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BOARD OF COUNTY COMMISSIONERS

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November 23, 2021

Grand Mesa, Uncompahgre, and Gunnison National Forests
2250 South Main St
Delta, Colorado 81416

Attn: **Responsible Official Frank Beum,** Regional Forester, USDA Forest Service Rocky Mountain Region (Region 2); **Responsible Official Chad Stewart,** GMUG Forest Supervisor; and GMUG Plan Revision Team

Via email to: frank.beum@usda.gov; chad.stewart@usda.gov; tamera.randall-parker@usda.gov; samantha.j.staley@usda.gov; jonathan.tucker@usda.gov and gmugforestplan@fs.fed.us; and via electronic comment submission at https://cara.ecosystem-management.org/Public//CommentInput?Project=51806

RE: Ouray County Cooperating Agency Comments on the August 2021 DRLMP and DEIS Public Documents – Grand Mesa, Uncompahgre, and Gunnison Forest Plan Revision #51806 – SPECIES OF CONSERVATION CONCERN AND WILDLIFE AND PLANT SPECIES

Dear Responsible Official(s) and Grand Mesa, Uncompahgre, and Gunnison (GMUG) National Forests Planning Team,

On behalf of the Board of County Commissioners and citizens of Ouray County, thank you for the opportunity to provide comments regarding the GMUG Forest Plan Revision. Ouray County is one of the cooperating agencies for this GMUG Forest Plan Revision Process.

We are including Frank Beum, Regional Forester of the USDA Forest Service Rocky Mountain Region in these comments because it is our understanding from the Forest Service Manual FSM 1900 - PLANNING CHAPTER 1920 – LAND MANAGEMENT PLANNING[1] Chapter 1921.04a – Regional Forester, that the Regional Forester is a Responsible Official for determining the species of conservation concern (SCC) and has the role to: "Identify, in coordination with the Responsible Official, the species of conservation concern (36 CFR 219.7(c)(3)) to be used by Responsible Officials for meeting the requirements of diversity of plant and animal communities (36 CFR 219.9(c)).[2]"

[1] Forest Service Manual 1900- Planning- Chapter 1920- Land Management Planning, Amendment 1900-2015-1, (1/30/2015); accessed 11/11/2021 at https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd899041.doc

[2] Forest Service Manual 1900- Planning- Chapter 1920- Land Management Planning, Amendment 1900-2015-1, (1/30/2015); accessed 11/11/2021 at https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd899041.doc. Chapter 1021.04a, Page 10.

Ouray County, through the Board of County Commissioners, is providing comments on the proposed Draft Revised Land Management Plan (DRLMP) provided to the public in mid-August, with Volumes I and II of the Draft Environmental Impact Statement (DEIS). This document is specific to Species of Conservation Concern, and

Ouray County comprises 542 square miles; 54 percent is private land, 36 percent is U.S. Forest Service (USFS) administered by the GMUG Ouray Ranger District, and 7 percent is Bureau of Land Management (BLM) administered by the Uncompahgre Field Office. Our two municipalities Ouray and Ridgway, and 4,900 residents, provide gateway services to public lands users. Our Master Plan, adopted in 1999, provides: "The overall goal of the Ouray County Master Plan is to allow gradual, long-term population and economic growth in Ouray County in a manner that does not harm the County's irreplaceable scenic beauty, wildlife, air, and water resources, and other environmental qualities and that does not unduly burden the County's residents or its governments." Our Master Plan emphasizes the importance of agriculture, local government relationships, economic development, housing, natural resources, rural character, tourism, transportation and infrastructure, visual resources, and wildlife and plant habitats.

Federal public lands are important to our local economy and cultural values. The ecological integrity and sustainability of the Forest, which provides our source waters and headwaters, and opportunities for agriculture, pristine habitats, recreation, responsible mining, and ecosystem services, is vital to our local economy and well-being.

Our Master Plan recognizes the importance of the dramatic topography found here. "Ouray County contains some of the most unique and beautiful scenery in Colorado. The diversity of the landscape ranges from jagged mountain peaks and mesas to river valleys and irrigated fields. Preservation of this visual beauty is of utmost importance to the citizens of the County. The citizens want to be assured that future development will not hinder, impair or destroy Ouray County scenic beauty."

Ouray County has been actively involved in the GMUG forest plan revision process. We have participated in cooperating agency meetings and have provided written comments for cooperating agency and public feedback periods numerous times. Our comments dated 5/30/2019 and 7/23/2019 appear in the GMUG public reading room, but we have submitted many more comments since the beginning of the scoping and assessment phases. All of our previous comments are incorporated by reference into this comment letter. Because the August 2021 Draft Revised Land Management Plan (DRLMP) is very similar to the May 2021 cooperating agency draft DRLMP, all of our comments dated July 16, 2021, and related follow-up emails to the GMUG planning team are incorporated by reference here. The collaborative joint comment letter dated July 16, 2021, and signed by the entire Boards of County Commissioners for Ouray, Gunnison, San Miguel, and Hinsdale Counties is also incorporated by reference here.

1. The Species of Conservation Concern list should be amended to include Rocky Mountain Bighorn Sheep and other species. Expertise from State natural resource agencies should be leveraged.

A. The DRLMP in Appendix 9 appears to oversimplify the requirements and process for determining the Species of Conservation Concern. While Chapter 10 of the FSH is mentioned, Chapter 20 is not. **Chapter 20 should be referenced.**

FSH 1909.12 - LAND MANAGEMENT PLANNING HANDBOOK CHAPTER 20 – LAND MANAGEMENT PLAN[3] 21.22A provides that "The Regional Forester is the Responsible Official for identifying any species of conservation concern in a plan area."

> 1. The Regional Forester has the authority and responsibility to:
> a. Review the rationale and documentation for potential species of conservation concern provided by the Responsible Official (FSH 1909.12, ch. 10, sec. 12.52), and determining whether the best available scientific information indicates:
> (1) That the species is native and known to occur in the plan area, and
> (2) There is a substantial concern about the species' capability to persist over the long term in the plan area based on the guidance of FSH 1909.12, chapter 10, section 12.52c.
> b. **Based on the review of the potential species of conservation concern, identify the species of conservation concern in coordination with the Responsible Official for the plan area.** This authority to identify species of conservation concern may not be delegated.
> c. Identify species of conservation concern early enough to expedite the planning process.
> d. **Leverage expertise of the public and local, State, Tribal, and other Federal natural resource agencies, for identifying species of conservation concern.**
> e. Engage the public and invite public input when identifying species of conservation concern, as part of the public participation strategy (FSH 1909.12, ch. 40, sec. 42).
> f. Document the rationale for the selection of species of conservation concern.
> g. Inform the Responsible Official and the public of the identified species of conservation concern.
> h. Identify any species of conservation concern at times outside the planning process as appropriate.

FSH 1909.12 - LAND MANAGEMENT PLANNING HANDBOOK CHAPTER 20 – LAND MANAGEMENT PLAN[4] 21.22A further provides in three separate places that either the Regional Forester or Responsible Official should "Leverage expertise of the public and local, State, Tribal, and other Federal natural resource agencies."

B. The Regional Forester and Responsible Official should leverage the expertise of the Colorado Department of Natural Resources (DNR) Colorado Division of Wildlife (CPW) which has been provided to GMUG throughout the plan revision process, including early in the assessment phase. **Ouray County supports CPW Comments- List of Species of Conservation Concern for the Grand Mesa, Uncompahgre and Gunnison National Forests dated June 28, 2021 (attached as Appendix A), documenting that several species meet the SCC selection criteria in Chapter 10 of the Planning Handbook, especially the Rocky Mountain Bighorn Sheep.**

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[3] U.S. Department of Agriculture (USDA) U.S. Forest Service (USFS). (January 30, 2015). *FSH 1909.12 - LAND MANAGEMENT PLANNING HANDBOOK CHAPTER 20 – LAND MANAGEMENT PLAN 21.22A*. https://www.fs.fed.us/im/directives/fsh/1909.12/wo_1909.12_20_Land%20Management%20Plan.docx ; accessed 11/21/2021.

[4] U.S. Department of Agriculture (USDA) U.S. Forest Service (USFS). (January 30, 2015). *FSH 1909.12 - LAND MANAGEMENT PLANNING HANDBOOK CHAPTER 20 – LAND MANAGEMENT PLAN* https://www.fs.fed.us/im/directives/fsh/1909.12/wo_1909.12_20_Land%20Management%20Plan.docx ; accessed 11/21/2021.

C. The Regional Forester and Responsible Official should consider FSH 1909.12 - LAND MANAGEMENT PLANNING HANDBOOK CHAPTER 10 – THE ASSESSMENTS 12.52c[5] satisfied by the information provided by CPW and augmented by many other entities with expertise and knowledge of these wildlife species, especially the Rocky Mountain Bighorn Sheep.

D. Appendix 9 of the DLRMP oversimplifies Chapter 10 of the FSH. FSH 1909.12 - LAND MANAGEMENT PLANNING HANDBOOK CHAPTER 10 – THE ASSESSMENTS 12.52d says that first, only species native to, and known to occur in, the plan area are to be considered. Next, species with status ranks of G/T1 or G/T2 on the NatureServe ranking system **must be considered.**

> 12.52d – Species to Consider when Identifying Potential Species of Conservation Concern
> 1. When identifying potential species of conservation concern, the Responsible Official shall **consider only species native to, and known to occur in, the plan area.**
> 2. Species in the following categories **must** be considered:
> a. Species with status ranks of G/T1 or G/T2 on the NatureServe ranking system. See exhibit 01 for description of NatureServe Conservation Status Ranks.
> Note: Species with NatureServe G/T1 or G/T2 status ranks are expected to be included unless it can be demonstrated and documented that known threats for these species, such as those threats listed for the species by NatureServe, are not currently present or relevant in the plan area.
> b. Species that were removed within the past 5 years from the Federal list of threatened or endangered species, and other delisted species that the regulatory agency still monitors.

E. Appendix 9 of the DLRMP oversimplifies Chapter 10 of the FSH. It does not mention the whole of 12.52d.3, which says:

> Species in the following categories **should be** considered:
> a. **Species with status ranks of G/T3 or S1 or S2 on the NatureServe ranking system.** See exhibit 01 for description of NatureServe Conservation Status Ranks.
> b. Species listed as threatened or endangered by relevant States, federally recognized Tribes, or Alaska Native Corporations.
> c. Species identified by Federal, State, federally recognized Tribes, or Alaska Native Corporations as a high priority for conservation.
> d. **Species identified as species of conservation concern in adjoining National Forest System plan areas (including plan areas across regional boundaries).**
> e. Species that have been petitioned for Federal listing and for which a positive "90-day finding" has been made.
> f. **Species for which the best available scientific information indicates there is local conservation concern about the species' capability to persist over the long-term in the plan area due to:**
> **(1) Significant threats, caused by stressors on and off the plan area, to populations or the ecological conditions they depend upon (habitat). These threats include climate change.**
> **(2) Declining trends in populations or habitat in the plan area.**
> **(3) Restricted ranges (with corresponding narrow endemics, disjunct populations, or species at the edge of their range).**
> **(4) Low population numbers or restricted ecological conditions (habitat) within the plan area.**

12.52d.3.f does NOT use punctuation or the word "and" to indicate that <u>all</u> four of the "indicators" listed in 12.52d.3.f.(1-4) have to be met, nor does a species have to match all six categories in in **12.52d.3.a** through in **12.52d.3.f** to be designated as a species of conservation concern. In the case

[5] U.S. Department of Agriculture (USDA) U.S. Forest Service (USFS). (January 30, 2015). *FSH 1909.12 - LAND MANAGEMENT PLANNING HANDBOOK CHAPTER 10 – LAND MANAGEMENT PLAN* 12.52c; https://www.fs.fed.us/im/directives/fsh/1909.12/wo_1909.12_10_Assessments.docx ; accessed 11/21/2021.

of the Rocky Mountain Bighorn Sheep, the species also is qualified by category 12.52d.3.d above because it is listed as a species of conservation concern in the Rio Grande National Forest Land Management Plan and Volume 1 of its FEIS[6]. The Regional Forester and Responsible Official for the Rio Grande National Forest Land Management Plan and FEIS did not require 12.52d.3.f.(1-4) all to be met to qualify as a Species of Conservation Concern. The GMUG National Forest is one of the largest in the nation, so where a species' range (12.52.d.3.f.(3)) intersects the GMUG is due to political and not scientific boundaries. Species cannot control what parts of their ranges intersect what parts of national forest boundaries.

F. Ouray County respectfully requests the Regional Forester and Responsible Official to reconsider their requirement that all four indicators in FSH 1909.12.52d.3.f.(1-4) be met for a species to be considered a species of conservation concern in the GMUG LRMP and EIS. **We request that when there is expertise from Colorado natural resource agencies like CPW and Colorado Natural Heritage Program (CNHP) providing the best available science that native species are present and have substantial concerns with a scientific basis, that the species be identified as Species of Conservation Concern.** Especially if 2 or 3 of the indicators in FSH 1909.12.52d.3.f.(1-4) are met, which is similar to how we understand Rio Grande National Forest's Plan and SCC list was developed. The risk of relying on the absence of indicator FSH 1909.12.52d.3.f(3) while there is evidence of significant threats, declining trends or habitat, low population numbers or viability, and extreme vulnerability at the GMUG project level is severe, especially with climate change and increasing demand for multiple uses on the forest.

G. Rocky Mountain Bighorn Sheep should be included as a Species of Conservation Concern.

(1) Scientific documentation on Rocky Mountain Bighorn Sheep (RMBS) has been provided to GMUG by CPW, and several of our citizens, including Robyn Cascade of the Great Old Broads for Wilderness and Jennifer Cram. The evidence is that they are vulnerable to disease and habitat fragmentation. Ouray County and the GMUG Ouray Ranger District intersects the Tier 1 herd called RBS-21 by CPW.

(2) Herds without CPW Tier designations can be just as vulnerable and genetically pure as Tier 1 herds. Our understanding is that herds without a specific management plan have not yet been assigned a Tier, but plans are being developed.

(3) CPW has designated RMBS as a Species of Greatest Conservation Need (SGCN) in Colorado's State Wildlife Action Plan (SWAP 2015)[7]. The RMBS is the only ungulate listed as an SGCN. The SWAP states that the highest priority threat to RMBS is pathogen transmission by livestock and that the best protection is to maintain <u>total</u> spatial and temporal separation of domestic sheep from RMBS. CPW says it has to manage RBS-21 for stable population size and distribution, forgoing management to increase the population or utilize significant

[6] U.S. Department of Agriculture (USDA) U.S. Forest Service (USFS). (April 2020). Rio Grande National Forest Land Management Plan Final Environmental Impact Statement: Volume I Alamosa, Archuleta, Conejos, Hinsdale, Mineral, Rio Grande, Saguache, and San Juan Counties, Colorado [document]. https://www.fs.usda.gov/nfs/11558/www/nepa/100663_FSPLT3_4667645.pdf ; accessed 11/21/2021. Pdf pages 283-285.

[7] Colorado Department of Natural Resources (DNR) Colorado Parks and Wildlife (CPW). (2015). *State Wildlife Action Plan* [Report]. https://cpw.state.co.us/Documents/WildlifeSpecies/SWAP/CO_SWAP_FULLVERSION.pdf ; accessed 11/21/2021.

portions of its suitable habitat due to risks of contact with domestic allotments.[8] CPW provides information about documented contacts between RMBS and domestic sheep that required euthanasia of the RMBS to protect the remainder of their herd from a major disease die-off. CPW has documented respiratory disease susceptibility and risk through chronic or sporadic suppressed lamb recruitment, bighorn mortalities from respiratory disease after contact with domestic sheep, and all-age die-off events. CPW has documented dozens of stray domestic sheep occurrences, bighorn foray events, and several comingling events. CPW maintains that documented bighorn foray events support a 35 km buffered analysis area. CPW supports allowing inter-herd movements of bighorn to take place naturally and states that manual population augmentation will not be occurring in the near future. CPW considers unreported and undetected contact events to be highly probably due to the presence of stray domestic sheep, foraying bighorn behavior, contact events, and vast, rugged, and remote terrain characteristics. CPW considers it conceivable that a major disease die-off event could indeed influence the entire meta-population.

(4) Ouray County citizen Jennifer Cram's November 2021 comments to GMUG on this DLRMP and DEIS describe overlaps between the Ruffner and Bear Creek domestic grazing allotment boundaries and CPW's summer bighorn sheep range. iNaturalist compiles citizen-scientist observations of bighorn and domestic sheep encounters, which show many on the Bear Creek drainage in Ouray County. The latest Mountain Studies Institute annual report, which summarizes the iNaturalist sheep observations, includes a mention of an RMBS near domestic sheep on 7/20/2020 on the Ruffner allotment.[9]

(5) RBS-21 intersects the Rio Grande National Forest, where the 2020 Rio Grande National Forest Land Management Plan and Volume 1 of its FEIS[10] name the RMBS as an SCC, and the GMUG National Forest, where the DLRMP and DEIS do not. There is no change in vulnerability to disease or habitat fragmentation for this herd when it crosses the USDA USFS's administrative boundaries. RMBS meets at least 3 of the 4 indicators in 12.52d.3.f.(1-4) and several other categories listed in *FSH 1909.*12.52d.3.

(6) STND-SPEC-13: this separation requirement must remain a standard, but DLRMP and DEIS components should be strengthened to ensure separation between domestic and RMBS.

(7) GDL-SPEC-14: please change this guideline to a standard. Please change "Should" to "Must."

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[8] Colorado Department of Natural Resources, Colorado Parks and Wildlife. (August 8, 2019). *Draft Environmental Impact Statement (EIS) for Domestic Sheep Grazing Permit Renewals (DOI-BLM-CO-S060-2014-001-EIS)* [Letter].

[9] Mountain Studies Institute. (March 3, 2021). *2020 Colorado Bighorn Sheep Monitoring Report* [Report]. https://static1.squarespace.com/static/53bc5871e4b095b6a42949b4/t/60409b5b4ed0cf0c581c69d7/1614846813445/Colorado+Bighorn+Sheep+Monitoring+Report+2020.pdf ; accessed 11/21/2021.

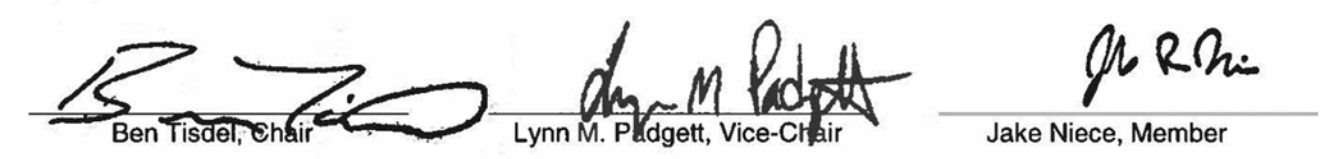
[10] U.S. Department of Agriculture (USDA) U.S. Forest Service (USFS). (April 2020*). Rio Grande National Forest Land Management Plan Final Environmental Impact Statement: Volume I Alamosa, Archuleta, Conejos, Hinsdale, Mineral, Rio Grande, Saguache, and San Juan Counties, Colorado* [document]. https://www.fs.usda.gov/nfs/11558/www/nepa/100663_FSPLT3_4667645.pdf ; accessed 11/21/2021. Pdf pages 283-285.

H. Ouray County BOCC supports the comments submitted by the Colorado Native Plant Society dated November 18, 2021[11], regarding sensitive and globally or state imperiled plant species that should be included as Species of Conservation Concern.

a. Please see Attachment B to this letter for the Species of Conservation Concern comments prepared by Botanist Peggy Lyon, CNHP Botanist, Colorado Native Plant Society, Education Leader; Great Old Broads for Wilderness, Northern San Juan Broad Band; Gay Austin, Retired Botanist and Rangeland Management Specialist with USDA Forest Service & BLM, Colorado Native Plant Society.

Thank you for considering our comments that further consultation with State agencies and refinement of the Species of Conservation Concern is needed. We are concerned about omissions of white-tailed ptarmigan, black swift, pinyon jay, Rocky Mountain and Desert Big Horn Sheep, Townsend Big-eared bat, hoary bat, and little brown bat. We are concerned about the omissions of state and globally imperiled species. We will continue to work with the GMUG collaboratively and productively throughout the rest of the planning process. Please do not hesitate to contact us with any questions about our comments.

Respectfully submitted,



Attachments:

1. Appendix A: CPW Comments- List of Species of Conservation Concern for the Grand Mesa, Uncompahgre and Gunnison National Forests dated June 28, 2021.
2. Appendix B: Comments submitted by the Colorado Native Plant Society dated November 18, 2021, regarding sensitive and globally or state imperiled plant species that should be included as Species of Conservation Concern.

cc. John Whitney, Western Slope Regional Director, U.S. Senator Michael F. Bennet; Helen Katich, Southwest Regional Representative, U.S. Senator John Hickenlooper

[11] http://cara.ecosystem-management.org/Public/Letter/2798161?project=51806 ; accessed 11/21/2021.

1. **Appendix A: CPW Comments- List of Species of Conservation Concern for the Grand Mesa, Uncompahgre and Gunnison National Forests dated June 28, 2021.**

COLORADO
Parks and Wildlife
Department of Natural Resources

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Durango, CO 81303
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June 28, 2021

Grand Mesa, Uncompahgre and Gunnison National Forests
Ms. Samantha Staley
Forest Planner
2250 South Main Street
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gmugforestplan@fs.fed.us

RE: CPW Comments- List of Species of Conservation Concern for the Grand Mesa, Uncompahgre, and Gunnison National Forests

Dear Plan Revision Team:

Thank you for the opportunity to provide cooperating agency comments on the Species of Conservation Concern List (SCC April 1, 2021) for the Grand Mesa, Uncompahgre, and Gunnison National Forest's (GMUG) Draft Forest Plan and associated Draft Environmental Impact Statement. CPW's mission is *to perpetuate the wildlife resources of the state, to provide a quality state parks system, and to provide enjoyable and sustainable outdoor recreation opportunities that educate and inspire current and future generations to serve as active stewards of Colorado's natural resources*. This mission is implemented through our 2015 Strategic Plan[1] and the goals it embraces which are designed to make CPW a national leader in wildlife management, conservation, and sustainable outdoor recreation for current and future generations.

The GMUG staff asked Colorado Parks and Wildlife (CPW) to review the SCC lists "On" and "Off" tables to provide species-specific review on the four factors listed in FSH1909.12 12.52d.3.f.1-4 to designate Species of Conservation Concern. Where we had additional information, we have populated the columns in these tables included as Attachment 1. As you will recall, CPW provided comments on the At Risk Species Assessment in January of 2018. In our comments, we detailed specific risk factors that should be included in the updated At-Risk Species Assessment, as well as species specific recommendations for the SCC list. Many of those recommendations were not carried forward in the April 2021 SCC list. In addition, plan components could be strengthened in the Draft Plan to address species conservation issues for many of the species that were considered for the SCC list but do not meet the criteria for SCC designation.

There are several species in CPW's assessment that warrant SCC designation based on the criteria in the Land Management Handbook these include: southern white-tailed ptarmigan, pinyon jay, black swift, little

[1] Colorado Parks and Wildlife 2015 Strategic Plan (November 2015)
http://cpw.state.co.us/Documents/About/StrategicPlan/2015CPWStrategicPlan-11-19-15.pdf

brown bat, and Rocky Mountain and desert bighorn sheep. We have attempted to articulate the factors that lead to a "Substantial Concern" rating for these species below. Additionally, we recommend that river otter be removed from the SCC list because they do not meet the criteria outlined in the Handbook.

White-tailed ptarmigan- *Lagopus leucurus altipetens*

Recent research has documented that Colorado has a subspecies *altipetens* of white-tailed ptarmigan (Langin et al 2018). This species is described as the southern white-tailed ptarmigan. This species was petitioned for listing under the ESA in 2010. In 2012, the USFWS found that the petition presented substantial information to consider it for listing. Upon review, the species was found to be 'not warranted' for listing by the USFWS in 2020 mostly due to the perceived relative security of the alpine habitat under federal land management. However, the USFWS cited climate change as a substantial threat to the species in the future and the SCC Table summarizes highly vulnerable (with very high confidence) to climate change.

The risk factors that should make this species a Regional Forester's Sensitive Species include livestock grazing and recreation that are occurring on the GMUG. The Mesa Seco area of the GMUG was intensively examined by CPW from 2012-2017 as part of a statewide assessment of the species that included abundance estimates, reproductive output, survival, and movement (Seglund et al 2018). Our data suggested that southern white-tailed ptarmigan at this site appeared stable during the study, but in recent follow-up surveys in 2018, 2019, and 2020 numbers and pair occupancy have shown a decreasing trend. The population of ptarmigan in southwest Colorado (San Juan Mountains) is disjunct from the rest of the species' distribution. The southern population exhibits fine scale genetic differences from the rest of the State (Langin et al. 2018). Lack of gene flow is due to the fact that ptarmigan will not fly long distances across unsuitable habitat.

Throughout CPW monitoring efforts at Mesa Seco we have observed that domestic sheep grazing has degraded that habitat especially during the last three years of drought. Sheep are also present on the site when females have chicks, and CPW has observed females becoming separated from broods and not being able to reunite with their young. Grazing impacts on southern white tailed ptarmigan may be exacerbated by domestic grazing in the alpine because of warmer springs, earlier snowmelt, and reduction in summer monsoonal moisture. We also recommended on the At Risk Assessment (2018) that recreation should be considered a risk factor in the alpine environments. We have documented recreation impacts to ptarmigan habitat (Seglund 2018) with female ptarmigan permanently emigrating from an area where heavy recreation is occurring. To that end we recommend plan components include management recommendations for white-tailed ptarmigan habitat designed to ensure that the maintenance of hiking trails and ATV roads do not become deeply incised so as to properly disperse rain and snowmelt runoff to avoid the dewatering and drying out of meadows, wetlands, and willow cars. Also sheep grazing is better managed in light of current drought conditions in the alpine and recreation is monitored to assess and limit disturbance to this alpine species. For these reasons, CPW believes that there are substantial concerns for this species and it should be added to the SCC list and plan components generated to avoid, minimize, and mitigate impacts to this species.

Black Swift

Climate related reductions in insect biomass are thought to be the reason for black swift declines across the range. Other risk factors include recreation and disturbance at breeding sites. Population levels have declined by an estimated 94% (BBS/Partners in Flight) and experts predict that there will be an additional 50% population level loss in the next 16 years (Partners In Flight). While the species is found throughout

the west, Colorado has more known occupied breeding sites than all other western states and Canada combined. Therefore, actions to conserve the species across the range have to be taken in Colorado for the conservation of the species as a whole. For these reasons, CPW believes that there are substantial concerns for this species and it should be added to the SCC list and plan components generated to avoid, minimize, and mitigate impacts to this species.

Pinyon Jay

Pinyon jay populations are in steep decline (Boone et al. 2018). There are a number of substantial threats to pinyon jay including climate change, beetle kill epidemics, raven predation at nesting colony areas, and impacts of habitat treatments done for fuels reduction, big game, and sage-grouse management. Pinyon jays have high site fidelity and ravens are the dominant predator at nesting colony areas, making them vulnerable to disturbance and habitat alterations. Pinyon-juniper forests are well distributed, but die-offs of areas are apparent due to beetle kill and drought. Nesting colonies are located on the edges of open areas as jays like to have cache sites and forage areas next to nesting sites. Because jays have high site fidelity to nesting colonies, prior to treatments in PJ, areas should be surveyed to identify nesting colony areas. Ravens are the dominant predator at nesting colonies and so management of trash and dumping of carcasses may be warranted (Seglund et al. 2020). Some treatments in PJ areas could benefit jays.

Current literature suggests that there have been dramatic declines in the numbers of Pinyon jays across the species range since 1967, with these declines thought to be more pronounced than for any other broadly distributed landbird in the interior west. Management and monitoring could be instituted to help conserve this species. For these reasons, CPW believes that there is a substantial concern for this species, and it should be added to the SCC list with plan components generated to avoid, minimize, and mitigate impacts to this species.

Bats

CPW appreciates the plan components FW-GDL-SPEC-11, SPEC-12 and SPEC-13 in the Working Draft of the Revised Management Plan directly aimed at bat species conservation efforts. However, they do not directly address disease risk factors of White Nose Syndrome (WNS), wind energy development, and renewed mining interests that constitute significant threats to myotis species, hoary bat, and Townsend's big-eared bat. In our 2018 letter, we highlighted three species of bats that we felt warranted consideration for designation as SCC species including little brown bat, hoary bat, and Townsend's big-eared bat. These species will benefit from additional plan components and plan monitoring requirements under a SCC designation to ensure that the USFS management can take specific and immediate actions to address the threats.

Little brown bat- There is a substantial concern for the little brown bat on the GMUG. Little brown bats have experienced severe declines in eastern portions of their range where WNS has occurred. In our review, it appears that the NatureServe Rank for this species has not been updated since 2016. Declines in portions of range with WNS have been severe enough to elicit a Federal ESA listing review (2020) and Species Status Assessment (pending). Range maps for this species are published in Navo et al. 2018. There are 76 records for this species on the GMUG (11 additional records within 1 mile of GMUG). All myotis species are considered highly vulnerable to extreme population declines once WNS becomes established within

their ranges. Estimating bat population numbers is extremely difficult (see O'Shea and Bogan 2003). However, monitoring occurrence and activity can be accomplished with passive acoustic monitoring (e.g., NA Bat). The monitoring of little brown bats will effectively provide monitoring coverage for the cohort of myotis species found on the GMUG. Monitoring will help to mobilize appropriate forest management response if WNS is confirmed or relative abundance declines in the species are detected on the GMUG. Please add this species to the SCC list.

Townsend's big-eared bat- This bat species utilizes abandoned mines and caves in Colorado. Notable colonies of this species occur on habitat found on the GMUG. Renewed mining interests at abandoned mine locations, improper gate designs, and recreational disturbances from caving and climbing constitute significant threats to this species. Additional threats and range maps for this species are described in Navo et al. (2018) and include 3 records on the GMUG (11 additional records within 1 mile of GMUG). We recommend adding additional plan components to strengthen protection of Townsend's bats under FW-GDL-SPEC-11 from renewed mining interests.

Hoary bat- Notable declines in migratory bat species have been documented where wind energy installations occur. Thus, wind energy development constitutes a significant threat to this species from habitat loss and direct mortality. There is ever increasing demand for renewable energy projects to be located on federal lands. There are existing wind energy facilities near Monticello, UT that occur in similar habitat to what is found on the GMUG. See range maps in Navo et al. 2018. This species should be relatively common on the GMUG. However, only 34 records (2 additional records within 1 mile of GMUG) have been documented. Efforts to survey for this bat species on the GMUG would assist in future wind energy proposals on the forest. Please add plan components to ensure that adequate baseline monitoring studies would be conducted prior to the siting of wind energy facilities on the GMUG.

Rocky Mountain Bighorn Sheep and Desert Bighorn Sheep General:

Pertaining to 12.52d 3.b it indicates that species identified by Federal, State, federally recognized tribes or Alaska Native corporations as a high priority for conservation should be considered as a SCC. CPW lists Bighorn sheep (*Ovis canadensis*) is a Tier 2 Species of Greatest Conservation Need in the State Wildlife Action Plan (SWAP: Colorado Parks and Wildlife 2015). Cliffs and canyon bighorn habitat are considered a priority habitat for management under the CPW SWAP. Rocky Mountain Bighorn sheep (*Ovis canadensis canadensis*) are listed as an R2 sensitive species with the USFS Region 2 Regional Forester's Sensitive Species. Bighorn sheep are also considered a SCC in the Rio Grande National Forest Land Management plan (2019), with respiratory illness due to comingling with domestic sheep considered the primary limiting factor for most Rio Grande NF sheep populations (USDA Forest Service 2010).

Interagency and Cross-Boundary Management Coordination: The core herd home range and/or summer source habitat for several bighorn sheep herds on the Rio Grande National Forest is shared with adjacent Forest Service units and/or Bureau of Land Management (BLM) units. Most bighorn population units in the GMUG share jurisdictional boundaries with other forests or federal agencies, which include RBS-21 (BLM, San-Juan NF, Rio Grande NF), RBS-22 (BLM, Rio Grande NF), RBS-12 (San Isabel NF), S13 (White River NF), S54 (National Park Service, BLM), S70 (BLM), S24 (BLM), and S62 (BLM). CPW management approach to these cross-jurisdictional boundaries is reflected in herd management (GMU or

DAU boundaries) encompassing biological delineations rather than jurisdictional boundaries. Cross-boundary management coordination is especially important to disease management and habitat management. For instance, domestic sheep allotment permittees are also shared between the land management agencies in some instances (See criteria 1 below). Coordination and consistency of management approaches regarding risk of contact with domestic sheep, monitoring, livestock permit administration, and communication remains a significant barrier to bighorn sheep management across the landscapes that support their long-term viability and population persistence. Forest fire suppression and bark-beetles can have impacts on the movement potential among disjunct populations (see Criteria 3 below). Cross-boundary cooperation regarding bighorn sheep management with regard to SCC status and the corresponding forest plan components is needed.

Rocky Mountain Bighorn Sheep:

1. Significant threats.
   A) Disease (risks related to contact with domestic sheep on and off GMUG properties) is a threat to the long-term persistence of bighorn populations in Colorado (George et al. 2009). On the GMUG, CPW's Herd Management Plans (RBS21 and RBS22) focused on the disease threats to long term population persistence. Disease related risks are due to sudden all-age die off events (George et al. 2008, CPW unpublished data on RBS22 and RBS23) or long periods of suppressed lamb recruitment due to chronic pneumonia (Manlove et al. 2016, Grigg et al. 2017, Wood et al. 2017).

   B) Little evidence exists of competition with elk for forage as only slight competition has been documented (Constant 1972, Weigand 1994). Additionally, bighorn utilization is concentrated on or near steeper and more rugged terrain than what elk are currently utilizing (CPW unpublished telemetry studies). There may also be other ungulates (wild and domestic) that are competing with bighorn sheep for forage to a similar degree as elk, but no information is available at this time.

   C) Persistent drought conditions associated with climate change are also a concern (Epps et al. 2004, Creech et al. 2020). Climate change is likely already influencing the GMUG through bark beetle outbreaks, as partially driven by warming summer, winter temperatures, and drought stressing forests. Bighorn's low elevation water sources, fed by high elevation snow pack, may eventually be impacted by climate change.

   D) Recreation impacts from a variety of different user groups (motorized, non-motorized) on and off the GMUG are a force on the landscape and can cause significant disturbance in areas occupied by bighorn sheep in the area or inhibit the recolonization of suitable but unoccupied habitat (Papouchis et al. 2001, Longshore et al 2013, Widemann and Bleich 2014, Sproat et al. 2020).

2. Declining trend in population or habitat.

A) Over the time span of ~150 – 200 years, bighorn populations throughout Colorado and Southwestern Colorado have declined. Bighorn populations have rebounded over the last 20 – 50 years due to intensive restoration efforts implemented by CPW. Migratory behaviors of these populations still have not recovered in the 3 – 5 GMUG bighorn herds re-established through translocations between 1960 – 2000, as it is estimated that migration behavior can take 30 – 200 years to be rediscovered (Jesmer et al. 2018, Lowrey et al. 2019). The loss of migratory behaviors has likely caused suitable areas/habitat to no longer be occupied.

B) Only 18 – 35% of the suitable habitat is currently occupied by Rocky Mountain bighorn sheep. Hobby and commercial domestic sheep do not allow an expansion of occupied range in a good proportion of these unoccupied but suitable areas.

C) Given the lack of a natural wildfire cycle, forests are likely denser and occur in larger stand sizes. Higher canopy cover and larger forest stands are occurring due to fire suppression resulting in forest succession and a loss of potential habitat through decreased security cover and forage availability (Robinson et al. 2020). Additionally see Criteria 1, part C above.

D) Recreation pressure has only increased over the past 30 – 50 years in the GMUG, thus representing another source for declining habitat given that bighorn are displaced from areas with high recreation pressures (See Criteria 1, part D above).

3. Restricted range. At one time, Southwest Colorado was comprised of continuous populations of bighorn, but now consist of various disjunct populations that require individuals to navigate forays and dispersals >10 miles to maintain connectivity. Barriers to bighorn navigating forays and dispersal habitats include: 1. lack of natural wildfire cycle, forests are likely denser and occur in larger stand sizes, which has made it more difficult for bighorn to navigate when conducting forays/dispersals. 2. Downfall associated with recent forest disease epidemics make it more difficult for ungulates to move through (Lamont et al. 2020). 3. Domestic sheep allotments where CPW removes any bighorn sheep. 4. Housing/recreational developments 5. Increasing highway vehicle traffic volumes. These five factors can lead to genetic isolation of these disjunct herds.

4. Low population numbers or restricted EC: .
   A) Only 18 – 35% of the suitable habitat on GMUG lands is currently occupied by Rocky Mountain Bighorn sheep depending on the model source ([CPW or USFS suitability analyses], Figure 1). Suitable habitat is unoccupied due to hobby and commercial domestic sheep on and off GMUG properties, forest fire suppression, the loss of migratory behaviors (Jesmer et al. 2018, Lowrey et al. 2019) and potentially other known factors that have changed bighorn distribution (i.e., recreation: see criteria 1 above).
   B) The restricted range has led to a lower population size of ~1,500 bighorn sheep that could be closer to a population size of 7,500 if all suitable habitat was occupied.

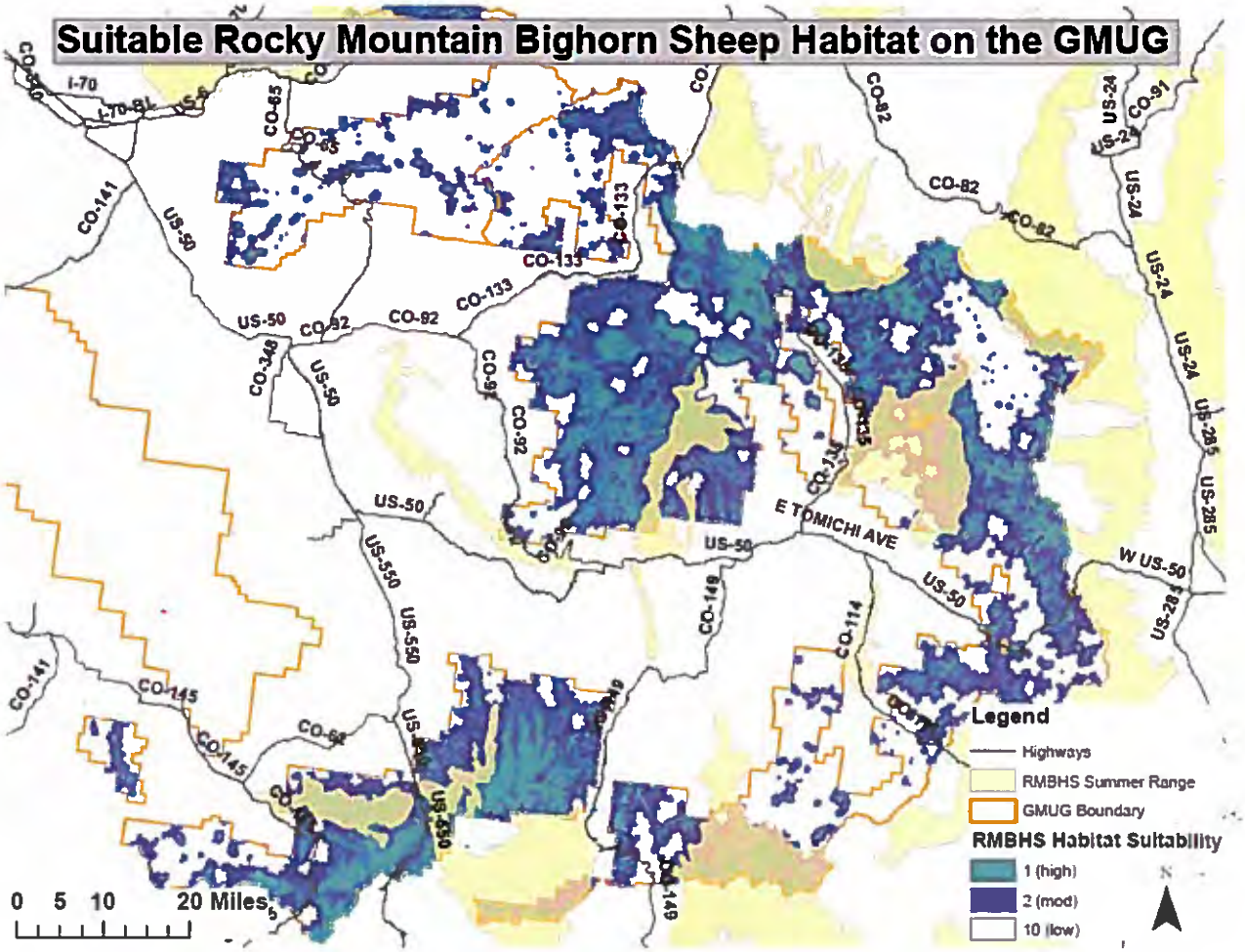

Figure 1. Suitable Rocky Mountain Bighorn sheep habitat and occupied Rocky Mountain Bighorn sheep summer range in the GMUG.

Desert Bighorn Sheep:

1. Significant threats. Disease (risks related to contact with domestic sheep on and off the GMUG; further interaction details, see USFS publication, Schommer and Woolever 2008; George et al. 2008) potentially resulting in low lamb survival (Manlove et al. 2016), predation threats to the populations, persistent drought conditions associated with climate change (Epps et al. 2004), and recreational impacts from hikers, bikers, UTVs/ATVs, and other vehicles (Papouchis et al. 2001, Longshore et al. 2013, Widemann and Bleich 2014, Sproat et al. 2020) are all factors influencing bighorn sheep survival and movements.

2. Declining trend in population or habitat.
   A) All of Colorado's desert bighorn sheep (*Ovis canadensis nelsoni*) populations are a result of translocations. The herd surrounding the GMUG is approximately 165 individuals. This small population leaves the sheep vulnerable to recovering from large disease-related, all-age die-offs, or other compounding factors impacting survival.

B) Given the lack of natural wildfire cycles, forests are likely denser and occur in larger stand sizes. Higher canopy cover and larger forest stands are occurring due to fire suppression resulting in forest succession and a loss of potential habitat (Robinson et al. 2020).

C) Additionally, one of the goals in the Colorado desert bighorn sheep management plan (CDOW and BLM 1989) stated that by the 21st century, there would be an overall population of 1,200 sheep. As of 2020, the desert bighorn sheep population for all four of the desert bighorn sheep units was 550 individuals.

3. Restricted range. Archeological evidence from petroglyphs indicates that desert bighorn likely occurred in Utah and southwest Colorado pre-settlement, but other data on historic population sizes is limited (CDOW and BLM 1989). Since all current populations resulted from translocations, it is difficult to know where they occurred before augmentation, but currently they exist on the edge of their range in the area surrounding the GMUG (Figure 2). This population is also disjunct from other surrounding populations near Moab, Utah, approximately 63 miles to the west. There are no desert bighorn sheep populations to the east, north, or immediately south of this population.

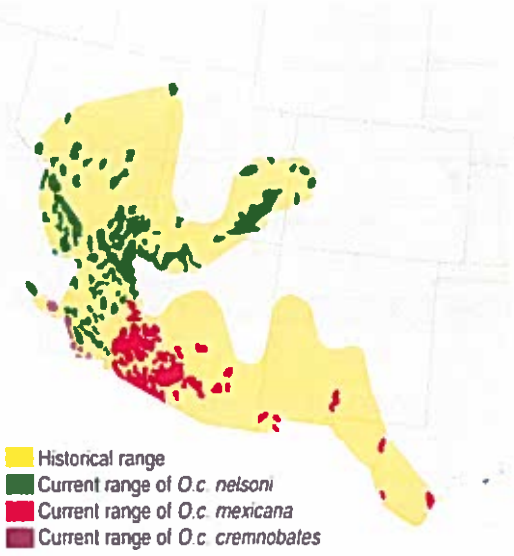

Figure 2. The historical and current range of desert bighorn sheep subspecies in the southwestern United States [McCutchen, H. E. 1995])

4. Low population number or restricted EC: Desert bighorn sheep currently occupy approximately 3 – 5% of suitable habitat in the GMUG on the Uncompahgre Plateau based on CPW and the USFS habitat suitability analyses (Figure 3). Forest succession (pinon-juniper encroachment, specifically) and lack of wildfire may be limiting desert bighorn's ability to colonize potentially-suitable cliff and canyon habitat in the GMUG's Uncompahgre Plateau units.

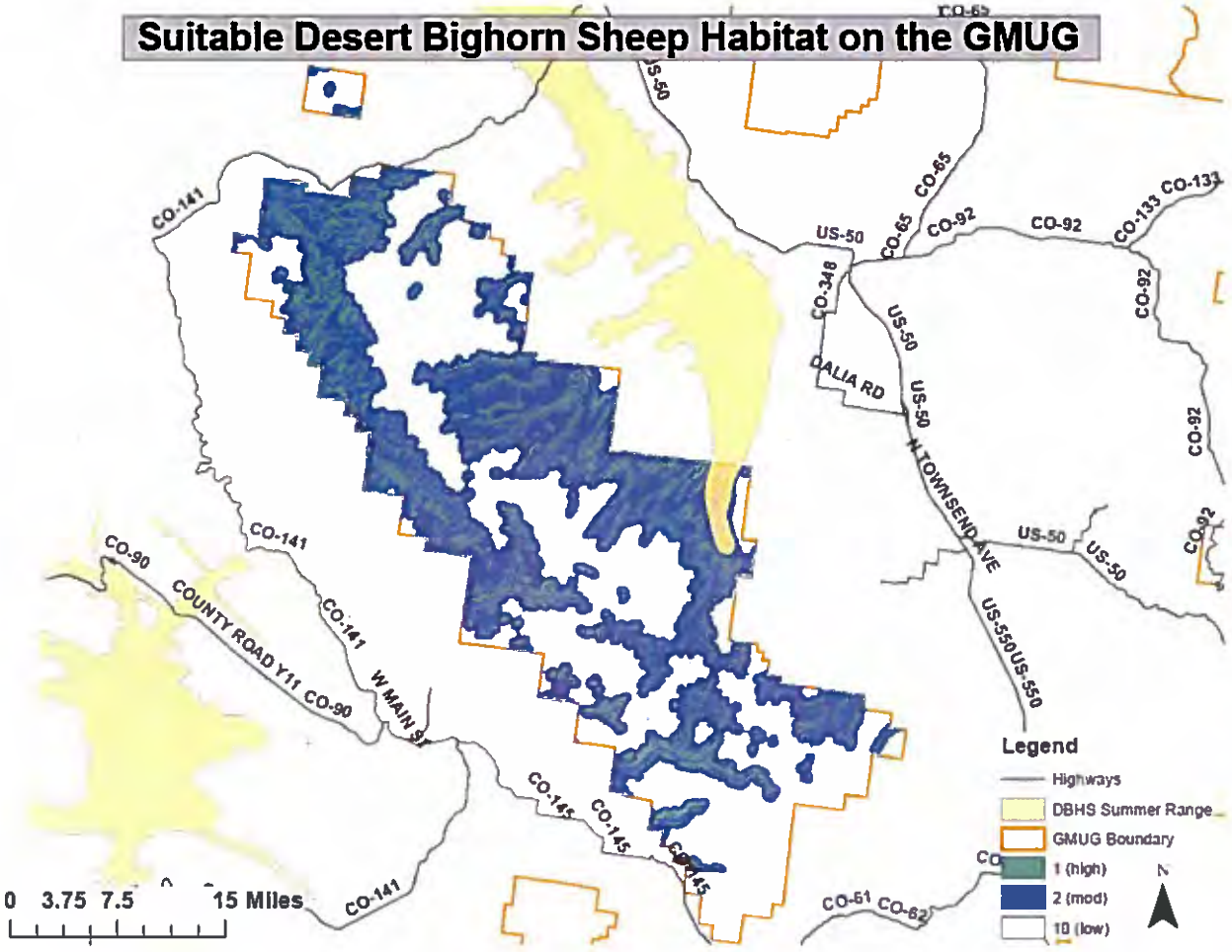

Figure 3. Suitable desert bighorn sheep habitat and occupied desert bighorn sheep summer range in the GMUG.

River Otter

River otter were extirpated from CO by the early 1900s. From 1976-1991, 114-122 river otters were reintroduced to CO, by releasing otters that were captured in other locations, including: Minnesota, Michigan, Wisconsin, Newfoundland, Oregon, Washington, and Alaska. The otters that were released in southwest CO that would be most likely to inhabit the GMUG came primarily from Wisconsin and the Pacific Northwest. The subspecies of otter that now exists in Southwest Colorado is not *sonora* but a mix of subspecies, *canadensis* and *pacifica*. Surveys that occurred on the major rivers of SW CO from 2002 to 2018 to follow up on the reintroduction efforts indicate that otter occupancy is high and populations have increased. Plan components outlined in Aquatic Ecosystems minimize impacts to this species. For these reasons, CPW believes that there is not a substantial concern for river otters on the GMUG relative to the threats and needs of other species that would benefit from additional plan components and monitoring. Therefore, we recommend that river otter be removed from the SCC list.

Conclusion

CPW appreciates the opportunity to provide information on the Species of Conservation Concern list. We recommend adding the southern white-tailed ptarmigan, pinyon jay, black swift, little brown myotis, and Rocky Mountain and desert bighorn sheep to the SCC list. We also recommend removing river otter from the SCC list. If you have any questions regarding our comments, please contact Southwest Region Land Use Coordinator, Brian Magee at 970 375-6707.

Sincerely,

Cory Chick
Southwest Regional Manager
Colorado Parks and Wildlife

XC: Matt Thorpe, SW Deputy Region Manager, JT Romatzke, NW Region Manager, Brian Magee, SW Land Use Coordinator, Brandon Diamond, Gunnison Area Wildlife Manager, Rachel Sralla, Montrose Area Wildlife Manager, Kirk Oldham, Grand Junction Area Wildlife Manager, Jamin Grigg, SW Senior Terrestrial Biologist, Brad Banulis, NW Senior Terrestrial Biologist.

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2. **Appendix B: Comments submitted by the Colorado Native Plant Society dated November 18, 2021, regarding sensitive and globally or state imperiled plant species that should be included as Species of Conservation Concern.**

Comments to GMUG regarding SCC Plants (draft) GMUG
Submitted to GMUG NF for Plan Revision comments

Botanist Peggy Lyon, CNHP Botanist, Colorado Native Plant Society, Education Leader Great Old Broads for Wilderness, Northern San Juan Broad Band
Gay Austin, Retired Botanist and Rangeland Management Specialist with USDA Forest Service & BLM, Colorado Native Plant Society

Thank you for the opportunity to comment on the revised GMUG plan. We are submitting comments regarding the designation of plant species as Species of Conservation Concern (SCC).

First, we are pleased that climate change is recognized among the threats for many species. We agree that a warming drying trend may threaten alpine, wetland, and fen species.

We also appreciate that CNHP data has been consulted as one of the best available scientific resources. We hope that discrepancies between FS and CNHP data can be resolved by an exchange of information. Also that the historical element occurrences (more than 20 years old), which account for 60% of the CNHP records for the GMUG can be updated, so that the best scientific information can be accessed.

However, we believe that many species deserving to be designated as SCC are left out.

Although we understand that the ecological systems where these species occur are addressed by the plan, we believe that in the case of plants, where individuals or populations are unable to move like animals, a "fine filter" is needed as well as the "coarse filter" of protecting habitat.

Table 51 of Appendix 9 lists species to be designated as SCC, including G1 and G2 species. Two important G/T2 species listed below are missing from that list. Chapter 10 of the Planning Handbook "directs that G1G2 species are expected to be species of conservation concern unless there is evidence that the known threats do not operate in the planning unit".

Draba exunguiculata (G2 S2) 3 documented occurrences on boundary of Gunnison and San Isabel NF. Both forests need to take responsibility for this species. Threats - climate change, domestic sheep grazing.

Physaria rollinsii (G1G2 S1S2) 13 documented occurrences along HPP transects on Gunnison RD (HPP transects, Austin pers. comm.). Threats - livestock grazing, increasing off-trail ORV use, planned recreation development occurring in habitat northeast of Gunnison, increased off-leash dog use in habitat, climate change drying in lower elevations, spread of cheatgrass,

Table 53 of Appendix 9 lists species that should be considered but were determined not to be eligible according to the 4 criteria that are listed in the draft plan revision. Appendix 9 states that to be designated as SCC ***all four*** criteria listed must be met. However, the planning rule only requires that one or more of these criteria be met.

> "f. Species for which the best available scientific information indicates there is local conservation concern about the species' capability to persist over the long-term in the plan area due to:
> (1) Significant threats, caused by stressors on and off the plan area, to populations or the ecological conditions they depend upon (habitat). These threats include climate change.
> (2) Declining trends in populations or habitat in the plan area.
> (3) Restricted ranges (with corresponding narrow endemics, disjunct populations, or species at the edge of their range).
> (4) Low population numbers or restricted ecological conditions (habitat) within the plan area." **(Forest Service Planning Directives 12.52c – Criteria for Identifying a Species of Conservation Concern)**

The second of these criteria, that there must be a "declining trend in populations or habitat in the plan area" is seldom met, since there are no data supporting either declining or increasing trends on nearly all plant species considered. If this requirement were changed to "declining trend or no data" many more of the species considered would qualify as Species of Conservation Concern, even if all four criteria were required.

In addition, items *a* through *e* in the handbook were not considered for many species. Several species that were not designated are Sensitive Species for Region 2 or on adjoining forests; or were identified by the state of Colorado as being at risk (SWAP).

The following 5 species are on the Region 2 Sensitive Species list. We understand that the Region 2 Sensitive Species list has different criteria than the GMUG SCC criteria, yet some of these species meet both criteria. No justification has been given for not including them, and we believe they should be considered according to criteria *d*. See our Table 53 comments and criteria met.

Botrychium paradoxum (G3G4 S1)

Braya glabella subsp. *glabella* (G5T5 S1S2)

Drosera rotundifolia (G5 S2)

C*arex diandra* (G5 S2)

Carex stenoptila (G3 S3)

The following 3 species are included in the SWAP (Colorado State Wildlife Action Plan) and should therefore be considered per criterion *c.*

Carex stenoptila (*G3 S2)*

Astragalus naturitensis (G3 S2S3)

Cirsium perplexans (G3 S3)

The following table was compiled with information from the GMUG in Appendix 9, Table 53 (in quotes in the table), CNHP element occurrence records, NatureServe Explorer and personal knowledge.

Species from Table 53 and other species that qualify to be designated as SCC:

GMUG Table 53 & Other Species	CNHP or Nature Serve Rank	Meets criteria # 1 (threats to pops. or habitat)	Meets criteria #2 (declining trend in pops. or habitat)	Meets criteria #3 (Endemic, disjunct or edge of range?)	Meets criteria #4 (low population #'s/restricted habitat on GMUG)	Conclusions
Alsinanthe macrantha (Minuartia) House's sandwort	G3 S3	"House's sandwort is extremely vulnerable to climate change. Its alpine habitat is also rated as highly vulnerable to climate change"	"There is no information on the population trend in the GMUG",	Endemic. It is known from only CO and UT, S1 in UT.	Restricted habitat (high alpine).	Meets criteria 1,3 and 4.
Astragalus naturitensis Naturita milkvetch	G3 S2S3	"extremely vulnerable to climate change"	"trend appears stable"	"northeastern-most of the entire species", edge of range		SWAP Tier 2
Botrychium lineare Narrow-leaf grapefern	G3 S2S3	small population size results in threats from stochastic events.	no data on trend	"...where it is disjunct from the main body of the species' distribution."	small population size--10 stems	meets criteria 1, 3, 4 . No data on trend

Botrychium paradoxum Peculiar moonwort	G3G4 S1	"is considered extremely vulnerable to climate change within the plan area" Population is near top of ski area lift where hundreds of people walk in summer (Austin).	single location so no trend data	wide range to north, but CO is southern-most state and only one record in CO, so edge of range.	very small population size (estimate about 25 plants) last observed in 2019 (Austin).	Meets criteria 1,3 and 4.
Carex diandra) Lesser panicled sedge	G5 S2	Fen species vulnerable to climate change-drying conditions. Climate change and livestock grazing are threats.	Suitable habitat for the species has declined about 25% in the Grand Mesa NF since 1979	"not a restricted range". CO is southern-most state of range. 19 occurrences in CO., mostly in Routt NF. Single occurrence in GMUG is southernmost. Edge of range.	Only one occurrence in GMUG in CNHP, 2 according to GMUG...	Meets all 4 criteria.
Carex livida Livid sedge	G5 S1	Threats - livestock grazing, moose and elk wallowing. "Declining habitat (fens)" - threat. Climate change and drying conditions - threat.	"suitable habitat for the species has declined about 25% in the Grand Mesa NF since 1979." Fens on Grand Mesa have been impacted by vehicles, drainage, ditching, and flooding (Austin & Cooper 2015).	restricted range-- "southern-most of the species". Edge of range.	Small population size: Only 2 occurrences in GMUG, and these have low number of plants.	Meets all 4 criteria.
Cladina arbuscula Reindeer lichen	G5 S2	Threats - road grading sending sediment into	No trend data.	Southern edge of range.	3 occurrences on GMUG, restricted to	Meets criteria 1, 3, 4.

		Wager Gulch Iron Fen (Austin pers. comm), domestic sheep grazing.		Disjunct.	edges of fens.	
Crepis nana Dwarf alpine hawksbeard	G5 S3	"...highly vulnerable to climate change" "substantial concern for the long term persistence of the species"	no info on trend	South edge of range.	Restricted to alpine.	Meets criteria 1,3,4.
Cystopteris montana Mountain bladder fern	G5 S1	"Habitat loss from spruce beetle outbreak represents declining trend"	"declining trend in habitat"	"the species is disjunct"	restricted habitat ("mossy shaded, moist to wet rocks and cliffs"	Meets all 4 criteria.
Draba globosa Rockcress draba	G3 S1	"rockcress draba is rated as extremely vulnerable to climate change, and its alpine habitat is rated as highly vulnerable."	"No trend data are available from the GMUG"	"one site where it has a restricted range". Edge of range.	One site, so small population size	Meets criteria 1, 3 and 4.
Draba incerta Yellowstone whitlow-grass	G5 S1	"highly vulnerable to climate change"	no trend data	"the GMUG population is the southeastern most of the species distribution". Edge of range.	2 sites on GMUG, "one site has a restricted ecological condition". Small population size.	Meets criteria 1, 3 and 4.
Draba streptobrachia Colorado Divide whitlow-grass	G3 S3	"extremely vulnerable to climate change"	"no trend data are available"	"The GMUG population represents a restricted range and is the western extent of the species", edge of range	small population size. CNHP has 8 records in GMUG, but no A or B occurrences, all C, D, E or H.	Meets all 4 criteria.
Draba ventosa	G3 S1	"vulnerable to	no trend data	"GMUG is	4 locations.	Meets

Tundra draba		climate change"	available	southwestern most extent of its range", edge of range.	Small population size?	criteria 1, 3 and 4. All CNHP records are Historic.
Drosera rotundifolia Roundleaf sundew	G5 S2	"site impacted by an unauthorized ditch…" General public use, dogs, camping, and people.	"GMUG population appears to be stable" based on CNAP monitoring. Baseline monitoring was conducted by DBG , but FS did not follow up.	"disjunct"	small population size (est. 1500 plants, CNAP 2021). Very restricted habitat (only in a certain microsite of one iron fen).	Meets criteria 1, 3 and 4. Criteria #2 is unknown. All fen species should be SCC
Erigeron humilis Low fleabane G5 S1		alpine species vulnerable to climate change.	no trend data available	"southeastern -most for the species"(wide range to western Canada, but CO is farthest southeast), edge of range.	4 locations in GMUG. No data on population size? CNHP records are Historic.	Meets criteria 1, 3 and 4
Erigeron lanatus Wooly fleabane	G4 S2	"extremely vulnerable to climate change" "alpine habitat is extremely vulnerable to climate change" …at risk from off road vehicles"	no trend data	southern-most location for species, edge of range.	All CNHP records H or E. Population size on GMUG unknown. Alpine habitat is restricted in general.	Meets criteria 1, 3 and 4.

Eriophorum gracile Slender cottongrass	G5 S2	Threatened by expansion of reservoirs on Grand Mesa. Logging without consideration of fen locations. Compaction from snowmobiles	Fen habitat is declining on Grand Mesa in plan area (Austin & Cooper 2015).	wide range to north, CO is southern extent. Edge of range.	Population on Grand Mesa has low population numbers (10-20 plants) and restricted habitat.	Meets all 4 criteria. Also on SWAP list.
Hamatocaulis vernicosus	G5 S1S3	Threats - livestock grazing, hydrologic alterations.	No trend data. 2 occurrences on the GMUG.	"Southern-most occurrence of species". Edge of	Restricted habitat - fens.	Meets criteria 1, 3, 4.

				range.		
Juncus bryoides Minute rush	G4 S1	Threats - road grading sending sediment into Wager Gulch Iron Fen (Austin pers. comm.). The single occurrence is vulnerable ("small and isolated populations are susceptible to negative impacts from genetic drift and stochastic events".	Habitat is declining due to sedimentation from road grading.	Edge of range.	Restricted to iron fen habitat on the GMUG (Wager Gulch Iron Fen).	State concern for this species (S1, CNHP). Meets criteria 1, 3, 4.
Jungermania rubra liverwort (no common name)	G3G5 S1S2	Threats - hydrologic alterations from "4 wheel drive trail bisecting it & nearby closed road".	No species trend data. 2 occurrences on GMUG. Habitat is declining in Wager Gulch due to sedimentation from road grading.	Disjunct on the GMUG.	Restricted habitat - 2 iron fens.	Meets criteria 1, 3 and 4.
Kobresia simpliciuscula	G5 S2	Threats - livestock and moose grazing, dust from heavily travelled trail, illegal off-road vehicle use.	No species trend data. Habitat is declining due to grazing.	Wide species range, Colorado at southern edge. Edge of range (NatureServe 2021).	Restricted habitat - calcareous fens.	Meets criteria 1, 3 and 4.
Listeria borealis	G5 S2	Loss of shaded spruce-fir canopy from beetle kill and timber	"Declining trend in habitat". 12 occurrences on the	"Colorado populations are disjunct".	Restricted habitat - shady spruce-fir forests.	Meets all 4 criteria.

		harvesting are a threat.	GMUG.			
Lomatogonium rotatum Marsh felwort	G5 S2	Impacted by roads, trails, livestock grazing. "Grazing is often heavy in wetlands" (Barry Johnston, 2014".	no species trend data, habitat has declined due to livestock grazing	Wide species range.	restricted habitat--fens. Only about 10 plants. Last observed in 2020 by Gay Austin.	Meets criteria 1, 3 and 4.
Luzula subcapitata Colorado woodrush	G3 S3	"extremely vulnerable to climate change"	no trend data	Endemic to WY and CO, so CO is at southern edge of range. Uncompahgre sites are southernmost in CO.	small population size. Two occurrences in CNHP records, one a specimen with no size information, the other with 15 plants.	Meets criteria 1 and 3 and 4.
Minuartia stricta Bog stitchwort	G5 S2	'highly vulnerable to climate change"	no trend data	"western extent of a disjunct population", edge of range.	population size is unknown; all CNHP records based on herbarium specimens with no size information.	Meets criteria 1, 3 and probably 4.
Myosurus cupulatus Western mouse- tail	G4 S1	"threatened by unintensional spraying of invasives"	no trend data available	"the GMUG population is the northern-most of the species", edge of range.	only one occurrence	Meets criteria 1, 3 and 4.
Ranunculus gelidus Tundra buttercup	G5 S2	"extremely vulnerable to climate change"	no trend data	disjunct	small population: total of 80 plants in 4 locations.	Meets criteria 1, 3 and 4.
Silene kingii King's campion	G3 S1	"vulnerable to climate change", hikers with dogs. Single documented occurrence in GMUG at high	trend data forthcoming from RMBL	disjunct	low population numbers, only one occurrence, 12 occurrences in	Meets criteria 1, 3 and 4.

		elevation. Three more occurrences reported by RMBL north of Crested Butte			CO, all ranked E but one C.	
Trichophorum pumilum Little bulrush	G5 S2	"subject to impacts (dust, road maintenance) from an adjacent heavily used gravel road"	No species trend data; Habitat has declined due to gravel road maintenance.	"GMUG population is the southern-most of the species", edge of range.	single population, restricted habitat (fens) in GMUG.	Meet s criteria 1, 3 and 4. All fen species should be SCC.

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