Chad Stewart, Forest Supervisor Randal Ghormley

2250 South Main Street PO Box 357

Delta, Colorado 81416 Del Norte, CO. 81132

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Dr. Mr. Stewart,

I am submitting the following comments on the Draft Revised Land Management Plan for the Grande Mesa, Uncompahgre, and Gunnison National Forests (GMUG) for your review and consideration. It is my hope you will find them informative and helpful in identifying and correcting potential deficiencies when preparing a Final Revised Forest Plan.

My comments are focused on the wildlife and biodiversity aspects of the draft plan revision, and specifically, on those processes and components associated with the maintenance of ecological integrity. As such, my comments include general responses to the overall aspects of the draft plan revision, as well as comments specific to certain draft plan components. Where needed, I also suggest changes to specific draft plan components and the draft Monitoring Plan, and offer additional literature references that are relevant to your analysis and draft documents.

**Subject: Snags/Down Woody Material (DWM)**

In forested terrestrial systems, the importance of maintaining snags and downed woody material, including whole logs and pieces of logs, at all periods of the planning timeframe cannot be over-stated. Not only do they provide key habitat and foraging substrate for numerous invertebrate and vertebrate species as woody characteristics change over time, but also function as refugia from changing climatic conditions and landscape disturbances. From a post-vegetation management or natural disturbance point of view, they function as structural legacies and building blocks for forest resiliency, and have important implications regarding the pathways and timelines for recolonization by native species. The amount, distribution, and characteristics of these components must of course be closely related to the disturbance regimes of the various forest ecosystem types, but considerations for their recruitment, maintenance, and function over time should also be a key consideration in planning forest management activities and in the Monitoring Plan to ensure conditions are being maintained over time and achieving desired outcomes. Some ecosystem types, ponderosa pine vs spruce-fir for example, function quite differently regarding the ecology of dead wood processes. Snags are unique in that they frequently occur in a random clumped distribution. This will require both coarse and fine-filter monitoring efforts for management success over time.

Table 2: Snag/DWM Recommended coarse woody debris for wildlife habitat and ecosystem function.

**Comment**: The amounts and criteria established in Table 2 first column appear to be within the parameters of sustainability. Displaying snags as a minimum number per hundred acre is a biologically useful method of displaying these requirements. However, I recommend that a split column or split row or some other method be used to also display these numbers in snags per acre. This will be useful in providing a quick comparison to the adjacent columns, all of which display requirements as a per acre criteria. If needed, it could be clarified that snags do not have to managed on per acre basis, i.e. not on every acre. Conversely, the table should clarify that not all snags need to be grouped on a hundred acre basis. Some local cavity nesting species such as pygmy nuthatch and mountain chickadee have much smaller breeding territories (2-3 acres and about roughly 10 acres, respectively) and may need snag retention considerations achieved at these levels depending on surrounding landscape condition.

**Comment:** Information appears to be lacking as to how snags will be maintained over time in relationship to harvest unit boundaries. The Plan needs to recognize that snags are short-lived and temporary, and each snag species has a unique retention life span. Larger diameter snags tend to stand longer than small diameter snags. And each species retention rate is different. For example, even the largest ponderosa snag might last only 12-15 years or so, while spruce snags might stand for 40 to 50 years or even longer. Thus, the Plan should note that replacements are needed for maintenance over time.

**Comment:** What does the Plan mean by “stand level”? A “stand” has no science-based definition, and is therefore subjective. “Stand” boundaries may change over time, with GIS packaging updates, or other factors. The public has little conception of what a “stand” is or isn’t. This will complicate the ability to track and measure snag goals over time, particularly where fine-scale data is needed. The Forest Inventory and Assessment (FIA) program can indeed be useful to assess broad-scale conditions in some forest types, but is not adequate for sampling forest types with fewer acres on the landscape. On the Rio Grande National Forest (RGNF) for example, the FIA Program is appropriate only for sampling and assessing snags in the spruce-fir forest type. Other forest types, such as ponderosa pine, have extremely high variance and sampling error and are inadequate for monitoring snag numbers over time let alone assessing key criteria for wildlife viability such as size class, height, or decay class. If the FIA Program is to be used on the GMUG for assessing snag and downed wood criteria over time, the Forest should communicate to the public where this might be effective or not, and include supplemental methods for assessing snag criteria through time to answer the fine-scale questions needed to track plan compliance and provide for viability over time.

**Comment:** The Plan should clarify that snags – at least some minimum number - need to be retained within the harvest unit boundary. The amount needed will depend upon the unit size and the forest type, the latter of which recognizes the associated species and their average breeding territory size. Snags will be retained in clumps and/or singularly. In ponderosa pine, for example, I would recommend that no more than 10 to 12 acres occur without at least single snag or snag clump due to territory sizes of dependent species. The remainder can be out in the matrix, over the 100 acres, in the “stand”, or within the remaining unit boundary. But from a forest vegetation management point of view, the Plan must clarify that the minimum number of snags in Table 2 are intended to be maintained within the harvest unit boundary. They cannot be in the adjacent riparian area or the neighboring slope ½ mile away. These will be counted towards the overall landscape goals, but credibility for post-management conditions occurs within the harvest unit boundaries. That way, the public can help measure and monitor whether or not desired conditions are being achieved.

**Comment**: FW-GDL-SPEC-11: This appears to be a biologically sound and useful guidelines. My compliments in recognizing that snag patches and clumps are critical to ecological integrity across the landscape. My only concern is associated with the term “treatment area”. A treatment area is a larger area on a map that includes riparian zones, harvest units, leave areas, etc. Yes, it is important that patches are maintained in the greater treatment area. But the bottom line is that snags must also be maintained within the harvest unit boundaries. These are defined on a map and marked on the ground, which is the only credible way to achieve what you say you will and be able to ground-truth it in the post-sale condition.

**Comment:** FW-GDL-ECO-07: This appears to be a useful guideline. However, the Plan should clarify that this is intended to ensure snag numbers do not go below the Table 2 requirements. Since Table 2 is correctly based on minimum numbers that may be exceeded where appropriate, I recommend that this guideline be changed to “**…** management activities should not result in snag and coarse woody debris levels ***below*** those in table 2. This will help achieve implementation goals rather than arguments in the field.

**Subject: Native Species Diversity (SPEC)**

**Comment:** FW-DC-SPEC-01: I would highly recommend this plan component be converted to a Guideline in the final. This is because of the importance of habitat connectivity to ecological integrity across the landscape. If this is not possible with wording and intent, please ensure there is a similar plan component elsewhere that gets at the same intent. With all of the increasing stressors, both anthropogenic and “natural”, it is important that connectivity goals become a key consideration in forest management for the future. Even our Executive branch recognizes that.

**Bats: Comment:** FW-GDL-SPEC-09: The Plan needs to define what a bat “colony” is in this context. Roosting or hibernation sites for individuals or groups of individuals can also be important, particularly for some species of concern that tend to be solitary such as Townsend’s Big-eared bat. And often we don’t have the information needed to know or assess how a mine is being used. If you don’t know and it can be used, its best just to gate it and leave it open for potential bat use. Recommend change in the Final to “***supports the potential for use by bats”*** or something similar. Folks from the Colorado Bat Working Group can likely help with this wording if needed**.**

**Big Game Species: Bighorn Sheep:**

**Comment: FW-STND-SPEC-13**: This looks hauntingly familiar to what was completed on the RGNF. That’s fine, as it’s a good standard as written. However, as on the RGNF, words will not be effective in achieving the desired outcome unless additional guidance is provided as to how spatial or temporal separation between bighorn sheep and domestic sheep will be measured and implemented. The Interagency Risk of Contact Tool (USDA Forest Service 2013) was developed specifically for this purpose and can account for distances needed to achieve these objectives based on landscape differences and other variables – your wildlife biologists should be quite familiar with this fact. Given that, like the RGNF, the GMUG will probably bow to political pressure from the range interests and thus forgo theuse best available science - there is another science-based alternative. You could simply use 16 to 21 miles (18 as a median) as a desired linear distance between BHS and DS on shared landscapes (Risk of Contact Tool Training Guide, January 2013). This distance has been documented as a maximum foray distance for most BHS rams as addressed in the Risk of Contact Tool and, while there are still maximum foray distances that exceed this, it at least somewhat scientifically sound and defensible. It is possible that 14 miles (rounding up) could be used if desiring to capture 90% of likely forays as documented in a peer reviewed journal article on this issue (O’Brien et al. 2014, Wildlife Soc Bull 38(2):321-331). Without one or the other, however, the GMUG is not using the best available science in addressing the very serious issue of potential contact and disease transmission that is present within and between the three national forests in southwest Colorado (GMUG, RGNF, and San Juan).

**Comment:** Guidelines FW-GDL-SPEC-14: I recommend keeping this Guideline as is. Based on the recorded Wildlife Q&A Session for the GMUG Forest Plan Revision (October 27) I realize that there are concerns from pack goat advocates. However, please recognize that statements made in that recording regarding disease transmission between pack goats and BHS are not entirely accurate. First, domestic goats can and do carry pathogens that can be detrimental to BHS and most if not all credible wildlife veterinarians and managers therefore recommend maintaining separation between the two species (e.g. Drew and Weiser 2017, Plos One 12:3). Secondly, domestic goats have been responsible for transmitting other diseases such as infectious keratoconjunctivitis (IKC), also known as “pink eye,” that affected a population of bighorn sheep in the Silver Bell Mountains west of Tucson, Arizona. Although “pink eye” is generally not fatal, the disease is highly contagious and can be transmitted to lambs born to mothers who carry the disease. Thus, there are documented concerns with keeping these two species separate. And while its unlikely that pack goats will run off or foray like DS, they are still an attractant to BHS who may contact them by coming into camps and interacting.

**Comment:** FW-GDL-SPEC-15: I recommend keeping this Guideline as is. All of the species mentioned are susceptible to disturbance particularly on winter range and reproductive areas.

**Boreal Toad**: I commend the GMUG on all plan components developed for this species. You have created enforceable plan components (standards and guidelines) where and when needed to address a species that is clearly at risk and declining.

**Uncompahgre Fritillary Butterfly (UFB): FW-GDL-SPEC-27:** Having functioned as a Forest repfor this species for nearly 10 years, I highly support this Guideline. However, it is not clear why this is not a Standard like FW-STND-SPEC-26, as collecting is already not permitted under the Recovery Plan and not considered much of an issue anymore, while recreation use and trail impacts has increased exponentially and continues to be one of the primary threats to the species in some locations. I would encourage the GMUG to consider changing FW-GDL-SPEC-27 to a Standard in the Final Plan. I would also encourage the development of one or more objectives related to the UFB with a focus on continued funding support and interagency monitoring and of all known colonies. Without this, there will be little information pertaining to how species persistence is changing through time, and whether the other S&Gs are being implemented and functioning as intended.

**Canada Lynx**

**Comment: FW-STND-SPEC-34:** I encourage the GMUG to take a hard look at the remaining sections of the SRLA and update them where needed and applicable. For example, the current Lynx Linkage Areas likely need updating and/or adjustment. I recommend including an Objective that intends to reevaluate a certain percentage of the existing Linkage Areas in the next 10 years. I would also recommend updating the ALL S1 Standard. It is basically useless in its current form as no one knows what to do with it, so linkage areas are usually either totally avoided or treated no differently under vegetation management then other areas. The recent information included in the analysis summary of the lynx study on the RGNF and GMUG provides considerable information on forest attributes that facilitate lynx movement in spruce-fir forests affected by bark beetle mortality (J. Squires, Analysis Summary, 19 March 2018). While many of the tables are informative, table 4 (pg. 21) regarding canopy cover values for winter warrant close attention to how open canopy conditions (0-10% canopy cover) affect use and movement of lynx across the forest landscape. Further information on the importance of large dead trees, understory condition, vegetation types, etc, can be found in the Summary Report and the published journal article for this study (Squires et al. 2020, Forest Ecology and Management 475: 118400). It is important that the GMUG understand and utilize not only the Summary Report but also the published journal article in the Final Plan Revision.

**Comment: FW-STND-SPEC-35a (VEG S7) (Alternatives B and C):** In regards to VEG S7,I encourage the GMUG to take the correct approach and stress that salvage activities in high-quality lynx habitat are not encouraged at all. At the most and to allow flexibility for unforeseen management needs, institute a maximum 1% allowance in VEG S7 stands. The importance of VEG S7 warrant a focused conservation effort on such stands, and a 0-1% allowance illustrates that this is the case. While consistency between adjacent forests is important, the GMUG deviated substantially from this in regards to designating Species of Conservation Concern that occur on and are shared between both administrative units, so the rationale used for VEG S7 changes should be similar and not an issue or concern.

The GMUG should clarify what “tracked for 15 years” means in the context of this Standard. How does such tracking mesh with Section 7 consultation and reporting requirements?

**Comment: FW-STND-SPEC-35b (VEG S8) (Alternative D)**: I support a new Standard that appears to capture those important habitat conditions that fall somewhere between VEG S6 and VEG S7. However, it is unclear if up to 7% of the VEG S8 is being allowed for forest vegetation management and if so, how is this number developed? What is the amount and spatial arrangement of VEG S8 habitat conditions?

Table 6. Proposed modifications to lynx management, by alternative.

**Comment:** Alternative C appears to be a non-viable alternative in regards to providing the quality, quantity, and distribution of habitat needed to sustain and recover the Canada lynx. Given the table scenario, I support and encourage further development and selection of Alternative D as a preferred for the Final Plan Revision. This is because it retains some important management controls in the SRLA that are known to be factors in the recovery of Canada lynx, and the fact that it implements the VEG S8 Standard. Given the likely importance of VEG S8 on the GMUG, the inclusion of this Standard should be considered for all viable alternatives.

**Gunnison Sage-Grouse:** All proposed plan components seem warranted and appropriate.However, given that livestock grazing is often the most pronounced stressor on habitat conditions for this species I strongly encourage specific recognition of these impacts and development of plan components at address it. Let’s not kick the can down the road any longer. That doesn’t necessarily mean eliminating livestock grazing, but it is well documented that what is and has been occurring is not working in a timely manner. Better control of livestock impacts to this species is warranted in the Final Plan Revision.

**Species of Conservation Concern (SCC)**

**Comment:** Contrary to what was stated by the GMUG Planning Shop on the recorded Wildlife Q&A Session (October 27, 2021), the SCC list developed by the RGNF was very closely coordinated with the Regional Forester over a period of at least 4 years. The Regional Threatened, Endangered, and Sensitive (TES) Program Lead was closely involved through all phases of development and selection of the SCC list, and the RF was in approval of the final. It is incorrect that, as stated on the video Q&A session, that the RGNF developed the SCC list on their own and that a lack of consistency between the GMUG and the RGNF for the SCC list should therefore somehow not be a concern to the public. For the record, I respectively ask that this misstatement be acknowledged and that the GMUG recognize that it is indeed very important for SCC concerns and ecological integrity components to be coordinated across adjacent National Forest Unit boundaries, particularly when they share a common boundary and many similar species that can readily move between units. I refer the GMUG to FSH 1909.12.20.2311b.2(a,b) and 3(a,c), both of which highlight ecological considerations for the Plan Area within the context of the broader landscape. In fact, 3(c) of this section specifically directs the Planning Unit to collaborate with other land managers across the broader landscape in regards to terrestrial, riparian, and aquatic ecosystems in the plan area.

**Comment:** The statement that FSH 1909.12.10.52d.3.f. 1-4 are the only indicators to be used to help determine substantial concern for potential SCC is highly misleading and in error. As noted in the Directives, FSH 1909.12.10.52d.3. includes several other categories for consideration under parts a-e. In fact, part 3(d) specifically states that considerations for determining whether there is substantial concern for a potential SCC also includes **“species identified as species of conservation concern in adjoining National Forest System plan areas (including plan areas across regional boundaries).”** The official letters from the Regional Forester to the RGNF in recognition of the SCC list also noted all categories under Part 3(a-f) as criteria from which SCC could be evaluated and selected. I struggle to understand how such important factors could have been missed in determining a draft SCC list for the GMUG. This misstatement should be corrected and acknowledged to the public who, based on questions in the Wildlife Q&A Video, were puzzled why designated SCC on an adjacent national forest were not even being considered in the GMUG Planning Process.

**Comment**: Given the above, I recommend that the GMUG review the SCC list for the RGNF and **objectively** evaluate whether any of those species also warrant consideration as SCC on the GMUG. In doing so, the GMUG should **use the correct criteria under FSH 1909.12.10.52d.3(a-f) for determining “substantial concern”**, as well as other important sections of the planning directives under FSH 1909.12.12 and 1909.12.10. I also request that the Final Plan Revision include an appendix and/or a statement in the project record how the Region 2 TES Program Lead was involved in the development of the SCC list, and that it is in compliance with the directives and the 2012 Planning Rule. The designation of SCC and the identification of key ecosystem characteristics and plan components intended to provide for their viability, is too important and central to the integrity of the planning rule to leave to those with a personal agenda.

**Comment**: In regards to the above, I strongly encourage the GMUG to reevaluate those species listed as being Species of Greatest Conservation Need (SGCN) in the current Colorado Statewide Action Plan (Colorado State Wildlife Action Plan 2015, SWAP 2015). This need is specifically noted in FSH 1909.12.10.52d.3.c. The importance of the SWAP to our partners in Colorado Parks and Wildlife and the future of our state wildlife resource cannot be overstated. In particular, those species listed as Tier 1 should be closely evaluated for inclusion on the SCC list. I would also recommend that some of those listed as Tier 2 also warrant potential inclusion on the SCC list, and should be evaluated in concert with other criteria in the Directives. The biologists on the GMUG should have a good idea what species should be evaluated for potential inclusion. Certainly, the current list as included in the Draft Plan Revision is inadequate, does not reflect our Species of Conservation Concern in southwest Colorado, and is also not in compliance with the Planning Directives for the 2012 Planning Rule.

**Comment**: **Rocky Mountain Bighorn Sheep.** I recommend the inclusion of Rocky Mountain Bighorn Sheep on the SCC list. This is an example of a Tier 2 SGCN with conservation issues and cross-boundary threats that extend between all three national forest units in southwest Colorado. Existing information documents that BHS with Mycoplasma and other pathogens currently move between the GMUG, RGNF and the SJNF. Nearly all herds tested are currently infected with pathogens and many populations remain suppressed. Risk of contact with existing domestic sheep allotments remains a high risk in areas on all three adjacent national forests.

**Comment**: **American Three-Toed Woodpecker:** For the final, I recommend an evaluation of whether the American three-toed woodpecker should be included on the SCC list.This species has significantly declined in the past few years as spruce beetle populations have crashed. Data from the most recent Integrated Monitoring in Bird Conservation Regions Report (IMBCR 2020) can be accessed by GMUG staff to review the current status of this species (McLaren et al. 2021).

**Focal Species:** I support and commend the GMUG for the proposed selection of focal species in the draft Plan Revision. In particular, the selection of beaver is highly warranted given its importance to the recovery and maintenance of riparian systems.

Thank you for the opportunity to comment on the Draft Plan Revision documents. The GMUG is a special landscape, and I personally frequent areas on your Forest for recreation and enjoyment. I hope my comments will be useful to you as you begin the path of developing a Final Plan Revision.

Sincerely,

Randal (Randy) Ghormley

PO Box 357

Del Norte, CO. 81132

USFS Wildlife Biologist & Program Lead (retired)