "impossible to know exactly what quantity of greenhouse gases will be emitted" and countering that "agencies may sometimes need to make educated assumptions about an uncertain future" in order to comply with NEPA's reasonable forecasting requirement.)

have been available in large areas of the United States, which contributes to higher quality of life.[529]

In light of the most recent scientific data as described above, this summation is not only insufficient in scope, it is wildly inaccurate, given that current scientific consensus leaves virtually no room in the remaining carbon budget for continued fossil fuel development consistent with a livable climate. It is also a dereliction of the "hard look" at potential impacts required by NEPA.

The DEIS notes that GHG emissions from oil and gas development are expected to increase "by approximately four times" over "the base year."[530] Yet there is no attempt to quantify such emissions increases or translate them into an analysis of possible effects to the greater GMUG ecosystem in either a qualitative or quantitative manner. This is contrary not only to the requirements of NEPA, but to the current Administration's call for a "whole of government approach" to tackling the climate crisis.[531]

An appropriately rigorous analysis could, for example, take into account the uncertainty about future development noted in the DEIS[532] by evaluating GHG emissions and associated climate change consequences under a range of possible development eventualities. Multiple tools exist for the completion of this type of analysis.[533]

- Recommendation: The EIS must take a hard look at the climate impacts of fossil fuel development.

2. The Plan must include additional components

The Draft Plan states that stipulations for existing leases were determined at the time of lease issuance, and that they are unaffected by the revised plan.[534] But what about stipulations for any new leases

[529] DEIS at 328.

[530] DEIS at 245. Importantly, too, this estimate is based on analysis undertaken for the 2015 Grand Junction Field Office Resource Management Plan, which was challenged in court due to BLM's failure to adequately consider the indirect impacts from the combustion of oil and gas and the cumulative climate change impacts caused by oil and gas produced from federal minerals in the area, and BLM failed to consider a reasonable range of alternatives that would limit oil and gas leasing and development within the planning area. BLM has committed to undertake a supplemental analysis to resolve these deficiencies, and the Forest Service can no longer rely on the old analysis. *See* Order Granting Motion for Voluntary Remand, *Ctr. for Biological Diversity v. United States BLM*, Civil Action No. 19-cv-02869 (D. Colo. Mar. 26, 2021), available at https://www.biologicaldiversity.org/programs/public_lands/energy/dirty_energy_development/oil_and_gas/pdfs/BLM_Grand_Junction_RMP_remand_decision.pdf (last accessed 11/17/21).

[531] Executive Order 14008 of January 27, 2020, *Tackling the Climate Crisis at Home and Abroad*, Fed. Reg. Vol. 86, No. 19.

[532] DEIS at 323.

[533] Such tools include the social cost of greenhouse gases as a way to economically evaluate the impacts of GHG production at a range of scales from planning to project level, carbon budgeting, and, for fossil fuels administered by the Bureau of Land Management (BLM) (including underlying many acres of USFS surface estate), BLM's "2020 Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends," available at: https://www.blm.gov/content/ghg/.

[534] At 48.

issued during the early life of the revised plan? Because an updated analysis of leasing availability will not be completed until three years after the revised plan is approved (**FW-OBJ-ENMI-06**), the revised plan needs to have plan components that address potential impacts from operations on lands already leased and areas that might be leased before the updated analysis is completed.

The importance of this is underscored by the antiquity of the current GMUG Forest Plan, with stipulations stemming back to the 1993 oil and gas leasing analysis.

> The 1993 decision also established stipulations required to protect local conditions and resources from effects of drilling and producing activities. These conditions and resources include, but are not limited to: wetlands or riparian areas, certain types of wildlife habitat, and steep or unstable slopes.[535]

The Plan does include a new standard:

> **FW-STND-ENMI-09**: All new leasable mineral actions shall include applicable surface use and occupancy stipulations to protect National Forest System lands consistent with plan direction. Associated operational proposals shall include appropriate conditions to mitigate surface uses per plan direction.

While this is better than no direction, what are the applicable surface use and occupancy stipulations? What "plan direction" is specifically being referenced? Furthermore, placing the burden on the local manager to include appropriate conditions – without reference to new plan direction that would guide those conditions – leaves substantial room for error or omission and provides no meaningful remedy should errors or omissions occur.[536]

- Recommendation: The Plan should have standards and guidelines for applying stipulations to oil and gas leases. The stipulations would likely vary by management area, so each area under which leasing would be allowed should have management direction for application of lease stipulations. The Plan should describe them and where they will be applied or reference an existing write-up for this if it will be used during the life of the revised plan.

[535] Grand Mesa, Uncompahgre, and Gunnison National Forests *REVISED DRAFT Forest Assessments: Renewable and Nonrenewable Energy Resources, Mineral Resources, and Geologic Hazards* (March 2018), at 15.

[536] Errors and omissions do occur at the leasing stage. For example, leases nominated on the GMUG in and around 2007 overlapped with roadless areas, but were initially consented to by the Forest Service without stipulations to protect roadless values or to ensure compliance with roadless rules. It was only after protest by environmental groups that stipulations were added to the leases to protect roadless values.

3. The Forest Service should apply conditions of approval to existing leases when making discretionary decisions.

Existing leases were issued pursuant to an outdated Oil and Gas Leasing EIS and no longer reflect contemporary conditions or adequately protect existing values. The Forest Service should commit to applying conditions of approval (COAs) that bring existing leases into compliance with the new plan, as well as updated rules and regulations not considered when the leases were issued.[537] The new plan should commit to using COAs for this purpose any time the agency makes a discretionary decision related to the lease. Further, the new plan should include direction to BLM that discretionary decisions impacting existing leases on the forest should be conditioned upon compliance with the new plan and contemporary rules and regulations.

As it is, the DEIS says that "Existing oil and gas leases would be subject to plan components as conditions of approval where they do not conflict with existing lease stipulations during the development phase."[538] This commitment is a great start that we support, though the caveat should be clarified to not undermine Forest Service authority. Many discretionary decisions made or consented to by the Forest Service can be conditioned regardless of stipulations. Leaseholders are often asking agencies to approve requests that they are not entitled to by law. Those decisions can be conditioned any way the agency sees fit, or they can be denied for good reason.

Most existing oil and gas leases on the GMUG are old—beyond the ten-year primary term for which they were issued, and they have outdated stipulations. Many of the leases remain undeveloped—meaning leaseholders have had more time to develop the leases than the term for which those leases were issued.

Frequently when operators ask the Forest Service and BLM to approve requests, the requests are intended to enable leaseholders to retain leases for more time. For example, leaseholders often ask for suspensions on old leases to keep them from expiring. BLM often seeks Forest Service consent prior to approving such requests. Such has been the case with leases in the Huntsman, Pilot Knob, and Clear Fork Roadless Areas on the GMUG.

The Forest Service has broad authority to condition discretionary decisions. In cases where BLM is the primary decider but the Forest gives consent, the Forest Service can ask BLM to condition its decision on measures necessary to protect forest resources. Conditioning approval of a request on measures that ensure resource protection and compliance with rules and regulations is well within the agency's authority and its mission.[539] Such conditions of approval can be applied whenever leaseholders request something that it is not guaranteed by statute—like suspensions.

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[537] Some of these new rules and regulations include the 2001 and Colorado Roadless Rules, the Forest Service's new Planning Rule (which emphasizes protection of ecosystems), and recent listings under the Endangered Species Act.

[538] DEIS at 326.

[539] See the Federal Onshore Oil and Gas Leasing Reform Act, 30 U.S.C. 226.

For example, when a leaseholder asks for more time to develop a lease with suspension of a lease term, the agencies can condition grant of suspension on application of measures that protect resources. As mentioned above, there are numerous oil and gas leases in roadless areas on the GMUG that do not explicitly protect roadless values, and many of those leases would have expired but for agency suspensions giving leaseholders more time to develop. Moving forward, the agency should condition its consent to suspension of these leases on compliance with the Roadless Rule when development of the lease does occur. If a leaseholder is unwilling to comply with the new plan or contemporary laws that properly conserve natural resources and forest values, the agencies must deny the request.
The new plan includes these objectives:

> **FW-STND-ENMI-07**: Ensure that new mineral leases within Colorado roadless areas are consistent with the Colorado Roadless Rule (36 CFR 294.46).
>
> **FW-STND-ENMI-09**: All new leasable mineral actions shall include applicable surface use and occupancy stipulations to protect National Forest System lands consistent with plan direction. Associated operational proposals shall include appropriate conditions to mitigate surface uses per plan direction.

We wholeheartedly support these objectives and their application to new leases. To ensure protection of valuable forest resources on the GMUG, however, the Forest Service should take it a step further and make every effort to ensure that development of <u>all leases</u>, new and existing, on the forest comply with these objectives. The agency has wide discretion to require these objectives as COAs when approving or consenting to approval of discretionary actions on existing leases, and it should commit to exercise that discretion in a new plan.

- Recommendation: The new plan should apply COAs that bring old leases into compliance with new laws and regs when discretionary decisions are made. With regard to decisions, like suspension and unitization authorizations where BLM is the decider, the new plan should make clear that the Forest Service won't consent to those decisions unless they include conditions that ensure leases protect forest resources and comply with contemporary laws and regulations.

4. Has the GMUG completed an RFD scenario?

The change in market conditions highlights the importance of reevaluation of the reasonably foreseeable development (RFD) scenario, and in particular estimations of the development potential on the GMUG. Several times through this planning process the GMUG has referenced obtaining a new RFD scenario for oil and gas operations and referenced how that would influence plan development.
For example, the applicable 2017 Draft Assessment states:

> During the Forest Plan Revision EIS process, we will obtain a new RFD Scenario consistent with BLM's current efforts for the GMUG in order to inform the forest's effects analysis and allow us to better predict future trends.[540]

The 2018 Revised Draft Assessment also stated:

> According to BLM's 2006 Reasonably Foreseeable Development Scenario prepared for Forest Plan revision efforts, natural gas drilling on the GMUG was forecasted to include up to 88 new wells between 2006 and 2021. Since the 2006 RFD, BLM Field Offices have been in LRMP revision and have updated this scenario.[541]

The 2018 Assessment also states that "best available science was used to develop this assessment, including": "Current RMP planning efforts by BLM field offices contain reasonably foreseeable development scenarios for oil/gas and coal used in predicting trends."[542]

The RFD Scenario that BLM relied on in the RMP was from 2012, but the underlying data that was utilized in the 2012 scenario was from 2005. However, we cannot find any specific reference to that document in the GMUG Draft Plan, and it doesn't appear to be included in the references section. In fact, we cannot find any updated RFD scenario, or a reference to one, in the DEIS. It's unclear if the agency even utilized the outdated 2012 document. Rather, the DEIS includes references to two studies (which we cannot access or locate), one of which is 17 years old and the other 15 years old (but which references a 17 year-old drilling forecast).[543]

The DEIS's analysis of nonrenewable energy and minerals notes several times that "it is difficult to predict future trends of oil and gas development."[544] It would be less difficult to do so with the completion of a new RFD Scenario, as specifically noted by the GMUG.

- Recommendation: Obtain more accurate and up-to-date data to inform the analysis of impacts from oil and gas development on the GMUG.

5. The USFS should consider a moratorium on oil and gas leasing and development until an updated programmatic analysis is complete.

[540] Grand Mesa, Uncompahgre, and Gunnison National Forests *DRAFT Forest Assessments: Renewable and Nonrenewable Energy Resources, Mineral Resources, and Geologic Hazards* (November 2017), at 12.

[541] Grand Mesa, Uncompahgre, and Gunnison National Forests *REVISED DRAFT Forest Assessments: Renewable and Nonrenewable Energy Resources, Mineral Resources, and Geologic Hazards* (March 2018), at 19.

[542] At 9.

[543] At 322.

[544] At 324, 326.

As discussed throughout these comments, even assuming the agency has undertaken a more recent RFD, the Forest Service is relying on an oil and gas leasing EIS from 1993 that fails to consider a wealth of new information and changed circumstances that have come to light since that analysis was completed. Some of these changes relate to the science of climate change, new regulations (including, for example, implementation of the 2001 and Colorado Roadless Rules), listings under the Endangered Species Act, understanding and science related to the impacts of oil and gas development, updated estimates of oil and gas resources in the area, technological innovations related to extraction of oil and gas, the emergence of new needs and competing values in the area, and substantial increases in use of GMUG lands that make additional areas of the GMUG incompatible with new leasing. These are just some of the changes that have occurred since the Forest Service last undertook a programmatic analysis of oil and gas leasing and development in the area. The 1993 Oil and Gas Leasing EIS fails to consider any of this information. That analysis is stale and inadequate to support contemporary leasing decisions. Since the agency has decided not to update the Oil and Gas Leasing EIS as part of this revision process, it should commit to a moratorium on new leasing until an updated programmatic analysis can be undertaken.

Oil and gas leasing and management issues were the subject of many public comments during scoping. The DEIS said this:

> Public comments requested alternatives that would be best considered in the subsequent leasing available analysis, including alternatives for no energy/mineral development; minimal energy/mineral development; maximum energy/mineral development; exclusively renewable energy development. Public comments have requested specific leasing stipulations be applied, such as the requirement for methane flaring, capture, and/or mitigation in any future leasing.
>
> While a preliminary need for change in the GMUG's 2017 Minerals Assessment identified a potential need for change to further clarify Colorado roadless area mineral leasing provisions, this remains beyond the scope of the forest plan revision. Related public comments suggested no surface occupancy stipulations for all Colorado roadless areas and/or limits on the distance allowed for leasing between current no surface occupancy areas, to better reflect current distance limits with respect to horizontal drilling. These comments would be best considered in the subsequent leasing availability analysis.[545]

These comments highlight issues that the Forest Service has not considered at a programmatic level in any contemporary analysis, and that the agency refused to examine here. Taking a hard look at these issues (and many more) is fundamental to any leasing decision. Since the agency has opted to defer any programmatic analysis of oil and gas leasing, the agency must also defer leasing decisions.

[545] DEIS at 28-9.

- Recommendation: The GMUG should commit to a moratorium on new leasing until an updated programmatic analysis is completed.

6. The plan must address coal mine pollution

a. Coal mine pollution is not calculated

To understand the nature of greenhouse gas impacts on the environment, the GMUG must first quantify the amount of emissions that result from activities, like coal mining, on the forest. Like oil and gas development, coal mined on the GMUG is a significant source of climate change pollution, both from burning the coal and from the staggering amounts of methane released in the mining process.

The DEIS does not attempt to quantify coal mine pollution from the GMUG. It references the 2015 Grand Junction BLM RMP, but does not include that specifically in the DEIS:

> "An emission estimate for the 2015 Grand Junction Field Office Resource Management Plan selected alternative shows increases over the base year by approximately four times in both the short and long term. Coal mining activities are predicted to be the largest contributor to greenhouse gas emissions, followed by oil and gas development. Coal mining greenhouse gas emissions are primarily from fugitive methane emissions."[546]

The DEIS notes that:

> "Coal mining activities are predicted to be the largest contributor to greenhouse gas emissions, followed by oil and gas development. Coal mining greenhouse gas emissions are primarily from fugitive methane emissions."[547]

Given the significance of this emission source and the significance of climate change impacts on the future of the Forest, the Plan's cavalier approach to securing accurate data for this emission source is inexcusable.

- Recommendation: Obtain more accurate and up-to-date data to inform the analysis of impacts from coal development on the GMUG.

b. Methane mitigation is unaddressed

[546] At 245.

[547] At 245.

Existing coal mine methane capture operations are economical and feasible and should be pursued by the GMUG. In a 2008 op-ed in the Denver Post, Charlie Richmond, then-Forest Service supervisor for the GMUG, promised that the agency would continue to "lead the charge" on methane use. "Finding just the right solution for utilization of methane, thereby reducing greenhouse gas emissions, will not happen overnight but is on the nearby horizon," Richmond wrote.[548] Thirteen years later, the Forest Service has still not "led the charge" on addressing this important pollution source.

One additional step that the GMUG can take over the coming years is to incentivize and expedite the capture of coal mine methane, which the West Elk Mine produces a large amount of. The West Elk mine not only produces a product – coal – that will be burned, further worsening the climate crisis, but since 2011 the mine has been the single largest industrial source of methane pollution in Colorado. In October 2021 the EPA published its facility-level GHG pollution reporting data for 2020, and the West Elk coal mine retained its position as the worst single industrial source of methane pollution in Colorado. The mine emitted more than 312,000 tons CO2e of methane in 2020. The next closest emitters were: (1) the Larimer County landfill and (2) leaks from Xcel's natural gas distribution system, each of which accounted for a little under 200,000 tons CO2e of methane pollution.

Methane pollution (in tons CO2e) from all industrial sources in Colorado where the source emitted more than 290,000 tons CO2e of methane in any year between 2011 and 2020[549]

	West Elk mine	Bowie No. 2 mine	Elk Creek mine
2020	312,495	*(none reported)*	*(none reported)*
2019	414,191	*(none reported)*	*(none reported)*
2018	291,652	*(none reported)*	*(none reported)*
2017	441,942	*(none reported)*	*(none reported)*
2016	402,876	271,827	*(none reported)*
2015	485,112	514,703	20
2014	651,233	417,374	19,945
2013	752,128	293,343	108,599
2012	922,434	331,656	1,151,883
2011	1,235,400	227,588	1,336,633
Total:	**5,909,463**	**2,056,492**	**2,617,080**

The ten years of West Elk methane emissions is equal to the emissions caused by driving 1,285,189 passenger vehicles for one year.[550]

[548] Richmond, C. (2008). Capturing methane released by mines is a work in progress. Grand Junction Sentinel. March 23. Op-Ed

[549] Source: EPA, Facility Level Information on Greenhouse gases Tool, available at: https://ghgdata.epa.gov/ghgp/main.do; search displaying Colorado facilities emitting 100,000 tons or more CO2e of methane in 2020 available here. (last viewed November 8, 2021).

[550] See https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator.

The DEIS acknowledges the public request for methane mitigation measures to be included in the revised Forest Plan ("Public comments have requested specific leasing stipulations be applied, such as the requirement for methane flaring, capture, and/or mitigation in any future leasing"),[551] but only under its discussion of oil and gas leasing availability, not for coal. This despite our targeted request for this in comments on the Energy and Mineral Resources Draft Assessment Report.[552] It also states:

> Infrastructure related to methane use or capture at coal mines *may* continue to be utilized during the planning period. Methane mitigation to reduce greenhouse gas emissions from active and inactive coal mines is expected to continue during the plan duration.[553]

In other words, existing limited infrastructure may – or may not – be utilized. The Plan revision process provides the opportunity for the GMUG to finally "lead the charge" on this issue, as it said it would do 13 years ago.

We note a statement in the DEIS that may already be out-of-date, indicating again the importance of plan components to accomplish objectives, rather than relying on the whims of industry. The GMUG states:

> With respect to the Colorado roadless areas, the North Fork Coal Mining Area exception to the Colorado Roadless Rule was invalidated in court proceedings in June 2020. There is no plan at this time to reinstate the exception. Because of the geologic nature of the coal resource, surface use to vent the underground workings is needed (specifically needing roads that are now prohibited). Without this exception to the Rule, leasing may not be practical unless venting of methane can be accomplished in other ways.[554]

In fact, the West Elk coal mine is actively exploring – and appears to be implementing – new mining underneath the Gunnison National Forest without road construction. Recent inspection reports for the West Elk Mine indicate that Mountain Coal (MCC) intended to begin mining under the SS2 panel within the Sunset Roadless Area.[555] The company illegally bulldozed a road into the Sunset Roadless Area in

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[551] At 28.

[552] See Exhibit 22_nonrenewable assessment comments.

[553] At 324. [emphasis added]

[554] Draft Plan at 282. [emphasis added]

[555] See Exhibit 23_West Elk Inspection Report. See also https://seekingalpha.com/article/4462152-arch-resources-inc-arch-ceo-paul-lang-on-q3-2021-results-earnings-call-transcript?mail_subject=arch-arch-resources-inc-arch-ceo-paul-lang-on-q3-2021-results-earnings-call-transcript&utm_campaign=rta-stock-article&utm_content=link-2&utm_medium=email&utm_source=seeking_alpha.

2020 to scrape drilling pads for methane venting sites to access the coal in this panel,[556] and the Tenth Circuit has enjoined road and pad construction there.[557] But the Mine Safety and Health Administration (MSHA) has agreed to a variance to MCC's ventilation plan that allows the company to conduct mining in a way that does not require the use of boreholes.[558] It appears that – after over a decade of saying roads were necessary for accessing coal underneath the Sunset Roadless Area – the West Elk coal mine is now proceeding to mine that resource without new roads. It's unclear where the methane goes from there – it may eventually make it to the surface via fissures in the rock above, or it may eventually leak into the mine (where it will be vented).

- Recommendation: GMUG plan revision presents an opportunity for the Forest Service to consider Forest-wide standards for stipulations on coal leases that limit uncontrolled methane venting, and require, where practical, capture of at least some methane.

- Recommendation: The Plan must include adequate analysis of the air quality, climate change, and social costs of coal mine methane venting. These impacts are local, regional, and national.

7. The DEIS should consider closing the GMUG to coal leasing.

Public comments during the scoping period requested consideration of an alternative that would preclude future coal leasing in the GMUG. The Forest Service dismissed this proposal briefly:

> Given economic constraints and designated Colorado roadless area constraints (outside of the contested North Fork Mining Area per the Colorado Roadless Rule), the area available to coal leasing is extremely limited. Therefore, an alternative that would preclude future coal leasing in the GMUG is unnecessary.[559]

This dismissal is inadequate to satisfy the agency's obligations under NEPA.

The potential impacts of coal leasing and development are enormous. Mining often requires bulldozed roads, flattening and clearcutting forests for drilling pads and drainage wells that release methane, a potent greenhouse gas. Just one mine that operates on and under the GMUG is Colorado's single biggest industrial emitter of methane.[560] The same mine has destroyed and fragmented habitat, displaced wildlife, altered local hydrology, and completely transformed significant portions of the forest. Clearly then, opening even a small portion of the forest to coal mining may have significant impacts.

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[556] See https://coloradosun.com/2020/06/20/mountain-coal-road-gunnison-forest-roadless-legal/.

[557] See Webb, D. 2020. Appeals court bars mine roadless work for now. Grand Junction Sentinel. October 9.

[558] See Exhibits 24_west elk coal.

[559] DEIS at 28.

[560] Ray, K. 2016. Colorado's worth methane polluter is an Arch Coal mine. *The Colorado Independent*. May 3.

Those impacts are significant enough to justify consideration of a full closure as a reasonable alternative in the EIS.

- Recommendation: The FEIS should consider an alternative closing the GMUG to new coal leasing.

L. Rangelands, Forage, and Grazing

It is important to keep rangelands in better than fair condition. Fair condition is defined by the Forest Service as 26-50% of potential. Under the Course Filter approach of the 2012 Planning regulations, the Forest Service is required to provide habitat conditions for wildlife and SCC that are similar to what the species evolved under; 26-50% of potential does not provide for that. According to statistics in the DEIS,[561] the condition of rangelands on the GMUG has markedly improved since 1987. However, there are still an estimated 11,989 acres of range in poor condition,[562] with 1,123 acres of this estimated to still be in a downward trend and 9970 acres estimated to be stable, i.e., not improving.[563] The narrative below the table states that some existing and former staffers believe the acreage in poor condition and stable or downward trend is too high, and that "it will be field-verified as time permits".[564]

We urge the GMUG to regularly monitor all rangelands believed to be in poor condition or in fair condition with a possible downward trend. In addition to verifying the acreage and trend of rangelands in poor condition, it would help foster quick action where needed to prevent or reverse damage to resources such as soils, streambank stability, watershed integrity, and wildlife habitat. A plan component is needed to help ensure that this occurs, as is discussed in this section below.

The DEIS identifies 2,382,265 acres, or 80% of the GMUG, as managed for livestock grazing.[565] But it also states that 1,253,784 acres are not capable of such grazing.[566] Adding these figures together produces a sum of about 3.33 million acres, that is higher than the total acreage of the GMUG.[567] Even if the acreage of inholdings within the GMUG (188,200 acres) is added to the GMUG national forest acreage, the totals still do not square.

[561] Table 141 at 331.

[562] Ibid.

[563] GMUG Revised Rangeland Assessment 2.0, Table 10 at 12.

[564] Ibid.

[565] Id., at 330.

[566] Ibid.

[567] Which. according to DEIS at 1, is 2,966,200 acres.

This discrepancy must be clarified to ensure grazing lands which do not produce sufficient forage, are on unstable soils, or are otherwise incapable for livestock grazing,[568] are not being grazed by any livestock or being considered for such grazing.

The area suitable for grazing is determined at the project-level as NEPA analysis is conducted.[569] There should be a preliminary determination of land suitable for livestock grazing at the forest plan level, as there is for timber production. Suitability should be determined for capable rangeland, based on the management areas and forest-wide plan components. At a minimum, land should be suitable for livestock grazing only if implementation of such grazing would fully comply with the Final Recovery Plan for Gunnison Sage Grouse.[570]

We are glad to see forage for wildlife specifically mentioned in desired condition **DC-RNG-01**. However, **DC-RNG-02** would allow up to 30% of a key area to be bare soil. This is way too high. Any area grazed by livestock that has 30% bare soil, other than maybe right after a fire, indicates that grazing is having an unacceptably high adverse impact which needs to be addressed immediately.

- Recommendation: Rewrite **DC-RNG-02** as a guideline or standard to state that bare soil areas should be kept to a minimum and should be revegetated as soon as possible.

The current vegetation condition and ecological integrity of all wet meadow and riparian shrub and woodland ecosystems are moderately departed from reference conditions. Of particular concern is the cottonwood riparian ecosystem, a significant portion of which, 68%, is not fully functioning.[571] The draft forest plan has no specific livestock grazing standard to protect these sensitive riparian and wetland areas.

- Recommendation: Add a standard or guideline to the plan that requires or encourages actions over time to improve the condition of the GMUG's aquatic ecosystems, especially cottonwood-riparian ecosystems, by limiting or prohibiting livestock grazing as needed.

- Recommendation: **STND-RNG-06**, prohibiting salting in some sensitive areas, is good and should be retained. Add Gunnison prairie dog habitat to the list of areas where salting is prohibited.

Under **STND-RNG-07**, livestock grazing could be used for "rehabilitation treatments". However, livestock grazing often causes impacts on soils, water quality, natural vegetation, etc., creating the ***need*** for rehabilitation.

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[568] See FEIS at 330.

[569] Rangeland Assessment at 9.

[570] U.S. Fish and Wildlife Service. (2020). Final Recovery Plan for Gunnison Sage-Grouse (*Centrocercus minimus*). U.S. Fish and Wildlife Service, Upper Colorado River Region, Lakewood, Colorado. October. 32 pages.

[571] See DEIS Table 47 at 115.

- Recommendation: Use of livestock to rehabilitate sites should be limited to areas where an analysis shows that there will be a net beneficial effect.

The DEIS states:

> Regeneration is an important part of timber management, and grazing within regenerating stands is generally limited or prohibited until trees have grown to a size at which livestock impacts are minimal. …
>
> As revegetation activities take place, these acres are likely to be temporarily removed from grazing to protect regeneration.[572]

However, we do not find a plan component broadly limiting or prohibiting livestock use in areas undergoing regeneration that could be damaged by stock use. **STND-RNG-07** applies to grazing "following wildland fire, rehabilitation, or seeding", and requires specialists to "confirm range readiness" before allowing livestock grazing.

- Recommendation: This standard should be modified to state that livestock grazing can be restricted or prohibited in any areas undergoing regeneration until the trees are of such size that damage to them from livestock grazing is unlikely. This would make clear the intent to limit livestock damage to regeneration, regardless of whether the regeneration is occurring from seeding, planting, or naturally.

STND-RNG-08 limits grazing to moderate utilization, defined as "40 to 60 percent of the current above-ground biomass". Sixty percent is heavy use, not moderate.[573] Also, the standard has too many exceptions to provide assurances that it will be diligently applied. For example, exceptions would be allowed for "targeted grazing or site-specific objectives."

- Recommendation: We recommend, based on the Best Available Science, that 25% utilization limit be implemented under this Standard. The Standard also needs to ensure implementation of this in permits following Forest Plan adoption. The Standard must also require changes in permitted Head Months and AUM's based on this Standard.

- Recommendation: We recommend narrowing the exceptions, perhaps to weed control, and requiring that any exceptions be allowed only after review by all of the relevant specialists and the public.

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[572] DEIS at 335, 338.

[573] Holechek, J. L., de Souza Gomes, H., Molinar, F., & Galt, D. (1999). Grazing studies: what we've learned; Holechek, J. L., Baker, T. T., Boren, J. C., & Galt, D. (2006). Grazing impacts on rangeland vegetation: what we have learned. *Rangelands*, *28*(1), 7-13.

GDL-RNG-09 states that the Watershed Conservation Practices Handbook should be followed.

- Recommendation: Compliance with the WCPH or more recent best science must be mandatory. Note that under Watersheds and Water Resources, compliance with the WCPH is a management approach.[574] Change should to must and make this guideline a standard.

GDL-RNG-10: This guideline is designed to allow vegetation to recover after livestock grazing.

- Recommendation: This guideline needs to be a standard. Season-long grazing must especially be prohibited, as rangelands on the GMUG could not recover if grazed for an entire growing season. Season-long grazing could not "achieve or maintain desired ecological conditions," as the guideline, as now written, requires; rather, it would prevent achievement of desired conditions for soils and vegetation.

GDL-RNG-11 recommends limits on sheep bedding and trailing in sensitive areas.

- Recommendation: This guideline needs to be a standard.

The first management approach on p. 59 recommends that Forest Service staff people work with permittees to improve management when monitoring shows that objectives are not being met.

- Recommendation: This should be a standard or guideline. There needs to be direction to respond quickly as soon as range conditions become less than desired. There should be a standard requiring regular monitoring of as much of the rangeland in poor condition or fair condition with a downward trend as budget and personnel availability allow. An objective that would identify a time frame for improving all or a portion of the range in poor condition would also be helpful.

M. Recreation

Recreation is the most popular and prolific use of the GMUG and is an economic engine for Colorado's Western Slope. Millions of people travel and reside in the GMUG region to enjoy the unique recreational assets of the area, and their tourism dollars are extremely important to local communities. At the same time, it is manifestly evident that the current trend across the forest towards more recreation, more recreationists, and more types of recreation, is not sustainable.

We are generally supportive of human-powered recreation as practiced in appropriate areas and seasons, after it is subject to appropriate environmental review. Prioritizing low-impact recreation, while minimizing the expansion of activity, is not only the most sustainable approach the GMUG can take, but

[574] See Draft Plan at 42 and comment above.

it also is the most in-line with current and expected future trends. The most popular activities on the GMUG are non-motorized. The forest's 2020 National Visitor Use Monitoring Report cites hiking/walking (26.8% primary activity; 48.8% participation) as over twice as popular as the second most popular activity, downhill skiing/snowboarding (12.8% primary activity, 13.5% participation), with viewing natural features coming in close behind (11.7% primary activity, 44.4% participation). This compares to 1.2% of visitors who reported off-road vehicle riding as their main activity (3.0% reported participation).[575] Non-motorized activities are also the most popular activities in National Forests across the US.[576]

Through recreation-specific impacts analysis, identification of areas on the Forest that should be subject to route density standards or that preclude new trail development, ROS mapping, and more, Plan revision provides the critical, fundamental baseline information and allocations for ensuring that recreation is compatible with wildlife and other resource values. Given the importance of, and the potential impacts from, recreation, this forest plan revision process must fully and accurately address and respond to this issue. In some ways, it does, and we appreciate the GMUG's commitment to addressing recreation impacts. In others, additional plan components and clarifications are necessary.

1. Management of recreation

We are puzzled by one aspect: Table 86 in the DEIS (Species potentially affected by non-hunting recreation). Why do potential impacts from motorized recreation only consider impacts from illegal use? Even legal use has potential impacts, including, but not limited to OSV use, which is occurring prior to Travel Management Rule Subpart C designation.[577] Even if the forest were to argue that they've already considered, and minimized, potential impacts from motorized use, this argument would not apply to OSV use.

- Recommendation: Ensure that impacts from legal motorized use are considered in analysis of potentially affected species.

OBJ-REC-06 states: "Within 10 years of plan approval, to reinforce semi-primitive non-motorized settings, eliminate at least two unauthorized motorized travel routes."

- Recommendation: If the GMUG is serious about enforcing semi-primitive non-motorized settings, it should close many more than two unauthorized routes in 10 years.

[575] USDA Forest Service, 2020. National Visitor Use Monitoring Report.

[576] USDA Forest Service, National Visitor Use Monitoring Survey Results, National Summary Report, at Table 10. Available at: https://www.fs.usda.gov/sites/default/files/2020-National-Visitor-Use-Monitoring-Summary-Report.pdf.

[577] See subsection N below for further discussion on OSV management.

STND-REC-09 would ban flights of "unmanned aircraft systems", or drones, in five management areas and some other areas. However, it would allow exceptions for special use permits "under certain circumstances". The latter are not specified or described.

- Recommendation: Drones need to be restricted or prohibited in some areas because they can harass wildlife and interrupt key functions such as reproduction and brood rearing. Also, people recreating do not want to hear the noise of drones or see them. Drones should also be banned from the following MAs: 2.3, Fossil Ridge Special Management Area; 3.1, Colorado Roadless Areas; 3.2 Wildlife Management Areas; and 3.3, Special Management Areas in alternative D. If drones will be allowed via special use permit, the "certain circumstances" under which they would be allowed must be spelled out in considerable detail so that operators know where drones are restricted or prohibited and the public knows what to expect with regard to drones when they visit the GMUG. We recommend that there be no exceptions to this prohibition in MAs 1.1, 1.2, 2.1, and 4.2 other than for emergency search operations and law enforcement. Certainly, drones cannot be allowed in wilderness areas, as that violates the Wilderness Act, where wilderness areas "retain [their] primeval character and influence".[578] Indeed, MA-STD-WLDN-10 bans recreational drones in wilderness, management area 1.1.

GDL-REC-12 makes the prohibition of motorized use off of designated routes a guideline.

- Recommendation: This must be a standard. It is required by the Travel Management Rule: "After these roads, trails, and areas are designated, motor vehicle use, including the class of vehicle and time of year, not in accordance with these designations is prohibited by 36 CFR 261.13."[579] After designation of routes on a national forest: "it is prohibited to possess or operate a motor vehicle on National Forest System lands in that administrative unit or Ranger District other than in accordance with those designations…"[580] There are exemptions for administrative, law enforcement, authorized access, etc.,[581] but not for general recreation use.

FW-GDL-REC-13: "To mitigate cumulative ecological and social impacts associated with human waste, when pertinent indicators for action in Forestwide standards REC-07 and REC-08 are identified, the Forest Service should require visitors to use self-contained waste solutions on a site-specific basis (i.e., WAG bags, portable toilet, etc.)."

[578] 16 USC 1131.

[579] 36 CFR 212.50.

[580] 36 CFR 261.13.

[581] See 36 CFR 261.13 (a) through (i).

- Recommendation: This should be a standard and should be implemented quickly. Self-contained packable waste systems can and should be implemented on a large scale across the GMUG in its entirety.[582]

REC Management Approach: "When addressing social and/or biophysical impacts related to dispersed recreation use (FW-STND-REC-07, FW-STND-REC-08, MA-OBJ-EMREC-02, MA-OBJ-EMREC03), the basic criteria for selecting the most appropriate management action(s) from a diverse range of options is what will efficiently and effectively respond to observable impacts. When and where possible, consider phasing management actions by first selecting a less obtrusive approach (such as stewardship education) and observing visitor behavior over a specific timeframe before implementing restrictions or developing extensive infrastructure; however, phasing is not always the most appropriate approach."

- Recommendation: This management approach to address social and biophysical impacts from dispersed camping[583] should be a guideline. The GMUG will need to take actions like the ones outlined here if it serious about addressing the impacts of dispersed camping.

2. Recreation opportunity spectrum (ROS)

The desired ROS settings are the heart of the sustainable recreation framework. They describe the collage of settings (physical, social, and managerial) where specific experiences and benefits are derived. The plan must include desired conditions for sustainable recreation using mapped desired ROS classes,[584] supplemented with plan components that ensure ROS settings are achieved and sustained over the life of the plan.[585] These should include standards and guidelines to prevent erosion of the settings, unsuitability for activities that are discordant with the setting, and objectives to transition from the current setting to the desired setting where the two are not aligned. The Draft Plan lacks specific objectives that would ensure achieving or maintaining the desired ROS settings.

- Recommendation: **FW-GDL-REC-16** should be a standard once Tables 8 and 9 are corrected to accurately show the ROS allocations, especially in alternative B and D as discussed above.

- Recommendation: Within 10 years, all motorized roads and trails within primitive and semi-primitive nonmotorized ROS classes will be decommissioned and obliterated or converted to non-motorized trails.

- Recommendation: To maintain the function of CPW-mapped high priority big game habitats, please incorporate a Standard requiring that the ROS for the highest priority big game habitats

[582] This has recently been implemented in the Maroon Bells-Snowmass Wilderness on the White River National Forest. A small part of this wilderness area is on the GMUG. See https://www.fs.usda.gov/recarea/whiteriver/recarea/?recid=81118.

[583] As described in the fourth full bullet point of the Draft Plan at 71.

[584] ROS User's Guide 23.23a(1)(d).

[585] ROS User's Guide 23.23a(2)(a).

be maintained as “Primitive” or “Semi-Primitive” with route density limits, with very low motorized route density in semi-primitive areas and none in primitive areas.

- Recommendation: ROS Settings are defined by distance from designated motorized routes and areas, but for winter purposes, there aren't any official designated routes (because there is no OSV plan). Isn't this unduly influencing future decision-making? Please clarify.

- Recommendation: Please incorporate a Guideline to concentrate new trail development close to communities where trail and road densities are already high.

The DEIS states:

> “Generally, areas are not assigned a primitive setting unless they are 3 miles from a motorized route, so the use of primitive settings is largely limited to designated wilderness.”[586]

Why do pristine and primitive settings have to satisfy this arbitrary distance? Applicable guidance for this is from 1982,[587] one year after the current Forest Plan was developed, and likewise stale. There must be places on the Forest that meet all of the other criteria for primitive but are within the three-mile buffer.

- Recommendation: Primitive ROS classifications should also be considered for recommended wilderness areas, and parts of Colorado Roadless Areas, special areas, and Wildlife Management Areas. The GMUG should determine suitability for motorized recreation (summer and winter) consistent with the desired ROS class across all alternative, not just for the SMAs in Alternative D. The most remote and wild places on the GMUG should be found unsuitable for motorized recreation including wilderness, recommended wilderness, Roubideau and Tabeguache Areas, most special areas (or at least parts thereof), and currently non-motorized portions of potential wilderness areas. Research natural areas, sensitive wildlife habitats, steep and erodible slopes, and important non-motorized recreation destinations should also be found unsuitable for motorized use. Recommended wilderness areas should also be found unsuitable for mechanized use.

Timber harvest and oil and gas development fundamentally shift the setting character from predominantly natural to more industrial and hence if allowed would erode the setting.

- Recommendation: Primitive and semi-primitive non-motorized settings should be found unsuitable for timber harvest, surface disturbance associated with oil and gas operations, and other discretionary mineral disposals.

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[586] DEIS at 25.

[587] See USDA Forest Service, ROS Users Guide (1982), at 18. Available at: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5277167.pdf.

3. Concerns with Alternative D summer ROS acreage and maps

We are troubled by the lack of demonstrated conservation – in the form of insufficiently reduced acreage identified as suitable for motorized recreation – in Alternative D's ROS summer setting. The GMUG website states:

> "Alternative D places a stronger emphasis on non-motorized recreation across the forest. This alternative was developed in response to comments regarding increases in non-motorized use and a need for additional non-motorized recreation opportunities."[588]

Under this Alternative, 41% of the Forest would have a motorized ROS setting.[589] But this is only 1% less available to motorized use than under Alternative B.[590] How does the GMUG account for this insignificant difference between the two alternatives, one ostensibly favoring conservation? Alternative D should have significantly fewer acres identified as suitable for summer motorized use.

There is inexplicably more roaded natural ROS land in alternative D (530,000 acres) than in alternatives A (414,000 acres) or alternative B (417,000 acres).[591] Diving deeper into this conundrum, it appears that many places identified in Alternative B as semi-primitive non-motorized have been changed in D to semi-primitive motorized, and in many locations even to roaded natural. Roaded natural is one of the more developed ROS classes, with infrastructure and human sights and sounds typically present.[592]

The DEIS states:

> "Recreation in areas designated as roaded natural probably have the highest impact to wildlife of any in the plan area because of higher visitor use and because there is very little area classified as the more developed rural setting."[593]

> "Roaded areas have great potential for riparian impacts, some severe enough to result in fish kill. This can include spills and leaks from vehicles, as well as improper disposal of greywater from campsites."[594]

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[588] See https://usfs.maps.arcgis.com/apps/MapSeries/index.html?appid=1985b6f7be1744f7a55e5a9bb4300245.

[589] Ibid.

[590] Ibid.

[591] Draft Plan Table 8 at 63.

[592] See Draft Plan Table 14 at 69.

[593] DEIS at 217.

[594] Ibid.

Yet per Table 8, Alternative D includes over 100,000 more acres as roaded natural for summer use than Alternative B. Opening up large swaths of the Forest to "great potential for riparian impacts" is unacceptable.

This change would be especially significant for summer use in the Gunnison Basin Geographic Area, with Alternative D proposing 237,000 acres of roaded natural, as opposed to 169,400 for Alternative B.[595] We are confused by the significant changes proposed for new roaded natural areas in this Geographic Area. In fact, there are even instances in the Gunnison Basin Geographic Area of Alternative B being mapped as semi-primitive non-motorized, and the same acreage in Alternative D being mapped as roaded natural? Why is this? Some specific areas that need changing include:

- Along both sides of the Highway 114 corridor though the Cochetopa Hills (Alternative D significantly expands the acreage from semi-primitive motorized to roaded natural, much more so than even Alternative C);

- South of Marshall Creek immediately east of the Cochetopa Hills CRA, and south of Saguache County Road XX32 (Marshall Pass Road) to near the border with the Rio Grande National Forest, Alternative D allocates much more land to roaded natural than Alternative B, and even includes significant roaded natural where Alternative B has semi-primitive non-motorized;

- South of Sawtooth Mountain;

- North and west of Crested Butte (for example, between the Slate River and Washington Gulch, on the west side of Mount Axtell between Ohio Pass and Kebler Pass Roads, and on Double Top (which is semi-primitive non-motorized in Alternative B, but roaded natural in Alternative D));

- The road from the Cadwell property to the inholding in the La Garita Mountains along County Road 46 should definitely not be identified as roaded natural;

- The north side of the La Garitas (both B and D grossly over-identify much of the landscape between the La Garitas and Sawtooth as roaded natural);

- In and and Union Park, Park Cone, and Taylor Park, which have significantly more acreage identified in Alternative D as semi-primitive motorized and roaded natural than in B;

- On the south side of the West Elks, for example at Slab Mill Gulch, way too much of that area is allocated to roaded natural in Alternative D, especially east of County Road 724;

[595] DEIS Table 11 at 44.

- East/southeast of Pitkin, to Whitepine, where Alternative D inexplicably has much more expansive acreage under semi-primitive motorized and roaded natural than in Alternative B.

These are just some of the areas devoid of the physical, managerial, and social characteristics identified for this setting in Table 14 that are inexplicably identified for much heavier use than they currently – or ever should – see. Little of this acreage includes "nodes and corridors of development such as campgrounds, trailheads, boat launches, and rustic, small-scale resorts" that are the hallmarks of roaded natural.[596]

These lands encompass some of the least developed acreage on the Gunnison National Forest, and it is thus inexplicable that the bulk of the shift to roaded natural – in the conservation alternative nonetheless – would occur in these areas. This appears to be a broad misapplication of this setting and does not comply with the intent of this alternative. Is this an oversight, or intentional? Either way, it is not in the spirit or intent of Alternative D, and it is an unacceptable direction for these areas.

- Recommendation: Reexamine summer ROS settings to ensure that Alternative D actually presents a conservation alternative for summer recreation use.

- Recommendation: Redo the summer ROS analysis for roaded natural, especially in the Gunnison Basin Geographic Area, to ensure that unroaded and minimally roaded lands in Alternative D are not in this category. Reexamine specific settings, especially those identified above.

4. Summer pristine ROS

It appears that the GMUG has intentionally not mapped the "pristine" category for summer ROS and for some Wilderness areas. The Plan has no pristine setting for the summer ROS currently mapped, and nothing pristine mapped in the desired condition for any alternative.

The key difference between the pristine and primitive classes seems to be the amount of solitude, where primitive is "typically, six or fewer encounters with parties on trails, and fewer than three parties visible from camping sites",[597] and pristine is "very minimal to no encounters with other parties due to lack of routes or campsites".[598] Maximum use and capacity level stated for Pristine is "trail and camp encounters during the peak use days are less than two other parties per day",[599] while primitive is "trail and camp encounters during peak use days are less than six other parties per day".[600] There are likely polygons that are within wilderness areas that fit the criteria for pristine.

[596] Draft Plan Table 14 at 69.

[597] Id., at 66.

[598] Id., at 65.

[599] Id., at 85.

[600] Ibid.

MA-GDL-WLDN-14 states:

> To achieve and maintain the quality of wilderness character, all wilderness management decisions and activities should be consistent with the wilderness management area direction from the 1991 plan provided in table 18. The wilderness map in appendix 1 depicts each of the subcategories for which table 18 would apply. This interim direction shall apply until MA-WLDN-OBJ-06 is met.

An examination of the wilderness map cited above reveals that it contains "pristine" wilderness, so why would there not be pristine ROS summer settings? Also, there might even be a few non-wilderness areas where pristine, as a ROS category, might be fulfilled.

In addition, the GMUG's Revised Designated Areas Assessment identifies 107,900 acres of pristine acreage in wilderness.[601] The GMUG needs to clarify how it can have 107,900 acres of pristine wilderness, but not Pristine ROS?

Finally, Table 1 of the Revised Recreation Assessment specifically includes pristine (8a) under the summer setting for wilderness. It notes: "The GMUG is in the process of completing an updated inventory of existing summer ROS which will be completed and published in the final version of this assessment."[602] Why has pristine been removed from summer ROS?

- Recommendation: The Plans should map Summer Pristine ROS setting.

5. Regulation of e-bikes

Since the GMUG plan last had a major amendment (1991), a new use has arisen: bikes with electric motors (e-bikes). These vehicles allow users to travel much farther in an outing than non-motorized bicycles because bikers will be able to get uphill with much less exertion.

Use of e-bikes has the potential to cause impacts equal to or even exceeding those of trail bikes, all-terrain vehicles, and other motorized vehicles used on the GMUG. Because they are quiet compared to motorized bikes, e-bike users may have sudden encounters with wildlife. This is likely to startle wildlife and cause stress to them. Also, e-bike use will likely cause conflicts and safety issues with other users such as horse riders and hikers. The bottom line is that e-bikes are motor vehicles and must be managed and regulated as such.

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[601] Grand Mesa, Uncompahgre, and Gunnison National Forests, *REVISED DRAFT Forest Assessments: Designated Areas* (March 2018), at 22.

[602] Grand Mesa, Uncompahgre, and Gunnison National Forests, *REVISED DRAFT Forest Assessments: Recreation* (March 2018) at xiii.

While the details of what roads and trails, if any, would be open to e-bikes and during what season(s) is better left to travel management, it is important that the GMUG have strong plan components concerning e-bikes so that these components can be applied during travel management to ensure that impacts to wildlife and other resources and conflicts with other users are minimized, in accordance with the Travel Management Rule, 36 CFR 212.55(b).

- Recommendation: standard: "E-bikes will only be allowed on roads and trails open to motorized use."

- Recommendation: standard: "No routes will be opened to e-bikes until there has been a full analysis of likely impacts from such use, and the analysis demonstrates that the minimization criteria at 36 CFR 212.55b will be met."

N. Motorized Winter Recreation and Over-Snow Vehicle Use

Under 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.[603] OSV use outside the designated system is prohibited.[604] 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 subpart C.

While the draft plan provides some key elements of that framework that we support – such as the implementation of winter-specific ROS classifications – the final plan should provide additional direction to ensure proper 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, restricted, or prohibited, based on the executive order/regulatory minimization criteria and site-specific NEPA analysis. These issues are discussed in more detail below.

1. Background and regulatory framework

a. Executive order minimization criteria

[603] 36 CFR 212.81.

[604] Id. 261.14.

In response to the growing use of dirt bikes, snowmobiles, all-terrain vehicles, and other off-road vehicles (O-RVs) 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.[605] 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.[606]

The Forest Service codified these "minimization criteria" in subparts B and C of its travel management regulations.[607] 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. 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]."[608] 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 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 the availability of resources for monitoring and enforcement.

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, as opposed to just linear routes, open to cross-country travel, which is not the case for summer-time travel planning. The

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[605] 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).

[606] Id. 3(a).

[607] 36 CFR §212.55, 212.81(d).

[608] WildEarth Guardians, 790 F.3d at 931.

rule, however, requires that designated areas be "discrete," "specifically delineated," and "in most cases much smaller . . . than a ranger district."[609] 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 has 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."[610] 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."[611] The agency is "under an affirmative obligation to actually show that it aimed to minimize environmental damage when designating . . . areas."[612] Proper application and implementation of the minimization criteria almost certainly would not result in designation of OSV-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. 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 – were open to OSV use, while only about 30 million acres outside of designated wilderness (where motorized use is prohibited by statute) were closed to that use. 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.[613] 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

[609] 36 CFR 212.1 (definition of "area").

[610] WildEarth Guardians, 790 F.3d at 930-31.

[611] Id., at 932.

[612] Id. (quotations and citations omitted).

[613] See 36 CFR §212.80(a), 212.81(a), 261.14.

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 OSV rule requires designation of areas and routes for OSV use "where snowfall is adequate for that use to occur."[614] Particularly with climate change leading to reduced and less reliable snowpack in some areas, 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 minimum snow depths should be at least 18 inches for cross-country travel and 12 inches for travel on groomed trails. 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 through the use of a QR code.

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.[615]

[614] 36 CFR 212.81(a).

[615] 36 CFR 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.[616] 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, such as public notice and comment.

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 steep and 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 at any particular location. And they may not account for the current and predicted impacts of climate change, which is, among other things, reducing and altering snowpack and length of season of use, 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.

2. 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.[617] 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.

[616] 36 CFR 212.81(b).

[617] 36 CFR 219.10(b)(1)(i).

a. Winter ROS

We are pleased to see that the Draft Plan includes a winter ROS.[618] However, 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 winter ROS classifications (i.e., semi-primitive motorized, roaded natural, rural) 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 disappointed that the Forest Service has not—except within the special management areas in Alternative D—revised, or even considered revising, its determination of suitable and unsuitable places for OSVs.[619] Having classified the winter ROS, the forest plan revision process is the most appropriate venue for re-analyzing the suitability/unsuitability of OSV vehicle use. Subpart C and the executive orders it implements are clear that the Forest Service must satisfy its substantive duty to minimize impacts not only when making specific route designation in travel plans but also when making suitability determinations in the land management planning context, since plan decisions will affect how routes and areas will be managed. Over-snow vehicle use suitability determinations for the GMUG can be made based on considerations for motorized vs. non-motorized settings, recreation user group preferences, wilderness areas, wildlife habitat, subwatershed indicator rankings, and areas of the Forest under long-term closure (to motor vehicle use) orders where applicable. This information is readily available during the plan revision process. The separate winter travel management plans for the three GMUG Forests are out of date, as they do not account for the increased capabilities of current OSVs, new scientific information on habitat connectivity and migration corridors, the impacts of climate change, or the significant increase in winter recreation on the GMUG over the past decade. Those plans also contain no assessment of whether they satisfied the minimization criteria and therefore do not comply with subpart C's grandfather clause.[620]

- Recommendation: The Forest Service should supplement the draft plan and EIS to re-determine OSV suitability for all action alternatives and clearly explain the methodology and supporting rationale that were used. Suitability determinations must address more than legal suitability (e.g., OSVs are unsuitable in designated wilderness because the Wilderness Act prohibits motorized uses), by addressing functional suitability and operability. For instance, steep slopes and windswept ridgelines, low elevation areas without adequate snowpack, areas with dense

[618] Draft Plan at 64-70.

[619] DEIS at 24-25.

[620] 212.52.

tree cover, and important habitat for wintering wildlife should all be found unsuitable. The land management 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.

- Recommendation: The Forest Service should supplement the draft plan and EIS to include additional clarifying language that OSVs will not necessarily be permitted in all suitable areas.[621] 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 2017 study conducted on the GMUG and adjacent San Juan National Forest that can aid in revising OSV suitability determinations in the final Plan and EIS. Olson et al. (2017) modeled terrain selection of motorized and non-motorized recreationists, including snowmobiling, backcountry skiing, and snowmobile-assisted hybrid skiing to better understand the environmental characteristics favored by winter recreationists, and thus predict areas of potential conflict or disturbance.[622] 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.

c. Minimum snow depth restrictions

The OSV rule requires designation of areas and routes for OSV use "where snowfall is adequate for that use to occur."[623] OSV use on inadequate snow has the potential to damage soils, vegetation, rocks, infrastructure and other features. The Forest Service fails to include any plan components that ensure that the GMUG will be managed to prevent OSV use when snowfall is inadequate. While the draft plan mentions developing a method for identifying adequate snow depth as part of future travel management planning, the draft plan will, by failing to include a minimum depth of snow for motor use, permit use of an OSV on any amount of snow, conceivably including travel on just a trace or dusting of snow. This violates subpart C of the travel management regulations.

- Recommendation: The GMUG should establish a minimum depth of snow required to permit safe and responsible travel by an OSV. The plan for the adjacent San Juan National Forest contains the following Desired Condition: "2.14.37 Motorized over-snow travel should only occur when snow levels are adequate to protect the ground surface from disturbance due to

[621] 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").

[622] Olson, L. E., Squires, J. R., Roberts, E. K., Miller, A. D., Ivan, J. S., & Hebblewhite, M. (2017). Modeling large-scale winter recreation terrain selection with implications for recreation management and wildlife. *Applied Geography*, *86*, 66-91

[623] 36 CFR 212.81(a).

snow machine use. For SJNF lands, 12-inch snow depth will be used as the standard." This plan component reflects accepted best management practices for OSV travel.

We recommend, therefore, that the revised plan include a standard that says: "Motorized over-snow 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 revised plan should also adopt a management approach that says: "Develop within the next year a method for identifying when designated OSV open areas or designated trails are below the minimum snow depth and therefore must be closed temporarily or not yet opened at the beginning of a season."

3. Subsequent winter travel management planning

The 2002 Uncompahgre Winter Travel Management Plan and the 2010 Gunnison Winter Travel Management Plan are not in compliance with subpart C, as the Forest Service neglected to designate OSV open areas and routes and close all areas of the Forests that weren't designated as open. Winter travel management is an important element of sustainable recreation, so we were disappointed the draft plan and EIS did not commit the Forest Service to undertaking a new round of winter travel management planning subsequent to the revision of the GMUG land management plan.

- Recommendation: We strongly recommend that the Forest Service implement the approach it took when it revised the Rio Grande National Forest land management plan. There the Forest Service committed to starting the travel management planning upon completion of the revised land management plan.[624] To do this, the revised GMUG land management plan must establish an adequate programmatic framework – including suitability determinations, winter-specific recreational opportunity spectrum (ROS) classifications, minimum snow depth restrictions, and other programmatic direction – for managing 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.

- Recommendation: It is imperative that the Forest Service undertake winter travel management planning for the Uncompahgre and Gunnison portions of the GMUG, as the agency has not designated OSV routes and open areas for much of these two Forests.

- Recommendation: The final plan and EIS should clarify that the Forest Service will begin revising winter travel management planning for the GMUG within one year of the finalization of the land management plan. The final plan should include this as an objective.

[624] See Rio Grande Land Management Plan. Record of Decision. 2020 at 35, 37.

4. OSV Trails

- Recommendation: Discussion of the impacts of managing snowmobile trails on the GMUG is completely absent from the draft EIS, despite the document noting the presence of "nationally known snowmobile trails for winter recreation."[625] The final EIS must explain whether these trails are National Forest System (NFS) trails or instead authorized by a legally documented right-of-way held by a state, county, or other local public road authority. This distinction is important because for each NFS trail or trail segment the Forest Service must identify and document its trail management objectives (TMOs), including the five Trail Fundamentals: (trail type, trail class, managed use, designed use, trail design parameters), Recreation Opportunity Spectrum classifications, design criteria, travel management strategies, and maintenance criteria.

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. Designated snowmobiles trails must be documented in INFRA and have completed Trail Management Objectives documenting the intended purpose and management of these trails. If they do not meet these criteria, 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. The final EIS must clarify which, if any, of the snowmobile trails on the GMUG are designated NFS trails.

Permitted uses should not be included as part of the designated route system on the forest.

5. Additional issues that need to be addressed in the Final Plan and EIS

We offer the following additional comments on deficiencies in the analysis related to OSV recreation in the draft plan and EIS:

- The DEIS does not discuss snowmobile-assisted hybrid skiing (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. It should be considered and managed as motorized use, since it requires motor vehicle use for access.

- 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 three winter travel management plans covering the GMUG

[625] DEIS at 357.

forests also don't address this requirement. The final EIS should provide information on whether this requirement is met, and if so, how it is met. The final plan should include a standard that reiterates this requirement.

- Recommendation: The Forest Service should clarify the above points in a supplemental draft EIS.

6. Summary of recommendations for OSV planning

- Recommendation: The final plan should provide a stronger programmatic framework for management of OSV use and subsequent implementation-level winter travel management in compliance with subpart C by re-evaluating OSV suitability and non-suitability and other relevant regulatory requirements. Though adopted in 2010, the Gunnison Travel Management Plan does not comply with subpart C's minimization criteria. To provide for sustainable winter recreation and timely compliance with subpart C on the GMUG, the Forest Service should:

    - Develop associated plan components for the winter-specific ROS classifications;

    - 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 packed 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 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;"

- Clarify in the revised plan and EIS that the Forest Service will start winter travel management planning for the GMUG within one year of the finalization of the land management plan. The final plan should include this as an objective;

- Clarify whether there are designated snowmobile trails on the GMUG;

- 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.

O. Timber and other forest products

STND-TMBR-01 would allow openings created by even-aged management to be 100 acres in aspen and lodgepole pine "to better mimic naturally larger openings created by natural disturbances in these ecosystems." Openings 100 acres are not appropriate for a landscape where wildlife habitat connectivity and scenery is highly valued. Creating such openings would make it difficult to meet scenic integrity objectives. Also, logging does not mimic fire, as fire recycles biomass into new soil while logging removes it, thus short-circuiting its ecological role. Fire recycles small-diameter fuel, but logging creates such fuel. Logging requires roads which have no counterpart in natural disturbances like fire. The portion of this standard allowing openings up to 100 acres should be deleted.

- Recommendation: This standard or another component needs to state the conditions under which an opening is no longer considered to be an opening, as it will be important to ensure that openings are reforested and to know when they are considered closed. The current plan has a component addressing this at III-44.

STND-TMBR-02: minimum restocking standards would require only 150 seedlings per acre for lodgepole pine, cool-moist mixed conifer, and spruce-fir. That calculates to a tree about every 17 feet. Typically, stands in these eco-types are much denser than this.

- Recommendation: We recommend increasing this required number of seedlings to as much as 300 per acre for these types. But if the required number of seedlings is not increased, exceptions to the very low stocking requirement should not be allowed at the project level. In any case, this standard should also specify a minimum seedling height to certify that a site has been restocked.

STND-TMBR-06: the sustained yield limit of 1,277,650 CCF per decade seems very high. That amounts to 127,650 MCF annually, or about 63 million board feet, per year[626]. Given the importance of the GMUG for wildlife habitat and high-quality recreation, this level of timber cutting could never be sustained.

[626] This is calculated using the conversion factor of five board feet per cubic foot. Draft Plan Appendix B at 138. See also Draft Plan at 178.

GDL-TMBR-08 addresses post-fire salvage operations on sites with high soil burn intensity.

- Recommendation: It should be a standard.

GDL-TMBR-10, states that stands should have reached 95 percent of the culmination of mean annual increment (CMAI) of growth for regeneration harvests of even-aged timber stands on GMUG lands identified as suitable for timber production and where timber production is the primary purpose for the harvest…

But NFMA requires the following:

> The Secretary shall establish – standards to insure that, prior to harvest, stands of trees throughout the National Forest System shall generally have reached the culmination of mean annual increment of growth…[627]

- Recommendation: This guideline needs to be a standard to ensure that CMAI is reached before commercial harvest is allowed, other than for the exceptions (salvage, thinning, and "other stand improvement measures") allowed by NFMA.[628] One of the exceptions in this guideline would allow harvest of "stands at high risk for insect or disease attack or dead/dying stands".[629] However, NFMA permits an exception to CMAI for "timber stands which are…in imminent danger from insect or disease attack".[630] The wording in the guideline, which should become a standard, should be changed to reflect the language in NFMA. Land at high risk for insect attack, e. g., because of the prevalence of large trees, is not necessarily land in imminent danger of insect attack.

STND-TSTN-03 and **-04**, requiring decommissioning of temporary and unneeded roads within two years, is commendable. These standards would be stronger if they required, to the extent feasible, complete obliteration of roads. This would include, in addition to the actions described in this standard, ripping the entire road surface and establishing native vegetation, including trees if possible and where appropriate. Even a closed road can be used as a travel route, thus it is best of the route is completely removed from the landscape unless project-level analysis indicates leaving it as a trail provides a better public benefit.

[627] 16 USC 1604(m)(1).

[628] Ibid.

[629] Emphasis added.

[630] Ibid. [emphasis added]

- Recommendation: **STND-WSR-04** should specifically state that all actions and project shall maintain each eligible segment's free-flowing character and all outstandingly remarkable characteristics that make it eligible.

P. Transportation System

The transportation system is fundamental to the GMUG Forests' operations, condition, and sustainability. The road and trail system facilitates every Forest program as well as visitor enjoyment and recreation. It is well accepted by land managers that places with roads are more degraded than places without out, and that the healthiest forest ecosystems are those that are roadless (Anderson et al, 2012). We are disappointed that the significant impacts associated with the forest road system are not meaningfully analyzed in the draft EIS and that the draft revised plan provides little meaningful direction for moving towards an ecologically and fiscally sustainable road system, as required under the 2012 Planning Rule and subpart A of the Forest Service travel management regulations, 36 C.F.R. part 212.

1. Background: The best available scientific information shows that the forest road system is economically and environmentally unsustainable

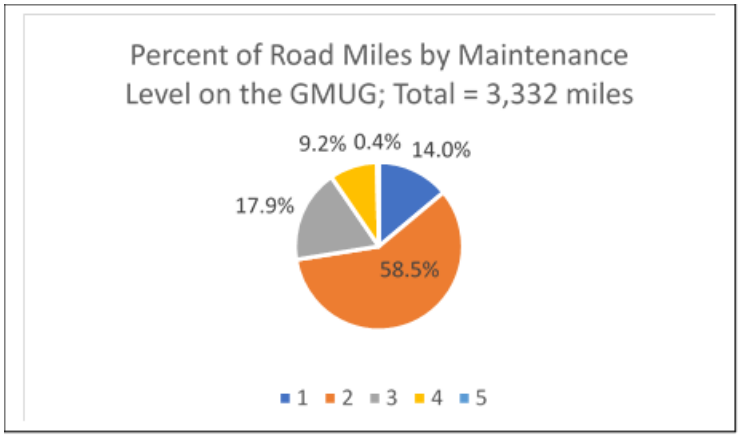
The GMUG provides a range of significant environmental and societal benefits, including clean air and water, habitat for myriad wildlife species, and outdoor recreation opportunities for millions of visitors and local residents each year. The forest's extensive and under-maintained road system, however, poses a principal threat to its ability to provide critical environmental, ecosystem, and recreation services into the future. Nationwide, the national forests contain over 370,000 miles of system roads (excluding tens of thousands of additional miles of unclassified, non-system, temporary, and user-created roads). That is nearly eight times the length of the entire U.S. Interstate Highway System. Much of the system is in a state of serious disrepair: as of 2015, the national forest road system had a nearly 3-billion-dollar maintenance backlog.[631]

The Forest Service – including the GMUG[632] – has an unsustainable, deteriorating, and sprawled transportation system. The GMUG's road system is 3,332 miles in length. Almost 60% of the road miles are high clearance that are not passable using a car and 14% are closed to public use. About 27% are passable by a car and are the primary routes used to access recreational destinations. Twenty-seven percent of the road miles are within 300 feet of a stream, and 17% are within 100 feet of a stream; there are a total of 10,779 road and trail stream crossings in the plan area. These numbers are important because roads that are proximal to streams are particularly vulnerable to flood damage and will likely

[631] (USDA Forest Service 2015a).

[632] The final assessment report on infrastructure acknowledges this at 1: "Key issues related to infrastructure within the plan area are chronic underfunding leading to under-maintained infrastructure such as buildings and roads, infrastructure resiliency to extreme weather events, decay of roads and damage to adjacent resources due to lack of maintenance and resilience to extreme weather events." Revised draft March 2018.

become increasingly so with climate change.[633] They also threaten water quality and channel/riparian integrity by accelerating input of sediment into the stream or constraining channel migration/formation.[634] The GMUG spends about $1.0 million annually (from 2016 accomplishment data) to maintain system roads through agreements and its own road crew, and as of 2018 had $49.0 million in accumulated deferred road maintenance.[635]



Inadequate maintenance leads to resource impacts, particularly to water resources, and eventually leads to health and safety risks to forest staff and the visiting public.

While well-sited and maintained roads provide important services to society, the adverse ecological and environmental impacts associated with the Forest Service's massive and deteriorating road system are well-documented. Those adverse impacts are long-term, occur at multiple scales, and often extend far beyond the actual "footprint" of the road. The attached literature review surveys the extensive and best-available scientific literature (including the Forest Service's General Technical Report, Gucinski et al. 2001[636], synthesizing the scientific information on forest roads) on a wide range of road-related impacts to ecosystem processes and integrity on National Forest lands.[637]

[633] Id., at 10-11.

[634] Id., at 10. ("Proximity to streams and stream intersections also increases the potential for infrastructure to affect water quality and quantity, and to cause damage downstream."). Also see Appendix 2 at 3-4.

[635] Id., at 5.

[636] Gucinski, Hermann; Furniss, Michael J.; Ziemer, Robert R.; Brookes, Martha H. 2001. Forest roads: a synthesis of scientific information. Gen. Tech. Rep. PNWGTR-509. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 103 p.

[637] WildEarth Guardians. (2020). *The Environmental Consequences of Forest Roads and Achieving a Sustainable Road System* (2020). March.

For example, erosion, compaction, and other alterations in forest geomorphology and hydrology associated with roads seriously impair water quality and aquatic species viability.[638] For any given watershed, the overall risks of impacts to aquatic ecosystems due to roads tend to increase with new road construction or reconstruction.[639] Conversely, risks of impacts to aquatic and riparian ecosystems tend to decrease with road closure.[640] Roads disturb and fragment wildlife habitat, altering species distribution, interfering with critical life functions such as feeding, breeding, and nesting, and resulting in loss of biodiversity.[641] Roads also facilitate increased human intrusion into sensitive areas, resulting in poaching of rare plants and animals, human-ignited wildfires, introduction of exotic species, and damage to archaeological resources.[642]

Climate change intensifies the adverse impacts associated with roads. For example, as the warming climate alters species distribution and forces wildlife migration, landscape connectivity becomes even more crucial to species survival and ecosystem resilience.[643] Climate change is also expected to lead to more extreme weather events, resulting in increased flood severity, more frequent landslides, altered hydrographs, and changes in erosion and sedimentation rates and delivery processes.[644] Many National Forest roads, however, were not designed to any engineering standard, making them particularly vulnerable to these climate alterations. And even those designed for storms and water flows typical of past decades may fail under future weather scenarios, further exacerbating adverse ecological impacts, public safety concerns, and maintenance needs.[645]

These road-related impacts are of significant concern on the GMUG. For instance, the forest assessments recognize that high road densities have fragmented certain habitat types and degraded the integrity of aquatic ecosystems.[646]

More than half the GMUG's watersheds were rated as "fair" or "poor" for the "road maintenance" physical attribute and 60% of the watersheds were rated as "poor" for "road and trail proximity to

[638] Id.

[639] DEIS at 122.

[640] See WildEarth Guardians (2020).

[641] See Id.

[642] See Id.

[643] See Id. See also USDA Forest Service 2011. National Roadmap for Responding to Climate Change recognizes importance of reducing fragmentation and increasing connectivity to facilitate climate change adaptation. Available at: https://www.fs.fed.us/climatechange/pdf/Roadmapfinal.pdf.

[644] Id.

[645] USDA Forest Service 2010.

[646] *See* GMUG Terrestrial Species Assessment Report and GMUG Aquatic Species Assessment Report.

water" physical attribute, with and another 25% were rated as "fair" for this attribute.[647] This problem will likely grow larger, as "road maintenance budgets are anticipated to decline."[648]

Roads are a source of sediment on the forests – a problem that is exacerbated by the massive maintenance backlog – and a significant barrier to aquatic connectivity.[649] Of the GMUG's riparian ecosystems, the roads and trails condition rating—defined based on four factors, including open road density, best management practices for maintenance, the percentage of roads/trails within 300 feet of water bodies, and the potential for mass wasting), less than half the acreage is considered properly functioning.[650] Roads are also a key risk factor to numerous threatened and endangered species and potential species of conservation concern.[651]

2. Regulatory Framework

a. Road management

To address its unsustainable and deteriorating road system, the Forest Service promulgated the Roads Rule in 2001.[652] The rule directs each National Forest to conduct "a science-based roads analysis," generally referred to as the travel analysis process.[653] Based on that analysis, forests must "identify the minimum road system [MRS] needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands."[654] The Rule defines the MRS as:

> the road system determined to be needed (1) to meet resource and other management objectives adopted in the relevant land and resource management plan . . . , (2) to meet applicable statutory and regulatory requirements, (3) to reflect long-term funding expectations, [and] (4) to ensure that the identified system minimizes adverse environmental impacts associated with road construction, reconstruction, decommissioning, and maintenance.[655]

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[647] *See* Grand Mesa, Uncompahgre, and Gunnison National Forests *REVISED DRAFT Forest Assessments: Watersheds, Water, and Soil Resources* (March 2018) at 8.

[648] Grand Mesa, Uncompahgre, and Gunnison National Forests Final Travel Analysis Report, at 6.

[649] *See* GMUG Assessment Report, Appendix to Chapters 1 and 3 (Aquatic) at 6 ("Anthropogenic (human) causes can range from placement of roads or culverts that alter stream hydrology and create barriers to aquatic organism movement . . .").

[650] Grand Mesa, Uncompahgre, and Gunnison National Forests *REVISED DRAFT Forest Assessments: Aquatic, Riparian and Wetland Ecosystems* (March 2018), at 6.

[651] *See* WildEarth Guardian (2020).

[652] 36 CFR part 212, subpart A, 66 Fed. Reg. 3206 (Jan. 12, 2001).

[653] 36 CFR 212.5(b)(1). Forest Service Manual 7712 and FSH 7709.55, Chapter 20 provide detailed guidance on conducting travel analysis.

[654] 36 CFR §212.5(b)(1).

[655] *Id.*

Forests also must "identify the roads . . . that are no longer needed to meet forest resource management objectives and that, therefore, should be decommissioned or considered for other uses, such as for trails."[656]

While subpart A does not impose a timeline for agency compliance with these mandates, the Forest Service Washington Office, through a series of directive memoranda, ordered forests to complete the initial travel analysis process and produce a travel analysis report (TAR) by the end of fiscal year 2015, or lose maintenance funding for any road not analyzed.[657] The memoranda articulate an expectation that forests, through the subpart A process, "maintain an appropriately sized and environmentally sustainable road system that is responsive to ecological, economic, and social concerns." They clarify that TARs must address *all* system roads – not just the small percentage of roads maintained for passenger vehicles to which some forests had limited their previous Roads Analysis Process reports or TARs. And they require that TARs include a list of roads likely not needed for future use.

Once the TARs are finalized, the next step is "to use the travel analysis report to develop proposed actions to identify the MRS" and unneeded roads for decommissioning at a scale of the 6th HUC watershed or larger and undertake appropriate NEPA review.[658] "The MRS for the administrative unit is complete when the MRS for each subwatershed has been identified, thus satisfying Subpart A."[659] In addition, travel analysis recommendations must be meaningfully incorporated into land management planning decisions, as discussed in more detail in subsection 4(b), below.

b. National forest system land management planning

The 2012 Planning Rule guides the development, amendment, and revision of forest plans, with an overarching goal of promoting the ecological integrity and ecological and fiscal sustainability of National Forest lands:

> Plans 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

[656] *Id.* 212.5(b)(2). The requirements of subpart A are separate and distinct from those of the 2005 Travel Management Rule, codified at subpart B of 36 CFR part 212, which address off-highway vehicle use and corresponding resource damage pursuant to Executive Orders 11644, 37 Fed. Reg. 2877 (Feb. 9, 1972), and 11989, 42 Fed. Reg. 26,959 (May 25, 1977).

[657] Memorandum from Joel Holtrop to Regional Foresters *et al.* re Travel Management, Implementation of 36 C.F.R., Part 212, Subpart A (Nov. 10, 2010) (Exhibit 25); Memorandum from Leslie Weldon to Regional Foresters, *et al.* re Travel Management, Implementation of 36 C.F.R., Part 212, Subpart A (Mar. 29, 2012) (Exhibit 26); Memorandum from Leslie Weldon to Regional Foresters *et al.* re Travel Management Implementation (Dec. 17, 2013) (Exhibit 26).

[658] Memorandum from Joel Holtrop to Regional Foresters *et al.* re Travel Management, Implementation of 36 C.F.R., Part 212, Subpart A (Nov. 10, 2010) (Exhibit 25); Memorandum from Leslie Weldon to Regional Foresters *et al.* re Travel Management, Implementation of 36 C.F.R., Part 212, Subpart A (Mar. 29, 2012) (Exhibit 26); Memorandum from Leslie Weldon to Regional Foresters *et al.* re Travel Management Implementation (Dec. 17, 2013) (Exhibit 27).

[659] Id.

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.[660]

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, and air, water, and soil quality.[661] The components must be designed "to maintain or restore the structure, function, composition, and connectivity" of terrestrial, riparian, and aquatic ecosystems;[662] must take into account stressors including climate change, and the ability of ecosystems to adapt to change;[663] and must implement national best management practices for water quality.[664] The rule also requires the Forest Service to establish riparian management zones for which plan components "must ensure that no management practices causing detrimental changes in water temperature or chemical composition, blockages of water courses, or deposits of sediment that seriously and adversely affect water conditions or fish habitat shall be permitted."[665] In addition, plans must include plan components for "integrated resource management to provide for ecosystem services and multiple uses," taking into account "[a]ppropriate placement and sustainable management of infrastructure, such as recreational facilities and transportation and utility corridors."[666] Plan components must ensure social and economic sustainability, including sustainable recreation and access.[667] And the Forest Service must "use the best available scientific information" to comply with these substantive mandates.[668]

c. Climate change

The Forest Service's 2014 climate adaptation plan recognizes that the wide range of environmental and societal benefits provided by our national forests "are connected and sustained through the integrity of the ecosystems on these lands." USDA Forest Service 2014. The plan highlights USDA's 2010-2015 Strategic Plan Goal 2 of "[e]nsur[ing] our national forests . . . are conserved, restored, and made more resilient to climate change, while enhancing our water resources."[669] The plan identifies numerous climate change risks – including increased wildfire, invasive species, water temperatures, extreme

[660] 36 CFR 219.1(c).

[661] Id. 219.8(a)(1)-(3); see also Id. 219.9(a) (corresponding substantive requirement to establish plan components that maintain and restore the diversity of plant and animal communities and support the persistence of native species).

[662] Id. 219.8(a)(1) & (a)(3)(i);

[663] Id.219.8(a)(1)(iv);

[664] Id.219.8(a)(4).

[665] Id. 219.8(a)(3)(ii)(B).

[666] Id. 219.10(a)(3).

[667] Id. 219.8(b).

[668] Id. 219.3.

[669] USDA's updated FY2014-FY2018 Strategic Plan retains Goal 2.

weather events, and fluctuating precipitation and temperature – that "pose challenges to sustaining forests and grasslands and the supply of goods and services upon which society depends, such as clean drinking water, forest products, outdoor recreation opportunities, and habitat."[670] With respect to transportation infrastructure specifically, the plan recognizes that, "[w]ith increasing heavy rain events, the extensive road system on NFS lands will require increased maintenance and/or modification of infrastructure (e.g. larger culverts or replacement of culverts with bridges)."[671] The adaptation plan points to several actions to address these risks. For example, the plan highlights the 2012 Planning Rule as a mechanism to ensure that "National Forest System . . . land management planning policy and procedures include consideration of climate change."[672] The final directives to the planning rule echo the importance of designing plan components "to sustain functional ecosystems based on a future viewpoint" and "to adapt to the effects of climate change."[673] The adaptation plan also points to Forest Service Manual 2020, which provides "Ecological Restoration and Resilience" directives designed "to restore and maintain resilient ecosystems that will have greater capacity to withstand stressors and recover from disturbances, especially those under changing and uncertain environmental conditions, including climate change and extreme weather events."[674]

The Council on Environmental Quality (CEQ) has also reinforced the importance of integrating climate change into land management planning processes in its final guidance on addressing climate change in NEPA reviews. The guidance acknowledges that "[c]limate change is a fundamental environmental issue, and its effects fall squarely within NEPA's purview":

> Identifying important interactions between a changing climate and the environmental impacts from a proposed action can help Federal agencies and other decision makers identify practicable opportunities to reduce GHG emissions, improve environmental outcomes, and contribute to safeguarding communities and their infrastructure against the effects of extreme weather events and other climate-related impacts.[675]

The guidance goes on to recognize the increased vulnerability of resources including transportation infrastructure, due to a changing climate, and clarifies that NEPA requires agencies to analyze proposed

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[670] Id.

[671] Id.

[672] Id. *See also* 36 CFR 219.8(a)(1)(iv) (ecosystem integrity plan components must take into account stressors including climate change, and the ability of ecosystems to adapt to change); *Id.* 219.6(b)(3) (forest assessments must "[i]dentify and evaluate existing information relevant to the plan area for . . . the ability of terrestrial and aquatic ecosystems on the plan area to adapt to change"); *Id.* 219.5(a) (planning framework designed to allow the Forest Service "to adapt to changing conditions, including climate change"); *Id.* 219.12(a)(5)(vi) (monitoring programs must address "[m]easurable changes on the plan area related to climate change and other stressors").

[673] FSH 1909.12, ch. 20, .23.11.

[674] USDA Forest Service 2014.

[675] Council on Environmental Quality, *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews*, I, 81 Fed. Reg. 51,866, (Aug. 5, 2016).

actions and alternatives in the context of climate change, including the vulnerability of particular resources including transportation infrastructure, and to consider opportunities for climate adaptation and resilience.[676]

3. Existing plan direction is inadequate to comply with regulatory requirements

Existing plan direction for the GMUG does not meet the substantive requirements of subpart A or the 2012 Planning Rule. The most recent Grand Mesa Travel Management Plan neglects to consider, much less identify a MRS for the Forest.[677] A 2003 amendment to that plan added routes to the Grand Mesa road system, and the 2011 amendment was limited to non-motorized mechanized travel routes.[678] The current Uncompahgre Travel Management Plan, as well as its amendments, similarly fail to identify a MRS for the Uncompahgre portion of the GMUG.[679] Further, neither the Grand Mesa nor the Uncompahgre travel plans followed subpart A's direction by removing unneeded system roads, or otherwise promoting sustainable transportation infrastructure that helps maintain and restore ecological integrity. Grand Mesa and Uncompahgre travel plan direction also does not address the role of climate change, which likely will be dominant in road management decision-making over the life of the revised GMUG land management plan.[680]

4. Compliance with Law, Regulation, and Policy

a. Compliance with the National Forest Management Act and the 2012 Planning Rule

The substantive requirements of the 2012 Planning Rule require the Forest Service to comprehensively address the road system in its plan revision. Given the significant aggregate impacts of the GMUG's road system on landscape connectivity, ecological integrity, water quality, species viability and diversity, and other forest resources and ecosystem services, the Forest Service cannot satisfy the rule's substantive requirements without providing management direction for transportation infrastructure. As described above, plans must provide standards and guidelines to maintain and restore ecological integrity, landscape connectivity, water quality, and species diversity.[681] The draft GMUG revised land

[676] Id. § III(B). While this guidance was withdrawn April 5, 2017 for further consideration (see 81 FR 51866 (April 5, 2017)), its general findings related to climate science and NEPA application still apply.

[677] See Decision Notice and Finding of No Significant Impact Grand Mesa National Forest Travel Plan Revision 1994.

[678] Decision Notice & Finding of No Significant Impact Grand Mesa Travel Management, 2003; Decision Notice & Finding of No Significant Impact Grand Mesa National Forest Mechanized Travel Restriction, 2011.

[679] *See* Uncompahgre National Forest Travel Plan Record of Decision, 2002; Decision Memo Modification of Uncompahgre Travel Plan To Allow For Variable Seasonal Closure Of Selected Forest Development Roads, 2006; Revised Decision Memo Modification Of Uncompahgre Travel Plan To Specify Core Dates For Seasonal Restrictions On Use Of Selected Forest Development Roads To Protect Soft Road Beds, To Clarify Dates Of Seasonal Restrictions For Wildlife Winter Range Areas, And To Modify The Definition Of "ATV" To Include All Wheeled Vehicles 50 Inches Or Less In Width, (E.G., Side-By-Sides ≤ 50"), 2009.

[680] As of November 22, 2021, the current Gunnison Travel Management Plan was currently not available on the Forest Service website, based on a file "not found' error message.

[681] 36 CFR 219.8(a).

management plan does not include such standards and guidelines. The 2012 Planning Rule's requirements simply cannot be met absent integrated plan components directed at making the road system considerably more sustainable and resilient to climate change stressors.

The Forest Service's final directives on infrastructure recognize this: "[t]he central consideration in land management planning for infrastructure is that the integrated desired conditions and other plan components set a framework for the sustainable management of the plan area's infrastructure and mitigation of adverse impacts."[682] To that end, plan components should "reflect the extent of infrastructure that is needed to achieve the desired conditions and objectives of the plan" and "provide for a realistic desired infrastructure that is sustainable and can be managed in accord with other plan components including those for ecological sustainability."[683] Plan components also must ensure fiscal sustainability.[684]

More generally, a revised plan is the logical and appropriate place to establish a framework for management of the forest road system. Plans "provide[] a framework for integrated resource management and for guiding project and activity decisionmaking."[685] Plans allow the Forest Service to comprehensively evaluate the road system in the context of other aspects of forest management, such as restoration, protection and utilization, and fiscal realities, and to integrate management direction accordingly. Plans also provide and compile regulatory direction at a forest-specific level for compliance with the Clean Water Act, Clean Air Act, Endangered Species Act, and other federal environmental laws relevant to the road system and its environmental impacts.[686] And plans allow forest managers and the public to clearly understand the management expectations around the road system and develop strategies accordingly. With frequent turnover in decision-making positions at the forest level, a plan-level management framework for the road system and transportation infrastructure is particularly critical. Moreover, with climate change anticipated to necessitate forest-wide upgrades and reconfigurations of transportation infrastructure, it is especially important that plans provide direction for identifying and achieving an environmentally and fiscally sustainable road system under future climate scenarios.

Lastly, the Forest Service does not have another planning method or process to direct long-term and forest wide management of the road system and to ensure compliance with current policy and regulatory direction. Travel Management Plans (TMPs) under subpart B of 36 C.F.R. part 212 are not a substitute for the integrated direction for transportation management that land management plans

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[682] FSH 1909.12, ch. 20, §23.23l.

[683] *Id.* 23.23l(1)(b); *see also Id.* 23.23l(2)(a) (desired condition for roads "should describe a basic framework for an appropriately sized and sustainable transportation system that can meet [identified access and other] needs").

[684] 36 CFR 219.8(b); *see also Id.* §219.1(g) (plan components generally must be "within . . . the fiscal capability of the unit"); FSH 1909.12, ch. 20, 23.23l(1)(c) (same).

[685] 36 CFR 219.2(b)(1); *see also Id.* 219.15(e) (site-specific implementation projects, including travel management plans, must be consistent with plan components).

[686] *See Id.* 219.1(f) ("Plans must comply with all applicable laws and regulations . . .").

must provide. The main purpose of TMPs is to designate roads, trails, and areas that are open to motorized travel – not to achieve a sustainable transportation system, decommission unneeded roads, or otherwise meet the ecological restoration mandates of the 2012 Planning Rule.

- Recommendation: The Forest Service should supplement the draft plan revision and EIS to address subpart A.

Complementing the substantive requirements of the 2012 Planning Rule, subpart A requires each National Forest to identify its minimum road system (MRS), as well as unneeded roads for decommissioning or conversion to other uses.[687] As explained above, the MRS must, among other things, reflect long-term funding expectations.[688] Completion of the travel analysis process is a crucial first step in achieving compliance with subpart A, but the Forests must then utilize that analysis to identify the MRS and unneeded roads for decommissioning and implement those decisions in order to achieve compliance with subpart A.

The plan revision is the appropriate place to ensure that subpart A's requirements will be met over the next 10 to 15 years, and to set standards and guidelines for achieving an environmentally and fiscally sustainable MRS through decommissioning or repurposing unneeded roads and upgrading the necessary portions of the system. Subpart A defines the MRS as that "needed for safe and efficient travel[;] for administration, utilization, and protection of [forest] lands[; and] to meet resource and other management objectives adopted in the relevant . . . plan."[689] With forest plans determining the framework for integrated resource management and "an appropriately sized and sustainable transportation system," direction for identifying and achieving that MRS belongs in the forest plan.[690] Indeed, the regulatory history of the Roads Rule makes clear that the Forest Service intended that forest plans would address subpart A compliance. In response to comments on the proposed Roads Rule, the Forest Service stated:

> The planning rule provides the overall framework for planning and management of the National Forest System. The road management rule and policy which are implemented through the planning process must adhere to the sustainability, collaboration, and science provisions of the planning rule. For example, under the road management policy, national forests and grasslands must complete an analysis of their existing road system and then incorporate the analysis into their land management planning process.[691]

[687] 36 CFR 212.5(b)(1)-(2).

[688] *Id.* 212.5(b)(1).

[689] 36 CFR 212.5(b)(1).

[690] *See* FSH 1909.12, ch. 20, 23.23l(2)(a).

[691] 66 Fed. Reg. at 3209. [emphasis added]

If the revised plans do not provide plan direction towards achieving a sustainable MRS, it is unlikely that the Forest Service will satisfy the requirements of Subpart A during the life of the plans (as evidenced by the lack of direction in the existing plans and the inability of forests to achieve environmentally and fiscally sustainable road systems to date). Forest managers and the public need forest-specific direction on how to achieve the desired MRS and ensure its sustainability in the face of climate change, all within realistic fiscal limitations of the unit. The purpose of a forest plan is to provide that direction, and it would be arbitrary for the Forest Service to fail to do so in its plan revision. At the very least, the revised plan must include standards and guidelines that direct compliance with subpart A within a reasonable timeframe following plan adoption.

Recommended plan components to satisfy the requirements of subpart A are provided in Exhibit 28: Recommended Plan Components to Satisfy Requirements of Subpart A, attached.

b. Compliance with the National Environmental Policy Act

In addition to the requirements of the 2012 Planning Rule and Subpart A, NEPA requires the Forest Service to analyze its road system as part of the forest plan revision process. Because they constitute "major Federal actions significantly affecting the quality of the human environment," forest plan revisions require preparation of an environmental impact statement (EIS) under NEPA.[692] The EIS must analyze in depth all "significant issues related to [the plan revision]."[693] Management of the forest road system and its significant environmental impacts on a range of forest resources undoubtedly qualifies as a significant issue that must be analyzed in the plan revision EIS.[694]

A robust NEPA analysis of the forest road system and its environmental and social impacts is especially critical in the context of climate change. NEPA requires agencies to analyze proposed actions and alternatives in the context of climate change, including the vulnerability of resources such as transportation infrastructure, and to consider opportunities for climate adaptation and resilience.

Importantly, adequate analysis of the forest road system cannot be provided in a piecemeal fashion under other, individual resource topics in the EIS. That approach would preclude comprehensive analysis of the significant impacts associated with the road system and could result in fragmented and conflicting management direction that fails to satisfy the substantive mandates of the 2012 Planning Rule and subpart A.

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[692] 42 USC 4332(2)(C); 36 CFR 219.5(a)(2)(i).

[693] 40 CFR 1501.7; *see also Id.* 1502.1 (an EIS "shall provide full and fair discussion of significant environmental impacts" and "shall focus on significant environmental issues and alternatives").

[694] NEPA analysis as part of a previous travel management planning process under subpart B does not satisfy the Forest Service's duty to comprehensively analyze the impacts of its road system in the EIS for the plan revision. As explained above, the purpose of the TMP is to designate existing roads and trails available for off-road vehicle use, not to identify and provide a framework for a sustainable road system.

i. The DEIS inappropriately concludes that land management plans do not establish a framework for transportation management

In preparing the draft EIS for the GMUG revised land management plan, the Forest Service inappropriately concluded that the plan has limited reach in affecting transportation management.[695] While it is true that site-specific travel management decisions are appropriately made in a travel management plan, which the DEIS establishes will be undertaken subsequent to the land management plan revision,[696] the land management plan is the appropriate place to establish a transportation management framework that will guide subsequent mid-level plans and projects (like the travel management plan). In fact, as we explain above in considerable detail, not only is the land management plan precisely the venue for establishing large-scale direction for the transportation system, it is the only venue currently available to the Forest Service for establishing a large-scale framework for transportation management and assuring that the GMUG will achieve its legal and policy responsibilities under the 2012 Planning Rule, subpart A of the Travel Management Rule, and other relevant authorities. *See* subsection A(4)(a) above.

There are numerous examples of how land management plans provide framework direction to subsequent mid-level transportation-related plans and projects. Most obviously, land management plans directly affect where motorized vehicles are authorized or not authorized. Land management plans allocate places within the plan area to various management zones. Management zones are managed according to the direction set forth by plan components and management approaches, which can authorize, prohibit, or restrict motorized vehicle use. Plan components also can establish suitability for the management area (or parts of it) for certain uses such as road building or motorized access. Further, plan components establish recreation opportunity spectrum (ROS) settings for specific places. See DEIS discussion of ROS settings starting at 63. ROS settings define where motorized vehicles are not authorized and authorized, and if authorized, how. For example, semi-primitive and primitive non-motorized ROS settings disallow motorized vehicles, while the roaded natural setting has passenger vehicle roads that provide a "park-like" experience. Plan components can also establish route densities to protect wildlife and water resources in specific management areas or forest-wide, and direct the completion of specific activities, e.g., the decommissioning of a specific number of miles of unneeded and unauthorized routes.

It is incorrect that land management plans are not a proper venue for establishing a transportation management framework. This conclusion is particularly egregious when the Forest Service needs to plan for the GMUG's significant deferred road maintenance, while anticipating the GMUG's road

[695] DEIS at 17 ("All alternatives are designed to: . . . not make travel management decisions); DEIS at 29 ("Likewise, Forestwide travel management remains outside the scope of forest plan revision").

[696] DEIS at 17

maintenance budgets will decline."[697] At the same time, risks from climate change-induced precipitation events are on the rise.[698]

In contrast, we assert that to comply with the substantive provisions of the 2012 Planning Rule, revised land management plans must include meaningful plan components that will drive progress over the life of the plan toward a sustainable road system (fiscal and ecological) and full compliance with Subpart A of the travel management rule.

The draft plan does not provide comprehensive or meaningful direction on the transportation system. The direction consists of a single Transportation System desired condition and a few standards. There is nothing in the Transportation System section to ensure that the Forests identify and implement a sustainable minimum road system, as required by subpart A. Nor is there meaningful direction to ensure that the road system does not continue to degrade key components of ecological health and integrity, as required under the 2012 Planning Rule. *See* subsection A(2)(b), above. While a handful of other sections of the draft plan—including Infrastructure, Aquatic Ecosystems, Watershed, and Wildlife—include desired future conditions that briefly touch on the transportation system and its effects, they do not go far enough in defining what an ecologically and fiscally sustainable road system would look like.

The other sections also fail to include plan components, including standards and guidelines, to achieve those desired conditions. For instance, the Infrastructure-specific desired conditions fail to provide any vision for achieving a sustainable minimum road system, other than an unenforceable objective that "[w]ithin 10 years of plan approval, five actions will be completed in vulnerable and/or poor/impaired watersheds, as identified in the GMUG Watershed Vulnerability Assessment . . . and the watershed condition framework ratings, to reinforce existing Forest Service infrastructure to withstand extreme weather events."[699] Nor does the draft plan provide any other plan Infrastructure components to ensure compliance with subpart A. Similarly, the Aquatics, Watershed, and Wildlife plan components provide a small bit of direction regarding roads and trails, but not nearly enough to meet the substantive requirements related to these resources in the planning rule. As a whole, the draft revised plan does not address long-term sustainability of forest resources given the projected increased use of the transportation system and declining road maintenance budgets.

The draft EIS' erroneous conclusion that Forest-wide travel management is outside the scope of the plan revision may be a fatal wound. Due to this approach, the Forest Service has not offered a range of alternatives for managing the GMUG's transportation system, has failed to take a hard look at the effects of the alternatives, and has failed to provide plan direction compliant with Subpart A of the travel management rule and the substantive provisions of the planning rule, as discussed below.

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[697] Final Travel Analysis Report at 6.

[698] *See* DEIS at 263 ("Potential shift from snow to rain may increase erosive stress to drainage structures (i.e., culverts, cross-drains), thereby increasing the potential for erosion and road failure (Furniss and Howe 2016.)").

[699] Draft Plan at 50.

- Recommendations: The Forest Service should supplement the draft revised land management plan and EIS to include a framework for a sustainable road system that considers that:

    - The desired condition for transportation infrastructure should be a well-maintained and appropriately sized system of needed roads that is fiscally and environmentally sustainable and provides for safe and consistent access for the utilization, administration, and protection of the forest.

    - Forest plans should include concise, measurable, and time-specific objectives that will drive progress towards achieving a sustainable minimum road system over the life of the plan. Objectives should address decommissioning of unneeded roads and maintaining needed roads with the most benefit in achieving the desired condition.

    - Forest plans should include standards and guidelines that are designed to achieve the stated desired condition for the transportation infrastructure, ensure roads do not impair ecological integrity and otherwise satisfy the substantive requirements of the 2012 Planning Rule and subpart A of the travel management rule. Standards and guidelines should be designed to ensure, at the very least, that:

        - The GMUG identifies its minimum road system and makes progress toward implementing it.
        - Project-level decisions with road-related elements implement recommendations in travel analysis reports and advance implementation of the minimum road system.
        - Project-level decisions with road-related elements advance restoration objectives. Examples may include implementing motorized route density thresholds, removing unneeded or unauthorized roads in areas important for ecological sustainability (e.g., roadless areas, municipal watersheds, conservation watersheds), reconstructing impactful road structures to move them out of the floodplain, and restoring lands and waters where ecological integrity is impacted by roads.
        - The GMUG develops and implements over the life of the plan a strategy for making the transportation system climate-ready. This includes identifying where the system needs modification based on a range of climate scenarios, assigning priorities, establishing an action plan, and implementing project-level decisions.
        - All roads, including temporary roads, comply with applicable and identified Forest Service best management practices (BMPs) for water management.
        - Temporary roads are tracked to ensure that they are removed by the schedule set in project plans and associated NEPA documentation.

- The monitoring program ensures progress toward Desired Future Conditions using meaningful monitoring questions/indicators.

ii. Range of alternatives related to the transportation system offered in the DEIS

Here, the draft EIS does not vary its transportation management approach across the alternatives and therefore offers no alternative transportation management direction or plan components that would direct the Forest Service to manage for a minimum road system.[700] An alternative that provides a sustainable road system framework for transportation management is a reasonable alternative because it offers an integrated set of plan components designed to meet the stated purpose for the plan revision, which is to "address changed conditions that have occurred since the forest plan was approved, and to provide integrated plan direction for social, economic, and ecological sustainability and multiple uses" impacted by the GMUG's transportation system.[701]

Although the draft plan states that a minimum and efficient transportation system is a desired condition for the GMUG,[702] the Forest Service nonetheless does not evaluate an alternative that implements a sustainable road system, nor does it explain why it rejected analyzing such an alternative.[703] The failure to include a sustainable road system alternative in the range of alternatives, and more generally to provide a range of reasonable alternatives, is a violation of NEPA.

- Recommendation: The Forest Service should rectify this deficiency by supplementing the DEIS with additional Transportation System alternatives including one that includes a minimum road system framework for the Transportation System components, as described above. This would ensure an adequate range of alternatives and a robust analysis of the trade-offs and impacts of establishing and implementing a minimum road system.

iii. The DEIS fails to take a hard look at the road system and its effects under the alternatives.

The impacts of the forest transportation system are a significant issue that must be meaningfully analyzed under NEPA.[704] The DEIS provides very little information, and even less analysis, related to the transportation system. For example, there is no draft EIS section devoted to analyzing the impacts of the transportation system. To be sure, the draft EIS provides a smattering of information related to general impacts of roads on watershed resources, montane-subalpine grasslands ecological integrity,

[700] DEIS at 17 ("All alternatives are designed to: . . . not make travel management decisions).

[701] DEIS at 3.

[702] DEIS at 78,

[703] 40 CFR §1502.14(a) ("for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.").

[704] *See* 40 CFR §1501.7, 1502.1.

aquatic and riparian ecosystems and their sustainability, wildlife habitat generally, lynx habitat, Gunnison sage grouse, climate change, and air quality.[705] But very little of the information is specific to the GMUG, and the information does not provide science-based analyses to support conclusions around effects. For instance, the DEIS does not describe or disclose:

- The condition of the GMUG's transportation system;

- The fiscal and ecological sustainability of that transportation system, including a description of how the transportation system interacts with the hydrologic system (other than to provide summary statistics on road crossing of streams, miles of roads in riparian areas and percentages of watersheds that are rated poorly for the attribute of road/trail proximity to water);

- The number, miles and location of routes that are in wildlife movement areas and possibly impeding wildlife movement; and

- The number, miles and location of routes that are proximal to streams with green-lineage Colorado River cutthroat trout and other at-risk species, and the degree to which the route segments are impacting or threatening species' habitats.

Importantly, the draft EIS does not disclose the adverse impacts to the GMUG's environment of the Forest Service not complying with the MRS requirement. The draft EIS also does not evaluate or disclose the adverse impacts to natural resources that are likely to occur if adequate transportation management funding is unavailable. Given a future in which GMUG road maintenance budgets are expected to continue to decline, GMUG Final Travel Analysis Report at 6, the Forest Service must evaluate and disclose the impacts to and from the road system that result from the GMUG lacking an adequate budget to manage the transportation system. The absence of a hard look at these impacts is a violation of NEPA and should be rectified in the supplemental draft EIS.

- Recommendation: As stated in the previous Recommendation, the Forest Service should supplement the draft EIS with additional Transportation System alternatives including one that includes a minimum road system framework for the Transportation System plan components. This will provide for a robust analysis of the trade-offs and impacts of establishing and implementing a minimum road system.

iv. Purpose and need for the proposed action

According to the draft EIS, the purpose and need for revising the GMUG land management plan is:

[705] *See* DEIS at 294; 83; 90; 111, 117; 149; 165; 185; 243; 246.

to address changed conditions that have occurred since the forest plan was approved, and to provide integrated plan direction for social, economic, and ecological sustainability and multiple uses. The GMUG plan revision team identified preliminary needs for change to the existing plan based on requirements of the 2012 Planning Rule, assessment findings, and public concerns, input, and issues.[706]

Though the draft EIS acknowledges both that visitation on the Forests has increased substantially in the period since the plan was first approved and that annual road maintenance budgets are declining, draft EIS fails to analyze how these changed conditions will impact the GMUG's road system over the life of the revised land management plan. The draft EIS also does not evaluate whether the draft plan or alternatives would contribute to the desired condition of a minimum and efficient transportation system that is properly maintained for safety, protection of resources and support of multiple uses.[707] Although the draft plan includes standards for closing and rehabilitating temporary roads, and converting or decommissioning unneeded roads, the draft EIS does not evaluate whether those standards and other components contribute to an "integrated plan direction for social, economic, and ecological sustainability" as described in the purpose and need statement. For instance, the draft EIS does not analyze whether the draft plan will contribute toward the Forest Service implementing a minimum and efficient road system over the life of the revised plan, or whether a MRS is required for an ecologically sustainable GMUG.

Further, the draft Plan will not comply with the 2012 Planning Rule's substantive provisions, outlined above in section A(2)(b), and hence will not address one of the stated purposes for revising the forest plan. The planning 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, and air, water, and soil quality.[708] The draft EIS does not evaluate whether the revised plan's Transportation System plan components will meet the requirements of the 2012 Planning Rule to protect and restore the GMUG Forests for the benefit of communities, natural resources and the environment.

- Recommendation: The Forest Service should prepare a supplemental draft revised land management plan that includes a suite of plan components aimed at achieving an ecologically and fiscally sustainable transportation system over the life of the revised plan. The supplemental draft must also be consistent with subpart A and the substantive requirements of the 2012 Planning Rule. The Forest Service must analyze the significant ecological and fiscal impacts associated with the forest road systems in a supplemental draft EIS in order to fill omissions in the existing analysis and provide the public another opportunity to participate in the plan revision process.

[706] DEIS at 3.

[707] See Draft Plan at 78.

[708] 36 CFR 219.8(a)(1)-(3); 219.9(a).

Q. Scenic Resources

GDL-SCNY-03 states “activities should be consistent with or move the area toward achieving the desired scenic integrity objectives [SIOs]”.

- Recommendation: This should be reworded and made a standard. For SIOs to have any meaning, projects and activities must be required to meet them.

- Recommendation: Wilson Summit should have an SIO of very high or at a minimum, high (consistent with Alt D). Wilson Summit merits more than the moderate rating Alt B gives it.

VI. CLIMATE CHANGE

A. Forest Service Climate Adaptation Policy

The Forest Service has been developing science and policy to address climate change adaptation over the past decade. In 2008 the Forest Service declared climate change as "one of the most urgent tasks facing the Forest Service."[709] That same year the agency developed a Strategic Framework for Responding to Climate Change, which identified climate science, policy, adaptation and partnerships as key climate issues that must be addressed by the agency.[710] The follow-up 2010 National Roadmap for Responding to Climate Change and Climate Change Scorecard directed the agency to assess climate risks and vulnerabilities, and to manage for ecosystem resilience through the development of adaptation strategies.[711] In addition, the Department of Agriculture's 2010-2015 Strategic Plan established a goal to "ensure our national forests and private working lands are conserved, restored, and made more resilient to climate change."[712] In October 2021, USDA reaffirmed its commitment to climate adaptation with the release of its "Action Plan for Climate Adaptation and Resilience," which commits agencies to "Build resilience to climate change across landscapes with investments in soil and forest health."[713]
The Forest Service is a leader in the development of science and tools for adaptation planning, including the use of vulnerability assessments and a number of general technical reports on the subjects, including a comprehensive science synthesis and *Responding to Climate Change in National Forests: A Guidebook for Developing Adaptation Options*,[714] and a web-based Adaptation Workbook that helps managers explore specific vulnerabilities and choose among a menu of adaptation strategies and approaches.[715]

B. Climate Adaptation in Forest Planning Under the 2012 Planning Rule

The 2012 Planning Rule, which emerged from this rich environment of Forest Service climate science and policy, creates a framework for developing, implementing and monitoring adaptation and resiliency actions on national forests. The Planning Rule is the implementing regulation for NFMA, which

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[709] Chief Kimbell 2008, See USDA US Forest Service 2009. Climate Change Considerations in Project Level NEPA Analysis. January 13.

[710] USDA US Forest Service (2009). Forest Service Strategic Framework for Responding to Climate Change. Version 1.0.

[711] USDA US Forest Service (2010). National Roadmap for Responding to Climate Change. July.

[712] USDA Strategic Plan 2010-2015. 2012.

[713] USDA Action Plan for Climate Adaptation and Resilience. Federal Climate Adaptation Plans: USDA. Available at: https://www.sustainability.gov/adaptation/.

[714] Peterson, David L.; Millar, Connie I.; Joyce, Linda A.; Furniss, Michael J.; Halofsky, Jessica E.; Neilson, Ronald P.; Morelli, Toni Lyn. 2011. Responding to climate change in national forests: a guidebook for developing adaptation options. Gen. Tech. Rep. PNW-GTR-855. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 109 p..

[715] https://adaptationworkbook.org/.

established a statutory requirement to manage national forests for the "diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives."[716] Conservation, adaptation and resiliency planning on national forests occurs through the lens of NFMA's "diversity" requirement.[717]

The 2012 Planning Rule adopts an intentional approach to planning for climate change. In fact, the rule was explicitly designed to be a vehicle for adaptation planning and the implementation of strategies to make national forests more resilient to the stresses of climate change.[718] The Planning Rule states that the intent of the rule is to allow "the Forest Service to adapt to changing conditions, including climate change…"[719]

The rule reflects primary principles[720] for adaptation planning for ecosystems and species, including the following components:

- An intentional adaptation and conservation planning framework to sustain ecosystems and species in the face of climate change.
- A clear conservation goal to enhance the climate resiliency of National Forest ecosystems and the establishment of specific management objectives for ecosystem and species-level conservation targets.
- Direction to provide for ecological connectivity as an adaptation strategy.
- The use of ecological and climate change vulnerability assessments to prioritize adaptation planning actions.
- The use of scientific information and science-management partnerships to inform the adaptation planning process.[721]
- Adaptive management and monitoring as a means of evaluating the effectiveness of planning decisions, testing assumptions, and reducing uncertainty in the face of rapid environmental change.

[716] 16 USC 1604 (g)(3)(B).

[717] See Defenders' *Planning for Diversity* 2015 for a complete discussion on how the 2012 Planning Rule interprets the NFMA requirement to plan and manage for diversity.

[718] Preamble 21164.

[719] 219.5(a).

[720] Joyce, L. A., Blate, G. M., McNulty, S. G., Millar, C. I., Moser, S., Neilson, R. P., & Peterson, D. L. (2009). Managing for multiple resources under climate change: national forests. *Environmental management*, *44*(6), 1022; Cross, M. S., Zavaleta, E. S., Bachelet, D., Brooks, M. L., Enquist, C. A., Fleishman, E., ... & Tabor, G. M. (2012). The Adaptation for Conservation Targets (ACT) framework: a tool for incorporating climate change into natural resource management. *Environmental Management*, *50*(3), 341-351.

[721] Littell, J. S., Peterson, D. L., Millar, C. I., & O'Halloran, K. A. (2012). US National Forests adapt to climate change through Science–Management partnerships. *Climatic Change*, *110*(1), 269-296.

The Planning Rule establishes a framework to address climate change, which it appropriately characterizes as a "system driver" (i.e. a natural ecological process) and as a "stressor" (a factor that may "directly or indirectly impair ecosystem composition, structure or ecological process in a manner that may impair its ecological integrity").[722] This dual characterization of climate change drives forest plans to incorporate the effects of climate change into planning for ecosystem and species sustainability, and to identify, respond to, and reduce climate change threats. The forest plan must develop plan components (i.e., strategies) for ecological sustainability and diversity of plant and animal communities which take climate change into account, based on the information provided in the assessment. Plan components are the heart of the forest plan as they provide direction on the management and conservation actions that will be implemented under the plan. Plan components include desired conditions,[723] objectives,[724] standards,[725] guidelines,[726] and suitability of lands.[727] In addition, plans identify management[728] and geographic areas,[729] where the same set of plan components apply. The application of plan components within specific areas will be used to further ecosystem and species adaptation actions within the national forest.

Below we offer specific recommendations to better incorporate the best available scientific information and to improve the climate adaptation in the GMUG Forest Plan by strengthening plan components to ensure that they guide suitable climate smart management that helps the forests maintain ecological integrity and promote species viability despite warming climate conditions.

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[722] 219.19.

[723] A desired condition is a description of specific social, economic, and/or ecological characteristics of the plan area, or a portion of the plan area, toward which management of the land and resources should be directed. Desired conditions must be described in terms that are specific enough to allow progress toward their achievement to be determined, but do not include completion dates.

[724] An objective is a concise, measurable, and time-specific statement of a desired rate of progress toward a desired condition or conditions. Objectives should be based on reasonably foreseeable budgets.

[725] A standard is a mandatory constraint on project and activity decisionmaking, established to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements.

[726] A guideline is a constraint on project and activity decisionmaking that allows for departure from its terms, so long as the purpose of the guideline is met. (219.15(d)(3)). Guidelines are established to help achieve or maintain a desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements.

[727] 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. Every plan must identify those lands that are not suitable for timber production (219.11).

[728] A land area identified within the planning area that has the same set of applicable plan components. A management area does not have to be spatially contiguous.

[729] A spatially contiguous land area identified within the planning area. A geographic area may overlap with a management area.

C. Best Available Scientific Information: Vulnerability and Adaptation Resources

The 2012 Planning Rule establishes three phases in the development of any forest plan: assessment, planning and implementation, and monitoring,[730] with each phase informed by the use of the best available scientific information.[731] The forest plan assessment will identify and evaluate existing information relevant to the forest plan on climate change as a system driver and a stressor, and evaluate information regarding "the ability of terrestrial and aquatic ecosystems on the plan area to adapt to change."[732]

Climate change vulnerability assessments are a fundamental component within adaptation planning. Vulnerability assessment is a systematic science-based process to evaluate the sensitivity, exposure and adaptive capacity of conservation targets, for the purposes of estimating their vulnerability.[733] Once the vulnerability of a conservation target has been estimated, planners and managers can prioritize adaptation strategies that increase the adaptive capacity of the conservation target. In the forest planning process, assessing the vulnerability of key ecosystem characteristics and at-risk species to climate change helps determine what needs to change under the current forest plan to address ecosystem and species adaptation.

Because effective adaptation strategies are dependent on estimating the vulnerability of the conservation targets, the forest planning process must effectively incorporate vulnerability assessments into the forest planning process. This will occur during the forest planning assessment phase, which requires an assessment of "the ability of national forest ecosystems to adapt to climate change".[734]

The rule directs the Forest Service to seek information for the forest plan assessment (including climate change adaptation information) from governmental or non-governmental assessments (e.g., climate

[730] 36 CFR §219.5.

[731] 36 CFR §219.3.

[732] 219.8(a)(1)(iv).

[733] Defenders of Wildlife (2011). *Integrating Climate Change Vulnerability Assessments into Adaptation Planning* – discusses vulnerability assessments: "Climate change adaptation requires an understanding of how climate change may impact a given biological system so that appropriate management strategies can be identified. Vulnerability to climate change refers to the degree to which an ecological community or individual species is likely to experience harm as a result of changes in climate (Schneider et al. 2007). Vulnerability is a function of exposure to climate change – the magnitude, intensity and duration of the climate changes experienced, the sensitivity of the species or community to these changes, and the capacity of the system to adapt (IPCC 2007, Williams et al. 2008). A vulnerability assessment can help to identify which species or systems are likely to be most strongly affected by projected changes in climate and provides a framework for understanding why particular species or systems are likely to be vulnerable (Glick et al. 2011). Such an assessment informs conservation planning by identifying climate-related threats and resulting stresses, which then become part of the decision-making process undertaken to identify and prioritize conservation strategies. When integrated into a conservation planning framework, adaptation does not replace current conservation practices and standards, but expands the applicability of these tools to better address the realities of a changing world."

[734] 219.6(b)(3).

vulnerability assessments), plans, reports, studies, State wildlife data and action plans, and more.[735] In addition, the forest planning assessment is to be coordinated with Forest Service Research and Development, which brings considerable climate adaptation planning capacity to the process.

The Planning Rule encourages planners to "Use existing climate change information such as vulnerability assessments and scenario planning during the evaluation of stressors and should identify information gaps, uncertainties, and assumptions when evaluating existing and future stressors."[736] In the case of the GMUG region, a large amount of existing information is available, and the Draft Forest Plan would be much improved by the acknowledgement and use of this information. We have identified several important vulnerability and adaptation resources that have not been used to their fullest extent to inform the Draft Forest Plan.

1. Vulnerability resources

The "Gunnison Basin Climate Change Vulnerability Assessment for the Gunnison Climate Working Group,"[737] (the Gunnison Vulnerability Assessment) is of key importance to understanding climate vulnerabilities and meeting the objectives of the 2012 Planning Rule.

The Gunnison Vulnerability Assessment covers nearly 1.3 million acres of Forest Service lands, as well as the region's BLM, NPS, state, tribal, local and private lands. It assessed vulnerability of 73 species of conservation concern, 17 terrestrial and seven freshwater ecosystem types, and social and economic vulnerabilities. The Assessment found that: "Five terrestrial ecosystems—mesic alpine, xeric alpine, bristlecone pine, Douglas-fir, and low-elevation riparian [collectively comprising over 10% of the study area] were rated highly vulnerable to climate change," indicating that >50% of the ecosystem is "at risk of being eliminated" as a result of climate change. Five additional ecosystems, including spruce-fir, lodgepole pine, and aspen forests, which together comprise nearly 40% of the study area, scored as moderately vulnerable, indicating the potential loss of up to 50%. Additionally, the vulnerability assessment found:

> The average annual temperature of the Upper Gunnison Basin is projected to increase by approximately 3°C (5.4°F) from the late 20th century to the middle 21st century. Average summer temperatures are projected to increase by approximately 4°C (7°F)." Other projections include "a 10-25% decrease in average annual runoff, more precipitation falling as rain rather than snow, earlier snowmelt and spring runoff peaks, and changes in the seasonality of flooding.

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[735] 219.6(a)(2).

[736] FSH 1909.12 – Land Management Planning Handbook Chapter 10 – The Assessments.

[737] Neely, B., R. Rondeau, J. Sanderson, C. Pague, B. Kuhn, J. Siemers, L. Grunau, J. Robertson, P. McCarthy, J. Barsugli, T. Schulz, and C. Knapp. Editors. (2011). Gunnison Basin: Vulnerability Assessment for the Gunnison Climate Working Group by The Nature Conservancy, Colorado Natural Heritage Program, Western Water Assessment, University of Colorado, Boulder, and University of Alaska, Fairbanks. Project of the Southwest Climate Change Initiative. Available at: https://www.fs.usda.gov/rmrs/documents-and-media/gunnison-basin-climate-vulnerability-assessment-report.

A large number of the species assessed are also vulnerable to climate change. “Seventy-four percent (54 out of 73) of the species of conservation concern analyzed were rated vulnerable to projected climate change in the Gunnison Basin: 43 (of 50) plants and 11 (of 23) animals.” Ten of these animals were ranked as “highly vulnerable,” indicating that “abundance and/or range extent within the geographical area assessed likely to decrease significantly by 2050.” Most of the highly vulnerable species generally depend on high-elevation habitats and have a narrow thermal niche.

The Gunnison Vulnerability Assessment is cited extensively in the 2018 Forest Assessment and the Draft EIS accompanying the Draft Forest Plan, but is cited within the Draft Plan itself only in the species of conservation concern summary tables. In fact, several of the ten animal species that the Gunnison Vulnerability Assessment evaluated to be “highly vulnerable” were either not considered or removed from consideration as species of conservation concern:

Species	**Vulnerability Assessment Summary**	**GMUG At-Risk Status**	**GMUG Draft Plan Climate Threat Discussion**
Boreal owl	High-elevation, cool climate species	No. “not indicative of a low population number or restricted ecological condition.”	“highly vulnerable” to climate impacts
White-tailed ptarmigan	High-elevation, snow dependent species	No. “not indicative of a low population number or restricted ecological condition.”	“highly vulnerable” to climate impacts
Brown-capped rosy-finch	High-elevation, cool climate species	Yes. Species of Conservation Concern	“Only 3 percent of habitat is stable in the face of climate change”
Gunnison sage-grouse	Requires mesic breeding habitat	Yes. Federally threatened	Climate resilience mentioned once in FW-DC-SPEC-36
Lynx	High-elevation, snow dependent species	Yes. Federally threatened	Not explicitly discussed. Connectivity is mentioned.
Snowshoe hare	High-elevation, phonologic mismatch	No. Discussed with lynx	Not explicitly discussed. Connectivity and winter habitat are mentioned.
American pika	High-elevation, thermal tolerance	No. Not mentioned in the document	Species not mentioned in document.
Boreal toad	High-elevation, persistent ponds	Yes. Species of Conservation Concern	“highly vulnerable” to climate impacts

Cutthroat trout	Headwater streams, dispersal limitations	Yes. Target species of conservation watershed network	Not explicitly discussed. Connectivity is mentioned.
Uncompahgre fritillary	High-elevation, thermal tolerance	Yes. Federally endangered	Not explicitly discussed.

It is important to note that species threatened by climate change cannot be ignored as SCC simply because the Forest Service may not be able to directly address those threats within the forest plan. In cases where it is determined that the Forest Service is unable to maintain the viability of an SCC, the forest plan is to "contribute to maintaining a viable population of the species within its range."[738] This section was added to the Planning Rule to ensure that certain species threatened by climate would not be ignored within the forest plan, even if there are not priority adaptation actions for them.

The forest planning conservation objective for SCC is to "maintain or restore the ecological conditions necessary to maintain a viable population."[739] The forest plan will fail to provide these conditions unless it explicitly accounts for climate vulnerabilities.

- Recommendation: Explicitly incorporate the climate vulnerabilities of ecosystems and species that have already been assessed.

2. Adaptation resources

Specific adaptation strategies have already been developed for many of the most vulnerable ecosystems and species in the GMUG planning area. The Gunnison Climate Working Group, which developed the "Gunnison Basin Climate Change Vulnerability Assessment,"[740] also collaborated to develop comprehensive adaptation strategies for the Spruce-Fir Landscape[741] and the Sagebrush Landscape.[742] Importantly, these Climate Resilience Projects were developed using three distinct scenarios for the future climate – hot and dry, warm and wet, and variable precipitation—thus providing options that could help mitigate uncertainties about future conditions. Both reports were cited in the Forest Assessment and the Draft EIS, but the Draft Forest Plan itself neither cited nor utilized the information within these strategies. Both Resilience Project reports identify specific actions aimed at three different categories of strategies:

[738] 36 CFR 219.9(b)(2)(ii).

[739] 219.9(b)(2).

[740] Op Cit., Neely et al. 2011.

[741] Rondeau, R., B. Neely, M. Bidwell, I. Rangwala, L. Yung, K. Clifford, and T. Schulz. 2017. Spruce-Fir Landscape: Upper Gunnison Basin, Colorado. Social-Ecological Climate Resilience Project. North Central Climate Science Center, Ft. Collins, Colorado. Available at: https://www.sciencebase.gov/catalog/item/5d1117dde4b0941bde5504d8.

[742] Rondeau, R., B. Neely, M. Bidwell, I. Rangwala, L. Yung, K. Clifford, and T. Schulz, 2017, Sagebrush Landscape: Upper Gunnison River Basin, Colorado: Social-Ecological Climate Resilience Project. North Central Climate Science Center, Ft. Collins, Colorado.https://www.sciencebase.gov/catalog/item/5d10fbf2e4b0941bde5502f9.

- Identification and protection of refugia that are likely to maintain a suitable climate for the target ecosystem;

- Proactive treatment to build resilience in those areas that are threatened due to marginally suitable future climates for the target ecosystem; and

- Assisting and allowing transformation, with attention to both areas where the future climates can support emergent instances of an ecosystem, as well as those that are likely to be lost to some other ecosystem type (that is, an emergent instance of another ecosystem).

➢ Recommendation: Forest Plan components should reflect the array of adaptation options that have been developed for the Spruce-Fir Landscape and the Sagebrush Landscape.

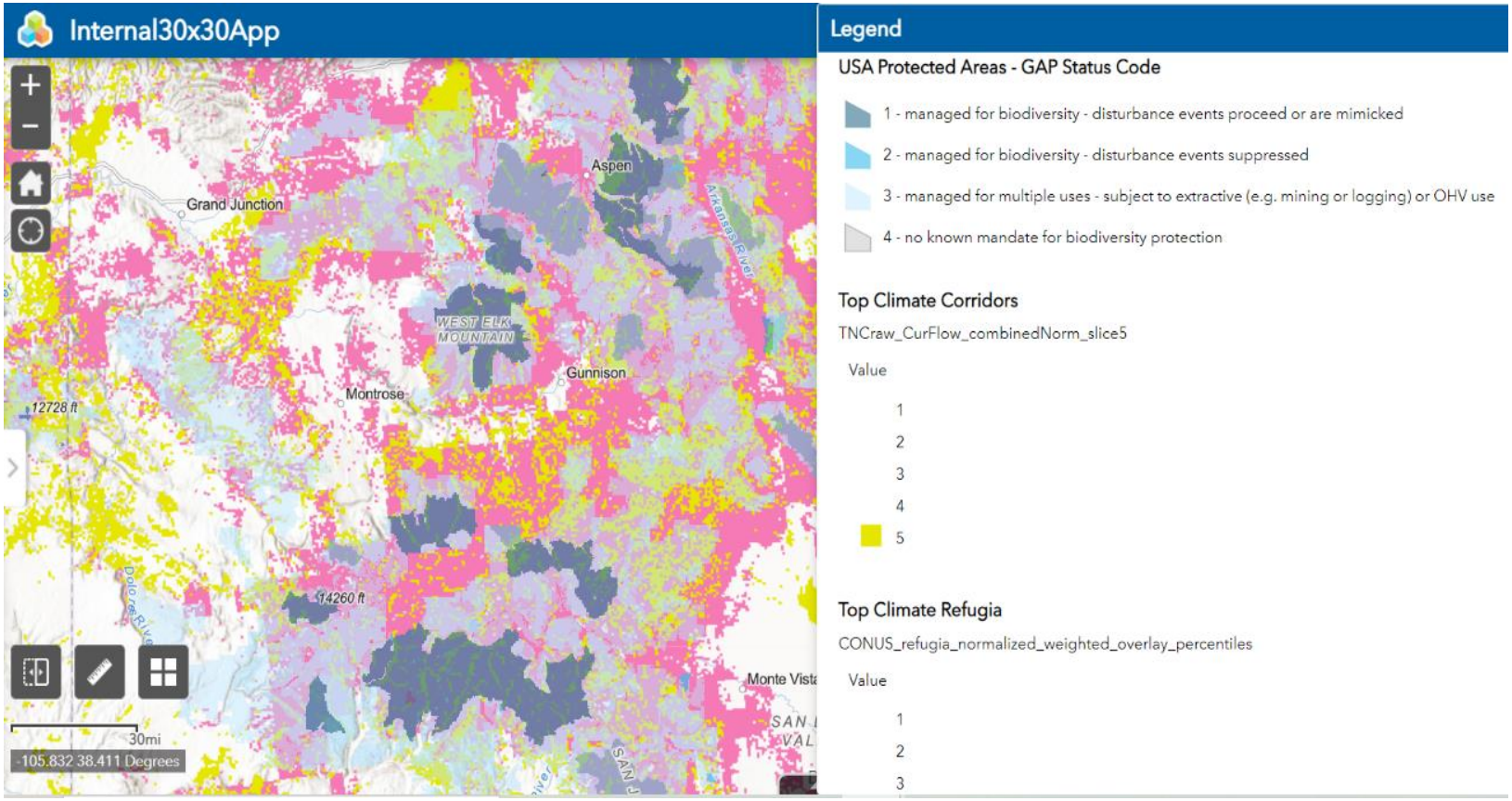
D. Recommended Changes and Additions to Plan Components to Improve Climate Adaptation

➢ Recommendation: To summarize below, throughout the plan, include components, particularly standards and guidelines, to ensure refugia protection, increased resilience, and ecosystem transformation.

1. Key ecosystem characteristics

We are supportive of the intent of the desired conditions described under Structure, Composition and Function. **FW-DC-ECO-02** expresses a desired condition of ecosystem resilience, and **03** expresses the importance of identifying of refugia, as well as transformation zones where one ecosystem type may be lost and another emerging, and managing accordingly. However, the plan needs to require substantially more detailed components and references to adaptation frameworks, such as the ones described above, in order to achieve these desired conditions. This section contains a single objective (**FW-OBJ-ECO-04**), the identification and monitoring of areas of potential climate refugia. This objective should be updated to specify that refugia will be identified for each climate-vulnerable ecosystem type, and the time frame of this objective (10 years) is entirely too long given the urgency of the climate and biodiversity crises. The existence of considerable amounts of existing data and methodologies make it feasible to accomplish this analysis both with more specificity and in a shorter time frame. For instance, the two Resilience Project reports map areas of lost, threatened, persistent and emergent habitat types for key species like subalpine fir, Engelmann spruce, and big sagebrush for three different climate scenarios. We have also created maps overlaying areas of climate refugia and corridors that have been identified by a suite of different models, along with species richness and carbon storage.[743]

[743] Dreiss, L. M., Lacey, L. M., Weber, T. C., Delach, A., Niederman, T. E., & Malcom, J. W. (2021). Targeting current species ranges and carbon stocks fails to conserve biodiversity in a changing climate: opportunities to support climate adaptation under 30x30. *bioRxiv*.. *In press*.


Internal30x30App
Grand Junction
Aspen
WEST ELK MOUNTAIN
Gunnison
Montrose
12728 ft
14260 ft
Monte Vista
30mi
-105.832 38.411 Degrees
Legend
USA Protected Areas - GAP Status Code
1 - managed for biodiversity - disturbance events proceed or are mimicked
2 - managed for biodiversity - disturbance events suppressed
3 - managed for multiple uses - subject to extractive (e.g. mining or logging) or OHV use
4 - no known mandate for biodiversity protection
Top Climate Corridors
TNCraw_CurFlow_combinedNorm_slice5
Value
1
2
3
4
5
Top Climate Refugia
CONUS_refugia_normalized_weighted_overlay_percentiles
Value
1
2
3

Furthermore, the mapping and monitoring plans expressed in **FW-OBJ-ECO-04** are not sufficient to achieve the ecological sustainability of refugia areas. The plan must detail a set of components specific to each ecosystem type that will improve the likelihood of their persistence by reducing other threats. For instance, Morelli et al. (2016),[744] the publication cited in the objective, makes clear that identification is only a first step, which must be followed by management specific to maintaining those systems. The paper includes an example of priority actions for montane meadows: "minimize overgrazing, remove encroaching conifers and invasive species, mitigate road and trail impacts, assist migration of lower elevation [meadow] species, snow fencing to trap snow in desired locations, manage recreation and development, increase connectivity." The plan does outline a management approach for bristlecone and limber pine ecosystems, which are among the most vulnerable to climate change; a similar or more detailed management approach is needed for each vulnerable ecosystem type in order to protect refugia, increase resilience, and facilitate transformation. For key areas, such as those identified as refugia under disparate climate scenarios, or for emergent areas of highly threatened ecosystem types, the plan should include standards to further constrain ecologically damaging activities.

Connectivity is the second Key Ecosystem Characteristic described in the Draft Plan. Connectivity is a key principle of conservation biology and is increasingly important in a changing climate to allow species to move in response to ecological change. This plan section, however, contains no other plan components, and thus has no "roadmap" to achieve the stated Desired Condition (**FW-DC-ECO-05**). This section should be expanded to include plan components that enable the identification, establishment, preservation and restoration of key areas of connectivity and landscape permeability.[745]

The Old Forest desired condition is similarly lacking in plan components. Old forests are of outsized importance in a changing climate because they harbor habitat for sensitive species, store large amounts of carbon, create microclimates of deep shade and structure that can serve as microrefugia, and provide sources of seed of species that have likely experienced and survived a variety of ecological conditions. The plan should be updated to include standards to ensure old forest protection and threat reduction.

2. Riparian management zones and groundwater-dependent ecosystems

Riparian areas and groundwater-dependent systems are of key importance in a warming climate. In addition to their obvious importance as water sources, they function to enhance climate resilience as well. Riparian areas can serve as connectivity zones that can enable species movement across elevational or latitudinal gradients. Functional riparian ecosystems can also ameliorate downstream flood effects by absorbing and regulating the release of water during and after precipitation events.

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[744] Morelli, T. L., Daly, C., Dobrowski, S. Z., Dulen, D. M., Ebersole, J. L., Jackson, S. T., ... & Beissinger, S. R. (2016). Managing climate change refugia for climate adaptation. *PLoS One*, *11*(8), e0159909; Morelli, T. L., Daly, C., Dobrowski, S. Z., Dulen, D. M., Ebersole, J. L., Jackson, S. T., ... & Beissinger, S. R. (2017). Correction: managing climate change refugia for climate adaptation. *Plos one*, *12*(1), e0169725. https://doi.org/10.1371/journal.pone.0169725

[745] Defenders of Wildlife provided a guidance document, Planning for Connectivity, in our scoping comments for the GMUG land management plan in Appendix 2.

Intact riparian vegetation can also help to shade and cool stream systems, provide structure, and reduce erosion and sedimentation. Groundwater systems are important for maintaining mesic conditions in terrestrial ecosystems, and springs and seeps can also mitigate stream temperature increases, since groundwater is well buffered from air temperature increases. Objectives, Standards and Guidelines in this section should prioritize the maintenance and restoration of riparian habitats, reduction of invasive species, and should prevent activities that lower water table levels and damage to riparian and groundwater-fed systems from grazing.

3. Aquatic ecosystems

Plan components in this section should prioritize maintenance and enhancement of aquatic habitat and connectivity for native species, with a particular emphasis on imperiled and climate-vulnerable species. Several of the existing plan components, such as those favoring recreation and "desired non-native fishes," may not be compatible with maintaining connected and resilient habitats. We support FW-STND-AQTC-05 and urge the Forests to expeditiously proceed with replacement and upgrading of bridge and culvert structures that impair aquatic connectivity. We also support **FW-GDL-AQTC-08**, as beavers are an important keystone species and ecosystem engineer that can provide climate adaptation benefits for aquatic, meadow and groundwater systems.[746]

4. Invasive Species

Invasive species are a key stressor in many ecosystems and many, such as cheatgrass and some forest pests, are both advantaged by, and do more ecological damage in a warming climate.[747] We support of the Desired Conditions and Objectives in this section; however, the Standards pertain only to halting the introduction and spread of invasive species, and not on increasing resilience of ecosystems. The Sagebrush Landscape Report provides an example of a quantitative, resilience-oriented objective for invasive species: "By 2035, reduce and prevent the impact of invasive species such as cheatgrass with 80% confidence level so that sagebrush systems are more resilient to climate change. Focus control efforts on highest priority pathways and sagebrush areas, such as along/near roadways where invasive species are starting to infiltrate large, contiguous patches of sagebrush and large sheep bedding areas."[748]

5. Fire and fuels management

[746] See, for instance, Dunning, K. (2013). Collaborative Climate Adaptation in Utah: Beaver Restoration Projects Reinforce Ecosystem Functionality. *MOUNTAIN VIEWS*, 43.

[747] Hellmann, J. J., Byers, J. E., Bierwagen, B. G., & Dukes, J. S. (2008). Five potential consequences of climate change for invasive species. *Conservation biology*, *22*(3), 534-543.

[748] *Op. cit*., Rondeau et al. (Sagebrush) 2017.

Climate change-influenced increases in fire frequency, extent and severity is a well-documented issue in U.S. forests generally and western national forests specifically.[749] Adaptation strategies for wildland fire include reducing stem density and surface fuel in areas with a history of fire inclusion, increasing resilience to extreme fire weather conditions, considering tradeoffs such as carbon dynamics and wildlife habitat, and planning for the regular occurrence of fire.[750] The authors also detail specific adaptation options being developed by national forests, including: increasing landscape diversity, maintaining biological diversity, managing at larger spatial scales, and designing drainage systems to accommodate higher water flows.[751] Within burned areas, there is also a need for plan components to protect unburned areas and surviving individual trees from logging, since they provide important wildlife refugia and seed sources. The Draft Forest Plan, with no Standards and only one Guideline pertaining to fire and fuels management, essentially lacks "a roadmap" (per the Figure 2 schematic) to reach the stated Desired Conditions. Even the management approaches are aimed at protecting infrastructure, not at promoting ecosystem resilience.

6. Native species diversity

Throughout the Native Species Diversity section, increasing resilience to future climate conditions is only mentioned once, as a Management Approach for pollinator species. While we appreciate the emphasis on habitat connectivity throughout the Native Species Diversity Section, the forest plan should detail additional plan components to ensure the viability of species, including protecting refugia, improving habitat quality, and reducing other threats and stressors. This is of particular importance for species like pika, boreal owl, and white-tailed ptarmigan, which have been identified as highly vulnerable to climate change but were not included as species of conservation concern (see our comments on Vulnerability above).

7. At-risk species

As with Native Species diversity, the At-Risk Species section lacks plan components explicitly aimed at promoting the viability of these species through climate adaptation efforts. There is only a single mention of climate resilience within the At-Risk Species section, expressed in a Desired Condition for Gunnison Sage-grouse (FW-DC-SPEC-36), for resilience of wet meadows (and that Desired condition also lacks an associated "roadmap" of standards and guidelines to achieve this desired condition. Given that all of the At-risk species discussed in the plan are vulnerable to the effects of climate change (see our comments on Vulnerability above), a more thorough set of plan components is needed throughout this section to ensure their viability.

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[749] Peterson, D. L., Halofsky, J. E., & Johnson, M. C. (2011). Managing and adapting to changing fire regimes in a warmer climate. In *The landscape ecology of fire* (pp. 249-267). Springer, Dordrecht.

[750] Ibid., Table 10.1.

[751] Ibid., Table 10.2.

VII. WILD AND SCENIC RIVERS

A. Additional Plan Components Are Required

The Wild & Scenic Rivers desired conditions and standards included in the Draft Plan are incredibly broad and provide little detail on GMUG reaches found eligible or not eligible. While desired conditions essentially refer to the "wild, scenic and recreation" criteria included in the Wild and Scenic Rivers Act (*See* **FW-DC-WSR-01**, **FW-DC-WSR-02**, and **FW-DC-WSR-03**), the sole standard included refers only to the agency's directives for implementing the act. We fully support managing eligible reaches and sub-basins in accordance with management direction contained in FSH 1909.12, Chapter 80, Section 84 and FSM 2354. While the FSH outlines multiple options for plan components, including solely referencing the FSH CH. 84.3, we believe that specific plan components should also be included in the revised Forest Plan, even if they are identical to the handbook. Note that plan components for protecting eligible rivers are specifically required by the Planning Rule:

> The plan must include plan components, including standards or guidelines, to provide for: …
>
> v) Protection of designated wild and scenic rivers as well as management of rivers found eligible or determined suitable for the National Wild and Scenic River system to protect the values that provide the basis for their suitability for inclusion in the system.[752]

- Recommendation: Add language that stipulates that "Plan direction for eligible rivers applies to a 0.25-mile-wide (on either bank) corridor on national forest lands or where the Forest Service holds an interest in non-Federal lands, such as scenic or access easements."

- Recommendation: Add Desired Condition: "Education and interpretative resources contribute to the understanding and appreciation of the GMUG's eligible rivers."

- Recommendation: Add Desired Condition: "Outstandingly remarkable values of eligible rivers are protected."

- Recommendation: Add Standard: "Extraction of saleable mineral materials shall not be allowed in eligible river corridors."

- Recommendation: Add Standard: "Eligible river corridors are not suitable for timber production. Prescribed fire and wildfires managed to meet resource objectives may be used to restore or maintain habitat for threatened, endangered, or sensitive species or restore the natural range of variability as long as identified Outstandingly Remarkable Values are protected or enhanced."

[752] 36 CFR 219.10(b)(1)(v).

- Recommendation: Add Standard: “The desired recreation settings range from Primitive in segments classified as Wild, and Semi-Primitive Non-Motorized to Roaded Natural across the other segments. A variety of dispersed and developed recreational opportunities are available with typical uses including canoeing, fishing, hiking, kayaking, outfitting and guide use, and wildlife viewing.”

- Recommendation: Add Standard: “New dams or other structures that impede the flow of the river on eligible segments are prohibited.”

B. Wild and Scenic River Eligibility Evaluation

The Western Slope of Colorado has no designated Wild and Scenic Rivers, despite that the region is host to some of the nation’s most prized, free-flowing rivers and streams. To be eligible, a stream must be free-flowing and have at least one “outstandingly remarkable value” (ORV) that is regionally or nationally significant. These ORV’s are specific place-based values associated with recreation, scenery, geology, history, fisheries, culture, and other types of values, such as scientific research and climate refugia. Eligibility is important, as it ensures interim protection for these very special rivers and streams.

We appreciate the work that the Forest Service has done thus far on the Draft Evaluation and the inclusion of 121.5 eligible stream miles. However, the Draft Wild and Scenic Eligibility Evaluation fails to recognize numerous rivers that are both free-flowing and have at least one ORV. The eligibility phase of the Wild and Scenic Act is designed to be the broadest, with the least number of qualifications. Factors such as competing use, land ownership, politics, water rights, and management feasibility should not be considered in the eligibility phase. The Forest Service should complete a more robust Wild and Scenic Eligibility Evaluation and consider every river segment that is both free-flowing and has one or more ORV - of which there are many within the GMUG. Our comments below address 1) the process of identifying eligible reaches and 2) specific stream segments.

1. Outstandingly remarkable values criteria

To be eligible for designation as a wild and scenic river under the National Wild and Scenic Rivers Act (the Act), a river segment must meet two fundamental requirements: the river segment must be “free flowing” as defined by Section 16(b) of the Act, and the segment must have one or more of the following outstandingly remarkable values (ORVs): scenic, recreational, geologic, fish and wildlife, historic,

cultural, or other similar values.[753] How these ORVs are defined, assessed and applied is a critical part of the analysis determining whether a river segment is found as eligible for designation under the Act.[754]

In Table 56 the USFS presents "Outstandingly remarkable value criteria specific to the State of Colorado used in GMUG forest plan revision". This table provides context for how the USFS defined these values. In some circumstances these ORVs were defined unnecessarily narrowly, so as to limit the recognition of these values on specific streams.

a. Wildlife

In the Table 56 Notes and Rationale for Wildlife, the GMUG states additional criteria were developed,[755] including the identification of key-river dependent species. Notably, "segments that host these key species populations are of higher value."[756] When identifying these "key river-dependent species" they suggest a three-fold criteria that must show:

> 1) unique or regionally significant populations of
>
> 2) at-risk species (federally listed, or candidate, threatened, or endangered species, or species of conservation concern) that are
>
> 3) river-dependent for aspects of their life cycles or movements.[757]

However, after identifying a species that meets all three criteria – the boreal toad – the GMUG continues to prescribe additional criteria to limit the application of the ORV. The Draft Plan notes that on the GMUG this includes only populations of boreal toads (a species of conservation concern) that are both chytrid-free and breeding.[758]

In HCCA's initial comments submitted on March 22, 2019 we described the following:

> West Brush Creek and Upper Brush Creek provides important habitat for a rare and ecologically crucial boreal toad population that is dependent on the West Brush Creek and Brush Creek aquatic and riparian natural environment. USFS Region 2 classifies the boreal toad as a sensitive species and the boreal toad is presently listed as an endangered species by the State of Colorado. The boreal toad has also been found by the Colorado Natural Heritage Program (CNHP) to be "critically imperiled" at the state level. The CNHP defines critically imperiled as "at

[753] Section 1(b).

[754] See Draft Plan at 285.

[755] FSH1909.12_80, Sec 82.73a.

[756] See Table 56.

[757] Draft Plan at 296.

[758] Ibid.

very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors." Part of this decline is attributed to habitat loss; preserving the limited occurrences of breeding habitat in the region is a management priority for multiple state and federal agencies. These toads rely on beaver ponds and aquatic and riparian habitat to breed. Although "Boreal toads were once common throughout the Elk and West Elk mountains of western Colorado" significant declines in population have been noted "in the boreal toad populations in this region of Colorado." Rare breeding populations of boreal toads are found along West Brush Creek and Brush Creek proper. The stream habitat for Boreal Toads is an outstandingly remarkable value.[759]

- Recommendation: We recommend that the GMUG remove these additional qualifications (of chytrid-free and breeding) and apply the three-fold criteria on its face. This approach should also remain consistent for other species.

- Recommendation: The Upper Brush Creek and West Brush Creek tributary should be found as eligible for wild and scenic status for their outstandingly remarkable wildlife values, specifically for their river-dependent boreal toad habitat (see segment-specific recommendation below).

b. Scientific research

We recommend that the Forest Service revisit the definition and application of the scientific research ORV criterion. Currently Table 56 in the Draft Plan notes the following for minimum criteria:

> While no specific national evaluation guidelines have been developed for this category, determinations consistent with the preceding guidance and section 82.73 of this Handbook may be developed for other values that may be outstandingly remarkable, including but not limited to botanic, hydrologic, palaeontologic, scientific, and heritage values.[760]

When expounding upon this, Table 56 defines the ORV as follows:

> "The segment and/or segment corridor:
>
> > Demonstrates "textbook" features that provide a unique research opportunity, Supports an amount and/or diversity of research that provides a unique opportunity for scientific research, AND is located within a research natural area[.][761]

[759] At 14.

[760] At 298.

[761] Ibid.

The proposed requirement that these scientific research areas are necessarily located within a research natural area is unnecessarily restrictive. There are many opportunities for scientific research on the GMUG in areas not within designated RNAs. Finding stream segments eligible would conserve some of these opportunities.

The Forest Service has recognized that the ecosystem types in the Rocky Mountain Region are poorly represented in the RNA network. In the Routt National Forest EIS, the USFS described this under-representation as follows:

> The first Forest Service RNA was established in 1927 on the Coronado National Forest in Arizona. Since then, the RNA system has grown to approximately 300 established RNAs nationwide, with an additional 300 or more proposed for establishment. Forest plans will propose additions to the RNA network, because of the essential role of RNAs in ecosystem management and because the ecosystem types in the Rocky Mountain Region are poorly represented. Currently, there are only 13 RNAs in the Rocky Mountain Region (Colorado, Kansas, Nebraska, South Dakota, and part of Wyoming). See Introduction, Appendix F- Research Natural Areas. Routt National Forest EIS.[762]

Excluding a river from recognition for a scientific research ORV because it has not been recognized in an RNA would exclude segments that demonstrate outstanding remarkable scientific research values. Colorado Parks and Wildlife manages the Colorado Natural Areas Program (est. 1977) to preserve and protect special areas with distinctive and unique high-quality natural areas. These areas are akin to the research natural areas recognized by the USFS but do not always overlap. For instance, Colorado has recognized the Gothic Research Natural Area in the Gunnison National Forest. It has also recognized the Escalante Canyon Natural Area, San Miguel River at Tabeguache Creek Natural Area, and Tabeguache Natural Area in the Uncompahgre National Forest. The requirement that scientific research ORVs be restricted to USFS NRAs alone is far too restrictive and will not ultimately protect segments that reflect these values but do not currently have a corresponding land management objective by the USFS.

- Recommendation: Remove the requirement that a segment possessing scientific research values be located within a research natural area.

A prime example of a river that warrants a finding of eligibility for scientific research is the East River.[763] In our March 22, 2019 comments we described the scientific values associated with the East River near RMBL and in the Gothic Corridor:

> Science. RMBL is a remarkably unique scientific asset in North America. River dependent scientific research has occurred there for decades. As early as the 1920s, a biology professor at

[762] See https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5166048.pdf.

[763] In HCCA's initial comments to the USFS submitted on March 22, 2019.

> Western Colorado College led his students on field trips to Gothic. In 1928 Professor Johnson established the first field station in Gothic to study the uniqueness of the high-altitude ecology. This station eventually became RMBL and is now internationally renowned as being at the forefront of climate research.[764]

The research conducted at RMBL includes a large body of work describing the East River hydrology. Furthermore, the importance of this area for scientific research is already recognized by the GMUG in alternatives B and D of the Draft Plan. These alternatives propose a new Special Interest Area, the Gunnison Research Special Interest Area, to designate 15,100 acres of research area around the Gothic Corridor and East River. As noted above, the East River is also partially encompassed in the Gothic Research Natural Area recognized by the Colorado Natural Areas Program.

- Recommendation: The East River should be recognized as eligible for wild and scenic status for scientific research values.

- Recommendation: The Dry Fork of the Escalante should be recognized as eligible for wild and scenic status for scientific research values.

c. Historic and cultural values

In Table 56 the USFS defines how it determines whether a segment has an ORV for historic or cultural values. Importantly, the "river, or area within the river corridor, contains important evidence of historic or pre-historic occupation or use by humans."[765] These sites may either be of national or regional importance for interpreting history or prehistory. ORVs may be present for historic purposes where:

> Sites or features are associated with a significant event, an important person, or a cultural activity of the past that is now rare or unique in the region. A historic site or feature, in most cases, is 50 years old or older.[766]

The USFS further defines this as a historic site as: "(AD 1765 or later) considered Priority Heritage Asset(s) that demonstrate unique, rare, or exemplary anthropological value within the State of Colorado."[767] Restricting historic sites to those that would be eligible for the National Register of Historic Places as priority heritage assets is unnecessarily restrictive and imports a whole other set of criteria.

Some of the sites identified on the GMUG "demonstrate unique, rare, or exemplary anthropological value within the State of Colorado" but have not been included as priority heritage assets. This is true of

[764] At 8.

[765] DEIS at 297.

[766]

[767] Ibid.

the historic Rocky Mountain Biological Laboratory (RMBL) that is located along the East River in the Gothic Corridor area. RMBL is one of the longest standing field research stations in North America. As early as the 1920s, a biology professor at Western Colorado College led his students on field trips to Gothic. In 1928 Professor Johnson established the first field station in Gothic to study the uniqueness of the high-altitude ecology. This station eventually became RMBL and is now internationally renowned as being at the forefront of climate research. This historic research should qualify the East River as holding an outstandingly remarkable value for historic purposes.

- Recommendation: The Forest Service removes the requirement that historic sites must be eligible for the National Register of Historic Places as a priority heritage asset.

- Recommendation: The East River be recognized as possessing a historic ORV for the Rocky Mountain Biological Laboratory.

d. Climate adaptation

As our forests change along with a changing climate, certain stream reaches have become critical habitat and climate refugia for the species that rely on those refugia. Protecting these cold water segments while ambient and stream temperatures change and as the timing of precipitation patterns are altered will affect the survival of sensitive species and ecosystems. Healthy, high-altitude, intact streams can provide climate refugia for species and provide species an opportunity to shift upstream. The plan's wild and scenic eligibility analysis and management prescriptions should acknowledge the unique role wild and scenic eligible rivers play in supporting climate adaptation by recognizing a climate adaptation capacity as an outstandingly remarkable value.

- Recommendation: Climate adaptation should be added as an outstandingly remarkable value for select streams (particularly headwaters and other higher-elevation stream segments that provide refugia).

- Recommendation: The following creeks merit recognition for their outstandingly remarkable value of climate adaptation capacity:

    - Oh-Be-Joyful Creek
    - Peeler Basin tributary to Oh-be-joyful Creek
    - Redwell Basin tributary to Oh-Be-Joyful Creek
    - West Elk Creek
    - Copper Creek
    - Triangle Pass Tributaries to Copper Creek
    - Queen Basin Tributaries to Copper Creek
    - Cow Creek
    - Copper Lake

e. Ecosystem services

The draft GMUG forest plan highlights and documents the importance of resilient ecosystems:

> ...essential for maintaining several rare, threatened, and endangered species, and a wide variety of fish, wildlife, and other species, sustaining biodiversity in an increasingly populated region. In addition to their own intrinsic value, these ecosystems also support critical services—such as clean water, clean air, and healthy soil—and multiple use opportunities, the continued provision of which necessitates managing and maintaining their structure, function, and composition....[768]

Certain streams provide a range of ecosystem services to downstream communities, particularly by protecting quantity and quality of downstream water supplies. Healthy stream riparian areas can provide buffers against flooding and the wetland ecosystems that they support can filter pollutants and sediment and even buffer against wildfire.

As climate change continues to impact water volumes and seasonal variability for forest landscapes and ecosystems, eligibility applied to protect key headwaters stream segments can help minimize those impacts. By recognizing these segments with an ORV for ecosystem services the Forest Service can protect the value of these services.

- Recommendation: Ecosystem services should be included as an outstandingly remarkable value for select streams (particularly headwaters and other higher-elevation stream segments that provide climate refugia).

- Recommendation: The following creeks merit recognition for their outstandingly remarkable value of ecosystem services:
    - The Slate River above the Town of Crested Butte

f. Botany

Considering the array of stream-related and stream-dependent, vegetation-based ecosystems and sensitive species found on the forest, botany is significantly under-represented in the draft plan's wild and scenic eligibility proposal. The draft plan spends significant time discussing timber and vegetation management. However, there is far less representation of unique botanic assets, including when those rare plant communities have already been recognized by entities like the Colorado Natural Heritage Program.

- Recommendation: The Forest Service has under-analyzed the role of botany as an outstandingly remarkable value. We recommend adding ORV botany several stream segments already

[768] At 8.

proposed for eligibility in the draft plan. We also recommend assessing botany as an ORV for a number of streams that have not yet been recognized by the Forest Service as possessing an ORV. These streams that include an ORV for botany include:

- Redwell basin tributary
- Roubideau Creek
- San Miguel River
- Taylor River
- Monitor Creek
- Potter Creek
- Cottonwood Creek
- Beaver Creek
- Horsefly Creek
- Cement Creek
- Dry Fork of the Escalante

2. Region of comparison

While the FSH allows, as an alternative option, the Responsible Official to conclude that a single region of comparison can be used for evaluating ORVs,[769] we strongly advise that multiple Regions of Comparison be used and that the regions of comparison include multiple scales. The 1999 Report from the Interagency Wild & Scenic Rivers Coordinating Council concludes that the region(s) of comparison needs to include multiple scales and that "In addition to regional or statewide comparison, values must also be considered from a national perspective. For example, while multiple species of anadromous fish are relatively common in rivers on the Mt. Baker-Snoqualmie NF, this association of multiple species is uncommon nationally."[770] This example in the Mt. Baker-Snoqualmie NF is very applicable to ORVs and river segments within the GMUG National Forests.

Additionally, the Forest Service Handbook defines an ORV as a "scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar river-related value that is unique, rare, or exemplary feature and is significant when compared with similar values from other rivers at a regional or national scale."[771] This further indicates that multiple scales should be considered for regions of comparison. As in the Mt. Baker-Snoqualmie Forest example, the use of multiple scales for the Region of Comparison should err on the side of including additional ORVs rather than excluding them. For example, if an ORV is not considered to be unique or exemplary within the State of Colorado, then the FS should also evaluate the ORV relative to the local region and/or the nation.

[769] FSH 1909.12 Ch. 82.73.

[770] Interagency Wild and Scenic Rivers Coordinating Council. (1999). The Wild & Scenic River Study Process.

[771] FSH 1909.12 Ch. 80.5.

- Recommendation: Multiple scales should be employed when using Regions of Comparison to evaluate ORVs.

C. Eligibility Review Process, Justification, and Documentation

1. The Wild and Scenic Eligibility Study includes insufficient data and justification on the eligibility determinations.

Documentation made available to public include Appendix 11 of the Draft Plan, responses to public comments,[772] and the Excel sheet of WSR review notes. Of the 962 river segments reviewed, 654 segments or 67.9% of the total segments have little to no justification of being found ineligible.

- Recommendation: The Forest Service needs to demonstrate that a thorough analysis of each river segment has been completed.

Numerous justifications for ineligible segments simply state that the segment did not meet the ORV threshold, but no further explanation is given (e.g., Uncompahgre River Segments 2 and 3). Providing further justification would help the public understand the process and allow for more robust public comment.

- Recommendation: Please provide details on why the ORV threshold was not met and which ORVs were considered for all segments found ineligible.

2. The use of the 2005 Comprehensive Assessment is conflicting and contradictory

More than half of the justifications only cite the 2005 Working Maps and Comprehensive Assessment Appendix W-2, which does not provide sufficient evidence for or against eligibility (e.g., Ruby Anthracite Creek, Taylor River headwaters, Poverty Gulch, San Miguel River, etc.).

Appendix W-2 is simply a list of rivers that were reviewed and found ineligible in the 2005 Wild and Scenic Eligibility Evaluation. The Forest Service should give further explanation for the determinations on these segments and address how circumstances have or have not changed on each segment since the 2005 Eligibility Inventory. Changed circumstances include broader recognition of recreational opportunities and changes to the river that make it more unique.

[772] Public comments and responses on the 2019 Working Draft Eligibility Report, by ORV. Retrieved from https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd947425.pdf.

- Recommendation: As described below in our eligibility recommendations, a number of river segments in the GMUG have had changed circumstances leading to a greater presence of ORVs, and therefore necessitate additional review.

The Forest Service has created an inappropriate double standard for streams reviewed in the 2005 Comprehensive Assessment. For streams identified as not eligible in both 2005 and 2021, the 2005 assessment is cited as the primary or only justification for ineligibility. While for streams identified as eligible in 2005 and not in 2021, the Forest Service argues that "the 2005 assessment doesn't have standing because the planning process never resulted in a decision."

- Recommendation: The Forest Service needs to either 1) Give equal weight to both ineligible and eligible 2005 Comprehensive Assessment findings, fully review segments not considered in 2005, and review segments that have changed circumstances or 2) Fully and completely review *all* river segments regardless of findings in 2005 and findings from 2005 may not be used as ineligibility justifications in the current review.

3. The ineligibility justifications include contradictory reasoning

In some segments, the WSR Review Notes (Excel spreadsheet) indicate that one or more ORVs were identified by the IDT and/or District Review (e.g., Slate River, Uncompahgre Gorge), but that the Responsible Official determined the segment was not eligible when reviewing all potential eligible segments in the Forest. This is contradictory and indicates that the Forest Service is not considering every river segment that is free-flowing and possesses at least one ORV. It also indicates that the reviewing staff may be inappropriately importing suitability or designation criteria instead of restricting analysis to exclusively the eligibility parameters. While the Responsible Official has the final decision-making authority, decisions on ORVs should be informed by the Interdisciplinary Team, best scientific information, and public input.

- Recommendation: In cases where the Responsible Official disagrees with identified ORVs, s/he must provide justification for each segment found ineligible.

D. Individual River Segment Comments

We appreciate the inclusion of 121.5 river miles in the Draft Eligibility Evaluation and the extensive work that the Forest Service undertook in this review. We support eligibility for all 121.5 river miles that have been identified thus far. However, less than 4% of the reviewed river miles were found eligible and numerous river segments that are free-flowing and possess at least one ORV have been overlooked.

1. We support findings of wild & scenic eligibility for all the stream segments included in the draft eligibility evaluation, including:

- Oh-be-joyful Creek and tributaries
- West Elk Creek
- West Soap Creek
- Copper Creek and tributaries
- Cow Creek and tributaries
- Roubideau Creek and tributaries
- Tabeguache Creek and North Fork
- San Miguel River
- North Fork Escalante and Kelso

While we support the eligibility findings for the creeks above, some of these reaches are eligible for recognition of additional ORVs, discussed below.

a. Oh-Be-Joyful Creek (and tributaries)[773]

i. Upper Oh-be-joyful Creek, Blue Lake tributary, and Dippold Basin tributary

Headwaters of Oh-Be-Joyful Creek

- Length: 6.56 miles.
- Classification: Wild. The stream segments lie inside the Raggeds Wilderness and include no impoundments, structures, or constructed routes. They therefore qualify for wild classification.
- ORVs: Scenery, climate adaptation.
    - Scenery. The headwaters of Oh-Be-Joyful feature stunning cliff bands surrounding Blue Lake. The river cascades over outcroppings of broken rock and natural terraces (see photo below).
    - Climate Adaptation. This is a high-altitude stream and lake system with assimilative capacity for species seeking climate refuge from lower altitudes more vulnerable to changing temperatures. These attributes warrant a finding of a climate adaptation ORV.

[773] See Exhibit 29_Photo Comments in support of eligibility obj.

Blue Lake and the Headwaters of Oh-Be-Joyful

- Recommendation: Upper Oh-be-joyful Creek Blue Lake tributary and Dippold Basin tributary should be found eligible for a scenery ORV, with additional ORV for climate adaptation and a wild classification.

ii. Oh-be-joyful Creek

- Length: 1.66 miles
- Classification: Scenic.
- Description: This segment is free of impoundments and manmade structures and is paralleled by a hiking trail and a dirt road but motorized access has been prohibited here.
- ORVs: Scenery, recreation.
    - Recreation (paddling): The Forest Service is correct in identifying one of Oh-Be-Joyful's ORVs as recreation (paddling). We concur with the recreation ORV for kayaking. Oh-Be-Joyful (OBJ) provides a unique kayaking experience on the Western Slope and attracts visitors from across the state and nation. Since 1995, OBJ has hosted an annual kayak competition – the steepest kayak race in the country. In addition to a series of 12' to 25' waterfalls, OBJ has numerous challenging slides and has been recognized in numerous guidebooks for being visually spectacular, having exceptionally clean lines, a star rating, and as "king of the Colorado steeps."[774]
    - Scenery: The numerous cascades provide dramatic and unique scenery, attracting hikers from wide and far. See photos below.

[774] Kyle McCutchen and Evan Stafford. *Whitewater of the Southern Rockies: The New Testament to class I-V+ in Colorado, New Mexico, Arizona, Utah and Wyoming*. 2007 Wolverine Publishing, LLC, at 130.

The Big Drop at Oh-be-Joyful

One of Oh-be-Joyful's Many Cascades

- Recommendation: Preliminary classification should be changed to scenic and the Forest Service should consider adding an ORV for scenery.

iii. Peeler Basin tributary to Oh-Be-Joyful Creek

- Length: 2.26 miles
- Classification: Wild. The segment lies inside the Raggeds Wilderness and includes no impoundments, structures, or heavily maintained routes; the stream is paralleled by a low-impact hiking trail. It therefore qualifies for wild classification.
- ORV: Scenery, climate adaptation.
    - Scenery. The segment's scenic features, seasonally colorful vegetation, and powerful stream dynamics provide a striking visitor's experience.
    - Climate adaptation. These higher elevation, healthy condition, and remoteness of Peeler Basin as a tributary to Oh-be-joyful Creek will become increasingly important in hosting plant and animal species pressured by climate change, warranting addition of an ORV for climate adaptation.

- Recommendation: Peeler Basin tributary to Oh-be-joyful Creek should be found eligible with recognition of an additional ORV for climate adaptation.

iv. Redwell Basin tributary to Oh-be-joyful creek

- Length: 1.17 miles
- Classification: Scenic. The segment includes no impoundments, structures, or heavily maintained routes.
- ORVs: Botany, climate adaptation.
- Description: In addition to stunning scenery, the stream's corridor supports unique fen plant communities, including imperiled species.

- Recommendation: The Forest should consider changing the preliminary classification to scenic. Redwell Basin tributary should be found eligible

b. West Elk Creek

Upper West Elk Creek

- Length: 15.74 miles
- Classification: Wild. The creek lies almost entirely within the West Elk Wilderness and includes no impoundments, structures, and only short sections of low-impact trail. It therefore qualifies for wild classification.
- ORV: Scenery, geology, climate adaptation.
    - Scenery. West Elk Creek is an outstanding showpiece stream, emblematic of the purposes and vision of the Wild and Scenic Rivers Act, anchoring and supporting a major landscape within the West Elk Wilderness.
    - Geology. Dramatic canyon-wall formations and plunging sections of the creek vividly demonstrate the dynamic forces of nature.
    - Climate adaptation. These higher elevation, healthy condition, and remoteness of West Elk Creek will become increasingly important in hosting plant and animal species pressured by climate change, warranting addition of an ORV for climate adaptation.

➢ Recommendation: West Elk Creek should be found eligible for geology, scenic and climate adaptation ORVs.

c. Upper West Soap Creek

- Length: 2.83 miles
- Classification: Wild. West Soap Creek lies entirely within the West Elk Wilderness and includes no impoundments, structures, or significant routes.
- ORV: Scenery, geology.
    - Geology: Few mountain canyons compare to the powerfully carved walls and twists of this stream. It therefore qualifies for wild classification.

- Scenery: The remote, lush and dense environment of West Soap Creek is remarkably beautiful, warranting and ORV for scenery.

West Soap Creek

Upper West Soap Creek

- Recommendation: West Soap Creek should be found eligible for wild and scenic for its outstandingly remarkable scenery and geology ORVs.

d. Copper Creek and tributaries

i. Copper Creek

- Length: 3.32 miles
- Classification: Wild. Copper Creek lies almost entirely within the Maroon Bells Snowmass Wilderness and includes no impoundments, structures, or constructed routes. It therefore qualifies for wild classification.
- ORVs: Wildlife, climate adaptation.
    - Wildlife. Critical boreal toad habitat here is important for helping that imperiled species to thrive but also necessarily includes the unique and subtle beauty of marshlands and low-profile vegetation that composes that habitat.

- Climate adaptation. These higher elevation, healthy condition, and remoteness of Copper Creek and its tributaries will become increasingly important in hosting plant and animal species pressured by climate change, warranting addition of an ORV for climate adaptation.

➢ Recommendation: Copper Creek should be found as eligible with the additional ORV of climate adaptation.

ii. Triangle Pass Tributaries to Copper Creek

- Length: 2.2 miles
- Classification: Wild. Triangle Pass tributaries lie entirely within the Maroon Bells Snowmass Wilderness and include no impoundments, structures, or constructed routes. They therefore qualify for wild classification.
- ORVs: Wildlife, climate adaptation.
  - Wildlife. Critical boreal toad habitat here is important for helping that imperiled species to thrive but also necessarily includes the unique and subtle beauty of marshlands and low-profile vegetation that composes that habitat. Toads may use areas within 1.6 miles of a breeding pond, and the segments are within 1.6 miles of the boreal toad breeding areas on the Triangle Pass tributary of Copper Creek.
  - Climate adaptation. These higher elevation, healthy condition, and remoteness of the Triangle Pass tributaries will become increasingly important in hosting plant and animal species pressured by climate change, warranting addition of an ORV for climate adaptation.

➢ Recommendation: The Triangle Pass tributaries should be found as eligible with the additional ORV of climate adaptation.

iii. Queen Basin tributaries to Copper Creek

- Length: 2.3 miles
- Classification: Wild. Queen Basin tributaries to Cooper Creek lie entirely within the Maroon Bells Snowmass Wilderness and include no impoundments, structures, or constructed routes. They therefore qualify for wild classification.
- ORVs: Wildlife, climate adaptation.
  - Wildlife. The critical boreal toad habitat along Queen Basin tributary is important for helping that imperiled species.
  - Climate adaptation. These higher elevation, healthy condition, and remoteness of Queen Basin tributary will become increasingly important in hosting plant and animal species pressured by climate change, warranting addition of an ORV for climate adaptation.

- Recommendation: Queen Basin tributaries to Copper Creek should be found as eligible with the additional ORV of climate adaptation.

e. Cow Creek and tributaries

- Length: 5.21 miles
- Classification: Wild. Cow Creek lies entirely within the Uncompahgre Wilderness and includes no impoundments, structures, or constructed routes. It therefore qualifies for wild classification.
- ORVs: Wildlife, climate adaptation.
    - Wildlife. The interdisciplinary team has identified essential boreal toad habitat in the stream corridor. As referenced in the Forest Service description of the wildlife ORV, the boreal toad is a species that warrants this recognition.

- Recommendation: Cow Creek should be found as eligible with the additional ORVs of wildlife and climate adaptation.

f. Roubideau Creek and tributaries

- Length: 23.4 miles
- Classification: Wild. Roubideau Creek lies entirely within the congressionally designated Roubideau Area managed to preserve wilderness character. It includes no impoundments, structures, or major constructed routes. It therefore qualifies for wild classification.
- ORVs: Wildlife/habitat, botany.
    - Wildlife/Habitat. There are two extremely rare species that rely on the Roubideau creek flows and riparian habitat. As noted by the BLM when it recognized this outstandingly remarkable wildlife value, the area has been designated as a potential conservation area for the northern leopard frog (*Rana pipiens*), a species currently under review by the Fish and Wildlife Service. Additionally, "This segment also provides regionally important habitat for desert bighorn sheep (Ovis Canadensis), which use the lower end of the creek extensively as a water source and the cliffs above for lambing" (BLM Uncompahgre Field Office Proposed Resource Management Plan, page 38-39).
    - Botany. The CNHP has designated Roubideau Creek Potential Conservation Area due to the unique vegetation that it supports, including areas of globally imperiled skunkbush sumac/sandbar willow and riparian shrubland (Rhus trilobata/Salix exigua). Thare BLM has also noted that this area possesses excellent examples of narrowleaf cottonwood (Populus angustifolia)/skunkbrush riparian forests, montane and lower montane riparian forests with blue spruce (Picea pungens), Douglas fir (Pseudotsuga menziesii), narrowleaf cottonwood, and red-osier dogwood (Cornus sericea). The riparian areas also have foothills riparian shrublands characterized by river birch (Betula nigra) and

coyote willow (Salix exigua) (BLM Uncompahgre Field Office Proposed Resource Management Plan, page 39).

- Additional information: Roubideau Creek was recognized in the BLM Uncompahgre Field Office Proposed Resource Management Plan as possessing several outstandingly remarkable values. The BLM recognized recreational, botanical, wildlife, and historical outstandingly remarkable values. Downstream of the GMUG portion of Roubideau Creek, the BLM Uncompahgre Field Office (UFO) has determined its portions of Roubideau Creek to be wild & scenic eligible, with wild and scenic classifications, respectively; BLM Segment 1, immediately downstream, is found wild & scenic suitable, with wild classification, in the BLM final suitability report (and included in the preferred alternative for the proposed UFO Resource Management Plan).

➢ Recommendation: Roubideau Creek should be found eligible for botany and wildlife ORVs, consistent with and complementary to eligibility finding, and pending suitability finding, by the BLM.

The smaller tributaries to Roubideau Creek share the ORVs discussed above. To that end, the Forest Service should examine each of these tributaries for similar ORVs.

➢ Recommendation: The Forest Service should examine the following tributaries as possessing the same ORVs as the mainstem of Roubideau Creek and providing essential streamflows to that special landscape:

  - Moore Creek: 3.36 miles; includes no impoundments, structures, or major constructed routes.

- Traver Creek: 1.89 miles; includes no impoundments, structures, or major constructed routes.
- Al Wright Creek: .44 mile; includes no impoundments, structures, or major constructed routes.
- Terrible Creek: .51 mile; includes no impoundments, structures, or major constructed routes.
- Long Creek: 2.28 miles; includes no impoundments, structures, or major constructed routes.
- Bull Creek: 1.6 miles; includes no impoundments, structures, or major constructed routes.

g. Tabeguache Creek and tributaries

- Length: 3.56 miles
- Classification: Wild.
- ORVs: Scenery, heritage (prehistoric).
    - Scenery. The distinctively rugged country found along upper Tabeguache Creek presents a colorful, highly diverse geography unique in Colorado. The scenic appeal and general accessibility have attracted human explorers for centuries, adding to the features and mystique of the area. Even so, the area's natural features of canyon seclusion and long vistas retain unique opportunities for primitive exploration and solitude.
- Additional information: Tabeguache Creek lies within a CNHP area, the San Miguel River at Tabeguache Creek Potential Conservation Area. Downstream of the GMUG portion of Tabeguache Creek, the BLM Uncompahgre Field Office (UFO) has determined its Tabeguache Creek Segment 1 (and beyond private land farther downstream, Segment 2) are wild & scenic eligible, with wild and recreational classifications, respectively; BLM Segment 1, immediately downstream, is found wild & scenic suitable, with wild classification, in the BLM final suitability report (and included in preferred alternative for the proposed UFO Resource Management Plan). Tabeguache Creek lies entirely within the congressionally designated Tabeguache Area, managed to preserve wilderness character. It includes no impoundments, structures, or major constructed routes. It therefore qualifies for wild classification.

➢ Recommendation: Tabeguache Creek should be found eligible for wild and scenic eligibility for a scenery ORV.

h. San Miguel River

- Length: .5 mile
- Classification: Wild. While the river has been subjected to numerous diversions and other structures in service to human enterprise at other locations, it is notably natural, undisturbed, and scenic through this segment. The GMUG San Miguel River segments include no

impoundments, structures, or constructed routes. They therefore qualify for wild classification, and the eligibility evaluation should be adjusted accordingly.

- ORVs: Scenery, recreation, wildlife, paleontology, botany. In this comment we focus on the need to add an ORV for Botany.
    - Botany. This segment supports five distinct and outstanding riparian communities. These include four superior (A-ranked) occurrences of communities classified as globally vulnerable (G3) thinleaf alder/mesic graminoid riparian shrubland (*Alnus incana* ssp. *tenuifolia*/mesic graminoids), narrowleaf cottonwood/blue spruce/thinleaf alder riparian forest (Populus angustifolia/Picea pungens/*Alnus incana* ssp. tenuifolia), narrowleaf cottonwood/thinleaf alder riparian woodland (*Populus angustifolia/Alnus incana* ssp. *tenuifolia*), and river birch/mesic graminoid riparian shrubland (*Betula occidentalis*/mesic graminoids). In addition, a superior (A- ranked) occurrence of blue spruce/red osier dogwood riparian forest (*Picea pungens*/*Cornus sericea*), ranked as apparently secure (G4), occurs here as well.
    - The segments are included within the Colorado Natural Heritage Program (CNHP) San Miguel River, Clay Creek to Horsefly Creek Potential Conservation Area.
    - The BLM has also designated a nearby segment as part of the San Miguel Area of Critical Environmental Concern (ACEC), primarily to protect outstanding riparian plant communities.

➢ Recommendation: The Forest should adjust its eligibility evaluation and finding to include a botany ORV and a wild classification.

i. North Fork Escalante Creek

- Length: 12.63 miles
- Classification: Wild. North Fork Escalante Creek includes no impoundments, structures, or constructed routes. It therefore qualifies for wild classification.
- ORVs: Fishery.
    - Fishery. This remote and ecologically healthy stream provides essential habitat for populations of green lineage of the Colorado cutthroat trout. The corresponding general continuity and integrity of all habitats are important as well.

➢ Recommendation: The North Fork Escalante Creek should be found eligible for wild and scenic for a fishery ORV.

j. Points Creek

- Length: 3.38 miles
- Classification: Wild. Points Creek is remote and includes no impoundments, structures, or constructed routes. It therefore qualifies for wild classification.

- ORVs: Fishery.
    - Fishery. This remote and ecologically healthy stream provides essential habitat for populations of green lineage Colorado cutthroat trout. The corresponding general continuity and integrity of all habitats are important as well. Points Creek is an important tributary to the BLM's Escalante Creek, which supports rare native flannelmouth and bluehead suckers. Seasonally variable streamflows and water quality in the GMUG portion of North Fork Escalante Creek provide an important buffer to potential impacts along downstream segments traversing private land.

➢ Recommendation: Points Creek should be found eligible for wild and scenic based on a fishery ORV.

k. Kelso Creek

- Length: 13.21 miles
- Classification: Wild. Kelso Creek includes no impoundments, structures, or constructed routes. It therefore qualifies for wild classification. Kelso Mesa is the largest roadless area on the Uncompahgre Plateau.
- ORVs: Fishery.
    - Fishery. This remote and ecologically healthy stream provides essential habitat for populations of green lineage of Colorado cutthroat trout. Kelso Creek is also an important tributary to the BLM's Escalante Creek, which supports rare native flannelmouth and bluehead suckers.
- Additional information: Kelso Mesa also includes the headwaters of the Colorado Natural Heritage Program (CNHP) Escalante Creek Potential Conservation Area. Kelso Creek in particular provides continued natural surface flow and resultant fluvial processes such as flood scouring, lateral flow, and channel meandering—all necessary to maintaining a dynamic distribution of riparian and wetland plant associations along the drainage.

➢ Recommendation: Kelso Creek should be found eligible for wild and scenic based on a fishery ORV.

2. We Support the Addition of the Following Streams/Lakes that were Added to the Draft Forest Plan's Eligibility List

a. Anthracite Creek

- Length: 3.2 miles
- Classification: Wild. Anthracite Creek is free of impoundments and diversions and is only accessible by foot or horseback.
- ORVs: Recreation, scenery, geology.

- Recreation. Anthracite Creek offers a rowdy, backcountry experienced kayaker opportunity. After the creek flows have dropped in summer, fishermen hike out into the Dark Canyon for incredible fly-fishing opportunities.
- Scenery/geology. Anthracite Creek offers jaw dropping views of Marcellina Mountain that are unique to the river corridor. As the hiking trail connects with Ruby Fork, you are surrounded by lupine, bluebells, and towering Aspens. Once on the water, Marcellina is viewed on the left and sheer cliff walls close you in on the right. At the confluence with the mainstem of Anthracite Creek, the views only get more impressive as the creek abuts against the dark, towering walls of Marcellina. The Dark Canyon has been described as "featuring cliff walls and towering vistas that rise hundreds of feet from river level."[775]

Headwaters of Anthracite Creek

- Recommendation: We support the inclusion of Anthracite Creek as eligible for wild and scenic for the outstandingly remarkable values of recreation, scenery, geology with a wild classification.

b. Copper Lake

- Classification: Wild. Copper Lake is accessible by hiking trail. Copper Lake is a natural lake that has not been augmented.

[775] Kyle McCutchen and Evan Stafford. *Whitewater of the Southern Rockies: The New Testament to class I-V+ in Colorado, New Mexico, Arizona, Utah and Wyoming*. 2007 Wolverine Publishing, LLC.

- ORVs: Wildlife, climate adaptation.
    - Wildlife. Pages 12-13 of the Draft Eligibility Evaluation identifies Copper Creek and tributaries as eligible for wild and scenic based on wildlife values. The Triangle Pass tributaries (G9B) contain what may be the last population of chytrid-free boreal toad in the Gunnison Basin, used as a source for brood stock to support reintroduction efforts and population supplementation elsewhere. Toads may use areas within 1.6 miles of a breeding pond. The other segments are within 1.6 miles of the boreal toad breeding areas on the Triangle Pass tributaries of Copper Creek. This provides an outstanding resource value for this important population of a rare and declining species listed by the state as endangered. As noted above, the draft evaluation identifies Copper Lake Tributary (9A) and other Copper Creek tributaries as eligible for wild and scenic because of the boreal toad population and surrounding habitat.
    - Climate adaptation. This is a high-altitude lake with assimilative capacity for species seeking climate refuge from lower altitudes more vulnerable to changing temperatures. These attributes warrant a finding of a climate adaptation ORV.

➢ Recommendation: We support the inclusion of Copper Lake as eligible for wild and scenic with climate adaptation and wildlife ORVs.

c. Fall Creek

- Length: 2.7 miles
- Length: Approximately 3 miles, from source to Hughes Ditch Diversion.
- Classification: Wild. The upper portion of Fall Creek includes no impoundments, structures, or constructed routes. It therefore qualifies for wild classification.
- ORVs: Fisheries.

Headwaters of Fall Creek

Fall Creek Late Season Riffle

- Recommendation: We agree with the addition of Fall Creek as eligible for a fisheries ORV for supporting a rare cutthroat population.

d. Muddy Creek

- Length: 2.7 miles
- Classification: Wild. The segment of Muddy Creek can only be accessed by trail. The northern portion of the eligible corridor is privately owned with road access, but the segment can be reached only by hiking off trail. There are no diversions or impoundments in this stretch of Muddy Creek.
- ORVs: Fisheries.
    - Fishery. Muddy Creek supports a conservation population of Colorado cutthroat trout (green lineage). The pristine condition of the headwaters and uniqueness of this trout population warrant potential future protection.

- Recommendation: We support the addition of Muddy Creek as eligible for a fisheries ORV for supporting a rare cutthroat population.

3. Streams previously found as eligible but excluded from the draft plan.

a. Lower Taylor River

Taylor River Below the Taylor Reservoir

- Length: 20.2 miles
- Description: This segment is downstream of the Taylor Park Reservoir, however the segment itself is free-flowing in character with minimal man-made structures and diversions. The

Reservoir User Group manages the reservoir to best mimic natural flows for fisheries. The Forest Service Handbook (Ch. 82.71) makes it clear that a river segment may still be considered free-flowing if it flows between large impoundments and/or if small impoundments exist within the reach.

- Classification: Recreational. Although often not visible from the river, this stretch is paralleled by CR 742 and the river is accessed in multiple places by the road.
- ORVs: Recreation, fisheries, scenery, wildlife, botany
    - Recreation. The Taylor River Canyon between Lottis Creek and the FS Boundary near Almont offers Class II - IV paddling opportunities in a scenic canyon setting. This stretch brings the local paddling community together for a well-loved "Taylor Tuesday" tradition and attracts paddlers from across the state. The Taylor Canyon boasts one of the longest paddling seasons in the Upper Gunnison Valley and its boulder-garden character sets it apart from other rivers in the area. In addition, the Taylor River is host to an annual Kayak and Raft Race as part of the Gunnison River Festival. This special river canyon brings together extreme kayakers, rafters, and beginning boaters, providing an experience for all types of paddlers.
    - Fisheries. The Lower Taylor River is currently being considered as a Gold medal fishery.
    - Botany/Scenery. The Lower Taylor River traverses lush and diverse riparian habitats, including a unique combination of wet meadows, grassy slopes, cottonwood galleries, and sage country. All these healthy ecosystems support and provide excellent backdrop for exemplary fly-fishing and rafting opportunities along the river, warranting the ORV scenery identified by the forest 2005 and by the forest plan interdisciplinary team. The river corridor is included in *Colorado Natural Heritage Program* (CNHP) potential conservation areas L4 higher biodiversity, and it includes CNHP element observation mountain draba (mountain Whitlock-grass); CNHP element occurrence Black Canyon gilia high precision public land L1; CNHP element occurrence montane riparian forests high precision public land L1; CNHP element occurrence mountain bladder fern low precision public land L1, all warranting ORV botany.
    - Wildlife. Lower Taylor River corridor includes *Colorado Parks and Wildlife* (CPW)-identified bald eagle communal roosts, roost sites, winter concentration, winter forage, winter night roost sites, and winter range; U.S. Fish and Wildlife Service (FWS)-identified Gunnison sage-grouse occupied habitat; CPW Gunnison sage-grouse overall range, production area, and winter range; CPW bighorn migration corridors, migration patterns, production area, severe winter range, summer concentration area, and winter concentration area; CPW black bear fall concentration; CPW elk migration corridors, migration patterns, severe winter range, and winter concentration area; and CPW mule deer severe winter range, winter concentration, and migration patterns and, all warranting ORV wildlife.

- Recommendation: The Lower Taylor River should be recognized as eligible for wild and scenic (in part for reasons articulated in the 2005 eligibility assessment) for recreation, fisheries, scenery, wildlife, botany.

b. Slate River

The Slate River is a headwater tributary of the East River. It originates in a high mountain valley northwest of Crested Butte. Primary tributaries to the Slate include Poverty Gulch, Oh Be Joyful Creek, Washington Gulch and Coal Creek. The Upper Slate River Valley (north of Crested Butte) is characterized by steep slopes and a glacial valley floor dominated by gravel and moveable sediments.
In the Comprehensive Evaluation Report of July 2006, the USFS identified 3.5 miles of the Upper Slate River as eligible for wild and scenic for scenic beauty (canyon terrain, waterfalls). The Slate River should retain its 2006 eligibility, or it should be added to the streams studied in the draft eligibility evaluation and found eligible.

i. Segment 1: Upper Slate River, Headwaters to Poverty Gulch

- Length: 3.5 miles, Headwaters to confluence with Poverty Gulch (i.e., Daisy Creek)
- Classification: Scenic. The Upper Slate is inaccessible except by foot (and challenging to get to even then); however, down lower on the Slate it is accessible by trail and road in several places. This segment of the Slate River is free-flowing in its entirety. There are no diversions or man-made structures and the banks are largely undeveloped, except for the Slate River Road, which parallels the river in places.
- ORVs: Scenery, recreation, and botanical.
    - Scenery. The headwaters of the Slate River are nestled between Treasury and Purple Mountain, offering awe-inspiring views of the Ruby Range. Downstream, the extreme waterfalls provide scenic views and photo opportunities. In the 2006 Comprehensive Evaluation the USFS found the Slate eligible on the upper section for its beautiful scenery, including the dramatic canyon, gorgeous waterfalls, and hanging gardens. The 2005 Comprehensive Evaluation Assessment determined this stretch to be eligible with a scenery ORV for the canyon terrain and waterfalls. The scenery conditions have not negatively changed since 2005, indicating that the scenery ORV determined in 2005 should be carried forward in the current Draft Wild and Scenic Eligibility Evaluation.
    - Recreation. This segment of the Slate River (known as the North Fork Slate to most paddlers) provides the most challenging creek boating experience in the Gunnison Valley. It is famous for its gigantic falls, the North Fork Slate Falls, and extremely tight chutes. Guidebooks have given it a 4-star rating and it provides a unique challenge for the bravest of paddlers. The Class V+ paddling section starts approximately one mile upstream from the confluence with Poverty Gulch. In addition to paddling, there are extensive birding/photography options here. Since 2005, the creek boating on this stretch has become more well-known and its uniqueness recognized in regional guide

books, thus necessitating the addition of a Recreation ORV. If anything, the ORVs on this segment have become more prominent since 2005.

- Botanical. In addition to this unique rookery, the Slate River Riparian area has been recognized as a Potential Conservation Area (PCA) by the Colorado Natural Heritage Program (CNHP) for having high biodiversity significance. The area identified was "almost the entire reach of the Slate River". The CNHP Study noted that there are multiple examples of globally vulnerable riparian plant communities on this reach. Half of this ecologically important area is on private lands and the rest on USFS and BLM lands.

Upper Slate River

Slate River Headwaters

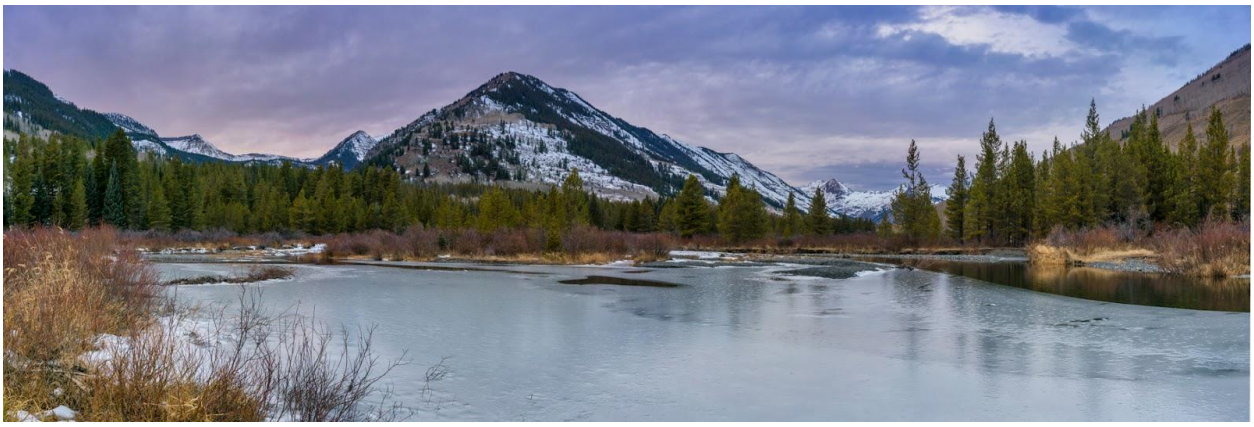
Slate River Headwaters

ii. Segment 2: Poverty Gulch to Oh-Be-Joyful

The Slate River Above Gunsight Bridge

- Classification: Scenic. The Slate River is paralleled in places by an unpaved road (CR 734), hiking trails, and is accessible at certain points. The river drops away in many places as it flows through the Slate River canyon. There are no man-made structures in the river, although small well-rights and small conditional water rights exist on the Slate River.
- Currently, this river segment meets the qualifications for free-flowing.
- ORVs: Recreation, habitat.
    - Recreation. This stretch of the Slate River has been recognized in multiple guidebooks for the region. It provides a different experience than other creeks in the valley; its gradient is less significant than other creeks in this area, and the hydraulics are fierce. Still a challenging Class V kayaking run, this segment has a longer paddling season than its neighbors.
    - Habitat. The Slate River is unique for its blue heron habitat. The Slate River hosts one of the highest-elevation heron rookeries in the United States. On Crested Butte Land Trust Land along this corridor, there is a river-dependent Great Blue Heron rookery believed to be one of the highest in the country (8,900 feet above sea level). The Slate River Working Group Draft Management Plan (informed by CPW & biologist Pat Magee) has identified this high-altitude heron rookery as an ecological asset meriting special consideration.

iii. Segment 3: Oh-Be-Joyful to Town of Crested Butte



Series of four photos showing the views from this segment

- Length: Oh-Be-Joyful to Town of Crested Butte
- Classification: Scenic. The majority of this segment is significantly distanced from CR 734 and is only paralleled by a non-motorized trail in some places. Although the segment has a couple of minimal diversions and cattle fencing, it is largely void of man-made structures and the banks are undeveloped.
- Free-flowing: There are a couple insignificant diversions upstream of the Coal Creek confluence, and the Mount Emmons Mining Company has a small conditional water right near the Oh-Be-Joyful confluence., However, none of these diversions impact the natural flow regime of the river and currently the segment meets the qualifications for free-flowing.
- ORVs: Recreation, botanical, ecosystem services, and wildlife.
    - Recreation. In the past few years this segment of the Slate River has become incredibly popular for Stand Up Paddle-boarding (SUPing), a relatively new sport. It has been recognized as some of the best SUPing in the state for its mellow floating experience, grandeur views of the Slate River Valley, and surrounding natural environment. This segment also offers a rare beginner opportunity for kayakers. In the Upper Gunnison Valley, there are no other flatwater boating opportunities where people can learn to kayak in a safe environment. Botanical. Please refer to High Country Conservation Advocates' comments on this segment for in depth details on the Botanical ORV of this segment.

- Ecosystem services. The Slate River provides an alternative water supply source for the Town of Crested Butte and flows through town. There are extensive wetland complexes that filter out sediment and pollutants above the Town of Crested Butte. This is a valuable resource for the town and should be recognized as an ORV.

- Additional Comments: Although part of this segment extends outside of the national forest Boundary, we believe that its many ORVs warrant its inclusion as an eligible river segment. According to the Forest Service Handbook, a river segment may extend beyond the national forest Boundary in certain circumstances. In this case, there are ORVs that extend downstream of the national forest boundary on the Slate River that depend on protections under the Wild and Scenic Rivers Act. Additionally, the river maintains its incredibly scenic environment and remoteness until it reaches the Town of Crested Butte.

c. Daisy Creek (i.e., Poverty Gulch)

- Length: Headwaters to Slate River Confluence
- Classification: Scenic. The majority of Daisy Creek is set back from any roads or trails and requires a steep hike down into the canyon at the base of the 40' waterfall. At certain points the river is accessed by a 4x4 road (Poverty Gulch Rd) and towards the end of the stretch there is a bridge over the creek. Daisy Creek is free-flowing in its entirety; it is free of impoundments, man-made structures, and diversions.
- ORVs: Recreation, scenery.
    - Recreation (kayaking). Daisy Creek flows from its headwaters in Daisy Pass through Poverty Gulch and into the Slate River. Daisy Creek has become a popular hike-in, committed kayaker run renowned by boaters in Colorado. This recreational opportunity is high quality and, in combination with Oh-Be-Joyful, attracts visitors from far away. There are few opportunities for narrow creek boating in this area and regionally. The Daisy Creek run is another run that has made it into the Whitewater of the Southern Rockies guide as an exceptional four-star recreational boating asset.43 It is a fast class V-reach that is less than a mile long (0.9 miles) and contains two signature drops, Big Wood Falls ("Big Woody") and Rip Your Head Off. While still technical, Big Woody Falls offers a unique waterfall experience, without the commitment required of Oh-Be-Joyful.
    - Scenery. Daisy Creek meanders through the high alpine fields below Daisy Pass before it drops away from the meadows and into a committing, forested canyon. The character of the canyon is remote, and the latter part of the run offers incredible views of the Slate River Valley.

Daisy Creek (Poverty Gulch) Near the Confluence

d. East River

i. RMBL Reach

- Length: 6.7 miles of the Upper East River, headwaters to the Gothic road bridge below RMBL.
- Classification: Recreational. There is a road that parallels the East River. The river is free of impoundments, and the river shore is largely primitive and undeveloped. The Upper East River is free-flowing; there are no diversions. RMBL relies on well water and does not divert from the river.
- ORVs: Scientific, botanical, historic.
    - Scientific. Our analysis has also identified portions of the East River to be eligible for a scientific ORV. RMBL is a remarkably unique scientific asset in North America. River-dependent scientific research has occurred there for decades. Much of this research is river-dependent. An entire page on RMBL's website is devoted to river-related studies, titled "Water Research" and can be accessed at http://www.rmbl.org/scientists/water-research. A quick search of the RMBL publication database will reveal numerous scientific articles discussing East River study projects. Botanical. The USFS has identified the Gothic area as a Research Natural Area. This RNA was established in 1931 and expanded in 1959. This area of 1080 acres includes plant ecosystems adjacent to the

East River that have been identified for special management, including 238 acres of fescue/meadowrue-vetch-elk sedge. These ecological attributes, adjacent to and dependent on the East River, should be considered in tandem with the scientific ORV.

  - Historic. As early as the 1920s, a biology professor at Western Colorado College led his students on field trips to Gothic. In 1928 Professor Johnson established the first field station in Gothic to study the uniqueness of the high-altitude ecology. This station eventually became RMBL and is now internationally renowned as being at the forefront of climate research.

- Additional information: In the Comprehensive Evaluation Report completed in July of 2006, the USFS identified 6.7 miles of the East River as eligible for wild and scenic for scenic and botanical characteristics.

ii. Gothic Road Bridge to East River Meanders

- Classification: Recreation. The East River is paralleled by a county road. Immediately after the put-in bridge, the river drops away from the road into a narrow canyon and there is a mandatory hike-out to a dirt road at the end of the segment. The river banks are largely undeveloped and there are no impoundments or man-made structures in the river.
- ORVs: Recreation. The primary section of the "Upper East" is the easiest for boaters of the four high-quality creeks in Crested Butte, but the end of this stretch includes "Stupid Falls," a spectacular waterfall that is one of the tallest in the state. At moderate flows, the upper stretch provides a unique opportunity for intermediate paddlers to test their skills on slides and moderately sized falls. This segment is set in the Gothic Valley, the wildflower capital of Colorado and provides scenic views of the East River corridor.

iii. East River Meanders

- Length: The East River features stunning meanders between Gothic and Mt. Crested Butte before travelling behind the Crested Butte Mountain Resort ski area. This segment is below Stupid Falls at the beginning of the East River meanders and extending down to the Mount Crested Butte Water and Sanitation District pumphouse.
- Classification: Scenic. There is a dirt road allowing access to the river along the East River meanders. Above the river corridor (but outside of the wild and scenic corridor), the Gothic Road parallels the meanders far above the river and provides a view for those travelling to Gothic. Otherwise, this segment is largely inaccessible. This section of the river is free-flowing (irrigation occurs off of the Perry Creek tributary).
- ORVs: Scenic, geologic.
  - Scenic. The East River meanders are some of the most iconic in the nation. Looking down on the East River one sees a gorgeous meandering stretch with oxbow after oxbow linking up in a serene pattern. In summer it attracts photographers and local artists that attempt to capture the serene beauty of this reach.

- Geologic. The Forest Service Handbook criteria include a description for geology that "the feature(s) may be in an unusually active stage of development, represent a "textbook" example, or represent a unique, rare or exemplary combination of geologic features (erosional, volcanic, glacial, or other geologic structures)." The East River meanders are an exemplary "textbook" example of an oxbow river system. The textbook structure of this system has been documented in studies; one described that "Lidar and Worldview 2 multispectral satellite imagery collected in 2015 revealed approximately 100 abandoned channels in our 10-kilometer long study reach that occupy approximately 25% of the floodplain. Abandoned channels preserve the shape of former river meander bends."[776] Thus, the East River meanders meet the criteria for a geologic ORV.

➢ Recommendation: The Forest Service should recognize eligibility on the entire segment from the headwaters at Emerald Lake to the national forest Boundary for additional ORVs of scientific research, scenery, ecological, and geological. Classification will depend on how the segment is defined (as will the management ORVs).

East River Meanders

e. Escalante Creek

- Length: 1.5 miles.
- Classification: Scenic. The national forest portion of Escalante Creek includes no impoundments or structures. It is paralleled by an unpaved road, so it qualifies for scenic classification.
- ORVs: Recreation, fisheries.

[776] 82.73a – Criteria for Establishing Outstandingly Remarkable Values, 3. Geology; https://www.nps.gov/articles/meandering-stream.htm;*Predicting Cutoff Locations Along Meander Bends on the East River in Crested Butte, Colorado*. Stauffer, Sophie J., Rowland, Joel C., Sutfin, Nicholas A. and Fratkin, Mulu. Earth & Environmental Science Division, Los Alamos National Laboratory, MS-J495, Los Alamos, NM 87545, sstauffer@lanl.gov

- Recreation. Escalante has outstandingly remarkable recreational values for swimming and whitewater kayaking. Kayaking guidebooks and websites tout Escalante as a temporal and unique class V reach that brings people from near and far. The Potholes swimming area is renowned for cliff jumping opportunities and swimming in a remarkable setting of carved boulders and dramatic cliff walls (see https://www.denverpost.com/2007/04/09/escalante-creek-hidden-gem-in-states-southwest/).
- Fisheries. Escalante Creek is regionally important habitat for resident populations of native roundtail chubs, bluehead suckers, and flannelmouth suckers, as well as serving as a spawning site for Gunnison River populations of all three of these BLM and Colorado sensitive species.

➢ Recommendation: Escalante Creek should retain its 2005 eligibility, or it should be added to the streams studied in the draft eligibility evaluation and found eligible with outstandingly remarkable values for recreation and fish/rare species.

f. Bear Creek

- Length: 3 miles from national forest boundary to national forest/private land boundary.
- Classification: Wild. Bear Creek includes no impoundments and flows through a GMUG wilderness inventory unit (2018); it should qualify for wild classification.
- ORVs: Scenery, recreation.
  - Recreation/Scenery. (Hiking). As described by the USFS website: The Bear Creek Trail #241 is designated as a *National Recreation Tail because of its unique and spectacular nature*. The trail begins at Highway 550 and ends at the Yellow Jacket Mine. Switchbacks on the first part of the trail rise steadily for an elevation gain of about 1,000 feet and cross a large talus field of unstable rock. Just after the switchbacks the trail narrows with steep drop- offs. It then levels out for some stretches as it turns eastward along the Bear Creek gorge.

View from Bear Creek Trail

- In the WSR Review Notes, the Forest Planning Team notes that "*Recreation, although along a National Recreation Trail, is not river-related*" and then proceeds to determine that this segment is not eligible. We disagree with this finding; the unique and spectacular nature of this trail is river-dependent and exists because of the Bear Creek gorge.[777] This gorge was created by the erosional forces of Bear Creek and continues to host the beautiful creek along its bottom. [778]

[777] See photo at https://www.mountainphotography.com/gallery/ouray-uncompahgre-loop/.

[778] The Forest Planning Team can also consider values adjacent to the river. 82.14 – Outstandingly Remarkable Values For a river to be eligible for designation to the National System, the river, in combination with its adjacent land area ("river area"), must have one or more "outstandingly remarkable values."

Bear Creek Canyon

- Furthermore, as explained by Handbook section 82.14 – Outstandingly Remarkable Values:

  While the spectrum of resources that may be considered is broad, all features considered should be directly river-related. River values should meet *at least one of the following criteria*:

  1. Located in the river or on its immediate shorelands (within 1/4 mile on either side of the river).
  2. Contribute substantially to the functioning of the river ecosystem, and/or
  3. Owe their location or existence to the presence of the river.

  - The National Recreational Trail is located on Bear Creek's immediate shorelands, within 1/4 mile of the river. Additionally, the National Recreational Trail would not exist but for the gorge and river; therefore, the ORV owes its existence to the presence of the river. Given that this ORV meets two of the criteria to be "river-related", the Forest Planning Team should include this reach as eligible in the final eligibility evaluation as eligible for Scenic and Recreation ORVs.

- Recommendation: Bear Creek should retain its 2005 eligibility, or it should be added to the streams studied in the draft eligibility evaluation and found eligible. For additional information about this segment, please see comments submitted by Great Old Broads for Wilderness – Northern San Juan Chapter to the GMUG on November 23, 2021.

g. Ingram Falls

- Reach: .01-mile segment immediately above and below the falls.
- Classification: Recreational. Viewing is easily accessible and receives a fair amount of traffic.
- ORVs: Wildlife, scenery.
  - Scenery & Wildlife. In 2006, the GMUG Comprehensive Review identified Ingram Falls as eligible for wild and scenic for scenery and wildlife ORVs; we concur with this prior finding. In the WSR Review Notes, the explanation notes that "the district review

concurred with previous eligibility recommendation for scenery and wildlife ORVs with initial classification of recreation." However, the notes continue to explain that "The Responsible Official determined that this segment does not meet the requirements to be determined eligible." These notes provide no additional details on why this official went against previous determinations and removed the scenic ORV from this reach.
    - Furthermore, as directed by Handbook Section 81.21 – Applicability of Past River Studies, "[g]enerally if a river segment has been studied in the past and a determination made of its eligibility, it does not need to be studied again for eligibility during subsequent planning." We agree with the earlier finding of eligibility for scenic ORVs, and request that the Forest Planning Team reconsider the removal of this reach from the list of eligible rivers on the GMUG.
    - Additionally, in the Forest Service comments defining the wildlife ORV classification they fail to explain why they have removed the black swift from wildlife ORV consideration. They also fail to adequately address why they have removed the scenic ORV.

- Recommendation: The Forest Service should recognize the wildlife and scenic outstandingly remarkable values possessed by Ingram Falls and find it eligible for wild and scenic status.

4. Additional reaches that were excluded from the Draft GMUG Forest Plan that should be included

A number of streams not previously studied for wild & scenic eligibility are free-flowing and possess at least one outstandingly remarkable value. We specifically recommend that the following additional streams and stream segments be evaluated for wild & scenic eligibility and determined eligible.

a. Monitor Creek

- Length: Approximately .75 mile from source to national forest/BLM boundary
- Classification: Wild. The national forest portion of Monitor Creek includes no impoundments, structures, or constructed routes. It therefore qualifies for wild classification.
- ORVs: Botany.
    - Botany. The BLM stream corridor contains areas of narrowleaf cottonwood/strapleaf willow/silver buffaloberry riparian forest (*Populus angustifolia/Salix ligulfolia/Sheperdia argentea*), which is classified as critically imperiled globally (G1). Areas of globally imperiled (G2) Fremont cottonwood/skunkbush sumac riparian woodland (*Populus deltoides spp. Wislizeni/Rhus trilobata*) also occur along this stream. Monitor Creek contains a superior (A-ranked) occurrence of the common coyote willow riparian shrubland (*Salix exigua/mesic graminoids*).
    - Additional information: Immediately downstream of the GMUG portion of Monitor Creek, the BLM Uncompahgre Field Office (UFO) has determined its portion of Monitor Creek is wild & scenic eligible, with wild classification; BLM found it to be wild & scenic

suitable in the BLM final suitability report (and included in the preferred alternative for the proposed UFO Resource Management Plan).

- Recommendation: Monitor Creek should be found eligible with outstandingly remarkable values for botany, consistent with and complementary to eligibility finding, and pending suitability finding, by the BLM.

b. Potter Creek

- Length: 6.5 miles from source to national forest/BLM boundary
- Classification: Wild. The national forest portion of Potter Creek includes no impoundments, structures, or significant constructed routes. The upper stream crosses the Roubideau Mesa Trail. It therefore qualifies for wild classification either for its full length or for the portion downstream of the trail.
- ORVs: Botany, fisheries.
    - Botany. The national forest corridor traverses montane riparian forest and cottonwood riparian forest, and it hosts Grand Mesa penstemon (state impaired) and tiger beardtongue (globally impaired). It also falls within *the Colorado Natural Heritage*

(CNHP) Roubideau Creek Potential Conservation Area (B2, very high biodiversity significance). Furthermore, the stream corridor includes areas of narrowleaf cottonwood/strapleaf willow-silver buffaloberry riparian forest (*Populus angustifolia/Salix ligulfolia/Sheperdia argentea*), classified as critically imperiled globally (G1).

- Fisheries. The BLM determined that Potter Creek contains viable populations of bluehead sucker and flannelmouth sucker, adding the outstandingly remarkable value fish.
- Additional information: Immediately downstream of the GMUG portion of Potter Creek, the BLM Uncompahgre Field Office (UFO) has determined its portion of Potter Creek is wild & scenic eligible, with wild classification; BLM found it to be wild & scenic suitable in the BLM final suitability report (and included in the preferred alternative for the proposed UFO Resource Management Plan).

➢ Recommendation: Potter Creek should be found eligible with outstandingly remarkable values for botany and fish, consistent with and complementary to eligibility finding, and pending suitability finding, by the BLM.

c. Cottonwood Creek

- Length: Approximately 8 miles from source to national forest/BLM boundary
- Classification: Recreational. The national forest portion of Cottonwood Creek includes no impoundments or structures. The segment crosses FSR 504, and an unpaved road parallels approximately three miles of the stream's upper reach. It therefore qualifies for recreational classification.
- ORVs: Botany.
  - Botany. The stream corridor supports a superior (A-ranked) occurrence of globally vulnerable (G3) narrowleaf cottonwood/skunkbush sumac riparian woodland (Populus angustifolia/Rhus trilobata).
  - The CNHP includes this segment within the Cottonwood Creek Potential Conservation Area.
- Additional information: Immediately downstream of the GMUG portion of Cottonwood Creek, the BLM Uncompahgre Field Office (UFO) has determined its portion of Cottonwood Creek is wild & scenic eligible, with scenic classification. BLM found it to be wild & scenic suitable in the BLM Dominguez-Escalante National Conservation Area Resource Management Plan.

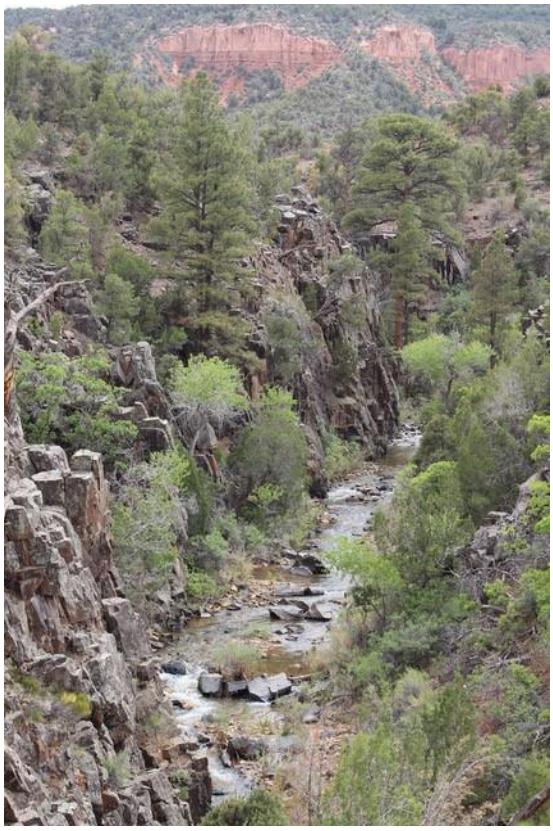
➢ Recommendation: Cottonwood Creek should be found eligible with outstandingly remarkable values for botany, consistent with and complementary to eligibility finding by the BLM.

d. Beaver Creek

- Length: Approximately 2 miles, from confluence with McCulloch Creek to national forest/BLM boundary
- Classification: Wild. The national forest portion of Beaver Creek includes no impoundments, structures, or constructed routes. The national forest portion therefore qualifies for wild classification (or at least scenic to correspond with downstream BLM classification).
- ORV: Botany. The stream corridor supports a superior (A-ranked) occurrence of globally vulnerable (G3) narrowleaf cottonwood/blue spruce/thinleaf alder riparian forest (*Populus angustifolia/Picea pungens/Alnus tenuifolia*).The corridor includes CNHP element occurrence Geyer's willow-Rocky Mountain willow/mesic forb high precision public land L1 and CNHP conservation areas L4 higher biodiversity significance.
- Additional information: Immediately downstream of the GMUG portion of Beaver Creek, the BLM Uncompahgre Field Office (UFO) has determined its portion of Beaver Creek is wild & scenic eligible, with scenic classification; BLM found it to be wild & scenic suitable in the BLM final suitability report (and included in the preferred alternative for the proposed UFO Resource Management Plan).

➢ Recommendation: Beaver Creek should be found eligible for an outstandingly remarkable value of botany, consistent with and complementary to eligibility finding, and pending suitability finding, by the BLM.

e. Horsefly Creek



- Length: Approximately 17.8 miles, from source to national forest boundary (or approximately 12 miles, from national forest/private land boundary to national forest boundary.
- Classification: Wild. The national forest portion of Horsefly Creek includes no impoundments, structures, or constructed routes. The lower reach crosses a low-maintenance trail. It therefore qualifies for wild classification or, at least, wild above the trail crossing, scenic below the crossing.
- ORVs: Fisheries, wildlife, botany.
    - Fisheries. The creek corridor contains *Colorado Natural Heritage Program* (CNHP) element occurrence Colorado River cutthroat trout high precision public land L1 and *Colorado Oil and Gas Conservation Commission* (COGCC) aquatic designated cutthroat trout habitat, warranting ORV fish/rare species.
    - Wildlife. The stream corridor includes the U.S. Fish and Wildlife Service (FSW)-identified Gunnison sage-grouse critical habitat vacant; CNHP element occurrence Lewis's woodpecker low precision public land L1; along with Colorado Parks and Wildlife (CPW)-identified bald eagle winter range; CPW bear fall concentration; CPW elk severe winter range, winter concentration area, migration patterns, and production area; CPW mule deer severe winter range; and CPW bald eagle roost sites winter forage, winter night roost sites, all warranting ORV wildlife.
    - Botany. The corridor also contains CNHP element occurrence montane riparian forest high precision public land L1.

- Horsefly Creek should be recognized for fisheries, wildlife, and botany ORVs and found as eligible for wild and scenic status.

f. Upper Brush Creek and West Brush Creek tributary

- Length: The proposed segment for eligibility is the entire West Brush Creek tributary and the upper portion of the main stem of Brush Creek. The West Brush Creek segment begins at the headwaters and extends down to the confluence with Middle Brush Creek. The Brush Creek segment begins at the start of Brush Creek (the confluence of West and Middle Brush creek) and ends where Brush Creek first leaves USFS lands.
- Classification: Scenic. West Brush Creek is only accessible by trails and primitive 4x4 roads. West Brush Creek is entirely free-flowing with no diversions or impoundments. The segment of Brush Creek that is recommended has no diversions or impoundments.
- ORVs: Wildlife/habitat.
    - Wildlife/Habitat. West Brush Creek and Upper Brush Creek provides important habitat for a rare and ecologically crucial boreal toad population that is dependent on the West Brush Creek and Brush Creek aquatic and riparian natural environment. USFS Region 2 classifies the boreal toad as a sensitive species and the boreal toad is presently listed as an endangered species by the State of Colorado. The Boreal Toad has also been found by the Colorado Natural Heritage Program (CNHP) to be "critically imperiled" at the state level. *Rare breeding populations of boreal toads are found along West Brush Creek and Brush Creek proper***.** The Forest Service notes in the definition of wildlife ORVs that boreal toads qualify, especially breeding populations. These populations on Brush Creek

and the West Brush Creek tributary qualify these reaches for wild and scenic eligibility status.

g. Cement Creek

- Length: The proposed reach extends from the Cement Creek Trail trailhead to below the Cement Creek Ranch where the creek drops steeply into a narrow canyon.
- Classification: Recreational. There is a road paralleling the Cement Creek riparian area. Although there are a few small diversions on this segment, it operates as free-flowing.
- ORVs: Botany/wetland.
    - Botany/wetland. As noted in the Forest Service Handbook Chapter 80 on Wild & Scenic,[779] the definition of an eligible river is one that "is free-flowing and, *in combination with its adjacent land* area, possess one or more outstandingly remarkable values."[780]
    - There is an incredibly unique extreme rich fen along Cement Creek.[781] In 2004, the Colorado Natural Heritage Program at Colorado State University recommended to the Colorado Department of Natural Resources that the Cement Creek extreme rich fen is a

[779] FSH, National Headquarters. Land Management Planning Handbook Chapter 80, Version 02/14/2013. FS 1909.12. Available online at http://www.fs.usda.gov/goto/planningrule/directives.

[780] Id., at 80.5 Definitions. [emphasis added]

[781] The Cement Creek fen is the "first documented occurrence of an extreme rich fen outside of South Park in Colorado."

Potential Conservation Area (PCA). The assessment ranked the Cement Creek PCA as having "very high biodiversity significance" and noted that "[t]his PCA supports a *globally imperiled* (G2) extreme rich fen plant community and numerous state rare plants." In contrast to the wide distribution of intermediate and rich fens, extreme rich fens appear restricted to a small area in Colorado, primarily the west and north portions of South Park and Cement Creek. On a global basis extreme rich fens also appear to be quite uncommon. Only three other small locations of extreme rich fens are known in the Western United States.[782] Not only is the water chemistry unique, but it hosts rare plant communities that include a rare green sedge and an extreme rich fen plant community of Pacific bog sedge and alpine meadow rue along with rare plants such as Rolland's bulrush and variegated scouring rush. These rare plants and rich fen pockets dot the floodplain in various locations in the Cement Creek riparian area. Patches of fen are surrounded by willow and sedge wet meadows.[783] This incredibly unique, globally imperiled fen should qualify Cement Creek for water chemistry and botanical ORVs.

- Additional Information: Sampling of Cement Creek by Colorado Parks and Wildlife in 2005 and 1973 identified a Colorado River Cutthroat population in the creek.

Cement Creek (below the fen)

h. Curecanti Creek

[782] Extreme rich fens appear restricted to a small area in Colorado, primarily the west and north portions of South Park (Cooper 1996) and the new location at Cement Creek. *Even on a global basis extreme rich fens appear to be quite uncommon*. Only three other small locations of extreme rich fens exist in the Western U.S.: in northwestern Montana (Lesica 1986), in California at Convict Creek Basin (Major and Taylor 1977), and in northwestern Wyoming (Fertig and Jones 1992) (italics added). Joe Rocchio, Georgia Doyle, and Renée Rondeau. *Survey of Critical Wetlands and Riparian Areas in Gunnison County*. Colorado Natural Heritage Program. Colorado State University. November 17, 2004. Available at: http://www.cnhp.colostate.edu/download/documents/2004/Gunnison_County_Wetlands.pdf.

[783] Joe Rocchio, Georgia Doyle, and Renée Rondeau. *Survey of Critical Wetlands and Riparian Areas in Gunnison County*. Colorado Natural Heritage Program. Colorado State University. November 17, 2004. Available at: http://www.cnhp.colostate.edu/download/documents/2004/Gunnison_County_Wetlands.pdf.

- Length: Headwaters to the national forest boundary.
- Classification: Scenic. The upper portion of Curecanti Creek parallels County Road 720 for a short section and then diverges; it is only accessible on foot thereafter. This reach of Curecanti Creek is free-flowing, with no diversions or impoundments.
- ORVs: Fishery.
    - Fishery. The National Park Service (NPS) has identified two creeks as "eligible" that extend onto USFS lands and were not included as eligible in the Draft Eligibility Evaluation: Curecanti Creek and Coal Creek (both terminating at Blue Mesa Reservoir). These creeks retain some of the same unique qualities upstream as identified in the NPS assessment. However, the wild and scenic review notes provided by the Forest Planning Team and prior efforts show no evidence for why the Curecanti fishery was not considered valuable upstream of the segment identified by the NPS. The WSR Review Notes merely reference 2005 working maps and Comprehensive Assessment Appendix W-2 and explain that "District review verified no ORVs, not eligible" but without providing further justification for this finding.
- The NPS has agreed that Curecanti Creek should be eligible for wild and scenic eligibility in their assessment of the Curecanti National Recreation Area. One of the ORVs that makes this creek "eligible" in the NPS analysis extends onto USFS lands. In the NPS analysis, the NPS identified the downstream segment of Curecanti for its fishery, as well as for its scenic values. Although the scenic values identified in the NPS report are primarily located on the lower segment of the creek, the upper portion shares the same fishery and fishing characteristics identified in the NPS analysis.

➢ Recommendation: We strongly encourage the Forest Planning Team to re-examine Curecanti Creek for wild and scenic eligibility based on the fishery values that extend upstream of NPS boundaries.

i. Coal Creek

- Length: Headwaters to the USFS boundary (terminus in the Curecanti National Recreational Area).
- Classification: Wild. The headwaters of Coal Creek are in the remote West Elk Wilderness area and only accessible by hiking trails.
- ORVs: Fish, wildlife. Like Curecanti Creek, Coal Creek should be assessed upstream in the West Elk Wilderness for scenic, fish and wildlife values. The WSR Review Notes simply state that "Nationwide Rivers Inventory portion within Curecanti NRA, NPS confirmed no record of being considered eligible, GMUG portion no ORVs identified." However, it is unclear from the review notes provided by the NPS whether the upstream GMUG portion of these reaches was assessed for any ORVs. Given that the lower segment of Coal Creek was found eligible by NPS for scenic, wildlife, and fishery ORVs, the upper portion of the creek should be assessed for similar values.

- Given that the lower segment of Coal Creek was found eligible by NPS for Scenic, Wildlife, and Fishery ORVs, the upper portion of the creek should be assessed for similar values. Particularly when values include fishery and wildlife on the lower portion of the reach, these values may extend upstream out of NRA boundaries.

➢ Recommendation: We strongly encourage the Forest Planning Team to re-examine Coal Creek for wild and scenic eligibility based on the fishery values that extend upstream of NPS boundaries.

j. Lamphier Lake

- Classification: Wild. Lamphier Lake is only accessible by foot or on horseback and is a natural lake that has not been augmented.
- ORVs: Geologic, fishery, recreation.
    - Geologic. Like many other lakes in Colorado, Lamphier Lake is a glacial tarn surrounded by a bowl of granite and schist. What makes this high alpine lake unique is that this substrate is capped by a layer of unusual limestone, a geologic feature that contributed to the creation of the adjacent Fossil Ridge Wilderness area. This sedimentary overburden is rich in fossils; this unique layer gives the Fossil Ridge Wilderness its name. As shown in the included photograph, this unique layer is immediately above the lake in the corridor area.
    - Fishery. Lamphier Lake is home to a Colorado Cutthroat trout fishery. As noted in our general recommendations, the rarity of Cutthroat across the historic range and need to provide special protections.
    - Recreation: Lake fishing. In addition to displaying unique geologic features, Lamphier Lake also offers extraordinary fishing. Included here is one recreationalist's experience hiking and fishing Lamphier Lake and the adjacent peak. The first half of the video shows multiple photos of the lake, geographic features from afar, and pictures of healthy cutthroat cruising the lakeshore (https://www.youtube.com/watch?v=iQE4YEzqIjY).

Lamphier Lake

- Recommendation: Lamphier Lake should be identified as eligible for its fishery, recreational and geological ORVs.

k. Big Blue Creek and Slide Lake

- Length: Headwaters to the national forest boundary.
- Classification: Wild. This portion of Big Blue Creek and Slide Lake are only accessible by hiking trail. Big Blue Creek is free-flowing. Slide Lake was created by a natural geologic feature and is unaltered.
- ORVs: Recreation, geology.
    - Recreation. Big Blue Creek offers excellent recreational fishing and hiking opportunities. The Big Blue Trail (232) extends along the creek. Slide Lake offers excellent recreational fishing for book and rainbow trout and exceptional hiking.
    - Geology. There is a natural lake that formed mid-creek after a rock slide tore across the creek in the 1940s. Slide Lake is a unique geologic feature; it is a natural lake that was not created by the same means as others in the area. While most GMUG lakes were carved out glacially, Slide Lake was created by a rockslide.

Upper Big Blue Creek

Big Blue Creek

- Recommendation: Big Blue Creek and Slide Lake should be identified as eligible for its fishery, recreational and geological ORVs.

l. Dry Fork of the Escalante

- Reach: Segment of Dry Fork of Escalante Creek that extends through the Blue Spruce Research Natural Area.
- Classification: Scenic.
- ORVs: Botany, scientific research.
    - Botany/scientific research. The Dry Fork of the Escalante is a Research Natural Area (RNA) as designated by the USFS. The USFS defines RNAs as "permanently established to maintain areas of natural ecosystems and areas of special ecological significance." The USFS identifies RNAs as serving three important functions, including to serve as ecosystem benchmark areas, for research into how ecosystems function, and to protect biological diversity. The Dry Fork RNA was established in 1981 as 61 acres along the Dry Fork of Escalante Creek to protect the surrounding blue spruce (*picea pungens*) that "exists in narrow stringers along the stream bottom and northwest slopes."

- Recommendation: The Dry Fork of the Escalante should be recognized as eligible for wild and scenic for its outstandingly remarkable values of botany and scientific research.

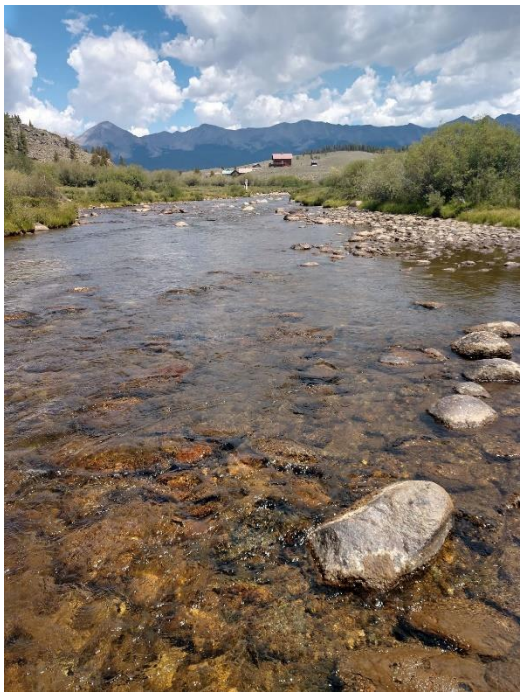
m. Uncompahgre River

- Length: Uncompahgre Gorge from Red Mountain Creek to Ouray Ice Park.
- Classification: Scenic. There is a small diversion at the end of this segment in the Ouray Ice Park (Ice Box Canyon; however, the segment itself is free of diversions and impoundments and is free-flowing.
- ORVs: Recreation, scenery, geology.
    - Recreation. We agree with the ORVs identified by the District Review, including recreation, scenery, and geology. We expand on the Recreation ORV below. From Red Mountain Creek to the Ouray Ice Park, the Uncompahgre Gorge offers challenging Class IV-V whitewater in an incredibly scenic gorge. This is the most challenging section of the Uncompahgre River, as well as the most remote.
    - Geology. The canyon walls within the Uncompahgre Gorge are among the tightest in Colorado.

- Recommendation: Additional detail for recreational and geologic ORVs should be included in the description of the Uncompahgre River Gorge segment.

n. Upper Taylor River above the Taylor Reservoir

- Length: The headwaters of the Taylor River to the national forest boundary near Illinois Creek.
- Classification: Recreational. The Upper Taylor River is free of impoundments and manmade structures, however the river is paralleled by an unpaved road (NF-742) and should be classified as recreational.
- ORVs: Recreation, scenery.
    - Recreation. A high mountain gem, the Upper Taylor River offers unique paddling and fishing opportunities. The river is incredibly scenic, with continuous beginner-intermediate whitewater. The GMUG does not offer many beginner and intermediate paddling runs, making this stretch a unique attraction for rafters, family floating trips, and kayakers alike. In addition, this stretch is very popular for fly fishing opportunities and scenery.
    - Scenery. The Upper Taylor is in an alpine meadow setting with incredible views of the surrounding peaks. This view is much unlike other river corridors in the region, which are commonly in canyons and densely forested.



➢ Recommendation: The Upper Taylor River below the reservoir should be found eligible for wild and scenic due to its outstanding recreation and scenery ORVs.

o. Ruby Creek (tributary to Anthracite Creek)

- Classification: Wild. Ruby Creek is free of impoundments and diversions. It is only accessed via a three-mile hike on the Dark Canyon Trail (TH 836) and there are no established roads in the vicinity. There is a low-impact foot trail that follows the river from the Ruby confluence to the takeout.

- ORVs: Recreation, scenery.
    - Recreation. Ruby Fork of Anthracite Creek offers a very unique, mandatory hike-in paddling experience. Paddlers hike their crafts (e.g., kayaks, packrafts, canoes) three miles along the Dark Canyon Trail to Ruby Fork of Anthracite Creek. After the creek flows have dropped in summer, fishermen hike out into the Dark Canyon for incredible fly-fishing opportunities. Ruby Fork has been recognized in paddling guidebooks since 1995 and described as wilderness in character with incredible scenery.
    - Scenery. Anthracite Creek offers jaw dropping views of Marcellina Mountain that are unique to the river corridor. As the hiking trail connects with Ruby Fork, you are surrounded by lupine, bluebells, and towering Aspens. Once on the water, Marcellina is viewed on the left and sheer cliff walls close you in on the right. At the confluence with the mainstem of Anthracite Creek, the views only get more impressive as the creek abuts against the dark, towering walls of Marcellina.

➢ Recommendation: Ruby Creek's ORVs are similar to those possessed by Anthracite Creek. THe Forest Service should re-evaluate Ruby Creek and include eligibility recognition for Ruby Creek with the Anthracite description.

VIII. MONITORING

Under the Planning rule:

> Each plan monitoring program must contain one or more monitoring questions and associated indicators addressing each of the following: …
> (iii) The status of focal species to assess the ecological conditions required under § 219.9.[784]

Focal species are defined as follows:

> A small subset of species whose status permits inference to the integrity of the larger ecological system to which it belongs and provides meaningful information regarding the effectiveness of the plan in maintaining or restoring the ecological conditions to maintain the diversity of plant and animal communities in the plan area. Focal species would be commonly selected on the basis of their functional role in ecosystems.[785]

The GMUG has selected only northern goshawk, sagebrush, and beaver as focal species, plus possibly unspecified "select populations of at-risk plant species".[786] This is inadequate. Species that should be considered to be focal species include: snowshoe hare, purple martin (aspen), marten (late successional forest), and green lineage cutthroat trout. Woodpeckers are indicators for a range of ecosystem conditions, especially snag densities, sizes, decay rates.[787]

In Table 22 on p. 107, the entry in the adaptive management actions in the second row says "white pine beetle rust". We assume this should be "white pine blister rust".

Table 22, p. 108, monitoring range condition: there should be more detail on how range condition would be monitored. It should be reported more often than every 10 years, as range condition can change considerably in that time.

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[784] 36 CFR 219.12(a)(5).

[785] Planning Rule at 219.19.

[786] Draft Plan Table 26, pp. 110 et seq.

[787] Hilty, J., and A. Merenlender. 2000. Faunal indicator taxa selection for monitoring ecosystem health. Biological conservation 92(2): 185-197; Haggard, M. and Gaines, W.L., 2001. Effects of stand-replacement fire and salvage logging on a cavity-nesting bird community in eastern Cascades, Washington; Bate, L. J. (2008). *SnagPRO: snag and tree sampling and analysis methods for wildlife* (Vol. 780). US Department of Agriculture, Forest Service, Pacific Northwest Research Station; Nappi, A., Drapeau, P., & Leduc, A. (2015). How important is dead wood for woodpeckers foraging in eastern North American boreal forests?. *Forest Ecology and Management*, *346*, 10-21.

Table 23, p. 118, soil quality monitoring: there is no entry here for adaptive management actions. If monitoring shows more detrimental soil condition, implementation of at least the timber and range programs in affected areas may need to be modified.

Table 24, pp. 109-110: most of the entries here have no adaptive management actions. Such actions should be identified, as watershed/aquatic/riparian are very important resources on the GMUG.

Table 26, p. 111, monitoring threats to "target" species (green lineage cutthroat trout and boreal toad) in conservation watershed networks: are the "target" species focal species? They should be.

The adaptive management action for this monitoring item is: "Once threats are identified, 'Within 10 years of plan approval, complete two activities to address these threats'." If threats are identified, they should be addressed immediately. During the 10 years allowed under this adaptive management action, any threats could get considerably worse, and the species' continued existence in any given watershed could be imperiled. Threats should be reported far more frequently than once every six years.

Table 26, p. 113: the monitoring indicators for northern goshawk are: "seasonal habitat ranges, species production areas, species seasonal concentration areas". These indicators are appropriate for monitoring big game. Indeed, they are identical to the entry above in the Table, which is for elk, mule deer, and bighorn sheep. Monitoring for goshawk would more appropriately focus on forest structure.

Table 26, p. 114: for monitoring "select populations of at-risk plant species", the monitoring plan should specify which species would be monitored or what criteria would be used to select one or more species for population monitoring.

Many items in Table 26 have no adaptive management actions listed. Such actions should be stated for what might be done if a downward trend is found for the species monitored.

There needs to be monitoring of range condition, especially for portions of allotments in poor condition or fair condition with a downward trend, as is discussed in the Rangelands and Livestock Grazing section of these comments.

IX. DISTURBANCE REGIMES

DEIS Appendix 2 states the assumptions used in the models for natural disturbance intervals. Many show disturbances advancing the seral stage, and are thus wrong.

In cool-moist mixed conifer, the disturbance interval for a replacement fire moving this vegetation type from stage D (late seral) to stage A (early seral) is said to be 120 years, but a replacement fire interval taking this vegetation from stage B (early-mid seral) to A is said to be 180 years, and from stage C (late-mid seral) to A is 220 years.[788]

A replacement fire in stage D that set the seral stage back to A would clearly be less frequent than fires in stages B or C moving the vegetation to stage A. Many cool-moist mixed conifer stands probably don't even get to stage D. Those that do would likely be in shaded areas, i.e., on north- or east-facing slopes, where they would not receive surface fires and could accumulate fuel to the level necessary for stand replacement fires.

The analysis states a disturbance interval for "Insects/Pathogens Replacement" of 300 years in cool-moist mixed conifer.[789] However, as the DEIS states, "[b]ecause of their mixed composition, these stands are unlikely to experience insect outbreaks."[790] With different tree species, no one insect or other pathogen is likely to affect a high percentage of the trees in any cool-moist mixed conifer stand to the point of replacing a stand.

DEIS Appendix 2 Table 22[791] shows a "mosaic fire" changing a spruce fir stand from stage C to D every 175 years, and one changing stage B to C every 250 years. Seral stages advance only with age; thus it is hard to imagine how any natural disturbance would advance a seral stage in any vegetation type. Low-intensity fires in spruce-fir are uncommon, and any such fire in this vegetation type would burn vegetation components, such as snags, down dead logs, and young trees, that would be part of a later seral stage. Thus, such fires would, if anything, set the seral stage back, not advance it, and the same would likely be the case for other natural disturbances.

There are assumptions in other types showing a natural disturbance advancing the seral stage. Table 25[792] shows, for aspen: surface fire every 160 years and "pathogen open" disturbance every 40 years moving stage B to C, and another pathogen open disturbance moving stands from stage C to D. There

[788] DEIS Appendix 2 at 65-66.

[789] Ibid.

[790] Id., at 80.

[791] At 59.

[792] At 60-61.

are similar assumptions for spruce-fir/aspen (Table 28) lodgepole pine (Table 31); ponderosa pine (Table 40); and warm-dry mixed conifer (Table 46).

It is not clear how these assumptions affect the development of plan components or future management,[793] but the assumptions appear clearly wrong. These assumptions must be revised.

[793] The DEIS at Appendix 2, page 59 states: "Landscape dynamics models such as ST-Sim provide useful information for understanding vegetation change over time, management effects, and the relative differences between alternatives."

X. CONCLUSION

While in several areas these comments are critical of the Draft Plan, we are confident the Forest Service understands that this is only because the signers of this letter love this region and the special places within this landscape. Most of us are local residents who belong to the communities in and around the GMUG national forest complex. And many of our organizations' members live among these public lands; some make their living off these lands. We benefit from the ecosystem services the GMUG provides—clean water, recreation, biodiversity, opportunities to fish and hunt, natural resources, and beauty that allow us to lead healthy and adventurous lives. Some of us work for organizations that have members across the country who also have a stake in how their federal lands are managed. We take our responsibilities to represent all their interests in protecting the unique wildlands, waters, and wildlife seriously.

We appreciate our fortune to live in a country where we are able to participate in decision-making opportunities about the nation's federal public lands. We value that laws such as NEPA and NFMA have helped democratize land management planning to reflect the larger aspirations of this nation. Yet, we recognize that not all stakeholders have equal access to these processes and are committed to advancing the inclusion of those who have been left out. We know the Forest Service is increasing its commitment to this goal as well.

What does the Grand Mesa, Uncompahgre and Gunnison National Forest offer to its many neighbors and guests—past, present, and future? Spectacular scenery, solitude and tranquility, abundant wildlife, towering spruce forests. Each visitor experiences the forest in a different way: walking underneath a green canopy, paddling on a quiet lake, hearing the call of distant birds, snowshoeing on a blanket of snow, or motoring along a back-country trail. Each has its appeal. Each satisfies an urge to experience nature in a personal way. The forest is more than a collection of trees and meadows and lakes and streams. It is a place to experience wonder and joy, a place to rejuvenate, a place where memories are made to hold close to our hearts and to share with generations to come.

APPENDIX

Problems with the Species of Conservation Concern Selection Process

In accordance with the 2012 planning rule that governs national forest and grassland management planning, the Regional Forester must identify species of conservation concern (SCC). These are species that occur in the plan area of which the "best available scientific information indicates substantial concern about the species' capability to persist over the long-term in the plan area."[794] The Forest Service's planning directives provide guidance for selecting SCC.[795] The Responsible Official, in this case the Regional Forester, has some discretion over plan decisionmaking. However, determinations about which species to include as SCC cannot be arbitrary.

We contend the Regional Forester has not identified SCC for the GMUG in compliance with Forest Service regulations and policy. Particularly, we believe misinterpretations of the planning rule and directives have resulted in the exclusion from the current SCC list of several imperiled species that warrant SCC designation. In several ways, these misinterpretations of policy that set the framework for the SCC identification process defy established best available scientific principles of wildlife ecology and conservation biology. We see five primary problems with how SCC were identified for the GMUG:

1. Misinterpreting how to apply the planning directives, resulting in an inappropriately high bar for making determinations;
2. Not sufficiently considering species that fall into one or more categories under Section 12.52d(3) of the planning directives, including species identified by the State of Colorado as high priorities for conservation;
3. Making arbitrary determinations based anecdotal information, incorrect information, undefined concepts, and/or the inappropriate use of scientific concepts;
4. Failing to use and document the best available scientific information in determinations; and
5. Overly Restrictive Interpretation of Occurrence in the Plan Area.

For these reasons, we see no alternative but the Regional Forester correcting errors in the SCC selection procedure for the GMUG. Many of the species rejected from SCC designation under the Region 2 process would likely meet the appropriate thresholds for inclusion if the criteria had been used appropriately. We discuss these issues in the following sections.

[794] 36 CFR 219.9(c).

[795] In this case the "directives" are found in the Forest Service's Land Management Planning Handbook: FSH 1909.12, Ch. 10, 12.52.

1. Misinterpretations of the Planning Directives

Appendix 9 of the Draft Plan, the "Regional Forester's List of Species of Conservation Concern," explains how SCC were identified also provides descriptions about why some species were selected and other potential SCC candidates were not selected. It is clear from this explanation that the Regional Forester has misinterpreted the planning directives in at least two ways. We describe these problems in the next two subsections.

A. Misreading of Procedural Steps

Appendix 9 describes how the Forest Service used the directives to make determinations about whether there is substantial concern about a particular species' ability to persist in the plan area and states,

> Chapter 10 of the Planning Handbook outlines two different ways that substantial concern can be determined. The first (at FSH 1909.12.52d.2.a) directs that species with NatureServe rankings of globally critically imperiled (G/T 1) or globally imperiled (G/T 2) are expected to be species of conservation concern unless there is evidence that the known threats do not operate in the planning unit. The second (at FSH 1909.12.52d.3.f) applies four indicators of substantial concern for NatureServe categories other than G/T 1 or 2.[796]

This statement is wrong in at least three significant ways and demonstrates the Regional Forester has misread the planning directives or applied them inappropriately. The Forest Service is violating SCC identification policy and has excluded species from the "SCC list" that warrant inclusion.

First, the handbook does not offer "two different ways that substantial concern can be determined," as the Forest Service has interpreted. The misinterpretation here is that the Forest Service cannot pick either "Way #1" or "Way #2" to make SCC determinations.

The directives lay out a series of steps take to make a decision about each species that may qualify. What the Forest Service is labeling as "Way #1" above is actually part of "Step #2." The Step #1 decision criteria are:

> 1. When identifying potential species of conservation concern, the Responsible Official shall consider only species native to, and known to occur in, the plan area.[797]

[796] Draft Plan, Appendix 9 at 237.

[797] FSH 1909.12, ch. 10, 12.52.d(1).

If a species is not native to and known to occur in the plan area, that species is out of SCC consideration, and the Regional Forester should move on to another potential SCC candidate and go through Step #1 again. If a species meets the criteria in Step #1, they move on to Step #2, which has two parts:

> 2. Species in the following categories must be considered:[798]
>
> > a. Species with status ranks of G/T1 or G/T2 on the NatureServe ranking system. See exhibit 01[799] for description of NatureServe Conservation Status Ranks.
> > *Note:* Species with NatureServe G/T1 or G/T2 status ranks are expected to be included unless it can be demonstrated and documented that known threats for these species, such as those threats listed for the species by NatureServe, are not currently present or relevant in the plan area.
> >
> > b. Species that were removed within the past 5 years from the Federal list of threatened or endangered species, and other delisted species that the regulatory agency still monitors.

If a species meets either criterion, that species should be identified as an SCC. However, if a species does not meet either of the Step #2 criteria, the Regional Forester should go to Step #3.

And second, the Regional Forester inappropriately modified Step #3 and labeled this modification Way #2 in Appendix 9: "[t]he second [way to determine substantial concern] applies four indicators of substantial concern for NatureServe categories other than G/T 1 or 2." In actuality, for Step #3, the handbook lists six categories that "should be considered" when deciding whether a species should be identified as an SCC. These six categories are:

> a. Species with status ranks of G/T3 or S1 or S2 on the NatureServe ranking system. See exhibit 01[800] for description of NatureServe Conservation Status Ranks.
>
> b. Species listed as threatened or endangered by relevant States, federally recognized Tribes, or Alaska Native Corporations.

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[798] FSH 1909.12, ch. 10, 12.52.d(2).

[799] Exhibit 01 is a table in FSH 1909.12, ch. 10, 12.52.d that lays out the NatureServe criteria used to make SCC determinations. NatureServe status ranks included in Step #2 mean the following. A species with a status rank of G1 or T1 ("T" indicates a subspecies) is "Critically Imperiled"—"at a very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors." A species with a status rank of G2 or T3 is "Imperiled,"—"at high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors." The directives cite these definitions to the NatureServe website: *http://www.natureserve.org/explorer/ranking.htm.*

[800] From the Exhibit 01 table in FSH 1909.12, ch. 10, 12.52.d. The NatureServe criteria used in Step #3: A species with a status rank of G/T3 or S1 or S2 ("S" indicates a U.S. state) is "Vulnerable"—"At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors."

c. Species identified by Federal, State, federally recognized Tribes, or Alaska Native Corporations as a high priority for conservation.

d. Species identified as species of conservation concern in adjoining National Forest System plan areas (including plan areas across regional boundaries).

e. Species that have been petitioned for Federal listing and for which a positive "90-day finding" has been made.

f. Species for which the best available scientific information indicates there is local conservation concern about the species' capability to persist over the long-term in the plan area due to:

(1) Significant threats, caused by stressors on and off the plan area, to populations or the ecological conditions they depend upon (habitat). These threats include climate change.

(2) Declining trends in populations or habitat in the plan area.

(3) Restricted ranges (with corresponding narrow endemics, disjunct populations, or species at the edge of their range).

(4) Low population numbers or restricted ecological conditions (habitat) within the plan area.

As noted above, the directives state that these six different categories, which could apply to a species, "should be considered" by the Regional Forester to identify SCC.[801] For the purposes of land management planning according to the directives, the definition of "should" does not mean "optional" but means,

> Action is mandatory, unless a justifiable reason exists for not taking action. Employees must fully consider, but may depart from based on a written finding as applied to specific circumstances that the deviation will enhance program management efficiency or better achieve desired results or other objectives.[802]

Additionally, "should consider" means, " … a list of considerations is mandatory unless a justifiable reason exists for not taking action."[803] The directives are clear that the Regional Forester cannot simply choose some among the six categories to consider in making SCC determinations and ignore the others.

[801] FSH 1909.12, ch. 10, 52d(3)(a-f).

[802] FSH 1909.12, ch. Zero Code, 05.1, Exhibit 01.

[803] FSH 1909.12, ch. Zero Code, 05.1, Exhibit 01

Instead, leaving out any of the six categories requires a written rationale. In the case of identifying SCC for the GMUG, the Regional Forester apparently did not consider five (12.52d(3)(a-e)) of the six categories at all and provided no justification for the omission of these categories from consideration. We provide more detail about the exclusion of these five categories in the next section. Instead of complying with the directives, the Regional Forester considered only the indicators under category f.

B. Misapplying Indicators of Substantial Concern

As explained above, Step #3 required the Regional Forester assess each possible SCC to see which species belonged to which category or categories. Instead of complying with the directives, the Regional Forester considered only the indicators under category f. Again, these indicators include:

> (1) Significant threats, caused by stressors on and off the plan area, to populations or the ecological conditions they depend upon (habitat). These threats include climate change.
> (2) Declining trends in populations or habitat in the plan area.
> (3) Restricted ranges (with corresponding narrow endemics, disjunct populations, or species at the edge of their range).
> (4) Low population numbers or restricted ecological conditions (habitat) within the plan area.

Moreover, Appendix 9 specifies that species not ranked as G/T 1 or G/T 2 by NatureServe must meet all four indicators under category f:

> [A] species is considered to be a species of conservation concern if it is native and known to occur in the unit and is either:
>
> > 1. A G/T one or two species and there is no evidence that the known threats to that species do not operate in the planning unit, or
> > 2. Is not a G/T one or two species, but all four of the indicators of substantial concern occur for the species in the unit.[804]

Requiring a species to be considered at risk based on all four indicators represents a misapplication of the directives and sets the bar for designation as an SCC too high. The planning handbook does not direct the Forest Service to exclude species that do not meet all four indicators for category f. A species experiencing any one of the four category f conditions can be vulnerable to extinction in the plan area.

Under the U.S. Endangered Species Act (ESA), a species need only meet "**one** or more" of five factors to be listed as threatened or endangered. The listing factors include threats (factors 1-3), "inadequacy of

[804] Draft Plan, Appendix 9 at 237.

existing regulatory mechanisms" (factor 4), "**or**" "'[o]ther factors' affecting the species continued existence" (factor 5) [emphasis added].[805]

Similarly, to qualify for categorization as a "critically endangered," "endangered," or "vulnerable" species within the International Union for Conservation of Nature (IUCN) Red List, a species need meet just one of the five criteria below:

> A. Population size reduction (past, present and/or projected)
> B. Geographic range size, and fragmentation, few locations, decline or fluctuations
> C. Small and declining population size and fragmentation, fluctuations, or few subpopulations
> D. Very small population or very restricted distribution
> E. Quantitative analysis of extinction risk (e.g., Population Viability Analysis)[806]

The IUCN's 2019 *Guidelines for Using the IUCN Red List Categories and Criteria*, directs that,

> To list a particular taxon in any of the categories of threat, only one of the criteria, A, B, C, D, or E needs to be met. … Only the criteria for the highest category of threat that the taxon qualifies for should be listed. For example, if a taxon qualifies for criteria A, B, and C in the Vulnerable and Endangered category and only criterion A in the Critically Endangered category, then only the criterion A met in the Critically Endangered category should be listed (the highest category of threat).[807] [emphasis added]

The IUCN guidelines go on to explain, "[l]isting under the highest category of threat (instead of, for instance, averaging extinction risk across the five criteria) ensures a more precautionary approach to making urgent decisions based on limited information."[808]

NatureServe, in determining species status ranks, the institution is also inclusive in its application of criteria, using "or" vs "and" statements. A species ranked "critically Imperiled" is "at very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, **or** other factors." An "imperiled" species is "at high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, **or** other factors." And a "vulnerable" species is "at moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, **or** other factors." [emphasis added] It is illogical that the Region 2 SCC determination rules set a higher

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[805] 16 USC 1533(a)(1).

[806] IUCN Standards and Petitions Committee. (2019). Guidelines for Using the IUCN Red List Categories and Criteria. Version 14. Prepared by the Standards and Petitions Committee. Downloadable from http://www.iucnredlist.org/documents/RedListGuidelines.pdf. p. 17.

[807] IUCN Standards and Petitions Committee. (2019). Guidelines. p. 17.

[808] IUCN Standards and Petitions Committee. (2019). Guidelines. p. 17.

standard than the U.S. Fish and Wildlife Service for the ESA, the IUCN for the Red List, and NatureServe for its species status rankings. Indeed, the directives do not say that all four indicators under category 12.52d(3)(f) must apply to each candidate SCC species. Thus, meeting any one of the four indicators from category f[809] in the Forest Service planning directives should be sufficient for identifying a species as an SCC, and yet this is not how the Forest Service conducted its analysis.

Regarding indicator 1 of category f, a species experiencing a "significant threat" or threats to its population or habitat is, essentially by definition, a species for which there is substantial concern about its persistence. Below are a few examples of species the Regional Forester failed to identify as SCC, yet the justifications provided for excluding them as SCC show that they are experiencing significant threats that should have compelled their designation.[810] In several cases, the justifications for not identifying them as SCC read more like rationales for SCC designation.

In in its justification for rejecting the boreal owl as an SCC, the Forest Service states,

> Boreal owls are threatened by loss of nesting habitat and changes in prey base resulting from substantial beetle-killed spruce-fir habitat in the national forests. That same canopy loss represents a declining trend in habitat. The Gunnison Basin Climate Change Vulnerability Assessment indicates that this species is "highly vulnerable" to changes resulting from changes in temperature and precipitation regimes.[811]

The justification indicates that ecological conditions exist and will continue to exist in the plan area that may threaten the species' viability, which in turn indicates that the boreal owl should be an SCC.

The justification for not identifying the dwarf alpine hawksbeard states,

> Dwarf alpine hawksbeard is an alpine plant, and its habitat is rated as highly vulnerable to negative impacts from climate change. Threats to this species and its habitat from climate change indicate substantial concern for the long-term persistence of this species.

Given the last sentence, we ask whether the Regional Forester mistakenly excluded dwarf alpine hawksbeard from SCC designation. Note that part of the Planning Rule's definition for SCC is a, "species…for which the regional forester has determined that the best available scientific information indicates substantial concern about the species' capability to persist over the long-term in the plan area."[812]

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[809] FSH 1909.12, ch. 10, 52d(3)(f).

[810] GMUG Draft Plan, Appendix 9, Table 53 at 252.

[811] All examples included come from the Draft Plan, Appendix 9, Table 53 at 252-267.

[812] 36 CFR 219.9(c); emphasis added.

The Forest Service must identify species as SCC if climate change is a significant threat, even if management action in the plan area may not improve conditions for the species. Appendix 9 identifies at least 33 additional species to which climate change is a significant threat, but the Regional Forester did not identify them as SCC. This oversight is inconsistent with the 2012 planning rule and corresponding directives.

In the case of the mountain bladder fern, the Regional Forester at once identified a threat (canopy loss from bark beetle tree mortality), but also states the species is experiencing no threats (emphasis added):

> Mountain bladder fern occurs on mossy, shaded, moist to wet rocks and cliffs within spruce-fir and spruce-fir aspen forest. In the GMUG, these forests are undergoing a major spruce beetle outbreak that has caused significant canopy loss across the plan area, which indicates a declining trend in habitat in the GMUG. This species is disjunct and known from only five occurrences. However, there are no known threats to this species in the GMUG.

Perhaps this is an editorial oversight, but it casts serious doubt on the veracity of the agency's entire SCC analysis.

In several cases, the justifications for excluding some imperiled species as SCC identify significant anthropogenic threats that could be managed and limited or eliminated by plan components, particularly standards. This is the case for the variegated scouring rush where the justification for not identifying it as an SCC explains:

> Variegated scouring rush is impacted by competition from invasive species in the GMUG, and is also at-risk due to impacts from herbicide spraying of invasive species, road construction, and ditch maintenance.

Similarly, the simple kobresia faces a set of threats of which some could be managed, as noted by the justification,

> Simple kobresia is a current regional forester sensitive species that is highly vulnerable to climate change and known from only two sites in the GMUG. One site is adjacent to a heavily travelled gravel road, and the second site shows noticeable effects of trampling by livestock and wild ungulates as well as tracks from illegal off-road vehicle use.

The plan could, for example, include a standard or guideline providing direction to deter vehicles and livestock from impacting the simple kobresia and other at-risk plants by fencing off areas with at-risk plants. According to the justifications in Table 53 of Appendix 9, at least eight imperiled species are threatened by vehicle use and five are threatened by livestock grazing, and yet the Forest Service has proposed no plan components, particularly standards, to address these threats. The Regional Forester

seems to have excluded at least 52 imperiled species with identified threats, in addition to those described above, that may be putting their persistence at risk in the plan area.

Regarding indicator 2 of category f, a declining population trend demonstrates a species is vulnerable to extinction. See the Forest Service's own document, *Applying the 2012 Planning Rule to Conserve Species: A Practitioner's Reference*, which states, "a primary factor indicating that persistence may be a concern is a long-term downward trend in population size. A consistently declining population is of concern even if current population size is large, … .[813] Based on the justification provided by Table 53 in Appendix 9, the western bumblebee is experiencing a population decline that demonstrates the species warrants inclusion as an SCC; the justification states,

> Western bumblebee is threatened by habitat alteration, direct mortality from parasites, and competition from domestic honeybees. This species has undergone a severe, rangewide population decline over the past decade, estimated at 40-90 percent (Cameron et al. 2011), but the trend in the GMUG is unknown. Observations and data from the GMUG suggest that numbers are low and the species is rare compared to other bumblebee species, occurring in only three valleys in the GMUG. The GMUG population is in the middle of the species' Rocky Mountain distribution.

The Regional Forester excluded from the SCC list species for which no population trend data are known to exist in the GMUG. Table 53 in Appendix 9 provides justifications for excluding 40 imperiled species that may warrant SCC designation for this reason, either in whole or in part. For example, Table 53 included the following justification for rejecting the liverwort *Jungermannia rubra* as an SCC,

> Jungermannia rubra is a G3G5 species that is known from only two locations (both iron fens) in the GMUG. One of these iron fens is subject to multiple risk factors, including being bisected by a busy four-wheel drive trail and a nearby closed road that may impact the hydrology of the fen. The GMUG population is disjunct. No trend data are available for this species in the GMUG.

There is no requirement that the Forest Service must observe a declining trend in the plan area to identify a species as an SCC. If a species has a declining trend in the plan area, that represents a condition that merits consideration for identifying a species as an SCC. But the inverse does not apply, and a species that is not known to have a declining population trend in the plan area does not mean it should be eliminated from consideration.

In the planning handbook at FSH 1909.12, ch. 10, 12.53, the directives provide a list of information the planning team "should consider" for assessing substantial concern about a species' ability to persist in

[813] Hayward, G. D., Flather, C. H., Rowland, M. M., Terney, R., Mellen-McLean, K., Malcolm, K. D., ... & Boyce, D. A. (2016). Applying the 2012 Planning Rule to conserve species: A practitioner's reference. *Unpublished paper. Washington, DC: US Department of Agriculture, Forest Service.* 78 p.at 72.

the plan area. The list includes, "[a]bundance (including historical and current trends)" but does not require that trend data come only from the plan area. The handbook states that one source of information could include "broad-scale assessments,"[814] which indicates population trend data can be applicable beyond trends confined to the plan area. Moreover, the Forest Service does not monitor population trends for every species. Even if a species had been designated a management indicator species or sensitive species, there is no certainty that population trend data exist for the species.

The Regional Forester has also misapplied the concept of "restricted range" in indicator 3 of category f. The directives clearly indicate that a species with a restricted range should be considered as SCC but does not conversely automatically exclude a species because it does not have a restricted range. Below are a few examples of species that have been excluded based on this criterion, yet they face threats and other conditions that likely warrant identification as SCC.

> Bluehead sucker is threatened by hybridization with non-native white sucker and water depletions due to developments, as well as drought and climate change. Population is trending downward, and it also has a restricted ecological condition in the GMUG. However, the species does not have a restricted range.
>
> Simple kobresia is a current regional forester sensitive species that is highly vulnerable to climate change and known from only two sites in the GMUG. One site is adjacent to a heavily travelled gravel road, and the second site shows noticeable effects of trampling by livestock and wild ungulates as well as tracks from illegal off-road vehicle use. No trend data are available for this species in the GMUG, and the population there does not represent a restricted range.
>
> Feathermoss is known from two occurrences with total known cover of about 5.3 square meters in the GMUG. One site where this species occurs is impacted by an earthen dam and ditch that has led to the loss of mosses across the site, and the site is subject to intense big game (deer and elk) and cattle use. The population in the GMUG does not represent a restricted range.

A species can have a large range and be distributed across an expansive area, but this can be equally problematic; for example, individuals of the species may have difficulty finding each other to mate because they are widely dispersed. The Regional Forester failed to identify 19 imperiled species in Table 53 as SCC due, in whole or in part, to their lack of a restricted range.

Additionally, a species meeting only indicator 4 of category f "low population numbers or restricted habitat within the plan area" should be sufficient for identification as an SCC. A small population size is, literally, a textbook indicator that a species is moving toward extinction.[815] Myers (1997) uses the

[814] FSH 1909.12, ch. 10, 12.53.

[815] See, for example, Primack, R.B. 1993. Essentials of Conservation Biology. Sinaur Associates, Inc. (especially chapter 11, "The Problems of Small Populations"); Meffee, G.K., and C.R. Carroll (eds). 1997. Principles of Conservation Biology, Second Edition. Sinaur Associates, Inc.

bighorn sheep (*Ovis canadensis*) as an example of a species with a small population size that is vulnerable to extinction, stating,

> Bighorn sheep, of North America, which probably numbered as many as 2 million before European settlers arrived, now total only 5000 or so, living in small, widely scattered populations. Due to a lifestyle that induces each herd to form a strong attachment to its traditional range, the species is not inclined to colonize new territory, not even former habitat. Because the bighorn sheep is an exceptionally conservative creature, it now seems predestined to remain rare. … [The bighorn sheep is] one of the examples of rarity that makes a species more vulnerable to extinction. Populations of the bighorn have been made very small by human activities, making the species more vulnerable to extinction due to small population size.[816]

While that population estimate from 1997 might be low, the Western Association of Wildlife Agencies (WAFWA) estimates bighorn populations are at 10% of historical numbers.[817] In addition, a species with a population that is not considered small is not a guarantee that the species will remain viable. For example, Pulliam and Dunning (1997) noted,

> It is generally agreed that species whose population has declined to just a few individuals are the most likely to go extinct in the immediate future. The history of human exploitation of plants and animals tells us, however, that common species, even abundant ones, can suffer huge population declines that threaten the species with extinction. The Passenger Pigeon (*Ectopistes migratorius*) was one of the most abundant birds in North America in the early 1800s. A century of overhunting and habitat destruction caused the bird to decline until the huge population suddenly crashed over the span of a few decades.[818]

For the GMUG SCC selection process, the Regional Forester seems to have eliminated species from consideration that indeed have small populations. Several plants were also eliminated from consideration. Below are excerpts from rationales to exclude species as SCC where the rationale indicates the species does or may have a small population [emphasis added]:

> Western bumblebee: Western bumblebee is threatened by habitat alteration, direct mortality from parasites, and competition from domestic honeybees. This species has undergone a severe, rangewide population decline over the past decade, estimated at 40-90 percent (Cameron et al. 2011), but the trend in the GMUG is unknown. Observations and data from the GMUG suggest that numbers are low and the species is rare compared to other bumblebee

[816] Myers, N. 1997. Global biodiversity loss II: losses and threats. Principles of Conservation Biology, Second Edition. Meffee, G.K., and C.R. Carroll (eds). Sinaur Associates, Inc. p. 143.

[817] Wild Sheep Working Group. (2012). Recommendations for Domestic Sheep and Goat Management in Wild Sheep Habitat. Western Association of Fish and Wildlife Agencies.

[818] Pulliam, H.R. and J.B. Dunning 1997, Demographic processes: population dynamics on heterogeneous landscapes. Meffee, G.K., and C.R. Carroll (eds). 1997. Principles of Conservation Biology, Second Edition. Sinaur Associates, Inc. p. 218.

> species, occurring in only three valleys in the GMUG. The GMUG population is in the middle of the species' Rocky Mountain distribution.
>
> Desert bighorn sheep: One herd has partial overlap on GMUG consisting of around 165 individuals in most years. Colorado Parks and Wildlife considers the population to be small.
>
> Utah fescue: Utah fescue is found on steep, loose clay shale slopes, and may be at risk due to ongoing soil movement of these slopes associated with wildlife movement as well as negative impacts from climate change. No trend data are available on this species or its habitat in the GMUG. The GMUG population is the southernmost occurrence of the species' distribution and is known from a single occurrence on GMUG.
>
> Green spleenwort: Green spleenwort was last observed in the GMUG in 1991 at a single location. Analysis of aerial imagery indicates that the spruce-fir cliff habitat where this species is found has already begun to be impacted by spruce beetle canopy loss.
>
> Narrow-leaf grapefern: Narrow-leaf grapefern is a G3 species known from two locations in the GMUG where it is disjunct from the main body of the species' distribution. There is a total counted population of 10 stems in the GMUG. One occurrence is adjacent to the Cottonwood Pass Road, but it is not known if it is being negatively impacted by ongoing road paving.
>
> Hamatocaulis moss: Hamatocaulis moss was last observed in the GMUG in 2017 in two locations. … Hamatocaulis moss is known from two fens in the GMUG. Both occurrences are small and represent a restricted ecological condition. One location (Middle Beaver Creek fen) is known to be impacted by livestock grazing as well as a drainage ditch and nearby road. … The population in the GMUG is the southernmost occurrence of the species.

The Regional Forester's rationales exclude at least 39 additional species that have a small population size, but given conservation concerns, should have been designated as SCC.

Third, Appendix 9's statement above is wrong about being able to exclude species for whom "known threats do not operate in the planning unit" [emphasis added]. The directives instead state,

> Species with NatureServe G/T1 or G/T2 status ranks are expected to be included unless it can be demonstrated and documented that known threats for these species, such as those threats listed for the species by NatureServe, are not currently present or relevant in the plan area.[819] [emphasis added]

[819] FSH 1909.12, ch. 10, 52d(2)(a).

We are not sure why the Regional Forester did not restate the directives as written in explaining the selection process. However, the switch to using the term "operate" instead of "present or relevant" introduces ambiguity. The directive's use of "not currently present or relevant" acknowledges that threats need not occur within the plan area to be relevant to species that occur within the plan area. It's not clear if "operate" also means "relevant." Thus, it's not clear if imperiled species would or would not be considered as SCC if they experience threats outside the plan area that may affect their persistence inside the plan area. If the Regional Forester is excluding species on the basis of threats to a species not occurring in the plan area, this would be another misapplication of the directives.

2. Insufficient Consideration of Identification Criteria

As indicated above, the Regional Forester failed to consider imperiled species that could be included in three categories (b, c, and d) in FSH 1909.12, ch. 10, 12.52(d) of possible SCC. These three categories represent species for which other authoritative sources have determined that a concern exists about their ability to persist, i.e., across the country, throughout a state, or in another national forest. Thus, in the case of the GMUG, the Regional Forester should have considered species in the following categories to be SCC: species listed as threatened or endangered by the state of Colorado and applicable Tribes; species determined to be of high conservation priority for the state of Colorado and applicable Tribes; and SCC in the Rio Grande National Forest (which revised its land management plan in 2020).

A. State-Designated Species

A set of species not included in the GMUG's SCC list are species Colorado Parks and Wildlife (CPW) has designated as Species of Greatest Conservation Need (SGCN) in the State Wildlife Action Plan (SWAP). CPW designated SGCN for the 2015 SWAP and selected these species based on best available science standards. The SWAP noted that there is an expectation that conservation partners and stakeholder will work with the State of Colorado toward the conservation of all SGCN. The Forest Service is not necessarily under an obligation to include all SGCN that occur in the GMUG plan area as SCC, but the agency must provide a rationale for not doing so, which it has not done. It is reasonable that all species the State believes warrant conservation action would have been selected as SCC for the GMUG, i.e., all Tier 1 and Tier 2 SGCN that occur on the forests; but if this assumption is not valid, the Forest Service must provide a rationale for not including these species as SCC.

B. Regional Forester Sensitive Species

The Forest Service has failed to retain several as SCC Regional Forester Sensitive Species (RFSS) that occur in the GMUG. An RFSS designation indicates a substantial concern about the ability for sensitive species to persist. A prior RFSS determination by the Forest Service creates an obligation for the Forest Service to refute the scientific arguments upon which the Region Forester based the original decision.

Note the similarity in the definitions of sensitive species and SCC:

Sensitive species. Those plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by: a. Significant current or predicted downward trends in population numbers or density. b. Significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.[820]

Species of conservation concern. For purposes of this subpart, a species of conservation concern is a species, other than federally recognized threatened, endangered, proposed, or candidate species, that is known to occur in the plan area and for which the regional forester has determined that the best available scientific information indicates substantial concern about the species' capability to persist over the long-term in the plan area.[821]

Both definitions encompass the concept of concern about viability. For the Forest Service to change its conclusion about the risk to these species requires a justification that explains the changes in the science since the species was found to be sensitive, and how the current BASI counters the original rationale for sensitive species designation and demonstrates that the sensitive species does not meet the criteria for including as SCC. All sensitive species should be considered for SCC status unless there is persuasive evidence for extinction or recovery on the GMUG.

When such authoritative sources indicate a substantial concern about a species' viability, that information should be sufficient to identify the species as an SCC. Otherwise, the plan must include a reasoned justification for not considering and including such species as SCC. In other words, why didn't the Regional Forester consider the designations by other authoritative sources as part of the best available scientific information about the status of the species? This rationale is required by the 2012 rule.

3. Arbitrary Determinations and Use of Erroneous Information

In this section, we describe several problems with how the Regional Forester applied information, scientific and otherwise, in the SCC identification process for the GMUG.

A. Failure to Define Key Concepts

We recognized that the directives have left some of the key scientific concepts intended to be used to make SCC determinations undefined. However, if the Regional Forester is going to try to operationalize these concepts to make SCC determinations for the GMUG, it must define the terms for the public to understand how they are being used. In that light. the following concepts used to make SCC decisions

[820] FSM 2670.5.

[821] 36 CFR 219.9(c).

for the GMUG must be defined. Additionally, justifications for including or excluding specific candidate SCC species should offer clear explanations for how the concepts are being used.

i. Restricted range

As we stated above, the directives indicate that a species with a "restricted range" should be considered as SCC but do not, conversely, automatically exclude a species because it does not have a restricted range. And we contend it is generally inappropriate to use the restricted range concept to exclude species from SCC consideration. The Regional Forester failed to identify 19 imperiled species in Table 53 as SCC due, in whole or in part, to their lack of a restricted range. Furthermore, the Regional Forester has not defined the concept.

ii. Restricted ecological conditions

The concept of "restricted ecological conditions" must be defined in the GMUG management plan's explanation of the SSC selection process if it is going to be used in the process of designating (or not) species as SCC. As with "restricted range," we believe that Regional Forester has inappropriately applied the concept in the selection process. The directives clearly indicate that "restricted ecological conditions" is an indicator for a species to be identified as an SCC. However, the directives do not state that the concept be used to exclude species. We contend doing so represents a misinterpretation of the directives. We understand the concept is used in the directives, yet not defined there. The restricted ecological conditions concept is not used in any of the three species overview documents associated with the planning Assessment.[822] The concept does not appear to be commonly employed by biologists and ecologists in the U.S., based on a search of the scientific literature. The excerpts of the justifications[823] for not identifying the following species as SCC demonstrate that it's not clear how the Regional Forester is applying this concept.

> Boreal owl: … there are 180 records in the GMUG, which is not indicative of a low population number or restricted ecological condition.
>
> Black swift: There is no evidence of a restricted ecological condition on the GMUG or a low population number.
>
> Piñon jay: 4) The pinyon-juniper ecosystem, as a whole, is not at risk from vegetation management actions that remove pinyon-juniper encroaching into other ecosystem types, and the pinyon-juniper ecosystem is well distributed across the GMUG so there is not a restricted ecological condition.

[822] GMUG REVISED DRAFT Forest Assessments: Identifying and Assessing At-Risk Species, March 2018; GMUG REVISED DRAFT Forest Assessments: Aquatic Species Overviews, March 2018; GMUG REVISED DRAFT Forest Assessments: Plant Species Overviews, March 2018; GMUG REVISED DRAFT Forest Assessments: Terrestrial Species Overviews, March 2018.

[823] From Appendix 9, Table 52 in the Draft Plan.

> White-tailed ptarmigan: 4) However, the estimated 160,000 acres of occupied range does not represent a restricted ecological condition.

This type of justification was used, in whole or in part, to reject the northern goshawk, boreal owl, Rocky Mountain bighorn sheep, Alpine braya, and lesser bladderwort from SCC status. The restricted ecological conditions concept must be used consistently across species that are candidates for SCC identification, should not be used to exclude species who may warrant SCC designation, and must be defined if it is to be used in the SCC selection process.

B. Use of Anecdotal Information

The interpreting of individual records as indicators of population abundance or trends is anecdotal, not accepted scientific indices of abundance, and is therefore inappropriate information to use as a rationale for eliminating a species from SCC consideration. This the boreal owl example below:

> Boreal owls are threatened by loss of nesting habitat and changes in prey base resulting from substantial beetle-killed spruce-fir habitat in the national forests. That same canopy loss represents a declining trend in habitat. The Gunnison Basin Climate Change Vulnerability Assessment indicates that this species is "highly vulnerable" to changes resulting from changes in temperature and precipitation regimes. Boreal owl in the GMUG is at the edge of the species distribution. <u>However, there are 180 records in the GMUG, which is not indicative of a low population number or restricted ecological condition</u>. [emphasis added]

In this case, records may consist of sightings of the same individual owl. The use of records of species sightings seems to have been used as a justification for failing to identify the Northern goshawk, black swift, flammulated owl, purple martin, and northern leopard frog as SCC.

C. Use of Erroneous Information

Appendix 4 in the DEIS, the Biological Evaluation for fauna, lists the white-tailed ptarmigan and western bumblebee as candidates for listing under the ESA. This information is incorrect. The ptarmigan subspecies, *Lagopus leucurus altipetens*, is not listed and not under consideration to be listed by the USFWS as threatened or endangered. The bumblebee has received a positive 90-day finding and is under review for ESA listing but is not yet a candidate species. Both species should be considered for SCC designation and are warranted for selection based on SCC selection criteria, categories, and indicators.

4. Failure to Use and Document of the Best Available Scientific Information

The Regional Forester has not sufficiently used and documented the best available scientific information (BASI) consulted to make SCC determinations.[824] Using the best available scientific information and documenting the science used in decisionmaking is a central element of management planning under the 2012 planning rule. In revision processes the responsible official must use BASI used in the assessment, plan, and monitoring.[825] Moreover, the responsible official must "determine what information is the most accurate, reliable, and relevant to the issues being considered;" document how the BASI was used to inform the assessment, plan revision, and monitoring program; and [i]dentify what information was determined to be the best available scientific information, explain the basis for that determination, and explain how the information was applied to the issues considered."[826]

Below are examples of species not designated as SCC to illustrate these concerns.

> Golden eagle: This species is secure in the GMUG, occupying low-elevation grasslands, shrublands, and rocky outcrops and consistently occupying these areas and re- using known cliff nest sites over long time periods, in areas and locations not susceptible to or at risk from disturbances. The Forest also provides abundant and well-distributed winter range used by this species. No known substantial conservation concern in the GMUG.

Regarding the golden eagle, the rationale for rejecting the species as an SCC includes no documentation of science to support these assertions. This justification is not supported by the information available in the golden eagle wildlife overview provided by the GMUG. The overview, in part, states,

> A total of 11 golden eagle observations were documented in Gunnison Ranger District wildlife observation records from 2003 through 2012. Two nest sites, which are likely used by the same nesting pair in separate years, are known to occur within the planning area (Table 2, Gunnison Ranger District wildlife observation records).[827] In addition, the species is known and easily observed using big game wintering ranges and river corridors on the GMUG National Forests for wintering, especially the Gunnison Basin area. No trend information is available for golden eagles on GMUG National Forests lands. No records for this species were found in the Forest Service NRIS Wildlife database. Nest sites and observations frequently occur outside GMUG boundaries. There are likely more records of this species then currently documented for the GMUG National Forests. Colorado Parks and Wildlife documents and monitors golden eagle nest sites and has additional records from each forest in the plan area (a total of 9 records).[828]

[824] FSH 1909.9, ch. 10, 12.52b(3)&(4); see also the Planning Rule at 219.3.

[825] 36 CFR 219.3.

[826] 36 CFR 219.3.

[827] Note that Table 2 in the wildlife overview says nothing about nest sites or nesting pairs, but documents that there have been 20 "known occurrences [of golden eagles] in the past 20 years" and that the last year the species was observed was 2012. The table does not reference any scientific sources for this information. Plus, the table information conflicts if "in the past 20 years" is meant to refer to the present date (or 2018, when the overview was finalized), when the table also states the species hasn't been observed since 2012.

[828] GMUG National Forests REVISED DRAFT Forrest Assessments: Terrestrial Species Overviews. March 2018. p. 88.

Sentences three, six, and seven in the paragraph above are either speculative or anecdotal.

> Lewis's woodpecker: This species has two observations in the GMUG and is limited to closed canopy ponderosa and cottonwood forests. This species is threatened by activities that would open up such canopies, including changing fire regimes. Colorado Parks and Wildlife notes that Birds of the World also indicates increasing temperatures are a concern. Per Colorado Parks and Wildlife, the Intermountain Bird Conservancy of the Rockies's data indicate an increasing population trend in the area. The GMUG population does not represent a restricted range.

The justification provided in Appendix 9 of the Draft Plan does not document this CPW information. A 2020 CPW report on the Lewis's woodpecker noted, "Almost all populations of Lewis's woodpeckers have declined. The most recent Colorado Breeding Bird Atlas (COBBA 2007–2011) indicates that they were observed in 36% fewer blocks than during the first COBBA (1987–1994)."[829]

> Hoary Bat: Individuals commonly detected locally during acoustic and mist netting bat surveys. Range wide, windfarms are primary threat; none occur or are planned locally. Specific information regarding degree of local conservation concern unclear. This species is documented as fairly common in aspen and cottonwood habitats in the GMUG National Forests, and also common outside the Forest boundaries.

The hoary bat justification provides no documentation for claims made in sentences one and three.

The Regional Forester must use the BASI to make SCC determinations and document the use of that information.

5. Overly Restrictive Interpretation of Occurrence in the Plan Area

The Regional Forester was too strict in requiring an actual record of a species for it to be considered present in the planning area:

> For the purposes of "known to occur," we have elected to require a record for a species in the planning unit to qualify for species of conservation concern status. Species that exist close to the planning area but that have not been recorded in the planning area are not considered to be known to occur in the planning unit. Species that are thought to be present in the plan area but that have not been documented there are also not considered as known to occur.[830]

[829] Colorado Parks and Wildlife. (2020). Lewis's Woodpecker. Assessing Habitat Quality for Priority Wildlife Species in Colorado Wetlands, p. 1. November.

[830] Draft Plan, p. 236.

Any rejection of past occurrences as being too far back in time must consider and discuss the biology of the species and reasons why it would no longer be present or incapable of reoccurring. Excluding all species that have not been recorded on a forest after an arbitrary time period would be arbitrary. The extent of subsequent surveys should also be documented, and "failure to look" should not be a basis for finding subsequent absence.

Species may exist on one or more of the four national forests adjacent to the GMUG; if similar habitat exists on the GMUG, the species should be considered present and be evaluated for SCC status on that forest. If there are no occurrence records for species with habitat on the GMUG and which are known or likely to occur on an adjacent national forest or adjacent BLM land, it may be because no one has systematically looked for these species on the GMUG. For any species with viability concern to recover to full, secure populations, all potential habitat must be considered, and if necessary, protected by plan components from habitat degradation or destruction. Below are a few examples of species the Regional Forester may have inappropriately rejected, based on the rationales given in Appendix 9, Table 52.

> Columbian sharp-tailed grouse (*Tympanuchus phasianellus columbianus*): "Should consider due to S2 rank and R2 Sensitive. Species was petitioned for Endangered Species Act listing but was declared "not warranted." Older historical records once placed this species in the plan area (Uncompahgre Plateau). Not known to occur in the plan area. [See Appendix. Species Maps]
>
> Kit fox: "Should consider" due to S1 rank. This species is present in nearby areas. Not known to occur in the plan area. [See Appendix. Species Maps]
>
> Aleutian maidenhair fern: "Should consider" due to S1 rank. One record for the species may be in the GMUG, but the location given in the record is not precise enough to determine presence or absence in the unit due to the number of privately held mining claims in that location.
>
> Alpine arnica: "Should consider" due to S1 Rank. May occur in the planning area, but location is not precise enough to ascertain if occurrence is on National Forest System lands. Not known to occur in the plan area.

The Regional Forester also seems to have excluded imperiled species on the basis of their status as migratory and not year-round residents of the GMUG. This was noted in Volume 2 of the Draft Environmental Impact Statement (DEIS) in Table 52 of Appendix 4. According to the Planning Handbook, actual occurrence records may only be discounted if individuals are "accidental" or "transient," or are "well outside the species' existing range" (which would presumably make them accidental or transient).[831] A "transient" species is one that is only present when migrating between seasonal ranges. Therefore, migratory species may need to be identified as SCC when their seasonal range includes a national forest. Seasonal habitat on forests for migratory species may be essential for maintaining

[831] FSH 1909.12, ch. 10, 12.53(c)(1).

species viability. (This may even be true of habitat for some "transient" species in some areas and excluding such species in accordance with the planning handbook may violate the requirement of the Planning Rule for plans to contribute to maintaining a viable population of the species within its range.[832])

For example, the ferruginous hawk is noted in Appendix 4 of the DEIS as a "migratory pass – through," however, Colorado Parks and Wildlife (CPW) described the ferruginous hawk as having a year-round range in Colorado, including in the Colorado Plateau.[833] The ferruginous hawk is migratory in some places, but not in others. Similarly, the northern harrier is listed as "no nesting" in the DEIS's Appendix 4. A Colorado Parks and Wildlife assessment of sage-brush ecosystems in Colorado indicates the northern harrier is a year-round resident, but the CPW also noted in this assessment, "[b]reeding northern harriers are mostly absent from the mountains, although they have been reported occasionally in mountain parks on Grand Mesa and the Flat Tops."[834]

The Regional Forester may have been mistaken about the seasonal occupancy of these two bird species in Colorado, and even if the species had only breeding or wintering habitat within the plan area, they should be considered for SCC. See below for more information on the ferruginous hawk and northern harrier.

6. Imperiled Species the Regional Forester Should Reevaluate for Species of Conservation Concern Eligibility

The Regional Forester failed to identify the species in the tables below as SCC. These species may not have been designated as SCC due to the problems we detailed in the previous sections. We urge the Regional Forester to reevaluate these species for SCC identification, using the appropriate selection process.

The Abbreviations used in the following tables are:
RFSS = Regional Forester Sensitive Species
G-Rank = NatureServe global rank
T-Rank = NatureServe subspecies rank
S-Rank = NatureServe state rank
CO = Colorado State status (**SC** = Species of Concern, **E** = Endangered, **T** = Threatened)
CO SWAP = Colorado Parks and Wildlife Species of Greatest Conservation Need (**SGCN**) as designated by the Colorado State Wildlife Action Plan

[832] 36 CFR 219.9(b((1).

[833] Colorado Division of Wildlife (now Colorado Parks and Wildlife). (2003). Conservation Plan for Grassland Species in Colorado. November.

[834] Colorado Division of Wildlife (now Colorado Parks and Wildlife). (2005). Colorado Sagebrush: A Conservation Assessment and Strategy. September.

Other Authority = at-risk designation by a scientific authority (**FWS-BCC** = U.S. Fish and Wildlife Service Bird of Conservation Concern, **PIF** = Partners in Flight Watch List)
Adjacent Forest = adjacent national forest with RFSS or SCC not identified by the GMUG (**RGNF** = Rio Grande National Forest)

The table below provides a list of imperiled species that should have been designated as SCC, and indicates which species meet criteria in categories b, c, and/or d in FSH 1909.12, ch. 10, 12.52(d).

Fauna Species that should be Reevaluated for Species of Conservation Concern Identification Based on Substantial Concern about their Persistence in the Plan Area

Common Name	Scientific Name	RFSS	CO	CO SWAP	Adjacent Forest	Other Authority
AMPHIBIANS						
Northern leopard frog	*Lithobates pipiens*	SS	SC	SGCN		
BIRDS						
Northern Goshawk	*Accipiter gentiles*				RGNF	
Boreal Owl	*Aegolius funereus*	SS		SGCN	RGNF	
Sagebrush (Sage) Sparrow	*Amphispiza bellii*	SS		SGCN		
Golden Eagle	*Aquila chrysaetos*			SGCN		FWS-BCC
Juniper Titmouse	*Baeolophus ridgwayi*			SGCN		FWS-BCC
Olive-Sided Flycatcher	*Contopus cooperi*	SS		SGCN	RGNF	PIF
Black Swift	*Cypseloides niger*	SS		SGCN		PIF
American Peregrine Falcon	*Falco peregrinus anatum*			SGCN	RGNF	
Pinyon Jay	*Gymnorhinus cyanocephalus*			SGCN		PIF FWS-BCC
Bald Eagle	*Haliaeetus leucocephalus*	SS		SGCN		FWS-BCC
Loggerhead Shrike	*Lanius ludovicianus*	SS		SGCN		
White-tailed Ptarmigan	*Laopus leucurus altipetens*	SS		SGCN	RGNF	
Flammulated Owl	*Otus flammeolus*	SS			RGNF	
Grace's Warbler	*Setophaga graciae*			SGCN		FWS-BCC
Brewer's Sparrow	*Spizella breweri*				RGNF	
FISH						
Bluehead sucker	*Catostomus discobolus*			SGCN		
INVERTEBRATES						
Western bumblebee	*Bombus occidentalis*	SS			RGNF	Xerces
Desert green (Comstock's) hairstreak	*Callophrys comstocki*					G2G3 / S1
White-veined Arctic Butterfly	*Oeneis bore*				RGNF	
MAMMALS						
Townsend's big-eared bat	*Corynorhinus townsendii*		SC	SGCN		G4 / S2

Common Name	Scientific Name	RFSS	CO	CO SWAP	Adjacent Forest	Other Authority
Hoary Bat	*Lasiurus cinereus*	SS		SGCN		
Silver-haired bat	*Lasionycteris noctivagans*					G3 / S3
America Marten	*Martes americana*				RGNF	
Little Brown Myotis	*Myotis lucifugus*			SGCN		
Fringed Myotis	*Myotis thysanodes*	SS		SGCN	RGNF	
Rocky Mountain bighorn Sheep	*Ovis canadensis canadensis*	SS		SGCN	RGNF	
Desert Bighorn Sheep	*Ovis canadensis nelsoni*	SS		SGCN	RGNF	

The table below provides a list of imperiled species that should have been designated as SCC, and indicates which species meet criteria in categories b, c, d, and/or f in FSH 1909.12, ch. 10, 12.52(d). The abbreviations used in the table are below the table.

Flora Species that should be Reevaluated for Species of Conservation Concern Identification Based on Substantial Concern about their Persistence in the Plan Area

Common Name	Scientific Name	Nature-Serve	RFSS	Category f indicators	Adjacent Forest	Colorado Rare Plant
House's sandwort	*Alsinanthe macrantha*	G3 / S3		1, 3, 4		
Green spleenwort	*Asplenium trichomanes*	G5 / S1		1,3, 4		
Naturita milkvetch	*Astragalus naturitensis*	G3 / S3		1, 3		RP
Narrow-leaf grapefern	*Botrychium lineare*	G3 / S2		3		RP
Peculiar moonwort	*Botrychium paradoxum*	G3 / S1	SS	1, 3, 4		
Arctic braya	*Braya glabella var. glabella*	G5 / S1	SS	1, 3, 4		RP
Alpine braya	*Braya humilis*	G5 / S2		1, 3		RP
Lesser panicled sedge	*Carex diandra*	G5 / S2	SS	4		
Livid sedge	*Carex livida*	G5 / S1	SS	1, 3, 4		RP
Green sedge	*Carex viridula*	G5 / S1				RP
Reindeer lichen	*Cladina arbuscula*	G5 / S2		1, 3, 4		
Dwarf alpine hawksbeard	*Crepis nana*	G3 / S3		1, 3, 4	RGNF	
Mountain bladder fern	*Cystopteris montana*	G5 / S1		1, 2, 3, 4	RGNF	RP
Rockcress draba	*Draba globosa*	G3 / S1		1, 3, 4		RP
Yellowstone- whitlow grass	*Draba incerta*	G5 / S1		1, 3, 4		
Woods draba	*Draba oligosperma*	G5 / S3		1, 3		
Colorado Divide whitlow-grass	*Draba streptobrachia*	G3 / S3		1, 3, 4	RGNF	
Tundra draba	*Draba ventosa*	G3 / S1		1, 3, 4		
Roundleaf sundew	*Drosera rotundifolia*	G5 / S2	SS	1, 3, 4		RP

Common Name	Scientific Name	Nature-Serve	RFSS	Category f indicators	Adjacent Forest	Colorado Rare Plant
Low fleabane	*Erigeron humilis*	G5 / S1		1, 3, 4		
Wooly fleabane	*Erigeron lanatus*	G4 / S2		1, 3, 4		RP
Hamatocaulis moss	*Hamatocaulis vernicosus*	G5 / S2		1, 3, 4		
Liverwort (no common name)	*Jungermannia rubra*	G4 / S1		1, 3, 4		
Simple kobresia	*Kobresia simpliciuscula*	G5 / S2	SS	1, 4		
Northern twayblade	*Listera borealis*	G5 / S2		2, 3		RP
Marsh felwort	*Lomatogonium rotatum*	G5 / S2		1, 3, 4		
Colorado woodrush	*Luzula subcapitata*	G3 / S3		1, 3	RGNF	
Bog stitchwort	*Minuartia stricta*	G5 / S2		1, 3, 4		
Western mouse- tail	*Myosurus cupulatus*	G4 / S1		1, 3, 4		
Adobe beardtongue	*Penstemon retrorsus*	G3 / S3		1, 4		RP
Feathermoss	*Pleurozium schreberi*	G5 / S2		1, 3, 4		
Tundra buttercup	*Ranunculus gelidus*	G5 / S2		1, 3, 4		RP
King's campion	*Silene kingii*	G3 / S1		1, 3, 4	RGNF	
Little bulrush	*Trichophorum pumilum*	G5 / S2		1, 3, 4		RP

The tables below include species the GMUG determined occur in the plan area in the 2006 forest assessment. The Regional Forester should reevaluate them and document the best available science used to make these different determinations.

Flora Species the Regional Forester Determine not to Occur in the Plan Area that the GMUG's 2006 GMUG Wildlife Species Evaluation Tracking Table Recorded as Occurring in the Plan Area

Common Name	Scientific Name	G-Rank	S-Rank
Aleutian Maidenhair Fern	*Adiantum aleuticum*	G5	S1
Alpine Arnica	*Arnica alpine ssp. tomentosa (A, agustifolia ssp. tomentosa)*	G5	S1
Leathery Grape-Fern	*Botrychium multifidum*	G5	S1
Northern Moonwort	*Botrychium pinnatum*	G4?	S2
Sartwell's Sedge	*Carex sartwellii*	G4G5	S1
Wasatch Biscuitroot	*Lomatium bicolor var. leptocarpum*	G4	S2
Simple Cliffbrake	*Pellaea glabella ssp. simplex*	G5	S2

Fauna Species the Regional Forester Determine not to Occur in the Plan Area that the GMUG's 2006 GMUG Wildlife Species Evaluation Tracking Table Recorded as Occurring in the Plan Area

Common Name	Scientific Name	RFSS	CO	CO SWAP	Adjacent Forest	Other Authority
BIRDS						
Ferruginous Hawk	*Buteo regalis*	SS		SGCN		FWS-BCC
Columbia spotted grouse	*Tympanuchus phasianellus columbianus*					
Northern Harrier	*Circus cyaneus*	SS		SGCN		
MAMMALS						
Spotted Bat	*Euderma maculatum*	SS		SGCN		2006
Dwarf Shrew	*Sorex nanus*			SGCN		2006
Kit Fox	*Vulpes macrotis*	SS	E	SGCN		2006

See maps below.

Species Maps that Indicate Occurrence or Season Dependence on the Plan Area

Columbian Sharp-tailed Grouse

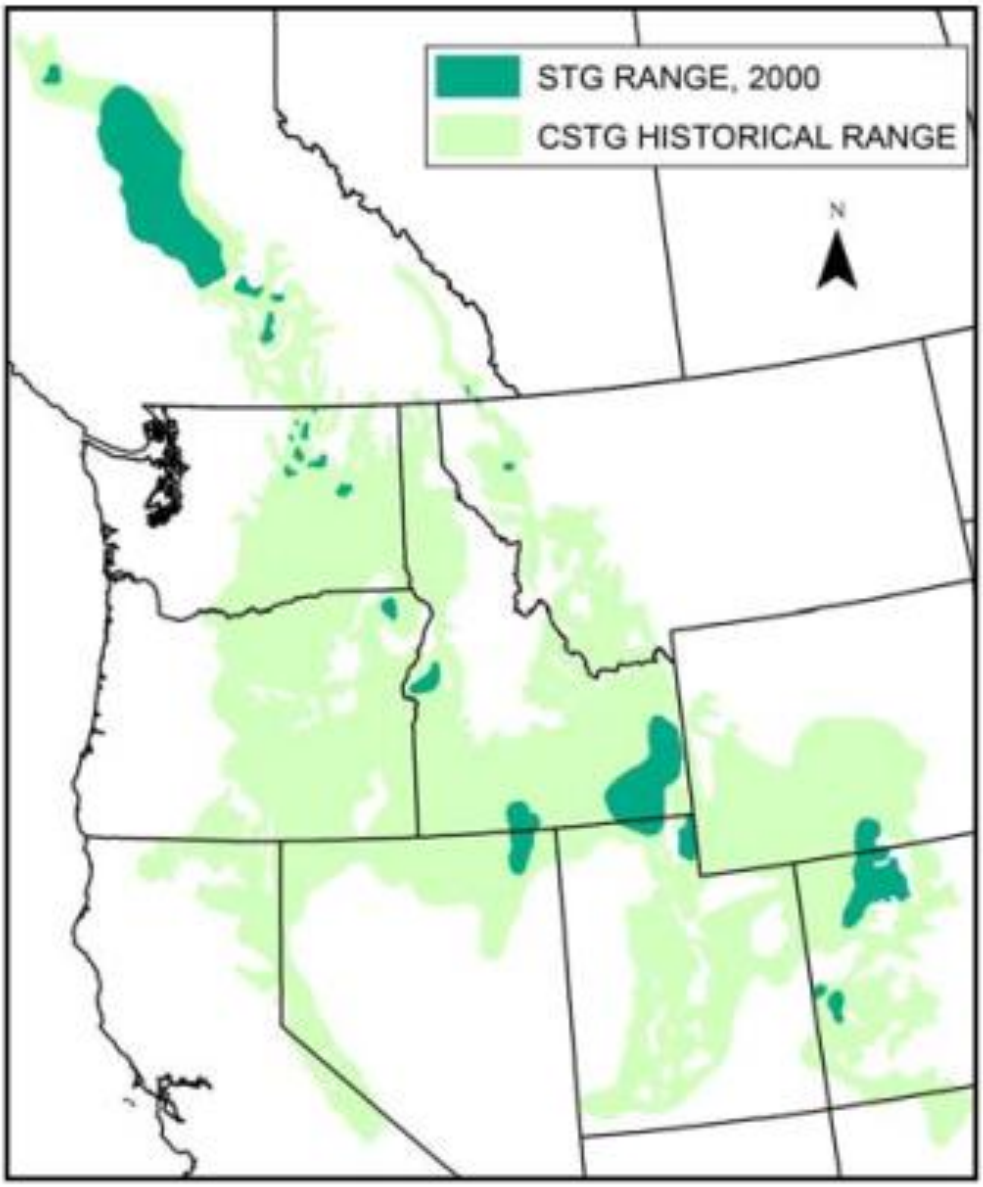
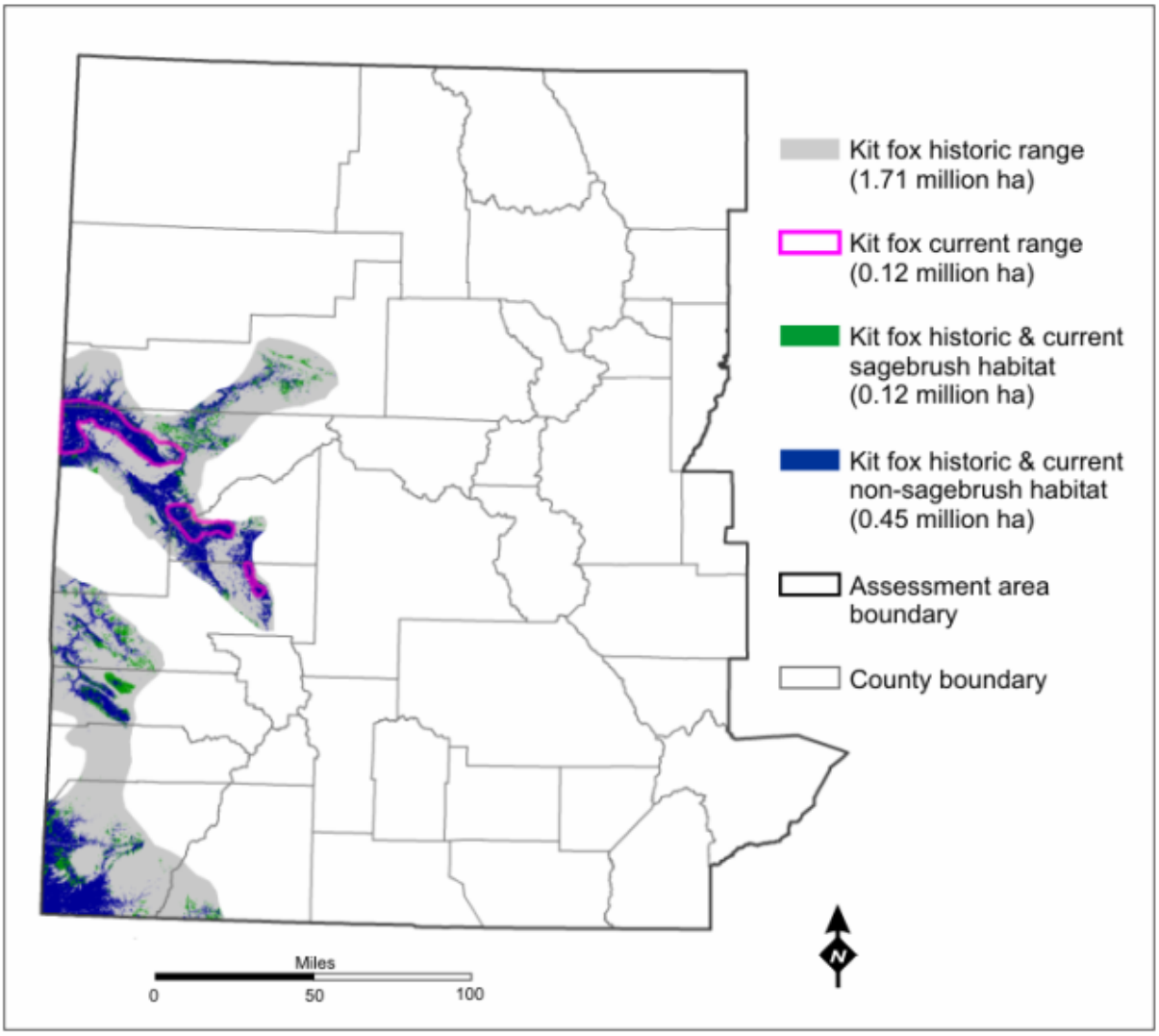


Figure 2. Historical and current range of the Columbian Sharp-tailed Grouse.

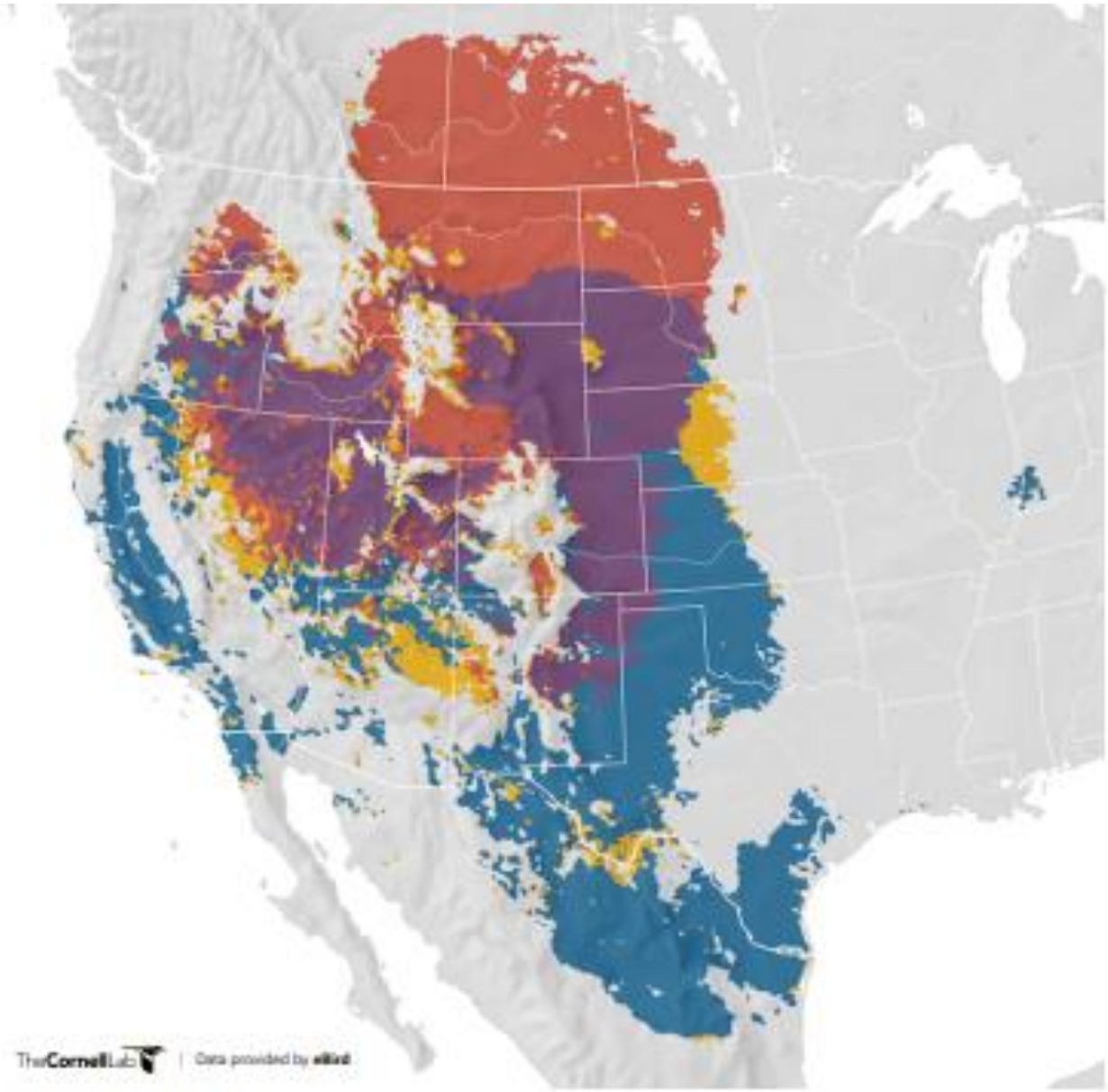
Stinson, D. W. 2017. Periodic Status Review for the Columbian Sharp-tailed Grouse in Washington. Washington Department of Fish and Wildlife, Olympia, Washington.

Kit Fox



Kit Fox. CPW. 2005. Colorado Sagebrush: A Conservation Assessment and Strategy. September.

Ferruginous Hawk

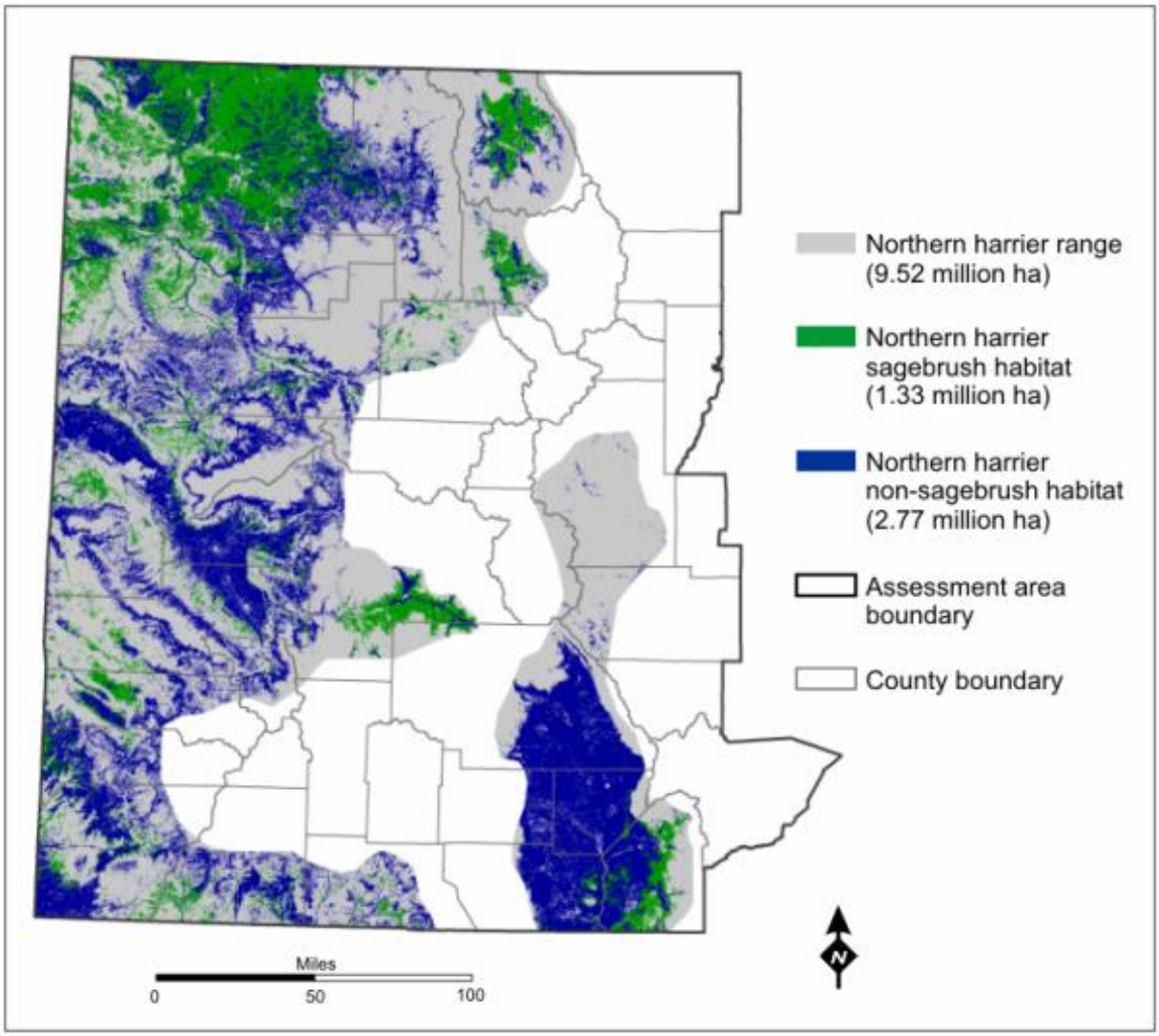


Ferruginous Hawk *Buteo regalis*

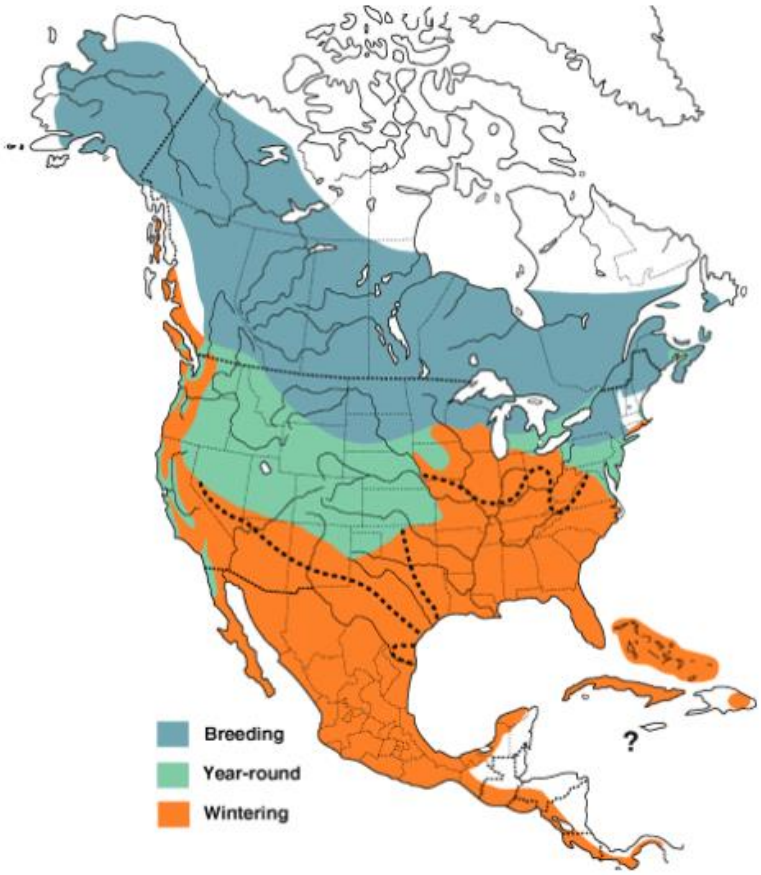
Range

The range map depicts the boundary of the species's range, defined as the areas where the species is estimated to occur within at least one week within each season. Learn more (https://ebird.org/science/status-and-trends/faq#range)

Northern Harrier



CPW. 2005. Colorado Sagebrush: A Conservation Assessment and Strategy. September.



Northern harrier range in North America. Breeds locally south of dotted line. Map reprinted from MacWhirter and Bildstein (1998) by permission.

CPW. 2005. Colorado Sagebrush: A Conservation Assessment and Strategy. September.

Fauna species the Regional Forester may have inadvertently overlooked in the SCC evaluation and should consider for identification

Common Name	Scientific Name	RFSS	CO	CO SWAP	Adjacent Forest	Other Authority
AMPHIBIANS						
Canyon Treefrog	*Hyla arenicolor*		SC	SGCN		
BIRDS						
Juniper Titmouse	*Baeolophus ridgwayi*			SGCN		FWS-BCC
Ferruginous Hawk	*Buteo regalis*	SS		SGCN		FWS-BCC
Northern Harrier	*Circus cyaneus*	SS		SGCN		
Greater Sandhill Crane	*Grus canadensis tabida*		SC	SGCN		
American White Pelican	*Pelecanus erythrorhynchos*			SGCN		
American Three-toed Woodpecker	*Picoides dorsalis*	SS				
Gray Vireo	*Vireo vicinior*			SGCN		FWS-BCC PIF
FISH						
Colorado River Cutthroat (green lineage)	*Oncorhynchus clarkii pleuriticus*	SS	SC	SGCN		
MAMMALS						
Abert Squirrel	*Sciurus aberti*			SGCN		
Pygmy Shrew	*Sorex hoyi montanus*	SS		SGCN		
Botta's Pocket Gopher (*Rubidus* ssp)	*Thomomys bottae rubidus*		SC	SGCN		

Flora species the Regional Forester may have inadvertently overlooked in the SCC evaluation and should consider for identification

Common Name	Scientific Name	RFSS	G-Rank	S-Rank	CO Rare Plant+
Sedge Fescue	*Argillochloa (Festuca) dasyclada*		G3	S3	
Northern Spleenwort*	*Asplenium septentrionale*		G4G5	S3S4	
Gunnison's Milkvetch*	*Astragalus anisus*		G2G3	S2S3	Y

Common Name	Scientific Name	RFSS	G-Rank	S-Rank	CO Rare Plant+
Silverleaf Milkvetch^	*Astragalus argophyllus var. martinii*		G5	S1	
Violet Milkvetch*	*Astragalus iodopetalus*		G2	S1	Y
Grand Junction Milkvetch*	*Astragalus linifolius*		G3Q?	S3	Y
Leadville Milkvetch*	*Astragalus molybdenus*		G3	S2	Y
Wetherill's Milkvetch*	*Astragalus wetherillii*		G3	S3	Y
Ritter's Coral-Drops*	*Besseya ritteriana*		G3G4	S3S4	
Crandall's Rockcress*	*Boechera crandallii*		G2	S2	Y
Reflected Moonwort*	*Botrychium echo*		G3G4	S3S4	Y
Lanceleaf Moonwort*	*Botrychium lanceolatum*		G5	S3S4	
Peculiar Moonwort*	*Botrychium linaria*	SS	G2	S2	
Common Moonwort*	*Botrychium lunaria*		G5	S3S4	
Mingan Moonwort*	*Botrychium minganense*		G4G5	S3	
Pale Moonwort*	*Botrychium pallidum*		G3	S2	Y
Least Moonward	*Botrychium simplex*		G5	S2	
Elegant Sedge*	*Carex bella*		G5	SNR	
Capitate Sedge*	*Carex capitata ssp. arctogena*		G5	S1	
Slender Sedge*	*Carex lasiocarpa*		G5	S1	
Bristly-Stalked Sedge^	*Carex leptalea*		G5	S1	Y
Mud Sedge*	*Carex limosa*		G5	S2	
Nelson's Sedge*	*Carex nelsonii*		G3	S3	
Small-Winged Sedge	*Carex stenoptila*		G3	S2	
Spiny shield lichen	*Cetraria aculeata*		G5	SNR	
Rocky Mountain Snowlover*	*Chionophila jamesii*		G4?	S3S4	
Rocky Mountain Thistle*	*Cirsium perplexans*		G2G3	S2S3	Y
Marsh Cinquefoil*	*Comarum palustre*		G5	S1S2	
Brandagee's Fumewort	*Corydalis caseana*		G5	SNR	
Thick-Leaf Draba*	*Draba crassa*		G3	S3	
White Arctic Whitlow-Grass*	*Draba fladnizensis*		G4	S2S3	

Common Name	Scientific Name	RFSS	G-Rank	S-Rank	CO Rare Plant+
Mountain Whitlow-Grass*	*Draba rectifructa*		G3G4	S2	Y
Showy Whitlow-Grass*	*Draba spectabilis*		G3G4	S3?	
Beardtongue Gilia*	*Gilia penstemonoides*		G3G4	S3	Y
Stonecrop Gily-flower*	*Gilia sedifolia*		G1	S1	
Red alumroot	*Heuchera rubescens*		G5	S1	
Moss Rush*~	*Juncus bryoides*		G4	S1	
Piceance Bladderpod*	*Lesquerella parviflora*		G2G3	S2S3	
Wood Lily*	*Lilium philadelphicum*		G5	S3S4	Y
Bigelow's Tansy-aster*	*Machaeranthera bigelovii*		G4G5	SNR	
Colorado Tansy-aster*	*Machaeranthera coloradoensis*	SS	G2	S2	Y
Mountain Wildmint*	*Monardella odoratissima*		G4G5	S2	
Weber's Catseye*	*Oreocarya weberi (Cryptantha weberi)*		G3	S3	
Saffron Groundsel*	*Packera crocata (Senecio crocatus)*		G4	S3S4	
Balsam Groundsel~	*Packera paupercula*		G5	S1	
Kluane Poppy*	*Papaver kluanense*		G5	S3S4	Y
Purple-Stem Cliffbrake*	*Pellaea atropurpurea*		G5	S2S3	Y
Cushion bladderpod~	*Physaria pulvinata*		G1	S1	Y
Rollins' Twinpod*~	*Physaria rollinsii*		G2	S2	Y
Western Polypody*	*Polypodium hesperium*		G5	S1S2	
Rocky Mountain Polypody*	*Polypodium saximontanum*		G3?	S3?	
Sageleaf Willow*	*Salix candida*	SS	G5	S2	Y
Altai Chickweed*	*Stellaria irrigua*		G4?	S2	
King's Clover*	*Trifolium kingii*		G5	S1	
Lesser Bladderwort*	*Utricularia minor*		G5	S2	
New Mexico Cliff Fern*	*Woodsia neomexicana*		G4?	S2	