

SPECIES: Scientific [common]	<i>Silene uralensis ssp. uralensis</i> [Apetalous catchfly]
Forest:	Bridger-Teton National Forest
Forest Reviewer:	J.Irwin; R.Lehman
Date of Review:	1/13/21
Forest concurrence (or recommendation if new) for inclusion of species on list of potential SCC: (Enter Yes or No)	No

FOREST REVIEW RESULTS:

1. The Forest concurs or recommends the species for inclusion on the list of potential SCC:
Yes ___ No X
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 ¹
1925	1 Collection	Bridger Wilderness: In the vicinity of Green River Lakes: Sheep Mountain.	Elevation 11000 ft. Rock field.	Collector Edwin B. Payson, Collection #4487 (Rocky Mountain Herbarium 2019)
1994	1 Collection	Gros Ventre Wilderness: southeast ridge and summit of Darwin Peak.	Elevation 11000-11647 ft. Rocky alpine slopes.	Collector Ronald L. Hartman, Collection #49492 (Rocky Mountain Herbarium 2019, WYNDD 2019)

1995	1 Collection	Gros Ventre Wilderness: 0.8 air mi NNW to summit of Sheep Mountain.	Elevation 10400-11200 ft. Meadow and boulder fields.	Collector Ronald L. Hartman, Collection #54121 (Rocky Mountain Herbarium 2019)
1998	1 Collection (<i>S. uralensis</i> spp. <i>uralensis</i>)	Gros Ventre Wilderness: north side of Triangle Peak, 0.4 mi E of Brewster Lake; 2 mi SW of Lunch Lake.	Elevation 10500-11000 ft. Calcareous talus slopes on semi-stable ridgeline leading to summit cone; cushion plant community	Collector Walter Fertig, Collection # 18500 (Rocky Mountain Herbarium 2019)

¹The Consortium of Pacific Northwest Herbaria (Consortium of Pacific Northwest Herbaria 2019) and the SEINet data portal (SEINet 2019) were also searched, and no additional occurrences on the Bridger-Teton National Forest were found.

- 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

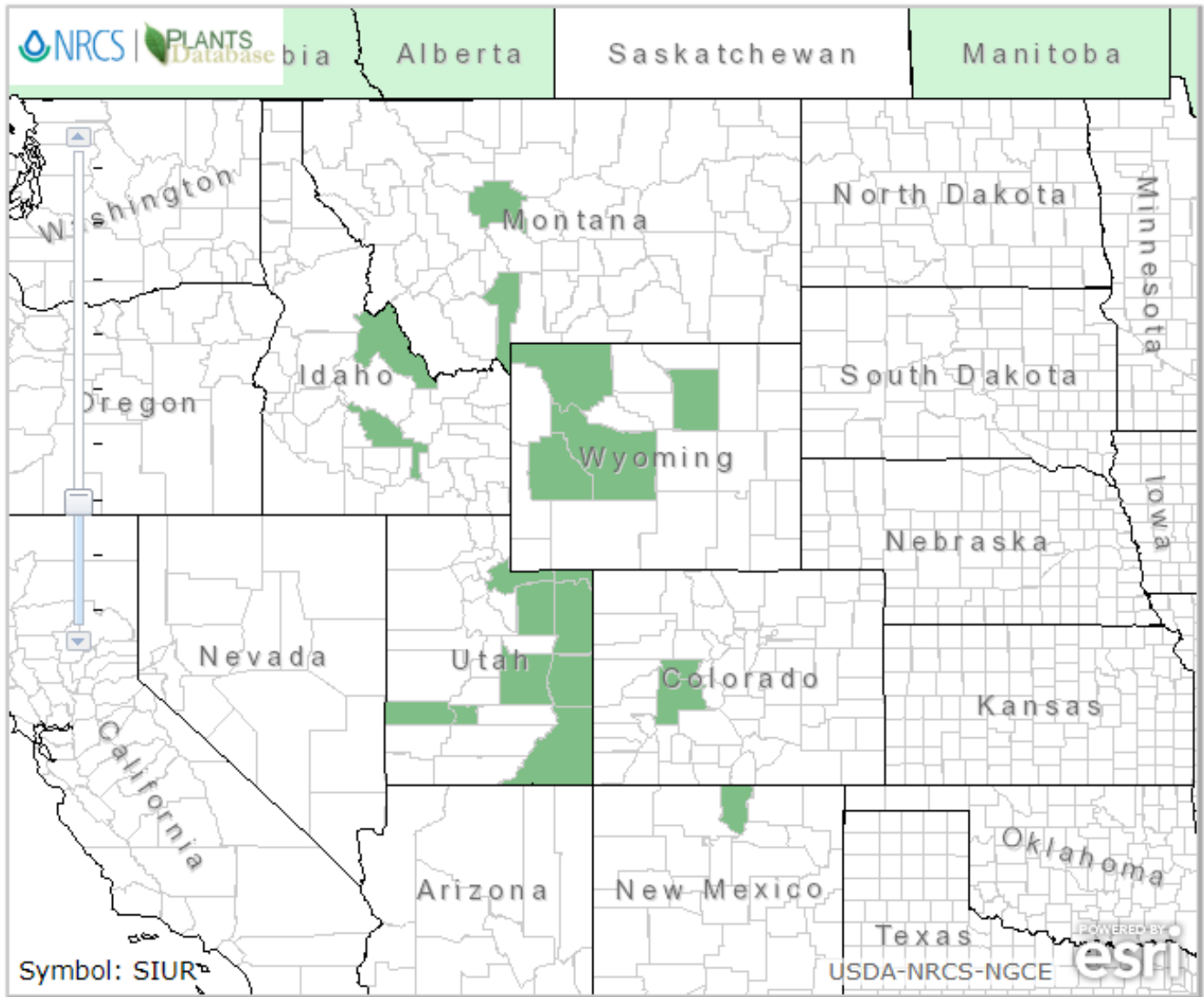
- c. For species with known occurrences on the Forest predating 1990, does the weight of evidence suggest the species still occurs in the plan area?

Yes ___ No ___

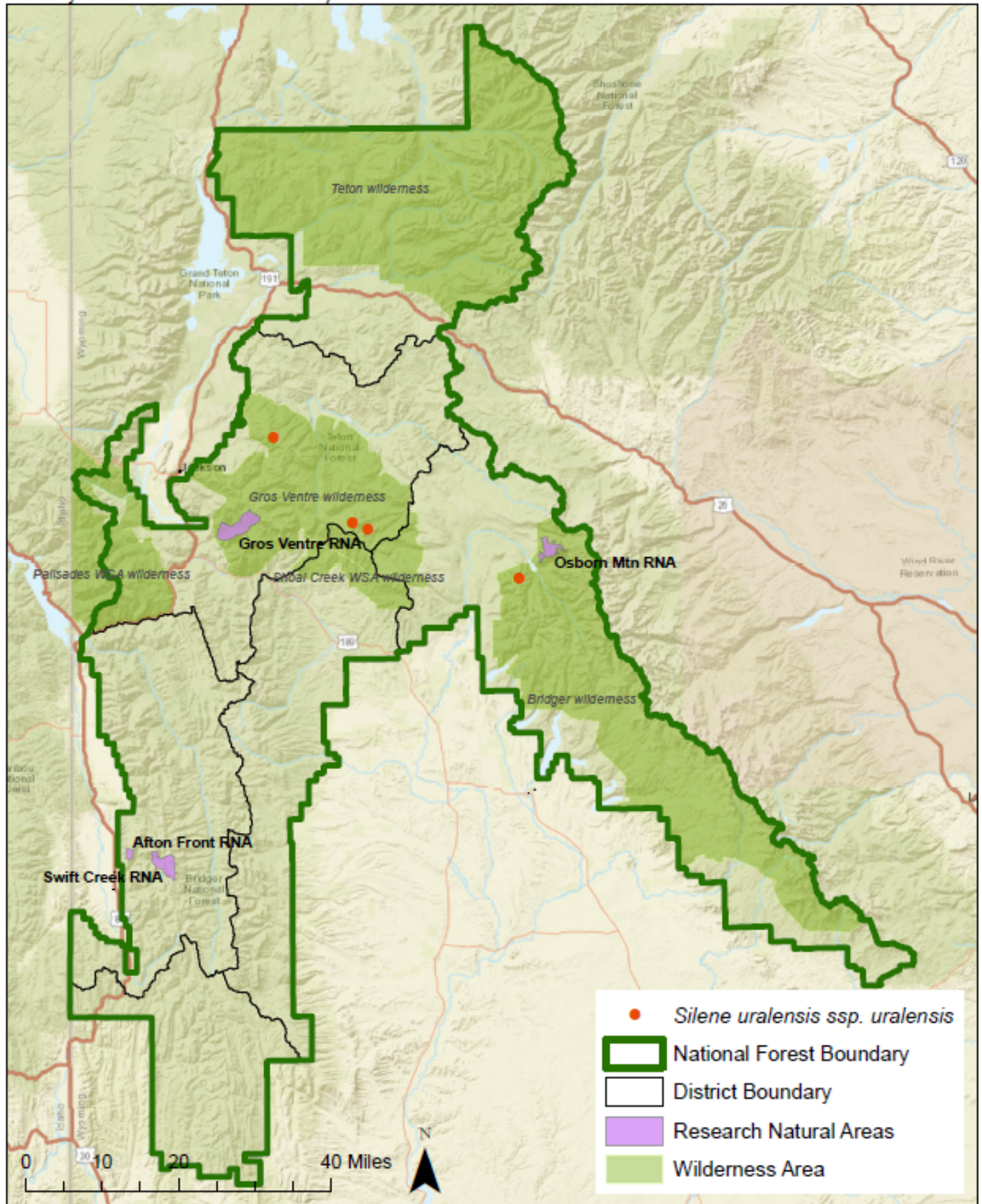
Provide explanation for determination

If determination is no, stop assessment

d. **Map 1, *Silene uralensis* range in Wyoming and surrounding states (NRCS 2019).**



Map 2, *S. uralensis* ssp. *uralensis* occurrences in Bridger-Teton National Forest vicinity (WYNDD 2019; Rocky Mountain Herbarium 2019).



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	G4—Apparently Secure <i>Uncommon but not rare; some cause for long-term concern due to declines or other factors.</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 G5TNR/S1 <i>Species vulnerable to extirpation at the global or state level due to:</i> <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 listed
USDOI FWS	Not listed
USDOI BLM	Not listed
IUCN	Not listed

Sources: WYNDD 2019; Heidel 2018; USDA Forest Service Regions 2 and 4 Sensitive Species Lists; NatureServe 2019

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

Criteria	Rationale
Distribution on the Bridger-Teton National Forest	Table 1 and Map 2 detail <i>Silene uralensis</i> occurrences in the Bridger-Teton National Forest. Three occurrences are located within the Gros Ventre Wilderness and one occurrence is within the Bridger Wilderness (Map 2).
Distribution outside the Bridger-Teton National Forest	The specific taxon (<i>S. uralensis</i>) is a circumpolar species, so it is widely distributed outside of the Forest. British Columbia to Colorado, Oregon, Idaho, Montana, Utah, and Wyoming.
Abundance on the Bridger-Teton National Forest	<p>Abundance information is lacking for occurrences on the Bridger-Teton National Forest. Due to the rare occurrences in alpine communities abundance is presumed to be low.</p> <p>Although the entirety of Bridger-Teton National Forest has not been floristically inventoried, some areas within and adjacent to Bridger-Teton National Forest have been surveyed over the years. This species was not documented during these survey efforts:</p> <ul style="list-style-type: none"> • Afton Front Research Natural Area Bridger-Teton National Forest (Fertig and Jones 1994a) • Horse Creek Research Natural Area Bridger-Teton National Forest (Fertig and Jones 1994b) • Swift Creek Research Natural Area Bridger-Teton National Forest (Fertig and Jones 1994c) • Sensitive plant surveys and status of rare plant species on Bridger-Teton National Forest, 1997-1998 (Fertig 1999) • Rare Species and Riparian Vegetation of the Snake River Basin in Wyoming (Jones et al. 2001) • Survey for <i>Stephanomeria fluminea</i> on the Bridger-Teton National Forest (Markow 2004) • Wyoming Plant Species of Concern on Caribou-Targhee National Forest: 2007 Survey Results Teton and Lincoln counties, Wyoming (Mancuso and Heidel 2008) • A Floristic Inventory of Grand Teton National Park, Pinyon Peak Highlands, and Vicinity, Wyoming U.S.A (Kesonie and Hartman 2011) • Blackrock Creek Wild and Scenic River Botany Survey (Johnson 2011) • Sensitive and rare plant species inventory in the Salt River and Wyoming Ranges, Bridger-Teton National Forest (Heidel 2012) • Teton to Snake Fuels Management Project Botany Report and Biological Evaluation (Englebert 2013) • Botany inventories in select fens of the Caribou-Targhee and Bridger-Teton National Forests (Heidel 2019).

Criteria	Rationale
Population Trend on the Bridger-Teton National Forest	There are no data on population trends for this subspecies. Population sizes have not been estimated and multi-year population or demographic monitoring has not been initiated for any site.
Habitat Trend on the Bridger-Teton National Forest	Habitat for <i>S. uralensis</i> is alpine tundra on rocky slopes associated with cushion-plant communities and known populations are located within designated Wilderness areas (Map 2). These high-altitude communities receive minimal disturbance from forest management activities including recreation, motorized vehicle travel, and vegetation treatments. Alpine habitats are likely stable on the forest but may decrease due to climate change effects (see below).
Threats to the Species and its Habitat on the Bridger-Teton National Forest	<p>Alpine communities on the Bridger-Teton National Forest may be affected by recreation and climate change effects. Warming effects may change the distribution and establishment of alpine species such as <i>S. uralensis</i>. Alpine communities are possibly the ecosystems in the region that are most at risk from the effects of climate change because of their shrinking habitat. According to Intermountain Adaptation Partnership (IAP) assessments, alpine communities have a high sensitivity to climate change, a low adaptive capacity, and very high vulnerability to climate change (Halofsky et al. 2018). The length and depth of snow cover, which are strongly correlated with mean temperature and precipitation, are key factors controlling alpine ecosystems. Snow cover provides frost protection for alpine plants in the winter, as well as the water supply in spring. The composition and distribution of alpine ecosystems will be affected by decreasing snowpack. For high-elevation vegetation, climate change may affect seed germination and survival by modifying moisture availability and therefore result in reduced plant success. Specific effects will depend on vulnerability thresholds of the characteristic species and the rate and magnitude of changes over time. Reduced snowpack with warming is likely to cause major changes in alpine plant communities (Halofsky et al. 2018). The composition and distribution of alpine ecosystems will be affected by decreasing snowpack, altering plant vigor and regeneration. Specific effects will depend on vulnerability thresholds of diverse species and the rate and magnitude of changes over time. Some species may be able to persist or migrate to suitable habitat, but the lower extent of some communities will be compromised by tree establishment (Halofsky et al. 2018).</p> <p>To analyze trends in occupied habitat and potential threats, aerial imagery and a USFS GIS database of existing grazing allotments, invasive plant populations, historical wildfires, trails, roads, Wilderness Areas, and Research Natural Areas were assessed at each occurrence on the Forest (USFS GIS 2019, Google Earth Pro 2019).</p> <p>All occurrences on the Forest are within Wilderness Areas (Gros Venture or Bridger). A Wilderness Area is “an area of undeveloped Federal land retaining its primeval character and influence, without permanent</p>

Criteria	Rationale
	<p>improvements or human habitation, which is protected and managed so as to preserve its natural conditions" (Wilderness Act of 1964), indicating that effects from anthropogenic activities area likely minimal. Additionally, no roads exist near either occurrence, which further confirms the low potential for human effects. Proximity (within ~1 mile) of all occurrences to non-motorized trails may cause a slight increase in human presence but because the occurrences are in remote, alpine locations, they likely seldom see human visitors.</p> <p>None of the occurrences are in close proximity to large wildfires or mapped nonnative plant invasions; it is, therefore, unlikely that populations and surrounding habitat have been affected by fire or invasive plants.</p> <p>Additionally, no occurrences are within active grazing allotments, and impacts from livestock are also likely non-existent.</p> <p>The above analysis suggests that habitat for has likely experienced low effects from natural and anthropogenic disturbances.</p>
Life history and demographic characteristics of the species	This perennial plant has a dense tuft of basal leaves, stout taproot, and several erect flowering stems. Flowers are dark purple to pink. Flowering occurs June to August. Seeds are broad-winged. Life history and dispersal capacity knowledge is generally limited. Habitat is described as stoney, calcareous soil of moraine, cliffs, and talus in alpine zones (Aiken et al. 2007).
Date: September 17, 2019 Reviewer: L. Chipman	

Summary and Recommendations

Species (Scientific and Common Name): *Silene uralensis ssp. uralensis* (apetalous catchfly)

Silene uralensis ssp. uralensis is listed as S1 (critically imperiled) and G5 (secure) globally. Populations have a circumpolar distribution and this taxon is found across all of Canada. Populations in the lower 48 states represent a patchy southern limit across Rocky Mountain states to northern New Mexico. The Bridger-Teton forest has three occurrences in the Gros Ventre Wilderness and one historic occurrence (1925) in the Bridger Wilderness. Habitat for *S. uralensis ssp. uralensis* is alpine tundra on rocky slopes associated with cushion-plant communities, between 10,000' and 12,000' elevation.

Population sizes have not been estimated and multi-year population or demographic monitoring has not been initiated for any site. Despite the lack of population or trend data, immediate threats are inferred to be low in the species' habitat. Wilderness status affords significant protection from immediate anthropogenic disturbance. There are no roads, past wildfires, active grazing allotments or mapped invasive plants in close proximity (~1 mile). Occurrences may experience low levels of recreational disturbance from hikers and horse-packers. Negative effects from long-term decrease in snowpack and/or increase in annual mean temperature include reduced reproductive output, reduced germination and seedling survival, and increased competition from species better adapted to new conditions.

Though considerable uncertainty exists about the long-term viability of the three (four) occurrences due to changes in climate, occurrences and potential habitat are well removed from anthropogenic threats. It is thus recommended that *S. uralensis ssp. uralensis* not be included as a SCC. That said, a broader effort to monitor health and stability of alpine habitats would greatly inform the need for increased conservation status.

Evaluator: Jessica Irwin & Rose Lehman Date: 1/3/20; 01/13/21

References

- Aiken, S.G., Dallwitz, M.J., Consaul, L.L., McJannet, C.L., Boles, R.L., Argus, G.W., Gillett, J.M., Scott, P.J., Elven, R., LeBlanc, M.C., Gillespie, L.J., Brysting, A.K., Solstad, H., and Harris, J.G. 2007. Flora of the Canadian Arctic Archipelago: Descriptions, Illustrations, Identification, and Information Retrieval. NRC Research Press, National Research Council of Canada, Ottawa. <http://nature.ca/aaflora/data>, accessed on September 17, 2019.
- Consortium of Pacific Northwest Herbaria. 2019. Specimen data search. Available at: <http://pnwherbaria.org>.

- Fertig, W. and Jones, G.P. 1994a. Establishment Record for Afton Front Research Natural Area within Bridger-Teton National Forest, Teton County, Wyoming. Prepared for the U.S. Forest Service.
- Fertig, W. and Jones, G.P. 1994b. Establishment Record for Horse Creek Research Natural Area within Bridger-Teton National Forest, Teton County, Wyoming. Prepared for the U.S. Forest Service.
- Fertig, W. and Jones, G.P. 1994c. Establishment Record for Swift Creek Research Natural Area within Bridger-Teton National Forest, Teton County, Wyoming. Prepared for the U.S. Forest Service.
- Fertig, W. 1999. Sensitive plant surveys and status of rare plant species on Bridger-Teton National Forest, 1997-1998. Report prepared by the Wyoming Natural Diversity Database, Laramie, Wyoming.
- Fertig, W. 2000. Status of Plant Species of Special Concern in US Forest Service Region 4 in Wyoming. Prepared for the U.S. Forest Service, by the Wyoming Natural Diversity Database, University of Wyoming. Laramie, WY.
- Flora of North America Vol. 5 in eFloras.org, Missouri Botanical Garden.
- Halofsky, Jessica E.; Peterson, David L.; Ho, Joanne J.; Little, Natalie, J.; Joyce, Linda A., eds. 2018. Climate change vulnerability and adaptation in the Intermountain Region. Gen. Tech. Rep. RMRS-GTR-375. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. Part 1. pp. 1–197.
- Heidel, B. 2012. Sensitive and rare plant species inventory in the Salt River and Wyoming Ranges, Bridger-Teton National Forest. Wyoming Natural Diversity Database. Laramie, WY.
- Heidel, B. 2018. Wyoming plant species of concern, March 2018. Wyoming Natural Diversity Database, Laramie, WY. Accompanied by Wyoming plant species of potential concern, with tables of additions and deletions.
- Heidel, B. 2019. Botany inventories in select fens of the Caribou-Targhee and Bridger-Teton National Forests. Report prepared for the USDA Forest Service – Region 4 by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, Wyoming.
- Jones, G.P., R.S. Smith, W.F. Fertig, D.A. Keinath, M.L. Neighbours, L.A. Welp and G.P. Beauvais. 2001. Rare Species and Riparian Vegetation of the Snake River Basin in Wyoming. Prepared for the U.S. Bureau of Reclamation, by the Wyoming Natural Diversity Database, University of Wyoming. Laramie, WY.
- Kesonie, D. and Hartman, R. 2011. A Floristic Inventory of Grand Teton National Park, Pinyon Peak Highlands, and Vicinity, Wyoming U.S.A. Journal of the Botanical Research Institute of Texas 5(1) pages 357 – 388.
- Markow, S. 2004. Survey for *Stephanomeria fluminea* on the Bridger-Teton National Forest Prepared for the Bridger-Teton National Forest and the Region 4 Forest Service Office, by the Wyoming Natural Diversity Database, University of Wyoming. Laramie, WY.
- Mancuso, M. and B. Heidel. 2008. Wyoming Plant Species of Concern on Caribou-Targhee National Forest: 2007 Survey Results Teton and Lincoln counties, Wyoming. Prepared for Caribou-Targhee National Forest by Wyoming Natural Diversity Database, Laramie, WY.
- Montana Field Guide. Apetalous Catchfly — *Silene uralensis*. Montana Natural Heritage Program. Retrieved on September 17, 2019, from <http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=PDCAROU200>
- National Resources Conservation Service (NRCS). 2019. Internet website: <https://plants.usda.gov/core/profile?symbol=BOSI>. Accessed on August 03, 2019.
- NatureServe. 2019. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Internet website: <http://explorer.natureserve.org>.
- Rocky Mountain Herbarium Specimen Database. 2019 University of Wyoming, Department of Botany. Laramie,

WY. Internet website: <http://rmh.uwyo.edu/data/search.php>. Accessed July 2019.

SEINet. 2019. SEINet data portal. Available at: <http://swbiodiversity.org/seinet/collections/index.php>.

Wyoming Natural Diversity Database. 2019. Wyoming Natural Diversity Database; Data Explorer. Laramie, WY: University of Wyoming.