

Climate Change Vulnerability Index

Plant Species Assessment

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Name: *Dodecatheon austrofrigidum*

Index Result: Moderately Vulnerable

Exposure to Climate Change:

- 1) Temperature – All occurrences fall within the same temperature category (3.3 – 3.9° F warmer).
- 2) Moisture – All occurrences fall within the same moisture metric category (-0.074 - -0.096).

Climate: Indirect

- 1) Exposure to sea level rise
- 2) Distribution relative to barriers
 - a. Natural barriers – Selected ‘Somewhat increase’ because Willapa Hills population has little room to migrate in terms of higher elevation.
 - b. Anthropogenic barriers - Neutral
- 3) Predicted impact of land use changes resulting from human responses to climate change - Neutral

Species-Specific Factors:

- 1) Dispersal and movements – Selected ‘Somewhat increase’
- 2) Predicted sensitivity to temperature and moisture changes
 - a. Predicted sensitivity to changes in temperature
 - i. historical thermal niche – Selected ‘Greatly increase’ and ‘Increase’ vulnerability. The species has experienced very small (<37° F) and small (37 to 47° F) seasonal temperature variation over the last 50 years.
 - ii. physiological thermal niche – Selected ‘Increase’ vulnerability; species is restricted to cool, moist to wet environments.
 - b. Predicted sensitivity to changes in precipitation, hydrology, or moisture regime
 - i. historical hydrological niche – Selected ‘Somewhat decrease’ vulnerability; species has experienced greater than average precipitation variation over the last 50 years (> 40 inches)
 - ii. physiological hydrological niche – Selected ‘Greatly increase’ vulnerability; species is restricted to cool, moist seepage areas.
 - c. Dependence on a specific disturbance regime likely to be impacted by climate change- Neutral
 - d. Dependence on ice, ice-edge, or snow-cover habitats - Neutral
- 3) Restriction to uncommon geological features or derivatives - Neutral
- 4) Reliance on interspecific interactions
 - a. Dependence on other species to generate habitat - Neutral
 - b. Dietary versatility (animals only)
 - c. Pollinator versatility (plants only) – ‘Somewhat increase’
 - d. Dependence on other species for propagule dispersal - Neutral
 - e. Forms part of an interspecific interaction not covered by 4a-d
- 5) Genetic factors
 - a. Measured genetic variation - Unknown
 - b. Occurrence of bottlenecks in recent evolutionary history (*use only if 5a is "unknown"*)
- 6) Phenological response to changing seasonal temperature and precipitation dynamics - Unknown