COSEWIC Status Appraisal Summary

on the

Pygmy Short-horned Lizard Phrynosoma douglasii

in Canada

EXTIRPATED 2018

COSEWIC Committee on the Status of Endangered Wildlife in Canada



COSEPAC Comité sur la situation des espèces en péril au Canada COSEWIC status appraisal summaries are working documents used in assigning the status of wildlife species suspected of being at risk in Canada. This document may be cited as follows:

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Production note:

COSEWIC acknowledges Sara Ashpole for writing the status appraisal summary on the Pygmy Shorthorned Lizard (*Phrynosoma douglasii*), prepared under contract with Environment and Climate Change Canada. This status appraisal summary was overseen and edited by Kristiina Ovaska, Co-chair of the COSEWIC Amphibians and Reptiles Specialist Subcommittee.

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Également disponible en français sous le titre Sommaire du statut de l'espèce du COSEPAC sur le Lézard à petites cornes mineur (*Phrynosoma douglasii*) au Canada.

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Assessment Summary – November 2018

Common name

Pygmy Short-horned Lizard

Scientific name Phrynosoma douglasii

Status

Extirpated

Reason for designation

In Canada, this species is known only from historical records. Since the last assessment, more anecdotal observations have come to light, but there are no confirmed records for over 50 years. The historical records are from a populated area in the Okanagan Valley, British Columbia, and new sightings would be expected if the species still existed in Canada.

Occurrence

British Columbia

Status history

Last reported in 1957. Designated Extirpated in April 1992. Status re-examined and confirmed in May 2000, April 2007, and November 2018.



Phrynosoma douglasii Pygmy Short-horned Lizard Lézard à petites cornes mineur Range of occurrence in Canada (province/territory/ocean): British Columbia

COSEWIC Status History:

Last reported in 1957. Designated Extirpated in April 1992. Status re–examined and confirmed in May 2000, April 2007, and November 2018.

Wildlife species:

Change in eligibility, taxonomy or designatable units:

yes 🗌 no 🖂

Explanation:

No additional confirmed records since the previous assessment. The eligibility, taxonomy, and designatable units of the species have not changed.

Range:

Change in Extent of Occurrence (EOO):	yes 🗌 no 🛛 unk 🗌
Change in Index of Area of Occupancy (IAO): Change in number of known or inferred current locations ¹ :	yes
Significant new survey information	yes ∐ no ⊠
Explanation:	

No additional confirmed records exist since last assessment. The known range of the species in Canada has not changed since the previous assessment.

Population Information:	
Change in number of mature individuals:	yes 🗌 no 🖂 unk
Change in population trend:	yes 🗌 no 🖂 unk
Change in severity of population fragmentation:	yes 🗌 no 🖂 unk
Change in trend in area and/or quality of habitat:	yes 🗌 no 🖂 unk 🗌
Significant new survey information	yes 🗌 no 🖂

1 Use the IUCN definition of "location"

Explanation:

Population information on the species in Canada has never been available. However, the species remains known only from historical records, so population information has not changed.

Threats:

Change in nature and/or severity of threats:

yes 🖾 no 🗌 unk 🗌

Explanation:

Threats that would affect the species' recovery continue within the historical Canadian range of the species and have been assessed as part of the recovery strategy (Environment and Climate Change Canada 2017). Applicable IUCN threat categories include the following: 1.0 Residential and Commercial Development: 1.1 Housing and urban areas (development and habitat loss); 1.2 commercial and industrial areas (development and habitat loss); 1.3 Tourism and Recreation Areas (habitat disturbance and degradation). 2.0 Agriculture and Aquiculture: 2.1 annual and perennial non-timber crops (deforestation and habitat loss and disturbance); 2.3 livestock farming and ranching (habitat loss and disturbance). Additionally, threats that affect ant populations, the species' primary prey, are identified as a potential problem within the US range of the species.

Protection:

Change in effective protection:

yes 🗌 no 🖂

Explanation:

There has been no change in federal or provincial legal protection. However, the number of protected areas surrounding the historical occurrences have expanded, including the provincial White Lake Grasslands and the Okanagan Grassland Protected Areas and the Sage and Sparrow Conservation Area owned by the Nature Conservancy.

Rescue Effect:

Change in evidence of rescue effect:

yes 🗌 no 🖂

yes 🗌 no 🖂 unk 🗌

Explanation:

No change; rescue remains possible but unlikely due to low dispersal capability of the lizards coupled with habitat fragmentation.

Quantitative Analysis:

Change in estimated probability of extirpation:

Details: Not relevant for extirpated species.

Summary and Additional Considerations: [e.g., recovery efforts]

No significant new information that would contribute to a change in the status has been obtained since the previous COSEWIC status report. A specimen in Trail (Sunningdale), British Columbia, photographed in a schoolroom in 1958, has come to light. The locality is outside the known historical distribution of the species in Canada, but no information exists to explain if this individual was captured from a natural occurrence in British Columbia. As such, the record should be treated as anecdotal. In spring 2016, the report writer conducted an outreach campaign in the Trail area, which included contacting representatives from over 40 organizations. This campaign elicited no new information (Appendix 1).

The recovery strategy (Environment and Climate Change Canada 2017) concluded that the recovery of the species is not feasible at this time, and there are currently no plans for recovery efforts.

ACKNOWLEDGEMENTS AND AUTHORITIES CONTACTED

The following individuals and organizations freely provided their knowledge about Pygmy Short-horned Lizard and/or their habitats:

Benso, Sarah. 2017. Director, Trail Museum & Archives. Trail Historical Society. PO Box 405, Trail, BC V1R 4L7

Dulisse, Jakob. RPBio. 2017. 410 Second St., Nelson, BC V1L 2L3

Dyer, Orville. 2017. Acting Small Mammal and Herpetofauna Specialist Conservation Science Section, Ministry of Environment and Climate Change Strategy. 102 Industrial Place, Penticton, BC V2A 7C8

Guilderson, Mitch. Penticton, BC.

- Harrison, Megan. 2017. Species at Risk Biologist. Environment and Climate Change Canada. 5421 Robertson Rd., Delta, BC V4K 3N2
- Machmer, Marlene. Pandion Ecological Research Ltd. 532 Park Street, Nelson, BC V1L 2G9
- Manley, Irene. Wildlife Biologist. Fish and Wildlife Compensation Program Section Kootenay-Boundary Region. Ministry of Forests Lands and Natural Resource Operations. #401-333 Victoria St., Nelson, BC V1L 4K3
- Okanagan Similkameen Stewardship Society. 203 304 Martin Street, Penticton, BC V2A 5K4
- Okanogan Borderlands Historical Society. Oroville Visitor's Center. 1210 Ironwood Street in Oroville, WA 98844

INFORMATION SOURCES

- Environment and Climate Change Canada. 2017. Recovery Strategy for the Pygmy Short-horned Lizard (*Phrynosoma douglasii*) in Canada. *Species at Risk Act* Recovery Strategy Series. Environment and Climate Change Canada, Ottawa. vi + 14 pp.
- Hallock, L.A., and K.R. McAlliste. 2005. Pygmy Short-horned Lizard. Washington Herp Atlas. Websitehttp://wdfw.wa.gov/conservation/herp_atlas/ [accessed September 2018].

AUTHOR OF SAS

Sara L. Ashpole, PhD

TECHNICAL SUMMARY

Phrynosoma douglasii

Pygmy Short-horned Lizard

Lézard à petites cornes mineur

Range of occurrence in Canada (province/territory/ocean): British Columbia

Demographic Information

Generation time (usually average age of parents in the population; indicate if another method of estimating generation time indicated in the IUCN guidelines (2011) is being used)	5 years
Is there an [observed, inferred, or projected] continuing decline in number of mature individuals?	No
Estimated percent of continuing decline in total number of mature individuals within [5 years or 2 generations]	N/A, it is assumed that the decline in individuals occurred beyond the past 5 years or 2 generations.
[Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over the last [10 years, or 3 generations].	N/A, it is assumed that the decline in individuals occurred beyond the past 10 years or 3 generations.
[Projected or suspected] percent [reduction or increase] in total number of mature individuals over the next [10 years, or 3 generations].	N/A, no change in individuals is projected or suspected over the next 10 years or 3 generations because the species is considered to be extirpated and there are no plans for re-introduction.
[Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over any [10 years, or 3 generations] period, over a time period including both the past and the future.	N/A, no change in individuals has been observed, estimated, inferred, or suspected over a time period including both the past and future.
Are the causes of the decline a. clearly reversible and b. understood and c. ceased?	a. No b. Poorly understood c. Unknown
Are there extreme fluctuations in number of mature individuals?	N/A, no individuals in Canada.

Extent and Occupancy Information

Estimated extent of occurrence (EOO)	0 km²
Index of area of occupancy (IAO) (Always report 2x2 grid value).	0 km²

Is the population "severely fragmented" i.e., is >50% of its total area of occupancy is in habitat patches that are (a) smaller than would be required to support a viable population, and (b) separated from other habitat patches by a distance larger than the species can be expected to disperse?	a. N/A; current area of occupancy is 0 b. N/A
Number of "locations"* (use plausible range to reflect uncertainty if appropriate)	None confirmed
Is there an [observed, inferred, or projected] decline in extent of occurrence?	Νο
Is there an [observed, inferred, or projected] decline in index of area of occupancy?	No
Is there an [observed, inferred, or projected] decline in number of subpopulations?	No
Is there an [observed, inferred, or projected] decline in number of "locations"*?	No
Is there an [observed, inferred, or projected] decline in [area, extent and/or quality] of habitat?	Unknown
Are there extreme fluctuations in number of subpopulations?	N/A; the species remains known only from historical records.
Are there extreme fluctuations in number of "locations"*?	N/A; the species remains to be known only from historical records.
Are there extreme fluctuations in extent of occurrence?	N/A; the species remains to be known only from historical records.
Are there extreme fluctuations in index of area of occupancy?	N/A; the species remains to be known only from historical records.

Number of Mature Individuals (in each subpopulation)

Subpopulations (give plausible ranges)	N Mature Individuals
Okanagan	0
Similkameen	0
Total	0

Quantitative Analysis

Probability of extinction in the wild is at least [20% within 20 years or 5 generations, or 10% within 100	Not applicable
years].	

^{*} See Definitions and Abbreviations on COSEWIC website and IUCN (Feb 2014) for more information on this term

Threats (direct, from highest impact to least, as per the IUCN Threats Calculator)

Was a threats calculator completed for this species? No, but threats have been assessed in the recovery strategy (Environment and Climate Change Canada 2017). A threats calculator analysis was deemed unnecessary because the species is known from historical records only.

Threats:

Habitat loss and degradation from Residential & Commercial Development and from Agriculture

What additional limiting factors are relevant? Lack of rescue effect

Rescue Effect (immigration from outside Canada)

Status of outside population(s) most likely to provide immigrants to Canada.	Washington State: Vulnerable S3; Nationally secure N5 in the United States; Globally secure G5
Is immigration known or possible?	Unknown; possible but unlikely
Would immigrants be adapted to survive in Canada?	Probably
Is there sufficient habitat for immigrants in Canada?	Unknown
Are conditions deteriorating in Canada?+	Possibly
Are conditions for the source population deteriorating?+	Unknown
Is the Canadian population considered to be a sink?+	No
Is rescue from outside populations likely?	Unlikely

Data Sensitive Species

Is this a data sensitive species? No

Status and Reasons for Designation:

Status:	Alpha-numeric codes:
Extirpated	Not applicable

Reasons for designation:

In Canada, this species is known only from historical records. Since the last assessment, more anecdotal observations have come to light, but there are no confirmed records for over 50 years. The historical records are from a populated area in the Okanagan Valley, British Columbia, and new sightings would be expected if the species still existed in Canada.

Applicability of Criteria

Criterion A (Decline in Total Number of Mature Individuals): Not applicable. The decline is historical, and there have been no records for well over the 3-generation period.

Criterion B (Small Distribution Range and Decline or Fluctuation): Not applicable. There are no recent records.

⁺ See Table 3 (Guidelines for modifying status assessment based on rescue effect)

Criterion C (Small and Declining Number of Mature Individuals): Not applicable. There are no recent records.

Criterion D (Very Small or Restricted Population): Not applicable. There are no recent records.

Criterion E (Quantitative Analysis): Not applicable. There are no recent records.

Appendix 1. Pygmy Short-horned Lizard record from Trail and outreach activities.

Record from Trail (Sunningdale), BC, in 1958

Robert Frew reported a Pygmy Short-horned Lizard specimen captured by his father Gordon Frew in 1958, Trail (Sunningdale) (archived correspondence, April 2016). The exact location of capture is unknown. At the time, the identity of the live specimen was validated by Mr. Harrison (Megan Harris pers. comm. 2017), and the identification photos were confirmed in 2016 by Irene Manley (Kootenay - Boundary Region Ministry of Forests Lands and Natural Resource Operations) and David Fraser (BC Ministry of Forests, Lands and Natural Resource Operations). Regional surveys in the Trail area targeting this species or its habitat have not occurred. The specimen is the only report of the species from the Trail area and would represent either a disjunct population or an unnatural occurrence.

Outreach campaign

In March-May 2016, an outreach campaign, facilitated by the Okanagan Similkameen Stewardship Society and the report writer, solicited observations and local ecological knowledge from naturalists and the public within the species' known historical range in the Okanagan region and in the Trail area. Interpretive posters (~100 distributed), local news announcements, social media, and targeted emails to local experts, historians, and representatives from three First Nations (Osoyoos, Penticton, Colville) resulted in no specific new information.

Information Sources

Harris, M., pers. comm. 2017. *Email correspondence with Sara Ashpole*. 14 March 2017. Species at Risk Biologist. Environment and Climate Change Canada. Delta, British Columbia.

List of organizations contacted

- BC Parks
- BC Nature Federation
- Canadian Herpetological Society
- Central Okanagan Naturalist Club
- Colville Indian Tribe
- Ducks Unlimited
- Elks Osoyoos
- Environment and Climate Change Canada British Columbia
- En'owkin Centre
- Ecoscape Environmental Consultants, Kelowna
- Fish and Wildlife Compensation Program Section Kootenay-Boundary Region
- Kamloops Naturalist Club

- Kamloops Thompson Trail Alliance
- Kootenay Columbia Educational Heritage Society
- Lillooet Naturalists Society
- Ministry of Forests, Lands and Natural Resource Operations
- Nature Conservancy Canada
- Nicola Naturalist Club
- Nk'Mip Desert Cultural Centre
- North Okanagan Naturalist Club
- North Shuswap Naturalist Club
- Oliver-Osoyoos Naturalist Club
- Okanogan Borderlands Historical Society
- Okanagan College
- Okanagan Similkameen Conservation Alliance
- Ophiucon Consulting
- Osoyoos Desert Society
- Osoyoos Indian Band
- Osoyoos Times
- Penticton Indian Band
- Penticton Museum
- Shuswap Naturalist Club
- South Okanagan Naturalist Club
- South Okanagan Similkameen Conservation Program
- Sunningdale High School
- The Nature Trust of BC
- Thompson Rivers University
- Trail Daily Times
- Trail Historical Society
- University of British Columbia Okanagan
- Vermilion Forks Field Naturalists
- West Kootenay Naturalist Association
- While Lake Radio Observatory



COSEWIC HISTORY

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) was created in 1977 as a result of a recommendation at the Federal-Provincial Wildlife Conference held in 1976. It arose from the need for a single, official, scientifically sound, national listing of wildlife species at risk. In 1978, COSEWIC designated its first species and produced its first list of Canadian species at risk. Species designated at meetings of the full committee are added to the list. On June 5, 2003, the *Species at Risk Act* (SARA) was proclaimed. SARA establishes COSEWIC as an advisory body ensuring that species will continue to be assessed under a rigorous and independent scientific process.

COSEWIC MANDATE

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses the national status of wild species, subspecies, varieties, or other designatable units that are considered to be at risk in Canada. Designations are made on native species for the following taxonomic groups: mammals, birds, reptiles, amphibians, fishes, arthropods, molluscs, vascular plants, mosses, and lichens.

COSEWIC MEMBERSHIP

COSEWIC comprises members from each provincial and territorial government wildlife agency, four federal entities (Canadian Wildlife Service, Parks Canada Agency, Department of Fisheries and Oceans, and the Federal Biodiversity Information Partnership, chaired by the Canadian Museum of Nature), three non-government science members and the co-chairs of the species specialist subcommittees and the Aboriginal Traditional Knowledge subcommittee. The Committee meets to consider status reports on candidate species.

DEFINITIONS (2018)

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Wildlife Species	A species, subspecies, variety, or geographically or genetically distinct population of animal, plant or other organism, other than a bacterium or virus, that is wild by nature and is either native to Canada or has extended its range into Canada without human intervention and has been present in Canada for at least 50 years.
Extinct (X)	A wildlife species that no longer exists.
Extirpated (XT)	A wildlife species no longer existing in the wild in Canada, but occurring elsewhere.
Endangered (E)	A wildlife species facing imminent extirpation or extinction.
Threatened (T)	A wildlife species likely to become endangered if limiting factors are not reversed.
Special Concern (SC)*	A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
Not at Risk (NAR)**	A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.
Data Deficient (DD)***	A category that applies when the available information is insufficient (a) to resolve a species' eligibility for assessment or (b) to permit an assessment of the species' risk of extinction.

- * Formerly described as "Vulnerable" from 1990 to 1999, or "Rare" prior to 1990.
- ** Formerly described as "Not In Any Category", or "No Designation Required."
- *** Formerly described as "Indeterminate" from 1994 to 1999 or "ISIBD" (insufficient scientific information on which to base a designation) prior to 1994. Definition of the (DD) category revised in 2006.



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