10-19-2023

Oregon State Rank Assessment for Oregon Spotted Frog (Rana pretiosa)

Misty Nelson
Portland State University

Natural Heritage Ranking Form - Oregon State Rank

Oregon Ranking Form **Oregon spotted frog (Rana pretiosa)** **Oregon Biodiversity Information Center**

SPECIES ASSESSED

Scientific Name ***Rana pretiosa*** **ELCODE** AAABH01180

Common Name **Oregon spotted frog** **Element ID** 6299

Species Concept Reference Citation

Frost, D. R. 1985. Amphibian species of the world. A taxonomic and geographical reference. Allen Press, Inc., and The Association of Systematics Collections, Lawrence, Kansas. v + 732 pp.

CONSERVATION STATUS RANK

Assigned Rank **S1S2**

Rank Assignment Author	Nelson, Misty	**Rank Review Date**	10/19/2023
Rank Factors Author	Nelson, Misty	**Rank Factors Date**	10/19/2023
Calculated Rank	S1S2	**Rank Change Date**	01/09/2024
Rank Methodology Used	Rank calculation - Biotics v2		

Assigned Rank Reasons

This species has disappeared from over 90% of its range in western Oregon and from at least 71% of its historical range throughout the state. It is found only above 4000 feet, at the extremity of its tolerance, where hydrological modifications and exotic species are reduced. The species has probably been extirpated from California at the southernmost portion of its range. It has been extirpated from many parts of Oregon. Several sites are isolated from each other because of species' limited dispersal ability. Species may be extirpated from approximately 90% of its historic range (Hayes 1997, Haycock 2000, USFWS 2011). Many remaining sites are small. Significant threats.

RANGE/DISTRIBUTION

Range Extent

Rating 20,000-200,000 square km (about 8000-80,000 square miles)

Estimate 51487 **Unit Used for Estimate** Square Kilometers

Comments 51487 sq km based on PODS data

Area of Occupancy

Grid Cell Size 4 km² Grid Cells

Rating (as Number of 4 km2 Grid Cells) F = 126-500

Comments 167 4-sq-km grid cells based on point observations database

ABUNDANCE AND CONDITION

Number of Occurrences

Rating 6 - 80

Estimate 78

Comments

O'Reilly (2022) states Rana pretiosa is known from 78 population complexes in seven sub-basins in the Klamath Basin and Cascades. ORBIC data include 83 EOs, of which about half are pre-2000 and likely extirpated. There are 33 Research Grade observations in iNaturalist (search date October 19, 2023), all but two with observation dates between 2000-2023. USFWS (2011) states Rana pretiosa is known from 32 sites in OR as of 2011.

Population Size

Rating 2500 - 10,000 individuals

Estimate 5222

Comments

5,222 estimate based on egg mass surveys of remaining populations in Oregon (O'Reilly 2022).

Good Viability/Ecological Integrity

Number of Occurrences with Good Viability/Ecological Integrity

Rating Few to some (4-40)

Comments

31 Research Grade records in iNaturalist with observation date between 2000-2023. USFWS 2011 reports 2 to 6 EOs with good viability.

THREATS

Threat Category Code	Threat Category	Calculated Impact	Scope	Severity	Timing	Comments
1	Residential & commercial development	BD = High - low	Large - restricted	Serious - moderate	High: Continuing	Direct impacts from drainage of wetlands for commercial and residential development, as well as associated changes to local hydrology and impacts to water quality
7	Natural system modifications	B = High	Pervasive: Affects all or most (71-100%) of the total population or occurrences or extent	Serious: Likely to seriously degrade/reduce affected occurrences or habitat, or reduce population 31-70%	High: Continuing	Dams, irrigation, and draining wetlands for agriculture all alter water regimes and impact breeding, habitat, and migration corridors.
8	Invasive & other problematic species, genes & diseases	B = High	Pervasive: Affects all or most (71-100%) of the total population or occurrences or extent	Serious: Likely to seriously degrade/reduce affected occurrences or habitat, or reduce population 31-70%	High: Continuing	Predation by non-native bullfrogs and brook trout, and habitat loss due to non-native reed canary grass encroachment
11	Climate change & severe weather	BC = High - medium	Pervasive: Affects all or most (71-100%) of the total population or occurrences or extent	Serious - moderate	High: Continuing	Drought can cause direct mortality and changing snowpack/runoff patterns can impact breeding and migration

Calculated Overall Threat Impact A = Very high

Assigned Overall Threat Impact A = Very high

Overall Threat Impact Comments

Modification and destruction of wetland habitats, competition from the introduced bullfrog and decreased water quality all threaten the species. Loss of habitat (hydrological alteration, development), fragmented habitat coupled with low dispersal ability, non-native predators and vegetation, drought, occasionally livestock grazing, Chytrid fungus (and other diseases), pesticides. Across range, 75% of sites surveyed had some degree of human-related hydrological alteration (USFWS 2011). Small populations are vulnerable to stochastic extirpations.

TRENDS

Short-Term Trend

Rating E = Decline of 30-50%

Long-Term Trend

Rating AC = Decline of >70%

Comments

Decline of 70-90% of its historic range

ADDITIONAL SPECIES INFORMATION

Oregon Habitat Comments

Highly aquatic. Found around the edges of lakes, marshes, springs and slow streams, usually where where there is considerable emergent vegetation plus a layer several cm thick of dead or decaying vegetation on the bottom.

RANKING REFERENCES

Short Citation Author	Year	Full Citation
Adams et al.	2014	Adams, M. J., C.A. Pearl, B. McCreary, and S.K. Galvan. 2014. Short-term occupancy and abundance dynamics of the Oregon spotted frog (Rana pretiosa) across its core range. USGS report 2014-1230. Available at http://www.fs.fed.us/r6/sfpnw/issssp/documents3/inv-rpt-ha-rana-pretiosa-usgs-monitoring-2014.pdf
Cushman and Pearl	2007	Cushman, K. A. and C. A. Pearl. 2007. A conservaiton assessment for the Oregon spotted frog (Rana pretiosa). USDA Forest Service Region 6. Available at http://www.fs.fed.us/r6/sfpnw/issssp/species-index/fauna-amphibians.shtml
Haycock	2000	Haycock, R.D. 2000. COSEWIC status report on the Oregon spotted frog, Rana pretiosa, in Canada. Report to the Committee on the Status of Endangered Wildlife in Canada. Committee on the Status of Endangered Wildlife in Canada, Ottawa. 19 pp.
Hayes	1994	Hayes, M.P. 1994. The spotted frog (Rana pretiosa) in western Oregon. Part I. Background. Part II. Current status. Oregon Department of Fish and Wildlife Technical Report 94–1–01. Unpublished Report.
Hayes	1997	Hayes, Marc P. 1997. Status of the Oregon spotted frog (Rana pretiosa senus stricto) in the Deschutes Basin and selected other systems in Oregon and northeastern Califronia with a rangewide synopsis of the species' status. Final report prepared for The Nature Conservancy under contract to the US Fish and Wildlife Service, Portland, OR. 57 pp + appendices.
O'Reilly	2022	O'Reilly, Jennifer; Waterstrat, Teal; Spaur, Jeanne. 2022. Draft Oregon spotted frog (Rana pretiosa) species biological report. Version 1. U.S. Fish and Wildlife Service, Pacific Region 1. Page 116.
ORBIC	2019	Oregon Biodiversity Information Center. 2019. Point Observation Database (PODs). Unpublished species point observations collated from many sources across Oregon.
US Fish and Wildlife Service	2011	US Fish and Wildlife Service. 2011. Species assessment and listing priority assignment form: Rana pretiosa. Available online: http://www.fs.fed.us/r6/sfpnw/issssp/documents/planning-docs/cp-fws-candidate-ha-rana-pretiosa-2011-05.pdf
US Fish and Wildlife Service	2014	US Fish and Wildlife Service. 2014. Rana pretiosa final listing package. Revised threats matrix analysis. Available at: http://www.fws.gov/wafwo/species/osf/OSF_Final%20Listing_Threats%20Synthesis.pdf

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

Nelson, Misty. 2023. Oregon state rank assessment for Oregon spotted frog (Rana pretiosa). Oregon Biodiversity Information Center. Institute for Natural Resources, Portland State University, Portland, OR.