

<b>SPECIES: Scientific [common]</b>	<i>Cymopterus douglassii</i> (Douglass' wavewing)
<b>Forest:</b>	Salmon–Challis National Forest
<b>Forest Reviewer:</b>	Brittni Brown; John Proctor
<b>Date of Review:</b>	14 February 2018; 20 March 2018
<b>Forest concurrence (or recommendation if new) for inclusion of species on list of potential SCC: (Enter Yes or No)</b>	YES

**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>
1994	>10,000; several thousand plants in fruit	Crest of Lemhi Range 1 mile S. of Sheep Mtn. Summit Along N. Summit Ridge down N. slope 0.25 mile  Border of Leadore and Lost River Ranger Districts	EO_ID: 2860 Old EO_ID: 8970 EO 1
1994	Locally abundant; moderate density; thousands post-flwr.	Mahogany Creek, upper NW end in subalpine basin Lost River Range  Challis–Yankee Fork Ranger District	EO_ID: 166 Old EO_ID: 395 EO 2
1994	Locally abundant;	0.5-0.7 mi N of Horsehaven Pass E. slope	EO_ID: 3960 Old EO_ID: 11604

Year Observed	Number of Individuals	Location of Observations (USFS District, Town, River, Road Intersection, HUC, etc.)	Source of Information
	several thousand; dense pops. in var. size classes; no fruit	Lost River Range  Challis–Yankee Fork Ranger District	EO 3
1994	Locally abundant; many thousands; high density; var. size classes; no fruit	Crest of Lost River Range 1.7 mi. N of Borah Peak Ridge b/t Rock Creek & Mahogany Creek. N. and S. of grassy saddle.  Border of Lost River and Challis–Yankee Fork Ranger Districts	EO_ID: 3960 Old EO_ID: 2118 EO 4
1994	Locally abundant; thousands post-flwr; no fruit	Ridge b/t Mahogany Creek and Cayuse Canyon 4 mi. ESE of Doublespring Pass 2 mi. SSW of Horsehaven Pass Lost River Range  Challis–Yankee Fork Ranger District	EO_ID: 423 Old EO_ID: 668 EO 5
1994	Many 10,000s; fairly dense; var. size classes; post-flwr; no fruit	Ridges and cirques in unnamed drainage W and SW of Horsehaven Pass 5.8 mi. N of Borah Peak 2 mi. E and ENE of Doublespring Pass Lost River Range  Challis–Yankee Fork Ranger District	EO_ID: 1690 Old EO_ID: 5194 EO 6
1994	Locally abundant in flwr; many 1000s	Merriam Lake Basin Benches and ridges above (W) of Merriam Lake Lost River Range  Challis–Yankee Fork Ranger District	EO_ID: 412 Old EO_ID: 777 EO 7
1994	1000s of genets; post-flwr; mod.	Lower Cedar Creek at mouth of Cedar Creek Canyon 2.3 mi. SW of Borah Peak 2.6 mi. NE of Whiskey Springs	EO_ID: 2586 Old EO_ID: 6757 EO 8

Year Observed	Number of Individuals	Location of Observations (USFS District, Town, River, Road Intersection, HUC, etc.)	Source of Information
	density; vigorous	W slope Lost River Range  Lost River Ranger District	
1994	Many 10,000s of genets post-flwr; Var. age classes; excellent vigor; high density	Upper Cedar Creek Basin at head of Cedar Creek 2 mi. SSW of Borah Peak 1.75 mi. W of Merriam Lake W slope of Lost River Range  Lost River Ranger District	EO_ID: 695 Old EO_ID: 2706 EO 9
1994	Many 1000s in two pops.	Rock Creek Cirque in Special Interest Botanical Area Below the N face of Borah Peak 17 mi. NW of Mackay Central Lost River Range  Lost River Ranger District	EO_ID: 183 Old EO_ID: 2707 EO 10

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 \_\_\_

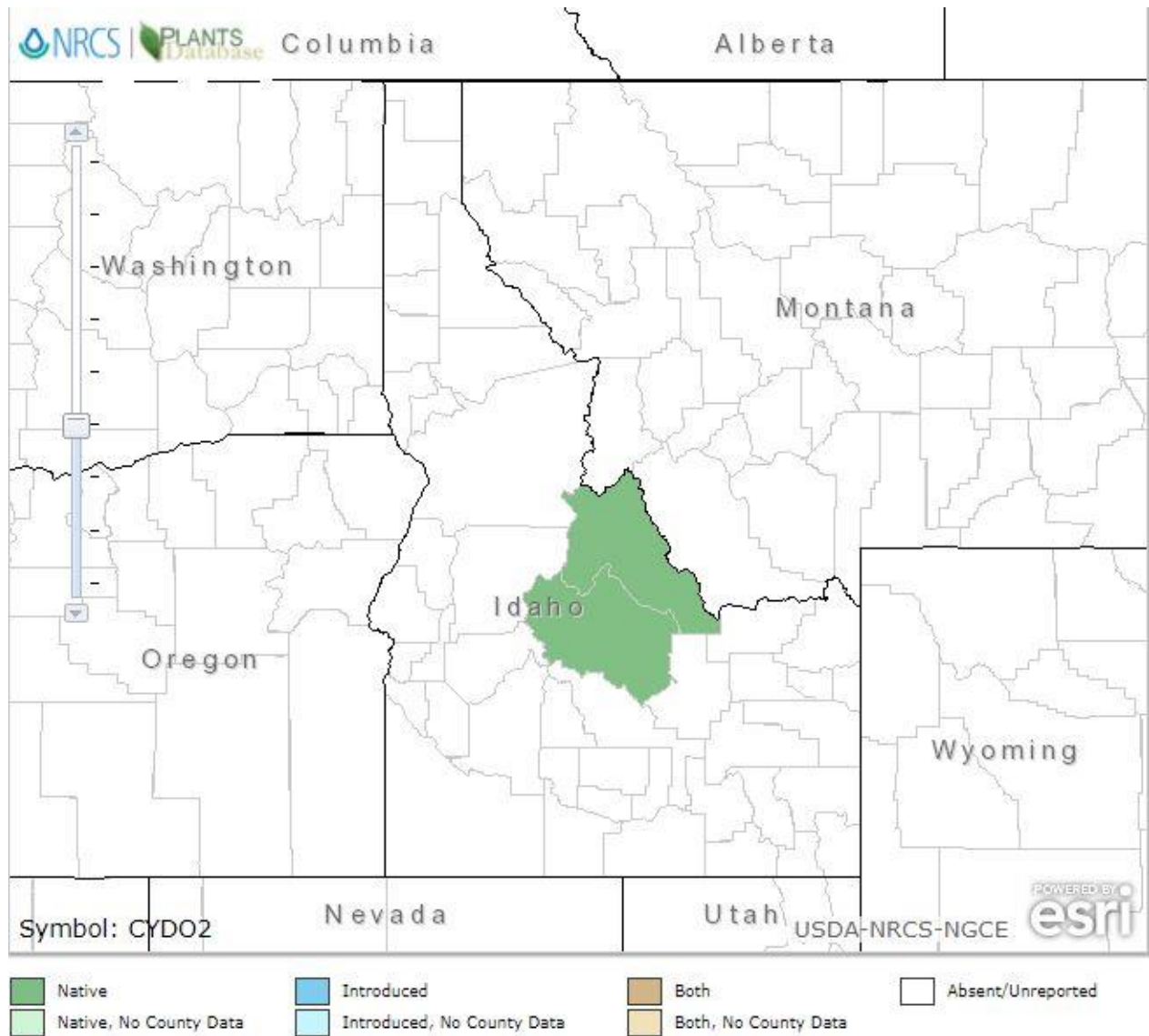
Provide explanation for determination

Not applicable. Species has known occurrences since 1990.

If determination is no, stop assessment



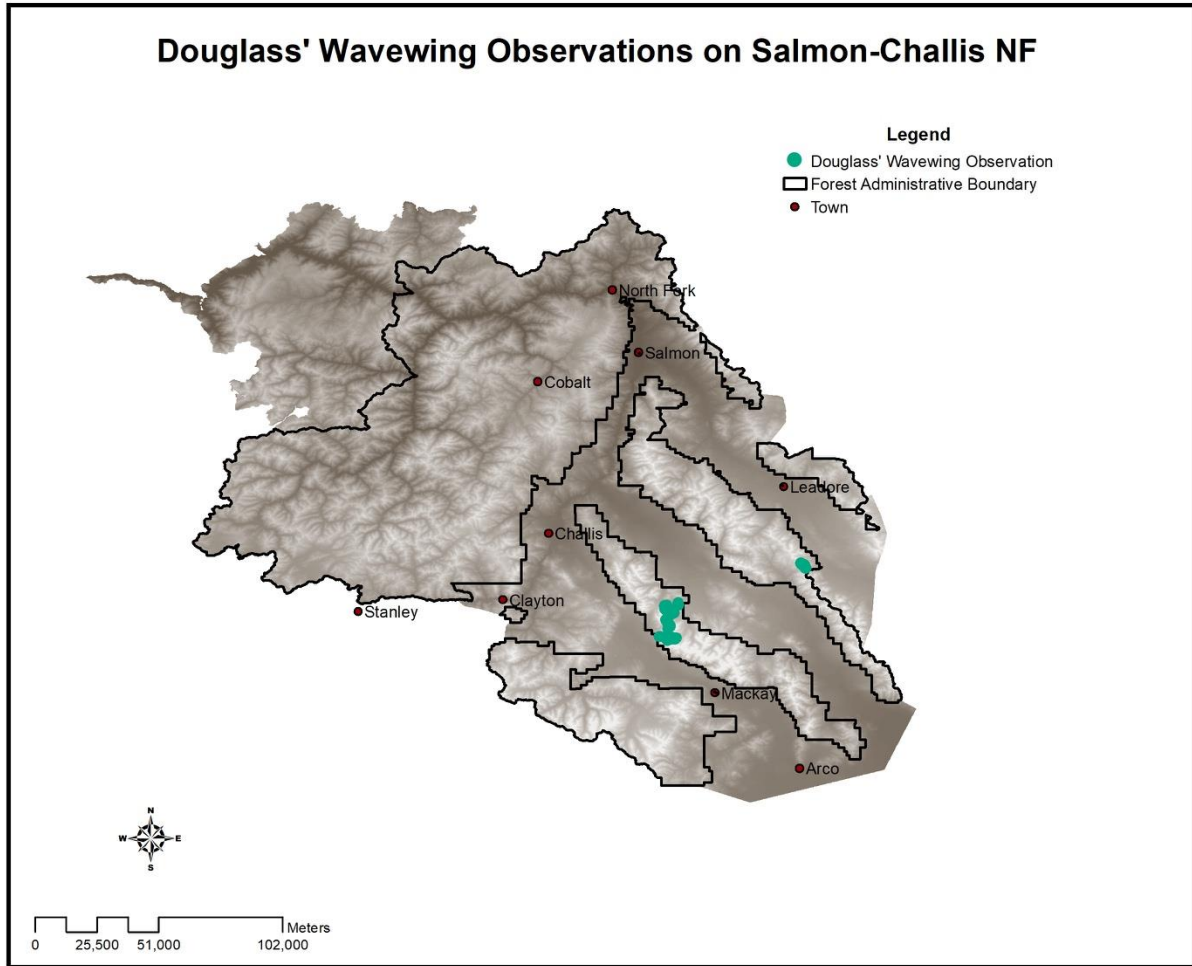
**Map 2, Douglass' wavewing range in Idaho and surrounding states and provinces (NRCS 2017)**



NRCS (United States Department of Agriculture, Natural Resources Conservation Service). 2017. Plants Profile for Douglass' wavewing. Internet website:

<https://plants.usda.gov/core/profile?symbol=CYDO2>. Accessed on October 13, 2017.

- e. **Map 3**, Douglass' wavewing occurrences on the Salmon–Challis National Forest (IDFG. 2017b. Idaho Fish and Wildlife Information System, Species Diversity Database, Idaho Natural Heritage Data. Accessed on February 27, 2017.)



October 06, 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? Yes.

**Table 2.** Status summary based on existing conservation assessments

Entity	Status/Rank (all at species level except NatureServe Global Rank)
Global Rank	G3+ - Imperiled (At moderate risk of extinction due to a restricted range, relatively few populations (80 or fewer), recent and widespread declines, or other factors; A "+" follows the G and/or T rank if the species is an Idaho endemic and has the sole rank global and/or trinomial rank authority.) <sup>1</sup>
State Rank	S3– Vulnerable (At moderate risk of extinction due to a restricted range, relatively few populations (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: Sensitive Salmon–Challis, Sawtooth National Forests <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 – GP3 <sup>6</sup>  BLM: Not listed <sup>7</sup>

1. Idaho Natural Heritage Program. 2016. IDNHP Tracked Plant Species 2016. 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>Cymopterus douglassii</i> (Douglass' wavewing)			
Criteria	Rank	Rationale	Literature Citations
1 Distribution on Salmon–Challis National Forest	A3	Douglass' wavewing is known from ten EO records on the Salmon–Challis National Forest (SCNF). Occurrences appear to be concentrated along alpine regions of the Lost River Range in the Challis–Yankee Fork and Lost River ranger districts, with one occurrence appearing on the edge of the Leadore and Lost River ranger districts in the Lemhi Range. Floristic work and alpine surveys in this area have provided no indication that the species exists outside of this narrow range (Moseley 1995), although there may be undiscovered populations in remote ridges or basins in the Lost River Range or Lemhi Range. Potential habitat is patchy and sometimes isolated (Rank A).  Confidence in Rank: <b>High</b> , Medium, or Low	IDFG. 2017. Idaho Fish and Wildlife Information System, Species Diversity Database, Idaho Natural Heritage Data. Accessed on February 27, 2017. Moseley, R.K. 1995. Report on the Conservation Status of <i>Cymopterus douglassii</i> . Idaho Department of Fish and Game. Boise, ID. Available at: <a href="https://fishandgame.idaho.gov/ifwis/dnhp/cdc_pdf/moser95b.pdf">https://fishandgame.idaho.gov/ifwis/dnhp/cdc_pdf/moser95b.pdf</a> .
2 Distribution in surrounding geographic area	A	This species is endemic to the central Lost River and Lemhi Ranges of east-central Idaho. It is known from only ten occurrences in Custer and Lemhi Counties (Moseley 1995). All populations are on public land managed by the U.S. Forest Service (Rank A).  Confidence in Rank: High, <b>Medium</b> , or Low	Moseley, R.K. 1995. Report on the Conservation Status of <i>Cymopterus douglassii</i> . Idaho Department of Fish and Game. Boise, ID. Available at: <a href="https://fishandgame.idaho.gov/ifwis/dnhp/cdc_pdf/moser95b.pdf">https://fishandgame.idaho.gov/ifwis/dnhp/cdc_pdf/moser95b.pdf</a> .
3 Dispersal Capability	A	<i>C. douglassii</i> flowers from mid- to late-June, and fruits during late-July and August. Dispersal mechanisms for this species are largely unknown. However, seeds are probably dispersed by gravity, and possibly by wind and water (Moseley 1995). The reproductive ecology of this species represents a gap in knowledge, thus confidence in ranking of this criterion is low. It is likely that the species has a very limited dispersal ability due to its highly localized populations (Rank A).  Confidence in Rank: High, Medium, or <b>Low</b>	Moseley, R.K. 1995. Report on the Conservation Status of <i>Cymopterus douglassii</i> . Idaho Department of Fish and Game. Boise, ID. Available at: <a href="https://fishandgame.idaho.gov/ifwis/dnhp/cdc_pdf/moser95b.pdf">https://fishandgame.idaho.gov/ifwis/dnhp/cdc_pdf/moser95b.pdf</a> .

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Criteria	Rank	Rationale	Literature Citations
<p>4</p> <p>Abundance on the Salmon–Challis National Forest</p>	<p>B</p>	<p>Douglass' wavewing has only ten occurrences on the Forest, though it has been noted as highly abundant with vigorous populations and apparent representation of all age (size) classes in several EOs. Occurrences have indicated populations which exceed 10,000 individuals (EOs 1, 6, and 9).</p> <p>Species with such restricted ranges may be deemed as rare, though current abundance of Douglass' wavewing could be large enough that demographic stochasticity would not lead to rapid local extinction, but, in combination with highly variable environmental factors, could pose a threat (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>5</p> <p>Population Trend on the Salmon–Challis National Forest</p>	<p>B</p>	<p>Species specific monitoring has not been conducted for this species. However, several site revisits have occurred and noted populations are stable. One visit to a historical EO noted that populations had vanished from that area (EO 7). In 2016, Mancuso and Lehman resampled plots from a 1992 study on alpine community types on Sheep Mountain, some of which contained populations of <i>C. douglassii</i>. Comparisons between the two dates indicate no substantial change in vegetative composition or species represented in the intervening 24 years (Mancuso and Lehman 2016). Given this information, it is likely that populations of <i>C. douglassii</i> are stable (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>Mancuso, M., Lehman, R. 2016. Alpine plant community sampling and stewardship assessment in the Sheep Mountain Research Natural Area, Lemhi Mountains, Idaho. Caribou-Targhee National Forest, Idaho Falls, ID and Salmon-Challis National Forest, Salmon, ID.</p>
<p>6</p> <p>Habitat Trend on the Salmon–Challis National Forest</p>	<p>B</p>	<p>Habitat for the Douglass' wavewing is described as sparsely vegetated and gravelly carbonate alpine substrates, such as limestone, glaciated bedrock ridges, talus and scree, benches, or mountain moraines (Moseley 1995). These habitats are high elevation (above 9,500 feet) dwarf shrubland, fell-field, subalpine grassland, and alpine turf.</p>	<p>Evenden, A.G., Moeur, M., Shelly, J.S., Kimball, S.F., Wellner, C.A. 2001. Research Natural Areas on National Forest System Lands in Idaho, Montana, Nevada, Utah, and Western Wyoming: A Guidebook for Scientists,</p>

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		<p>Populations of this species occur on ridges and in cirque basins where moderate snow deposition is accompanied by a moderate microclimate. Certain populations are known to occur on windswept xeric ridges (EO 4).</p> <p>All but one of the ten known populations of Douglass' wavewing occur in the Lost River Range of the Beaverhead Mountain section in the SCNF. This section comprises the greatest area and highest proportion of alpine land cover (5%) among Idaho sections.</p> <p>Approximately 1.2% (~ 51,000 acres) of vegetation on the Forest is classified as alpine and 3% as barren-rock (~130,000 acres) (based on Landfire biophysical settings) (USFS 2017). It is unclear what percentage of barren rock occurs in the alpine zone. On the SCNF, alpine plant communities tend to be dry and largely dominated by graminoids (Mancuso and Lehman 2016). Although these systems are rare and unique, they are well represented on the Forest (USFS 2017).</p> <p>Because alpine vegetation and barren rock mainly occur in designated wilderness, roadless, or remote areas where human interference disturbance is minimal, alpine communities of the Salmon–Challis are considered to exhibit good integrity and relatively stable (IDFG 2017b; USFS 2017). Some Douglass' wavewing occurrences are noted to be within proposed or actively protected areas. EO 10 is partially within the proposed Rock Creek Cirque Special Interest Botanical Area, while EOs 1, 2, 4, and 7 are located in Research Natural Areas (RNAs) (IDFG 2017b). RNAs are maintained in natural condition and managed with minimal human intervention (Evenden et al. 2001).</p> <p>EO records describe the surrounding habitat to be in excellent condition, undisturbed, and without threats. Occurrences are in very rugged and</p>	<p>Managers, and Educators. Gen. Tech. Rep. RMRS-GTR-69. Ogden, UT: U.S. Dept. of Agriculture, Forest Service, Rocky Mountain Research Station. 84p.</p> <p>Google Earth. 2017. Salmon–Challis National Forest. Internet website: <a href="http://google.com/earth/">http://google.com/earth/</a>. Accessed on October 15, 2017.</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 (Idaho Department of Fish and Game). 2017b. Idaho State Wildlife Action Plan, 2015. Boise, ID.</p> <p>Mancuso, M., Lehman, R. 2016. Alpine plant community sampling and stewardship assessment in the Sheep Mountain Research Natural Area, Lemhi Mountains, Idaho. Caribou-Targhee National Forest, Idaho Falls, ID and Salmon-Challis National Forest, Salmon, ID.</p> <p>Moseley, R.K. 1995. Report on the Conservation Status of <i>Cymopterus douglassii</i>. Idaho Department of Fish and Game. Boise, ID. Available at:</p>

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		<p>remote mountains with an absence of trails through any of the occurrences, and thus no direct threats of disturbance (USFS 2016). The locations of occurrences are noted as remote and often difficult to access (Moseley 1995).</p> <p>A review of aerial satellite photography (Google Earth 2017) shows that no major disturbances (fire, road or trail building, land clearing, or invasive plants) have affected the systems surrounded each EO. However, all known populations occur on active grazing allotments, though there appears to be minimal evidence of trampling, game trails, or any other indication of grazing nearby (USFS 2016).</p> <p>There appears to be a stable amount of good condition and minimally disturbed habitat on the Forest, thus it is likely there has been no change in suitable habitat for this species (Rank B).</p> <p>Confidence in Rank: <b>High</b>, Medium, or Low</p>	<p><a href="https://fishandgame.idaho.gov/ifwis/idnhp/cdc_pdf/moser95b.pdf">https://fishandgame.idaho.gov/ifwis/idnhp/cdc_pdf/moser95b.pdf</a>. USFS. 2016. GIS Database Information. Last updated March 30, 2016.</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. 2016. SDE RMU Range Allotments. GIS Database Information. Data source: S_R04_SCF.rmu_unit. Last updated March 30, 2016.</p>
7 Vulnerability of Habitats on the Salmon–Challis National Forest	B	<p>Suitable habitats for Douglass' wavewing are particularly vulnerable to climate change.</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>Ash, J.D., Givnish, T.J., Waller, D.M. 2016. Tracking lags in historical plants species' shifts in relation to regional climate change. <i>Global Change Biology</i>, doi: 10.1111/gcb.13429.</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. <i>Climate change vulnerability and adaptation in the Intermountain</i></p>

Species (Scientific and Common Name): *Cymopterus douglassii* (Douglass' wavewing)

Criteria	Rank	Rationale	Literature Citations
		<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 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>Alpine habitat may be vulnerable to climatic factors and have low adaptive capacity to climate change. Climate change is expected to cause increasingly warmer and wetter conditions, with worsening summer drought, and alpine areas may transition from snow-dominated to rain-dominated (Halofsky et al. 2018; IDFG 2017). An extended growing season is projected to occur in the alpine which can result in interspecific competition for resources, changes in plant community composition and displacement of rare plant populations where they currently occupy specific niches. The amount of surface water flow and timing of peak runoff may also be impacted. Such changes may reduce the ranges of high-elevation species.</p> <p>Alpine systems are dependent on snowfields and gradual snowmelt to maintain moisture for vegetation, and thus warming temperatures, increased drought, and changes in the depth and persistence of snowpack is projected to greatly affect this habitat in the Intermountain Region (Halofsky et al. 2018; IDFG 2017). While the extent of snowfields,</p>	<p>Region. Gen. Tech. Rep. RMRS-GTR-XXX. Fort Collins, CO: US Department of Agriculture, Forest Service, Rocky Mountain Research Station.</p> <p>Dirnbock, T., F. Essl, and W. Rabitsch. 2011. Disproportional risk for habitat loss of high-altitude endemic species under climate change. <i>Global Change Biology</i>, 17:990-996.</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>IDFG (Idaho Department of Fish and Game). 2017. Idaho State Wildlife Action Plan, 2015. Boise ID.</p> <p>Joyce, L.A. and M. Talbert. 2018.</p>

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Criteria	Rank	Rationale	Literature Citations
		<p>as measured on April 1 and modeled under the RCP emissions scenario 8.5 (a severe scenario), is projected to remain similar on the Salmon-Challis into the 2080's, warmer conditions will markedly reduce their persistence and depth. In addition, losses will be greater than projected because this modeling provides an overestimate of precipitation at high elevations. This is because it uses the Global Climate Model (GCM), which does not account for local orographic effects (Halofsky et al. 2018).</p> <p>Summer precipitation is also very important for subalpine and alpine vegetative communities and the RCP8.5 model projects a 20% decrease in summer precipitation for the SCNF. However, cooler soil temperature at higher elevation may moderate effects to alpine species (Halofsky et al. 2018).</p> <p>Some loss of alpine vegetation communities, especially mesic meadows, attributed to upslope migration of trees and shrubs may occur (Alexander et al. 2015 in Halofsky et al. 2018). Some, subalpine communities may have potential to migrate higher in elevation as a response to changing conditions, but this may be limited by underdeveloped soils at higher altitudes. Furthermore, the rate of climatic change in alpine communities may outpace the ability of species to shift their distribution (Ash et al. 2016; Dirnbock et al. 2011). Other communities may already exist at the highest elevations in the SCNF and, therefore, may have limited upward migration potential.</p> <p>Rare plant populations that may be small, isolated, tied to snowpack abundance and distribution timing changes of spring thaw and fall frost cycles, and/or have limited dispersal capacity, are highly vulnerable to impacts from environmental change including reductions in pollination.</p>	<p>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-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>

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		<p>Changes in temperature and precipitation may 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.</p> <p>Alpine vegetation communities are considered exceptionally vulnerable to anthropogenic disturbances including impacts from herbivory/trampling by native ungulates and/or unmanaged livestock grazing, infrastructure development (trails and com sites), increased recreational activities at high elevation sites, and associated trampling. Given potential changes and stressors in alpine communities with regard to climate, it is assumed that the impacts of anthropogenic disturbances may be an additional threat to alpine species.</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 (Rank B).</p> <p>Confidence in Rank: <b>High</b>, Medium, or Low</p>	
8 Life History and Demographics	A	<p>Douglass' wavewing, a member of the parsley family, is a low and tufted herbaceous perennial of between 1.5 – 6 inches in height. The species is endemic to carbonite substrates in the Central Lost River Range.</p> <p>Little is known about the reproductive biology of this species. It reproduces via seeds, which are most likely carried away from the parent plant by gravity. During the 1994 survey in which this species was last</p>	<p>ARS (United States Department of Agriculture, Agricultural Research Service). 2017. Spring Parsley (<i>Cymopterus watsonii</i>). Internet website: <a href="https://www.ars.usda.gov/pacific-west-area/logan-ut/poisonous-plant-research/docs/spring-parsley-cymopterus-watsonii/">https://www.ars.usda.gov/pacific-west-area/logan-ut/poisonous-plant-research/docs/spring-parsley-cymopterus-watsonii/</a>. Accessed on</p>

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Criteria	Rank	Rationale	Literature Citations
		<p>observed, no populations appeared to produce seeds, likely owing to a severe drought during the preceding growing season (Moseley 1995).</p> <p>Seed biology, pollination mechanisms, and specific or potential pollinators are unknown (Moseley 1995).</p> <p>All known populations of Douglass' wavewing are relatively large in area and number, and appear to have a well distributed age-class structure. As of 1994, it was estimated that over 75,000 individuals occupied an area of around 837 acres. However, there is evidence of at least one possible extirpation since the last date of observation (EO 7).</p> <p>It is unknown if this species is affected by specific disease or predation, though similar species of the same genus (<i>C. wastonii</i>) are known to be toxic to livestock (ARS 2017).</p> <p>While populations appear to be large and in overall good condition, the narrow distribution of Douglass' wavewing makes it more vulnerable to the adverse affects of stochastic events. Although the reproductive biology of this species is understudied, most alpine species exhibit life history characteristics which are not conducive to rapid recovery from local disturbances (slow-growing, long-lived) (Rank A). However, confidence in this ranking is low, due to lack of reproductive studies or assessments.</p> <p>Confidence in Rank: High, Medium, or <b>Low</b></p>	<p>October 13, 2017.</p> <p>Moseley, R.K. 1995. Report on the Conservation Status of <i>Cymopterus douglassii</i>. Idaho Department of Fish and Game. Boise, ID. Available at: <a href="https://fishandgame.idaho.gov/ifwis/dnhp/cdc_pdf/moser95b.pdf">https://fishandgame.idaho.gov/ifwis/dnhp/cdc_pdf/moser95b.pdf</a>.</p>
<p><b>Summary and recommendations:</b> National and state rankings have deemed Douglass' wavewing vulnerable and at moderate risk of extinction. The species is narrowly endemic to the SCNF and is known from ten element occurrence records.</p>			<p>Date: October 17, 2017</p>



Species (Scientific and Common Name): *Cymopterus douglassii* (Douglass' wavewing)

Criteria	Rank	Rationale	Literature Citations
		<p>Habitat for this species is highly restricted to sparsely vegetated and gravelly carbonate alpine substrates, which are generally considered to be in good condition. Observed populations have been noted as having a high abundance of individuals with vigorous growth. However, population trends have not been monitored consistently on the Forest, though populations are expected to be stable. Alpine communities are generally considered stable on the SCNF, but are considered exceptionally vulnerable to long-term threats related to climate change compared to other vegetative communities. <i>C. douglassii</i> has been noted as a species that is likely to be particularly vulnerable to climate change impacts.</p> <p>There is substantial concern for the capability of <i>Cymopterus douglassii</i> to persist over the long-term on the Salmon-Challis, therefore, it is recommended as a SCC.</p> <p>Evaluator(s): A. Spellmeyer</p>	