

SPECIES: Scientific [common]	<i>Boechera williamsii</i> var. <i>williamsi</i> [William's rockcress] or <i>Boechera williamsii</i> *
Forest:	Bridger-Teton National Forest
Forest Reviewer:	Rose Lehman
Date of Review:	4/4/2020
Forest concurrence (or recommendation if new) for inclusion of species on list of potential SCC: (Enter Yes or No)	

*Current accepted name in Flora of North America and recognized by WYNDD (eFloras, 2001; WYNDD 2020)

FOREST REVIEW RESULTS:

1. The Forest concurs or recommends the species for inclusion on the list of potential SCC:
Yes___ 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 Information¹
7/12/1922	Unknown	U.S.A., Wyoming, Sublette County: Piney Mountain, 25 mi W of Big Piney. 42.5857° N, 110.5582° W; NAD 83, uncertainty 2 mi.	Crevice at summit. Phenology: fruiting. Elev. 8500-10660 ft.	Collector: Edwin B. Payson 2670 (Rocky Mountain Herbarium 2020, SEINet 2020)

7/10/1986	Unknown.	U.S.A., Wyoming, Fremont County: Southern Wind River Range: Big Sandy opening; ca 33 air mi ESE of Pinedale. 42.685° N, 109.27583° W; uncertainty 0.5 mi.	On coarse granitic soil in campground area. Big Sandy Campground, near Jackass Pass Trailhead. Phenology: fruiting. Elev. 9300 ft. <i>Boechera williamsii</i> , <i>Boechera exilis</i> present (may be introgressed), no "hybrids."	Collector: Hollis Marriott, 10432; EO #12 (Rocky Mountain Herbarium 2020, SEINet 2020)
6/24/1988	Ca 100 plants observed.	U.S.A., Wyoming, Fremont County: Wind River Mountains, Union Pass W of Dubois, just N of road. 43.49° N, 109.8792° W	Sagebrush grassland. Union Pass, near interpretive display. <i>Boechera holboellii</i> also present. Occurs with <i>Artemisia tridentata</i> , <i>Festuca idahoensis</i> . Elev. 9200 ft.	Hollis Marriott, 10844; EO #20 (Rocky Mountain Herbarium 2020, SEINet 2020, WYNDD 2019)
6/16/1991	Unknown	U.S.A., Wyoming, Sublette County: West Slope Wind River Range: Big Sandy Opening between road to Summer Home Area/Temple Creek and Big Sandy River, ca 33.5 air mi ESE of Pinedale. 42.6706° N, 109.2758° W	Open, gravelly sagebrush grassland. Big Sandy Opening between Big Sandy River and South Temple Creek. Flowering & fruiting. Elev. 9000-9200 ft.	Collector: Walter Fertig, 7912; EO #12 (Rocky Mountain Herbarium 2020, SEINet 2020, WYNDD 2019)
8/9/1991	Unknown	U.S.A., Wyoming, Fremont County: West Slope Wind River Range: west slope and western crest of Roaring Fork Mountain, ca 0.5 mi N of West Atlantic Peak, ca 45 air mi SE of Pinedale. 42.6281° N, 109.0228° W	Grassy, open ledges between rock outcrops in alpine zone. Phenology: fruiting. Elev. 10800-12120 ft.	Collector: Walter Fertig, 11195 (Rocky Mountain Herbarium 2020, SEINet 2020)
7/22/1995	Unknown	U.S.A., Wyoming, Sublette County: Boundary of Bridger-Teton National Forest . Green River Basin: Bald Mountain, ca 21 air mi WNW of Big Piney. 42.6728° N, 110.4618° W	Windswept grassy mountaintop meadow. Phenology: fruiting. Elev. 9440 ft.	Collector: Thomas Crammer, 8933; EO #36 (Rocky Mountain Herbarium 2020, SEINet 2020, WYNDD 2019)

6/24/1998	Unknown	U.S.A., Wyoming, Fremont County: Outside Bridger-Teton National Forest. Wind River Mountains, Union Pass W of Dubois, just N of road. /4 /4S25. 43.49° N, 109.8792° W	Sagebrush grassland. Phenology: fruiting. Elev. 9200 ft. Plant near invasive species area	Collector: Hollis Marriott, 10844 (Rocky Mountain Herbarium 2020, SEINet 2020)
7/21/2005	Unknown	U.S.A., Wyoming, Fremont County: Outside Bridger-Teton National Forest. East Slope Wind River Range and Vicinity: headwaters of Simpson Lake to north end of Simpson Lake, ca 13 air mi SW of Dubois. 43.3683° N, 109.7307° W to 43.3712° N, 109.7458° W; GPS Reading	Soil pockets amongst talus slope. Western slopes of Shale Mountain and headwaters of Sandra Lake. Phenology: flowering & fruiting. Elev. 10730-11890 ft.	Collector: Rob Massatti, 2841; EO #29 (Rocky Mountain Herbarium 2020, SEINet 2020, WYNDD 2019)
7/27/2005	Unknown	U.S.A., Wyoming, Fremont County: Southeastern Boundary Bridger-Teton National Forest. East Slope Wind River Range and Vicinity: south end of Popo Agie Wilderness, ca 13 air mi SW of Lander. 42.6084° N, 108.9691° W to 42.6164° N, 109.0014° W; GPS Reading	Soil pockets in talus slope, alpine. Phenology: fruiting. Elev. 9780-12520 ft.	Collector: Rob Massatti, 3123; EO #28 (Rocky Mountain Herbarium 2020, SEINet 2020, WYNDD 2019)

¹The Consortium of Pacific Northwest Herbaria (Consortium of Pacific Northwest Herbaria 2020) was 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?

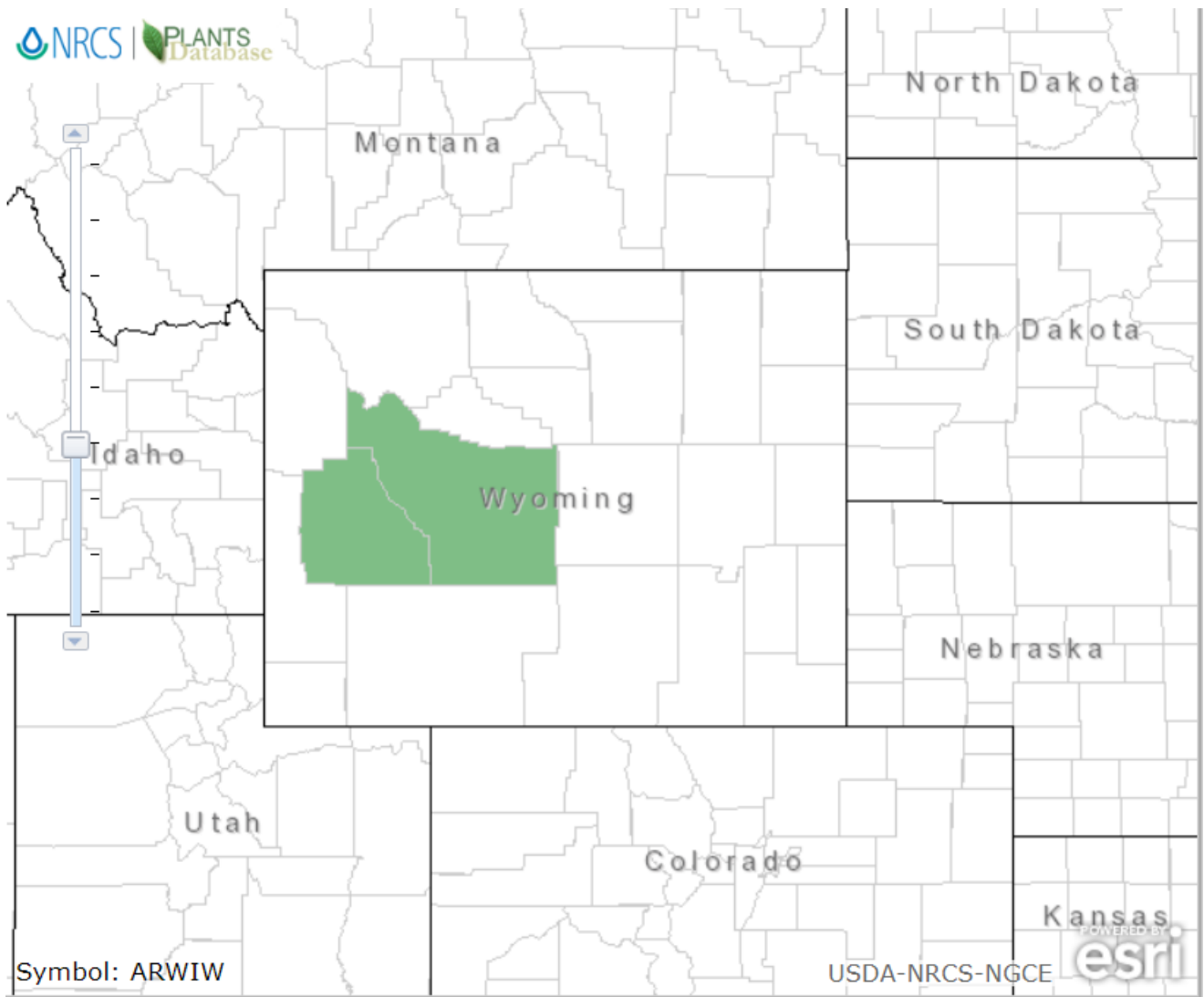
Yes___ No___

Provide explanation for determination

N/A—Occurrences have been documented since 1990.

If determination is no, stop assessment

Map 1, *Boechera williamsii* var. *williamsi* range in Wyoming (NRCS 2020).

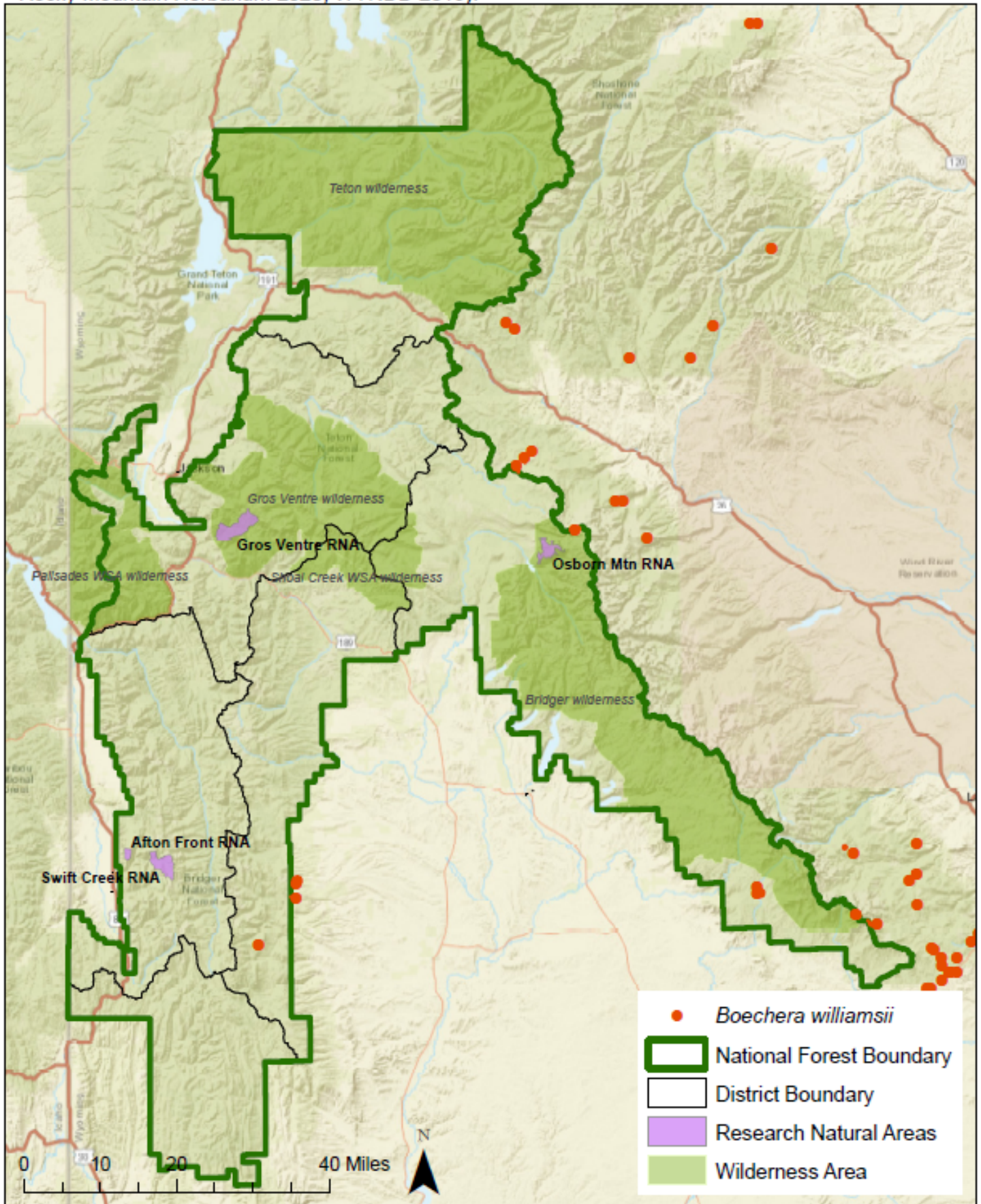


- | | | | |
|---|---|---|--|
| <input checked="" type="checkbox"/> Native | <input type="checkbox"/> Introduced | <input type="checkbox"/> Both | <input type="checkbox"/> Absent/Unreported |
| <input type="checkbox"/> Native, No County Data | <input type="checkbox"/> Introduced, No County Data | <input type="checkbox"/> Both, No County Data | |

Native Status:

- L48
 AK
 HI
 PR
 VI
 NAV
 CAN
 GL
 SPM
 NA

Map 2, *B. williamsii* occurrences in Bridger-Teton National Forest vicinity (SEINet 2020; Rocky Mountain Herbarium 2020, WYND 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	<p>G3/T3 —Vulnerable</p> <p><i>At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.</i></p>
NatureServe State Status	<p>S3—Vulnerable</p> <p>At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.</p>
WYNDD	<p>Plant Species of Potential Concern</p> <p><i>Species that appear to be secure at present, but because they have limited distribution as regional or state endemics they could become vulnerable under large-scale changes. Species with this status warrant periodic checks.</i></p> <p>(Wyoming Natural Diversity Database 2018 - Species of Potential Concern)</p>
USDA Forest Service	Not listed
USDOI FWS	Not listed
USDOI BLM	Not listed
IUCN	Not listed

Sources: WYNDD 2020; Heidel 2018; USDA Forest Service Regions 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	Distribution within the forest boundary can be characterized by four populations. One population is in the southwestern area of the forest while the remaining populations are found on the southeastern area (Map 2).
Distribution outside the Bridger-Teton National Forest	Endemic to northwest and west central Wyoming and can be found in the Absaroka Mountains, Wind River Range, and the east flank Wyoming Range (Fertig, 1999). There have been 34 reported observations of the species in Wyoming (WYNDD 2020)
Abundance on the Bridger-Teton National Forest	Colonies tend to be large, ranging from 100 to several hundred individuals and the total population size is estimated to be anywhere from 2,000 – 5,000 (WYNND 2020). Number of individuals in each population observed is unknown because collectors did not provide enough data. There are four occurrences that appear in the Bridger-Teton National Forest and five occurrences post 1990 within a mile of the national forest boundary.
Population Trend on the Bridger-Teton National Forest	Populations are estimated to be stable (WYNDD 2020) based on their initial observations, but there is no data to support this claim.
Habitat Trend on the Bridger-Teton National Forest	<i>Boechea williamsii</i> var. <i>williamsi</i> habitat is found on ridges, knolls, slopes, and talus. They prefer soils that are coarse, with gravel to rocky texture generally derived from granite. Usual habitat can be found in sagebrush steppe in areas with patches of bare ground or limited vegetation (WYNDD 2020, USFWS 2020).
Threats to the Species and its Habitat on the Bridger-Teton National Forest	<p>Mostly protected from human threats by their remote habitat areas; exception may be the historic occurrence in a campground location. Specific threats to the species remain unknown due to limited amount of data (WYNDD 2020).</p> <p>To analyze trends in habitat, aerial imagery and a USFS GIS database of existing grazing allotments, invasive plant populations, historical wildfires, trails, roads, Wilderness Areas, and Research Natural Areas (RNAs) was assessed at each occurrence (USFS GIS 2020, Google Earth Pro 2020).</p> <ul style="list-style-type: none"> • 7/12/1922: Edwin B. Payson, 2670: Current status of this historic occurrence is unknown. Remote location makes human-caused disturbances unlikely. • 7/10/1986: Hollis Marriott, 10432: Current status of this historic occurrence is unknown. Discovered in campground making potential recreation disturbances likely. In the Irish Canyon livestock allotment.

Criteria	Rationale
	<ul style="list-style-type: none"> • 6/16/1991: Walter Fertig, 7912: Located in the Lamreaux Meadow livestock allotment but no observation of cattle trailing in the area. Near Forest Service Road 858 open yearlong for high clearance vehicles so there may be limited potential for recreation disturbance. . • 8/9/1991: Walter Fertig, 11195: In Bridger Wilderness in high alpine zone habitat. No human or livestock disturbances identified in the area. Erosion of habitat is a potential threat in this location.
Life history and demographic characteristics of the species	<p><i>Boechea williamsii</i> var. <i>williamsi</i> is a perennial forb that has a single glabrous stem, 7-22 cm tall from an unbranched root crown. Leaves are basal and range from 1-2 mm wide and have pubescent forked hairs (2019). Have 5-17 4-petaled flowers and fruits are on stalks near the stem. Flowering season occurs through June-July and can be found at elevations of 9,000 – 12,500 ft (WYNND 2020, eFloras 2001).</p>
Date: March 20, 2020 Reviewer: Julie Remp and Clayton McGee	

Summary and Recommendations

Species (Scientific and Common Name): *Boechea williamsii* (Williams rockcress) or *Boechea williamsii* var. williamsii

Taxonomic revision has elevated these plants from varietal to species status and are therefore recognized as *Boechea williamsii*. *Boechea williamsii* is listed as S3 (Vulnerable) and G3 (Vulnerable) globally. It is endemic to Wyoming, with populations in the Absaroka Mountains, Wind River Range, and the east flank Wyoming Range (Fertig 1999). The species is known from 34 observations, with four occurring on the Bridger-Teton Forest (WYNDD 2020). Plants grow in rocky, barren to nearly barren patches of granite surrounded by sagebrush. Such habitats occur on ridges, knolls, and slopes (WYNDD 2020, USFWS 2020).

The four documented observations are quite dated (1922, 1986, 1991 and 1991) and there are no reports of revisitation. Populations are estimated to be stable (WYNDD 2020), but there is no data to support this claim. Targeted survey has not occurred on the BT, but general floristic inventory of the east slope of the Wind River Range (Shoshone National Forest) yielded six new occurrences in 2005-2006. Thus, undiscovered occurrences on the Bridger-Teton Forest are likely.

Of the four Bridger-Teton occurrences, two fall within active grazing allotments and may also be subject to recreational disturbance. Another falls in un-grazed alpine habitat and the fourth in a remote area where human disturbance is unlikely. Plants have a short stature and leafless stem. Despite the potential for grazing and recreational impacts to populations, and lack of recent observations, the abundance of non-targeted, "floristic" occurrence records in Wyoming indicate that this taxon may not have as immediate a conservation need. It is therefore recommended that *Boechea williamsii* not be included as a SCC.

Evaluator: Jessica Irwin & Rose Lehman Date: 04/2020; 01/13/2020

References

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