	Species:	Index Result:
Scientific Name	*Limonium californicum*	Extremely Vulnerable
Common Name	Western marsh-rosemary	**Confidence** **Very High**
Taxonomic Group	Vascular Plant	(based on entered data)
Geographic Area	Western (coastal) Oregon	Date Assessed 8/14/2019
		GRank G4
Cave/Ground Water Obligate:	No	SRank S1
Migratory area included in assessment:	No	Assessor Sue Vrilakas

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	0	
	A 3.9F	0	
	A <3.9F	100	
Hamon AET:PET Moisture Metric Scope	< -0.119	0	
	-0.119	0	
	-0.096	100	
	-0.073	0	
	-0.05	0	
	>-0.028	0	
Sea level rise	B1	GI	Entirely within estuarine habitat
Natural barriers	B2a	GI	Estuarine habitat
Anthropogenic barriers	B2b	N	
Climate Change mitigation	B3	Inc	Possible affects from changes in shoreline geography due to human actions to prevent effects of climate change
Dispersal/Movement	C1	N	Restricted estuarine habitat, but calculated in Section B2a
Historical thermal niche	C2ai	GI	Temperature variation for occurrences are consistently about 26 deg
Physiological thermal niche	C2aii	U	May be affected by changes in ocean water temperature
Historical hydrological niche	C2bi	GI	Occupied cell values only. High 67.125, low 64.469; difference 2.635
Physiol. hydrological niche	C2bii	GI	
Disturbance dependence	C2c	Inc	Estuarine habitat has tidal disturbance but climate change may increase intensity or frequency
Ice/snow dependence	C2d	N	
Physical habitat restrictions	C3	SI	Salt marsh habitat
Other spp create habitat	C4a	N	
Dietary Versatility	C4b	U	
Pollinator Versatility	C4c	U	
Other spp for dispersal	C4d	N	
Pathogen sensitivity	C4e	N	None known
Competition sensitivity	C4f	N	
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	

Additional Notes:

Range map initially created by convex hull but boundary lines adjusted to exclude ocean and include the adjacent lands in the estuary. 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:

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

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.

Citation:

Oregon Biodiversity Information Center. 2019. Climate Change Vulnerability Index assessment for Western marsh-rosemary (Limonium californicum). Institute for Natural Resources, Portland State University, Portland, OR.