

Natural Heritage Ranking Form - Oregon State Rank

Oregon Ranking Form Cascades frog (*Rana cascadae*)

Oregon Biodiversity Information Center

SPECIES ASSESSED

Scientific Name *Rana cascadae*

ELCODE AAABH01060

Common Name Cascades frog

Element ID 6296

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 S3

Rank Assignment Author Eleanor Gaines

Rank Review Date 6/20/2013

Rank Factors Author Eleanor Gaines

Rank Factors Date 11/01/2022

Calculated Rank S3

Rank Change Date 11/01/2022

Rank Methodology Used Rank calculation - Biotics v2

Assigned Rank Reasons

Range continues to be relatively large, with many populations. Some populations may be small. May be sensitive to climate change, especially in southern OR.

RANGE/DISTRIBUTION

Range Extent

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

Estimate 22036

Unit Used for Estimate Square
Kilomete
rs

Comments Range extent: 22,036 sq km based on point observation data, element occurrences, and records from USFS and BLM.

Area of Occupancy

Grid Cell Size 4 km² Grid Cells

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

Comments Approximately 448 4 km² grid cells based on current element occurrences and records from BLM and USFS. Some of these records are likely no longer extant.

ABUNDANCE AND CONDITION

Number of Occurrences

Rating 81 - 300

Estimate 116

Comments

116 EOs; additional records exist that are not in database, some within 25 years.

Population Size

Rating Unknown

Good Viability/Ecological Integrity

Number of Occurrences with Good Viability/Ecological Integrity

Rating Few to some (4-40)

Comments

Most occurrences are of a few individuals. There are fewer than 10 records that report large populations.

THREATS

<u>Threat Category</u>		<u>Calculated</u>		<u>Severity</u>	<u>Timing</u>	<u>Comments</u>
<u>Code</u>	<u>Threat Category</u>	<u>Impact</u>	<u>Scope</u>			
2	Agriculture & aquaculture	Unknown	Large: Affects most (31-70%) of the total population or occurrences or extent	Unknown	High: Continuing	
2.3	Livestock farming & ranching	Unknown	Large: Affects most (31-70%) of the total population or occurrences or extent	Unknown	High: Continuing	
2.3.2	Small-holder grazing, ranching or farming	Unknown	Large: Affects most (31-70%) of the total population or occurrences or extent	Unknown	High: Continuing	
6	Human intrusions & disturbance	D = Low	Restricted: Affects some (11-30%) of the total population or occurrences or extent	Moderate: Likely to moderately degrade/reduce affected occurrences or habitat, or reduce population 11-30%	High: Continuing	
6.1	Recreational activities	D = Low	Restricted: Affects some (11-30%) of the total population or occurrences or extent	Moderate: Likely to moderately degrade/reduce affected occurrences or habitat, or reduce population 11-30%	High: Continuing	
7	Natural system modifications	D = Low	Restricted: Affects some (11-30%) of the total population or occurrences or extent	Slight: Likely to only slightly degrade/reduce affected occurrences or habitat, or reduce population 1-10%	High: Continuing	
7.1	Fire & fire suppression	D = Low	Restricted: Affects some (11-30%) of the total population or occurrences or extent	Slight: Likely to only slightly degrade/reduce affected occurrences or habitat, or reduce population 1-10%	High: Continuing	
8	Invasive & other problematic species, genes & diseases	C = Medium	Large: Affects most (31-70%) of the total population or occurrences or extent	Moderate: Likely to moderately degrade/reduce affected occurrences or habitat, or reduce population 11-30%	High: Continuing	
8.1	Invasive non-native/alien species/diseases	C = Medium	Large: Affects most (31-70%) of the total population or occurrences or extent	Moderate: Likely to moderately degrade/reduce affected occurrences or habitat, or reduce population 11-30%	High: Continuing	

9	Pollution	Unknown	Large: Affects most (31-70%) of the total population or occurrences or extent	Unknown	High: Continuing
9.5	Air-borne pollutants	Unknown	Large: Affects most (31-70%) of the total population or occurrences or extent	Unknown	High: Continuing
9.5.3	Ozone	Unknown	Large: Affects most (31-70%) of the total population or occurrences or extent	Unknown	High: Continuing
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

Calculated Overall Threat Impact B = High

Assigned Overall Threat Impact B = High

Overall Threat Impact Comments

Threats from climate change, drying of ephemeral ponds. Southern part of range more vulnerable to changes in climate than northern Cascades. Pearl et al. (2009) found *R. cascadae* at 66% of historic breeding sites. Populations were more likely to be relocated further north in OR. Introduced predatory fish, habitat loss and degradation (from fire suppression and/or grazing), disease, UV-B radiation, air borne pollutants, and climate change are the greatest threats to this species (Fellers and Drost 1993, Pope et al. 2014, Cole et al. 2016, Evelyn and Sweet 2018, Duarte et al. 2021, Cook et al. 2022). Grazing can degrade habitat by increasing sedimentation (Oregon Department of Fish and Wildlife 2016).

TRENDS

Short-Term Trend

Rating FG = Decline of <30% to relatively stable

Comments

In the Oregon Cascades, although the number of sites occupied declined slightly, Duarte et al. (2021) could not detect a significant decline (greater than 20%) between 2004 and 2019.

Long-Term Trend

Rating FG = Decline of <30% to relatively stable

Comments

In Oregon, population declines have been referenced, but data to support these claims are not available (Nussbaum et al. 1983, Pearl et al. 2009). Significant population declines (greater than 20%) were not detected between historical records and 2004 (Pearl et al. 2009), and the species remains broadly distributed across the Oregon Cascades (ORBIC 2022). However, historically the species was reported from lower elevations (as low as 400m), and it currently occurs above 600m (Hallock and McAllister 2009, Pope et al. 2014).

ADDITIONAL SPECIES INFORMATION

Oregon Habitat Comments

Lakes, ponds, bogs and small streams in moist montane meadows and forests. At times encountered along forest trails some distance from bodies of water.

RANKING REFERENCES

<u>Short Citation</u>	<u>Author</u>	<u>Year</u>	<u>Full Citation</u>
Bury			Bury, Bruce R. Biologist with USGS. He has provided <i>Rana</i> sp. sighting data for NRIS fauna database.
ORBIC		2019	Oregon Biodiversity Information Center. 2019. Oregon Biotics Rare Species Database. Maintained by ORBIC at Portland State University, Portland, OR.
Pearl et al.		2009	Pearl, C. A., M.J. Adams, R.B. Bury, W. H. Wentz, and B. McCreary. 2009. Evaluating Amphibian Declines with Site Revisits and Occupancy Models: Status of Montane Anurans in the Pacific Northwest USA. <i>Diversity</i> 2009, 1, 166-181; doi:10.3390/d1020166.

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-assign>

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. 2013. Oregon state rank assessment for Cascades frog (*Rana cascadae*). Institute for Natural Resources, Portland State University, Portland, OR.