

Mountain Golden Heather
(Hudsonia montana)

**5-Year Status Review:
Summary and Evaluation**



Photo credit: Gary Peeples/USFWS

**U.S. Fish and Wildlife Service
Southeast Region
Asheville Ecological Services Field Office
Asheville, North Carolina**

August 2024

5-YEAR STATUS REVIEW
Mountain Golden Heather (*Hudsonia montana*)

GENERAL INFORMATION

Current Classification: Threatened

Lead Field Office: Asheville Ecological Services Field Office, Rebekah Reid

Review Author(s): Rebekah Reid. Asheville Ecological Services Field Office, U.S. Fish and Wildlife Service

Reviewers:

Lead Regional Office: Southeast Region, Carrie Straight

Date of original listing: November 19, 1980 (84 FR 69360; October 20, 1980)

Critical Habitat/4(d) rule/Experimental population designation/Similarity of appearance listing: Critical habitat final rule: October 20, 1980 (45 FR 69306).

Methodology used to complete the review: In accordance with section 4(c)(2) of the Endangered Species Act of 1973, as amended (Act), the purpose of a status review is to assess each threatened species or endangered species to determine whether its status has changed and if it should be classified differently or removed from the Lists of Threatened and Endangered Wildlife and Plants ([50 CFR 424.11](#)). The U.S. Fish and Wildlife Service (Service) evaluated the best available information about the mountain golden heather's biology, habitat, and threats to inform this status review.

We announced initiation of this review in the Federal Register on May 11, 2023 (88 FR 38320) with a 60-day comment period and received no comments. The primary sources of information used in this analysis were information from peer-reviewed scientific publications, status surveys conducted by the U.S. Forest Service, personal field observations, and personal communication with recognized experts. This review was completed by the Service's Asheville Ecological Services Field Office in Asheville, North Carolina. All literature and documents used for this review are on file at the Field Office. All recommendations resulting from this review are the result of thoroughly reviewing the best available information on the mountain golden heather.

FR Notice citation announcing the species is under active review:
May 11, 2023 (88 FR 30324)

Species' Recovery Priority Number at start of 5-year review ([48 FR 43098](#)):

8. Mountain golden heather is a species with a moderate degree of threat and a high recovery potential.

Review History:

Previous 5-year reviews recommending no change in status were signed on January 14, 2013, and September 24, 2019 (Service 2013, Service 2019).

REVIEW ANALYSIS

Listed Entity

Taxonomy and nomenclature

We are not aware of any changes to the taxonomy of this entity, and it is still considered valid by the Service.

Distinct Population Segment (DPS) ([61 FR 4722](#))

The Act defines species as including any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate wildlife. This definition limits listing of a DPS to only vertebrate species. Because the species under review is not a vertebrate, the DPS policy does not apply.

Recovery Criteria

Recovery Plan or Outline

Mountain Golden Heather (*Hudsonia montana*) Recovery Plan, September 14, 1983.

Recovery plans are not regulatory documents and intended to provide guidance to the Service, States, and other partners on methods of minimizing threats to listed species and on criteria that may be used to determine when recovery is achieved. If the recovery criteria defined in the plan are still valid, meeting recovery criteria can indicate that the species no longer requires protections under the Act. However, when recommending whether a listed species should be delisted, the Service must apply the factors in section 4(a) of the Act ([84 FR 45020](#)).

Recovery criteria as listed in the Recovery Plan:

1. *The five known populations are maintained at current levels or above and are self-sustaining.*
2. *Species biology and site dynamics are sufficiently understood to assure effective long-term management strategy.*
3. *Protection and management policies of the U.S. Forest Service are proven effective.*
4. *The species and its habitat are protected from present and foreseeable human-related and natural threats that may interfere with the survival of any of the populations.*

The above recovery criteria were developed in 1983 prior to the discovery of the Woods Mountain/Singecat population; therefore, the recovery criteria reference five populations; six populations are discussed throughout this review. The Service believes these criteria are appropriate and relevant; however, no criteria have currently been met.

Biology and Habitat Summary

The biology and life history of mountain golden heather are detailed in past recovery documents (i.e., Service 1983, 2013, and 2019). A summary overview is found below.

Mountain golden heather was discovered by Thomas Nuttall on the summit of Table Rock, North Carolina in 1816 (Morse 1979). The subsequent failure of several botanists to relocate the species at Table Rock, or anywhere else within Linville Gorge, throughout the 1960s and 1970s led many to assume the species extinct until it was rediscovered in the late 1970s (Morse 1979). Currently, there are six known populations comprised of 36 discrete locations (Table 1) in two North Carolina counties (Figure 1).

As described in previous documents, when the recovery plan was written there were five known populations of the species (Service 1983). A sixth population was discovered in 1983 (Service 2013). Since 1983, some comprehensive surveys have been periodically conducted. Through time some subpopulations have been extirpated. Some populations have seen periodic growth associated with increases in numbers of seedlings and immature individuals after prescribed burns or wildfires (Service 2013 and 2019). Of 36 discrete locations in six populations, one location is new, three locations are presumed extirpated, and 11 locations had no plants found during monitoring in 2023. The most recent census (2023) has shown no increases compared to 2015-2018 estimates and some significant declines and extirpations of subpopulations in a couple populations (i.e., Chimneys and Carolina Wall). These declines are likely due to fire suppression, recreational user impacts to the species and its habitat, and competition with invasive species

Table 1. Number of mountain golden heather plants counted per population over time.

Parent EO	Population Name	Census 1982	Census 1993	Census 2003-2004	Census 2009	Census 2015-2018	Census 2023
32	Woods Mtn Singecat ¹	Not known.	120	689	589	491	399
2	Table Rock	215	68	191	45	4	3
33	Chimneys ²	136	52	694	275	1356	406
33	Carolina Wall ³	230	37	504	151	241	57
33	Chimney Gap Ledge	63	174	260	118	69	58
3	Shortoff ⁴	2157	1516	2863	9100	2149	2024
Total		2801	1967	5201	10278	4310	2947

¹ Population discovered in 1987.

² In 2023, no plants found in one discrete location, and two discrete locations not surveyed, presumed extirpated.

³ In 2023, no plants found in eight discrete locations, and one discrete location not surveyed, presumed extirpated.

⁴ In 2023, no plants found in two discrete locations, one discrete location not surveyed (unknown reason), and one new discrete location found.

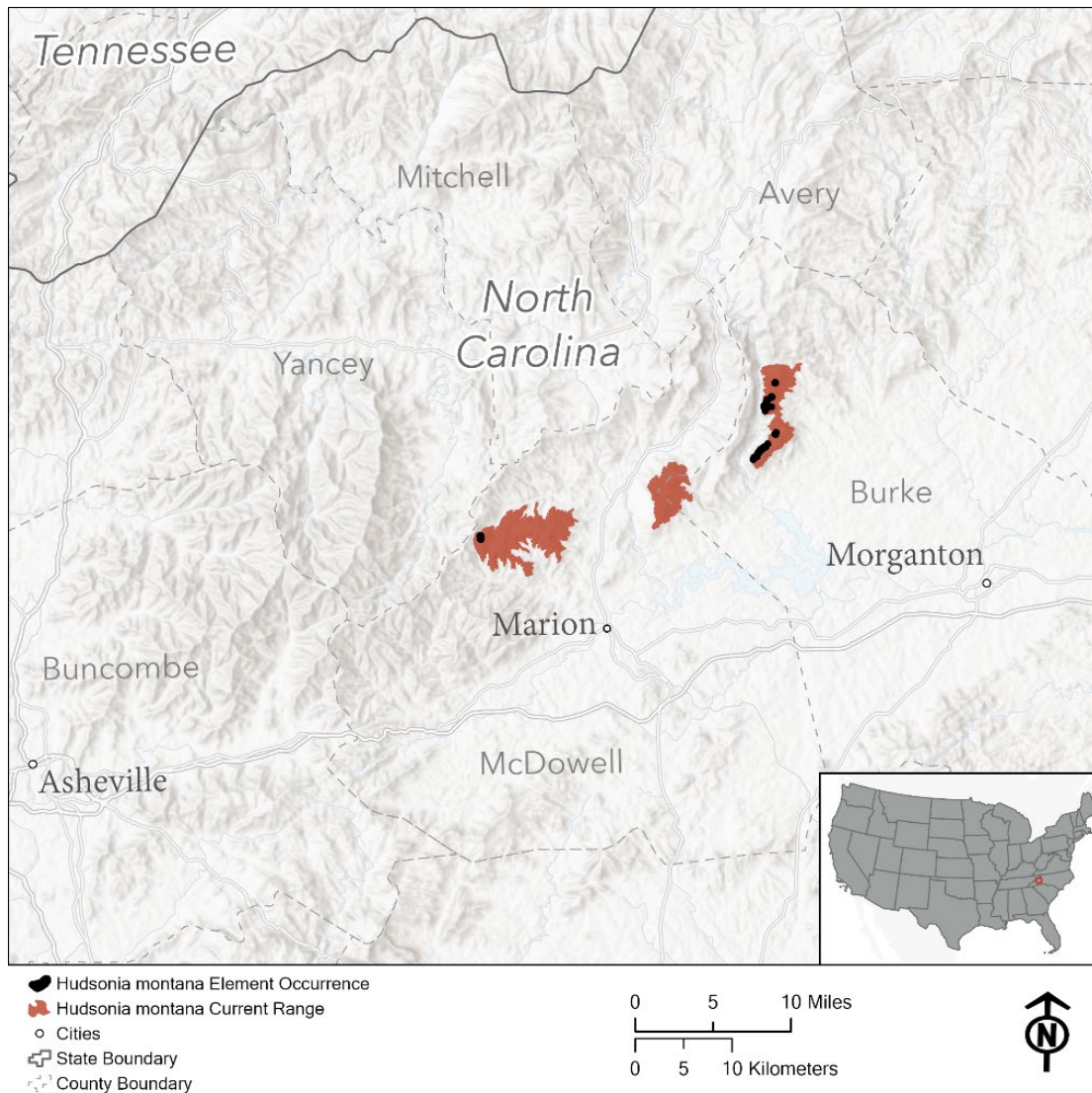


Figure 1. Mountain golden heather current range per the Service’s Environmental Conservation Online System (ECOS) with known locations of the species noted.

Threats (Five-Factor Analysis) Summary

The status of a species is determined from an assessment of factors specified in section 4 (a)(1) of the Act. A summary of this assessment is detailed below.

Factor A: the present or threatened destruction, modification, or curtailment of its habitat or range - Fire suppression, which facilitates threats from competing vegetation and suppresses seedling recruitment, and recreational user impact, which causes trampling to plants and their habitat, were identified in the 2013 and 2019 5-year reviews as primary threats to mountain golden heather. These threats are still present throughout the species range and are likely

contributing factors to the decrease in plant abundance (or no plants found) in multiple discrete locations.

Decline of mountain golden heather has been attributed to fire suppression (Frost 1990; Gross et al. 1998). Gross et al. (1998) found that survival and population growth could only occur in a trample-free environment with a six to eight-year fire cycle. This coincides with the five to 10-year lightning-ignition cycle that has been suggested to characterize mountain golden heather habitat (Frantz and Sutter 1987) and closely coincides with a five to seven-year cycle for the surrounding pine-oak/heath plant community (Lafon et al. 2017).

Factor B: overutilization for commercial, recreational, scientific, or educational purposes - The Linville Gorge Wilderness is a popular recreational destination and the U.S. Forest Service (USFS) defines usage as “heavy” (USFS 2024). As detailed in the past 5-year reviews, recreational users impact the species and its habitat through camping, hiking, rock climbing, slacklining, etc., which contribute to destruction of habitat and trampling of individuals (Service 2013, 2019). Although difficult to quantify, anecdotal evidence indicates an increase in visitor use each year.

Factor C: disease or predation – Although some amount of disease and predation likely occur on plants within a population, we have no information to indicate this is a significant threat to the species.

Factor D: the inadequacy of existing regulatory mechanisms – The North Carolina Plant Conservation and Protection Act (NC State Code Article 19B§ 106-202.12) provides limited protection from unauthorized collection and trade of plants listed under that statute. However, this statute does not protect the species or its habitat from destruction in conjunction with development projects or otherwise legal activities.

In addition to the state protections, there are other regulations and policies that protect plants on U.S. Forest Service property. U.S. Forest Service regulation 36 CFR 261.9 prohibits removing or damaging any plant that is classified as a threatened, endangered, sensitive, rare, or unique species. Additionally, Forest Service Manual 2600 establishes policy that prohibits the removal and collection of any threatened or endangered plants on lands under Federal jurisdiction except when authorized by permits. Although these regulations and policies should protect mountain golden heather, lack of resources prevent monitoring of compliance and enforcement.

Factor E: other natural or manmade factors affecting its continued existence – The 2019 5-year review identified exotic, invasive species as a threat to mountain golden heather (Service 2019). This threat is still present and more than ten different exotic, invasive species have been documented throughout the Linville Gorge Wilderness (Wild South 2012). The three species that pose the most serious threat are: *Paulownia tomentosa* (princess tree), *Miscanthus sinensis* (Chinese silver grass), and *Verbascum thapsus* (mullein). These species are prolific colonizers of disturbed land and can out-compete mountain golden heather if left untreated. The area’s high propensity for wildfire has made it especially susceptible to invasion by exotic, invasive species. The control of exotic, invasive species in habitat for mountain golden heather may require special attention from land managers.

Accelerated climate change could exacerbate threats, such as exotic, invasive species, already affecting mountain golden heather. Although models of future climate scenarios are not yet available at a resolution conducive to site specific planning, temperatures in North Carolina are expected to increase, extreme precipitation associated with tropical storms and hurricane are projected to increase, and naturally occurring droughts are also expected to be more intense (Frankson et al. 2022). Shifts in temperature and precipitation patterns that define the climatic conditions to which species such as mountain golden heather have become adapted.

Synthesis

Mountain golden heather is a small (typically 8-15 cm high and 15-20 cm across), needle-leaved shrub endemic to exposed quartzite ledges in an ecotone between bare rock and heath balds in Burke and McDowell Counties, North Carolina. There are currently six known populations of mountain golden heather comprised of 36 discrete locations. Although population numbers and species abundance, as a whole, are similar when comparing 1982 (2,801 plants) and 2023 (2,947), abundance has varied between monitoring events due to wildfire (or lack thereof), invasive species, and recreational use. Of 36 discrete locations in six populations, one location is new, three locations are presumed extirpated, and 11 locations had no plants found during monitoring in 2023. The species continues to be threatened by fire suppression, recreational user impacts to the species and its habitat, and competition with invasive species (all of which could be accelerated by climate change) that are still present throughout the species range and are likely contributing factors to the decrease in plant abundance (or no plants found) in multiple discrete locations. Because of ongoing threats and the current condition of the species, this species continues to meet the definition of a threatened species.

RECOMMENDED FUTURE ACTIVITIES

A detailed discussion of recovery actions and criteria are presented in the Recovery Plan (Service 1983). In the course of this status review, new and/or targeted potential recovery activities were identified and are included below.

Recovery Activities

- Work with the U.S. Forest Service and support efforts to complete an Environmental Assessment for control of exotic, invasive species across all Wilderness areas, including the Linville Gorge Wilderness.
- Work with and support the U.S. Forest Service and other partners, to continue exotic, invasive species inventory and management projects at the Linville Gorge Wilderness.
- Work with and support the U.S. Forest Service other partners to quantify visitor use and identify visitor use patterns to prioritize management that would help minimize recreational impacts at the Linville Gorge Wilderness.
- Coordinate with the U.S. Forest Service and an appropriate botanical garden to collect and bank seeds. Highest priority sites should be those with only one location (North

Carolina Natural Heritage Program Elemental Occurrence), adjacent to a trail, and no prior seed collection (Table Rock and Chimney Gap).

- Work with the U.S. Forest Service and support efforts to complete an Environmental Assessment for prescribed burning in occupied mountain golden heather habitat or all fire-adapted habitats within the Linville Gorge Wilderness.

Monitoring and Research Activities

- Work with the U.S. Forest Service to continue censusing populations every five years.
- Continue to work with and support the Atlanta Botanical Gardens related to genetics, propagation, and developing outplanting procedures for reintroductions and augmentations.

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RESULTS / SIGNATURES

U.S. Fish and Wildlife Service Status Review of Mountain Golden Heather

Status Recommendation:

On the basis of this review, we recommend the following status for this species. A 5-year review presents a recommendation of the species status. Any change to the status requires a separate rulemaking process that includes public review and comment, as defined in the Act.

- Downlist to Threatened
- Uplist to Endangered
- Delist:
 - The species is extinct*
 - The species does not meet the definition of an endangered or threatened species*
 - The listed entity does not meet the statutory definition of a species*
- No change needed

FIELD OFFICE APPROVAL:

Field Supervisor, Asheville Ecological Services Field Office, Fish and Wildlife Service

Approve _____