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Organization:

Title:

Comments: Letter of objection to final GMUG plan, 10-12-23

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1. Lead objector: Margarete J. (Peggy) Lyon
2. Grand Mesa Uncompahgre and Gunnison Forest Plan Revision #51806 Frank Beum, Regional Forester, USDA Forest Service Rocky Mountain Region
3. Issues: Species omitted from GMUG Species of Conservation Concern (SCC) list.
4. Thank you for designating many of the plant species that we recommended as SCC. We are especially pleased that you have recognized the importance of fens and fen species. We agree with your determination on many of these, but object to the failure to designate the following species based on absence of trend data. All except *Botrychium paradoxum* and *Carex diandra* are alpine species that may be secure globally but are imperiled (S2) or critically imperiled (S1) in Colorado and should be placed on the SCC list.

Please designate the species listed and described below as species of conservation concern. Develop plan components, including standards, as necessary to ensure that existing populations of these species are not damaged and have a good chance of recovering to full, viable populations.

Botrychium paradoxum G3G4 S1

Braya glabella G5T5 S1S2

Carex diandra G5 S2

Draba globosa G3 S1

Draba incerta G5 S1

Draba ventosa G3 S1

Erigeron humilus G5 S1

Erigeron lanatus G4 S2

Minuartia stricta G5 S2

Ranunculus gelidus G5 S2

For these plants, the FS determined that criteria 1, 3 and 4 were met. They were denied SCC status because they failed to meet criterium 2, a declining trend in species population or habitat. To show a trend in the species population, it would be necessary to monitor over a period of time. Unfortunately, the FS has not done that or contracted with others to do it, so species population trend is impossible to support. Habitat trend decline, however, is known to have occurred. While the FS acknowledges climate change as a threat to these species in the future, it does not consider that change is already happening. Data from climate information sources show that the average temperature in the GMUG has increased dramatically since 1900. Graphs for temperature trend in every county of the GMUG clearly shows this. See:

(<https://usafacts.org/issues/climate/state/colorado/county/ouray-county/#climate/>)

The southern Rocky Mountains is currently experiencing higher levels of local warming and decreasing annual snowpacks which is altering plant species distribution and numbers at higher elevations. Dust deposits in addition to climate warming causes earlier annual snowmelt and phenology changes in high elevation plant species (Harvey, C. 2003).

Early snowpack melt-off allows earlier plant growth in these areas. Subsequently when late spring frosts occur, flowering plant parts freeze and plants do not produce flowers or seeds (CaraDonna et al. 2014). This is degrading habitat for all the alpine plants listed above plus habitat for *Botrychium paradoxum* and *Carex diandra*.

Climate change is already happening and failure to protect at risk species by designating them as SCC, may contribute to the extinction of these species in Colorado,

In addition to habitat decline, note that *Carex diandra* is a fen species, and therefore should be included with other fen species as SCC. This species is on the sensitive species list for the San Juan National Forest.

Other indications of habitat decline include the huge increase in human activity in recent years, including hiking, camping, skiing, and horseback riding. Sheep grazing is also expected to have caused changes in plant communities. Alpine communities are extremely vulnerable to trampling, and take many years to recover from disturbances. We are including an example of human use impacts below, as noted for one of the above species, *Botrychium paradoxum*.

First, the habitat description for *Botrychium paradoxum* is for areas outside of R2, not specifically for the GMUG. We recommend changing it to: Subalpine meadows and openings between forested spruce stands. Scott Smith and Rea Orthner (46 years of combined experience searching for moonworts) acknowledge that there is strong evidence that *Botrychium paradoxum* has never been found in riparian areas or wetlands in Colorado.

Habitat for *Botrychium paradoxum* is NOT stable on the GMUG. Here is a photograph taken in 2017 of rock removal in the *Botrychium paradoxum* site on Crested Butte Mountain (Austin 2017).

According to Willard and Marr (1970), rock removal such as this is considered "visitor impact degree 4/5" with soil erosion exposure by rain and ice. In 2007 John Stewart, a contractor working for the Crested Butte Ski Area, was told that the ski area wanted to use an excavator in the talus directly adjacent to the *Botrychium paradoxum* site to move rocks around to form a

"Banana Ingress" ski run. On 10/11/23 a Snow Ranger on the Gunnison Ranger District said that in 2021 the ski

area worked with the Forest Service and decided against using an excavator to alter an area (Banana Ingress) close to the *Botrychium paradoxum* site. Instead, it was agreed upon to allow removal of rocks by hand. Although avoiding use of the excavator was good, rock removal in *Botrychium* habitat still causes damage. Vail Associate's (owns Crested Butte Mountain Ski Resort) contractor incorrectly built a road through alpine tundra in the Keystone area (Blevins 2022). Placing *Botrychium paradoxum* on the GMUG SCC list would help protect this species.

In addition to the above, increased numbers of people recreating with larger and more powerful SUV's and Razors in subalpine and alpine areas have caused damage to plant communities (Romeo 2018). See attached Google Earth photographs.

The CDNST, Colorado Trail, Powderhorn, Telluride, Monarch, and Crested Butte Ski area expansions all resulted in damage to subalpine (i.e. *Botrychium paradoxum* habitat) and alpine plant communities. There is user interest in creating new trails and wider trails to accommodate UTV's.

We would support not listing *Astragalus anisus* and *Penstemon mensarum* as SCC. Both are abundant: *A. anisus* has 9 occurrences in the GMUG and 46 in Colorado; *P. mensarum* has 36 occurrences in the GMUG and 46 in Colorado (CNHP 2023). *P. mensarum* is being sold in various nurseries for garden use.

1. We submitted "Final GMUG SCC Comments 11-6-21, by Peggy Lyon, submitted to GMUG NF for Plan Revision comments". That is our link to this objection letter.