

<b>SPECIES: Scientific [common]</b>	<i>Astragalus leptaleus</i> [park milkvetch]
<b>Forest:</b>	Salmon–Challis National Forest
<b>Forest Reviewer:</b>	<b>Jessica M Dhaemers; Brittni Brown; John Proctor</b>
<b>Date of Review:</b>	<b>09/25/17; 12 February 2018; 24 March 2018</b>
<b>Forest concurrence (or recommendation if new) for inclusion of species on list of potential SCC: (Enter Yes or No)</b>	<b>YES</b>

**FOREST REVIEW RESULTS:**

1. The Forest concurs or recommends the species for inclusion on the list of potential SCC:  
Yes X 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

<b>Year Observed</b>	<b>Number of Individuals</b>	<b>Location of Observations (USFS District, Town, River, Road Intersection, HUC, etc.)</b>	<b>Source of Information</b>
1991	Hundreds	Lost River Ranger District 0.7 miles upstream from Jim Canyon on left side of road among willows along North Fork Big Lost River.	IDFG Element Occurrence EO Number: 1 EO_ID: 2350
1982 1991	No data Not relocated	Lost River Ranger District Kane Creek, 1.8 miles south of junction with Summit Creek in meadow just below road on east side of stream.	IDFG Element Occurrence EO Number: 8 EO_ID: 2542
1991	>10,000	Lost River Ranger District Wildhorse Creek, beginning at Wildhorse Guard Station and extending south (upstream) circa 1 mile on the west side of the	IDFG Element Occurrence EO Number: 9 EO_ID: 1308

Year Observed	Number of Individuals	Location of Observations (USFS District, Town, River, Road Intersection, HUC, etc.)	Source of Information
		creek.	
1991	1	Lost River Ranger District East Fork Big Lost River, circa 0.1 mile below the confluence with Willow Creek.	IDFG Element Occurrence EO Number: 11 EO_ID: 4010
1991	101-1,000	Lost River Ranger District Along west edge of riparian zone along Wildhorse Creek, just downstream from the confluence with Fall Creek.	IDFG Element Occurrence EO Number: 12 EO_ID: 3437
1992	No data	Leadore Ranger District Circa 7 road miles northeast of Leadore along State Route 29 and circa 8.5 road miles south of the Idaho/Montana border.	IDFG Element Occurrence EO Number: 17 EO_ID: 812
1997	100+	Leadore Ranger District Lower Texas Creek, ca 1 mile upstream from confluence with Eighteenmile Creek; ca 1 mile SE of Leadore	IDFG Element Occurrence EO Number: 24 EO_ID: 67

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 \_\_\_

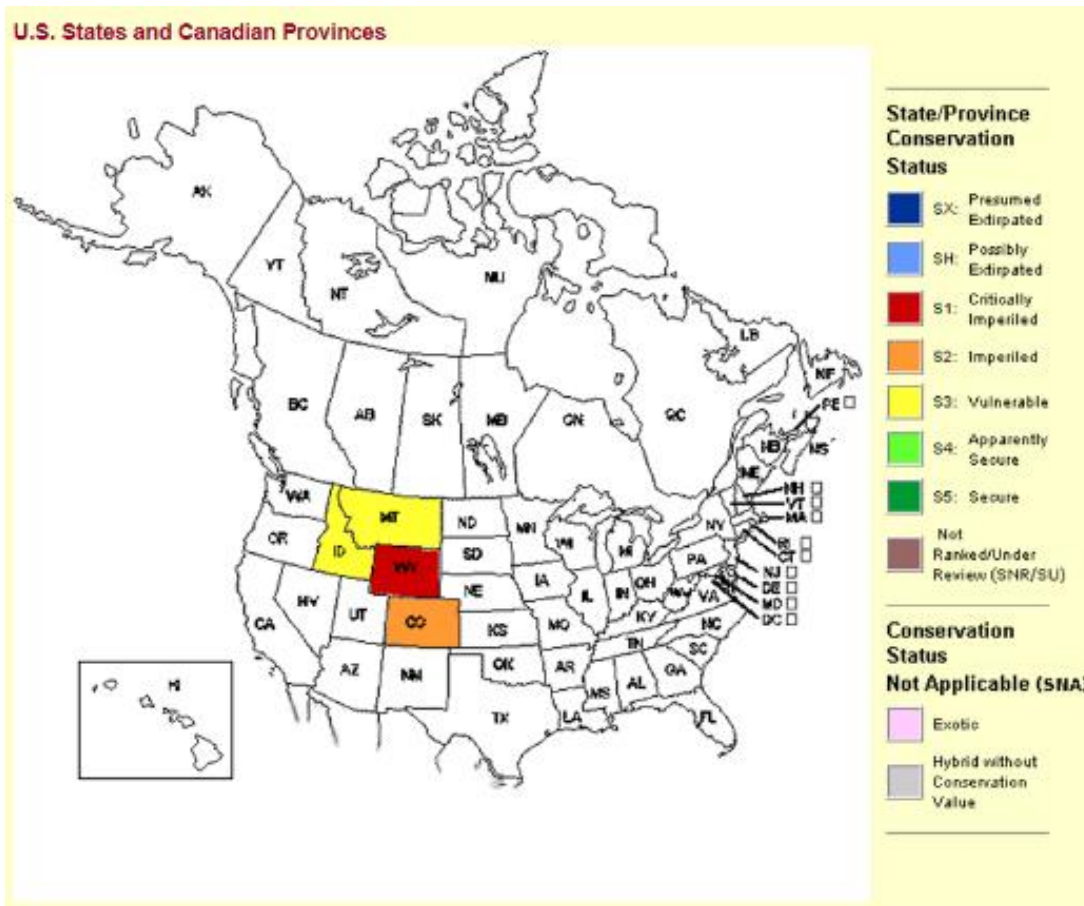
Provide explanation for determination

N/A. Occurrences have been documented since 1990.

If determination is no, stop assessment

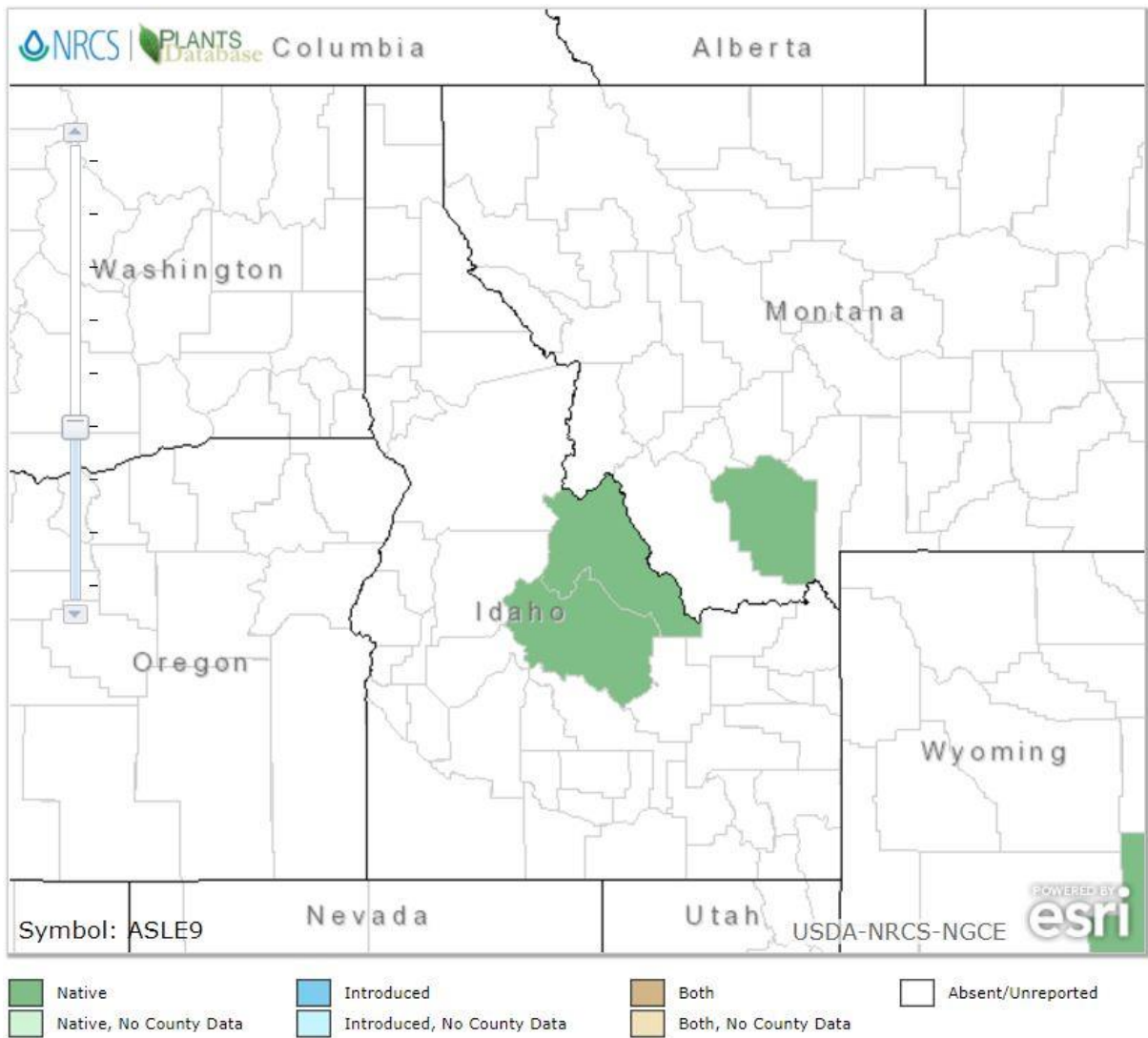


d. **Map 1**, Park milkvetch range in the US and Canada (NatureServe 2009)



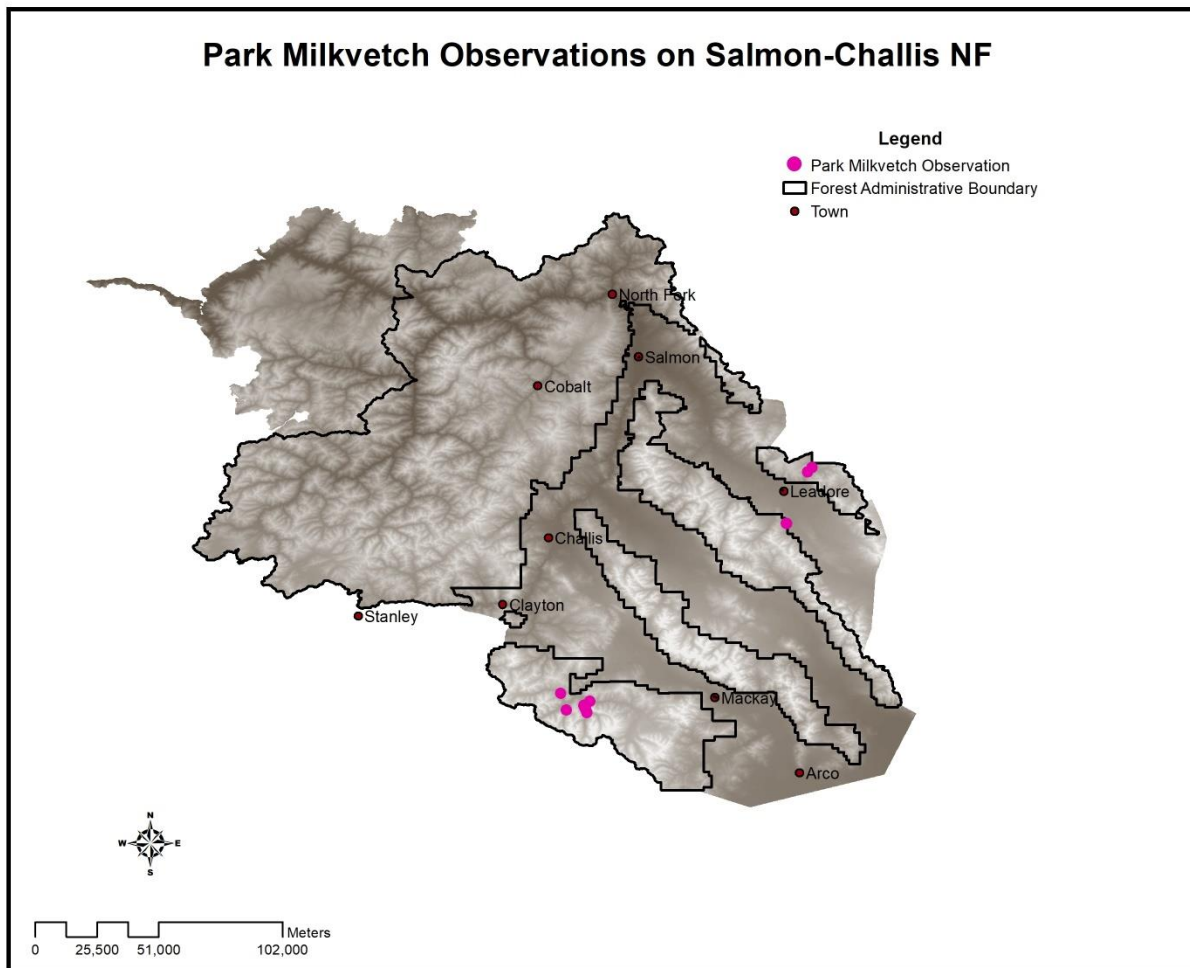
NatureServe. 2009. Comprehensive Species Report. *Astragalus leptaleus*. Internet website: <http://explorer.natureserve.org/servlet/NatureServe?searchName=Astragalus%20leptaleus>. Accessed on: September 12, 2017.

e. **Map 2**, Park milkvetch range in Idaho (NRCS 2017)



USDA NRCS. 2017. Plants Profile for *Astragalus leptaleus*. Internet website: <https://plants.usda.gov/core/profile?symbol=ASLE9>. Accessed on September 12, 2017.

- f. **Map 3**, Park milkvetch occurrences on the Salmon–Challis National Forest (Idaho Fish and Wildlife Information System [January 2017])



September 11, 2017

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 if Other)
Global Rank	G4—Apparently Secure (Uncommon but not rare; some cause for long-term concern due to declines or other factors) <sup>1</sup>
State Rank	S3—Vulnerable (At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.) <sup>1</sup>
USDA Forest Service	Region 1: Not listed <sup>2</sup> Region 4: Not listed <sup>3</sup>
USDI FWS	Not listed as a candidate species <sup>4</sup>
Other	Idaho Native Plant Society: 2016 – on list, not yet ranked <sup>5</sup> ; 2011 – State Monitor (Taxa common within a limited range in Idaho, as well as those which are uncommon, but have no identifiable threats) <sup>6</sup>  BLM Type 4 (Species of Concern - These are species generally rare in Idaho with small populations or localized distribution and currently have low threat levels. However, due to the small populations and habitat area, certain future land uses in close proximity could significantly jeopardize these species) <sup>7</sup>

1. Idaho Natural Heritage Program. 2016. IDNHP Tracked Plant Species 2016. On file. Accessed January 12, 2018
2. USFS Region 1. 2011. 2011 Sensitive Species List Idaho and Montana. Website: <http://fsweb.r1.fs.fed.us/wildlife/wwfrp/TEsnew.htm>. Accessed January 10, 2017.
3. USFS Region 4. 2016. Proposed, Endangered, Threatened, and Sensitive Species List. On file. Accessed January 11, 2017.
4. USFWS. 2017. Candidate species believed to or known to occur in Idaho. Website: <https://ecos.fws.gov/ecp0/reports/species-listed-by-state-report?state=ID&status=candidate>. Accessed January 12, 2018.
5. Idaho Native Plant Society. 2016. INPS Rare Plant List May 2016. <https://idahonativeplants.org/rare-plants-list/> Accessed January 10, 2018.
6. Idaho Native Plant Society. 2011. Results of the twenty-fifth Idaho Rare Plant Conference – The Idaho Native Plant Society rare plant list. Website: [https://idahonativeplants.org/rpc/pdf/2011\\_Results\\_IRPC\\_v2.2.pdf](https://idahonativeplants.org/rpc/pdf/2011_Results_IRPC_v2.2.pdf). Accessed on January 11, 2018.
7. BLM. 2016. Bureau of Land Management Idaho Special Status Plants List Aug 2016. On file. Accessed 15 January, 2018.

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

Species (Scientific and Common Name): <i>Astragalus leptaleus</i> (park milkvetch)			
Criteria	Rank	Rationale	Literature Citations
1 Distribution on Salmon–Challis National Forest	A3	<p>This species is known from seven occurrences on SCNF; two occurrences are on the Leadore Ranger District and five are on the Lost River Ranger District. A systematic survey for the species was conducted in 1991 (Moseley 1991), in which 16 populations were visited throughout the region. A total of 14 extant populations exist in the area – many of which are on the Challis National Forest. Moseley was unable to relocate one site previously known on the CNF. Potential habitat is considered isolated and patchy (see Criterion 6), with limited opportunity for dispersal (Rank A).</p> <p>Confidence in Rank: <b>High</b>, Medium, or Low</p>	<p>Moseley, R.K. 1991. A field investigation of Park Milkvetch (<i>Astragalus leptaleus</i>). Idaho Department of Fish and Game. <a href="https://fishgame.idaho.gov/ifwis/idnhp/cdc_pdf/moser91a.pdf">https://fishgame.idaho.gov/ifwis/idnhp/cdc_pdf/moser91a.pdf</a></p>
2 Distribution in surrounding geographic area	B	<p>This species has been documented to occur outside of SCNF in Colorado, Montana, and Wyoming. In Colorado, this species is known from one occurrence of 20 individuals in 1994, while other occurrences are several decades to more than a century old (Ladyman 2006). In Wyoming, there are five extant occurrences and one historic collection area (Heidel 2017). There are only two occurrences documented in Montana (Ladyman 2006). In Idaho, this species occurs in Custer and Lemhi Counties with 15 occurrences documented outside of SCNF. This species has a limited geographic distribution outside of SCNF (Rank B).</p> <p>Confidence in Rank: <b>High</b>, Medium, or Low</p>	<p>Heidel, B. 2017. Status of <i>Agtragalus leptaleus</i> (Park milkvetch) in south-central Wyoming. Prepared for Bureau of Land Management, WY State Office and Rawlins Field Office. Wyoming Natural Diversity Database. <a href="https://www.uwyo.edu/wyndd/files/docs/reports/wynddreports/u17hei04wyus.pdf">https://www.uwyo.edu/wyndd/files/docs/reports/wynddreports/u17hei04wyus.pdf</a></p> <p>Ladyman, J.A.R. 2006. <i>Astragalus leptaleus</i> Gray (park milkvetch): a technical conservation assessment. USDA Forest Service, Rocky Mountain Region. Internet website: <a href="https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5206825.pdf">https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5206825.pdf</a>. Accessed on September 12, 2017.</p>



Species (Scientific and Common Name): ***Astragalus leptaleus* (park milkvetch)**

Criteria	Rank	Rationale	Literature Citations
<p>3 Dispersal Capability</p>	<p>B</p>	<p>This species reproduces sexually and is known to flower from July – September (Heidel 2017). <i>A. leptaleus</i> is not known to have any specialized dispersal vectors (Heidel 2017), although the seed dispersal mechanism may include wind, water, arthropods, and small mammals (Ladyman 2006). Wind is likely to only disperse seeds short distances (Ladyman 2006). Water would be important to dispersal in riparian locations. Rodents may store fruits and disperse seeds for short distances (Ladyman 2006). Populations occur as small, dense clusters of individuals indicating that dispersal distances are not great, and the rhizomatous growth habitat is probably responsible for most population expansion (Ladyman 2006). This species has a variety of short-distance dispersal mechanisms available to it and disperses only through suitable habitat (Rank B).</p> <p>Confidence in Rank: High, <b>Medium</b>, or Low</p>	<p>Heidel, B. 2017. Status of <i>Agtragalus leptaleus</i> (Park milkvetch) in south-central Wyoming. Prepared for Bureau of Land Management, WY State Office and Rawlins Field Office. Wyoming Natural Diversity Database. <a href="https://www.uwyo.edu/wyndd/ files/ docs/reports/wynddreports/u17hei04 wyus.pdf">https://www.uwyo.edu/wyndd/ files/ docs/reports/wynddreports/u17hei04 wyus.pdf</a></p> <p>Ladyman, J.A.R. 2006. <i>Astragalus leptaleus</i> Gray (park milkvetch): a technical conservation assessment. USDA Forest Service, Rocky Mountain Region. Internet website: <a href="https://www.fs.usda.gov/Internet/FSE _DOCUMENTS/stelprdb5206825.pdf">https://www.fs.usda.gov/Internet/FSE _DOCUMENTS/stelprdb5206825.pdf</a>. Accessed on September 12, 2017.</p>
<p>4 Abundance on the Salmon–Challis National Forest</p>	<p>B</p>	<p>Documented occurrences on the SCNF are limited to seven populations on the Lost River and Leadore Ranger Districts. Based on EO records, populations range from one individual to over 10,000. The abundance for this species centers on the population around Wildhorse Creek in the Lost River Ranger District (EO 9) where greater than 10,000 individuals were observed in 1991 (IDFG 2017). The current abundance is large enough that demographic stochasticity is not likely to lead to rapid local extinction, but, in combination with variable environmental factors, could pose a threat (Rank B).</p> <p>Confidence in Rank: <b>High</b>, Medium, or Low</p>	<p>IDFG. 2017. Idaho Fish and Wildlife Information System, Species Diversity Database, Idaho Natural Heritage Data. Accessed on February 27, 2017.</p>

Species (Scientific and Common Name): *Astragalus leptaleus* (park milkvetch)

Criteria	Rank	Rationale	Literature Citations
<p>5 Population Trend on the Salmon– Challis National Forest</p>	<p>B</p>	<p>A targeted systematic survey of <i>A. leptaleus</i> was conducted in 1991, which identified eight new populations throughout the region (Moseley 1991). Of eight existing populations, two were not relocated (one of which was on the Challis National Forest). Since that time, several populations have been revisited and reported stable (IDFG 2017), although a second systematic survey of the area has not been conducted (Rank B).</p> <p>Confidence in Rank: High, <b>Medium</b>, or Low</p>	<p>IDFG. 2017. Idaho Fish and Wildlife Information System, Species Diversity Database, Idaho Natural Heritage Data. Accessed on February 27, 2017.</p> <p>Moseley, R.K. 1991. A field investigation of Park Milkvetch (<i>Astragalus leptaleus</i>). Idaho Department of Fish and Game. <a href="https://fishgame.idaho.gov/ifwis/idnhp/cdc_pdf/moser91a.pdf">https://fishgame.idaho.gov/ifwis/idnhp/cdc_pdf/moser91a.pdf</a></p>

<p>6 Habitat Trend on the Salmon–Challis National Forest</p>	<p>B</p>	<p>Habitat for this species is described as “the mesic ecotone between saturated riparian communities and dry, upland sagebrush-steppe” (Moseley 1991) and as moist sedgy meadows, along swales, or on turfy hummocks between 2,800 and 8,700 feet (Heidel 2017). Moseley (1991) observed that in Idaho the species was most commonly found in hummocks and on the dry fringe of Geyer’s willow/bluegrass or graminoid-dominated communities. Soils associated with these habitats were typically loamy, mineral soil that was dry at the surface, but moist just below (Moseley 1991).</p> <p>Aerial imagery between 1999 and 2017 was used to assess the areas directly around known populations to determine if any evidence of an above-ground disturbance which may have resulted in an impact to habitat for this species (Google Earth 2017); no evidence of residential or agricultural development, wildfires, or mining was depicted at any of EO.</p> <p>Review of USFS GIS (2016) information identified active grazing allotments overlap all EOs. Comments from the EO forms 1, 9, and 12 noted light to heavy grazing. Animal trails were depicted at all element occurrences except EO 17.</p> <p>Dirt roads are present at each EO and all have been constructed prior to 1999. Invasive plant populations (spotted knapweed [<i>Centaurea stoebe</i> ssp. <i>micranthos</i>] and black henbane [<i>Hyoscyamus niger</i>]) have been mapped in drainages near all EOs.</p> <p>The Idaho State Wildlife Action Plan reports springs and groundwater dependent wetlands are in poor condition across all landownerships due to historic heavy grazing, continued season-long grazing, development to provide livestock water, and OHV recreation (IDFG 2017b). The Spring Stewardship Institute has documented 669 springs and seeps on the SCNF. These were identified with the aid of the National Hydrography Dataset GIS layer, which typically underestimates the true number of springs (USFS 2017). A recent assessment of spring distribution on the</p>	<p>Google Earth. 2017. Salmon–Challis National Forest. Internet website: <a href="https://www.google.com/earth/">https://www.google.com/earth/</a>. Accessed on October 3, 2017.</p> <p>Heidel, B. 2017. Status of <i>Astragalus leptaleus</i> (Park milkvetch) in south-central Wyoming. Prepared for Bureau of Land Management, WY State Office and Rawlins Field Office. Wyoming Natural Diversity Database. <a href="https://www.uwyo.edu/wyndd/files/docs/reports/wynddreports/u17hei04wyus.pdf">https://www.uwyo.edu/wyndd/files/docs/reports/wynddreports/u17hei04wyus.pdf</a></p> <p>IDFG. 2017. Idaho Fish and Wildlife Information System, Species Diversity Database, Idaho Natural Heritage Data. Accessed on February 27, 2017.</p> <p>IDFG. 2017b. Idaho State Wildlife Action Plan, 2015. Boise, ID.</p> <p>Moseley, R.K. 1991. A field investigation of Park Milkvetch (<i>Astragalus leptaleus</i>). Idaho Department of Fish and Game. <a href="https://fishgame.idaho.gov/ifwis/idnhp/cdc_pdf/moser91a.pdf">https://fishgame.idaho.gov/ifwis/idnhp/cdc_pdf/moser91a.pdf</a></p> <p>USFS. 2016. SDE RMU Range Allotments. GIS Database Information. Data source: S_R04_SCF.rmu_unit. Last updated March 30, 2016.</p> <p>USFS (United States Department of Agriculture Forest Service). 2017.</p>
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	<p>SCNF indicates that 97% of land type associations (LTAs) on the Forest have spring distribution within NRV.</p> <p>Based on Forest Service maps there are roughly 111,000 acres of riparian herbaceous habitat on the SCNF. In general, riparian vegetation has seen past declines, but is largely within or trending towards the natural range of variability (USFS 2017). Conifer encroachment is the most frequent contributor to changes in riparian composition and condition on the Forest. Historic heavy grazing caused a shift in several plant communities (e.g. grassland extent increased) on the SCNF and resulted in shrubland and conifer species expansion into riparian areas (USFS 2017). This has been further exacerbated by fire suppression policies of the 1950s through 1990s. Livestock operations have shifted to more intensively-managed grazing systems to respond to concerns over impacts to riparian ecosystems and distribution of grazing effects across the Forest (USFS 2017). To a lesser extent, upland encroachment (possibly due to roads, diversions, and increased temperatures and drought) and alien plant species have also caused impacts to riparian habitat (USFS 2017).</p> <p>Recent fen mapping on the SCNF identified 1,126 acres of 'likely fen' locations, and an additional 4,622 acres were identified as either 'possible fen' or 'low likelihood fen' (Smith et al. 2017). The latter two categories, regardless of fen designation, suggest a groundwater dependent system, which may support the species. Livestock impacted fens have been observed on the SCNF (Beth Waterbury pers. commun.)</p> <p>Thus, riparian habitat remains broadly available on the SCNF and spring and seep distribution are within NRV. However, much of the Forest riparian habitat and surface flows have been impacted by management practices, conditions are improving on large extents, but some areas remain outside of NRV.</p> <p>Within the SCNF, there has been historical degradation of suitable habitat for this species. Given this information, and the lack of surveys to</p>	<p>Salmon-Challis National Forest Plan Revision Assessments. Topics 1&amp; 2: Terrestrial Ecosystems, Aquatic Ecosystems, Watersheds, Air, Soil, Water.</p>
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		<p>assess the quality of potentially suitable habitat, current habitat trends are assumed to be stable and possibly improving. However, invasive species are a substantial concern, as they are documented at all EOs (Rank B).</p> <p>Confidence in Rank: High, <b>Medium</b>, or Low</p>	
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<p>7 Vulnerability of Habitats on the Salmon–Challis National Forest</p>	<p>B</p>	<p>Habitat for this species is vulnerable to threats from unrestricted grazing, anthropogenic development, invasive species, and climate change.</p> <p>Grazing is an important land use on the SCNF contributing economically and socio-culturally to the local communities (USFS 2017b) Grazing allotments dominate SCNF landscapes outside of wilderness and research natural areas. Although roughly 23% of these allotments are currently vacant, grazing is expected to continue to be a dominant land use on the Forest into the future. Inappropriately managed livestock grazing can adversely affect the biota and hydrology of wetlands and riparian habitats (USFS 2017).</p> <p>Roads have been documented as a threat to populations (Moseley 1991) that have likely impacted populations in the past. Further development and maintenance represent a direct threat to populations. Road development and associated increases in recreational activities also increase the likelihood of the spread of invasive species, which are already present near all EOs.</p> <p>To project the future climate and impacts to resources in the Intermountain Region including the Salmon-Challis, the Intermountain Adaptation Partnership (IAP) used Representative Concentration Pathway [RCP] 4.5 and 8.5, which capture a moderate and high future warming, respectively (Halofsky et al. 2018). Although pathways predicting lower warming exist, the 4.5 and 8.5 pathways were chosen by the IAP because they are, in comparison, well studied providing a large set of projections that enhance our understanding of the possible range in future climate. Thus, this represents best available science for our Forest with regard to a warming climate.</p> <p>Although uncertainty exists about the magnitude and rate of climate change (For a discussion of this see Behrens et al. 2018), warming temperatures are the most certain consequence of increased CO2 in the atmosphere. By 2100, median minimum temperature in the Middle</p>	<p>Behrens, P.N., R.E. Keane, D.L. Peterson, and J.J. Ho. 2018. Chapter 6: effects of climatic variability and change on forest vegetation. In Halofsky, J.E., D.L. Peterson, J.J. Ho, N.L. Little, L.A. Joyce, editors. 2018. Climate change vulnerability and adaptation in the Intermountain Region. Gen. Tech. Rep. RMRS-GTR-XXX. Fort Collins, CO: US Department of Agriculture, Forest Service, Rocky Mountain Research Station.</p> <p>Halofsky, J.E., D.L. Peterson, J.J. Ho, N.L. Little, L.A. Joyce, editors. 2018. Climate change vulnerability and adaptation in the Intermountain Region. Gen. Tech. Rep. RMRS-GTR-xxx. Fort Collins, CO: US Department of Agriculture, Forest Service, Rocky Mountain Research Station.</p> <p>Hatfield, R., Jepsen, S., Mader, E., Black, S.H., Shepherd, M. 2012. Conserving bumble bees: guidelines for creating and managing habitat for America’s declining pollinators. The Xerces Society for Invertebrate Conservation.</p> <p>Joyce, L.A. and M. Talbert. 2018. Chapter 3: Historical and projected climate. In Halofsky, J.E., D.L. Peterson, J.J. Ho, N.L. Little, L.A. Joyce, editors. 2018. Climate change vulnerability and adaptation in the Intermountain Region. Gen. Tech. Rep. RMRS-GTR-</p>
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	<p>Rockies subregion, which includes the Salmon-Challis, is projected to rise about 5°F under the moderate warming scenario and about 10°F under the high warming scenario. Regardless of scenario, the greatest departure from historical seasonal minimum temperatures occurs in the summer. Annual precipitation projections are highly variable with no discernible trend under moderate warming and a slight increasing trend with high warming (Joyce and Talbert 2018).</p> <p>Riparian and wetland communities in the Intermountain Region will be moderately to highly vulnerable to climate warming depending on elevation (Halofsky et al. 2018). Plant communities composition and structure will be affected by increased water stress, and this could drive the replacement of riparian and wetland species with drought-tolerant upland species. This will be exacerbated where diversions and dams have been constructed. The adaptive capacity of systems will be greatly reduced where dewatering occurs and in systems impacted by improper grazing, roads, and nonnative species (Halofsky et al. 2018). Changes in flow regimes due to reduced snowpack, earlier snowmelt, and changes in precipitation could also drive changes in wetland species dependence on fluvial geomorphic processes, surface water, and groundwater.</p> <p>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-Struttman 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.</p> <p>The degree to which both populations and habitats are vulnerable to loss or disturbance on the Forest are dependent upon variability in severity of impacts from climate change, habitat modification, and future grazing management decisions (Rank B).</p>	<p>xxx. Fort Collins, CO: US Department of Agriculture, Forest Service, Rocky Mountain Research Station.</p> <p>Miller-Struttman, N.E., Geib, J.C., Franklin, J.D., Kevan, P.G., Holdo, R.M., Ebert-May, D., Lynn, A.M., Kettenbach, J.A., Hedrick, E., Galen, C. 2015. Functional mismatch in a bumble bee pollination mutualism under climate change. <i>Science</i>, 349(6255): 1541-1544.</p> <p>Moseley, R.K. 1991. A field investigation of Park Milkvetch (<i>Astragalus leptaleus</i>). Idaho Department of Fish and Game. <a href="https://fishgame.idaho.gov/ifwis/idnhp/cdc_pdf/moser91a.pdf">https://fishgame.idaho.gov/ifwis/idnhp/cdc_pdf/moser91a.pdf</a></p> <p>USFS (United States Department of Agriculture Forest Service). 2017. Salmon-Challis National Forest Plan Revision Assessments. Topics 1&amp; 2: Terrestrial Ecosystems, Aquatic Ecosystems, Watersheds, Air, Soil, Water.</p> <p>USFS (United States Department of Agriculture, Forest Service). 2017b. Salmon-Challis National Forest Data Assessment (Draft). On file at Salmon-Challis National Forest, Salmon, ID.</p>
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		Confidence in Rank: High, <b>Medium</b> , or Low	
8 Life History and Demographics	B	<p>This species is a perennial rhizomatous herb (Ladyman 2006). The reproductive system of this species has not been studied, but considering other <i>Astragalus</i> species, the flowers may be self- or cross-pollinated or both (Ladyman 2006). <i>Astragalus</i> species are generally insect-pollinated, with flowers visited by polylectic bees in the genera <i>Bombus</i>, <i>Osmia</i>, and <i>Anthrophora</i> (Heidel 2017).</p> <p>The low number of fruits on flowers and the plant's spreading growth habit suggests that plants allocate more resources to vegetative growth than to sexual reproduction (Ladyman 2006). This strategy reduces the need for frequent successful seed production and seedling recruitment (Ladyman 2006). This method of vegetative expansion is a common strategy in stress-tolerant plants (Ladyman 2006).</p> <p>This species occurs in wet meadows that are often used for cattle grazing (IDFG 2017). <i>A. leptaleus</i> is also palatable to cattle and sheep and has been noted to be heavily grazed (IDFG 2017).</p> <p>There have been no demographic studies or analysis of population viability for this species (Ladyman 2006). However, it has been suggested that the rhizomatous growth habit of this species may lead to the overestimation of individuals in a population, as many stems that appear unrelated above ground can be connected rhizomatously (Ladyman 2006). As such, the genetic diversity of populations may be overestimated and confound population viability analysis (Ladyman 2006).</p> <p>Evidence of rhizobial or mycorrhizal associates with the root system have not been documented (Ladyman 2006). However, rhizobial association is likely since the closely related species <i>A. alpinus</i> was reported to be</p>	<p>Heidel, B. 2017. Status of <i>Agtragalus leptaleus</i> (Park milkvetch) in south-central Wyoming. Prepared for Bureau of Land Management, WY State Office and Rawlins Field Office. Wyoming Natural Diversity Database. <a href="https://www.uwyo.edu/wyndd/files/docs/reports/wynddreports/u17hei04wyus.pdf">https://www.uwyo.edu/wyndd/files/docs/reports/wynddreports/u17hei04wyus.pdf</a></p> <p>Ladyman, J.A.R. 2006. <i>Astragalus leptaleus</i> Gray (park milkvetch): a technical conservation assessment. USDA Forest Service, Rocky Mountain Region. Internet website: <a href="https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5206825.pdf">https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5206825.pdf</a>. Accessed on September 12, 2017.</p>



	<p>nodulated, indicating an associated with nitrogen fixing bacteria (Ladyman 2006).</p> <p>This species has a low reproductive rate and an intermediate ability to recover from disturbance events (Rank B).</p> <p>Confidence in Rank: High, <b>Medium</b>, or Low</p>	
<p><b>Summary and recommendations:</b> This species is considered apparently secure globally and vulnerable in Idaho. It is known from seven occurrences on the Forest and a number of nearby occurrences outside of Forest Service jurisdiction.</p> <p><i>Astragalus leptaleus</i> reproduces sexually and forms rhizomatous mats, which may be more responsible for expansion. It is likely able to disperse short distances through suitable habitat. Populations range from one to over 10,000 individuals and are assumed stable based on infrequent revisitation of a few occurrence records. In Idaho, habitat is isolated and patchy; the species was most commonly found in hummocks and on the dry fringe of Geyer's willow/bluegrass or graminoid-dominated communities. Habitats have frequently been described as the ecotone between mesic areas and sagebrush steppe, an area particularly vulnerable to disturbance. The species is threatened by unrestricted, heavy grazing and road development. The invasive species spotted knapweed and black henbane have been documented nearby, but are currently not known to directly threaten populations. Long-term, climate change poses a threat <i>A. leptaleus</i> as it is projected to have a substantial long-term impact vegetative communities where the species is found.</p> <p>There is substantial concern for the capability of <i>Astragalus leptaleus</i> to persist over the long-term on the Salmon-Challis, therefore, it is recommended as a SCC.</p> <p>Evaluator(s): Dan Morta</p>		<p>Date: September 12, 2017</p>