

SPECIES: Scientific [common]	<i>Juncus vaseyi</i> [Vasey's rush]
Forest:	Bridger-Teton National Forest
Forest Reviewer:	J.Irwin, R. Lehman, Trevor Bloom
Date of Review:	4/4/20; 6/1/20; 10/13/20; 03/25/2025
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 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 No
If no, provide explanation and stop assessment.
2. Is the Species Known to Occur within the Planning Area? Yes 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	Source of Information ¹
7/8/1973	Unknown	Wyoming, Sublette County: Fremont Lake near Pinedale. 42.9468° N, 109.5551° W; uncertainty 5 mi.	Common along lakeshore. Elev. 7450 ft. Database coordinates do not match location near Fremont Lake; likely EO #3 location.	Dunwiddie #192 (Rocky Mountain Herbarium 2020; SEINet 2020)

8/11/1990	Unknown	Wyoming, Sublette County: West Slope Wind River Range: southeast shore of Fremont Lake; ca 3 air mi NE of Pinedale. Elev. 7400 ft. 42.91722° N, 109.81° W; uncertainty 2 mi.	Shady lodgepole pine woods bordering narrow, rocky, sandy beach.	Walter Fertig, #6026; EO #3 (Rocky Mountain Herbarium 2020; SEINet 2020)
7/7/1990	Unknown	Wyoming, Sublette County: Half Moon Lake; ca 8 air mi NE of Pinedale. 42.93111° N, 109.73056° W; uncertainty 0.5 mi.	North shore east end, sandy opening above boat loading area; few scattered plants.	Brooks #19911; EO #1 (Rocky Mountain Herbarium 2020; SEINet 2020)
8/16/1991	Unknown	Wyoming, Sublette County: West Slope Wind River Range: north shore of Half Moon Lake, ca 8 air mi NE of Pinedale. 42.9311° N, 109.7306° W; uncertainty 1 mi.	Damp crevices on rocky, semi-shady bank of lake and sandy openings on shore in blue spruce-lodgepole pine grove and narrowleaf cottonwood grove. Occurs with <i>Carex tenera</i> , <i>Mentha arvensis</i> , <i>Calamagrostis canadensis</i> , <i>Carex rostrata</i> , <i>Poa palustris</i> . Elev. 7600 ft.	Fertig #11539; EO #1 (Rocky Mountain Herbarium 2020; SEINet 2020; WYNDD GIS 2019)
8/4/1991	Unknown	Wyoming, Sublette County: West Slope Wind River Range: south shore of Boulder Lake, 10 air mi E of Pinedale.	Gravelly-sandy beach in sheltered cove of lake. Elev. 7300 ft.	Fertig #10618 (Rocky Mountain Herbarium 2020; SEINet 2020)

		42.8436° N, 109.6731° W		
7/15/2006	20 plus plants on moss mats.	Wyoming, Sublette County: West Slope Wind River Range: east shore of Fremont Lake. T34NR108W Sec 6 NW4	Gentle, sandy lake shores below shady lodgepole pine woods, where coarse sands are deposited around rocky outcrops and points. Associated with <i>Agrostis stolonifera</i> , <i>Equisetum laevigatum</i> , often near <i>Juncus balticus</i> , <i>Juncus articulatus</i> , <i>Carex aquatilis</i> , <i>Carex simulata</i> , <i>Betula occidentalis</i> . In fruit.	Bonnie Heidel EO #3 (WYNDD GIS 2019)
7/15/2006	Few clumps, on moss mat beside <i>Salix</i> spp. and on sand.	Wyoming, Sublette County: West Slope Wind River Range: east shore of Fremont Lake. T34NR108W Sec 6 NE4	Gentle, sandy lake shores below shady lodgepole pine woods, where coarse sands are deposited around rocky outcrops and points. Associated with <i>Agrostis stolonifera</i> , <i>Equisetum laevigatum</i> , often near <i>Juncus balticus</i> , <i>Juncus articulatus</i> , <i>Carex aquatilis</i> , <i>Carex simulata</i> , <i>Betula occidentalis</i> .	Bonnie Heidel EO #3 (WYNDD GIS 2019)
7/15/2006	30 clumps on moss mats and loose sand.	Wyoming, Sublette County: West Slope Wind River Range: east shore of Fremont	Gentle, sandy lake shores below shady lodgepole pine woods, where coarse	Bonnie Heidel EO #3 (WYNDD GIS 2019)

		Lake. T34NR108W Sec 6 SW4	sands are deposited around rocky outcrops and points. Associated with <i>Agrostis stolonifera</i> , <i>Equisetum laevigatum</i> , often near <i>Juncus balticus</i> , <i>Juncus articulatus</i> , <i>Carex aquatilis</i> , <i>Carex simulata</i> , <i>Betula occidentalis</i> .	
8/7/2024	100	Bridger-Teton National Forest: Pinedale Ranger District: On southeast shore of Fremont Lake, just NE of Sandy Beach. 109.8198680°W 42.8999900°N	Sandy shore in the shade of lodgepole pine trees.	Trevor Bloom. Recorded in NRM: 0403_JUVA_4928_TB24_A03

¹The 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

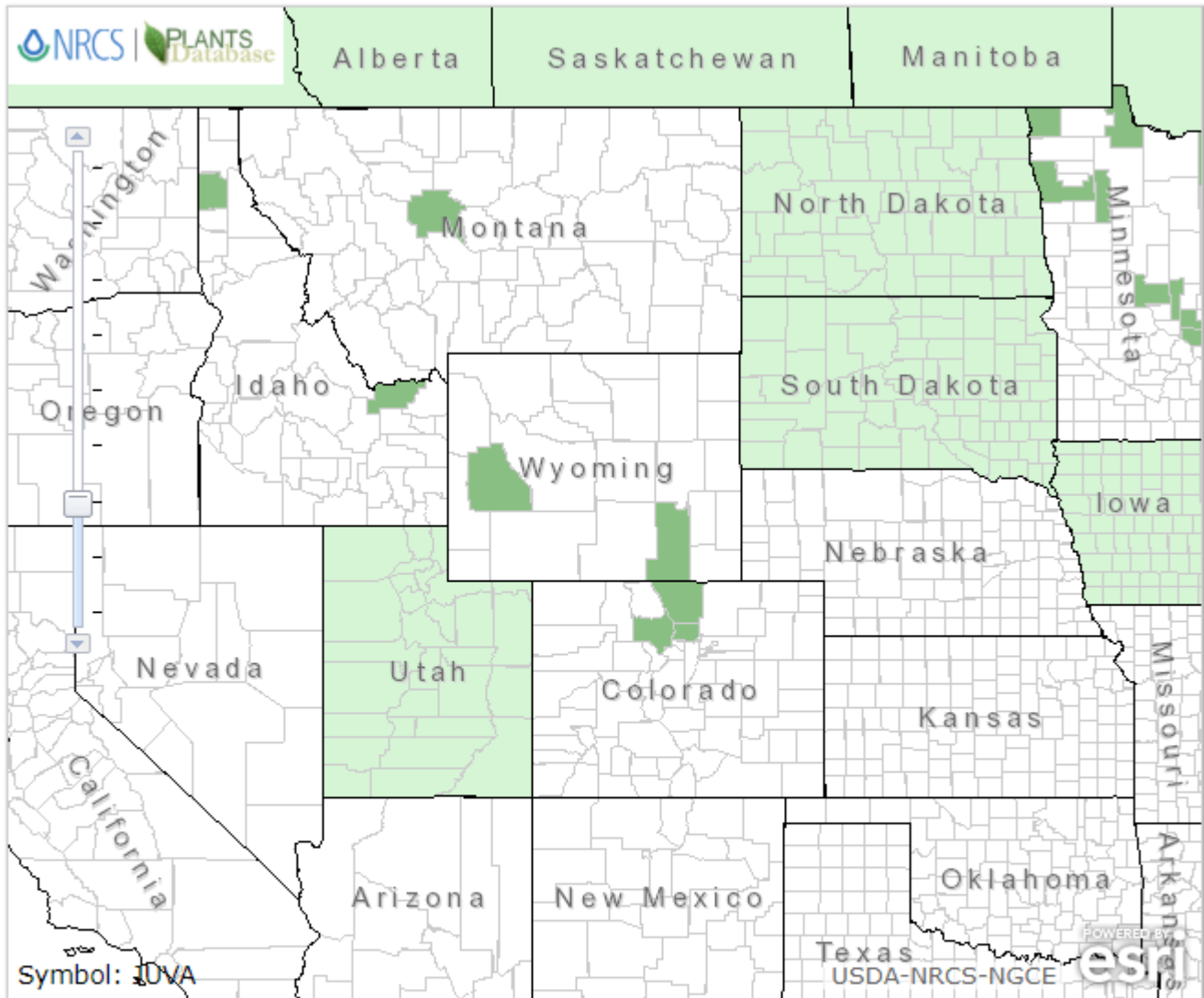
- c. For species with known occurrences on the Forest predating 1990, does the weight of evidence suggest the species still occurs in the plan area?

Yes___ X No___

N/A—occurrences have been documented since 1990.

If determination is no, stop assessment

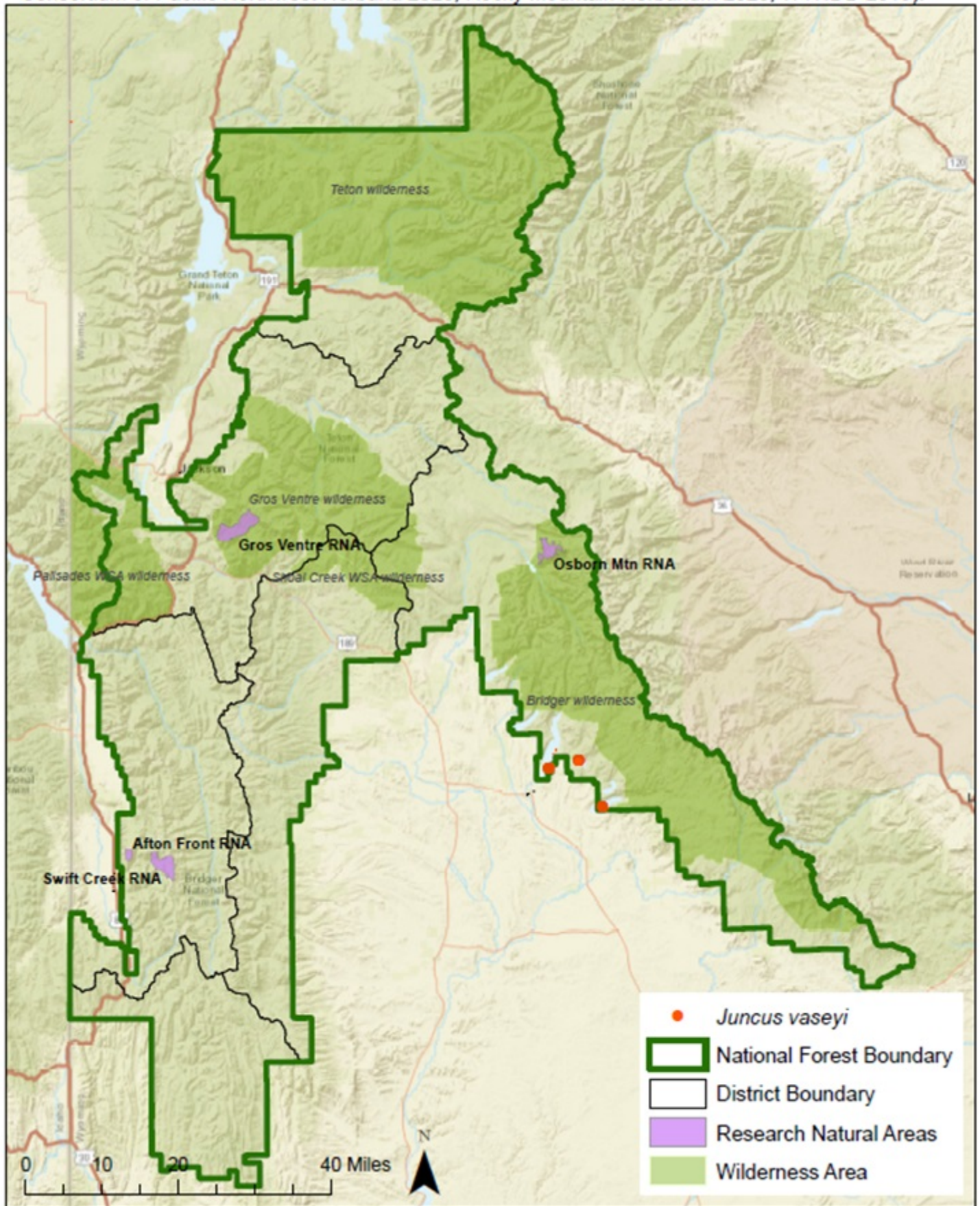
d. **Map 1**, *Juncus vaseyi* range in Wyoming and surrounding states (NRCS 2020).



Native Status:
Legend:
Native (Dark Green)
Native, No County Data (Light Green)
Introduced (Blue)
Introduced, No County Data (Light Blue)
Both (Brown)
Both, No County Data (Tan)
Absent/Unreported (White)

Native Status:
Legend:
L48 (Dark Green)
AK (White)
HI (White)
PR (White)
VI (White)
NAV (White)
CAN (Dark Green)
GL (White)
SPM (White)
NA (White)

Map 2, *J. vaseyi* occurrences in Bridger-Teton National Forest vicinity (SEINet 2020; Consortium of Pacific Northwest Herbaria 2020; Rocky Mountain Herbarium 2020, WYNDD 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	G5—Secure <i>At very 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 in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, very 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> <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

Heidel 2018, NatureServe 2025, WYNDD 2025a

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

Criteria	Rationale
Distribution on the Bridger-Teton National Forest	<i>Juncus vaseyi</i> is known from three locations on the Bridger-Teton National Forest around Boulder Lake, Fremont Lake, and Half Moon Lake. Multiple populations are considered an Elemental Occurance in the USFS if they are found along the same lakeshore. All occurrences are in the lower–east portion of the Forest, along rocky or sandy lakeshores (Table 1, Map 2).

Criteria	Rationale
Distribution outside the Bridger-Teton National Forest	<p><i>Juncus vaseyi</i> occurs from British Columbia to Nova Scotia, south in the Rocky Mountains to Colorado and Utah, and east to Iowa, Illinois and Indiana, also Vermont and Maine. In Wyoming, it is known from six occurrences, in the Laramie and Wind River Ranges and Yellowstone Plateau (Albany, Fremont, Sublette and Teton counties) (WYNDD 2025b).</p>
Abundance on the Bridger-Teton National Forest	<p><i>Juncus vaseyi</i> is demonstrably secure in its primary range in Canada, but it is rare in the vast southern portion of its range. It is considered rare in Wyoming (Heidel 2018), and only four occurrences support this (Table 1). This species is difficult to identify, and further surveying may identify additional occurrences (NatureServe 2025).</p>
Population Trend on the Bridger-Teton National Forest	<p>Overall, this species may be declining in vulnerable disjunct localities where it often occupies very restricted habitat. It has probably declined in the Rocky Mountains due to the conversion of mountain wetlands to hay meadows (NatureServe 2025). In Wyoming, populations are suspected to be stable based on the resurvey of two populations over time (Fertig 2000; NatureServe 2025). Population trends on the Bridger-Teton National Forest cannot be assessed due to lack of data.</p>
Habitat Trend on the Bridger-Teton National Forest	<p><i>Juncus vaseyi</i> occurs in a number of wetland habitats including marshes, damp thickets, meadows, and margins of bogs. It also occurs in depressions along sandy lakeshores and low sandy ground with pines, wet prairie, lakeplain wet prairie, and other intermittently wet ground (USFS 2004). Wyoming populations are on lake shores with sandy and gravelly glacial till and in hummocky wet meadows with rich organic soils (WYNDD 2025b).</p> <p>This species requires maintenance of at least a portion of the natural disturbance regime to perpetuate suitable habitat. Hydrology is especially important; the role of fire in maintaining habitat is likely important but poorly understood. Populations may not persist in sites with significant habitat fragmentation (NatureServe 2025).</p> <p>Riparian and wetland habitats on the Forest are generally protected from anthropogenic disturbances through forest management direction and water regulations, although some riparian and wetland systems in the Intermountain Region have been altered from historical conditions domestic livestock grazing, road construction, and nonnative species (Halofsky et al. 2018). Effects from these activities include changes in stream morphology, discharge, and water availability to riparian ecosystems.</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 2019, Google Earth Pro 2019).</p> <p>The three lakeshore occurrences are on or near motorized roads or trails, indicating habitat has likely experienced effects associated with road use, such as dust, erosion, and soil compaction. Two of these</p>

Criteria	Rationale
	<p>occurrences (Fertig #11539, Brooks #19911) are within a grazing allotment and habitat may have experienced impacts from grazing, such as water quality degradation, erosion, and trampling of herbaceous vegetation. They are also within a quarter-mile of a <i>Cirsium arvense</i> invasion, which may cause habitat degradation and competition for resources. Likewise, habitat for the Fertig #6026 occurrence may experience effects from the nearby <i>Hyoscyamus niger</i> invasion, while the Fertig #10618 occurrence is near both a <i>Bromus tectorum</i> and <i>Cirsium arvense</i> invasion.</p> <p>Fertig #6026 is within the perimeter of the Flatfish Fire in 1988. The fire may have altered habitat and affected the population, but since the occurrence was discovered after the fire, the population survived.</p> <p>Given this information, it is likely these populations have experienced moderate to high levels of impacts from both natural disturbances (non-native plants and wildfire) and anthropogenic activities (grazing, roads). Habitat trends are likely slightly declining and may be exacerbated by climate change (see below).</p>
<p>Threats to the Species and its Habitat on the Bridger-Teton National Forest</p>	<p>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 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). This species may resprout after fire, so wildfires are probably not a threat (WYNDD 2025b).</p> <p>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).</p> <p><i>Juncus vaseyi</i> is also potentially threatened by recreation (WYNDD 2025b), which may cause habitat degradation such as trampling and erosion. Protections to riparian habitat and wetlands from anthropogenic disturbances through forest management direction and water regulations may help minimize adverse effects to special status riparian and wetland plants, such as <i>J. vaseyi</i>, where they occur.</p>

Criteria	Rationale
<p>Life history and demographic characteristics of the species</p>	<p><i>Juncus vaseyi</i> is a perennial species arising from a short, compact rhizome. It flowers and fruits from late summer to early fall. Although germination rates and viability of seeds for <i>J. vaseyi</i> are not known, the genus as a whole shows good germination and viability (USFS 2004).</p> <p>Seasonal water level fluctuations may be an important mechanism for seed dispersal for coastal lakeshore marshes such as <i>J. vaseyi</i> by facilitating movement of propagules to shoreline habitat (USFS 2004). Although <i>J. vaseyi</i> may be persistent at some sites such as rock outcrops, it is relatively ephemeral at many locations. This species is apparently capable of utilizing disturbed sites such as cleared land, sandy excavations, and ditches as a temporary site for growth and reproduction (USFS 2004). Fire promotes seed bank expression and rejuvenation in various wetland communities, indicating <i>J. vaseyi</i> might benefit from fire. In addition, fires during extended drawdown years or periods of drought may prevent woody species from establishing (USFS 2004).</p>
<p>Date: 3/6/20 Reviewer: L. Chipman</p> <p>Reviewed: Trevor Bloom Date: 3/25/2025</p>	

Summary and Recommendations

Species (Scientific and Common Name): *Juncus vaseyi* (Vasey's rush)

Juncus vaseyi is listed as S1 (critically imperiled) and G5 (secure) globally. It is demonstrably secure in its primary range in Canada but may be declining in regions with limited habitat and disjunct populations such as the Rocky Mountains. On the Bridger-Teton, *J. vaseyi* is known from three element occurrences (EOs) located at Boulder Lake, Fremont Lake, and Half Moon Lake. These lake-shore populations occur in sandy openings and gravelly glacial till under partial or full shade (WYNDD 2025b). Elsewhere it may be found in marshes, damp thickets, meadows, and margins of bogs. Difficulty in identification suggests that further surveys may reveal additional populations (NatureServe 2025).

Like many wetland and aquatic species, *J. vaseyi* may be adversely affected by changes in hydrology, from either reduced precipitation, water management or grazing impacts. Timing and intensity of seasonal water fluctuations may be important for seed dispersal (USFS 2004) and germination. Plants are apparently capable of utilizing disturbed sites such as cleared land, sandy excavations, and ditches for growth and reproduction (USFS 2004). Fire promotes seed bank expression and rejuvenation in various wetland communities, indicating *J. vaseyi* might benefit from fire. In addition, fires during extended drawdown years or periods of drought may prevent woody species from establishing (USFS 2004).

Populations at all three EOs fall on or near motorized roads or trails, where habitat may experience increased dust, erosion, and soil compaction. Plants at Half Moon Lake are within an active grazing allotment and may experience increased erosion, water quality degradation, erosion and trampling. Invasive species have been documented in or near each of the three EOs, including *Cirsium arvense*, *Hyoscyamus niger*, and *Bromus tectorum*. Plant invasions may cause habitat degradation and competition for resources, but the extent to which *J. vaseyi* habitat could be affected is not known. Fire and soil clearing events which may favor *J. vaseyi* may also favor plant invasion. In Wyoming, populations are suspected to be stable based on the resurvey of two populations over time (Fertig 2000; NatureServe 2025).

Given the high recreation use and disturbance threats for all three known populations of *Juncus vaseyi* along popular lakeshores, the potential for adverse effects and high level of disturbance warrants recommendation for inclusion as a SCC.

Evaluator: Jessica Irwin Date: 10/13/2020

Reviewed: Trevor Bloom Date 3/25/2025

References

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