

SPECIES: Scientific [common]	<i>Primula egaliksensis</i> [Greenland primrose]
Forest:	Bridger-Teton National Forest
Forest Reviewer:	Daniel Lay/Rose Lehman; Trevor Bloom
Date of Review:	1/24/2020; 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:

- The Forest concurs or recommends the species for inclusion on the list of potential SCC:
Yes X No
- 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:

- Is the Species Native to the Plan Area? Yes X No

If no, provide explanation and stop assessment.
- 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
7/14/1990 7/5/1991 7/6/1995 7/23/2018 8/1/2024	(1990 -N/A) (1991- 700-800 obs.) (1995- 1,050 observed; 8,000 – 10,000 estimated) (2018- N/A) (2024-N/A)	West slope of Wind River Range: marsh east of Green River; ca 0.5 miles north of north shore of Lower Green River Lake.	Quaking mats and hummocks of <i>Deschampsia cespitosa</i> and <i>Carex simulata</i> at the edge of open water or shallowly flooded pinkish marl deposits. Mostly found on drier microsites within hummocks. Absent from areas with tall graminoid cover or willows. 8,000 feet.	Collector: Walter Fertig, Collection #3875 (Rocky Mountain Herbarium, accessed 2020). SEINet, 2020 & WYNDD, 2019. Population confirmed by BTNF Forest Botanist 8/1/24.

¹The Consortium of Pacific Northwest Herbaria (Consortium of Pacific Northwest Herbaria 2019) and the Rocky Mountain Herbarium (RMH, 2020) 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

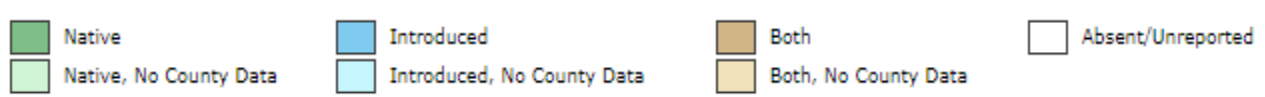
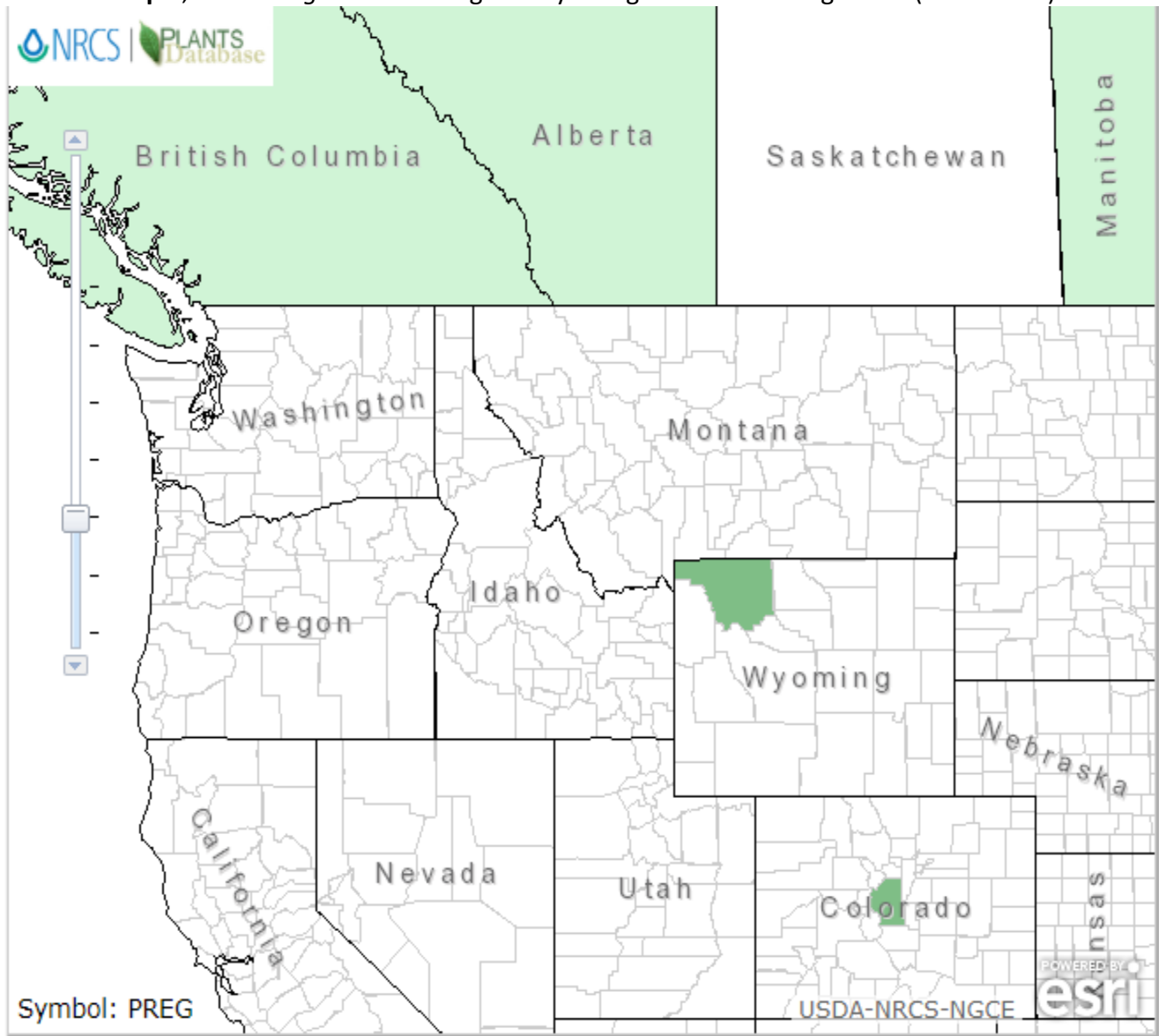
- c. For species with known occurrences on the Forest predating 1990, does the weight of evidence suggest the species still occurs in the plan area?

Yes___ No___

Provide explanation for determination

If determination is no, stop assessment

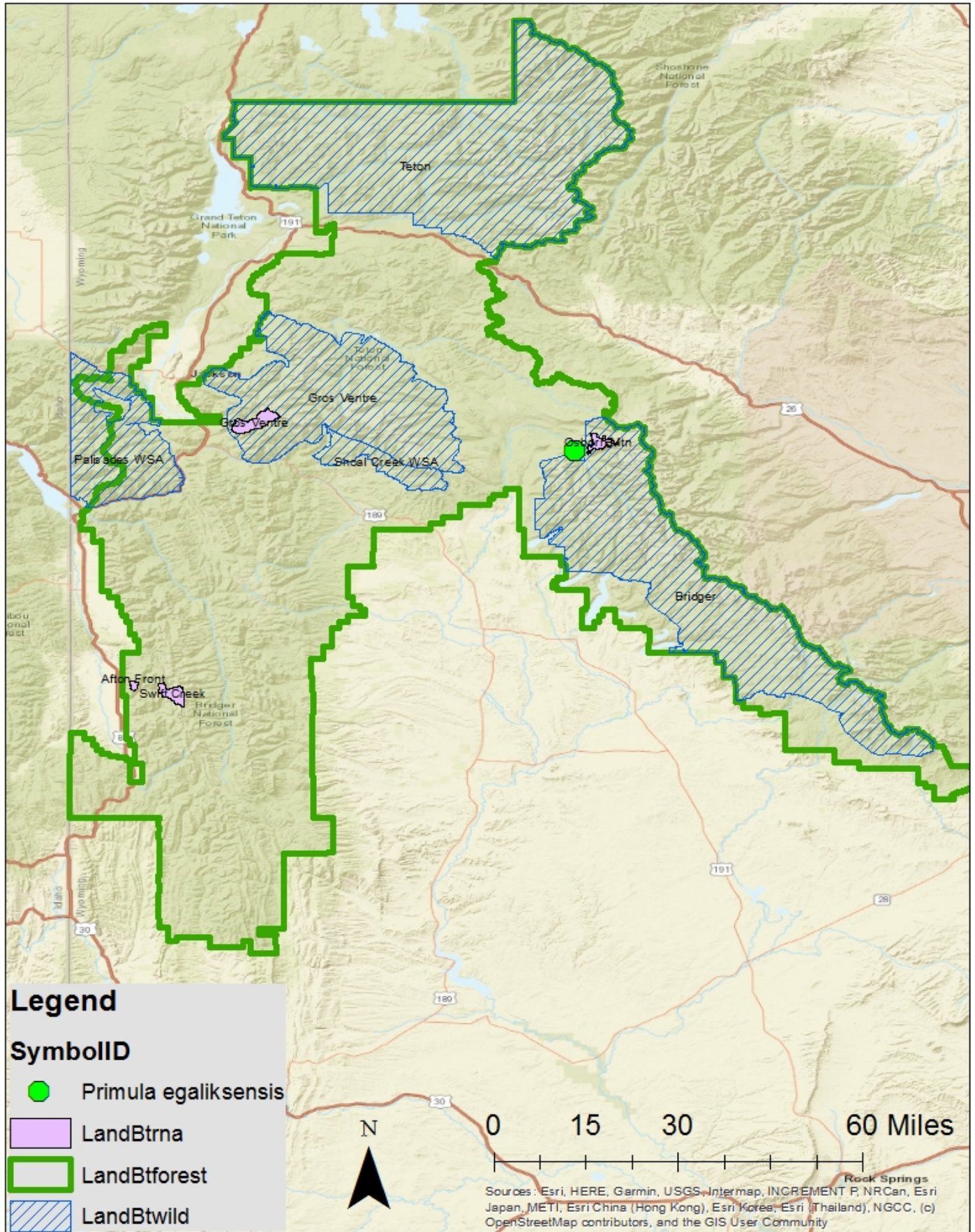
d. **Map 1**, *Primula egaliksensis* range in Wyoming and surrounding states (NRCS 2020).



Native Status:



Map 2: *Primula egaliksensis* occurrence on the Bridger-Teton National Forest.



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

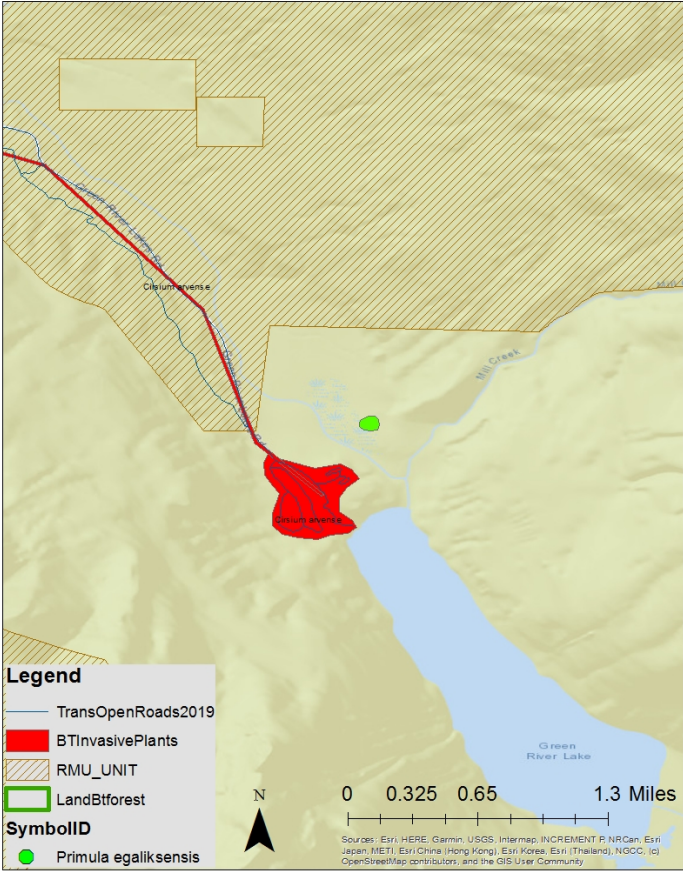
Entity	Status/Rank (include definition)
NatureServe Global Status	G4— Apparently Secure <i>At fairly low risk of extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.</i>
NatureServe State Status	S1— Critically Imperiled <i>At very high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.</i>
WYNDD	Plant Species of Concern G4/S1 <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	Region 2 and Region 4 Sensitive
USDOI FWS	Not listed
USDOI BLM	Not listed

Sources: WYNDD 2019; 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	Table 1 and Map 2 detail <i>Primula egaliksensis</i> occurrences in the Bridger-Teton National Forest. The only EO that occurs on the Bridger-Teton NF is a marsh downstream of Lower Green River Lake.
Distribution outside the Bridger-Teton National Forest	Greenland and Northern Canada to northeastern Asia; disjunct in central Colorado and northwest Wyoming. In Wyoming it is known only from the Clarks Fork Valley in the northern Absaroka Mountains and the Upper Green River Valley on the west slope of the Wind River Range (Fertig, 2000).
Abundance on the Bridger-Teton National Forest	<p>There have been four visits at the only occurrence on the BTNF. Abundance information was not present in 1990, 700-800 observed individuals in 1991, and 1,050 observed individuals with estimations of 8,000-10,000 individuals in the 1995 visit.</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"> • Sensitive plant surveys and status of rare plant species on Bridger-Teton National Forest, 1997-1998 (Fertig 1999) • A Floristic Inventory of Grand Teton National Park, Pinyon Peak Highlands, and Vicinity, Wyoming U.S.A (Kesonie and Hartman 2011) • Sensitive and rare plant species inventory in the Salt River and Wyoming Ranges, Bridger-Teton National Forest (Heidel 2012). • Rare Species and Riparian Vegetation of the Snake River Basin in Wyoming (Jones et al. 2002)
Population Trend on the Bridger-Teton National Forest	Data on population trends for this species is very minimal. As stated above with abundance numbers from two different years, it can be assumed the population is stable. No other sources provide additional population or multi-year trend monitoring data.
Habitat Trend on the Bridger-Teton National Forest	In (Heidel, 2019), a level 1 inventory of fens on the forest was conducted to determine the status and species diversity of fens on the Bridger-Teton NF. Most of the fens that were surveyed had little to no natural or anthropological impacts. In areas along the Green River with easy access and seemingly high-visitation, the fens showed surprisingly few hydrological disturbances. With the data provided within (Heidel, 2019), it can be assumed that habitat for <i>P. egaliksensis</i> is stable, but further studies need to be conducted to determine the long-term trend of the habitat.
Threats to the Species and its Habitat on the Bridger-Teton National Forest	Riparian and wetland habitat may be threatened by climate change effects and disturbance or loss of wetland habitat. Changes in flow regimes, such as those from water diversions and dams, impact the amount, season, and timing of flows. This can substantially alter associated riparian and wetland species because of

Criteria	Rationale
	<p>their dependence on fluvial geomorphic process, surface water, and groundwater. Floods are responsible for erosion, transport, and deposition of sediments, as well as the amounts and location of vegetation and debris. Many dominant riparian species, such as cottonwoods and willows, are pioneer species that depend on these events to provide bare, moist substrates necessary for seed germination and plant establishment (Halofsky et al. 2018). Mid-elevation riparian and wetland communities are rated as having a moderate to high sensitivity to climate change, moderate adaptive capacity, and moderate to high vulnerability (Halofsky et al. 2018). Mid-elevation riparian plant species may have the ability to move upward in elevation, but where resilience has been compromised by human uses, these systems may not be able to easily adjust to changes in their environment. Invasive species that already dominate many mid-elevation sites are likely to expand their dominance. As riparian areas become drier, upland species will continue to expand into these sites (Halofsky et al. 2018). Grazing can impact wetlands by altering water quality, trampling herbaceous vegetation, increasing bare ground, and facilitating noxious weed expansion in riparian areas. Rangelands form a major component of ecosystems in the Bridger-Teton National Forest, and there are open rangelands throughout the Forest (USFS 2017). Although no active grazing allotments overlap the two occurrences, it is likely that they overlap potential habitat and could limit future recruitment. While adherence to rangeland management plans will limit the chance of overgrazing, there is potential for impacts to <i>P. egaliksensis</i> and its' habitat to occur.</p> <p>The <i>P. egaliksensis</i> occurrence is within 1,000 feet of a large population of an invasive plant, <i>Cirsium arvense</i>, which occurs at the end of the Green River Lakes road (see map 3). The likelihood of <i>C. arvense</i> impacting the fen/wetland is quite low, as <i>C. arvense</i> is described as a facultative upland plant, whereas most plants within the occurrence are wetland obligate where they thrive in waterlogged soils (NRCS, 2020).</p>

Criteria	Rationale
	<p data-bbox="646 216 1076 233">Map 3: Possible threats to <i>Primula egaliksensis</i> and associated habitat.</p>  <p data-bbox="448 1136 1479 1245">A road does come within 1,000 feet of the <i>P. egaliksensis</i> occurrence, but does not seem to have any direct impacts, there is a possibility for indirect effects via dust dispersal and resulting photosynthesis inefficiencies (see map 3).</p> <p data-bbox="448 1268 1500 1415">The area in which <i>P. egaliksensis</i> occurs does not have any active grazing allotments that overlap, but riparian areas downstream appear to be similar in hydrological function and therefore potential habitat could be impacted by active grazing or trampling.</p> <p data-bbox="448 1438 1487 1625">The above analysis suggests that habitat for <i>P. egaliksensis</i> has probably experienced minimal impacts from natural and anthropogenic disturbances, but may be more likely to have impacts in areas of potential habitat from grazing. Also, increased long-term effects from climate change have been forecasted for fen/wetland type areas such as these (Halofsky et al. 2018).</p>
<p data-bbox="131 1650 406 1797">Life history and demographic characteristics of the species</p>	<p data-bbox="448 1650 1503 1759"><i>Primula egaliksensis</i> is a slender, glabrous herb with leafless flowering stems. Life history and dispersal capacity knowledge is generally limited. Habitat is described as occurring in fens, marl hummoks, and wetlands (Fertig, 2000).</p>
<p data-bbox="110 1824 420 1906">Date: January 24, 2020 Reviewer: D. Lay</p>	

Summary and Recommendations
Species (Scientific and Common Name): <i>Primula egaliksensis</i> (Greenland primrose)
<p><i>Primula egaliksensis</i> is listed as S1 (critically imperiled) and G4 (apparently secure) globally. General habitat has been described as Fens, marl hummocks, and wetlands. Although it is widely distributed throughout its range, it is considered rare in the lower 48 states. Only one occurrence has been documented on the BTNF with approximately 8,000-10,000 individuals and is presumed to be stable.</p> <p><i>P. egaliksensis</i> population trends have not been monitored extensively on the forest, as the only abundance data are from 1991 and 1995. Overall, current habitat is thought to be stable (Fertig, 2000), but the trend for potential habitat needs further examination.</p> <p>Threats to suitable habitat include grazing, trampling, and climate change. Climate change is projected to be a long-term threat to both populations and habitat for this species. Invasive plant species do not pose much of a threat to <i>P. egaliksensis</i> as the habitat is not preferred by the nearest invasive plants. With the threats and rarity of this species in the planning area, there is substantial concern for the capability of <i>P. egaliksensis</i> to persist over the long-term on the Bridger-Teton, therefore, it is recommended to be a SCC.</p>
Evaluator: Daniel Lay Date: 1/24/2020
Reviewed and Updated: Trevor Bloom Date: 3/25/2025

References

- Consortium of Pacific Northwest Herbaria. 2019. Specimen data search. Available at: <http://pnwherbaria.org>.
- Fertig, W. 2000. Wyoming State Species Abstract. Wyoming Natural Diversity Database. Laramie, WY: University of Wyoming.
- 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.
- 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.

National Resources Conservation Service (NRCS). 2020. Internet website: <https://plants.usda.gov>. Accessed on August 03, 2019.

NatureServe. 2020. 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. 2020 University of Wyoming, Department of Botany. Laramie, WY. Internet website: <http://rmh.uwyo.edu/data/search.php>. Accessed July 2020.

SEINet. 2020. 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.