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Oregon State Ranking Assessment for Morrison Bumblebee (*Bombus morrisoni*)

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Natural Heritage Ranking Form - Oregon State Rank

Oregon Ranking Form Morrison Bumblebee (*Bombus morrisoni*)

Oregon Biodiversity Information Center

SPECIES ASSESSED

Scientific Name	<i>Bombus morrisoni</i>	ELCODE	IIHYM24460
Common Name	Morrison Bumblebee	Element ID	365421

Williams, P. H. 2008a. *Bombus*, bumblebees of the world. Web pages based on Williams, P.H. 1998. An annotated checklist of bumblebees with an analysis of patterns of description (Hymenoptera: Apidae, Bombini). Bulletin of the Natural History Museum (Entomology) 67:79-152. Online. Available: <http://www.nhm.ac.uk/research-curation/research/projects/bombus/index.html>. Accessed 2008-Oct.

CONSERVATION STATUS RANK

Assigned Rank	S2		
Rank Assignment Author	Nelson, Misty	Rank Review Date	12/11/2023
Rank Factors Author	Nelson, Misty	Rank Factors Date	12/11/2023
Calculated Rank	S2	Rank Change Date	01/08/2024
Rank Methodology Used	Rank calculation - Biotics v2		

Assigned Rank Reasons

2023: Significant declines throughout known range, but recent survey efforts have observed this species in locations throughout central and southeastern Oregon. More information is needed on threats and trends. 2016: Substantial declines and no recent records for OR. Potential for significant threats. However, surveys need to be completed.

RANGE/DISTRIBUTION

Range Extent

Rating	20,000-200,000 square km (about 8000-80,000 square miles)		
Estimate	153766	Unit Used for Estimate	Square Kilometers
Comments	2023: Range Extent calculated using NatureServe RARECAT tool and locality data from Chesshire et al. (2023) = 153,766; 2016: Range extent of known records, from Xerces, = 151,099 sq km.		

Area of Occupancy

Grid Cell Size	4 km ² Grid Cells		
Rating (as Number of 4 km² Grid Cells)	E = 26-125		
Comments	2023: AOO calculated using NatureServe RARECAT tool and locality data from Chesshire et al. (2023) = 45 4-sq-km grid cells; 2016: Area of extent of known records (from Xerces), buffered to 5km = 516 4-km ² grid cells. However, there may be additional sites not recorded.		

ABUNDANCE AND CONDITION

Rating	21 - 80		
Estimate	37		
Comments	No EOs in Biotics; 2023: # occurrences calculated using NatureServe RARECAT tool and locality data from Chesshire et al. (2023), with a separation distance of 10km = 37; 2016: Based on Xerces information, there would be about 16 EOs. The most recent of these is from 1968.		

Rating Unknown

Number of Occurrences with Good Viability/Ecological Integrity**Rating** Some (13-40)**Estimate** 18**Comments**

2023: Chesshire et al. (2023) locality data include 37 observations dated 2006-2020, which translate into 18 occurrences when calculated using NatureServe RARECAT tool and a 10km separation distance.; 2016: Historically wide distribution in OR, but no records in the state since 1968 (Xerces data, Hatfield 2014)

THREATS**Calculated Overall Threat Impact****Assigned Overall Threat Impact** U = Unknown**Overall Threat Impact Comments**

2023: Specific threats have not been identified for this species, although western bumble bees are generally considered vulnerable to pesticides, habitat loss, climate change, grazing, competition with honey bees, and pathogens introduced by non-native bees. The 2021 Pacific Northwest Bumble Bee Atlas (Hatfield et al. 2021) states that the Morrison Bumble Bee "was unexpectedly common in developed areas where it commonly fed on non-native plants". 2016: Threats not documented but may include pesticide use, competition with non-native species, pathogens introduced from managed bees, habitat loss.

TRENDS**Short-Term Trend****Rating** D = Decline of 50-70%**Estimate** 58**Comments**

2016: Average short-term decline of 57% (Hatfield et al. 2014) rangewide, but surveys needed in OR.

Long-Term Trend**Rating** A = Decline of >90%**Estimate** 95**Comments**

Rangewide, the relative abundance of this species is 95% lower than historical highs recorded in the 1950s, and 92% lower than its historical average relative abundance (NatureServe, 2018).

RANKING REFERENCES

<u>Short Citation</u>	<u>Author</u>	<u>Year</u>	<u>Full Citation</u>
Hatfield et al.		2014	Hatfield, R., Jepsen, S., Thorp, R., Richardson, L. & Colla, S. 2014. <i>Bombus morrisoni</i> . The IUCN Red List of Threatened Species 2014: e.T44937666A69004519. http://dx.doi.org/10.2305/IUCN.UK.2014-3.RLTS.T44937666A69004519.en . Downloaded on 28 June 2016.
Xerces Society		2016	Xerces Society. 2016. Rare invertebrate dataset sent to ORBIC incl. multiple species with collection data.

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

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