

Natural Heritage Ranking Form - Oregon State Rank

Oregon Ranking Form Monarch - California overwintering population (*Danaus plexippus*) Oregon Biodiversity Information Center

SPECIES ASSESSED

Scientific Name *Danaus plexippus pop. 1* ELCODE IILEPP2012
Common Name Monarch - California overwintering population Element ID 366213

Species Concept Reference Citation

Oberhauser, K.S. and M.J. Solensky (editors). 2004. The Monarch Butterfly: Biology and Conservation. Cornell University Press, Ithaca, NY. 248 pp.

CONSERVATION STATUS RANK

Assigned Rank **S1S2B**

Rank Assignment Author	E. Gaines	Rank Review Date	5/31/2019
Rank Factors Author	E. Gaines	Rank Factors Date	02/23/2018
Calculated Rank	S2?	Rank Change Date	05/31/2019
Rank Methodology Used	Rank calculator v.3.1x - 2011-2015 rank factors		

Assigned Rank Reasons

Oregon monarchs are part of the CA overwintering population, and Schultz et al. 2017 documents a declining population and high risk of extinction. Threats in Oregon breeding habitat include pesticide use and loss of milkweed habitat.

RANGE/DISTRIBUTION

Range Extent

Rating 20,000-200,000 square km (about 8000-80,000 square miles)
Comments Range extent in OR approx 182,685 sq km based on Monarch records in Xerces Western Monarch Milkweed Mapper tool. If range is limited to post-2000 records, range extent is 96,319.

Area of Occupancy

Grid Cell Size
Rating (as Number of 4 km² Grid Cells) F = 126-500
Comments Post-2000 records intersect 204 4km sq grid cells. If we include pre-2000 monarch records, 458 4km sq grid cells. Based on Monarch records in Xerces Western Monarch Milkweed mapper tool.

ABUNDANCE AND CONDITION

Number of Occurrences

Rating Unknown
Comments

Population Size

Rating Unknown
Comments

Unknown. But all Oregon Monarchs are believed to winter in California, and the CA Overwintering population there has sharply declined.

Good Viability/Ecological Integrity

Number of Occurrences with Good Viability/Ecological Integrity

Rating Unknown

THREATS

Calculated Overall Threat Impact C = Medium

Assigned Overall Threat Impact C = Medium

Overall Threat Impact Comments

Pesticide use, loss of milkweed habitat, roadside mowing, habitat loss in CA overwinter range.

TRENDS

Short-Term Trend

Rating BC = Decline of 70-90%

Comments

OR monarchs are part of the CA overwintering population. Decline of over 80% at many wintering sites in CA (Schultz et al. 2017, Jespen and Black 2015). Pelton et al. (2016) estimate 74% decline since late 1990s. Espeset et al. 2016. The CA overwintering population has approximately 50-75% risk of extinction in 20 years (Schultz et al. 2017).

Long-Term Trend

Rating AB = Decline of >80%

Comments

Population size in OR unknown, but all OR monarchs are believed to winter in CA, and the CA overwintering population has declined by 90% (Schultz et al. 2017, Jespen and Black 2015). Thus CA winter trends are likely a valid indication of trends in OR.

RANKING REFERENCES

<u>Short Citation</u>	<u>Author</u>	<u>Year</u>	<u>Full Citation</u>
Espe	eset et al.	2016	Espe
			set, A. E., J. G. Harrison, A. M. Shapiro, C. C. Nice, J. H. Thorne, D. P. Waetjen, J. A. Fordyce, and M. L. Forister. 2016. Understanding a migratory species in a changing world: climatic effects and demographic declines in the western monarch revealed by four decades of intensive monitoring. <i>Oecologia</i> 2016 Jul;181(3):819-30. DOI 10.1007/s00442-016-3600-y.
Jep	son and Black	2015	Jep
			son S. and S. H. Black. 2015. Understanding and Conserving the Western North American Monarch Population. Chapter 12. in <i>Monarchs in a Changing World: Biology and Conservation of an Iconic Insect</i> , edited by K. Oberhauser, S. Altizer, and K. Nail. Ithaca: Cornell University Press.
Me	ade	1999	Me
			ade, D. E. 1999. "Monarch Butterfly Overwintering Sites in Santa Barbara County California." 114 pp. Paso Robles, CA: Althouse and Meade, Inc.
Pe	lton et al.	2016	Pe
			lton, E., Jespen, S., Schultz, C.B., Fallon, C., Black, S.H., 2016. State of the Monarch Butterfly Overwintering Sites in California. Report to USFWS. The Xerces Society for Invertebrate Conservation, Portland, OR
Py	le	2015	Py
			le, R.M. 2015. Monarchs in the mist: new perspectives on monarch distribution in the Pacific Northwest. In <i>Monarchs in a Changing World: Biology and Conservation of an Iconic Butterfly</i> , edited by K. Oberhauser, S. Altizer, and K. Nail, 236–247. Ithaca: Cornell University Press.
Sa	kai and Calvert	1991	Sa
			kai, W. H., and W. C. Calvert. 1991. "Statewide Monarch Butterfly Management Plan for the State of California Department of Parks and Recreation. Final Report, June 1991." Interagency Agreement No. 88-11-050 between California Department of Parks and Recreation and Santa Monica College. 160 pp. Sacramento: California Department of Parks and Recreation.
Sch	ultz et al.	2017	Sch
			ultz, C. B., L. M. Brown, E. Pelton, and E.C. Crone. 2017. Citizen science monitoring demonstrates dramatic declines of monarch butterflies in western North America. <i>Biological Conservation</i> , 214: 343-346. https://doi.org/10.1016/j.biocon.2017.08.019 .
Xer	ces Society	2018	Xer
			ces Society. 2018. Western Monarch Overwintering Sites Database. The Xerces Society for Invertebrate Conservation.
Ya	ng et al.	2016	Ya
			ng, L.H., Ostrovksky, D., Rogers, M.C., Welker, J.M., 2016. Intra-population variation in the natal origins and wing morphology of overwintering western monarch butterflies <i>Danaus plexippus</i> . <i>Ecography</i> 39, 998–1007.

RESOURCES

Oregon Biodiversity Information Center, Institute for Natural Resources
Portland State University, Mail Stop: INR, PO Box 751, Portland, OR 97207-0751 Phone: 503-725-9950

Additional ORBIC species ranking forms posted at
<https://inr.oregonstate.edu/orbic/rare-species/ranking-documentation>

Information on Natural Heritage ranking methodology is available at
<http://www.natureserve.org/biodiversity-science/publications/natureserve-conservation-status-assessments-methodology-assigning>

The Conservation Rank Calculator is developed and maintained by NatureServe and is available from
<http://www.natureserve.org/conservation-tools/conservation-rank-calculator>

ASSESSMENT CITATION

Oregon Biodiversity Information Center. 2019. Oregon state rank assessment for Monarch - California overwintering population (Danaus plexippus pop. 1). Institute for Natural Resources, Portland State University, Portland, OR.