SPECIES: Scientific [common]	***Viola renifolia* [White violet]** **Synonyms: *Viola renifolia* var. *brainerdii***
Forest:	Bridger-Teton National Forest
Forest Reviewer:	Randall Griebel
Date of Review:	10/14/2021
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 ___X____
   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___ No_X__

   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]
6/23/1956	Frequent	**Outside Bridger-Teton National Forest**: U.S.A., Wyoming, Teton County: Targhee National Forest: Teton Canyon: along Teton Creek at east end of Treasure Mountain Scout Camp. Elev. 6900 ft.	Frequent in moist soil of shaded boggy area along creek. Phenology: flowering.	Loran C. Anderson, 350 (Rocky Mountain Herbarium 2021; SEINet 2021; WYNDD GIS 2021a)

		43.7634° N, 110.9542° W; uncertainty 1 mi.		
8/9/1985	Unknown	**Outside Bridger-Teton National Forest**: U.S.A., Wyoming, Teton County: Teton Range: North Fork Teton Creek, ca 1/8-1 mi N of Teton Canyon Campground. Elev. 7200-7800 ft. 43.7622° N, 110.9119° W	Mixed conifer forest. Phenology: vegetative only.	Erwin F. Evert, 9178 (Rocky Mountain Herbarium 2021; SEINet 2021; WYNDD GIS 2021a)
7/2/1991	Unknown	**Outside Bridger-Teton National Forest**: U.S.A., Wyoming, Teton County: Targhee National Forest: West Slope Teton Range: South Leigh Creek, from intersection with Beaver Creek to Andy Stone Creek, ca 11 air mi E of Tetonia, Idaho. Elev. 6800-7000 ft. 43.8201° N, 110.9661° W	Open valley bottom with patches of coniferous forest dominated *by Abies lasiocarba, Pinus contorta,* and *Picea engelmannii,* some riparian. Phenology: flowering.	Stuart Markow, 1907 (Rocky Mountain Herbarium 2021; SEINet 2021; WYNDD GIS 2021a)
6/12/2006	Unknown	**On Border of Bridger-Teton National Forest**: U.S.A., Wyoming, Teton County: Grand Teton National Park and Vicinity: Jackson Hole: along Pacific Creek Road, ca 3/4 mi W of Pacific Creek, ca 4 air mi NE of Moran; ca 32.5 air mi NE of Jackson.	In moss on margin of willow bog. Phenology: flowering	B. E. Nelson, 68832 (Rocky Mountain Herbarium 2021; SEINet 2021; WYNDD GIS 2021a)

		Elev. 6980-7080 ft. 43.89° N, 110.475° W		

The Consortium of Pacific Northwest Herbaria was also searched, and no additional occurrences were found (Consortium of Pacific Northwest Herbaria 2021).

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___ No__

If no, provide explanation and stop assessment

N/A – No occurrences have been documented on the Forest since 1990.

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?

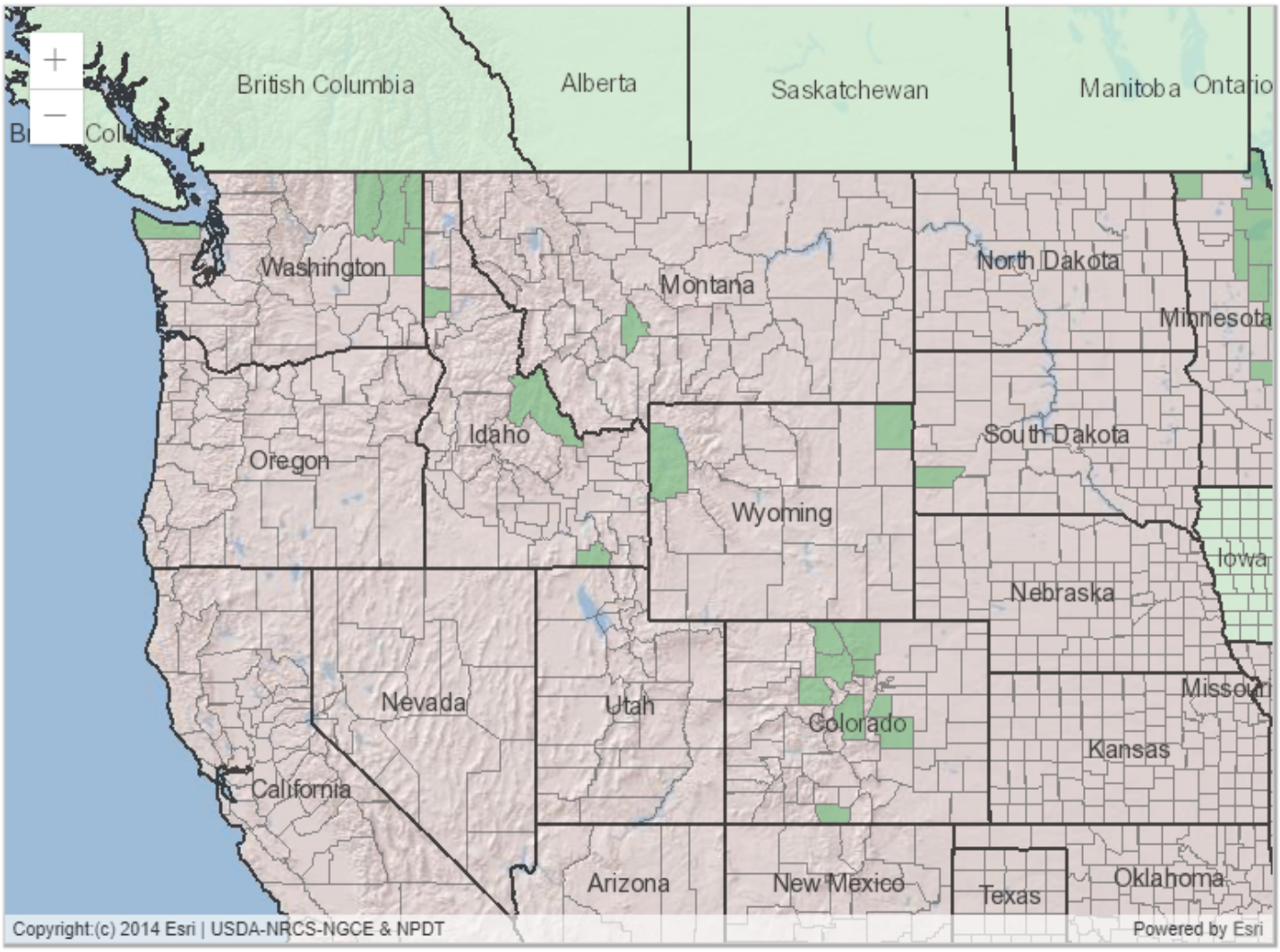
Yes___ No___

Provide explanation for determination

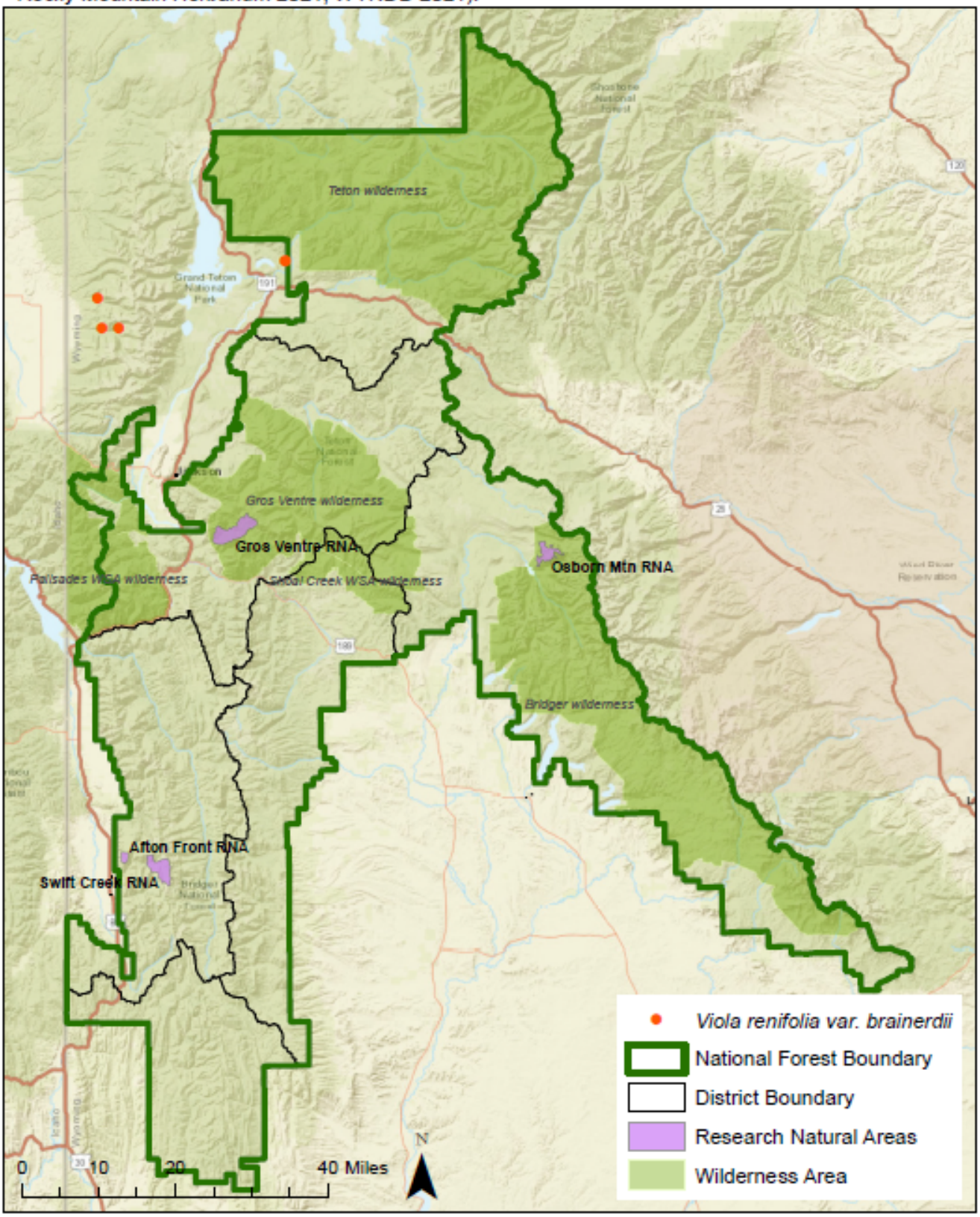
N/A—No occurrences have been documented on the Forest prior to 1990. However, several recent occurrences have been documented nearby, in Teton County, near the border of the Bridger-Teton National Forest (Table 1, Map 2). The species may, therefore, be present within suitable habitat (spruce swamps, seeps in coniferous forests, on banks along streams, and in open, swampy areas around lakes and ponds) on the Bridger-Teton National Forest, though surveys are needed to verify its presence.

If determination is no, stop assessment

Map 1, *Viola renifolia* range in Wyoming and surrounding states (NRCS 2021).



Map 2, *V. renifolia var. brainerdii* occurrences in Bridger-Teton National Forest vicinity (SEINet 2021, Rocky Mountain Herbarium 2021, WYNDD 2021).



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** *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.*
NatureServe State Status	**S1—Critically Imperiled** *At very high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors*.
WYNDD	**Plant Species of Concern** **G5T5/S1** *Species vulnerable to extirpation at the global or state level due to:* *a. their rarity (e.g., restricted distribution, small population size, low population density)* *b. inherent vulnerability (e.g., specialized habitat requirements, restrictive life history)* *c. threats (e.g., significant loss of habitat, sensitivity to disturbances)*
USDA Forest Service	Not listed
USDOI FWS	Not listed
USDOI BLM	Not listed
IUCN	Not listed

Sources: Heidel 2018; IUCN 2021; NatureServe 2021; USDA Forest Service Regions 2 and 4 Sensitive Species Lists; WYNDD 2020b

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

Criteria	Rationale
Distribution on the Bridger-Teton National Forest	There are no documented occurrences of *V. renifolia* on the Bridger-Teton National Forest; however, there are several occurrences nearby, in Teton County (Table 1, Map 2). The species may, therefore, be present within suitable habitat (spruce swamps, seeps in coniferous forests, on banks along streams, and in open, swampy areas around lakes and ponds) on the Bridger-Teton National Forest, though surveys are needed to verify its presence.
Distribution outside the Bridger-Teton National Forest	*Viola renifolia* occurs from Newfoundland to British Columbia, south to New York, Michigan, and Minnesota, and in the Rocky Mountains at disjunct locations as far south as Colorado. In Wyoming, it is known from the Black Hills and Teton Range (Crook and Teton counties) (WYNDD 2021b).
Abundance on the Bridger-Teton National Forest	Abundance in Wyoming, including on the Bridger-Teton National Forest, is unknown (Heidel 2018; WYNDD 2021b). The number of populations is very low (Heidel 2018), and none have been confirmed on the Bridger-Teton National Forest, indicating this subspecies is likely rare. However, due to lack of data, abundance on the Bridger-Teton National Forest cannot be assessed.
Population Trend on the Bridger-Teton National Forest	Overall, this species appears to be secure within its primary range (NatureServe 2021). However, population trends in Wyoming, including on the Bridger-Teton National Forest, are unknown (Heidel 2018; WYNDD 2021b) due to lack of data.
Habitat Trend on the Bridger-Teton National Forest	*Viola renifolia* occurs in cool, moist woodlands. Northwestern Wyoming populations are in spruce swamps, seeps in coniferous forests, on banks along streams, and in open, swampy areas around lakes and ponds. Black Hills populations are in moist, shaded habitats, often beneath spruce or deciduous trees (WYNDD 2021b). 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. Habitat will likely experience further alterations from climate change as described below.
Threats to the Species and its Habitat on the Bridger-Teton National Forest	*Viola renifolia* is potentially threatened by logging and recreation (WYNDD 2021b), but riparian habitat and wetlands on National Forests generally receive considerations and protections from anthropogenic disturbances through forest management direction and water regulations. These considerations and protections would avoid or minimize adverse effects to special status riparian and wetland plants, such as *V. renifolia*, where they occur. 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

Criteria	Rationale
	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). 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).
Life history and demographic characteristics of the species	*Viola renifolia* is a perennial forb with leafless stems and without stolons. Leaf blades are heart or kidney-shaped, 2-6 cm broad (and nearly as long) with rounded tips and round-toothed margins and are strongly pubescent below. Petioles are 3-15 cm long and have lance-shaped, toothed stipules 3-10 mm long. The leafless flowering stalks are typically shorter than the leaves and bear a single bilaterally symmetrical flower. The short-spurred corolla is 10-15 mm long, beardless, and white with thin purple lines on the lower 3 petals. Fruits are purplish, elliptical capsules 4-5 mm long. Small, non-showy, non-opening (cleistogamous) flowers may be present near the base of the plant on short stalks. Flowering is from late May-early July (WYNDD 2021b).
Date: October 5, 2021 Reviewer: L. Chipman	

Summary and Recommendations

Viola renifolia is ranked as secure throughout its range but critically imperiled and a plant species of concern in the state of Wyoming, where it is known from the Black Hills and Teton Range (Crook and Teton counties). There are no documented occurrences on the Bridger-Teton National Forest, and therefore population trends and abundance on the Forest are unknown. However, several recent occurrences have been documented nearby, in Teton County, near the border of the Bridger-Teton National Forest (Table 1, Map 2). The species may, therefore, be present within suitable habitat (spruce swamps, seeps in coniferous forests, on banks along streams, and in open, swampy areas around lakes and ponds) on the Bridger-Teton National Forest, though surveys are needed to verify its presence. Riparian and wetland habitats used by the species are generally protected from anthropogenic disturbances, although some alterations from domestic livestock grazing, road construction, and nonnative species have occurred. Logging, recreation, and climate change are other potential threats. Because *V. renifolia* is not known to occur on the Bridger-Teton National Forest, it is not recommended as a species of conservation concern at this time; if future surveys verify its presence on the Forest, the subspecies should be reassessed.

References

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WYNND 2021b. *Viola renifolia* - white violet. Wyoming Field Guide. Internet website: https://fieldguide.wyndd.org//?species=viola%20renifolia