

SPECIES: Scientific [common]	<i>Monardella glauca</i> , syn <i>Monardella odoratissima</i> var. <i>glauca</i> [Pale monardella, aka Mountain wild-mint]
Forest:	Bridger-Teton National Forest
Forest Reviewer:	Rose Lehman; Trevor Bloom
Date of Review:	5/5/2020; 3/25/2025
Forest concurrence (or recommendation if new) for inclusion of species on list of potential SCC: (Enter Yes or No)	Yes

FOREST REVIEW RESULTS:

1. The Forest concurs or recommends the species for inclusion on the list of potential SCC:
Yes X No
2. Rationale for not concurring is based on (check all that apply):
Species is not native to the plan area
Species is not known to occur in the plan area
Species persistence in the plan area is not of substantial concern

FOREST REVIEW INFORMATION:

1. Is the Species Native to the Plan Area? Yes X No

If no, provide explanation and stop assessment.
2. Is the Species Known to Occur within the Planning Area? Yes X No

If no, stop assessment.

Table 1. All Known Occurrences, Years, and Frequency within the Planning Area

Year Observed	Number of Individuals	Location of Observations (USFS District, Town, River, Road Intersection, HUC etc.)	Habitat Description	Source of Information
8/20/1927	Abundant	U.S.A., Wyoming, Lincoln County: Wyoming National Forest: head of Strawberry Creek, on west side of pass. 42.84278° N, 110.80611° W; uncertainty 1 mi.	Elev. 9500 ft. 20% southwesterly slope; clay sand soil; weed grass community with Penstemon, horse mint and Poa; abundant. Phenology: flowering & fruiting.	Charles H. McDonald, Collection #719. EO# 1 (Rocky Mountain Herbarium 2020; SEINet 2020; WYNDD GIS 2019)
7/27/1979		U.S.A., Wyoming, Lincoln County: Salt River Range: 6 air mi E of Etna. 43.0471° N, 110.7884° W; uncertainty 1 mi.	Elev. 8200 ft. Rock cobble southeast facing slopes with balsamroot, dogbane, Thistle, and Douglas fir. Phenology: flowering.	John S. Shultz, Collection #621; (Rocky Mountain Herbarium 2020; SEINet 2020)

6/9/1985 7/7/1985	Very abundant	U.S.A., Wyoming, Lincoln County: Salt River Range: Strawberry Creek: 3/4 mi below dam; ca 13 air mi NNE of Afton; ca 1.3 air mi E of Bedford. 42.90167° N, 110.86333° W; uncertainty 1 mi.	Elev. 6840 ft. Growing on open, rocky southerly slope and eroding dry gulch with <i>Penstemon montanus</i> , <i>Sedum debile</i> , and <i>Apocynum androsaemifolium</i> . In early bud. Very abundant, almost covering the ground in some locations. Phenology: flowering.	Orval C. Harrison, Collection #399. EO # 4 (Rocky Mountain Herbarium 2020; SEINet 2020; WYNDD GIS 2019)
6/11/1988	1 plant	U.S.A., Wyoming. Sheep Creek, ca 0.2 miles east of Bug Creek, ca 13 miles east of Bedford. 240951.594069, 411049.344422	Rocky gravel floodplain adjacent to creek. Occurs with <i>Phacelia</i> , <i>Erigeron</i> . In early bud. 1 plant.	Orval C. Harrison, Collection #3561. EO # 5 (Rocky Mountain Herbarium 2020; SEINet 2020; WYNDD GIS 2019)
8/22/1992	Unknown	U.S.A., Wyoming, Lincoln County: Wyoming/Salt River Ranges: Salt River Range: Star Peaks, on drainage W of peak 9988 (feet). 43.0036° N, 110.8817° W	Elev. 7800-9000 ft. Limestone outcrops and loose remnants with islands of grass-herb patches and coniferous forests. Phenology: flowering & fruiting.	Ronald L. Hartman, Collection #36680; EO # 3 (WYNDD GIS 2019; Rocky Mountain Herbarium 2020; SEINet 2020)
8/22/1992	Unknown	U.S.A., Wyoming, Lincoln County: Wyoming/Salt River Ranges: Salt River Range: Star Peaks: peak 9988 (feet) and slope immediately to W. 43.0036° N, 110.8817° W	Elev. 9000-9988 ft. Rocky slopes and summit with islands of conifers. Phenology: flowering & fruiting.	Ronald L. Hartman, Collection #36733; EO # 3 (WYNDD GIS 2019; Rocky Mountain Herbarium 2020; SEINet 2020)
8/16/1992	Unknown	U.S.A., Wyoming, Lincoln County: Wyoming/Salt River Ranges: Salt River Range: North Fork Strawberry Creek, pack trail to White Creek and Greys River; ca 8 air mi E of Thayne. 42.9447° N, 110.8247° W	Elev. 8400-9200 ft. Open slopes with grass-herb communities. Phenology: fruiting.	Ronald L. Hartman, Collection #35877. EO # 4 (Rocky Mountain Herbarium 2020; SEINet 2020)
8/16/1992	Unknown	U.S.A., Wyoming, Lincoln County: Wyoming/Salt River Ranges: Salt River Range: North Fork Strawberry Creek, pack trail to White Creek and Greys River; ca 8 air mi E of Thayne. 42.9153° N, 110.8439° W	Elev. 7200 ft. Valley bottom with dry stream bed and islands of aspen and coniferous woodlands. Phenology: flowering & fruiting.	Ronald L. Hartman, Collection #35774. EO # 4 (WYNDD GIS 2019; Rocky Mountain Herbarium 2020; SEINet 2020)
7/13/1992	Unknown	U.S.A., Wyoming, Lincoln County: Wyoming/Salt River Ranges: Salt River Range: along Strawberry Creek at the reservoir and below, ca 4 air	Elev. 7000 ft. Talus fields, stony slopes, and roadsides. Phenology: flowering.	B. E. Nelson, Collection #23155. with Russ Nelson. EO # 4 (WYNDD GIS 2019; Rocky

		mi ENE of Bedford, ca 13.5 air mi NNE of Afton. 42.9017° N, 110.8633° W; uncertainty 1 mi.		Mountain Herbarium 2020; SEINet 2020)
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The Consortium of Pacific Northwest Herbaria was also searched, and no additional occurrences were found (Consortium of Pacific Northwest Herbaria 2020).

- a. Are all Species Occurrences Only Accidental or Transient?

Yes___ No X

If yes, document source for determination and stop assessment.

- b. For species with known occurrences on the Forest since 1990, based on the number of observations and/or year of last observation, can the species be presumed to be established or becoming established in the plan area?

Yes X No___

If no, provide explanation and stop assessment

- c. For species with known occurrences on the Forest predating 1990, does the weight of evidence suggest the species still occurs in the plan area?

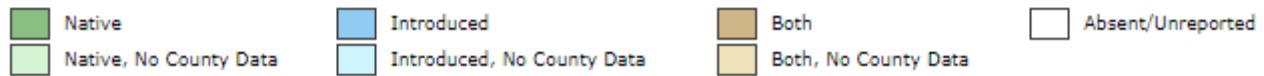
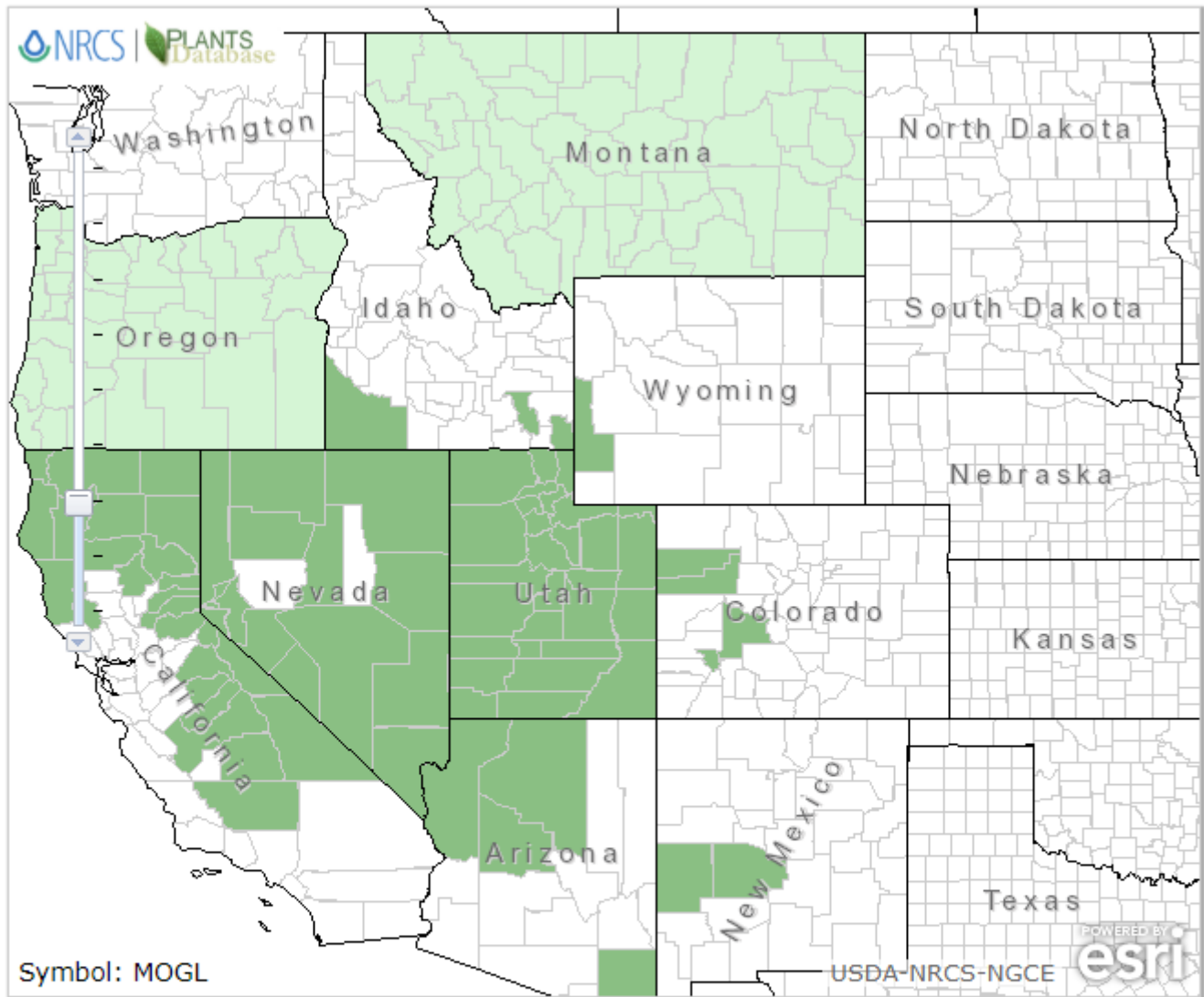
Yes___ No___

Provide explanation for determination

N/A—Occurrences have been documented since 1990.

If determination is no, stop assessment

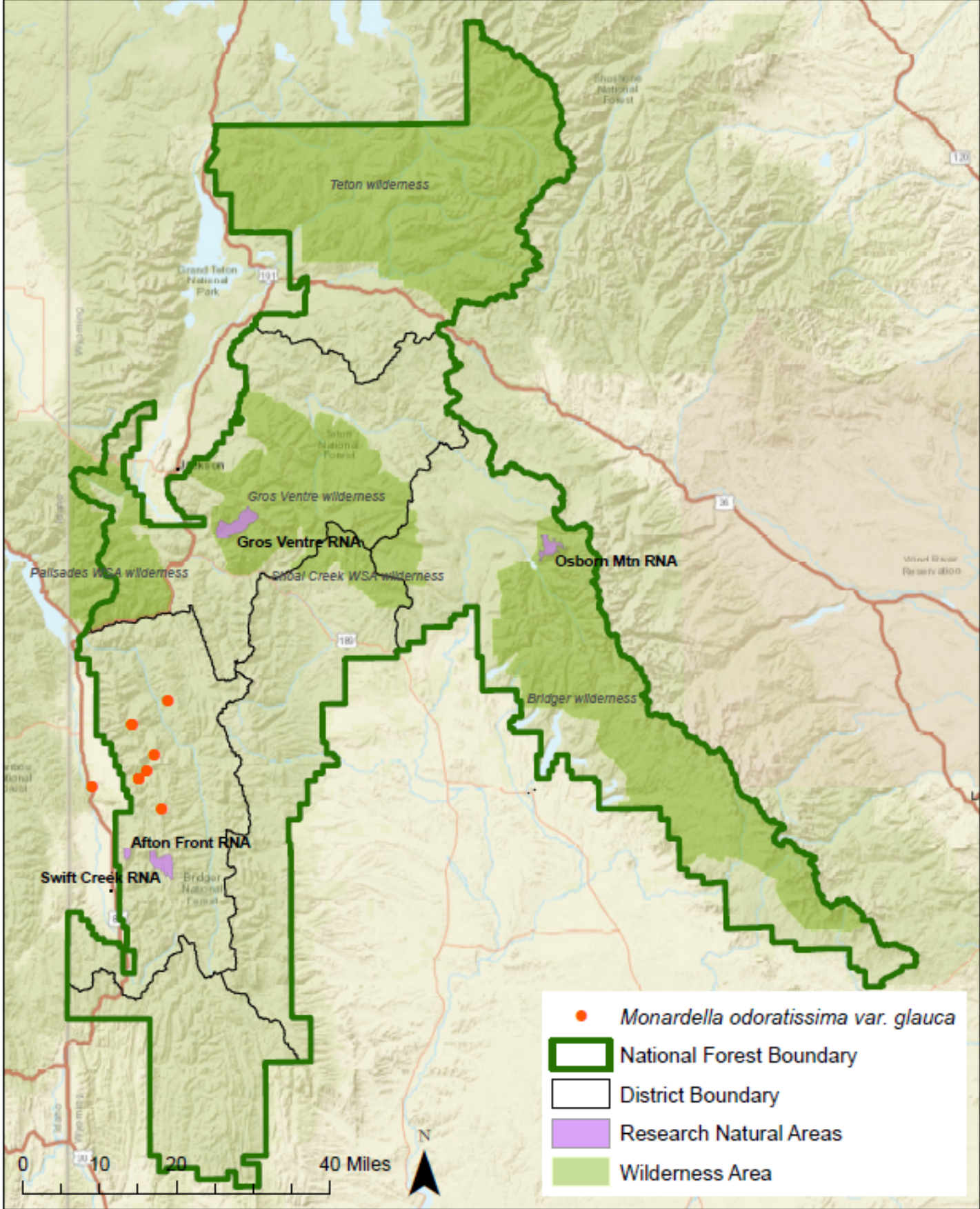
Map 1, *Monardella glauca* range in Wyoming and surrounding states (NRCS 2020).



Native Status:



Map 2, *M. odoratissima* var. *glauca* occurrences in Bridger-Teton National Forest vicinity (SEINet 2020; Consortium of Pacific Northwest Herbaria 2020; Rocky Mountain Herbarium 2020).



3. Is There Substantial Concern for the Species' Capability to persist Over the Long-term in the Plan Area Based on Best Available Scientific Information?

Table 2. Status summary based on existing conservation assessments

Entity	Status/Rank (include definition)
NatureServe Global Status	G3G5TNR— Vulnerable/Secure/Unranked TNR— <i>Taxonomic rank not yet assessed.</i>
NatureServe State Status	S1— Critically Imperiled <i>At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.</i>
WYNDD	Plant Species of Concern <i>Species vulnerable to extirpation at the global or state level due to:</i> <ul style="list-style-type: none"> <i>a. their rarity (e.g., restricted distribution, small population size, low population density)</i> <i>b. inherent vulnerability (e.g., specialized habitat requirements, restrictive life history)</i> <i>c. threats (e.g., significant loss of habitat, sensitivity to disturbances)</i> (Wyoming Natural Diversity Database - Species of Concern)
USDA Forest Service	Not Region 4 Sensitive
USDOI FWS	Not listed
USDOI BLM	Not listed
IUCN	Not listed

Sources: WYNDD 2020; Heidel 2018; USDA Forest Service Regions 2 and 4 Sensitive Species Lists; NatureServe 2020

Table 3. Status summary based on best available scientific information.

Criteria	Rationale
Distribution on the Bridger-Teton National Forest	<i>Monardella glauca</i> is known from 9 collections, likely comprising 4 occurrences, on the Bridger-Teton National Forest. Five of the collections were located since 1990. Occurrences are in the lower-western portion of the Forest, primarily on rocky slopes and openings (Table 1, Map 1).

Criteria	Rationale
Distribution outside the Bridger-Teton National Forest	This taxon occurs from Washington and northern Idaho to California, and east to Colorado and New Mexico. In Wyoming, it is known from five occurrences from the Salt River and the Wyoming Ranges, and Star River Valley, in Lincoln County (WYNDD 2020).
Abundance on the Bridger-Teton National Forest	Known populations on BTNF are small (WYNDD 2020).
Population Trend on the Bridger-Teton National Forest	Population trends in Wyoming, including on the Bridger–Teton National Forest, are unknown (WYNDD 2020). This criterion cannot be assessed due to lack of data.
Habitat Trend on the Bridger-Teton National Forest	<p>This taxon occurs on open, wet or dry, often rocky places, from the plains to moderate elevations in the mountains. Wyoming populations are on floodplains and valley toeslopes growing on well-drained, often gravelly slopes, flats, and openings (WYNDD 2020).</p> <p>To analyze trends in occupied habitat, aerial imagery and a USFS GIS database of invasive plant populations, historical wildfires, trails, roads, Wilderness Areas, and Research Natural Areas was assessed at each contemporary occurrence on the Forest (USFS GIS 2019, Google Earth Pro 2020).</p> <p>No occurrences are within wilderness areas or RNAs, and thus they do not receive protections otherwise afforded by these designated (e.g., reduced disturbance from human presence and forest management activities).</p> <ul style="list-style-type: none"> • Element Occurrence #1 (Collection #719): Not within wilderness area or RNA. Within RMU. Not within perimeter of major fire event. Motorized trail is near or overlapping occurrence. Does not occur near any mapped non-native plant invasions. • Element Occurrence #3 (Collection #36733, 36680, 621): Collections 36733, 36680 are not within wilderness area or RNA; within RMU; not within perimeter of major fire event; near open road and non-motorized trails; not near any mapped non-native plant invasions. Collection #621 was last observed 1979. The EO # is not listed, but best it is closest to EO #3. This collection is not within wilderness area or RNA; not within perimeter of major fire event; near open road and non-motorized trails, and mapped <i>Cirsium arvense</i> invasion. • Element Occurrence #4 (Collection #35877, 35774, 23155, 399): Not within wilderness area or RNA. Collections 23155 and 399 are within RMUs. Not within perimeter of major fire event. Open road is near or overlapping collections 23155 and 399. Mapped <i>Cynoglossum officinale</i> invasion is near or overlapping collections 23155 and 399. Non-motorized trail near or overlapping collections 35877 and 35774. • Element Occurrence #5 (Collection #3561): Last observed 1988. Not within wilderness area or RNA.

Criteria	Rationale
	<p>Within RMU. The 40-acre, 2012 Forest Park fire overlaps occurrence polygon, and may have caused damage to population and habitat. Open road is near or overlapping occurrence. Several mapped non-native plant invasions (<i>Linaria vulgaris</i>, <i>Carduus nutans</i>) are near or overlapping occurrence.</p> <p>The above analysis suggests that habitat for <i>M. glauca</i> has likely experienced moderate to high effects from natural and anthropogenic disturbances, and trends may be declining on the forest. Climate change effects could exacerbate declining conditions, as described below.</p>
<p>Threats to the Species and its Habitat on the Bridger-Teton National Forest</p>	<p>This taxon is potentially threatened by recreation (WYNDD 2020). Proximity of several occurrences to roads and trails as described above may increase human presence and associated effects such as trampling.</p> <p>In general, nonforest ecosystems of the Intermountain West have been affected by agriculture, livestock grazing, and invasive species (Halofsky et al. 2018). Climate change is likely a significant threat to nonforest ecosystems of the Intermountain West. Projections for the Intermountain Adaptation Partnership region estimate that average annual minimum and maximum temperatures are likely to increase by 5 to 12 deg F, mean annual precipitation will remain the same or increase slightly, extreme events (e.g., drought and extreme precipitation events) will occur more frequently and be more severe, and greenhouse gas concentrations will continue to increase through the end of the 21st century. Increased minimum daily temperatures have resulted in longer frost-free periods. Projections vary by subregion, but even where precipitation is projected to increase slightly, higher temperatures are likely to increase effective drought and soil water deficit (Halofsky et al. 2018).</p> <p>Rare plant populations that may be small, isolated, tied to snowpack abundance and distribution timing changes of spring thaw and fall frost cycles, and/or have limited dispersal capacity, are highly vulnerable to impacts from environmental change including reductions in pollination (Ellstrand and Diane 1993, Halofsky et al. 2018). Changes in temperature and precipitation may lead to greater variability in forb flowering, which could create an asynchronistic effect with native pollinator emergence (Halofsky et al. 2018; Miller-Struttman et al. 2015), leading to decreased reproduction in native plants. The value of pollinators in natural systems is difficult to quantify, but as pollinators are critical for successful reproduction and seed set for approximately 85% of flowering species globally (Hatfield et al. 2012), this asynchronistic effect may have profound implications.</p> <p>Invasive plants have been identified as a major threat to the biological diversity and ecological integrity within and outside the BTNF. Invasive plants create many adverse environmental effects, including, but not limited to: displacement of native plants; reduction in functionality of habitat and forage for wildlife and livestock; threats to populations of threatened, endangered and sensitive species; alteration of physical and biological properties of soil, including productivity; changes to the intensity and frequency of fires; facilitation of further invasive species invasions; and loss of recreational opportunities (Halofsky et al. 2018). The presence of</p>

Criteria	Rationale
	invasive plant species may be compounded by the presence of cattle which may create an environment more conducive to the establishment of invasive plant species (Halofsky et al. 2018).
Life history and demographic characteristics of the species	This taxon is a perennial herb with few to many unbranched stems, 1-5 dm tall, arising from a stout taproot and branched, woody rootcrown. Leaves are opposite, sessile, or on a short petiole, lanceolate to elliptic, entire, 1-3.5 cm x 3-12 mm, and smooth or nearly so. The inflorescence is terminal, rounded, and subtended by conspicuous purple-tinged bracts that are ovate to orbicular, dry, veiny, 7-15 mm long, in distinct series below the inflorescence. The individual flowers are tubular, pink-purple, 1-2 cm long, with slender lobes about half as long as the tube or a little longer. Stamens extend beyond the lobes. The flowering/fruiting period is from July–September (Heidel and Fertig 1999; WYNDD 2020).
Date: April 14, 2020 Reviewer: L. Chipman	

Summary and Recommendations

Species (Scientific and Common Name): *Monardella glauca* [Pale monardella aka. Mountain wild-mint]

M. glauca is listed as S1 (critically imperiled) and G3G5TNR (variety not ranked) globally. This taxon occurs from Washington and northern Idaho to California, and east to Colorado and New Mexico. In Wyoming, it is known from five occurrences from the Salt River and the Wyoming Ranges, and Star River Valley, in Lincoln County (WYNDD 2020). It is known from 9 collections, likely comprising 4 occurrences, on the Bridger–Teton National Forest. Five of the collections were located since 1990. Occurrences are in the lower-western portion of the Forest, primarily on rocky slopes and openings (Table 1, Map 1).

This taxon occurs on open, wet or dry, often rocky places, from the plains to moderate elevations in the mountains. Wyoming populations are on floodplains and valley toeslopes growing on well-drained, often gravelly slopes, flats, and openings (WYNDD 2020).

There are several potential threats to occurrences on the Forest and the population numbers are small at known occurrences. Two (four) of the contemporary occurrences have invasive species documented in proximity; *Cynoglossum officinale* *Carduus nutans* and *Linaria vulgaris*. A long term mean reduction of snowpack and advancement of snow melt date may negatively impact long term survival of populations (Campbell 2019). Unfortunately, none of the populations have trend data or even estimates of population size.

The presence of disturbances which may negatively impact populations, coupled with the lack of trend or baseline population estimates greatly hinders an understanding of conservation urgency for this species. Of particular interest are any populations occurring in actively disturbed or invaded habitats such as reports of plants occurring on roadsides. Should populations demonstrate persistence at such locations, then the species may be of lessor concern. However, given the above consideration, *Monardella glauca* is recommended as a SCC.

Evaluator: Rose Lehman Date: 04/1/2021

Reviewed: Trevor Bloom Date: 03/25/2025

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