High Country Conservation Advocates ● Defenders of Wildlife ● The Wilderness Society ● Great Old Broads for Wilderness ● San Luis Valley Ecosystem Council ● Colorado Native Plant Society ● Rocky Mountain Wild ● San Juan Citizens Alliance ● Western Colorado Alliance ● Quiet Use Coalition ● Sheep Mountain Alliance ● Western Slope Conservation Center ● Western Environmental Law Center ● Ridgway-Ouray Community Council ● Black Canyon Audubon Society ● Conservation Colorado ● Rocky Smith

July 29, 2019

Grand Mesa, Uncompahgre, and Gunnison National Forests
Attn: Plan Revision Team
2250 Highway 50
Delta, CO 81416

Dear GMUG Planning Team,

Please accept the following comments on the Working Draft of the revised forest plan on behalf of High Country Conservation Advocates, Defenders of Wildlife, Rocky Smith, The Wilderness Society, Great Old Broads for Wilderness, San Luis Valley Ecosystem Council, Colorado Native Plant Society, Rocky Mountain Wild, San Juan Citizens Alliance, Western Colorado Alliance, Quiet Use Coalition, Sheep Mountain Alliance, Western Slope Conservation Center, Western Environmental Law Center, Ridgway-Ouray Community Council, Black Canyon Audubon Society, and Conservation Colorado. We thank you for providing the public with the opportunity to comment on "what plan direction works and what needs improvement."[1] We appreciate the tremendous amount of effort and resources this process has required of the Grand Mesa, Uncompahgre, and Gunnison National Forests' planning team to date, including adapting to the 2012 Planning Rule (36 C.F.R. §§ 219). 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. Please include this letter in the administrative record.

We appreciate all the hard work that the staff on the GMUG National Forest is putting into the plan revision process. 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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[1] See https://www.fs.usda.gov/main/gmug/landmanagement/planning.

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Table of Contents

I. Introduction

These comments provide feedback on forestwide direction, management area direction, forestwide ecological sustainability and wildlife direction, monitoring, and climate change. For some of these issues, the GMUG offers a good foundation, but we feel it does not go far enough to achieve the necessary desired conditions over the life of the plan. Generally speaking, the Working Draft Plan (WDP) provides weak and incomplete direction for protection of important resources. There are few mandatory standards and/or guidelines to ensure that desired conditions are achieved. We therefore offer specific plan components and modifications to proposed ones that, if adopted, would ensure compliance with the planning rule and other regulations and laws and ensure the GMUG achieves its stated desired conditions.

We incorporate by reference the scoping comments listed below:

- High Country Conservation Advocates, The Wilderness Society, Conservation Colorado, Rocky Mountain Wild, Great Old Broads for Wilderness – Northern San Juan Chapter and Grand Junction Chapter, Western Colorado Congress, Western Environmental Law Center, San Juan Citizens Alliance, Sheep Mountain Alliance, Ridgway Ouray Community Council, Western Slope Conservation Center, Defenders of Wildlife. Scoping Comments on the Grand Mesa, Uncompahgre, and Gunnison National Forests Revised Management Plan. June 1, 2018. 57 pages. (References as: HCCA et al. 2018)

- Defenders of Wildlife, Rocky Mountain Wild, Rocky Smith, Quiet Use Coalition, Grand Junction Area Chapter – Great Old Broads for Wilderness, Western Colorado Congress, Northern San Juan Broadband – Great Old Broads for Wilderness, Sheep Mountain Alliance, The Wilderness Society, Colorado Native Plant Society, Western Environmental Law Center. Scoping Comments on the Grand Mesa, Uncompahgre, and Gunnison National Forests Revised Management Plan. June 1, 2018. 56 pgs. (Referenced as: Defenders et al. 2018)

- Rocky Smith, Great Old Broads for Wilderness – Northern San Juan Chapter, Ridgway-Ouray Community Council, Western Environmental Law Center, High Country Conservation Advocates, Western Colorado Congress, Colorado Native Plant Society. Scoping Comments on the Grand Mesa, Uncompahgre, and Gunnison National Forests Revised Management Plan. May 24, 2018. 23 pgs. (Referenced as: Rocky Smith et al. 2018)

II. Forestwide Direction

A. Air Quality

FW-AQ-GDL-08 says that large projects should not result in critical load exceedances for Class I areas.

- Recommendation: Preventing exceedances must be mandatory to ensure compliance with the Clean Air Act; therefore, **FW-AQ-GDL-08** must be a standard.

B. Key Ecosystem Characteristics

We suggest the Forest Service explain what key ecosystem characteristics are and clarifying how monitoring the selected key ecosystem characteristics serve as proxies to help assess ecosystem conditions. The concepts are likely unfamiliar to many readers. Additionally, the Forest Service analyzed 6 key characteristics in the Terrestrial Assessment, but we don't see plan components related to "regeneration and recruitment" or riparian and aquatic key ecosystem characteristics.

- Recommendation: Clearly identify the key ecosystem characteristics selected to help assess ecosystem conditions. Include plan components for regeneration and recruitment.

Additionally, when planning and managing for the integrity of ecosystems, matters of ecological scale are of paramount importance. Ecosystem level plan direction must be translated where the rubber hits the road, at the landscape/project level. We believe the plan can be improved on issues of ecological scale to facilitate effective implementation. For example, in **FW-DC-ECO-01**: "This mosaic occurs at a variety of scales such as geographic and watershed scales, reflecting the disturbance regimes that naturally affect the area," does not reflect a sufficient definition of the scales to which management will be applied. Additionally, **FW-DC-ECO-02** states, "the scale of insect and disease outbreaks is restricted by variation among vegetation structures," but it's not clear what this means. The geographic area scale, which seems to be the smallest scale the GMUG is using, is too coarse a scale to provide adequate direction for project managers, in many cases.

We point the Forest to the Carson National Forest Draft Plan vegetation section. The Carson's approach to vegetation is worth replicating for several reasons. For example, desired conditions for terrestrial ecosystems are grouped by vegetation communities (i.e., the Potential Natural Vegetation (PNV) types used in the GMUG's Terrestrial Ecosystems Assessment), which are the actual ecosystems of interest. Desired conditions for forest and woodland vegetation communities are also described at three spatial scales: landscape (1,000+ acres), mid-scale (10-1,000 acres), and fine-scale (less than 10 acres). The landscape scale describes the "big picture" and includes 10 or more mid-scale units arranged in a mosaic. It makes sense for seral state proportions to apply at this scale. The mid- and fine- scale desired condition states provide additional detail necessary for guiding future projects and management activities.

It is essential that forest plans assist stakeholders and managers with identifying project priorities within landscapes (e.g., design features at the landscape, patch and stand level). As it stands, the WPD does not paint a granular picture of what we want forest conditions to look like when we are actually standing within them.

- Recommendation: The Forest look at scale across large landscape, mid-landscape, and stand level perspectives; consult the Carson National Forest's draft plan for guidance.

1. Structure, Composition, and Function

Regarding **FW-DC-ECO-02**, we suggest excluding the text about "flooding in riparian systems," though important, and focus on terrestrial ecosystems because the key ecosystem characteristics in this desired condition relate to terrestrial ecosystems, as presented in Table 1. We appreciate the documentation of science used to characterize fire regimes, however, the Forest Service should be clear how it is defining high-, mixed-, and low-severity fire, because these terms can be defined in different ways. One approach is to distinguish by the percentage of tree basal area or canopy cover killed by a fire, with *low*: < 25% killed, *moderate*: 25-75% killed, and *high*: > 75% killed (See Hessburg et al. 2019).

- Recommendation: **FW-DC-ECO-02** should make clear how it is defining fire severity types and use definitions based on the best available science. "Moderate-severity" fire should be defined and included as a category along with mixed-severity to show the distinction between these two categories.

The Forest Service should acknowledge that high-severity fire occurs in all forest types, even warm-dry mixed conifer and ponderosa pine (Romme et al. 2009), and that high-severity fire serves an essential ecological role in these systems. The revised management plan should recognize the importance of complex early seral forest conditions that result from high-severity fire (see Swanson et al. 2011; DellaSala et al. 2014; Hutto et al. 2016). Severely burned forest areas represent critical stages of biodiversity establishment and forest development, and a foundation for supporting ecological integrity. Complex early seral conditions provide high quality habitat and ecological conditions for a wide range of native flora and fauna, including woodpeckers, elk, bears, and others. Naturally disturbed areas, including those affected by high-severity fire, provide opportunities for management that contributes to achieving ecological integrity, habitat diversity, and species persistence requirements, especially snag-dependent and shrub-dependent species, over a long timeframe measured in decades.

- Recommendation: Add to **FW-DC-ECO-02** that high-severity fire is desired or at least acceptable in all terrestrial ecosystem types, except where fire history study or other scientifically credible information indicates the fire regime was primarily high frequency, low-intensity fire.

2. Connectivity

We support the inclusion of **FW-DC-ECO-06**. We appreciate that it includes pollinators and plants, whose habitat connectivity needs are often overlooked. However, the desired condition lacks supporting standards, guidelines, and objectives to assure that habitat connectivity will be restored and maintained during the life of the plan. **FW-DC-ECO-06** refers to **FW-DC-SPEC-01** and **FW-OBJ-SPEC-03**. **FW-DC-SPEC-**

01, similarly, is not supported by adequate plan components that would ensure progress toward its achievement.

- Recommendation: Include standards and guidelines in the revised plan that support **FW-DC-ECO-06** and **FW-DC-SPEC-01**. We have attached a set of recommendations that include standards and guidelines to restore and maintain connectivity in Appendix 1.

FW-OBJ-SPEC-03, which could be a promising step toward restoring habitat connectivity, will not ensure that progress will be made toward meeting **FW-DC-ECO-06** and **FW-DC-SPEC-01**. The objective does not guarantee that restoration or enhancement of connectivity will be included as projects or activities along with or instead of other restoration activities listed in the objective.

- Recommendation: Develop an objective that is focused solely on making progress toward restoring and maintaining habitat connectivity to ensure that such a result will occur.

Because species of conservation concern have not yet been identified for the GMUG, the WDP is lacking components that would provide specific direction for restoring and maintaining connectivity for at-risk species not protected under the ESA. Without knowing the species selected, it is difficult to assess whether plan direction, including for connectivity, is sufficient to maintain viability for at-risk species that should be considered species of conservation concern.

- Recommendation: Develop plan components for individual at-risk species that are threatened by habitat fragmentation.

3. Snags and Coarse Wood

We appreciate that the WPD includes a desired condition (**FW-DC-ECO-07**) intended to retain snags and coarse woody debris and a guideline (**FW-GDL-ECO-08**) for minimum snag size and density retention, which includes a clear delineations of spatial scale (100 acres for snags and 1 acre for coarse woody debris) (See **FW-GDL-ECO-08** and Table 2, WDP: 14-15). The EIS must assess the impacts of replacing the current set of standards and guidelines with a desired condition and guideline.

Please provide more information on the specific habitat needs of "snag-dependent wildlife." Listing those species along with the desired condition would be very helpful to readers.

The snag size and density targets proposed in the WPD 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 diameter at breast height (d.b.h.).

Management practices must support sufficient snag retention and density for a variety of snag-dependent species (Hutto 2006; Hutto et al. 2016). Flammulated owls, for example, are secondary cavity nesters and need a high density of large snags. 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 prefer snags > 25 inches d.b.h., and the low threshold may be 2-8 snags/ac at > 13 inches d.b.h. (Manley et al. 2004). Nelson et al. (2009) found that a minimum threshold for snag d.b.h. may be 12 inches but average at 20 inches d.b.h. 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 (Hayward et al. 1993; Hayward et a. 1994). They need large snags and large trees, including aspen, for nesting: a minimum of nine snags per acre > 13 inches d.b.h. with some snags that must be at least 25 inches d.b.h. (Wisdom et al. 2000; Hayward 2008). To enable retention of sufficient snags for boreal owl nesting, projects cannot manage to the minimum proposed in the WDP.

- Recommendation: The Forest Service should revise **GDL-ECO-08** based on the best available science. This science demonstrates some snag-dependent species require larger and more snags per acre than what is proposed in the guideline.

- Recommendation: Revised snag targets, based on the best available scientific information, must be standards. A guideline is insufficient to retain the specific snag densities and sizes necessary for snag-depended wildlife that uses the GMUG.

- Recommendation: The revised plan should also include additional standards that will better ensure the maintenance of snag conditions sufficient to support forest species. Such standards include but are not limited to:

    - Closing roads must be considered as an alternative to hazard tree removal in areas where the snags are below desired levels.
    - 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.
    - 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. and provide for their persistence.

- Recommendation: Designate one or more snag-dependent species as focal species to help test the assumption inherent in the desired condition that listed snag density and size targets are sufficient for maintaining ecological integrity. Designating one or more woodpecker species, such as the northern flicker, as focal species would help the forest achieve the ecological integrity requirement for terrestrial ecosystems. Woodpeckers are indicators of a range of ecosystem conditions, especially snag densities, sizes, decay rates (Hilty and Merenlender 2000; Haggard and Gaines 2001; Bate et al. 2008; Nappi et al. 2015). Additionally, woodpeckers are keystone species in conifer-

dominated forests as primary cavity excavators that benefit a range of secondary cavity-using wildlife (Tarbill et al. 2015).

4. Old Growth

It is essential for the Forest to protect old growth forest given the numerous species that depend on this forest structure in a variety of forest types. However, **FW-DC-ECO-09** and **FW-GDL-ECO-10** are too vague and general to assure that the habitat requirements of species that depend on old growth forest will be met. Some of these species include: bald eagle, flammulated owl, boreal owl, American three-toed woodpecker, pygmy nuthatch, several bat species, American marten, red-backed vole, and other cavity nesting and denning species. The Forest Service must use the best available scientific information on old growth associated species to assess more specifically the "amounts and patch sizes needed to support species that depend on old growth habitat," as stated in **FW-DC-ECO-09**. We support the inclusion of a patch size for old growth retention in **FW-GDL-ECO-10**. However, for some species, the spatial arrangement and percentage of old growth across the landscape can also be important habitat factors.

- Recommendation: Base old growth targets on the habitat needs of old growth associated species derived from the best available science.

- Recommendation: Revise **FW-GDL-ECO-10** to be a standard, because retaining old growth forest is crucial for species that depend on old growth. We do not see any other means for retaining old growth.

C. Terrestrial Ecosystems and Vegetation

The Terrestrial Ecosystems and Vegetation section in the WDP is so lacking in plan components for the ecosystem types of the Forest, we are assuming that it is incomplete and that a significant set of additional plan components will be included in the next version of the draft revised plan. Thus, it is difficult to provide specific recommendations for this part of the WDP. The Forest Service must provide a set of plan components for each ecosystem type that occurs on the GMUG in order to assure management toward ecological integrity. However, given that the Forest Service has not identified species of conservation concern for the GMUG, there is a great opportunity to develop comprehensive plan direction for terrestrial ecosystems based on the habitat requirements of at-risk species—many of which are already documented in the GMUG's species overviews. Again, we refer to the Carson National Forest's draft management plan as well as the Flathead National Forest's final management plan as examples of plans that provide direction for a more complete diversity of ecosystem types that occur on these forests, though we do not agree with all of the direction provided in these plans. These plans list the species associated with the ecosystem types, which helps provide an understanding for how the plan components provide for habitat requirements.

In the GMUG's *REVISED DRAFT Forest Assessments: Terrestrial Ecosystems: Integrity and System Drivers and Stressors*, the Forest Service identified 15 terrestrial ecosystem types that occur on the Forest and

has developed plan components for only 4. Though we recognize the WDP includes plan components for successional stages, fire regimes, snags, and coarse woody debris, we are concerned about gaps in management direction regarding protecting these systems from threats. The terrestrial assessment outlines potential needs for changing management direction for 11 ecosystems, but the WDP's plan components do not address several of these needs (though we do not necessarily agree with all of these needs for change). Below are some examples to illustrate our point.

- The assessment notes a need to monitor post spruce bark beetle outbreak spruce-fir and spruce-fir-aspen regeneration, yet such a monitoring provision is not included in the WDP.

- The assessment states that there was a potential need to promote disturbance and the natural role of fire in the aspen ecosystem, yet the only plan component related to aspen (**FW-GDL-TEV-01**) does not provide this type of direction. Instead, **FW-GDL-TEV-01** focuses on aspen treatment. **FW-GDL-TEV-01** needs to be clarified. What are the desired conditions for aspen? What kind of treatments? How will aspen be managed to reduce over-browsing? What science supports treating aspen?

- The assessment states that fire suppression has impacted lodgepole pine. The WDP includes no plan components to remedy this by specifically providing direction to restore the natural fire regime to lodgepole, by limiting fire suppression and using prescribed fire.

- The assessment states that fire suppression and other anthropogenic threats have dramatically affected ponderosa pine conditions. Though **FW-OBJ-FFM-01** indicates that fuel treatments "may" be used to move ponderosa pine stands toward a more open structure that is maintained by fire, the objective does not assure that the ponderosa pine ecosystem will receive restoration treatments. It is important to indicate what kinds of treatments will be used to restore wildfire to the ecosystem. The DEIS must assess the impacts of fuels treatments in this and all forested ecosystems because some treatments, including logging and mechanical tree thinning, can have significant negative effects on forests. The WDP needs a desired condition for the ponderosa pine ecosystem.

- The assessment indicates that montane-subalpine grasslands have been degraded by livestock grazing and non-native plant species. The WDP provides a desired condition (**FW-DC-TEV-03**) that offers a minimum bare ground target and forb/grass target ratio. However, there are no plan standards that would assure these conditions will be achieved and maintained. There is no science documented to support the very specific targets in **FW-DC-TEV-03**, though they may reflect the best available science. **FW-GDL-RNG-14** and **FW-GDL-RNG-15** do not ensure progress toward meeting **FW-DC-TEV-03**.

The Revised Draft assessment report on identifying and assessing at-risk species lists habitat fragmentation, livestock grazing, mining, vegetation management and alteration, and recreation as

ecosystemic threats to the ecosystems upon which many at-risk species depend. Yet, the WDP does not adequately limit these threats with a comprehensive set of strong standards.

D. Riparian Management Zones and Groundwater-Dependent Ecosystems

- Recommendation: **STND-RMGD-09** would prohibit clearcutting in riparian management zones. Additional restrictions are needed on logging in RMZs.

- Recommendation: **GDL-RMGD** should be a standard. 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: **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: **GDL-RMGD-20** should be a standard. Projects should always be designed to avoid "ditching, damming, dewatering, [and] flooding" fens and wetlands.

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 (page 9). Out of 231 watersheds, only 53, or 23%, are assessed as good; 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. The GMUG should develop desired conditions and recommended standards for woody debris in aquatic ecosystems.

E. Invasive Species

- Recommendation: The priorities for treating invasive species need to be changed, as follows, in descending order: (1) treatment of cheatgrass in Gunnison sage grouse habitat; (2) any populations of weeds not previously detected, or only recently detected, on the GMUG; (3) small populations of weeds; (4) existing populations of any weed species that are spreading; (5) all other weed populations.

- Recommendation: **GDL-IVSP-05** should be a standard. Reseeding in the first year after disturbance decreases the chances that non-native plant species will become established.

F. Fire and Fuels Management

The Fire and Fuels Management plan components will require significant revision. We addressed **FW-DC-ECO-02** above and are concerned that the message and direction embedded in this desired condition conflict with that of **FW-OBJ-FFM-01**. **FW-DC-ECO-02** indicates the Forest understands the ecological value of wildland fire as a natural disturbance, while **FW-OBJ-FFM-01** states that wildland fire's effects must be mitigated. **FW-OBJ-FFM-01** is overly broad and vague and doesn't provide a clear explanation of what "[m]itigate the effects from wildland fire" and "improve watershed health" mean. What are "the effects" to be mitigated? "Watershed health" is subjective and ambiguous. We addressed the idea of "moving ponderosa pine stands towards fire-maintained open stand structure with a mix of age and size classes" above. Additionally, "strategically locating fuel treatments with natural and constructed barriers to create 'fuel reduction zones' on the landscape, and prioritizing treatments within the *Protection Emphasis Areas, including the Wildland Urban Interface*," requires further clarification. The Forest Service must explain what "natural and constructed barriers" are. While the objective states that Protection Emphasis Areas will be prioritized, the public needs to know how much treatment will be targeted in these areas in comparison with other areas across the GMUG. What are the targets for treatment in each of the GMUG's ecosystems?

- Recommendation: Revise **FW-OBJ-FFM-01** to, at a minimum, clarify what "mitigate the effects from wildland fire" and "watershed health" mean in a specific way; provide an area range of treatment targets for the WUI and for other ecosystems; provide an area range of treatment targets for each ecosystem in Table 1 of the WDP based on the assessment findings and any additional relevant best available science; and explain where the target treatment range of 120,600 – 326,000 acres was derived; list and described what types of mechanical treatments may be used; and document the best available scientific information used to support this objective. The EIS must provide a detailed assessment of the ecological impacts of potential treatments, including the effects of road construction, soil compaction and other damage from heavy equipment use, and erosion.

- Recommendation: Given the findings of the *REVISED DRAFT Forest Assessments: Terrestrial Ecosystems: Integrity and System Drivers and Stressors*, the revised plan should provide a desired condition and direction in plan components for increasing wildland fire in these ecosystems. The assessment indicated the 11 ecosystems (Table 16, p. 44) the GMUG assessed all require additional fire each year to be within their natural ranges of variation.

FW-GDL-FFM-02 provides no real direction to inform project managers. What does "ecological manner" mean? What does "managed" mean in this guideline, i.e., what types of management methods does it apply to? Does the guideline pertain to unmanaged fire, managed fire, prescribed fire, or all of these? **FW-DC-ECO-02** outlines only 2 aspects of fire regimes for the ecosystems listed in Table 1: severity and interval; patch size is not included, yet patch size appears in the guideline.

- Recommendation: **FW-GDL-FFM-02** must be clarified so the public and project managers understand: how the guideline will support the achievement of **FW-DC-ECO-02**, what "ecological manner" and "managed" mean, which management actions the guideline applies to, and how the guideline should be operationalized on-the-ground in project management.

G. Fire Management Emphasis Areas

The WDP on page 23 states,

> Due to continuing development in the wildland urban interface as well as other changing conditions, priorities, and definitions, these areas have not been spatially identified on the landscape for this Forest Planning effort; rather, criteria have been developed to identify and refine these emphasis areas as they change over time.

We disagree with this approach. The "criteria" listed for each emphasis area are mappable places on the GMUG, and we are confused as to why these have not been designated as management areas. Such a zoning approach must result in ecosystem integrity being achieved for the various Forest ecosystems. Integrity must be met at the ecosystem scale of analysis within the plan area. There needs to be overarching plan direction for the affirmative role of fire in maintaining and restoring ecosystem conditions, and the direction provided in the WDP is insufficient, as we discussed above. Because the Protection Emphasis Areas are not prioritized to be managed for ecological integrity, it is essential for the Forest Service and the public to know how much land area may fall into this category.

FW-DC-FFM-03 states in the first line, "Wildland fires are actively and successfully suppressed where necessary to protect life, investments, and valuable resources," which seems to undermine the emphasis areas approach to fire management. We certainly don't argue against the protection of human life. But the desired condition suggests fire can be suppressed anywhere there are "investments" and "valuable resources," which are both vague terms that can mean almost anything and are not listed in the emphasis area criteria; it does not restrict suppression to Protection Emphasis Areas, necessarily. **FW-DC-FFM-03** indicates that the emphasis area criteria may not be particularly meaningful if they are not mapped and provided management area prescriptions.

- Recommendation: The emphasis areas should be mapped, and the public should have the opportunity to comment on the maps when the draft plan and DEIS are released for public comment. It is essential for the Forest Service and the public to know the baseline for the areal extent of the two emphasis areas and trends assessed by regular mapping after the revised management plan is implemented. We recommend including a monitoring provision to re-map the areas every 1-3 years to show how these areas are changing.

Guidelines **FW-GDL-FFM-04** and **FW-GDL-FFM-05** seem to be prescribing a major vegetation treatment program, but the public will not know where it will be applied or the ecosystems that it will affect. As stated above, the revised plan must provide some sense of how much of the 120,600 – 326,000 acres target for treatment each decade, outlined in **FW-OBJ-FFM-01**, will occur in each emphasis area. The Forest Service must disclose how far from ecological integrity this type of management will likely take the protection emphasis area.

- Recommendation: The EIS must assess the impacts to ecosystems and wildlife of not managing Protection Emphasis Areas toward ecological integrity.

H. Native Species Diversity

From the start, in the Distinctive Roles and Contributions section in the WDP (pages 8-9) indicates that forest uses are likely to be prioritized over ecological sustainability and plant and animal diversity. The Forest has chosen only to emphasize "public enjoyment" and "commodity use and community connections" as the distinctive roles and contributions of the Forest. This is not only disappointing for local, regional, and national stakeholders who value habitat and species conservation, but it also does not reflect the spirit of the Planning Rule. The preamble of the Planning Rule (77 Fed. Reg. 21163) 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.
>
> …the Department and the Forest Service find that a planning rule must address the following eight purposes and needs: … 2. 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.

These passages clearly demonstrate that under the Planning Rule, wildlife and habitat protection must be given the same priority as forest uses. The Rule requirements in 36 C.F.R. § 219.8 and 36 C.F.R. § 219.9 make this principle a mandate, which is consistent with the National Forest Management Act. A forest management plan is intended to be the vehicle that balances these purposes, yet the WDP is not fulfilling this mandate.

In the scoping comments signed by several of the organizations that are also signatories to these comments (Defenders of Wildlife et al. 2018: 3-4)), we recommended the Forest include distinctive roles and contributions that more fully reflect the ecological importance of the GMUG and surrounding landscape. We appreciate the Forest highlighting non-consumptive public enjoyment activities, particularly wildlife and wildflower viewing. But we, again, urge the Forest to recognize and put on equal footing the distinctive roles and contributions of providing for ecosystem diversity; at-risk species recovery, conservation, and viability; and habitat connectivity. The failure to give equal attention wildlife

conservation as a distinctive role and contribution of the Forest is reflected in related plan components that provide weak and incomplete direction.

The public release of the GMUG's WDP has come just after the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services issued its milestone report on biodiversity and ecosystem services (IPBES 2019). Roughly one million species are currently at risk of extinction—some possibly within the next 10 years. Now more than ever the Forest Service must lead the way in protecting essential habitat for at-risk species—the Canada lynx, Gunnison sage-grouse, Uncompahgre fritillary butterfly, Colorado River cutthroat trout (green lineage), DeBeque phacelia, Colorado hookless cactus, and many others. At a time when the planet is deep into the sixth mass extinction crisis, the Forest Service must take seriously the obligations of this era. This will require much more than a "business as usual" approach.

We offer these comments with a great concern about the Forest's ecosystem conditions and ability to enable at-risk species to persist into the foreseeable future. We urge the Forest Service to take the recommendations provided to improve the next version of the draft revised management plan.

The Planning Rule incorporates an approach to diversity that first protects ecosystems by managing them for ecological integrity and then ensures that individual species are also protected (36 C.F.R. § 219.9). The rule's two-tiered conservation approach (alternatively called the "ecosystem-species" or "coarse-fine filter" planning method) relies on the use of surrogate measures, or key characteristics, to represent the condition of ecosystems, and also on the identification of at-risk species and evaluation of whether those species will be sustained.

A revised management plan must provide the ecological conditions needed to: contributed to the recovery of species listed as threatened or endangered under the U.S. Endangered Species Act (ESA), conserve species proposed or candidates for listing under the ESA, and maintain population viability for species of conservation concern (SCC) in accordance with 36 C.F.R. § 219.9(b)(1). The GMUG's *REVISED DRAFT Forest Plan Assessments Identifying and Assessing At-risk Species*, provides a comprehensive and detailed overview of ecosystem associations, habitat requirements, and threats related to a selection of at-risk species. That Assessment – as well as the "Species Overviews" provided on the GMUG's Revised Assessment Reports website – have, to an extent, informed the development of plan components. The WDP is consistent with the at-risk species assessment regarding ecosystem categories, but it has not developed plan components that sufficiently provide for habitat requirements (or key ecosystem characteristics needed for species to persist) and protect at-risk species against threats. We look at ecosystem plan components as well as the threats to these ecosystems based on at-risk species assessment.

Though the at-risk species assessment identifies species and their habitat associations, it would be helpful for this information to be included in the revised plan. For example, the Flathead National Forest final revised management plan and the Carson National Forest draft revised management plan have done this.

To summarize, we are concerned the GMUG WDP does not sufficiently prioritize overall wildlife conservation and at-risk species recovery, conservation, and persistence to an equal level with other forest uses. This has translated into a weak, unbalanced, and an overall inadequate set of plan components specific to plant and animal species.

We do not disagree with its general aim, but desired condition **FW-DC-SPEC-01** is not written in a way that enables an assessment of progress toward meeting the condition through monitoring.

> ***FW-DC-SPEC-01****: Human disturbance to wildlife and fish is minimized at a scale that impacts vital functions of their life history (breeding, feeding and rearing young) with a goal of ensuring persistence of the species. Forest management provides for wildlife movement within and among National Forest System parcels. See also Ecosystems* ***FW-DC-ECO-06****.*

FW-DC-SPEC-01 is overly broad and vague. For example, "human disturbance" can mean a variety of things and incorporate a range of human actions.

- Recommendation: Develop a more comprehensive and specific set of desired conditions along with, or instead of, **FW-DC-SPEC-01**, aimed at maintaining viability for species that use the GMUG. Though imperfect, the Carson National Forest's proposed draft management plan contains a plan component for "wildlife, fish, and plants," starting on page 85, that the Forest Service should consult for guidance when revising the WDP.

Given that **FW-DC-SPEC-01** is so broadly construed, it is surprising that the next desired condition is narrowly focused on forage.

> ***FW-DC-SPEC-02****: Forage availability is maintained or increased, where capable, and contributes to ecosystem resiliency and forage for nongame species, livestock, and big game.*

We do not disagree with including this desired condition, with some clarification and standards and guidelines that support it.

- Recommendation: Clarify what "forage" means in this case. Clearly indicate which plan components support making progress toward achieving **FW-DC-SPEC-02**. For example, specify which Range objectives, standards, and guidelines might support or conflict with **FW-DC-SPEC-02**.

We appreciate the inclusion of objectives throughout the WDP, however many (including **FW-DC-SPEC-03**) are not clearly tied to desired conditions, as they should be. This single objective covers too much ground:

> ***FW-OBJ-SPEC-03****: During each 10-year period following plan approval, restore or enhance at least 25,000 to 80,000 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, 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 Wildlife Management Area ***MA-DC-WLDF-01****.*

FW-DC-SPEC-03 does not indicate which and how much of each activity will actually be conducted during the life of the plan. Applying an area measure (acres) to all restoration activities doesn't make sense in all cases.

- Recommendation: Break up **FW-DC-SPEC-03** into a set of more narrowly described objectives and match each objective with a desired condition proposed in the WDP or develop desired conditions that are supported by each objective. For example, how many acres (or feet or miles) of fencing will be converted to wildlife-friendly fence? How many water barriers will be removed to improve aquatic and riparian resources?

GDL-SPEC-10 states that "application of pesticides should prevent population-level impacts to pollinators." At a minimum, this must be a standard. The impact of pesticides on pollinators must stop well short of the population level.

- Recommendation: We suggest the following standard: "Prior to approval of any project involving use of pesticides or herbicides, a careful evaluation of the potential impacts on pollinators will be undertaken. Impacts to pollinators will be minimized to the greatest extent possible. If NEPA or other analysis shows a significant effect on pollinators, pesticide use will not be approved."

The Planning Rule has explicit requirements in relation to at-risk species (36 C.F.R. § 219.9(b)), and **FW-DC-SPEC-22** is not written in a way that would meet them.

> ***FW-DC-SPEC-22****: Ecological conditions provide habitat contributing to survival, recovery, and conservation of species under the Endangered Species Act, improve conditions for species of conservation concern, and sustain common and uncommon native species (species of interest).*

FW-DC-SPEC-22 is not designed to meet these requirements. For example, while it is essential to improve the conditions for species of conservation concern, the Planning Rule requires the Forest be managed to maintain species of conservation concern viability, not just improve conditions for them.

- Recommendation: **FW-DC-SPEC-22** should be revised to reflect the requirements of the Planning Rule. The revised plan must "contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern within the plan area" (36 C.F.R. § 219.9(b)(1)).

1. Threatened or Endangered Species

Under the ESA, the Forest Service must utilize its "authorities in furtherance of the purposes of [the ESA] by carrying out programs for the conservation of endangered species and threatened species" (16 U.S.C. § 1536(a)(1)). NFMA, the Planning Rule, the planning process, and resulting management plans all shape the fulfillment of the Forest Service's authorities that must be marshalled in the service of recovering listed species. Specifically, the 2012 Planning Rule establishes an affirmative regulatory obligation that forest plans "provide the ecological conditions necessary to: contribute to the recovery of federally listed threatened or endangered species" (36 C.F.R. § 219.9(b)(1)).

- Recommendation: All designated critical habitat should be designated as distinct management areas in the revised plan with specific prescriptions that include regulatory standards and plan components aimed at providing special protection for these areas and restoring degraded habitat.

a) Canada Lynx (*Lynx canadensis*)

We appreciate that the WDP has included additional Canada lynx (lynx) direction: two desired conditions, an objective, two standards, and a guideline, along with all of the Southern Rockies Lynx Amendment (SRLA) direction. It is important that the plan has augmented the SRLA direction. We agree in principle and generally with the idea of habitat restoration for the purpose of at-risk species recovery. However, we must see the scientific documentation to support the Forest Service's specific spruce-fir vegetation management methods to be convinced of their potential benefit—even if this comes from Forest Service expert judgment alone. Overall, we believe the WDP does not yet meet the requirement to contribute to the recovery of lynx or that the aggregate plan components to protect lynx and lynx habitat represent a coherent recovery program as mandated in ESA Section 7(a)(1).

Recent scientific studies demonstrate a need for plan components that take into account this new information. Holbrook et al. (2017), Kosterman et al. (2018), and Holbrook et al. (2019) found that mature forest habitat is more important to lynx than previously known. Holbrook et al. (2017) reported:

> … females exhibited additive use and consistent selection of advanced regenerating forest across the range of availability. Mature forest was used in proportion to its availability, although 66% of female home ranges contained ≥50% mature forest. Together, these results demonstrated that female lynx occupy home ranges of mostly mature forest during the winter, and within that context they reduce their use of open structure classes, but additively use advanced regeneration as these structures become more available. (p. 13)

> Canada lynx in the Northern Rockies use a gradient of forest structures and compositions, but they use more mature, spruce-fir forest than any other structural stage or species. (p. 16)
>
> … during the winter (i.e., the most constraining season for lynx), (Squires et al. 2010) female and male Canada lynx exhibited increasing and additive use, respectively, for advanced regenerating forest as it became more available. (p. 17)
>
> … conservation planning should be focused on the needs of females when developing management plans. (p. 19)
>
> The affinity of lynx to advanced regenerating forest within a home range, coupled with the high use of mature forest (Fig. 3), suggests that Canada lynx spend a significant amount of time at the interface between mature and advanced regenerating forest. (p. 20)
>
> This mechanism received demographic support by Kosterman (2014), who demonstrated that female lynx with core areas of highly connected mature forest and intermediate levels of regenerating forests had the highest probability of producing a litter. (p. 20)

Kosterman et al. (2018) found that "abundant and connected mature forest" is important for reproductive success. Holbrook et al. (2019: 24) stated,

> We reinforced the findings of Kosterman et al. (2018) that core use areas within a home range context are a unique and important component for successful reproduction, although substantial residual variation exists among female lynx. Further, we demonstrated that (1) the probability of producing kittens by female lynx was most sensitive to the connectivity of mature, multistoried forests (composed of mostly spruce-fir), (2) the relative density of snowshoe hares was ≥ 2.8 times higher in advanced regenerating stands relative to other forest structures, including mature forest, (3) the home range (≈18-66 km2) and core use area of high quality females was composed of ≈50-60% mature forest and ≈18-19% advanced regeneration, and (4) advanced regenerating and mature forests were ≈20-80 years old and ≈50 to ≥ 200 years old, respectively, highlighting the developed nature of high quality Canada lynx habitat.

Though the Holbrook et al. (2017), Kosterman et al. (2018), and Holbrook et al. (2019) studies were conducted in the Northern Rockies, research in the Southern Rockies is consistent with their findings. For example, Ivan et al. (2014) and Ivan and Shenk (2016), cited in Holbrook et al. (2017), reported from a Colorado study that lynx have higher snowshoe hare kill rates in forests with lower tree density, even though hare abundance is higher in regenerating stands. We certainly understand a major effect of the spruce bark beetle outbreak is that huge swaths of lynx habitat are being reset to early or mid- seral conditions. But throughout the life of the plan, the Forest must protect any mature forest stands that remain by including stronger plan components that do so. It must also protect stands with understories that provide dense horizontal cover for hare, even if the overstory is completely dead. See Squires et al. (2018) about the how lynx have been using habitat affected by Colorado's spruce bark beetle outbreak.

New science has also been published regarding silviculture activities in lynx habitat. Holbrook et al. (2018), studying lynx responses to silviculture treatments over time, found lynx use of vegetation treatment areas remained low up to about 10 years after treatment, and it took about 20 years for lynx use to reach 50% after thinning and 34-40 years, approximately, after selection or regeneration harvest. Thomas et al. (2019: 114) studied the response of snowshoe hares to salvage logging after a bark beetle outbreak in the Yukon; they found:

> Snowshoe hares occupied stands with dense canopies and avoided salvage-logged stands regardless of retention class or age, selecting habitat with the most cover from aerial and terrestrial predators. Lynx and coyote generally used the same habitat as hares, selecting unsalvaged stands with high snowshoe hare occupancy. … Our study demonstrates that salvage-logged stands have lower value than beetle-affected forest for snowshoe hares and their predators in the short-term—regardless of retention levels—which may have localized impacts on boreal forest food webs. Higher tree retention, long harvest intervals, and small cut areas interspersed with large unlogged forest patches are recommended to mitigate negative impacts of salvage logging on these species.

Though these studies were not conducted in Colorado, they indicate the Forest Service must be cautious regarding forest treatments and commercial harvesting in lynx habitat—especially in the near-term, i.e., over the life of the management plan.

We are concerned the WDP does not take into account the multiple, combined impacts of climate change plus other stressors on lynx habitat. Climate change may be the most significant current and future stressor to lynx habitat, and the Southern Rockies lynx population is at risk of extinction due largely to climate change (ILBT 2013; Lynx SSA Team 2016; USFWS 2016 & 2017). Experts are concerned about the impacts of changing snow conditions on snowshoe hares:

> … the shorter duration and diminished snow cover in the DPS is causing an increasingly pronounced mismatch in the phenology of hare pelage change that may reduce hare survival (Mills et al. 2013, entire; Zimova et al. 2013, entire). Diminished snow duration by as much as 8 weeks by the end of the century could have population-level effects on hares at the southern edge of their range. Hares exhibit plasticity in the rate at which they can molt from white to brown in the spring, but not in the initiation date of color change or the fall transition from brown to white (Mills et al. 2013, pp. 7362-7363). Hares do not seem to compensate for mismatched pelage by changing their behavior related to concealment, thus predisposing them to predation. There is wide variability in the timing of pelage change by individual hares within populations, and "mismatched" hares experience increased mortality rates (Zimova et al. 2016, p. 302). Under high emission scenarios, this could lead to an 11 percent decline in hare survival by mid-century and a 23 percent decline by late century. Diminished survival would lead to steep (high emissions) to moderate (medium-low emissions) declines in hare populations (Zimova et al. 2016, p. 304). It is also possible that this phenological mismatch may dampen hare

> cycles (Zimova et al. 2016, p. 305). Snow patterns have been proposed to potentially play a role in dampening cycles (Cornulier et al. 2013, pp. 64-65, Sultaire et al. 2016a, entire). (USFWS 2016: 68)

A recent Michigan study found that hare occupancy is changing in relation to snow; areas once occupied have been abandoned due to unfavorable snow conditions (Burt et al. 2017). Experts are currently researching the adaptive potential of hares to shorter durations of snow cover.

- Recommendation: Maximize maintaining and restoring remaining habitat with an aggregate set of plan components that eliminate or limit manageable stressors to the maximum degree reasonably possible, given the present and future impacts of climate change on lynx habitat.

We agree with the development of desired conditions: **FW-DC-SPEC-48** and **FW-DC-SPEC-49**, with the following recommendations. We note that protecting habitat connectivity also helps with climate adaptation.

> ***FW-DC-SPEC-49****: Canada lynx populations and habitat on the Forests contribute toward range-wide species conservation and recovery, consistent with the best available scientific information (Lynx Conservation Assessment and Strategy or most recent conservation plan). Each lynx analysis unit contains a diversity of seral stages, including early, mid, and late-successional subalpine coniferous forest and mixed aspen-conifer stands. Regenerating conifer stands provide habitat for snowshoe hares. Spruce-fir stands impacted by spruce-bark beetles are regenerating. Lynx analysis units contain structural habitat diversity (uneven age classes) to support prey species. See also* ***FW-GDL-TMBR-09****.*

- Recommendation: Include an average proportion or range of each seral stage per lynx analysis unit, assuring that this includes a sufficient portion of mature forest into **FW-DC-SPEC-49**. We also recommend consulting co-authors of Holbrook et al. (2017), Kosterman et al. (2018), and Holbrook et al. (2019) to help design a more specific desired condition.

- Recommendation: Include a desired condition, stand-alone or incorporated into **FW-DC-SPEC-49**, to eliminate – where possible – and otherwise limit threats to lynx and lynx habitat. Some threats include vegetation treatments, including salvage logging, and commercial timber harvest, vehicle collisions, habitat fragmentation, disturbance from winter recreation, snow compaction due to activities such as winter recreation, and livestock grazing (ILBT 2013). Climate change is a threat to lynx habitat, and the Forest Service should provide plan components that promote climate adaptation and mitigation.

We conditionally support **FW-OBJ-SPEC-50**.

> ***FW-OBJ-SPEC-50****: Within 3 years of plan approval, update mapping that identifies snow-compacting activities, including designated and groomed routes and areas of persistent, winter-long snow compaction within each lynx analysis unit.*

However, the objective must be linked to a desired condition, i.e., "An objective is a concise, measurable, and time-specific statement of a desired rate of progress toward a desired condition or conditions…" (36 C.F.R. § 219.7(e)(1)(ii)). "[M]apping" as per **FW-OBJ-SPEC-50**, is not a condition in and of itself. There must be a desired condition statement that relates to snow compaction; preventing snow compaction to the extent management can do so is desirable. The mapping, while useful, seems more like a monitoring tool that should trigger the Forest Service to consider closing "groomed routes" and/or areas of frequent winter use when these activities impact lynx habitat.

Though we do not oppose **FW-STND-SPEC-51** (affirming that SRLA direction be retained in the revised plan), the SRLA direction must be augmented with other plan components, including standards and guidelines, to protect mature forest habitat and prevent and limit other threats. **FW-STND-SPEC-52** (VEG S7) states:

> ***FW-STND-SPEC-52*** *(VEG S7): Harvest activities in stands that represent high-quality lynx habitat may occur in up to, but not more than, 7 percent of identified high-probability lynx use areas within areas identified as suitable for timber production over a period of 15 years from the date of the forest plan decision. 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 date of the forest plan decision. See also Appendix 2 for more background on this standard.*

We agree that the revised plan should have a standard that addresses commercial timber harvesting and other vegetation management activities in "high-quality habitat for lynx, but no longer meet the definition for the original SRLA standard VEG S6 due to tree mortality and associated forest structural changes" (WDP 2019: 131, Appendix 2). Appendix 2 also states, "Based on the Resource Selection Function model (Squires et. al 2018), approximately 10,600 acres on the GMUG National Forests are currently identified as high-probability lynx use area (95 percent use areas)" (WDP 2019: 131, Appendix 2). Are "high-quality," as used in VEG S7 and "high-probability lynx use area" the same thing? This must be clarified. Why would the Forest Service choose not to protect these areas from commercial harvest completely, especially if there are only 10,600 acres on the GMUG with this quality habitat?

It is important that lynx standards, including new ones added during plan revisions, be applied consistently across both the Rio Grande and GMUG National Forests, as stated at WDP 131-132. However, the Rio Grande's VEG S7 is considerably different from the proposed GMUG VEG S7. The Rio Grande's (Draft Revised Rio Grande Plan 2017: 22) version reads as follows:

> Vegetation management activities that occur in conifer stands that qualify as VEG S7 with potential to reduce high-quality winter snowshoe hare habitat shall occur only:

1. Within 200 feet of administrative sites, dwellings, outbuildings, recreation sites, and special use permit improvements, including infrastructure within permitted ski area boundaries; or
2. For salvage harvest activities when incidental damage to understory and standing green trees is minimized. Pre-project projections of incidental damage will be validated by implementation monitoring and will be documented in administrative records.

Paragraph 1 of this version limits vegetation management to a few very limited locations, the application of which would not at all be likely to reach seven percent of the habitat, as the GMUG's version would allow. We do not agree with paragraph 2 of the Rio Grande version, because "minimized" is not defined or quantified. It would be much better to avoid the highest quality lynx habitat altogether; a standard should state that.

- Recommendation: The GMUG and Rio Grande should agree to a VEG S7 that prohibits all or nearly all vegetation management in the highest quality lynx habitat. At a bare minimum none of the habitat covered by VEG S7 can be suitable for timber production.

Additionally, we are concerned Standard VEG S1 of the SRLA no longer reflects the best available scientific information, including Kosterman (2014), Holbrook et al. (2017), Kosterman et al. (2018), and Holbrook et al. (2019). For example, Kosterman's (2014) research indicated that a threshold of 10-15% is likely more appropriate, especially to maximize female reproductive capacity.

- Recommendation: Consult co-authors in Kosterman (2014), Holbrook et al. (2017), Kosterman et al. (2018), and Holbrook et al. (2019) to determine if VEG S1 should be modified based on the best available scientific information and modify, as necessary, based on their findings.

Appendix 2, which contains the SRLA direction and a helpful explanation regarding VEG S7, states:

> Consistent with the entirety of the SRLA, the direction is intended to retain existing high-quality habitat while encouraging vegetation management in areas where habitat quality for lynx and snowshoe hare can be improved in the long-term. … Vegetation management activities have the potential to benefit and adversely affect lynx and snowshoe hare habitat and populations (Interagency Lynx Biology Team 2013: 71).

The Forest Service must be clear about the best available science it is using to guide any vegetation management activities in lynx habitat. The Canada Lynx Conservation Assessment and Strategy (ILBT 2013) is nearly six years old. Though it is not completely obsolete, researchers have published numerous papers about lynx and hare responses to vegetation management since the Assessment and Strategy was developed, some of which we've cited above. The Forest Service must be clear about what information it is using to support modifying definitions 19 and 24 of the SRLA. Are these based on the Squires (2018) research cited in Appendix 2? If so, please document this. We do not necessarily disagree

with making changes to the definitions if they favor lynx habitat protection, but we question the changes to definitions 19 and 24. We want to know the supporting information upon which the proposed changes or clarifications are based. For example, we are concerned that definition 19 has been changed to 45% high-quality horizontal cover when 35% has long been the standard. Our request to document the science also pertains to direction outlined in the WDP's Appendix 3 "Management Approaches and Possible Action" (WDP 2019: 146-147).

- Recommendation: Document the best available scientific information used to guide the development of plan components, management approaches, and possible actions related to vegetation management, including commercial harvest and salvage logging.

GDL-SPEC-53, calling for no net increase in snow compaction, needs to be a standard.

Given the science regarding the need to retain mature forest for lynx and the negative response of snowshoe hares to salvage logging, we find guideline **FW-GDL-TMBR-09** problematic.

> ***FW-GDL-TMBR-09****: To promote landscape mosaics, habitat heterogeneity, and minimize habitat fragmentation (particularly for lynx), and meet desired conditions for diverse seral stages, during project design where 75% or more of the stand will be salvaged to recover economic value, late-successional forest patches that are expected to remain green or mostly green in the next 15 years should be identified for retention during project implementation. See also* ***FW-SPEC-STD-51, 52*** *and Appendix 2 – Southern Rockies Lynx Amendment Direction.*

We discuss how salvage logging is detrimental to the habitat of other at-risk species elsewhere in these comments. We recommend the Forest Service make retaining late-successional forest a standard, due to the need to strictly protect what is remaining in the GMUG.

- Recommendation: Include a standard that reads, "Late-successional—mature and old growth—forest shall be identified and retained during commercial harvest and other vegetation management activities."

We note that the WDP includes no monitoring questions specifically designed to regularly assess the condition of lynx habitat, though there are a few monitoring activities related to vegetation management. See WDP at 73-75. To our knowledge, there have been no ecological assessments of how the SRLA has been applied to contribute to lynx population recovery and whether lynx are responding to the management changes—a point made by the USFWS (2016: 193).[2] It is not clear how the direction is impacting snowshoe hare abundance and density, because these variables are not being monitored—nor will they be if the WDP components and proposed monitoring plan provisions pertaining to lynx are retained in the revised plan.

[2] Note that the SRLA encourages preparation of a "broad scale assessment …that substantiates different historic levels of stand initiation structural stages" in Veg S1, SRLA Record of Decision, Attachment 1-2.

We acknowledge that a proxy for actual lynx distribution, abundance, and population trends is necessary. However, stand initiation is an insufficient proxy when snowshoe hare density can be measured (c.f., Mills et al. 2005). It is also important to know the percentage of mature forest in each LAU (based on Kosterman (2014), Holbrook et al. (2017), Kosterman et al. (2018), and Holbrook et al. (2019)). A periodic sampling of hare density would not only provide information that gets closer to measuring recovery trends, but would also help answer key questions and address important assumptions in the plan, such as whether vegetation management can restore lynx habitat. The response of hares to vegetation management including salvage logging, fire, and other stressors will not only help assess ecosystem conditions that affect lynx recovery but help answer highly relevant scientific questions.

- Recommendation: The revised plan should include a monitoring question that guides measurement of the percentage of mature spruce-fir forest in each LAU every two years.

- Recommendation: The revised plan should include a monitoring question that guides assessments of snowshoe hare densities in response to natural disturbance, such as fire, insect outbreaks, or vegetation treatments every 3-5 years.

b) Gunnison sage-grouse (*Centrocercus minimus*)

The Gunnison sage-grouse is listed as threatened under the ESA, and there is designated critical habitat for the species on the GMUG. The WDP contains a significant number of plan components aimed at protecting the species and its habitat relative to the number of plan components for other species. We are nonetheless concerned that these are insufficient to contribute to the recovery of the species.

Desired condition **FW-DC-SPEC-29** is quite comprehensive, and we appreciate that it includes expansion habitat and occupation of new lek sites as elements.

- Recommendation: We request that **FW-DC-SPEC-29** also include the elimination and limitation, to the extent possible, of threats to the species and habitat.

We commend the Forest Service for including objectives in the WDP aimed at mitigating threats, including **FW-OBJ-IVSP-02** aimed at controlling cheatgrass. We ask that some modifications be made to these to better protect Gunnison sage-grouse and sage-grouse habitat.

- Recommendation: Hasten the timeline for **FW-OBJ-SPEC-30** to 3-5 years for identifying illegal or redundant routes within 4 (not 2) miles of active and potential leks. (See Defenders et al. 2018)

- Recommendation: Develop a standard to prohibit pet (e.g., dogs) from accessing Gunnison sage-grouse habitat (leashed or unleashed). Dogs pose a serious threat to wildlife from direct harm to indirect disturbance. “Requesting the public to leash pets when recreating” (**FW-OBJ-SPEC-31**) is too

weak and this direction is more appropriate as a standard instead of an objective because it is putting a necessary constraint on an activity.

- Recommendation: Include a desired condition or management strategy or approach, in addition to **FW-OBJ-SPEC-32**, that seeks citizen volunteers to assist with removing, moving, or marking fence in habitat, and the Forest may be able to meet this objective within the 5-year timeframe.

- Recommendation: Develop **FW-OBJ-SPEC-32** into a standard. We see no reason why prohibitions on recreation, outfitter, and guide usage cannot be curtailed at the time the revised plan is implemented.

Regarding the WDP's guidelines related to the Gunnison sage-grouse, we find many are not consistent with the best available scientific information on protecting sage-grouse and sage-grouse habitat. Several of the groups submitting these comments also submitted scoping comments that detailed requirements for sage-grouse (Defenders et al. 2018: 24-28) and are disappointed that many of these requirements are not included in the WDP.

- Recommendation: We urge the Forest Service to revisit recommendations made by Defenders et al. (2018) and include them as standards in the revised plan.

- Recommendation: Revise **FW-GDL-SPEC-34** to be a standard, reading: "To maintain, improve, or enhance existing Gunnison sage-grouse habitat, surface-disturbing activities shall not be permitted within 4 miles of a lek." (See Defenders et al. 2018)

- Recommendation: Given the precarious status of the Gunnison sage-grouse, revise **FW-GDL-SPEC-35** and **FW-GDL-SPEC-36** to be a standard that incorporates Defenders et al. (2018: 25-26) scoping comment recommendations titled: "Limit development impacts," "Avoid impacts from mineral development," "Avoid impacts from renewable energy development," and "Avoid impacts from rights-of-way." As part of this standard, the WDP's language in **FW-GDL-SPEC-35** should be revised as follows: "ground-disturbing projects in 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." Document the best available scientific information used to support this plan component that, again, we recommend be a standard. For **FW-GDL-SPEC-36**, new infrastructure must be restricted unless existing use permits or other valid existing rights apply.

- Recommendation: **GDL-SPEC-37** must be a standard. It is very important that tall structures, like oil and gas drill rigs, be prohibited in and near occupied habitat. The presence of these structures may allow predation on grouse or cause the grouse to abandon the habitat to avoid being preyed on.

- Recommendation: Guidelines **FW-GDL-SPEC-38, FW-GDL-SPEC-39, FW-GDL-SPEC-40, FW-GDL-SPEC-41, FW-GDL-SPEC-42, FW-GDL-SPEC-43, FW-GDL-SPEC-44, FW-GDL-SPEC-45, FW-GDL-SPEC-46**, and

FW-GDL-SPEC-47 should all be revised to be standards. We appreciate the inclusion of this comprehensive set of plan components, but these must be enforceable standards that provide a framework of adequate regulatory mechanisms to meet the Forest Service's obligations under the ESA.

c) Colorado River Cutthroat Trout (*Oncorhynchus clarki pleuriticus*)

As described in the introduction to the *REVISED DRAFT Forest Plan Assessments: Watersheds, Water, and Soil Resources* describing key issues for watersheds, water, and soil resources on the GMUG, "the GMUG provides much of the available habitat for Colorado River cutthroat trout and boreal toad in southwestern Colorado" (page 1). Despite noting the importance of the GMUG for Colorado River cutthroat habitat, the WDP does not describe desired conditions and standards to manage our valuable Colorado cutthroat trout populations. The Colorado cutthroat trout is listed by Colorado Parks and Wildlife as a species of State Special Concern (although not listed as federally threatened or endangered).

- Recommendation: The Colorado River cutthroat trout should be considered as a target species for GMUG management and appropriate standards should be developed.

d) Uncompahgre Fritillary Butterfly (*Clossíana improba acrocnema*)

The USFWS had been considering downlisting the Uncompahgre fritillary butterfly (UFB) from endangered to threatened but decided against this, finding the species to be worse off than during its last review, and determining climate change to be a more significant factor than previously believed (USFWS 2018). The final listing rule for the species included the lack of regulatory mechanisms as a listing factor (56 Fed. Reg. 28712). While the review stated that regulatory mechanisms for "Mt. Uncompahgre" (Uncompahgre Peak) were adequate, it is imperative that regulatory mechanisms (i.e., plan standards) minimize anthropogenic threats to the species and habitat. Threats that can be managed at the scale of the species' distribution across the GMUG include collection, livestock grazing, and recreation.

The revised management plan should include a desired condition that specifically aims to contribute to the recovery of the UFB so that standards and guidelines can relate to and support progress toward that condition.

- Recommendation: Develop a desired condition for the UFB, for example: "The Uncompahgre fritillary butterfly is moving toward recovery with an increasing population due to protection and expansion of snow willow habitat and the minimization of threats including, but not necessarily limited to, collection, livestock grazing, and recreation."

We agree with the inclusion of **FW-STND-SPEC-27** that protects UFB from collection. However, we urge that the two relevant guidelines intended to protect the species, **FW-GDL-SPEC-28** and **FW-GDL-RNG-08**, addressing livestock grazing and recreation, be modified to be standards.

The revised plan and DEIS should make clear how the plan components will contribute to recovery, not merely avoid jeopardy. The WDP does not indicate the plan components provide sufficient direction to contribute to recovery by, for instance, protecting suitable habitat that could serve as recovery habitat.

> ***FW-GDL-SPEC-28****: To assist in species recovery and to avoid direct species and habitat impacts, livestock grazing, livestock trailing, and new or realigned recreation trails should remain at least a 600-foot buffer distance from Uncompahgre fritillary butterfly colonies and their snow willow habitat. See also Range* ***FW-GDL-RNG-08****.*

The Forest Service should document the science used for recommending a 600-foot buffer. Again, this guideline should be rewritten as a standard. We cannot envision a scenario where the overall purpose of this guideline could be met other than by providing a disturbance buffer around UFB colonies to protect the butterflies and destruction of snow willow habitat, e.g., by human and livestock trampling. Therefore, a standard is more appropriate.

- Recommendation: **FW-GDL-SPEC-28** should be modified as a standard with the following language: "Livestock grazing, livestock trailing, and new or realigned recreation trails must remain at least a 600-foot buffer distance [or what distance the BASI recommends] from Uncompahgre fritillary butterfly colonies and their snow willow habitat to avoid species habitat degradation and destruction and to meet the desired condition of contributing to the species' recovery."

- Recommendation: Modify **FW-GDL-RNG-08** to read: "To minimize bank destabilization and associated sedimentation, new and revised allotment management plans ~~should~~ shall limit or prevent concentrated livestock use in riparian management zones and wetland-upland interfaces, including those containing habitat for Uncompahgre fritillary butterfly, via stocking levels, duration, timing, and/or physical structures (such as off-site water developments or hardened stream crossings)."

The draft monitoring section of the WDP states, "If populations [of UFB] show declining trend, consider additional management of possible risk factors, including domestic sheep trailing and recreation impacts" (WDP: 79). This species is at a grave risk of near-term extinction; it only makes sense to provide the species and its habitat the highest level of protection. Moreover, it does not make sense for the Forest Service to set itself up for needing to go through an amendment process during the life of the plan, when it can easily make these modifications now. In other words, it is vitally important that standards for protecting this species be strong enough to provide a good chance for its recovery.

e) Colorado Hookless Cactus (*Sclerocactus glaucus*)

The Colorado hookless cactus is listed as threatened under the ESA. Threats to the species include mineral and energy development, ORV use, water development, collection, livestock grazing and trampling, predation, herbicides and pesticides, hybridization, and climate change and associated drought periods, and inadequate existing regulatory mechanisms (USFWS 2010). The Forest Service's Plant Species Overviews document indicated that remnant populations of the plant occur in areas inaccessible to cattle, and the most significant impact is deer (USDA, Forest Service 2018). The USFWS stressed the importance of identifying and protecting population connectivity corridors and protecting and restoring habitat for pollinators (USFWS 2010). The WDP contains no plan components specific to contributing to Colorado hookless cactus recovery.

- Recommendation: Include a desired condition that commits the Forest Service to contributing to the recovery of the Colorado hookless cactus by minimizing threats and – where possible – enhancing and expanding habitat and providing for pollinator connectivity.

- Recommendation: Propose plan components, including standards if necessary, to protect this species, or explain how the GMUG will contribute to the recovery of the Colorado hookless cactus with no plan components. The DEIS must assess how the lack of protection will impact the species. Consider using exclosures or other deer deterrents to protect populations and potential recovery habitat to prevent damage from deer. If the Forest Service believes these would alert collectors to populations, provide this rationale in the next version of the draft revised plan and/or DEIS.

- Recommendation: Designate the Sunnyside Roadless Area as a recommended wilderness area, as supported by the *Community Conservation Proposal* to maintain protection for the Colorado hookless cactus.

f) DeBeque phacelia (*Phacelia submutica*)

The DeBeque phacelia is listed as threatened under the ESA. Though most populations occur on Bureau of Land Management land, the GMUG contains designated critical habitat for the species within the Horsethief Mountain critical habitat unit. The USFWS (2013) listed the following threats to the species in the unit: livestock, weeds, well pads, near roads, OHV, and pipelines, which do not all occur on the GMUG. The GMUG's species overview for the Debeque phacelia stated climate change is perhaps the greatest threat to the species, and trampling of plants by deer and trespass cattle also constituted threats on the Forest; one site experiences illegal use by off-road vehicles (USDA, Forest Service 2018). However, there are no plan components in the WDP specifically aimed to protect the plant's habitat or populations.

- Recommendation: Write plan components, including standards if necessary, that are likely to be sufficient for protecting this species and allowing its recovery.

- Recommendation: Provide exclosures around threatened sites to prevent habitat damage and killing of plants by off-road vehicle use and deer and livestock trampling. If the Forest Service believes

exclosures are ill-advised, provide a justification for this in the DEIS, and propose alternative methods for protecting this species' populations.

2. Proposed or Candidate Species

The revised plan is required to conserve proposed and candidate species for listing under the ESA under 36 C.F.R. § 219.9(b)(1) of the Planning Rule. The wolverine (*Gulo gulo*) is proposed for listing under the ESA. While the WDP does not mention the wolverine, a couple of guidelines, including **FW-GDL-SPEC-26** and **FW-GDL-SPEC-53**, aim to protect alpine habitat and unspecified habitat in winter from recreation. Motorized winter recreation is one of the significant threats to wolverine (Heinemeyer et al. 2019), along with climate change. However, **FW-GDL-SPEC-26** is overly vague as to where motorized recreation will be limited and seasonally restricted. Areas that receive relatively significant snowfall and maintain snow cover should be protected with plan components that specify management areas or parts of the GMUG where restrictions will occur. This is needed because otherwise, application of **FW-GDL-SPEC-26** (limiting recreation use), might not occur until travel management is done, which will not occur until well after the revised plan is finalized, while wolverine habitat needs protection now.

3. Other At-Risk Species

We do not understand how the Forest Service can develop ecosystem-focused (coarse-filter) plan components that provide for habitat requirements and eliminate and limit threats to at-risk species that are not federally recognized without identifying species of conservation concern (SCC). This is the responsibility of the Regional Forester and is necessary to maintain the persistence of at-risk species known to occur on the GMUG. Given that the Forest Service has apparently not yet developed an SCC list, it is not surprising that the WDP's plan components for maintaining ecosystems have fallen short of Planning Rule requirements, and that species-specific (fine-filter) plan components are not provided for most at-risk species that need specific components for the Forest Service to meet the Planning Rule requirement to maintain their persistence.

4. Big Game Species

STND-SPEC-15 would require the separation of bighorn and domestic sheep on active allotments of the latter. This is a good and necessary standard, as one of the biggest threats to wild sheep is transmission of disease from domestic sheep. According to Beecham et al. (2007), at least one on the eight bighorn sheep herds on the GMUG had domestic sheep in close proximity. The authors stated, for the San Luis Peak herd:

> Without significant modifications to the existing grazing regime and/or closure of specific allotments within bighorn range, future die-offs are likely. (Beecham et al. 2007: 52)

They noted that one other herd (Pole Creek/Upper Lake Fork), which occurs on both the GMUG and Rio Grand National Forests, has historically had domestic sheep grazing throughout the herd's habitat (Beecham et al. 2007: 53).

STND-SPEC-16 prohibits any use of sheep or goats for weed management. We believe this is too strong of a standard.

- Recommendation: If domestic sheep will be allowed to graze on the GMUG, then they should be allowed to be used for weed control, where it would be consistent with the need to maintain separation between domestic and native sheep.

GDL-SPEC-17, restrictions on activities in big game production areas and winter ranges, is good, but it should be a standard.

- Recommendation: Make **GDL-SPEC-17** a standard. To allow flexibility where warranted, allow Forest Service biologists, in cooperation of, and in agreement with, the Colorado Division of Parks and Wildlife, to modify the dates based on local data.

5. Other Species Address in the WDP

a) Boreal Toad

- Recommendation: **GDL-SPEC-19**, which limits heavy equipment use near boreal toad breeding sites is good, but should be a standard.

b) Pollinators

We are pleased to see plan components that aim to protect pollinators (**FW-GDL-SPEC-10**), their habitat (**FW-GDL-IVSP-05**, **FW-DC-SPEC-08**, **FW-OBJ-SPEC-09**), and habitat connectivity (**FW-DC-ECO-06**), given the crisis of pollinator population loss across the U.S. Restoring and maintaining pollinator habitat has been overlooked in other final and draft forest management plans.

The WDP should make clear that there are invertebrate and vertebrate (e.g., some bats and birds) pollinators that occur on the Forest, and several of them are at risk and should be identified as species of conservation concern. The WDP indicates that habitat fragmentation, pesticides, and invasive species are the only threats to pollinators. Livestock grazing and fire suppression are also threats that can and should be managed.

- Recommendation: Defenders et al. (2018: 33-34) provided a set of recommendations for protecting western bumblebees and bumblebee habitat that can be applied to a larger set of pollinators, and we urge the GMUG to revisit these comments and adopt recommendations that address other threats beyond pesticides.

- Recommendation: We recommend the management approach for pollinators (WDP: 143) be revised as a standard. This direction should be mandatory.

Additionally, recent research has shown that fire is important for pollinators and that fire diversity, including high-severity fire, increases pollinator diversity (Ponisio et al. 2016; Galbraith et al. 2019). This work emphasizes that the Forest Service must ensure that restoring fire where it has been suppressed is an essential part of the revised plan.

c) Beavers

In scoping comments, Defenders et al. (2018: 39-41) recommended developing plan components for protecting existing beaver populations and identifying places that would benefit from beaver reintroduction. We are pleased to see the WDP promote beaver reintroduction and include monitoring for presence/absence of beavers. We also recommended the Forest Service specifically designate the beaver as a focal species to help monitor riparian and aquatic ecosystem conditions.

The Forest Plan contemplates using beaver reintroduction to improve riparian health and to enhance watershed resiliency. It includes strategies to mitigate human/beaver conflict **(FW-OBJ-RMGD-06; FW-GDL-AQTC-09)** and describes adaptive management actions to "consider beaver relocation and/or construction of beaver dam analogs" (WDP: 80). When contemplating a changing hydrologic cycle, beaver can help build resilience into the system by slowing early and rapid runoff, helping to raise water tables, and creating additional riparian habitat. We support the incorporation of beaver reintroduction as a management strategy to accomplish a range of ecosystem needs.

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

Beavers are considered keystone, or strongly interacting, species. A technical conservation assessment of beavers prepared for the Rocky Mountain Region (Region 2) acknowledged the interactive role of these rodents in riparian systems (Boyle and Owens 2007). Studies have demonstrated the negative consequences of beaver losses as well as the ecosystem services beavers provide through their dam building (Gurnell 1998; Wright et al. 2002; Butler and Malanson 2005; Westbrook et al. 2006; Stevens et al. 2007; Bartel et al. 2010; Westbrook et al. 2011). Miller et al. 2003: 188, citing Naiman et al. (1988) and Gurnell (1998), presented a long list of documented ecological impacts of beaver engineering:

> stabilization of stream flows; increased wetted surface area (i.e. benthic habitat); elevation of water tables causing changes in floodplain plant communities; creation of forest openings;

creation of conditions favoring wildlife that depend upon ponds, pond edges, dead trees, or other new habitats created by beavers; enhancement or degradation of conditions for various species of fish; replacement of lotic invertebrate taxa (e.g., shredders and scrapers) by lentic forms (e.g., collectors and predators); increased invertebrate biomass; increased plankton productivity; reduced stream turbidity; increased nutrient availability; increased carbon turnover time; increased nitrogen fixation by microbes; increased aerobic respiration; increased methane production; reduced spring and summer oxygen levels in beaver ponds; and increased ecosystem resistance to perturbations.

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

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

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

Focal species have two primary functions in the planning process:[3] as indicators of integrity and as measures of effectiveness of plans in providing ecological conditions for diversity and species persistence, including the persistence of at-risk species. There is also sufficient interest and concern in the health of the watersheds and riparian areas to justify the beaver being selected as a focal species. The rising temperature due to climate change has water supplies becoming increasingly scarce, leading to conflict between competing uses of water resources. There has been a negative transformation of the landscape due to the increased frequency of drought, wildfire, flooding, and invasive species. Clearly, as described above, beavers are indicators of ecological integrity, and should be selected as a focal species for this reason. They should also be selected as focal species based on their ability to provide ecological conditions needed for at-risk species, including increased habitat and habitat heterogeneity for at-risk fish species in the forest planning area.

[3] Focal species are required by 36 CFR 219.12(a)(5)(iii).

- Recommendation: Designate beavers as a focal species in the revised management plan, and identify beaver habitat characteristics as key/desired ecological conditions. This would mandate monitoring of beaver populations and habitat conditions in the watershed and riparian areas of the GMUG. This monitoring information would be a reliable source to measure and study the health of these ecosystems through variations of climate change.

I. Soil Resources

STND-SOIL-02 is good, as it implements the direction in the Soil Management Handbook, FSH 2509.18, R2 Supplement No. 2509.18-92-1.

- Recommendation: Additional wording should be added to make clear that areas where the 15 percent standard is already exceeded must have no additional entries before natural recovery occurs or mitigation is shown to be effective, as stated in section 2.2 (4) of the Handbook: "If a standard is exceeded in an initial entry, future entries must have no additional detrimental effect unless mitigation measures have been applied or natural recovery has taken place between entries."

J. Watersheds and Water Resources

The *GMUG REVISED DRAFT Forest Plan Assessments: Watersheds, Water, and Soil Resources* makes the recommendation that federal direction for obtaining instream flows change to be consistent with state law (page 33).

- Recommendation: The Forest Plan should include specific direction to partner with local entities to appropriate minimum flows for fisheries on the GMUG.

1. Priority Watersheds

Under the Planning Rule, each national forest/grassland unit is required to "[i]dentify watershed(s) that are a priority for maintenance or restoration" (36 CFR 219.7(f)(1)(i)). In addition, for ecological sustainability:

> The plan must include plan components, including standards or guidelines, to maintain or restore: … (iv) Water resources in the plan area, including lakes, streams, and wetlands; ground water; public water supplies; sole source aquifers; source water protection areas; and other sources of drinking water (including guidance to prevent or mitigate detrimental changes in quantity, quality, and availability). (36 CFR 219.8(a)(2)).

In the WDP, the GMUG only identifies one priority watershed. It is hard to imagine that there is only one watershed that should be prioritized for maintenance and/or restoration on a national forest unit the

size of the GMUG. Indeed, WDP Appendix 3, Management Approaches and Possible Actions, under the "Planning for Resilient Infrastructure" section, has the following guidance:

> Geographically prioritize actions, as informed by the GMUG Watershed Vulnerability Assessment (USDA 2013). This assessment identified the following, in summary: …
>
> Specifically, 9 subwatersheds in the San Juans are rated as the most high-risk (339,700 acres); 3 subwatersheds encompassing an even larger area (476,900 acres) are identified as the most high-risk in the Upper Taylor geographic area (p. 110). (WDP: 149)

Some of those identified watersheds should be designated priority watersheds. We support the inclusion of the Oh-Be-Joyful watershed as a priority watershed (Oh-be-Joyful Creek – Slate River (140200010205)); however, this is the ***only*** watershed that was identified as a priority.

- Recommendation: The GMUG should identify additional priority watersheds for inclusion in the revised forest plan.

The USFS Watershed Condition Framework explains that: "Priority watersheds are the designated watersheds where restoration activities will concentrate on the explicit goal of maintaining or improving watershed condition. The number of priority watersheds will vary by national forest but is expected to range from one to five, given current funding levels." (USFS Watershed Condition Framework, page 11.) As noted in the WDP, "With more water-related special uses than any other national forest, the GMUG serves as critical headwaters. Protecting and sustaining these watersheds provides a high-quality, local source of 1.9 million acre-feet of water that is consumed by western Colorado and the southwestern part of the United States" (WDP: 9). 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.

Going forward, it would also be helpful to know the following:

- How did the GMUG identify the Oh-Be-Joyful watershed? It is unclear from the draft documents how this was selected as a priority watershed. While we agree that this watershed merits identification as such, it would be useful to stakeholders to better understand the selection process.

- What criteria were used when assessing other watersheds? The WDP discusses the need to "Update the priority watershed list to reflect actual needs on the ground" (at page 147) during the forest plan revision process, but provides few details on how this process occurs. On page 169 the WDP explains that "Following classification, priority watersheds are selected and watershed restoration action plans are developed to focus on efforts that treat whole watersheds with an integrated set of watershed-scale restoration activities."

As noted in the WDP on page 169, discussion of watershed conditions and trends specific to the GMUG will be contained in the Watershed Resources section of the upcoming forest plan environmental impact statement. Also noted in the WDP on page 169, Class 1 watersheds are functioning properly and Class 2 watersheds are "functioning at risk exhibit moderate geomorphic, hydrologic, and biotic integrity relative to their natural potential condition." In the GMUG's *REVISED DRAFT Forest Assessments: Watersheds, Water, and Soil Resources*,[4] Table 5 identifies 11 different watersheds that are rated Class 1 that "could degrade to Class 2 as a result of small decreases in process category scores." This table includes:

Watershed Name	Hydrologic Unit Code
Gunnison Basin	
Bear Creek-Spring Creek	140200010111
Headwaters Los Pinos Creek	140200030504
Outlet Razor Creek	140200030202
Outlet Willow Creek	140200010106
Roaring Judy Creek	140200010209
North Fork of the Gunnison River	
Crawford Reservoir	140200021204
San Juan Mountains	
Upper Cimarron River	140200020902
Uncompahgre Plateau	
North East Creek	140200050603
Shavano Creek-Tabeguache Creek	140300030603
Spring Creek	140300030604
Upper Dry Creek	140200060502

It is unclear from the information provided if these watersheds were evaluated as priority watershed candidates.

The 2012 Planning Rule requires land management plans to identify watershed(s) that are a priority for maintenance or restoration (36 CFR 219.7(f)(1)). Identification of priority watersheds is done to focus effort on the integrated restoration of watershed conditions in these areas. Plan objectives for restoration would concentrate on maintaining or improving watershed condition. The watersheds discussed in the table above may be appropriate watersheds for priority watersheds. In the review of potential priority watersheds, we recommend that the GMUG consider additional watersheds for identification as priority watersheds. We provide several suggestions for consideration:

[4] United States Department of Agriculture Forest Service. (March 2018). Table 5. Watersheds rated Class 1 that could degrade to Class 2 as a result of small decreases in process scores. REVISED DRAFT Forest Assessments: Watersheds, Water, and Soil Resources.

- Recommendation: Shavano Creek-Tabeguache Creek (140300030603) should be considered as a priority watershed. The 1993 Colorado Wilderness Bill designated land around Tabeguache Creek as a special area in Colorado. This land includes the canyons along Tabeguache Creek and the North Fork of Tabeguache Creek. Important qualities of this area include mountain forest, riparian forest, pinyon-juniper woodland and mixed shrubland cover. Despite these important resource values, this watershed is a Class 1 watershed that could degrade to Class 2 as a result of small decreases in process category scores, as noted in Table 5 of the Watershed Assessment.

- Recommendation: The GMUG may want to consider watersheds where minor improvements could improve watershed conditions and make it them more resilient to future impacts. The Bear Creek-Spring Creek Watershed (140200010111) is one of many watersheds that is included in proposed timber harvest areas. It is in generally very good condition, being a Class 1 watershed with Class 1 ratings for aquatic physical, terrestrial physical, and terrestrial biological ratings. It is rated a Class 2 for aquatic biological rating. As a watershed in generally very good condition, but with a significant proposed extractive activity (timber), it may be vulnerable to future impacts.

Other watersheds may also warrant additional consideration.

- Cement Creek (140200010207). In the *REVISED DRAFT Forest Plan Assessments: Watersheds, Water, and Soil Resources,* Cement Creek is assessed with a Class 2 watershed condition rating - functioning at risk. Across most categories it is rated a 1 (properly functioning). However, there is room for aquatic biological improvement and there are also watershed impacts from roads (proximity to water) and erosion. This mildly impacted watershed also has an incredibly unique fen. Colorado River cutthroat trout have been confirmed in the creek, and in 2004 the Colorado Natural Heritage Program at Colorado State University recommended the Cement Creek extreme rich fen as a 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."

The three watersheds discussed above are initial suggestions; additional watersheds may also merit identification as a priority watershed.

- Recommendation: When assessing additional options as priority watersheds, focus on watersheds that are at risk of degradation and watersheds with important conservation assets. Consider watersheds where increased resiliency could help maintain watershed health when facing impacts from extractive industries.

2. Roads and Watershed Health

Roads have already substantially contributed to the degradation of watershed health on the GMUG. As noted in the *REVISED DRAFT Forest Plan Assessments: Watersheds, Water and Soil Resources*, of the 235 watersheds on the GMUG, 76 watersheds (or approximately one-third) are or functioning at risk ("Class

2" watersheds) (p. 6). Roads contribute markedly to impaired watershed functioning. The watershed ratings show that many of our watersheds are already impacted by road density, poor road and trail maintenance, and proximity to water.

Out of 231 evaluated watersheds, 89 (38%) were assessed to be in fair condition for road and trail maintenance and 43 (19%) that were in poor condition (see Table 4, displaying watershed ratings for watershed condition framework attribute). Thus, almost two-thirds of GMUG watersheds are at-risk or degraded for the status of their road and trail maintenance.

There are 6,103 road crossings on all land ownerships within the GMUG boundary. (p. 13). Of these, 141 watersheds (61%) are rated as "poor" for roads' proximity to water, and 57 (25%) as fair for proximity to water. Thus 86% of GMUG watersheds are either in fair or poor condition with regards to trail and road proximity to water.

Open road density also shows an impacted forest. 60 watersheds were identified as in fair condition for open road density. Four watersheds were identified as in poor condition for open road density. Thus, approximately 28% of watersheds were found to be in fair or poor condition for open road density. In addition, closed roads may have additional impacts on GMUG ecosystems.

Many watersheds are also starting to show signs of erosion (approximately 26% have been identified as currently in fair condition for erosion). Table 14 in the assessment includes erosion hazard ratings on the GMUG. Watersheds were assessed as very susceptible to erosion: 41 % of GMUG forest area was identified to have a moderate erosion hazard rating, and 31% either a severe or very severe rating. This means that most of the GMUG's watersheds are vulnerable to erosion impacts. The watershed assessment describes that "Soils with severe or very severe EHRs are most prone to erosion when surface cover is removed and the soil surface is disturbed, such as by timber harvest activities or roads" (p. 28).

- Recommendation: The GMUG should include specific standards and objectives to reduce road density.

- Recommendation: The GMUG should limit road density in Riparian Management Zones.

We like the concept of conservation watershed networks, which have "high-quality habitat and functionally intact ecosystems that contribute to and enhance conservation and recovery of specific target species" (**DC-SPEC-55**). However, without more plan components, especially standards, it is hard to see how such networks will be maintained to achieve this desired condition.

- Recommendation: The WDP should include standards to ensure that conservation watershed networks are maintained. Objectives and guidelines would also likely be helpful in this regard.

The *REVISED DRAFT Forest Plan Assessments: Watersheds, Water, and Soil Resources* makes the recommendation that federal direction for obtaining instream flows change to be consistent with state law. The Forest Plan should include specific direction to partner with local entities to appropriate minimum flows for fisheries on the GMUG, including specific instream flow target standards. This direction would be compatible with numerous other provisions in the WDP, including the recommendation on page 147 to "... acquire water rights for new Federal uses in accordance with state and federal law."

- Recommendation: The WDP should include as a standard a directive to work with the Colorado Water Conservation Board and other interested entities to protect a quantifiable amount of stream miles through Instream flow appropriations.

K. Designated Trails

The WDP has some good measures for protecting the Continental Divide National Scenic Trail (CDNST) and the corridor around it. However, too many of the protective measures are guidelines.

- Recommendation: At a minimum, **GDL-DTRL-11**, prohibiting use of the trail for "timber pile landings" or as a temporary road, needs to be a standard.

- Recommendation: There should be a standard similar to the following: "Areas within the half mile corridor on either side of the trail shall not be suitable for timber production, and timber harvest is not scheduled. Any treatment is limited to prescribed fire (natural or human-ignited) and hand cutting except for emergencies and removal of hazard trees. The effects of any treatment on scenery and the naturalness of the corridor must be mitigated to the maximum extent reasonably possible."

We do not disagree with having multiple entry points for users of the CDNST, as provided in **DC-DTRL-03**. However, this desired condition mentions backcountry and frontcountry entry points. What part of the CDNST through the GMUG could be considered "frontcountry"?

L. Energy and Mineral Resources

Though an updated analysis of leasing availability will not be completed until three years after the revised plan is approved (**FW-OBJ-ENMI-09**), the revised plan needs to have plan components that address impacts from operations on lands already leased and areas that might be leased before the updated analysis is completed. We find no such direction in the WDP.

- Recommendation: The plan should have standards and guidelines for applying stipulations for 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.

- Recommendation: The plan should also have forestwide plan components for limiting impacts from oil and gas operations, such as siting of facilities, limiting air quality impacts, access roads, etc.

M. Transportation System

As it develops the forest plan, the GMUG should include within its purpose and need statement the need to achieve an ecologically and fiscally sustainable transportation system. The forest plan should provide a set of plan components designed to achieve an ecologically and fiscally sustainable transportation system through among other things, decommissioning or repurposing unneeded roads and upgrading the necessary portions of the system. The resultant system should contribute to facilitating safe visits and priority forest programs. We offer specific recommendations below to help meet these goals.

STND-TSTN-03 is very good and should be retained. To avoid proliferation of roads, we appreciate the commitment here to close and rehabilitate all temporary roads within two years after their use has ended.

- Recommendation: Add the following to the list of rehabilitative actions: "Establish native vegetative cover on all road surfaces."

STND-TSTN-04 is good and should be retained.

The plan should include plan components that move the GMUG toward an appropriately sized and sustainable transportation system that is within the fiscal capability of the unit.[5] They should be designed to ensure the ecological integrity of terrestrial and aquatic systems and species diversity, and within the ecological and fiscal constraints, facilitate multiple uses of the forest (36 C. F. R. § 219.1(c)). They should also direct adjusting the transportation system to storm patterns and hydrographs anticipated under a changing climate (36 C. F. R. §219.10(a)(8); See also 36 C. F. R. §219.8(a)).

- Recommendation: We urge the GMUG to include the following plan components and elements as the building blocks of a framework for sustainable management of forest roads and transportation infrastructure:

[5] FSH 1909.12, Ch. 20, 23.23l(2)(a) ("The plan's desired condition should describe a basic framework for an appropriately sized and sustainable transportation system that can meet these needs. ") *Also see* FSH 1909.12, Ch. 20, 23.23l(1)(b) ("When developing plan components, the Interdisciplinary Team should . . . [d]evelop plan components to reflect the extent of infrastructure that is needed to achieve the desired conditions and objectives of the plan. The plan should provide for a realistic desired infrastructure that is sustainable and can be managed in accord with other plan components including those for ecological sustainability.") *See also See* FSH 1909.12, ch. 20, § 23.23l(1)(c) (plan components for road system "must be within the fiscal capability of the planning unit and its partners").

- Desired Condition: The GMUG has an appropriately sized and environmentally and fiscally sustainable transportation system that facilitates enjoyable and safe visitor experiences and forest programs. Routes are located and designed to minimize impacts to habitats, species and riparian zones. Route densities in backcountry, special areas, unique landscapes, riparian management zones, and important wildlife habitats and watersheds (as identified on a map) do not exceed 1 mile/square mile. Routes are also located to discourage unauthorized use, effectively provide passenger car access to major recreational destinations, and to integrate with road systems on adjacent lands. Routes are designed to fit the character of the setting and are safe to drive.

- Desired Condition: Routes are designed to withstand future major storm events and mitigate impacts to riparian zones and streams. Best management practices for water are in place on all system roads, monitored regularly for effectiveness, and modified as needed based on monitoring. Aquatic species can migrate up and down channels and floodplains without being obstructed by road-related structures such as culverts. As much as possible, floodplains are not impeded by structures so that they can effectively attenuate floods and provide connected riparian habitat.

- Desired condition: The road system reflects long-term funding expectations. Unneeded roads, including system, temporary, and non-system roads, are decommissioned and reclaimed as soon as practicable to reduce environmental and fiscal costs. Reclamation efforts are prioritized in roadless and other ecologically sensitive areas to enhance ecological integrity and connectivity and to facilitate climate change adaptation.

- Objective: Within 3 years, identify the minimum necessary road system across the forest.

- Objective: Decommission at least 5% of roads identified as unneeded each year (do not count removal of temporary roads used for vegetation projects), prioritizing CRAs, potential wilderness areas (identified in the chapter 70 process), and sensitive habitats.

- Objective: Within 5 years, create a climate change transportation infrastructure plan that identifies necessary actions (upgrades, redesign, decommissioning and obliteration) for transportation infrastructure to reasonably withstand projected precipitation.

- Objective: Within 10 years, ensure that all roads within at-risk and impaired watersheds with poor or fair ratings for the Watershed Condition Framework (WCF) roads and trails indicator, and within watersheds contributing to sediment or temperature impairment under section 303(d) of the Clean Water Act, have working BMPs and are designed to withstand larger storms.

- Objective: Within 5 years, establish a publicly available system for tracking temporary roads that includes but is not limited to the following information: road location, purpose for road construction, the project-specific plan required below, year of road construction, and projected

date by which the road will be decommissioned. Within 10 years of plan approval, all temporary roads will be reflected in the tracking system.

- Objective: Over the life of the plan, all unaddressed temporary roads will be decommissioned and naturalized.

- Standard: All roads, including temporary roads, will comply with applicable and identified Forest Service best management practices (BMPs) for water and soil erosion management. Implement BMP monitoring to evaluate BMP effectiveness and identify necessary modifications to address deficiencies.

- Standard: Projects will not result in a net increase in motorized route mileage in riparian management zones and will reduce motorized route densities within riparian management zones beneath identified density thresholds and incorporate best management practices for water.

- Standard: Projects will comply with Watershed Conservation Practices Handbook (Region 2: FSH 2509.25).

- Guideline: Projects are designed to move the motorized route densities beneath the established thresholds to protect fish and wildlife and visitor experiences.

- Guideline: Project-level decisions with road-related elements implement TAR recommendations and achieve implementation of the minimum road system and motorized route density thresholds.

- Guideline: Projects affecting stream channels will assure aquatic organism passage unless doing so would increase non-native fish encroachment on native fish habitat.

- Suitability: Slopes >35% on erodible soils are unsuitable for new motorized routes. New motorized routes are not suitable for places within the Natural Processes Dominate zone. New off-road vehicle routes are not suitable in Special Areas and Unique Landscapes.

N. Range

We believe the plan revision effort should include a determination of suitability for livestock grazing. The forest plan revision is the best venue to undertake this analysis because the possible impacts to other resources can be considered. These include, but are not limited to (in no order of priority): rare plant population viability, streambank stability, soil productivity and stability, overall biological diversity, recreation quality.

- Recommendation: **GDL-RNG-08** should be a standard. Livestock must not be allowed to concentrate in riparian areas and near wetlands. Allowing heavy stock use in these areas leads to degraded conditions of important resources.

- Recommendation: **GDL-RNG-09** should be strengthened and be a standard. If the purpose is "[t]o maintain rangelands in satisfactory condition and improve sites in unsatisfactory condition", and to maintain or achieve desired ecological conditions (**DC-RNG-01**), mandatory limits on forage utilization need to be imposed. Utilization at 60 percent will not allow recovery of range in unsatisfactory condition. The stated exceptions should not need utilization of more than 30 percent.

O. Recreation

One of the greatest changes on the GMUG since the original 1983 forest plan has been the tremendous growth in recreation. More recreationists are using more types of equipment to access more parts of the forest than was anticipated just a few years ago, let alone 36 years ago when the current plan was promulgated. We note the attention paid to this complicated topic in the WDP and thank the GMUG for addressing this issue with some substantive standards. There is much in the WDP that we support, but still room for improvement.

We appreciate the GMUG's efforts to address the issue of unacceptable ecological impacts resulting from recreation use and unsustainably high use levels, as expressed in **STND-REC-06** and **-07**.

OBJ-REC-04 states an ambitious objective of maintaining 500 miles of trail annually. Given expected budgets, can the GMUG ever hope to meet this objective? The GMUG should not promise the public more than it can deliver.

We support **MA-OBJ-HIREC-02**.

1. 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 recreation opportunity spectrum classes (FSM 23.23a(1)(d)) supplemented with plan components that ensure ROS settings are achieved and sustained over the life of the plan (FSM 23.23a(2)(a)). 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. 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. These activities fundamentally shift the setting character from predominantly natural to more industrial, and hence if allowed would erode the setting. Vegetation

management in these settings, once completed, should not be noticeable (e.g., light prescribed burns, no slash piles, blends in with surrounding vegetation).

The WDP includes two desired conditions for recreation on the GMUG. We think there are other desired conditions for recreation that would improve integration with activities and uses while preventing impacts to forest resources. We are also concerned that the Desired ROS puts undue emphasis on Semi-primitive motorized and Semi-primitive non-motorized recreation, and should have more Primitive ROS classifications outside of established wilderness.

- Recommendation: **FW-GDL-REC-10** should be a standard.

- Recommendation: The plan should include two additional forest-wide standards related to Recreation Opportunity Spectrum (ROS): (1) projects must be compatible with the ROS setting, and (2) all motorized road, trail, and area designations will be consistent with ROS settings.

The WDP applies a Primitive ROS designation only to existing wilderness areas.

- Recommendation: Primitive ROS classifications should also be considered for recommended wilderness areas, and parts of Colorado Roadless Areas and Wildlife Management Areas.

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.

2. Over-snow Vehicle (OSV) Use

Under 36 CFR 212 subpart C, the Forest Service is required, on each unit with snow, to regulate over-snow vehicles. However, we do not see any such management proposed in the WDP. The current forest planning process is the appropriate place to consider the significant impacts associated with OSV use in the broader recreation context and to provide for sustainable recreation during the winter season, as required by the 2012 Planning Rule. 36 C.F.R. § 219.10(b)(1)(i). This is particularly important given the increasing numbers of participants in both motorized and human-powered winter back-country recreation, and the corresponding increase in conflicts between skiers, snowshoers, and snowmobilers in many areas.

- Recommendation: The plan should include an objective to ensure timely compliance with subpart C by conducting winter travel planning to designate particular routes and areas within areas suitable for motorized use within a reasonable time-frame (e.g., completion within three years or initiation within 1 year of plan approval). This is particularly important for the Gunnison Ranger District.

- Recommendation: The GMUG forest plan should include a standard that all area and trail designations made through travel planning will be located to minimize resource impacts and conflicts with other recreational uses, in compliance with Executive Orders 11644 and 11989 and 36 C.F.R. § 212.55(b). In addition, they should include a desired future condition that management of motorized recreation minimizes conflicts between uses; damage to soil, watershed, vegetation, and other national forest resources; and harassment of wildlife and disruption of wildlife habitat.

- Recommendation: Establish seasonal use restrictions and minimum snow depth levels to help ensure that OSV use occurs only when snowfall provides an adequate buffer against adverse impacts. *See* 36 C.F.R. § 212.81(a) and (c). Particularly with climate change leading to reduced and less reliable snowpack, these represent important programmatic tools to ensure compliance with subpart C and the minimization criteria and to prevent avoidable resource damage.

- Recommendation: Include a standard or guideline clearly identifying a season for OSV use based on wildlife needs, water quality considerations, soil protection, average snow depth figures, and other relevant information. *See* 36 C.F.R. § 212.81(a) and (c).

The nearby San Juan National Forest plan contains the following Desired Condition: "2.14.37 Motorized oversnow travel should only occur when snow levels are adequate to protect the ground surface from disturbance due to snow machine use. For SJNF lands, 12-inch snow depth will be used as the standard."[6] This plan component reflects accepted best management practices for OSV. For example, Switalski (2016) states:

> Require a minimum snow depth of at least 0.3m (12 in), or sufficient depth to protect water quality, soils, and vegetation before a contingency plan and implement emergency closures if snowpack goes below this threshold. Require a minimum snow depth of at least 0.45 m (18 in), or sufficient depth to protect water quality, soils, and vegetation before allowing snowmobiling off-trail. Have a contingency plan and implement emergency closures if snowpack goes below this threshold.

- Recommendation: Adopt a standard that says: "Motorized oversnow travel should only occur when snow levels are adequate to protect the ground surface from disturbance due to snow machine use. For on-trail travel, 12-inch snow depth will be required. For off-trail travel, 18-inch snow depth will be required."

- Recommendation: The plan should also adopt a management approach that says: "Develop a method for identifying when designated OSV open areas or designated trails are below the minimum snow depth and therefore must be closed temporarily."

[6] San Juan Plan at II-118. Volume II: Final San Juan National Forest and Proposed Tres Rios Field Office Land and Resource Management Plan, 2013, accessed online December 2017 at https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5435985.pdf.

P. Timber and Other Forest Products

Please see Rocky Smith et al 2018 scoping comments concerning timber and vegetation management.

The timber suitability analysis done so far for the WDP would include a potentially large amount of land that should unquestionably be *unsuitable*:

> Though the following areas are included in the area identified as suitable for timber production, the following are unlikely to be operable during the planning period: area with slopes > 40%, 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. (WDP: 175)
>
> Therefore, areas identified as suitable for timber production in the WDP may not be economically feasible for timber production during the planning period due to limited markets and operational constraints. (WDP: 175)

This is unacceptable, as is further discussed below. Including such lands as suitable would distort the long-term sustained yield quantity, the projected wood sale quantity, the projected timber sale quantity, the planned timber sale program, and timber harvesting levels. The timber quantities in all of these categories would be unsustainable because they would depend on an unrealistic suitable land base that included areas that could not likely ever be cut. That means there would be more pressure on lands that were suitable to provide wood products. These lands could thus be overcut.

We note with some concern that areas likely to be economically infeasible to harvest are included in the suitable timber base if they otherwise meet the criteria (WDP: 175). Note that the National Forest Management Act requires consideration of economic factors in determining the suitability of lands for timber production:

> In developing land management plans pursuant to this subchapter, 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, … (16 U. S.C. 1604(k); emphasis added).

If land is unlikely to be harvestable during the foreseeable future because it is "un-economical to harvest due to low volume per acre or long haul distance" (WDP 2019: 175) it should not be suitable for timber production.

- Recommendation: Economics *must* be considered in determining timber suitability.

We are even more concerned that land likely to be inoperable due to slopes of 40 percent or greater will be considered suitable. Ibid. It is very doubtful that such areas could be cut commercially and not violate NFMA's provision of assurance that harvest can be conducted "without causing irreversible damage to soil, slope, or other watershed conditions" (16 U.S.C. 1604 and 36 C.F.R. § 219.11(a)(1)(iv)).

- Recommendation: Land that could be damaged by timber operations ***must*** be unsuitable.

Under the WDP, spruce-fir and spruce-fir-aspen would be used to calculate the sustained yield limit; i.e., such stands would be considered suitable for timber production (WDP: 173, Table 22). Engelmann spruce stands with no viable, fully stocked spruce understory[7] should be considered unsuitable. Many such stands have been killed by spruce bark beetle or will soon be attacked. Such stands will not be able to produce any commercial timber for at least 100 years, and probably considerably longer than that, because: a) spruce does not regenerate well, if at all, in fully sunlit areas, such as areas with no overstory to shade emerging seedlings; b) regeneration cannot be assured even with planting[8]; (c) even with planting that results in successful regeneration, only a limited number of acres could be planted due to cost; and d) even fully stocked stands will grow very slowly with a short growing season found at the altitudes typically hosting spruce.

The analysis for the SBEADMR project found that the proportion of spruce-fir stands that are single-storied varied from 21 to 85 percent by geographic area (SBEADMR FEIS YEAR: 4, Table 1). These stands should be determined to be unsuitable for timber production because they are either: a) all spruce and either killed or very susceptible to spruce bark beetle, and thus not likely to be able to provide timber for many decades, as discussed above; or b) composed primarily of subalpine fir, a species with little or no commercial timber value.

The beetle-killed spruce deteriorates quickly, so any spruce already dead will not be available for commercial wood use. Any spruce that dies in the future would only be available for a few years before developing splits and checks that would prohibit its use for dimension lumber. See more detailed discussion in our May 22, 2018 comments at 7-8. Indeed, the SBEADMR Project, under which a large acreage of Engelmann spruce was to be salvaged, is about to terminate after cutting only a fraction of the acreage proposed because the beetle-killed trees have reached the end of their "commercial life".[9]

- Recommendation: Most Engelmann spruce stands should be unsuitable for timber production.

Stands with understories or mid-stories containing 35 percent or greater dense horizontal cover (DHC) or expected to soon develop this level of DHC should not be cut. Attempting to cut and remove the

[7] Many stands hit by spruce bark beetle have an understory, and maybe also a partial overstory, mainly composed of subalpine fir. Our understanding is that this tree species is essentially worthless for commercial timber products because of its poor strength and its proclivity toward warping when kiln-dried. Also, such understories need to be retained intact to provide lynx habitat.

[8] See additional discussion on the difficulty of regenerating spruce in our May 22, 2018 comments at 4-5.

[9] See article in Gunnison Country Times, July 4, 2019.

overstory (i.e., of dead spruce) would destroy or damage the understory via felling, skidding, and hauling. This would degrade or destroy the lynx habitat.

- Recommendation: High quality lynx habitat must be unsuitable.

The GMUG already has a road system it cannot maintain, so new roads should generally not be constructed. In any case, money is not likely to be appropriated for new roads or major reconstruction of existing ones. Therefore, any areas needing new road construction or major reconstruction should be unsuitable for timber.

- Recommendation: Land requiring new road construction or major reconstruction for access should be unsuitable.

The Planning Rule requires plans to contain the following: "the proportion of probable methods of forest vegetation management practices expected to be used" (36 C.F.R. § 219.7(f)(1)(iv)). See also 16 U.S.C. 1604(f)(2)).

- Recommendation: The plan must state the expected timber harvest level and the methods of cutting likely to be used.

Under Forest Service direction (FSH 1909.12, section 64.34),

> The plan must identify or reference the appropriate utilization standards that identify the standard types of timber products expected to be sold. …
>
> The plan must identify or reference the utilization standards used in developing the determination of the sustained yield limit and the estimation of the projected timber sale quantity.

We do not find utilization standards listed or referenced in the WDP. They need to be in the full revised draft plan or referenced therein and available to the public. These standards may influence the determination of the land suitable for timber.

- Recommendation: Display or reference timber utilization standards.

The long-term sustained yield quantity and other timber quantities must be calculated based on the timber-suitable land base. The timber quantity in objective **FW-OBJ-TMBR-01** should also be reduced.

- Recommendation: The timber suitability analysis must be rerun, excluding lands that should clearly be unsuitable, as discussed above.

- Recommendation: Reword **GDL-ECO-10** to say that the largest blocks of old growth available should be retained.

GDL-TEV-01 states: "To create and maintain aspen islands important as biodiversity hotspots for wildlife, areas that stimulate aspen regeneration or otherwise contribute to maintaining aspen refugia on the landscape are prioritized for treatments and managed to reduce over-browsing."

- Recommendation: The intent of **GDL-TEV-01** is not clear. This guideline could be read to encourage treating refugia. Treatment is aspen is almost done via clearcutting, which would, at least for a while, damage or destroy the refuge value of the land in question for wildlife. If aspen regeneration was already stimulated, treatment would not be necessary or desirable.

Under "Montane-Subalpine Grasslands", **DC-TEV-03** would allow up to 30 percent "within a stand" to be bare ground.

- Recommendation: Bare ground should be much less than 30 percent except immediately following a fire. It is not clear what a "stand" is, as that term is usually used to describe forested areas with distinguishable characteristics.

STND-SPEC-52, which is a new standard VEG S7 for the SRLA, is not acceptable and conflicts with a proposed Veg S7 for the adjacent Rio Grande National Forest. See our discussion on this above.

Under **STND-TMBR-02**, clearcuts in aspen could be 100 acres. Generally, the Planning Rule limits clearcuts in Colorado national forests to 40 acres (36 C.F.R. § 219.11(d)(4)). Exceptions are allowed, but they must meet the following criteria:

> Plan standards may allow for openings larger than those specified in paragraph (d)(4) of this section to be cut in one harvest operation where the responsible official determines that larger harvest openings are necessary to help achieve desired ecological conditions in the plan area. If so, standards for exceptions shall include the particular conditions under which the larger size is permitted and must set a maximum size permitted under those conditions. (36 C.F.R. § 219.11(d)(4)(i))

The plan standard with the exception allowing 100-acre clearcuts in aspen does not state "the particular conditions under which the larger size is permitted" nor does it say what desired condition(s) the large openings would help achieve. The provision for 100-acre clearcuts in aspen is not legal under the Planning Rule.

- Recommendation: Delete **STND-TMBR-02**. Openings larger than 40 acres should seldom if ever be needed. Sudden aspen decline has not affected new aspen stands on the GMUG since 2009.[10] Thus

[10] *Revised Draft Assessment for Terrestrial Ecosystems: Integrity and System Drivers and Stressors* at 49.

there is no urgent need to clearcut aspen to regenerate it before the root systems die. Clearcuts of up to 100 acres would not simulate the disturbance caused by fires because the effects of logging are much different than those of fire. If openings larger than 40 acres created by human manipulation are truly needed, they could be done on a project basis after a 60-day public comment period and review by the Regional Forester, as provided in 36 C.F.R. § 219.11(d)(4)(ii) and **STND-TMBR-02**.

Stocking levels are already quite low, and only need to be met on 70 percent of an area.

- Recommendation: Exceptions to the restocking standards in **STND-TMBR-03** should not be allowed.

Cutting down trees after fire or insect disturbance to protect human safety—when dead trees are near roads or buildings—is understandable. However, salvage logging can damage land and sensitive wildlife habitat and reduce species richness and abundance (Beschta et al. 2004; Karr et al. 2004; Lindenmayer et al. 2004; Donato et al. 2006; Noss et al. 2006; Lindenmayer et al. 2008; Hutto et al. 2016; Thorn 2018). 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 effects ever documented for any kind of forest management activity" (Hutto et al. 2016: e01255). Twenty-nine scientists that conducted a meta-analysis, 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" (Thorn et al. 2018: 280).

- Recommendation: The GMUG revised plan must include plan components that provide limits and constraints on salvage logging, given the ecological damage the practice can cause, which is further discussed below. The WDP components are not sufficient in this regard. And, the DEIS must provide a detailed assessment of the impacts of salvage logging on wildlife habitat for all forest types.

A range of forest species use dead wood, some depend on it, and the loss of snags and coarse wood debris—also called "forest legacies"—can be harmful. While natural 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 (Thorn et al. 2018). A list of salvage loggings detrimental effects include:

- remove cone seed stock from forests and alter seed dispersal, inhibiting tree regeneration (Lindenmayer et al. 2004; Leverkus et al. 2018),
- remove organic material that provides soil nutrients necessary for soil productivity (Jennings et al. 2012),
- can leave an area more vulnerable to invasive species (Leverkus et al. 2018),

- remove the organic material like fallen logs necessary to protect new forest vegetation that provides important wildlife habitat after high-severity fires (Swanson et al. 2011; DellaSala et al. 2014),
- prolongs the period that soil erosion occurs after fires due to the loss of trees and other organic materials that stabilize soils (Karr et al. 2004), and
- removes snags (that provide roosting and nesting sites for a host of species including birds and small mammals) (Kotliar et al. 2002; Hutto and Gallo 2006; Rost et al. 2013).

Salvage logging further opens the forest canopy after a fire. This may benefit some species that seek open areas (Thon et al. 2018). However, this makes establishment of shade-tolerant conifer species like Engelmann spruce and subalpine fir very difficult. Also, high-severity fire creates open forest patches naturally and without many of the harms described above.

Q. Eligible Wild and Scenic Rivers

The Wild & Scenic desired conditions and standards included in the WDP are incredibly broad and provide little detail on GMUG reaches assessed to be eligible or found to be 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 regulations in place to implement 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, FSM 2354]. However, until the draft eligibility study is revised, there is a lack of detail provided for an in-depth assessment at this point. (The WDP notes that: "At the time of the availability of the WDP for public review, the eligibility study is in progress; using public comment, the draft eligibility study will be revised and included as an appendix to the WDP (WDP: 55.))

We look forward to this revision of the Draft eligibility study, and ask that it includes the following:

- A focus on revising eligibility, as opposed to trying to embark on a suitability analysis.

- Additional information describing the assessment process, including narrative information on why or why not a river was found as eligible. FSH 1909.12, CHAPTER 80, 82.93 – Documentation of a Wild and Scenic River Study for Eligibility calls for a "narrative description" that "should be a synopsis of the pertinent information related to eligibility and classification factors."

- Additional eligible reaches identified, consistent with the recommendations submitted by stakeholders.[11]

[11] For example, see comments at https://hccacb.org/wp-content/uploads/2019/06/HCCA-Wild-Scenic-GMUG-Comments-FINAL.pdf).

III. Management Area Direction

The WDP exemplifies the language in the 2018 scoping notice that states, "It should be the exception, rather than the rule, that additional, specific place-based direction will be needed." Having fewer management areas (MAs) can work, but only if specific place-based direction is imposed where needed to ensure compliance with the substantive obligations of the planning rule at 36 C.F.R. §§ 219.8 – 219.10. That direction is largely missing from the WDP. In addition, The MAs in the WDP are often bereft of standards, echoing a general trend away from using standards and guidelines in plans, presumably in an effort to increase agency flexibility.

A. Designated Wilderness (MA 1.1)

- Recommendation: **MA-STND-WLDN-09** should be more explicit in limiting exceptions to wilderness party size to trail work, habitat restoration, etc., i.e., activities that might benefit the wilderness character. Otherwise, how is a large party going to benefit the wilderness character? We don't want to see this exception abused.

We support **MA-STND-WLDN-10** prohibiting drones in designated wilderness areas. It is entirely appropriate to ban drones.

- Recommendation: The GMUG needs to initiate outreach to recreationists about the need to not use drones in wilderness.

Failure or significant delay in repairing impacts from human use degrades wilderness character.

- Recommendation: **GDL-WLDN-11** should be a standard.

B. Recommended Wilderness (MA 1.2)

In the revision process the GMUG is required to inventory and evaluate areas that may be suitable for wilderness, analyze qualifying areas in the various alternatives in the EIS, recommend in the plan decision some, none, or all of the qualifying areas for wilderness designation, and provide management direction designed to protect and maintain the recommended areas' wilderness characteristics (36 C.F.R. § 219.7(c)(2)(v), 219.10(b)(1)(iv)); Chapter 70 of the Forest Service Handbook (FSH) 1909.12 prescribes this process. We are extremely disappointed, and frankly very surprised, that only 22,400 acres across the entire GMUG are recommended for wilderness, all of it in areas contained within the San Juan Wilderness bill component of the CORE Act. This ignores tens of thousands of acres that were recommended by the GMUG in 2006 in the last public revision process, as well as endeavors such as the *Community Conservation Proposal* and Gunnison Public Lands Initiative. While we have been told in recent conversations with GMUG staff that one or more DEIS alternatives will reflect the wilderness recommendations in these community endeavors, we are at a loss to understand the GMUG's extreme

avoidance of recommended wilderness in the WDP. This is a clear example of an area where plan direction needs significant improvement.

- Recommendation: Include the wilderness recommendations contained in the *Community Conservation Proposal* and Gunnison Public Lands Initiative in the agency's Preferred Alternative.

Attached to this comment letter as Appendices 2 and 3 are current lists of individual and business supporters of the *Community Conservation Proposal*. The support list demonstrates a deep and wide backing for specific wilderness and special management area recommendations across the GMUG.

The WDP contains one desired condition and one standard for Recommended Wilderness (MA 1.2):

> ***MA-DC-WLDN-13****: "The wilderness characteristics for which areas were recommended for wilderness designation are maintained or improved."*
>
> ***MA-STND-WLDN-14****: "Plan direction for existing designated wilderness (MA 1.1) is applied to recommended wilderness."*

We support applying plan direction for existing wilderness to recommend wilderness. Internal direction developed pursuant to the 2012 planning rule requires that the plan include plan components for recommended wilderness areas that "protect and maintain the ecological and social characteristics that provide the basis for their suitability for wilderness designation" (FSH 1909.12, Ch. 70 §74.1).

We note though that the WDP applies a Primitive ROS designation only to existing wilderness areas. The Primitive ROS designation should not be limited to only existing wilderness areas.

- Recommendation: 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.

It is our experience that allowing incompatible uses in recommended wilderness areas often impairs wilderness character. Incompatible uses can also lead to a reduction in wilderness potential because the use becomes accepted and expected in these areas, which can lead to a lower likelihood of designation.

- Recommendation: Areas that are recommended for wilderness must be found unsuitable for timber harvest and mineral leasing and sales.

C. Special Interest Areas (MA 2.1)

The WDP identifies 15,900 acres for Special Interest Area (MA 2.1) management. However, there are no standards or guidelines for protecting the values for which the areas are proposed to be designated, nor information about the different areas. While we understand the WDP does not contain the level of

detail that will come in future documents, the skeletal description of the SIAs and lack of plan components is frustrating. It is difficult to provide feedback when standards or guidelines for protecting the values for which the areas are proposed to be designated have not yet been proposed.

- Recommendation: The Draft Forest Plan should include in its Preferred Alternative those SIAs and SMAs recommended in the *Community Conservation Proposal* and Gunnison Public Lands Initiative.

- Recommendation: Include specific standards and guidelines for protecting the values for which each SIA is proposed to be designated. Places that are designated or recommended for designation because of their conservation values should be found unsuitable for timber harvest and mineral leasing and sales. The *Community Conservation Proposal* and Gunnison Public Lands Initiative provide additional detailed management recommendations for each of the proposed designations, and note where exceptions to this general rule may be warranted. Designated areas with unique or special values should be managed to maintain and enhance the values for which they are designated or recommended for designation.

- Recommendation: Special interest areas should include additional rare and important fens, including locations identified by the Colorado Natural Heritage Program in their Survey of Critical Wetlands and Riparian Areas.

In addition, bikes should generally not be allowed in special interest areas, except as specifically identified in the *Community Conservation Proposal* and Gunnison Public Lands Initiative's recommendations.

- Recommendation: The plan needs a standard that prohibits new routes open to bikes and limits existing use to designated routes that do not degrade the values for which any special area was (or will be) designated.

D. Research Natural Areas (MA 2.2)

We would like to see a Research Natural Area that examines spruce beetle recovery in areas where no management is done to compare with the large acreage treated under SBEADMR and other projects.

- Recommendations: Please retain **DC-RNA-01**. It sets a needed high bar for research natural areas, so that they can serve as reference areas.

E. Colorado Roadless Areas (MA 3.1)

The plan creates Management Area 3.1, which integrates the Colorado Roadless Rule's direction into the draft revised plan. However, there is only one desired condition, and no standards. Direction is limited to the following statement: "Management within Colorado Roadless Areas will be consistent with the Colorado Roadless Rule, 36 CFR 294 Subpart D - Colorado Roadless Area Management." We strongly

recommend that more direction, including mandatory plan components, be developed for this management area. We understand that the text is describing the management of these lands pursuant to the Colorado Roadless Rule direction and that the Colorado Roadless Rule is enforceable. However, if the Colorado Roadless Rule were to be modified substantially or revoked, the plan language would be the only guiding direction for these areas and would as currently crafted lack plan components.

- Recommendation: Add plan components, including standards, to this section. At a minimum, the limitations on the following must be standards: tree cutting, sale, and removal; road construction and reconstruction; and the use of linear construction zones.

- Recommendation: The plan must provide plan components for the management of Colorado Roadless Areas (CRAs) that are compliant with the Colorado Roadless Rule and advance their distinctive role and contribution to the GMUG. We recommend that the management areas include desired conditions that herald the CRAs for their undeveloped character, contribution to biodiversity and landscape connectivity, and quality outdoor recreation and learning opportunities. For example:

    - Desired Condition: Roadless areas encompass large, relatively undisturbed landscapes that are important to biological diversity and the long-term survival of at-risk species. They serve as safeguards against the spread of invasive plant species and provide reference areas for study and research, and they contribute to landscape scale connectivity.

    - Desired Condition: Roadless areas appear natural, have high scenic quality, and provide high quality and sustainable opportunities for dispersed recreation.

    - Standard: All management activities conducted within CRAs shall maintain or improve roadless characteristics.

    - Standard: Prohibit road building and timber cutting except as allowed per the Colorado Roadless Rule.

    - Standard: All projects must maintain the highest scenic integrity level.

Plan components should include an objective to obliterate unneeded, closed, temporary, or unauthorized roads in order to enhance roadless character and ecological integrity. CRAs should be assigned to primitive and semi-primitive ROS settings.

It is also not clear how well almost 197,000 acres of roadless lands will be protected under the Wildlife Management Area designation where the two overlap.

- Recommendation: More plan components are needed for the Wildlife Management Area to ensure roadless lands are protected, as required by the Colorado Roadless Rule. (See further discussion on MA 3.2 below.)

Finally, the WDP makes no distinction between upper tier and lower tier roadless areas in MA 3.1. Clearly noting the distinct areas would provide clarity on the location and management of upper and lower tier roadless areas, and would better integrate the management direction for these areas (which comprise almost one third of the forest) into the overall land management plan structure and strategy.

F. Wildlife Management Areas (MA 3.2)

Thank you for identifying over 278,000 acres of the GMUG as falling within the Wildlife Management Area emphasis. We support this concept, especially one that has "[l]arge blocks of diverse habitat [that] are relatively undisturbed by routes" and one where "[h]abitat connectivity is maintained or improved as fragmentation by routes is reduced." (**MA-DC-WLDF-01**). We offer two critiques to improve this. First, there are at least two critically important landscapes on the GMUG that have not been identified for prioritizing wildlife management. Second, plan components should be strengthened to ensure that the wildlife values in these areas are sustained.

The GMUG has done a decent job identifying important places on the landscape for emphasizing wildlife management. We are especially supportive of the Flattops Wildlife Management Area on the Gunnison Ranger District. However, there are numerous other places on the GMUG besides the Flattops Wildlife Management Area where there should be no new route development (for example, specific areas identified in the *Community Conservation Proposal* and Gunnison Public Lands Initiative), and encourage the agency to work with stakeholders to identify additional locations. In addition, at least two landscapes should be managed to emphasize wildlife: the Upper North Fork/Muddy Creek area on the Paonia Ranger District, and the Cochetopa Hills on the Gunnison Ranger District.

The greater Cochetopa Hills are specifically identified in the *Community Conservation Proposal* as a combination of wilderness recommendations and wildlife linkage area. We are surprised that almost the entirety of the area is simply left to be managed as General Forest and/or CO Roadless. Cochetopa Hills is an important regional wildlife corridor between the Rio Grande/San Juan Basin to the south, and the Gunnison Basin to the north. One of the lowest points on the Continental Divide in Colorado, Cochetopa Hills is a natural crossing point for many wildlife species in and out of the Gunnison Basin, and forms an important ecological link from the La Garita Mountains to the west, and towards Fossil Ridge to the north. The area has been especially noted as a well-used trans-basin lynx crossing point within the important North Pass/Cochetopa Hills lynx linkage corridor. (USDA Forest Service Southern Rockies Lynx Amendment, 2008). Cochetopa Hills should be managed as a Linkage Area that focuses on wildlife and connectivity, and for sustaining historic grazing operations. It contains elk production areas, elk winter concentration areas, Gunnison Sage-grouse historic habitat, overall range, and production areas. The security provided by the dense timber creates prime conditions for successful elk calving, and much of the landscape is an important elk production area, which translates to outstanding opportunities for backcountry hunting. In an age of increasing recreation pressure in the Gunnison Basin, the Cochetopa Hills sustain outstanding opportunities for solitude and primitive recreation.

Parts of the Upper North Fork/Muddy Creek landscape on the Paonia Ranger District should also be identified for prioritizing wildlife management. This large area – roughly from Pilot Knob on the south, to the Flattops/Priest Mountain/Currant Creek landscape on the west, to Clear Fork Park on the north, to Huntsman Ridge on the east – sustains some of the most important big game habitat in the state. It remains – for now – relatively free of the recreation pressure that so many other parts of the forest are experiencing. Its primary threat is oil and gas development.

- Recommendation: Manage lands in the Cochetopa Hills and Upper North Fork/Muddy Creek landscapes to emphasize wildlife conservation.

We also offer the following considerations and recommendations for strengthening plan components for this MA. The WDP posits only one desired condition and one standard, neither of which would accomplish the reduction in habitat fragmentation and increase in connectivity, so it is unclear how well wildlife would actually be protected under it. **MA-STND-WDLF-02** would only prevent new routes if a route density of one mile per square mile was exceeded. It states:

> ***MA-STND-WDLF-02****: To 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 nonmotorized, where areas are already in exceedance of the 1 mile per square mile limit as calculated within this management area boundary. Within the Flattops Wildlife Management Area on the Gunnison Ranger District, there shall be no new trail development. Exception: this does not apply to administrative routes.*

This stated density is not very low. Impacts from motorized use are noted at a density of around half of that, i.e., 0.5 miles of roads open to motorized use per square mile. As it reads now, it would allow all areas within this management area to have a route density of one mile per square mile.

- Recommendation: To truly protect wildlife, a much lower route density standard will be needed. The standard should also say that existing densities, where below whatever density standard is adopted, shall not be increased.

G. High-Use Recreation Areas (MA 4.2)

Varied and pervasive recreation is increasing rapidly across most of the GMUG. While almost everyone who enjoys the forest recreates on it to some degree, environmental impacts are proliferating. It appears in the WDP that the GMUG is seriously attempting to address the issue of recreation resource damage.

We support **MA-OBJ-HIREC-02**: "Within 5 years of plan approval, accomplish management actions in at least 10 noticeably degraded dispersed recreation areas. The standard **REC-06** ("Designate or otherwise manage (i.e., harden for more long-term, concentrated use; temporarily close and rehabilitate; institute a permit system; prohibit camping via closure order, etc.) dispersed campsites when use levels result in

unacceptable ecological impacts.") will be applied to determine when thresholds have been reached and more active management is needed. Priority areas include: Crested Butte, Taylor Park, and Existing campsites within the riparian management zone."

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. These activities fundamentally shift the setting character from predominantly natural to more industrial and hence if allowed would erode the setting. Vegetation management in these settings, once completed, should not be noticeable (e.g., prescribed burns, no slash piles, blends in with surrounding vegetation).

We strongly disagree with one particular area identified in the WDP as within MA 4.2. The management areas map for the Gunnison Basin shows two large areas of land contiguous with the Fossil Ridge Special Recreation Area as High-Use Recreation Area. One part is adjacent to the west side of Fossil Ridge, and the other is adjacent to the south side. We can only assume this is a mapping error, as this landscape is in no way an appropriate location for this type of management. Please change that proposed area designation.

IV. Monitoring

Generally, the monitoring section is incomplete. The full draft revised plan will need additional elements, especially potential adaptive management actions, as is discussed below.

- Recommendations: We urge the Forest Service to adopt the following recommendations:

    - Regarding monitoring for climate change, in addition to monitoring temperature and precipitation, the GMUG should monitor the possible effects of climate change, such as changes in: migration or habitat of focal species, streamflows, vegetation resiliency, etc. (WDP 2019: 72)

    - Regarding status and trend of terrestrial ecosystem integrity, an adaptive management action should be added to adjust management to retain the desired amount of snags and down dead wood. (WDP 2019: 73)

    - To monitor seedlings and saplings per acre, add an adaptive management action to consider adjusting treatments in areas where seedling and sapling survival may not be sufficient to desired tree stocking. (WDP 2019: 74)

    - Range condition and trend should be reported much more often than just once every 10 years. We suggest every two or three years. (WDP 2019: 76)

- Regarding acres of invasive plants, if weed introduction and spread increase from current rates, adjust not only treatment strategies but also reconsider management practices that may lead to weed introduction and spread. (WDP 2019: 76)

- There must be proposed adaptive management actions for priority watersheds or soil productivity and function. (WDP 2019: 77)

- There are no adaptive management actions under most of the components of status and trend of aquatic and riparian system integrity. Actions that might be undertaken to address a decrease in any component of integrity need to be stated. (WDP 2019: 77 and 78)

- Regarding the "status and trend of terrestrial wildlife, birds, and insects and their habitats (including at-risk species and focal species)," there are few adaptive management actions listed for this monitoring question. Monitoring the population and trend of various species, including the ones mentioned in this section, is very important. This monitoring will be necessary to assess the impacts of management and climate change on terrestrial ecosystems and habitat for a wide range of species (including some not directly monitored). (WDP 2019: 79 and 80)

Under the Planning rule, monitoring must include "[t]he status of focal species to assess the ecological conditions required under § 219.9" (36 CFR 219.12(a)(5)(iii)). Are the species listed under this monitoring question intended to be focal species? All of the species mentioned here – deer, elk, bighorn sheep, Uncompahgre fritillary butterfly, northern goshawk, and Gunnison sage grouse – are all appropriate focal species, but additional ones will be needed.

- Recommendation: Please be clear about which species are designated as focal species in the draft revised plan. Include a range of focal species to help monitor the ecological conditions of the different ecosystem types. In Defenders et al (2018: 39-43) scoping comments, we recommended the American beaver, at least one woodpecker (e.g., the northern flicker), snowshoe hare, northern goshawk, prairie dogs, and Brewer's sparrow be designated as focal species. Additionally, we recommend the American marten, pygmy nuthatch, and one or more aquatic species be designated as focal species.

V. Climate Change

The 2012 Forest Planning Rule requires the Forest Service to account for climate change throughout the forest plan revision process (36 C.F.R. § 219.8(a)(1)(iv)). The planning framework itself is designed "to create a responsive planning process that informs integrated resource management and allows the Forest Service to adapt to changing conditions, including climate change, and improve management based on new information and monitoring" (36 C.F.R. § 219.5(a)).

Climate change must also be incorporated into plan components. For example, plans must provide for ecological sustainability by "including plan components to maintain or restore structure, function,

composition, and connectivity, taking into account . . . [s]ystem drivers, including . . . climate change" (36 C.F.R. § 219.8(a)(1)(iv)). Climate change is also incorporated into the concept of multiple use, and must be considered in developing plan components for integrated resource management.

We are concerned about the failure of the WDP to adequately address climate change. While we are pleased that there are some plan components that discuss climate change, the aggregate plan components presented in the WDP do not meet the vital need to show how the GMUG can adapt to our changing climate. For example, the WDP includes the following desired condition:

> ***FW-DC-ECO-03:*** *Despite changing and uncertain future environmental conditions, ecosystems maintain all of their essential components. Areas of rapidly changing climate support functioning ecosystems dominated by species native to the context area, though perhaps new to that specific location. Areas of climate refugia continue to support species historically present; have high ecological integrity, are resilient to future conditions, allow for species migration, and have low or no undesirable anthropogenic impacts.*

Though **FW-DC-ECO-03** looks promising on the surface, it is likely unrealistic to believe the GMUG will retain its current conditions. See, for example, Schoenagel et al. (2017) for a deeper look at how climate change requires adaptation, perhaps especially to changing fire regimes.

The WDP needs to be more specific about refugia for species that may be adversely affected by climate change.

- Recommendation: At a minimum, the plan should have an objective that requires, within a year or so, identification of species possibly needing refugia and where such refugia might be located. It should also have components, including standards and guidelines, for ensuring that the conditions that make areas suitable as refugia are retained.

VI. Compliance with the National Forest Management Act and the 2012 Planning Rule

The National Forest Management Act (NFMA) was enacted in 1976 in large part to elevate the value of ecosystems, habitat, and wildlife on our national forests to the same level as timber harvest and other uses. Specifically, 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" (16 U.S.C. § 1604(g)(3)(B)). In April 2012, the Forest Service finalized the Planning Rule, implementing the NFMA (See 16 U.S.C. § 1604(g), 36 C.F.R. §§ 219). The Planning Rule, established a process for developing and updating forest plans and set conservation requirements that the plans must meet to sustain and restore the diversity of ecosystems, plant and animal communities, and at-risk species. The WDP does not provide sufficient plan components for protecting at-risk species and their habitats.

B. Best Available Scientific Information

Forest Service planning regulations require the use of best available scientific information (BASI) to inform the planning process. Compliance with the rule requires two tasks: the Responsible Official (1) "shall determine what information is the most accurate, reliable, and relevant to the issues being considered" (the definition of "best available"), and (2) document the "basis for that determination" (36 C.F.R. § 219.3). The WDP variably indicates which scientific information was used to inform decisions about plan components and plan component design. The draft revised plan and analyses in the DEIS should line up with the information provided in the assessments and/or new science released after the assessments were revised in March 2018.

C. Desired Conditions vs. Standards and Guidelines

The WDP relies heavily on desired conditions, and there are perils to this approach. For example, the requirement for consistency with desired conditions is inherently much more flexible than for mandatory standards (see 36 C.F.R. § 219.15(d)(1)), and potentially allows no progress whatsoever to be made towards achieving them. Recognizing that such outcome-oriented plan components alone would not provide sufficient certainty, the Planning Rule indicates that mandatory standards and/or guidelines that act as constraints on projects be used where needed "to meet applicable legal requirements" (36 C.F.R. § 219.7(e)(1)(iii)). Courts have held that only mandatory terms in forest plans can be considered regulatory mechanisms for the purpose of listing decisions under the Endangered Species Act. The NFMA diversity requirement requires a similar degree of certainty. There should be desired conditions for the ecological conditions needed by the at-risk species, and these need to be accompanied by related standards and guidelines to ensure that those ecological conditions are achieved and/or maintained.

D. The Use of Objectives

As noted above, measurable objectives to accomplish desired conditions will point the Forest in the right direction to maintain and restore ecosystem and watershed integrity; it is the objectives that establish the appropriate degree of urgency. The requirements for objectives are relatively straightforward regarding measurability and they are focused on achieving a desired condition or conditions. We appreciate that the WDP includes objectives. Objectives must be tiered to specific desired conditions, and this has not been done consistently throughout the WDP.

E. Flexibility

While the Planning Rule framework "creates a responsive planning process" that "allows the Forest Service to adapt to changing conditions" (36 C.F.R. § 219.6(a)). However, there is nothing in the planning rule that provides authority to establish a flexible forest plan by building uncertainty into the plan components themselves. The decision document will require "An explanation of how the plan components meet the sustainability requirements of § 219.8, the diversity requirements of § 219.9, the multiple use requirements of § 219.10, and the timber requirements of § 219.11" (36 C.F.R. §

219.14(a)(2)). Every plan component developed at this stage of the planning process should be evaluated through the lens of that requirement: Does it allow the forest plan to meet the rule's requirements? A plan that provides discretion, as this WDP does, for future decision-makers to adopt programmatic decisions on a project-by-project basis would provide the Forest with the ability to essentially change or create plan direction in the future without public involvement. This is counter to the fundamental purpose of NFMA of providing integrated and strategic direction for future projects (NFMA Section 6(f)(1)). It also bypasses the substantive requirements of the planning rule, and its requirement for use of best available scientific information, both of which explicitly do not apply to projects (36 C.F.R. § 219.2(c)). In the case of at-risk species, it would allow the Forest to avoid its statutory obligation for forest plans to provide for diversity of plant and animal communities.

The forest plan cannot simply be a blank check. Plan components must "guide the development of future projects and activities" (FSH 1909.12 Ch. 20, 22.1). It is important that this step of providing a longer-term and landscape-scale context for project decision-making be taken seriously. Where future determinations are necessary, failure to at least provide criteria for making those determinations amounts to including no plan components that would meet species-diversity requirements.

F. Reliance on Optional Plan Content

The plan cannot substitute "management approaches or strategies," referred to as "optional content in the plan" by 36 C.F.R. § 219.7(f)(2), for plan components by including substantive plan provisions in optional content. Management approaches must not be written like a plan component (FSH 1909.12, Ch. 20, 22.4). The Planning Rule clearly states that it is plan components that must provide the necessary ecological conditions for at-risk species (36 C.F.R. § 219.7(e)(3)). Optional plan content carries no legal weight and is unenforceable (projects need not be consistent with them). Justification for not including plan components should be sought in such cases. Plan components are limited to required desired conditions, objectives, standards, guidelines and suitability of lands. Information may be included in a plan about "management approaches or strategies" (36 C.F.R. § 219.7(f)(2)) but these are not plan components and cannot be relied on to meet the diversity requirement.

G. Deferring Management Decisions to the Project Level

The 2012 Planning Rule requires some degree of certainty regarding its projected effects on viability because plan components necessary for viability "must be included in the plan" (36 C.F.R. § 219.9(b)). The Forest Service cannot circumvent this requirement by including a plan component that defers management planning decision making to the project level. When a plan includes no basis for determining project consistency, it essentially defers a viability determination to the project level. As a result, the plan itself does not do what is required of it by NFMA. This would also result in a forest having to determine applicable species' viability for each project, but the Rule is explicit that it does not apply to projects (36 C.F.R. § 219.2(c)).The only plausible interpretation is that each project would need to conduct an analysis of forest-wide viability. That not only creates maximum uncertainty, but flies in the face of the goal of NFMA for "one integrated plan," and would also create an analytical workload

that the Forest Service itself could not support, as it would be impossible to conduct forest-wide viability analyses on projects that only covered a portion of each species' ranges on the GMUG.

VII. Conclusion

Consistent with the substantive requirements of the 2012 Planning Rule, final revised plans should provide a suite of plan components aimed at achieving an ecological sustainability and plant and animal diversity over the life of the revised plan. Based on our assessment of the WDP, detailed above, we do not believe the WDP—as is—will meet these requirements. At the same time, we reiterate our thanks to you for the transparency the planning team has put into this process, and for always being available to answer questions and help us understand this endeavor. We look forward to a DEIS and Draft Forest Plan that incorporates many of our issues and recommendations into the Preferred Alternative, and in working with you to achieve that.

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IX. Appendices

1. Recommendation for Restoring and Maintaining Habitat Connectivity and Protecting Wildlife Corridors

2. Public Support List for *Community Conservation Proposal*

3. Business Support List for *Community Conservation Proposal*

Appendix 1

Recommendation for Restoring and Maintaining Habitat Connectivity

and Protecting Wildlife Corridors

Terrestrial Connectivity Management Direction

Forestwide Desired Conditions

Protected wildlife corridors provide areas for: landscape-scale movement, migration, and dispersal of wide-ranging wildlife species, and they offer security from intensive recreational and other human disturbances. This is an important step in providing for the maintenance of biodiversity across the forest. [adapted from: White River National Forest Plan Revision 2002, Record of Decision Component 3: Establishment of Management Area Direction]

Corridors/linkage areas and associated approach areas provide secure habitat conditions for wildlife movement between large blocks of habitat and/or seasonal habitats at localized and landscape scales, especially across valley bottoms and other fragmented areas. These areas provide cover and often connect key habitat components for those species that use that particular area. NFS lands contribute to linkages between landscapes, unless such landscape isolation is determined to be beneficial. Corridors/linkage areas enable genetic interactions. [adapted from: Kootenai National Forest Wildlife Approach Areas http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsm91_056306.pdf]

Communication and collaboration occurs between federal, tribal, state, and local governments and private landowners to develop, coordinate, improve, and implement common management objectives, including maintaining and enhancing the habitat, habitat connectivity and viability of terrestrial and aquatic wildlife species.

Willing adjacent landowners, planners, and other interested parties work together to improve wildlife connectivity opportunities across multiple jurisdictions (e.g., cooperative agreements, land consolidations, exchanges, acquisitions, easements, etc.). [adapted from: Kootenai National Forest Wildlife Approach Areas]

Core habitat areas (including but not exclusively Wilderness Areas, Wilderness Study Areas, Research Natural Areas, some Inventoried Roadless Areas, and Special Zoological Areas) are not isolated so as to maintain functional connectivity between and among these areas. Such areas, and the connections between them, contain relatively intact ecosystems where natural processes dominate, provide habitat for native biota, and constitute part of a system that helps to preserve the native biological diversity at the planning unit scale and larger landscape scale. [adapted from: San Juan Public Lands Draft Land Management Plan]

Long-term connectivity and integrity of habitat utilized for movement through public lands is restored and maintained to provide for ecological integrity in order to contribute to the recovery of threatened

and endangered species, conserve species proposed or candidates for listing under the Endangered Species Act, assure the persistence of Forest Service Species of Conservation Concern, conserve Bureau of Land Management special status species, priority species identified in Colorado and New Mexico State Wildlife Action Plans, and game species. [adapted from: San Juan Public Lands Draft Land Management Plan]

Forest infrastructure (e.g., roads, fences) does not impede large landscape-scale species (e.g., big game and large carnivore) movement and seasonal habitat use. Infrastructure is designed and located to facilitate wildlife movement. Secure habitat occurs in big game migration corridors to facilitate big game movement. [adapted from: Shoshone National Forest, Draft Proposed Land Management Plan, August 2008. Available online at: http://www.fs.fed.us/r2/shoshone/projects/planning/revision/revision_documents/february_2009/2008_0820_plan.pdf]

To the maximum extent possible, intact, contiguous, secure habitat is provided to support multidirectional seasonal movements of native ungulates. Human disturbance levels (especially in fall and winter ranges, and on calving/fawning grounds) are limited to provide for effective habitat, as defined by State agency partners. These support critical life cycle functions and seasonal needs, including seasonal migration corridors between ranges, for sustaining herds capable of meeting State population objectives. [adapted from: San Juan Public Lands Draft Land Management Plan]

Motorized route density standards or guidelines that consider open and closed USFS roads, USFS motorized trails, and non-USFS roads (e.g., county roads and state highways) are based on best available science for maintaining and/or restoring functional habitat conditions for wildlife that occur in the area.

Standards and Guidelines

- Standard. Winter, including over-snow vehicle use, and summer recreation activities should conform to best available scientific knowledge for mitigating impacts to big and small game, federally protected species, Forest Service Species of Conservation Concern, and other special status and sensitive wildlife species.

- Standard. Optimize fencing for livestock to make all fences wildlife friendly (i.e., fences to not create unreasonable or unnecessary movement barriers or hazards for wildlife) to the maximum extent possible. Coordinate with permittees to identify fencing that is not critical for livestock operations; any fencing that is not critical for livestock operations and that is impeding wildlife movement is removed. Any new livestock fencing that is installed should be constructed in a manner that will minimize disruption to wildlife movement, taking into consideration seasonal migration and water resources.

- Standard. Motorized route density standards within the management area to conform to the

best scientific recommendations, generally less than one mile per square mile (Lyon 1979; Van Dyke et al. 1986a, b; Fox 1989; Trombulak and Frissell 2000; Strittholt and DellaSala 2001; Davidson et al. 1996). Ensure that there will be no net increases in densities above a scientifically credible threshold. If these densities do not exist today, the Forest Service will develop a strategy to achieve them. Motorized route density will consider open and closed USFS roads, USFS motorized trails, and non-USFS roads (e.g., county roads and state highways) and be based on best available science for maintaining and/or restoring functional habitat conditions for wildlife that occur in the area.

- Standard. All temporary roads are removed and the lands on which they were located are restored to natural conditions, and moving toward their Natural Range of Variability, within one year of the termination of the purpose for which they were established.

- Standard. Decommission and reclaim unauthorized routes and system roads that the agency determines are no longer needed for public motorized use.

- Guideline. Where possible, augment wildlife habitat through land purchase from willing sellers, exchange, transfer or donation of additional acreage of crucial wildlife habitat for their migration, movement and dispersal in recognized and designated wildlife corridors.

- Plan direction must include and comply with the Southern Rockies Lynx Amendment regarding lynx linkage areas (Objective LINK O1, Standard LINK S1, Guideline LINK G1, and Guideline LINK G2), and also:
    - Objective ALL O1: Maintain or restore lynx habitat connectivity in and between LAUs, and in linkage areas.
    - Standard ALL S1: New or expanded permanent developments and vegetation management projects must maintain habitat connectivity in an LAU and/or linkage area.

Monitoring & Adaptive Management

- Monitor for trends in landscape integrity and permeability of the forest, and larger landscape, over time. Landscape integrity will be assessed by considering human modification that contributes to fragmentation, including roads, residential development, energy development, transmission corridors, and other development.

- Work with governments and private partners, including adjacent national forests, BLM, state wildlife agencies, universities and non-profits, to monitor wildlife movement within and across the forest.

- Ensure that the plan is responsive to the information gathered and evaluated during monitoring by establishing triggers that, once reached, lead to a change in management that improves

connectivity and permeability of the forest.

- Designate elk and pronghorn as focal species and develop monitoring questions that help assess effectiveness of plan direction related to connectivity.

Management Strategy

- Identify where large core protected areas currently exist, both within the forest and larger landscape, and the connections that exist between them. Until more data are available that describe these core areas and connections in more detail, it is important to ensure that blocks of habitat maintain a high degree of connectivity between them, and that blocks of habitat do not become fragmented in the short term. Utilize management direction offered above to maintain and/or restore connections between these core protected areas.

Wildlife Management Areas (MA 3.2) Management Direction

- Guideline. Establish and implement, in a timely manner, mitigation standards for main USFS arterial roads and state highways to facilitate movement of wildlife including a reduction in mortality of wildlife from vehicle collisions. [modified from: BLM Lower Sonoran and Sonoran National Monument Proposed RMP and Final EIS. June 2012. https://www.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=21457.] Coordinate with CDOT on planning and projects.

- Standard. All projects, activities, and infrastructure authorized shall be designed, timed and located to allow continued successful seasonal movement. [adapted from: Bridger-Teton National Forest Land and Resource Management Plan Amendment: Pronghorn Migration Corridor http://www.wyomingoutdoorcouncil.org/html/what_we_do/wildlife/pdfs/PronghornMigrationCorr-ROD.pdf]

- Guideline. Retain some connectivity of existing forested corridors within MA 3.2 and the overall plan area and between old-growth sites for future forested corridors where connectivity potentially exists but is currently absent. [adapted from: Arapaho and Roosevelt National Forests and Pawnee National Grassland 1997 Revision http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsm91_057935.pdf]

- Guideline. Maintain appropriate amounts and distribution of natural foods and hiding cover to meet the subsistence and movement needs of target wildlife species. [adapted from: Kootenai National Forest Wildlife Approach Areas]

- Standard. Manage disturbance footprint resulting from vegetation management activities

spatially and temporally. This may include but is not necessarily limited to: establishing maximum width and acres of any single on-the-ground disturbance, limiting total acreage of ground disturbance at any one time, limiting or times of year when treatment activities occur.

- Standard. Preclude the granting of new rights-of-way for energy development that would negatively impact wildlife, their habitat and its connectivity.

- Standard. Withdraw the corridor from mineral location and entry, subject to valid existing rights.

- Standard. The area must be discretionary no oil and gas leasing.

Aquatic Connectivity Management Direction

General Recommendations

- Use a combination of tools across the GMUG to ensure riparian and aquatic ecosystem connectivity and watershed health.

- Utilize the existing Watershed Condition Framework as base to establish and execute metrics and water quality standards in the context of "geomorphic, hydrologic and biotic integrity" as defined in the Forest Service Manual.

- Ensure that a monitoring plan includes useful monitoring questions around aquatic connectivity and ecological integrity.

- Create or expand the definition of Riparian Management Zones (RMZs) and apply a set of standards designed to assure riparian protection.

Riparian Management Zones

- Desired Condition. RMZs reflect a natural composition of native flora and fauna and a distribution of physical, chemical, and biological conditions appropriate for natural ecosystems. The species composition and structural diversity of native plant communities in riparian management zones, including wetlands, provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration. RMZs supply amounts and distributions of nutrients, coarse woody debris, and fine particulate organic matter sufficient to sustain physical complexity and stability.

- Desired Condition. RMZs feature key riparian processes and conditions, including slope stability and associated vegetative root strength, wood delivery to streams and the associated RMZs,

input of leaf and organic matter to aquatic and terrestrial systems, solar shading, microclimate, and water quality, operating consistently within local disturbance regimes.

- Desired Condition. RMZs should have highly diverse structure and composition to support terrestrial riparian-associated plants and animals.

- Guideline. Allow only activities that advance RGCT connectivity and aquatic ecological health allowed.

- Guideline. Prioritize partner projects for restoration and rehabilitation including replacement of non-native vegetation such as tamarisk with appropriate native plantings or seedings.

- Standard. Prohibit surface disturbance from oil and gas development within a buffer from the ordinary high water mark from perennial and intermittent streams and other riparian areas; apply a larger setback from Gold Medal streams.

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67	Carolyn Calfee	POB 951 Silverthorne, CO 80498
68	Caryolyn Ray	100 Willow Ln. Ridgway, CO 81432
69	Cat Nichols	1044 Manor St., Apt. 2 Denver, CO 80218
70	Catherine Bagleg	310 Oak Hill Paonia, CO 81428
71	Catherine Carson	307B Locust Court POB 774841 Steamboat Springs, CO 80477
72	Cedar Knight-Fowler	4043 Cedar Ln. Paonia, CO 84128
73	Charla Brown	PO Box 170 Crested Butte, CO 81224
74	Charles and Linda Huston	1600 Treehaven Ct Grand Junction, CO 81506

75	Charles Bradley	441 1600 Road Delta, CO 81416
76	Charles Upshur	N/A N/A, AL 00000
77	Chelsi Rizzi	291 E Parkview dr Grand Jct, CO 81503
78	Christian Griffith	PO Box 429 Elk Springs, CO 80025
79	Christopher Pike	13361 CR 1 Ridgway, CO 81432
80	Cindy Vega	280 E harrison ave Fruita, CO 81521
81	Clay Wadman	PO Box 895 Telluride, CO 81435
82	Cody Bloom	n/a n/a, CO 81503
83	Colin O'Brien	PO Box 179 Paonia, CO 81428
84	Connie Stafford	2709 Clover Ct. Montrose, CO 81401
85	Curtis Martin	P.O. Box JJ Palisade, CO 81526
86	Cynthia Ziegler	17462 Farmers Mine Rd. Paonia, CO 81428
87	Daniel Bailey	605 north fork Paonia, CO 81428
88	Dave Jones	700 Sabeta Dr. Ridgway, CO 81432
89	Dave Noe	223 Orchard St. Paonia, CO 81428
90	David Batten	938 S. 5th St. Montrose, CO 81401
91	David Cantrell	1148 Laporte Ave. Fort Collins, CO 80521
92	David Congour	143 S. 5th St Montrose, CO 81401
93	David Hallowell	98 Ridge Rd Telluride, CO 81435

94	David Hood	n/a n/a, CO 81505
95	David L. Jones	700 Sabeta Drive Ridgway, CO 81432
96	David Mclaughlin	1840 Nichols Way Montrose, CO 81401
97	David Mosier	Fruita, CO 81521
98	David Saenz	655 Tammera Ln Grand Jct, CO 81501
99	Debbie Barnett	n/a n/a, CO 81503
100	Debbie Cokes	25 Juniper Ln. Ridgway, CO 81432
101	Debbie Marquez	PO Box 2829 Edwards, CO 81632
102	Deidre Witherell	354 Cisneros Lane Crested Butte, CO 81224
103	DeLane Bredvik	8810 chipita park rd Cascade, CO 80809
104	Denise Vollmar	
105	Don deVries	1591 Bull Mountain Road Somerset Colorado Somerset, CO 81434
106	Don Swartz	2083 Juniper Rd N Ridgway, CO 81432
107	Donna Shultz	661 Crossing st Grand Jct, CO 81505
108	Doug Dunkle	184 Glen Mawr Dr Black Hawk, CO 80422
109	Douglas Tooley	415 Mtn Village Blvd Pasadena, CA 91124
110	Dravo Shelly	250 1/2 monument view st Grand Jct, CO 81501
111	Dudley Case	545 Ridge Rd. Montrose, CO 81403
112	Dusty Rhodes	681 Patriot court Grand Jct, CO 81505
113	Dylan Fixmer	PO Box 1624 327 North Fork Ave PAONIA, CO 81428

114	Elissa Carbajal	533 Gardner way Clifton, CO 81520
115	Eliya Sorensen	302 Van Tuyl Circle, Unit E Gunnison, CO 81230
116	Elizabeth Thatcher Farrar	P. O. Box 4168 Telluride, CO 81435
117	ellza coyle	p.o. box 173 230 Oak ave Paonia, CO 81428
118	Elora Burgess	520 Autumn Breeze Dr Clifton, CO 81520
119	Elza Coyle	230 Oak Ave. Paonia, CO 81428
120	Emily Farrington	1110 MAIN ST GRAND JUNCTION, CO 81501
121	Enno F Heuscher	24601 Sorrento Lane Cedaredge, CO 81413
122	Eric Freeman	736 Woodridge Ct Grand Junction, CO 81505
123	Erik Dalton	425 W Colorado Ave Telluride, CA 81435
124	Erika Vohman	185 Slate River Dr. Crested Butte, CO 81224
125	Erin blair	404 s wisconsin Apt 2 Gunnison, CO 81230
126	Erin Rose Weisman	19305 4th place SW Normandy Park, WA 98166
127	Eva Veitch	901 6530 Rd. #1312 Montrose, CO 81401
128	Evelyn Grimm	HO 175 L75 Paonia, CO 81428
129	Fran Adams	1688 Hermosa St Montrose, CO 81401
130	Fred Albert Malo Jr.	410B Garfield Ave. 410B Garfield Ave. Carbondale, CO 81623
131	Gabriel Schirm	251 Slate River Drive Unit 7 Crested Butte, CO 81224

132	Gabriella Rodriguez	215 Franklin ave apt#8 Grand Jct, CO 81505
133	Garry W Evenson	122 Mineral Springs Circle Parachute, CO 81635
134	Geoff Rauch	1350 Third St. Paonia, CO 84128
135	Gina Hardin	3330 W 31st Ave Denver, CO 80211
136	Gissela Tercero	492 Aspen grove Clifton, CO 81520
137	Glenn Steckler	PO Box 2513 Telluride, CO 81435
138	Gwen Olsen	1803 N 20th st Grand Jct, CO 81501
139	halle fowler	613 nicholson lake rd p. crested butte, CO 81224
140	Hannah Monserud	N/A unknown, CO 00000
141	Heather Scott	16300 6740 Rd. Montrose, CO 81401
142	Heidi Reese	39650 Hadley St. Paonia, CO 81428
143	Heidi Stinson	1461 East 5th St Delta, CO 81416
144	Holly Bidle	13675 Ragged Mtn Dr Paonia, CO 81428
145	Holly Williamson	207 3rd Street Unit B Paonia, CO 81428
146	Horace	p.o.box 6929 Snowmass Village, CO 81615
147	Isiah Otero	673 Pear Drive Fruita, CO 81521
148	J. Charlene Lee, President, Western Purple Martin Foundation	5331 Hammond Bay Rd. Nanaimo, British Columbia V9T 5M9, AL 00000
149	Jack	39007 Pitkin Rd Paonia, CO 81428
150	Jaden Baker	640 Carina St Clifton, CO 81520

151	Jaime Roth	321 Judson St. LONGMONT, CO 80501
152	James R Schurz	720 S 2nd St Montrose, CO 81401
153	Jan Smeltzer	441 1600 Rd 441 1600 Rd , CO 81416
154	Jane Dunbar	PO Box6791 Sheridan, WY 82801
155	Janet A. Chapman	60711 W Oak Grove rd Montrose, CO _____
156	Janne Mclaughlin	1840 Nichols Way Montrose, CO 81401
157	Jarret and Alline Arguelles	PO Box 848 Telluride, CO 81435
158	Jeff Litteral	544 Busted Boiler Ln. Montrose, CO 81403
159	Jen and Randy Parker	810A Tabernash Lane Ridgway, CO 81432
160	Jennifer Dunn	1020 White Ave Grand Jct, CO 81501
161	Jennifer Parker	810A Tabernash Ln. Ridgway, CO 81432
162	Jennifer Russell	PO Box 895 Telluride, CO 81435
163	Jerry Hillman	34497 Outlook Rd Hotchkiss, CO 81419
164	Jerry Otero	1060 Chipeta Ave Grand Jct, CO 81521
165	Jess Finnigan	8870 3400 Rd. Hotchkiss, CO 81419
166	Jesse Clark	2547 Westwood dr. Grand Jct, CO 81505
167	Jessica E Murillo	2200 12TH CT N APT 404 ARLINGTON, VA 22201
168	Jessica Hansen	372 elm st Fruita, CO 81521
169	Jim Normandin	30 Pan American Avenue Paonia, CO 81428

170	Jim Whalen	1244 Colorado Ave grand junction, CO 81501
171	Joan Dilts	2713 Abrams Ave. Montrose, CO 81401
172	Joan May	308 Adams Ranch Rd #12 Telluride, CO 81435
173	JoAnn Hackos	597 County Road 65 Evergreen , CO 80439
174	JoAnne Petersen	12808 Crawford Rd. Paonia, CO 84128
175	Joe Siegrist, President/CEO, Purple Martin Conservation Association	301 Peninsula Drive, Suite 6 Erie, PA 16505
176	John Broadbooks	1747 Ironton St. Montrose, CO 81401
177	John Howe	302 Adams Ranch Road #7 Mountain Village, CO 81435
178	John Humphries	PO Box 855 Ophir, CO 81426
179	John Mason	PO Box 2911 Crested Butte, CO 81224
180	John Rosen	2335 Elderberry Court Grand Junction, CO 81506
181	John Travis	Box 125 Cedaredge , CO 81413
182	John Valentine	1515 2nd St. Paonia, CO 81428
183	John Willis Mitchell	18325 Coyote Run Road Cedaredge, CO 81413
184	John Zachman	214 Lamborn Ave Paonia, CO 81428
185	Jordan Allen	N/a N/a, CO 81505
186	Joseph Hayes	185 Rainbow Dr Grand Junction, CO 81503
187	Judi Chamberlin	700 Sabeta Dr Ridgway, CO 81432
188	Julia Trujillo	2456 Thunder Mountain Grand Jct, CO 81520

189	Julie Sapena	40213 Sunridge Ct. Paonia, CO 84128
190	Karen Karp	391 Valley View Way Grand Junction, CO 81507
191	Karen M Ortiz	35123 HANSON MESA RD HOTCHKISS, CO 81419
192	Karen Unternahrer	765 W 145 Spur Hwy Brown Homestead Unit D1 Telluride, CO 81435
193	Karen Winkel	2625 Cirque Way Montrose, CO 81401
194	Kat Bagley	4932 CR 119 Hesperus, CO 81326
195	Kate Barney	907 Elk Ave. Crested Butte, CO 81224
196	Kate Kellogg	596 Sabeta Dr., Unit F Ridgway, CO 81432
197	Kathryn L Boehnke	PO Box 175, 115 Mountain View Dr OURAY, CO 81427
198	Kathryn Quinn	2800 Kalmia Ave. Boulder, CO 80301
199	Katie Brownes	150 Aspen Lane Apt. 4A Crested Butte, CO 81224
200	Kelli Petersen	PO box 1211 Telluride, CO 81435
201	Kelly Dougherty	1710 White Ave Grand Junction, CO 81501
202	Kelly Williamson	415 Mountain Village Blvd Telluride, CO 81435
203	Kelly Wolf	110 Granite Ave. Ophir, CO 81426
204	Kelsey Coster	1012 O rd Mack, CO 81525
205	Ken Dolezal	16767 6725 Rd. Montrose, CO 81401
206	Ken Goldsmith	722 Parkham Ln Raleigh, NC 27603
207	Kenneth Scissors	2534 Park Mesa Ct Grand Junction, CO 81507

208	Kevin Bailey	N/a N/a, CO 81521
209	Kevin Iverson	#4 131 E. Colorado Ave Telluride, CO 81435
210	Kevin Russell	16242 Farmers Mine Rd. Paonia, CO 81428
211	Kim Floyde	1516 Barbara St. Montrose, CO 81401
212	Kim Lisenby	63198 Newport Dr. Montrose, CO 81403
213	Kim Wheels	PO Box 803 Ophir, CO 81426
214	Kirby Brian Hughes	2725 Black Canyon Rd. Colorado Springs, CO 80904
215	Kirsten Atkins	PO Box 592 Crested Butte, CO 81224
216	Kristen Hopkins	519 Loma Vista Ct. Pagosa Springs, CO 81147
217	Kristin Kwasniewski	220 Second St. Placerville, CO 81435
218	Kristin Pulatie	1140 Carbon Junction #17 Durango, CO 81301
219	Kurt Grimm	HO 175 L75 Paonia, CO 81428
220	Lacey Miller	642 North Court Grand Junction, CO 81504
221	Lance Waring	452 San Miguel Ridge Telluride, CO 81435
222	Lara Young	205 E. Serapio Dr. Telluride, CO 81435
223	Laura Johnston	365 Canyon Court W Grand Junction, CO 81507
224	Laura Yale	594 County Road 4 Crested Butte, CO 81224
225	Laurie Mitchell	40881 HWY 133 Paonia, CO 81428
226	Lawrence Herbert	324 Rio Grande Ave Paonia, CO 81428

227	Lawrence Quinn	83 COUNTY ROAD 69 LYONS, CO _____
228	Lawrence Ribnick	38741 Indian Head Lane Crawford, CO 81415
229	Lawrence W. Ribnick	38741 Indian Head Lane Crawford, CO 81415
230	Lesley Hallenborg	67650 Lisa Ct. Montros, CO 81401
231	Lin Wanner	PO Box 1212 Carbondale, CO 81623
232	Linda J Miller	P.O. box 883 telluride 513 w.columbia, CO 81435
233	Linda Laks	10996 3250 Rd. Hotchkiss, CO 81419
234	Linda McLean	385 Caprock Dr. Grand Junction Junction, CO 81507
235	lisa dietz	18632 River Crossing Blvd Davidson, NC _____
236	Lisa Thomason	PO Box 709 Ridgway, CO 81432
237	Lyn Howe	1350 Third St. Paonia, CO 84128
238	Lyndee Coburn	520 Redcliff Cir. #203 Ridgway, CO 81432
239	Lynn Vogel	3328 Wheat Grass Dr. Montrose, CO 81401
240	maggie dijkstra	173 white stallion circle box 1180 crested butte, CO 81224
241	Margaret Whittum	5151 East Yale Circle #206 Denver, CO 80222
242	MARGIT YATES	PO Box 208 40180 Paonia, CO 81428
243	Maria Fenerty	PO Box 838 Crested Butte, CO 81224

244	Mark Carter	4751 Gunnison County road 265 Somerset, CO 81434
245	Mark Favro	7207 County Road 100 Carbondale, CO 81623
246	Mark Horn	1116 3rd St. Paonia, CO 81428
247	Mark Kaufman	322 Teocalli Avenue Crested Butte, CO 81224-1364
248	Mark Schofield	400 Whatcom Street Bellingham, WA 98225
249	Marla Korpar	14138 Burgess Ln. Paonia, CO 81428
250	Martin Pool	212 Halto Via Cir. Durango, CO 81301-3___
251	Marvin Harrah	24323 Valley View Cir. Cedaredge, CO 81413
252	Mary Ellen Massey	1909 Claremoor Dr Louisville, KY 40223
253	Mary Ellis	PO Box 1281 Crested Butte, CO 81224
254	Mary Gnandt	2615 Cirque Way Montrose, CO 81401
255	Mary Harte	1180 Cragmont Ave Berkeley, CA _____
256	Mary Hertert	929 Crown Ct Fruita, CO 81521
257	Mary Jursinovic	11491 3800 Rd Paonia, CO 81428
258	MaryJoy Martin	16630 Columbine Ln Cedaredge, CO 81413
259	Matt Hockenberry	1655 Rhine Ct Montrose, CO 81401
260	Matt Reed	4145 S. Acoma St. Englewood, CO 80110
261	Matthew Ebbott	206 N. Colorado St Gunnison , CO 81230
262	May Trumble	39417 pitkin road Paonia, CO 81428

263	McKinna Pillin	14104 Steak St. Denver, CO 80206
264	Megan Randall	PO Box 1624 Paonia, CO 81428
265	Mel Yemma	720 Sopris Ave. Crested Butte, CO 81224
266	Melissa Rehfeldt	585 Shady Ln Paonia, CO 81428
267	Michael & Heidi Marquardt	580 Reeder Mesa Rd Whitewater, CO 81527
268	Michael A Johnson	1010 3rd Street Paonia, CO 81428
269	Michael Cassidy	11 Canyon DR Ridgway, CO 81432
270	Michael Nadiak	730 Chipeta Dr Ridgway, CO 81432
271	michael Paul Burkley	42232 lamborn mesa rd paonia, CO 81428
272	Michael Price	26559 Redlands Mesa Road Hotchkiss, CO 81419-6206
273	Michael Soule	39102 Pitkin Rd. Paonia, CO 81428
274	Michael Straul	N/A Paonia, CO 81428
275	Michael T Wiley	12703 Elk Valley Road 12703 Elk Valley Rd Paonia, CO 81428
276	Michele Pilot	Fruita, CO
277	Michelle Wilk	723 N. 10th Street, Unit E Gunnison, CO 81230
278	Monica Ariowitsch	37 Willow Ct. Crested Butte, CO 81224
279	Monica Carey	POB 753 Ophir, CO 81426
280	Nancy R Grindlay	PO Box 3903 Crested Butte, CO 81224
281	Nancy Schneider	PO Box 1700 Glenwood Springs, CO 81602
282	nancy working	1197 memphis belle steamboat springs, CO 80487

283	Natalie Morrison	120 Teocalli Avenue P.O. Box 1745 Crested Butte, CO 81224
284	Nathan Walker	n/a n/a, CO 81520
285	Nic Korte	1946 Clover Court Grand Junction, CO 81506
286	Nic Korte, Conservation Chairman, Grand Valley Audubon Society	Grand Valley Audubon Society PO Box 1211 Grand Junction, CO 81501
287	Nicholas Turner	41400 Stewart Mesa Rd Paonia, CO 81428
288	Nick Lypps	110 Colorado Avenue Paonia, CO 81428
289	Nick Williams	695 Tabernash Ln. Ridgway, CO 81432
290	Nina Black	Grand Junction , CO 81501
291	Nina Hiatt	281 E 2nd St Delta, CO 81416
292	Noalani Terry	61490 Epitaph Rd. Montrose, CO 81403-8978
293	Olaf Rasmussen	374 Promontories Dr. Ridgway, CO 81432
294	Pam Todd	2364 Rana Rd. Grand Junction, CO 81507
295	Pam Wieser	207 Dream St Grand Junction, CO 81503
296	Pamela Benson & Elizabeth Gibson	62762 Orange Road Montrose, CO 81403
297	Pamela L Motley	316 Colonial Way Montrose, CO 81401
298	Pat Riddell	2671 Storm King Ave. Montrose, CO 81401
299	Patrice Streicher	350 Country Club Drive Unit 120A Crested Butte, CO 81224
300	Patricia Miller	374 Promontories Drive Ridgway, CO 81432
301	Patrick Dooling	PO Box 353 Paonia, CO 81428

302	Patrick Willits	820 Sabeta Drive Ridgway, CO 81432
303	Paul Barney	907 Elk Ave. Crested Butte, CO 81224
304	Paul Hamilton	1625 Marble Village Drive Marble, CO 81623
305	Paul Mills	16 Hathaway Cir. Greenville, SC 29617
306	Perry Keen	4170 S Acoma St Englewood, CO 80110
307	Pete Davis	920 Moffat St. Ridgway, CO 81432
308	Phil	N/A unknown, AL 00000
309	Phil Johnson	P.O. Box 683 Paonia, CO 81428
310	Philip Harrold	1227 Peppertree Dr. Montrose, CO 81401
311	philippe wheelock	443 N Lena St Ridgway, CO 81432
312	Priscila Ramos	215 Franklin ave apt#8 Grand Jct, CO 81505
313	R Bon Legman	PO Box 772 Paonia, CO 84128
314	Raleigh Coburn	901 Chipeta Dr. Ridgway, CO 81432
315	Ralph D'Alessandro	36291 Sunshine Mesa Road Hotchkiss, CO 81419
316	Ralph Oberg	20480 Taurus Way Montrose , CO 81403
317	Randy Martin	625 Chipeta Ave Grand Junction, CO 81501
318	Ray Gerrity	201 W. Bidwell Gunnison, CO 81230
319	Regina Lopez-Whiteskunk	PO Box 114 Towaoc, CO 81334
320	rein and jan van west	453 Cty Rd 5 Ridgway, CO 81432

321	Renee Rumrill	12780 6600 Rd. Montrose, CO 81401
322	Rhea L Monroe	6231 LaPaloma CT Whitewater, CO 81527
323	Rhonda Claridge	PO Box 742 Ophir, CO 81426
324	Rob Ashmead	64 Pinon Road E Ridgway, CO 81432
325	Rob Burnett	P.O. Box 170 Crested Butte, CO 81224
326	Rosalie Ott	PO Box 1537 Crested Butte , CO 81224
327	Rozanne Evans	1523 Juniper Ridgway, CO 81432
328	Russ Tomlin	2318 Miami Rd. Montrose, CO 81401
329	Ruth Ann Bohler	1656 Wetterhorn St. Montrose, CO 81401
330	Ruth Higdon	5897 Country Rd. 23 Ridgway, CO 81432
331	Ryan martens	931 belleview ave Crested butte, CO 81224
332	Sallie Thoreson	PO Box 1725 Montrose, CO 81402
333	Sally Larcker	38594 Stucker Mesa Rd Hotchkiss, CO 81419
334	Sam Murch	259 West Santa Clara St Ventura, CA 93001
335	Samantha Romero	902 Taughenbaugh Blvd Grand Jct, CO 81505
336	Sandi Sturm	853 Grand Ave Grand Jct, CO 81501
337	Sandra Renna	110 Dorris St. Paonia, CO 81428-____
338	Sandy Shea	PO Box 2671 Crested Butte, CO 81224
339	Sara Coulter	142 Canyon Dr. Ridgway, CO 81432

340	Sarah Ash	N/a N/a, CO 81520
341	Sarah Crum	2498 S. Broadway Grand Junction, CO 81507
342	Sarah Nyman	425 W Colorado Ave Telluride, CO 81435
343	Sarah Sadler	910 3rd Street Paonia, CO 81428
344	Scott Williams	372 Pleasant Valley Dr Ridgway, CO 81432
345	Sean Murphy	398 South Davis St. PO Box 2667 Telluride, CO 81435
346	Seth Mitchell	4088 HWY 133 Paonia, CO 81428
347	Shannon EarthTree	35 Pilot Knob ln. #310 Telluride, CO 81435
348	Sharon Kime	PO box 964 Paonia, CO 81428
349	Sid Lewis	510 3rd St. Paonia, CO 81428
350	Sierra Lloyd	429 Gold Rush Dr Fruita , CO 81521
351	Sonja Heuscher	216 N Ford Street Golden, CO 80403
352	Stan Kostka, Secretary, Western Purple Martin Working Group	28603 Kunde Rd. Arlington, WA 98223
353	Stephanie Lape	1246 White Ave Grand Junction, CO 81501
354	Stephen Hatch	725 Fox Hunt Trail Deerfield, IL 60015
355	Stephen Hornback	5255 Montezuma Rd. Montezuma, CO 80435
356	Steve Reed	594 1/2 Creekside Ct. Grand Junction, CO 81507
357	Sue Navy	Box 432 Crested Butte, CO 81224

358	Susan Dalton	595 Pandora Ave. Telluride, CO 81435
359	Susan Kearns	398 Meadows Road Durango, CO 81301
360	Susan Pernot	5098 rd 24.5 Cortez, CO 81321
361	Susannah Mitchell	386 1/2 Ridge View Drive Grand Junction, CO 81507
362	Suzanne Foster Porter	1320 Grand Ave. Grand Junction, CO 81501
363	Suzanne McMillan	4145 S. Acoma St. Englewood, CO 80110
364	Suzanne Pierson	37 Willow Ct. Crested Butte, CO 81224
365	Sydney Elks	218 Ouray Ave Grand junction , CO 81501
366	Tammie Slack	PO Box 1672 Crested Butte, CO 81224
367	Tamra Gutshall	pob 303 Paonia, CO 81428
368	Taylor Chase	344 Escalante Cir Ridgway, CO 81432
369	Terry Randall	41367 Lamborn Mesa Rd Paonia, CO 81428
370	Theodore Koeman	856 Haven Crest Ct. S Grand Junction,, CO 81506
371	Thomas and Cathleen Rubel	95 Tanager Drive Glenwood Springs, CO _____
372	Thomas Verry	49550 East Hwy 50 Gunnison, CO 81230
373	Timber Moreland	15878 Black Bridge Rd. paonia, CO 81428
374	Timothy wirth	29 Maroon Ave Crested Butte, AL 81224
375	Tom Heffernan	405 Kismet St. Ridgway, CO 81432
376	Tom McKenney	PO Box 340 Ridgway, CO 81432

377	TOM OKEN	PO BOX 8068 ASPEN, CO 81612
378	Tony Prendergast	1308 Clear Fork Rd Crawford, CO 81415
379	Travis Flores	8555 Fly Rd. Austin, CO 81410
380	unruh	899 porphyry Ophir, CO 81426
381	Vicki and Chuck Shaw	PO Box 271 Escalante, UT 84726
382	Vicki Tosher	4170 South Acoma Street Englewood, CO 80110
383	Walther Schoeller	14 Sopris Ave. Crested Butte, CO 81224
384	Wayne Quade	1917 Sunrise Dr. A Montrose, CO 81401
385	Wegner Brian	15566 Fire Mountain Rd Paonia, CO 81428
386	Wendy Harrah	24323 Valley View Cir. Cedaredge , CO 81413
387	William Benjamin	15811 2900 Rd. Hotchkiss, CO 81419
388	William Crompton	40839 Stewart Mesa Rd. PAONIA, CO 81428
389	Wynn martens	900 69th st Boulder, CO 80303
390	Yolanda Del Hierro	2115 Hartford Way #A Montrose, CO 81401
391	Zach Vaughter	PO Box 2201 Crested Butte, CO 81224
392	Zachary Treisman	159 Mohawk trail Gunnison , CO 81230
393	Zoe Werden	17863 Paradox Tr. Montrose, CO 81403

Appendix 3

Number	Name	Business Name	Address	Website / URL
1	Ann Gibson	Adventure Wellness	PO Box 1607 Crested Butte, CO 81224	http://www.AdventureWellness.com
2	Mike Guseba	Aemono	156 Unit A Society Dr Telluride, CO 81435	
3	Jessica Newens	Ah Haa School for the Arts	300 S. Townsend Telluride, CO 81435	
4	Karla Elinoff	Alpinist and the Goat	204 W Suite C Colorado Ave Telluride, CO 81435	
5	Leif Juell/Jill Markay	Alternative Power Enterprises	609 Clinton St. Ridgway, CO 81432	
6	Jennifer Dewey	AMULET Arts	pob 591 521 Clinton Street Ridgway, CO ___81-432	https://amuletarts.com
7	Meagan Ketterlin	Apotheca	129 W. Colorado Ave Telluride, CO 81435	
8	Kyong Merriman	Artistry Salon	201 1/2 W Colorado Ave Telluride, CO 81435	
9	Chris Jaeger	Azadi Fine Rugs	217 W. Colorado Ave Telluride, CO 81435	
10	Ty Gillespie	Azura Cellars	16764 Farmers Mine Road Paonia, CO 81428	
11	Yvonne Reed	Babies of Bush	618 Mountain Blvd Shop 120C Centrum Blvd Mountain Village, CO 81435	
12	Carolyn Emanuel	Back Story Tours	2247 Saddlehorn Road Grand Junction, CO 81507	http://www.backstorytours.com/
13	Jerry Greene	Baked in Telluride	127 S Fir Street Telluride, CO 81435	
14	Bobbi LynnSmith	Between the Covers	224 W. Colorado Ave Telluride, CO 81435	
15	W. H. Chipley	Bluebird Realty & Management	PO Box 736 Ridgway, CO 81432	
16	Jenny Long	Bottleworks	129 W. San Juan Ave Telluride, CO 81435	
17	Heidi Reese	Breezy Trees Homestead	39650 Hadley St Paonia, CO 81428	http://breezytreeshomestead.com
18	Stu Krebs	C&M Company, Inc.	12 South Cascade Ave. Montrose, CO 81403	
19	Chris McNatt	Cam Electric	22536 S Hwy 550 Montrose, CO 81403	
20	Carolyn Grinspan	Cashmere RED	221 E Colorado Ave Telluride, CO 81435	
21	Angela Hawse	Chicks Climbing and Skiing	P.O. Box 604 Ridgway, CO 81432	http://www.chickswithpicks.net
22	Amy Olivier	China Rose	158 Unit A Society Dr Telluride, CO 81435	
23	John Walsh	Cimarron Guitars	153 S Elizabeth St. Ridgway, CO 81432	

24	Ken & Carol Lipton	Cimarron Ridge Ranch	53 CR 12A Ridgway, CO 81432	
25	Kristen McClinsey	Cindybread	168 Society Dr. Telluride, CO 81435	
26	Brandy Logan	Colorado Crystal Curio	228 Highway 133 Paonia, CO 81428	
27	Dan Kiger	Colorado Yurt Company	28 W. South 4th St. Montrose, CO 81403	
28	Carol Keeney	Community Spirit Church	1516 Barbara St. Montrose, CO 81401	
29	Craig Childs	Craig Childs	1150 County Road Z42 Norwood, CO 81423	http://houseofrain.com
30	Macy Pryor	Crossbow Leather	124 E Colorado Ave Telluride, CO 81435	
31	Tom Connor	Dakota Home Furnishings	220 E Colorado Ave Telluride, CO 81435	
32	Scott Mueller	Delilah LLC	115 W Colorado Ave Telluride, CO 81435	
33	Christopher Caskey	Delta Brick & Climate Company	1732 Wazee St Ste 206 Denver, CO 80202	
34	Eugenie M McGuire	Desert Weyr, LLC	16870 Garvin Mesa Road Paonia, CO 81428	http://www.desertweyr.com
35	Clay Wadman	Diamond Productions, Inc.	PO Box 895 Telluride, CO 81435	http://www.diamondproductionstudios.com
36	Steve Laub	Digitiqe, LLC	220 W. Colorado Ave Telluride, CO 81435	
37	Lauren Read	Down to Earth	236 W Colorado Ave Telluride, CO 81435	
38	Mary George	Edesia Community Kitchen	40820 O Rd Paonia, CO 81428	
39	Neal Elinoff	Elinoff Gallery	204 W Colorado Ave Telluride, CO 81435	
40	JAKE SAKSON	Elk Mountain Farmacy	PO BOX 242 PAONIA, CO 81428	
41	Wegner Brian	Endless Endeavor WInery and Farm LLC	15566 Fire Mountain Rd Paonia, CO 81428	http://www.endlessendeavorwinery.com
42	Alex Ewert	Ewert Appraisal Services	PO Box 124 Crested Butte, CO 81224	
43	Manny Rodriguez	Faded lifestyle Barbershop	510 28 3/4 road Grand Junction , CO 81501	
44	Liza Clarke	Ferguson Family Ranches LLC	8 Lynx Rd. Ridgway, CO 81432	
45	Frank L. Loomis	Frank's Log Furniture	3698 6000 Rd. Olathe, CO 81425	
46	Greg Neihmar	Gentleman’s Quality barbershop	530 Main St. Unit F Grand Junction , CO 81501	

47	George Ostgarden	GO High Five	PO Box 285 Placerville, CO 81435	
48	Tammie Slack	Gravity Spa and Colorado Forest Therapy	306 Belleview Ave. Crested Butte, CO 81224	
49	Dj petz	Happy Buddha management	32349 hwy 92 Hotchkiss, CO 81419	http://www.happybuddhahemp.com
50	Kate Kissingford	Healing Hearts, Opening Minds	PO Box 1285 Ouray, CO 81427	
51	Chuck Glass	Hellbent Leather & Silver	215 E. Colorado Ave Telluride, CO 81435	
52	Cindy Farny	High Camp Hut	PO Box 2226 Telluride, CO 81435	http://highcamphut.com/
53	Ribert justman	High Country Fruit	14659 peony lane paonia, CO 81428	
54	Hal Brill	High Wire Hops, LLC	1991 Hawks Haven Dr., Paonia, CO 81428	
55	Alison Gannett Jason Trimm	Holy Terror Farm	42485 Highway 133 Paonia, CO 81428	http://AlisonGannett.com
56	Lynn Moore	Hook Telluride	226 W. Colorado Ave Telluride, CO 81435	
57	Doug Napier	Ice House Lodge	310 S Fir St Telluride, CO 81435	http://icehouselodge.com/
58	Roger Baril	Integrative Therapies	330 Delta Ave Paonia , CO 81428	
59	Ivy Walker	Ivy Walker Studio	20 Alpine Ct. Crested Butte, CO 81224	http://www.ivywalker.com
60	Jim Stephenson	Jim Stephenson Photography	PO Box 272 r, CO 81432	
61	Suzanne Foster Porter	Kannah Consulting	750 Main St. Grand Junction, CO 81501	http://www.kannahconsulting.com
62	Kellie Pattalochi	Kellie's	217 E Colorado Ave Telluride, CO 81435	
63	XXXX	knucklehead	311 5th St., #1 Crested Butte, CO 81224	
64	Lucas Price	La Cocina de Luz	123 E. Colorado Ave Telluride, CO 81435	
65	Ryan B Lehman	Lehman Images Ltd.	PO Box 772 Paonia, CO 81428	http://www.lehmanimages.com
66	Susan Baker	Lupitas Bizarre Bazaar	PO Box 348 Ridgway, CO 81432	
67	Shaylynn Serleth	Mangala Yoga	333 W. Colorado Ave Telluride, CO 81435	
68	Erika Vohman	Maya Super Foods	329 Belleview Ave. Crested Butte, CO 81224	
69	Wink Davis	Mesa Winds Farm & Winery	31262 L Road Hotchkiss, CO 81428	
70	Hannah Knudsen	Mixx Projects & Atelier	307 E. Colorado Ave Telluride, CO 81435	

71	Kenyon Fields	Mountain Island Ranch	5350 Little Dolores Rd Glade Park, CO 81523	
72	Michelle Davis	My Aroma Spa	307 E. Colorado Ave Telluride, CO 81435	
73	Ray Farnsworth	New Sheridan Hotel	231 W. Colorado Ave Telluride, CO 81435	
74	Robin Nicholoff, Gretchen Nicholoff	Nicholoff Summit Construction LLC	36295 Sunshine Mesa Rd. Hotchkiss, CO 81419	
75	Michael A Johnson	North Fork Estimating LLC	1010 3rd Street Paonia, CO 81428	
76	Lisa Niermann	North Fork Valley Community Rights Advocates	PO Box 1201 Paonia, CO 81428	https://nfvcra.org
77	Jenny Russell	Olioveto, LLC	PO Box 895 Telluride, CO 81435	
78	Garrett Stimax	Osprey Packs	607 Riverside Ave. Mancos, CO 81328	
79	William (Bill) Leo Jr.	Ouray Mountain Sports	732 Main St Ouray, CO 81427	
80	Bob Risch, President	Ouray Trails Group	PO Box 50 Ouray, CO 81427	https://ouraytrails.org
81	Maura Coulter	Over the Moon Fine Foods	200 W Colorado Ave Telluride, CO 81435	
82	Lara Knorr	Overland	100 W Colorado Ave Suite A Telluride, CO 81435	
83	Kara Berg	Pat's Screen Printing Studio	242 N. Main St. Gunnison, CO 81230	
84	Julia Seglund	Phelps Real Estate Group LLC	501 S. Townsend Ave Montrose, CO 81401	
85	Lisa Horlick	Picaya	101 W. Colorado Ave Telluride, CO 81435	
86	Kevin Kuns	Pro Management & Associates	XXXX Montrose, CO 81401	
87	Chelsea Bookout	Remedy Juice Bar Cafe	232 Grand Ave. Paonia, CO 81428	
88	Heather and Tim Patterson	Rigs Adventure Co	565 Sherman St #2 Ridgway, CO 81432	
89	Timothy Patterson	RIGS Fly Shop & Guide Service LLC	1075 Sherman St #101 Ridgway, CO 81432	http://www.fishrigs.com
90	Lesandre Barley	Rub 'n Restore, Inc.	42812 Hidden Mesa Lane PO Box 1149 Paonia, CO 81428	https://www.rubnrestore.com/
91	Lisa Niermann	Sage Valley Farm, LLC	36639 M50 RD HOTCHKISS, CO 81419	
92	Jennifer DiFiore	Scarpe	250 E Pacific Ave Telluride, CO 81435	
93	Jessica Krauser	Second Chance Humane Society	335 W. Colorado Ave Telluride, CO 81435	

94	Jason Smith	Shake N Dog	410 Mtn Village Blvd Mountain Village, CO 81435	
95	Marney Prince	Side by Side	100 W Colorado Ave Unit E Telluride, CO 81435	
96	Scott Shishim	SK Bikes	110 3rd St Paonia, CO 81428	http://shishkabikes.com
97	Bekah Kolbe	Slate Gray Gallery	209 E Colorado Ave Telluride, CO 81435	
98	Jim Brett	Slow Food Western Slope	PO Box 312 Hotchkiss, CO 81419	http://slowfoodwesternslope.org/
99	Monica Wiitanen	Small Potatoes Farm	40575 O Road Paonia, CO 81428	
100	Ruth Higdon	Smiling Buddha Yaks	5897 CR 23 Ridgway, CO 81432	
101	Daniel Vazquez	Steamies Burger Bar	300 W. Colorado Ave Telluride, CO 81435	
102	Michael Straub	Straub Mechanical Services	37441 Backriver Rd. Paonia , CO 81428	
103	Terryl Dahl	Sublime	126 W. Colorado Ave Telluride, CO 81435	
104	Steve Boyd	Suehiro Japanese Restaurant	793 Joann Ct Fruita, CO 81521	
105	Tesha Karn	T. Karn Imports	394 W. Colorado Ave Telluride, CO 81435	
106	Tara Miller	Tara Miller Claywork	41342 O Road Paonia, CO 81428	
107	Thomas Thatcher	Telluride Brewing Company	156 DEF Society Dr. Telluride, CO 81435	https://www.telluridebrewingco.com/
108	Mick Hill	Telluride Coffee Roasters	164 C Society Drive Telluride, CO 81435	https://www.thebean.com/
109	Becca Tudor	Telluride Fuel	205 E. Colorado Ave Telluride, CO 81435	
110	Malarie Clark	Telluride Gallery of Fine Art	130 E. Colorado Ave Telluride, CO 81435	
111	Joe D'Alessandro	Telluride Green Room	250 S. Fir Street Telluride, CO 81435	
112	Tom Nading	Telluride Music Co	333 W. Colorado Ave Telluride, CO 81435	
113	John & Mary Lou Gregory	Terra Vista Ltd.	P.O. Box 81 Crawford, CO 81415	
114	Samuel Wasserman	The Drop Board Shop	123 S. Oak St Telluride, CO 81435	
115	Mark Waltermire	Thistle Whistle Farm	10872 3500 Rd Hotchkiss, CO 81419	
116	Kate Povondra	Tiny Craft Builders	PO Box 1853 Paonia, CO 81428	http://www.tinycraftbuilders.com

117	Arvin Ramgoolam	Townie Books	414 Elk Ave POB 311 Crested Butte, CO 81224	https://www.towniebookscb.com
118	Tor Anderson	True North Designworks	PO Box 2128 Telluride, CO 81435	http://www.truenorthdesignworks.com/
119	Robyn Shaw	Tweed	151 Pine St Telluride, CO 81435	
120	Kristin Holbrook	Two Skirts	127 W. Colorado Ave Telluride, CO 81435	
121	Emily Hartnett, Board President	Valley Organic Growers Association	PO Box 614 Hotchkiss, CO 81419	http://vogaco.org/
122	Erich Niermann	Ventura design/build, LLC	36639 M50 Rd Hotchkiss, CO 81419	
123	Nick Rinne	Vine Market & Bistro	347 E Main St. Montrose, CO 81403	
124	Lisa Thomason	Voyager Youth Program	280 North Cora Street Ridgway, CO 81432	https://www.voyageryouthprogram.org
125	Daniel Roman	Western Slope SUP	328 West Bridge Street Unit B Hotchkiss, CO 81419	http://www.westernslopesup.com
126	John Sullivan	Wine Mine	220 S. Davis St Telluride, CO 81435	
127	Teresa Shishim	Yoka Design	PO Box 856 Paonia, CO 81428	http://yokadesign.com