SPECIES: Scientific [common]	***Lomatium bicolor**** *or Lomatium bicolor* var. *bicolor* [Wasatch biscuitroot]
Forest:	Bridger-Teton National Forest
Forest Reviewer:	R.Lehman; J.Irwin
Date of Review:	5/5/20; 01/13/20
Forest concurrence (or recommendation if new) for inclusion of species on list of potential SCC: (Enter Yes or No)	No

**Lomatium bicolor* var. *bicolor* is now recognized as *Lomatium bicolor.*

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	Source of Information[1]
5/28/1926	Abundant	U.S.A., Wyoming, Lincoln County: Wyoming National Forest: Smith Fork Ranger Station, on trail. 42.4841° N, 110.8279° W; uncertainty 1 mi.	20% south slope; clay-sand soil; open clay slopes with *Cogswellia, sunflower*, and *wyethia*; very abundant. Phenology: flowering. Elev. 7000 ft.	Charles H. McDonald, 574. (Rocky Mountain Herbarium 2020; SEINet 2020)
6/6/1926	Scarce	U.S.A., Wyoming, Lincoln County: Wyoming National Forest: 0.5 mi N of La Barge Ranger Station. T29N R116W S6	30% south slope; gravelly loam soil; closely grazed areas with *Rumex, valerian*, and *larkspur*.	S. E. Cazier, Ca-10. (Rocky Mountain Herbarium 2020; SEINet 2020; WYNDD 2020)

			Phenology: flowering. Elev. 8500 ft.	
6/30/1950	Unknown	U.S.A., Wyoming, Lincoln County: E of Sprague Creek near Fairview, 4.3 mi up. 42.6147° N, 110.9821° W; uncertainty 1 mi.	Oil well road up ridge. Phenology: flowering & fruiting. Elev. 8000 ft	T. G. Call, #400. with V. C. Call (Rocky Mountain Herbarium 2020; SEINet 2020; WYNDD 2020)
6/13/1972	Abundant	U.S.A., Wyoming, Lincoln County: Star Valley-Greys River in the Afton area; Greys River at Poison Meadow. 42.5567° N, 110.6738° W; uncertainty 1 mi.	Growing in large dry meadow in clayey soil; abundant, covering vast area. Phenology: flowering & fruiting. Elev. 8350 ft.	Orval C. Harrison, 10. (Rocky Mountain Herbarium 2020; SEINet 2020; WYNDD 2020)
6/8/1973	Unknown	U.S.A., Wyoming, Lincoln County: Star Valley-Greys River in the Afton area; junction of Smith Fork Road and Lander Trail; Salt River drainage. 42.5132° N, 110.8858° W; uncertainty 1 mi.	Growing in heavily compacted soil at edge of road. Phenology: flowering. Elev. 7500 ft.	Orval C. Harrison, 43. (Rocky Mountain Herbarium 2020; SEINet 2020)
7/25/1975	Unknown	U.S.A., Wyoming, Lincoln County: Star Valley-Greys River in the Afton area; 0.1 mi below Smith Fork Road and Lander Trail junction. 42.5132° N, 110.8858° W; uncertainty 1 mi.	Growing on roadside. Phenology: flowering & fruiting. Elev. 7490 ft.	Orval C. Harrison, 43a. (Rocky Mountain Herbarium 2020; SEINet 2020)
6/5/1979	Unknown	U.S.A., Wyoming, Lincoln County: Wyoming/Salt River Ranges; ca 7.6 air mi S of Smoot on U.S. 89, then SE ca 1.3 mi on Smith Fork Road. 42.5125° N, 110.9008° W; uncertainty 0.5 mi.	Meadow. Phenology: flowering. Elev. 7800 ft.	Ronald L. Hartman, #8936. with B. E. Nelson (Rocky Mountain Herbarium 2020; SEINet 2020; WYNDD 2020)
6/5/1979	Unknown	U.S.A., Wyoming, Lincoln County: Wyoming/Salt River Ranges: Salt River Range: Salt River Pass, ca 8.8 air mi S of Smoot on U.S. Hwy 89. 42.5055° N, 110.9086° W; NAD 83, uncertainty 700 ft.,	Open slopes. Phenology: flowering. Elev. 7600 ft.	Ronald L. Hartman, 8935. with B. E. Nelson. (Rocky Mountain Herbarium 2020; SEINet 2020; WYNDD 2020)
6/4/1987	Unknown	U.S.A., Wyoming, Lincoln County: Junction of Poison Creek and Grays River roads, ca 1.5 mi N of Tri Basin Divide.	Rocky flat in a forb community. Phenology: flowering. Elev. 8300 ft.	N. Duane Atwood, 12815. (Rocky Mountain Herbarium 2020; SEINet 2020)

		42.5567° N, 110.6738° W; uncertainty 1 mi.		
6/13/1990	Unknown	U.S.A., Wyoming, Teton County: Gros Ventre: ca 1.8 air mi E of Hoback Junction. 43.3281° N, 110.705° W	Sagebrush slopes and ridge top with patches of Douglas fir and aspen. Elev. 6000-7200 ft.	Ronald L. Hartman, 25551. (Rocky Mountain Herbarium 2020; SEINet 2020; WYNDD 2020)
7/16/1990	Common	U.S.A., Wyoming, Sublette County: Wyoming/Salt River Ranges: Wyoming Range: 1.5 air mi E of Ramshorn Peak. 43.2275° N, 110.5442° W	Common in meadow. Elev. 8200 ft.	Ronald L. Hartman, 27315. (Rocky Mountain Herbarium 2020; SEINet 2020)
8/21/1990	Unknown	U.S.A., Wyoming, Lincoln County: Wyoming/Salt River Ranges: Wyoming Range: Trail 1-2 mi E of Pickle Pass en route to Hunter Creek. 43.0914° N, 110.6172° W	Open grassy slopes with scattered whitebark pine, subalpine fir, and Engelmann spruce. Elev. 9200-9600 ft.	Ronald L. Hartman, 27885. (Rocky Mountain Herbarium 2020; SEINet 2020)
6/22/1991	Unknown	U.S.A., Wyoming, Lincoln County: Bridger-Teton National Forest: East Slope Snake River Range: Munger Mountain, ca 4 air mi SE of Red Top Meadows. 43.3279° N, 110.7862° W	Mostly open slopes dominated by shrubs and forbs including *Amelanchier, Symphoricarpos, Balsamorhiza*, and bunchgrasses. Phenology: flowering. Elev. 6200-7200 ft.	Stuart Markow, 1219. (Rocky Mountain Herbarium 2020; SEINet 2020)
6/30/1991	Unknown	U.S.A., Wyoming, Teton County: Bridger-Teton National Forest: East Slope Snake River Range: summit ridge of Taylor Mountain. 43.3851° N, 110.8841° W	Open ridgetop dominated by grasses and forbes, with scattered patches of *Pinus flexilis* and *Abies lasiocarpa*. Phenology: flowering & fruiting. Elev. 7800-8000 ft.	Stuart Markow, 1796. (Rocky Mountain Herbarium 2020; SEINet 2020; WYNDD 2020)
6/6/1991	Unknown	U.S.A., Wyoming, Teton County: Bridger-Teton National Forest: Snake River Range: Mosquito Creek, ca 4 air mi SSW of Wilson. 43.4597° N, 110.9019° W	Douglas fir forest with scattered grass-forb openings. Phenology: flowering. Elev. 6200-6700 ft.	Ronald L. Hartman, 28700. 6/6/1991. with Stuart Markow (Rocky Mountain Herbarium 2020; SEINet 2020; WYNDD 2020)
7/26/1992	Unknown	U.S.A., Wyoming, Lincoln County: Wyoming/Salt River Ranges: Salt River	Calcareous substrate with open herb communities.	Ronald L. Hartman, 34876 (Rocky Mountain

		Range: Trail Creek to Elk Mountain, 1-1.7 mi NE of trail head; 8 air mi E of Alpine. 43.165° N, 110.8425° W	Phenology: fruiting. Elev. 7000-8000 ft.	Herbarium 2020; SEINet 2020; WYNDD 2020)
8/12/1992	Unknown	U.S.A., Wyoming, Lincoln County: Wyoming/Salt River Ranges: Wyoming Range: Middle Ridge E of Greys River, ca 11.5-12 air mi SE of Alpine, ca 26 air mi NNE of Afton. Elev. 8400-8600 ft. 43.0911° N, 110.8053° W; uncertainty 1 mi.	Hard clay flat with limited vegetation. Phenology: fruiting.	B. E. Nelson, 24132. with Russ Nelson (Rocky Mountain Herbarium 2020; SEINet 2020)
7/26/1992.	Unknown	U.S.A., Wyoming, Lincoln County: East slope Salt River Range: ca 1 mi W of Greys River, ca 1 mi S of Spring Creek adjacent to spur road off North Clear Creek Clearcut road, ca 14 air mi SE of Afton. 42.6292° N, 110.6738° W; uncertainty 1 mi.	Sandy barren hillsides in clearcut opening in lodgepole pine forest. Phenology: fruiting. Elev. 8500-8600 ft.	Walter Fertig, 13165. (Rocky Mountain Herbarium 2020; SEINet 2020; WYNDD 2020)
7/26/1992	Unknown	U.S.A., Wyoming, Lincoln County: West slope Wyoming Range: Shale Creek ca 1.5 mi SW of summit of Wyoming Peak, ca 16.5 air mi SE of Afton. 42.5857° N, 110.6545° W; uncertainty 1 mi.	West-facing steep sandy-shale slopes above creek; sandy openings interspersed with dense patches of sagebrush and snowberry. Phenology: fruiting. Elev. 8600-8800 ft.	Walter Fertig, 13167. (Rocky Mountain Herbarium 2020; SEINet 2020)
8/6/1992	Unknown	U.S.A., Wyoming, Lincoln County: Tunp Range: adjacent to Nugent Park Road; ca 0.5 mi S of junction with Hams Fork Road; ca 13.5 air mi NE of Cokeville. 42.2405° N, 110.7829° W; uncertainty 0.5 mi.	Sandy-rocky open meadow at edge of lodgepole pine forest. Phenology: fruiting. Elev. 8150 ft.	Walter Fertig, 13265 with Jane Struttman (Rocky Mountain Herbarium 2020; SEINet 2020)
8/20/1993	Unknown	U.S.A., Wyoming, Lincoln County: Wyoming/Salt River Ranges: Salt River Range: Commissary Ridge, southwest flank: Ridge between Pole Creek and East Fork Pole Creek. 42.1525° N, 110.6672° W	Aspen covered slopes with some lodgepole pine and subalpine fir. Phenology: fruiting. Elev. 8200-8500 ft.	Ronald L. Hartman, 44691 (Rocky Mountain Herbarium 2020; SEINet 2020)

7/25/1993	Unknown	U.S.A., Wyoming, Lincoln County: Wyoming/Salt River Ranges: Salt River Range: road S from Smith's Fork Road to Smiths Dry Fork. 42.4839° N, 110.8617° W	Grassy slopes and adjacent coniferous forest. Phenology: flowering & fruiting. Elev. 7600-7700 ft.	Ronald L. Hartman, 42290. (Rocky Mountain Herbarium 2020; SEINet 2020)
7/25/1993	Unknown	U.S.A., Wyoming, Lincoln County: Wyoming/Salt River Ranges: Salt River Range: Little Coral Creek trailhead, 1.5 air mi S of Tri Basin Divide. 42.4992° N, 110.71° W	Meadow with stream and adjacent coniferous forest. Phenology: flowering & fruiting. Elev. 9000 ft.	Ronald L. Hartman, 42283. (Rocky Mountain Herbarium 2020; SEINet 2020)
6/21/1993	Unknown	U.S.A., Wyoming, Sublette County: Wyoming/Salt River Ranges: Salt River Range: Packsaddle Ridge, S of Snider Basin, ca 23.5 air mi WSW of Big Piney. 42.4567° N, 110.5767° W	Wet park. Phenology: flowering. Elev. 8940 ft.	B. E. Nelson, 26111 with Russ Nelson (Rocky Mountain Herbarium 2020; SEINet 2020; WYNDD 2020)
7/31/1993	Unknown	U.S.A., Wyoming, Lincoln County: Wyoming/Salt River Ranges: Salt River Range: east of Commissary Ridge, from trailhead to Fontenelle Creek on trail to Fontenelle Mountain. Elev. 8900-9100 ft. 42.3992° N, 110.6108° W	Coniferous forest with stream and pond. Phenology: flowering & fruiting	Ronald L. Hartman, 42986. (Rocky Mountain Herbarium 2020; SEINet 2020)
8/3/1993	Unknown	U.S.A., Wyoming, Lincoln County: Wyoming/Salt River Ranges: Salt River Range: Commissary Ridge Area: Packtrail between Way Creek and Hams Fork Creek, ca 20 air mi NE of Cokevillle. 42.3425° N, 110.7256° W	Coniferous forests and openings. Phenology: flowering & fruiting. Elev. 8600-9100 ft.	Ronald L. Hartman, 43598 (Rocky Mountain Herbarium 2020; SEINet 2020)
7/28/1993	Unknown	U.S.A., Wyoming, Lincoln County: Wyoming/Salt River Ranges: Salt River Range: end of Indian Creek Road, ca 21 air mi NE of Cokeville. 42.3139° N, 110.6472° W	Coniferous forests, grassy slopes and shaley, semi-barren slopes with stream below. Phenology: flowering. Elev. 9000-9200 ft.	Ronald L. Hartman, 42587 (Rocky Mountain Herbarium 2020; SEINet 2020)
7/28/1993	Unknown	U.S.A., Wyoming, Lincoln County: Wyoming/Salt River Ranges: Salt River Range: Tunp Range on ridge between Sawmill	Open ridge with patches of conifers and aspen. Phenology: fruiting. Elev. 8500-8550 ft.	Ronald L. Hartman, 42771 (Rocky Mountain Herbarium 2020; SEINet 2020)

		Creek and Kelly Creek, ca 15 air mi NNE of Cokeville. 42.2697° N, 110.7828° W		
7/22/1995	Unknown	U.S.A., Wyoming, Sublette County: Green River Basin: Bald Mountain, ca 21 air mi WNW of Big Piney. 42.6728° N, 110.4618° W; uncertainty 0.5 mi. (**possibly on BTNF**)	Mountainside meadows and aspen groves. Phenology: flowering. Elev. 9040-9440 ft.	Thomas Cramer, 8833 with Jane T. Kellett (Rocky Mountain Herbarium 2020; SEINet 2020; WYNDD 2020)
6/14/1996	Unknown	U.S.A., Wyoming, Lincoln County: Snake River Range: north side of U.S. Hwy 26-289 along East Table Creek, just N of Snake River; ca 11 air mi ENE of Alpine Junction. 43.2135° N, 110.8058° W; uncertainty 0.5 mi.	Fine textured gray shale slopes below rocky ridgecrest; cover ca 5-15%; late snow bank area. Phenology: flowering & fruiting. Elev. 6400-7050 ft.	Walter Fertig, 16647 (Rocky Mountain Herbarium 2020; SEINet 2020; WYNDD 2020)
1997	Unknown	U.S.A., Wyoming, Teton Co., Wyoming Range, Rimrock Ranch Road, slope west of the road, 3.6 km (2.2 mi) air distance south-southeast of Camp Davis 43.2514 -110.6492	In a meadow. Location Remarks: The elevation also appears on the label as: 7280 ft. Elevation: 2220-2220 meters Verbatim Elevation: 7283 ft	Holmgren 12883 (SEINet 2020)
2010	Unknown	USA, Wyoming, Lincoln, Bridger-Teton National Forest. Wyoming Range, Kelly Creek 0.15 mi nw. of Kelly Creek Guard Station. 42.26666 -110.8	Forb-grass parkland surrounded by coniferous forest. Elevation: 8200 ft.	Goodrich 27875 (SEINet 2020)
2010	Unknown	USA, Wyoming, Lincoln, Bridger-Teton National Forest, Wyoming Range, Kelly Creek, 0.15 miles northwest of Kelly Creek Guard Station. 42.73389 -110.61194 +-301m. WGS84	Forb-grass parkland surrounded by coniferous forest. Reproductive Condition: Flowering and fruiting. Elevation: 8200ft	Goodrich 27875A (SEINet 2020)

[1]The 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

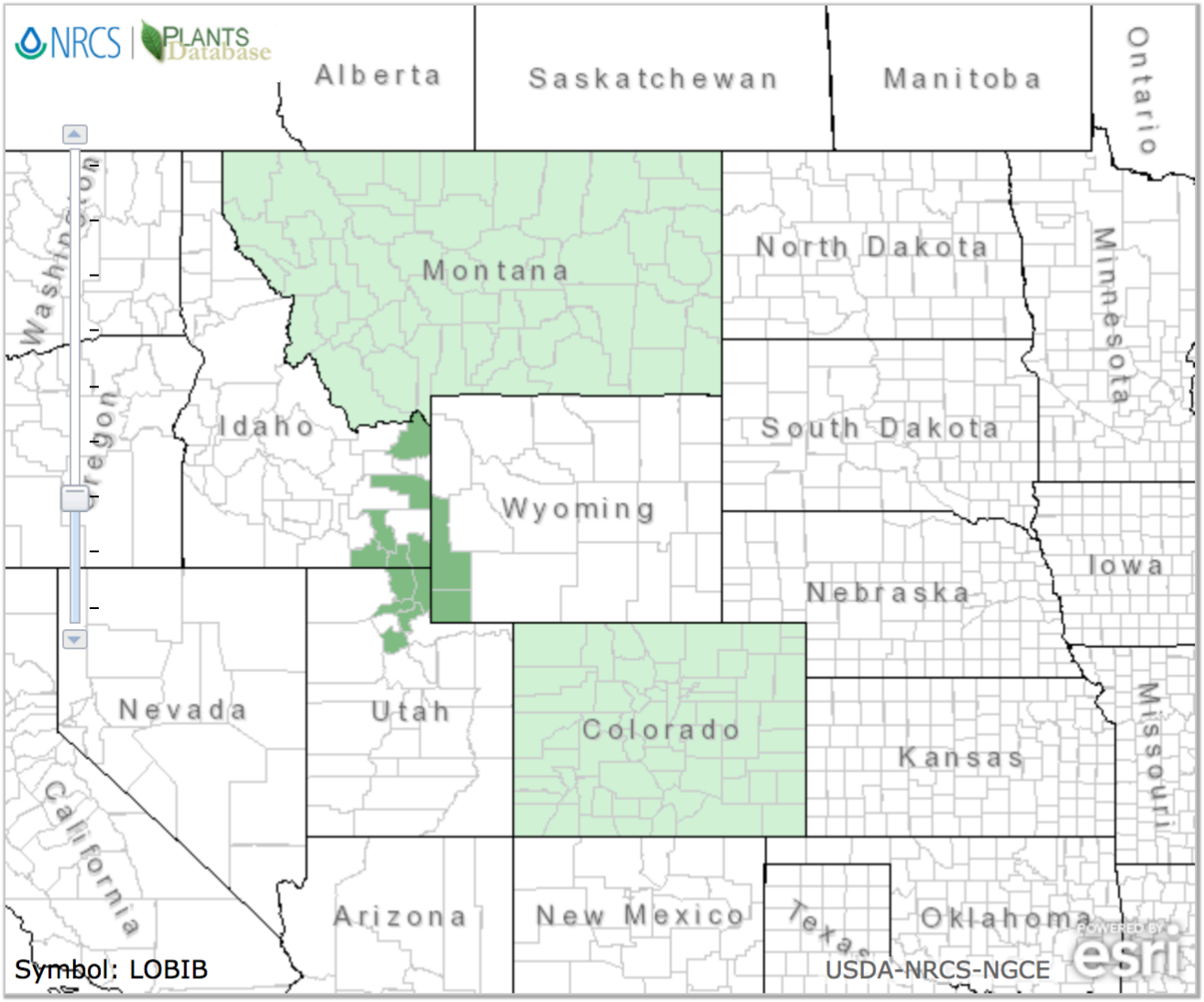
c. For species with known occurrences on the Forest predating 1990, does the weight of evidence suggest the species still occurs in the plan area?

Yes__X_ No___

N/A—occurrences have been documented since 1990.

If determination is no, stop assessment

Map 1, *Lomatium bicolor var. bicolor* range in Wyoming and surrounding states (NRCS 2020).

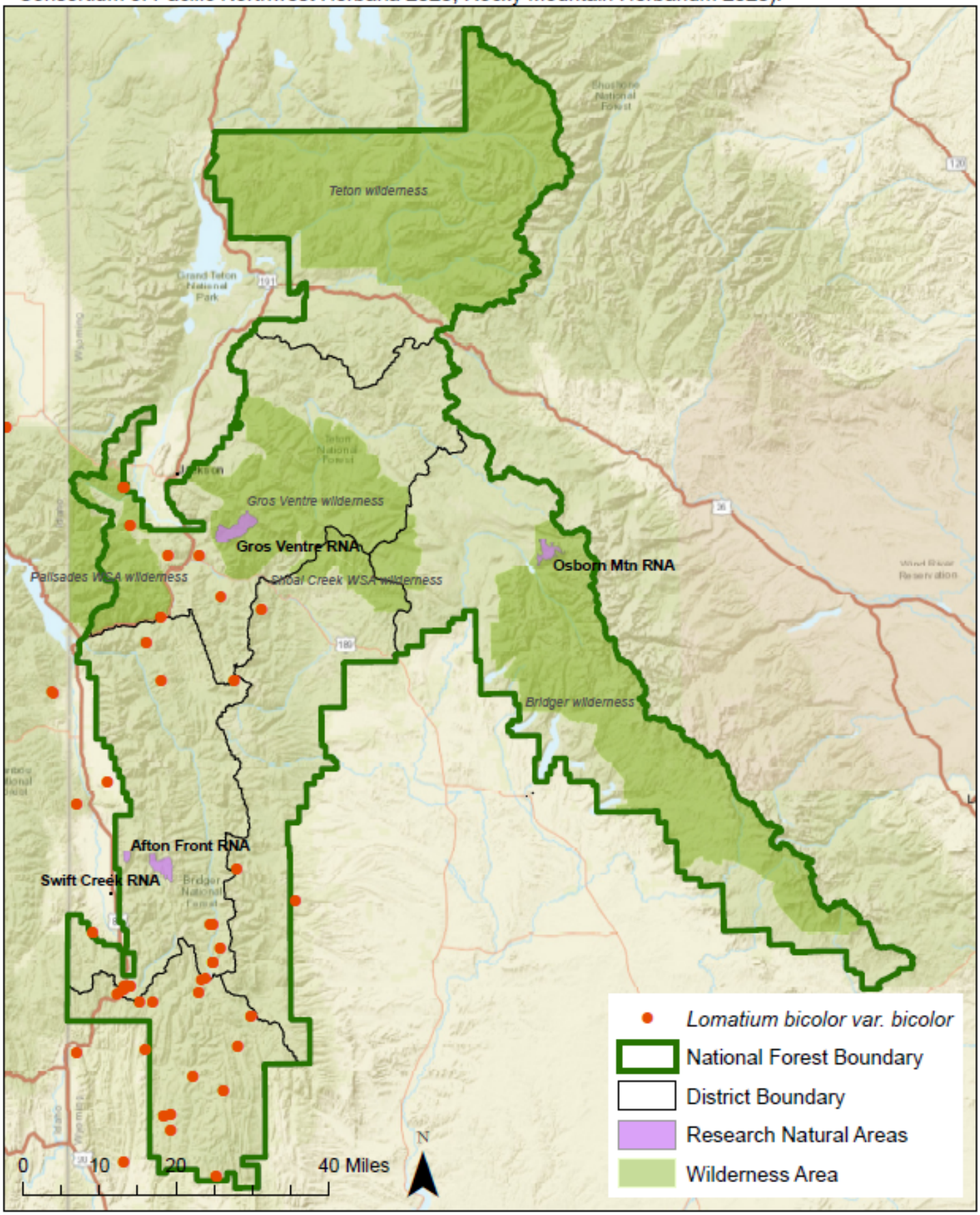


Native
Native, No County Data
Introduced
Introduced, No County Data
Both
Both, No County Data
Absent/Unreported

Native Status:

L48 AK HI PR VI NAV CAN GL SPM NA

Map 2, *L. convallarioides* occurrences in Bridger-Teton National Forest vicinity (SEINet 2020; Consortium of Pacific Northwest Herbaria 2020; Rocky Mountain Herbarium 2020).



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** *At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.* **T3T4— Infraspecific Taxon Vulnerable— Apparently Secure** *At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors—At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.*
NatureServe State Status	**S2—Imperiled** *At 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 Potential Concern** **G4T3T4/S2** *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.* *(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 2020; 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	*Lomatium bicolor var. bicolor* is known from 33 occurrences on the Bridger-Teton National Forest. All but nine of these were located since 1990. Occurrences are generally in the mid to lower–west portion of the Forest, in various habitats (Table 1, Map 2). Numerous occurrences suggest the species is broadly distributed across the Forest within suitable habitat.
Distribution outside the Bridger-Teton National Forest	*Lomatium bicolor var. bicolor* is a regional endemic of northern Utah, southeastern Idaho, southwestern Wyoming, Colorado, and Montana. In Wyoming, it is known from 33 occurrences from the Salt River, Snake River and Wyoming Ranges and the Overthrust Belt (Lincoln, Sublette, Teton and Uinta counties) (WYNDD 2020b).
Abundance on the Bridger-Teton National Forest	*Lomatium bicolor var. bicolor* is considered uncommon in Wyoming (Heidel 2018), though some populations may be locally abundant (Fertig 2000). Some occurrences on the Forest (Table 1) were noted to be common or abundant. However, most records do not report abundance, and overall on the Bridger-Teton National Forest cannot be assessed.
Population Trend on the Bridger-Teton National Forest	Overall, *L. bicolor var. bicolor* appears to be secure within its primary range (NatureServe 2020). However, population trends in Wyoming, including on the Bridger-Teton National Forest, are unknown (Heidel 2018; WYNDD 2020b) due to lack of data.
Habitat Trend on the Bridger-Teton National Forest	*Lomatium bicolor var. bicolor* inhabits moist to dry hillsides and valley bottoms in sagebrush, mountain shrub, meadow, and pine forests. Wyoming populations are in grassy montane meadows, alkali sagebrush communities, and forest edges on clay-loam soils (WYNDD 2020b) at 7500-8500 ft (Fertig 2000a, 2000b). It is associated with the Conifer; barren hillsides general habitat type. Vegetation mapping on the Bridger-Teton National Forest shows that 11 percent of the Forest area is classified as the Inter-Mountain Basins Montane Sagebrush Steppe biophysical setting (BpS), indicating that habitat for *L. bicolor var. bicolor* is available on the Forest (Helmbrecht et al. 2012). Mapping also indicates that this habitat may be subject to high-severity fires (Helmbrecht et al. 2012). 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). Three occurrences (Markow 1796, Hartman 28700, and Fertig 16647) are within the Palisades WSA. A Wilderness Area is “an area of undeveloped Federal land retaining its primeval character and influence, without permanent 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 for these populations.

Criteria	Rationale
	The remaining 30 occurrences do not occur within Wilderness Areas or Research Natural Areas, and thus habitat is not receiving protections from anthropogenic activities otherwise afforded by these designations. Many of these occurrences occur near motorized roads and trails. Road use may have facilitated human presence into the species' habitat, which could cause habitat degradation and damage to individuals (e.g., through trampling). Additionally, all occurrences (except Hartman 28700, Hartman 2551, and Fertig 16647) are within active RMUs. It is likely that grazing may has impacted habitat by compacting sediment, trampling herbaceous vegetation, increasing bare ground, and facilitating noxious weed expansion. A few occurrences lie within the perimeter of large fire events. These are Nelson 26111 (Fontelle Fire 2012), Hartman 34876 (Middle Fire 2007), and Hartman 28700 (Green Knoll Fire 2001). It is likely that wildfires have contributed to habitat alterations and potentially loss of individuals or populations. Many populations occur near invasions non-native plants, such as *Carduus nutans* and *Cirsium arvense*. These invasive species may compete for habitat with *L. bicolor var. bicolor.* Given the large size and broad distribution of the invasions and their proximity to the occurrences, they have likely compromised habitat conditions. Given this information, it is likely these populations have experienced moderate to high impacts from natural and anthropogenic disturbance.
Threats to the Species and its Habitat on the Bridger-Teton National Forest	Specific threats *to L. bicolor* var*. bicolor* are unknown (WYNDD 2020b). Plants appear to tolerate soil disturbance from gophers and grazing (Fertig 2000a, 2000b). Climate change is likely a significant threat to forest and nonforest ecosystems of the Intermountain West. Projections for the Intermountain Adaptation Partnership region estimate that average annual minimum and maximum temperatures are likely to increase by 5 to 12 deg F, mean annual precipitation will remain the same or increase slightly, extreme events (e.g., drought and extreme precipitation events) will occur more frequently and be more severe, and greenhouse gas concentrations will continue to increase through the end of the 21st century. Increased minimum daily temperatures have resulted in longer frost-free periods. Projections vary by subregion, but even where precipitation is projected to increase slightly, higher temperatures are likely to increase effective drought and soil water deficit (Halofsky et al. 2018). Changes in temperature and precipitation may also lead to greater variability in forb flowering, which could create an asynchronistic effect with native pollinator emergence (Halofsky et al. 2018; Miller-Struttmann et al. 2015), leading to decreased reproduction in native plants. As pollinators are critical for successful reproduction and seed set for approximately 85% of flowering species globally (Hatfield et al. 2012), this asynchronistic effect may have profound implications.

Criteria	Rationale
Life history and demographic characteristics of the species	*Lomatium bicolor var. bicolor* is a glabrous or minutely scabrous perennial forb 10-40 cm tall with a bulbous-thickened taproot and buried stem bases. The parsley-like leaves are ternate-pinnately compound and have slender ultimate segments about 0.5 mm wide by 2-7 mm long. The inflorescence is a compound umbel of globe-shaped, yellow flower clusters borne on unequal stalks subtended by slender involucel bracts 2-3 mm long. Fruiting stalks are usually 3 mm or less long and erect. Fruits are narrow, flat, 7-12 mm long, and densely clustered. Flowering occurs from Late May-August (MNHP 2020; WYNDD 2020b).
Date: 3/18/20 Reviewer: L. Chipman	

Summary and Recommendations
Species (Scientific and Common Name): ***Lomatium bicolor*** or *Lomatium bicolor* var. *bicolor* (Wasatch biscuitroot)
This species previously had two recognized varieties. Both varieties have been elevated into separate species, with *Lomatium bicolor* var. *bicolor* now recognized as *Lomatium bicolor*. It is listed as S2 (imperiled) and G4T3T4 (varietal taxon vulnerable/apparently secure) globally. It is a regional endemic of northern Utah, southeastern Idaho, southwestern Wyoming, Colorado, and Montana. In Wyoming, it is known from 33 occurrences from the Salt River, Snake River, Wyoming Ranges and the Overthrust Belt (WYNDD 2020b). Plants grow in moist to dry hillsides and valley bottoms in sagebrush, mountain shrub, meadow, and pine forests between 7,500' and 8,500 elevation (Fertig 2000a, 2000b). Overall, *L. bicolor var. bicolor* appears to be secure within its primary range (NatureServe 2020), but population trends in Wyoming are unknown (Heidel 2018; WYNDD 2020b). Most occurrences lack a population estimate, but some are noted as common or abundant. Potential disturbances are numerous, including by grazing, wildfire, invasive plants and recreation. All occurrences fall within active RMUs, but plants appear to tolerate soil disturbance from grazing (and gophers) (Fertig 2000a, 2000b). That said, shrubland habitats may be susceptible to a long-term increase in fire frequency and severity (Helmbrecht et al. 2012). Three occurrences lie within the perimeter of large fire events and the effect of resulting habitat alteration is not known. Many populations occur near invasive species such as *Carduus nutans* and *Cirsium arvense,* raising the possibility for increased competition over. The presence of motorized roads and trails near many L. bicolor var. bicolor occurrences may facilitate such invasion. While this species has several potential threats, the many occurrences across its range suggest that it is common and even abundant at some locations. Evidence suggests that plants may resist low or localized levels of soil disturbance. Thus, it is recommended that *Lomatium bicolor* var. *bicolor* not be added as a SCC. That said, management decisions by the Bridger-Teton Forest will affect about ¼ of its total range and could greatly influence the species' long-term persistence. The addition of trend data, or experimental results for populations affected by wildfire, grazing or invasive species will great improve assessment of conservation need in this species.
Evaluator: Jessica Irwin & Rose Lehman Date: 05/05/20; 01/13/21

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