

<b>Species</b>	<b>Species Data:</b>	<b>Index Result:</b>
English Name	<i>Helianthus bolanderi</i>	<b>Moderately Vulnerable</b>
Taxonomic Group	<b>Bolander's sunflower</b>	<b>Confidence Low</b>
Geographic Area	Vascular Plant	(based on entered data)
	Southern Oregon	
Cave/Ground Water Obligate	No	GRank G4
Migratory area included in assessment:	No	SRank S2
		Assessor Sue Vrilakas

**Climate Change Vulnerability Index Values:** (greatest 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	1	
	A 3.9F	75	
	A <3.9F	24	
Hamon AET:PET Moisture Metric Scope	< -0.119	0	
	-0.119	23	
	-0.096	65	
	-0.073	12	
	-0.05	0	
	>-0.028	0	
Sea level rise	B1	N	
Natural barriers	B2a	Inc	vernal pool habitat
Anthropogenic barriers	B2b	N	
Climate Change mitigation	B3	N	
Dispersal/Movement	C1	Inc	
Historical thermal niche	C2ai	N	mean temp 58-62
Physiological thermal niche	C2aii	N	
Historical hydrological niche	C2bi	SI	precipitation ~16
Physiol. hydrological niche	C2bii	Inc	vernal pools
Disturbance dependence	C2c	N	
Ice/snow dependence	C2d	N	
Physical habitat restrictions	C3	N	
Other spp create habitat	C4a	N	
Dietary Versatility	C4b	U	
Pollinator Versatility	C4c	SI	
Other spp for dispersal	C4d	U	
Pathogen sensitivity	C4e	U	
Competition sensitivity	C4f	U	
Interspecific Relationship	C4g	U	
Measured genetic variation	C5a	U	
Bottlenecks	C5b	U	
Plant reproductive system	C5c	U	
Phenological response	C6	U	
Documented response	D1	U	
Modeled change	D2	U	
Modeled overlap	D3	U	
Modeled protected areas	D4	U	

**Data sources and notes:**

Climate and precipitation data from Climate Wizard using the A1B emissions scenario and ensemble average general circulation model. Historical = past 50 years; Future = mid-century (2050s). Species data from ORBIC database. Assessment performed in conjunction with the Element Rank Calculator. Other resources consulted: NREL national wind resources, 50m resolution ([http://www.nrel.gov/gis/data\\_analysis\\_background.html](http://www.nrel.gov/gis/data_analysis_background.html)); SILVIS lab Wildland Urban Interface 2010 layer ([http://silvis.forest.wisc.edu/maps/wui\\_main](http://silvis.forest.wisc.edu/maps/wui_main)); Oregon Department of Geology and Mineral Industries geologic map (<http://www.oregongeology.org/sub/publications/GMS/gms.htm>); US mining claims on federal lands (<http://mrddata.usgs.gov/mine-claim/>); Oregon Protected Areas Database (<http://gapanalysis.usgs.gov/padus/data/>).

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

**Index Scores:**

**Extremely Vulnerable:** Abundance and/or range extent within geographical area assessed extremely likely to substantially decrease or disappear by 2050.

**Highly Vulnerable:** Abundance and/or range extent within geographical area assessed likely to decrease significantly by 2050.

**Moderately Vulnerable:** Abundance and/or range extent within geographical area assessed likely to decrease by 2050.

**Less Vulnerable:** 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.

**Insufficient Evidence:** Information entered about a species' vulnerability is inadequate to calculate an Index score.