

**Species:**

**Index Result:**

Scientific Name ***Phemeranthus spinescens***  
 Common Name **Spiny flame-flower**  
 Taxonomic Group Vascular Plant  
 Geographic Area Eastern Oregon

**Moderately Vulnerable**  
**Confidence Very High**  
 (based on entered data)  
 Date Assessed 5/12/2020  
 GRank G4  
 SRank S2  
 Assessor Sue Vrillakas

Cave/Ground Water Obligate: No  
 Migratory area included in assessment: No

**Climate Change Vulnerability Index Values:** (greatest score shown when range was selected)

Category	Factor	Score	Comments
Temperature Scope (predicted increase)	A >6.0F	0	
	A 5.5F	0	
	A 5.1F	0	
	A 4.5F	63	
	A 3.9F	37	
	A <3.9F	0	
Hamon AET:PET Moisture Metric Scope	< -0.119	0	
	-0.119	41	
	-0.096	44	
	-0.073	15	
	-0.05	0	
	>-0.028	0	
Sea level rise Natural barriers Anthropogenic barriers Climate Change mitigation	B1	N	Interior species
	B2a	N	
	B2b	N	
	B3	N	
Dispersal/Movement  Historical thermal niche Physiological thermal niche Historical hydrological niche Physiol. hydrological niche Disturbance dependence Ice/snow dependence Physical habitat restrictions Other spp create habitat Dietary Versatility Pollinator Versatility Other spp for dispersal Pathogen sensitivity Competition sensitivity Interspecific Relationship Measured genetic variation Bottlenecks Plant reproductive system Phenological response	C1	N	Most of the occurrences concentrated in one area in central OR with 2 further east  Average temp variation 58-63 degrees  Not limited to cool conditions Highest value 13.1830; lowest 9.9565; difference=3.2265 Assumed that plants dependent on local moisture microsites
	C2ai	N	
	C2aai	N	
	C2bi	GI	
	C2bii	Inc	
	C2c	N	
	C2d	N	
	C3	N	
	C4a	N	
	C4b	U	
	C4c	N	
	C4d	N	
	C4e	N	
	C4f	U	
	C4g	U	
	C5a	U	
C5b	U		
C5c	U		
C6	U		
Documented response	D1	U	

Modeled change	D2	U	
Modeled overlap	D3	U	
Modeled protected areas	D4	U	

**Additional Notes:**

Range map created using ArcMap Miminum Mapping Boundary-Convex Hull on ORBIC element occurrence data, 4-29-2020 export. Climate and precipitation data from Climate Wizard using the A1B emissions scenario and ensemble average general circulation model: Historical = 1951-2006; Future = mid-century (2050s); Hamon AET:PET moisture metric (Hamon 1961).

**References:****Data sources and notes:**

Range map created using ArcMap Miminum Mapping Boundary-Convex Hull on ORBIC element occurrence data. Climate and precipitation data from Climate Wizard using the A1B emissions scenario and ensemble average general circulation model: Historical = 1951-2006; Future = mid-century (2050s); Hamon AET:PET moisture metric (Hamon 1961).

Detailed definitions of criteria and methodology can be found in the documentation at <http://www.natureserve.org/conservation-tools/climate-change-vulnerability-index>

**Legend and Definitions:**

<b>Affect to Vulnerability:</b>
GI = Greatly increase
Inc = Increase
SI = Somewhat increase
N = Neutral
U = Unknown

**Index Scores:**

<b>Extremely Vulnerable:</b> Abundance and/or range extent within geographical area assessed extremely likely to substantially decrease or disappear by 2050.
<b>Highly Vulnerable:</b> Abundance and/or range extent within geographical area assessed likely to decrease significantly by 2050.
<b>Moderately Vulnerable:</b> Abundance and/or range extent within geographical area assessed likely to decrease by 2050.
<b>Less Vulnerable:</b> Available evidence does not suggest that abundance and/or range extent within the geographical area assessed will change (increase/decrease) substantially by 2050. Actual range boundaries may change.
<b>Insufficient Evidence:</b> Information entered about a species' vulnerability is inadequate to calculate an Index score.

**Citation:**

Oregon Biodiversity Information Center. 2020. Climate Change Vulnerability Index assessment for Spiny flame-flower (*Phemeranthus spinescens*). Institute for Natural Resources, Portland State University, Portland, OR.