

COSEWIC
Status Appraisal Summary

on the

Small-mouthed Salamander
Ambystoma texanum

in Canada

ENDANGERED
2014

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:

COSEWIC. 2014. COSEWIC status appraisal summary on the Small-mouthed Salamander *Ambystoma texanum* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).

Production note:

COSEWIC would like to acknowledge David M. Green for writing the status appraisal summary on the Small-mouthed Salamander, *Ambystoma texanum*, in Canada, prepared under contract with Environment Canada. This status appraisal summary was overseen and edited by Kristiina Ovaska and Jim Bogart, Co-chairs of the COSEWIC Amphibians and Reptiles Specialists Subcommittee.

For additional copies contact:

COSEWIC Secretariat
c/o Canadian Wildlife Service
Environment Canada
Ottawa, ON
K1A 0H3

Tel.: 819-953-3215
Fax: 819-994-3684
E-mail: COSEWIC/COSEPAC@ec.gc.ca
<http://www.cosewic.gc.ca>

Également disponible en français sous le titre Sommaire du statut de l'espèce du COSEPAC sur la Salamandre à petite bouche (*Ambystoma texanum*) au Canada.

©Her Majesty the Queen in Right of Canada, 2014.
Catalogue No. CW69-14/2-40-2014E-PDF
ISBN 978-1-100-23919-4



Recycled paper



COSEWIC Assessment Summary

Assessment Summary – May 2014

Common name

Small-mouthed Salamander

Scientific name

Ambystoma texanum

Status

Endangered

Reason for designation

The Canadian distribution of this salamander is restricted solely to Pelee Island. The entire Canadian range is only about 40 km², and only three breeding sites are known. Although this species was first assessed as Endangered 10 years ago, there is little new information and new threats exist for this salamander. The continued existence of the population is precarious because of habitat degradation of wetland breeding sites. Predation and habitat destruction by recently introduced Wild Turkeys is a new threat to the existence of salamanders on Pelee Island.

Occurrence

Ontario

Status history

Designated Special Concern in April 1991. Status re-examined and designated Endangered in May 2004 and May 2014.



COSEWIC Status Appraisal Summary

Small-mouthed Salamander
Salamandre à petite bouche

Ambystoma texanum

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

COSEWIC Status History:

Designated Special Concern in April 1991. Status re-examined and designated Endangered in May 2004 and May 2014.

Evidence (indicate as applicable):

Wildlife species:

Change in eligibility, taxonomy or designatable units: yes ☐ no ☒

Explanation:

No additional data since last assessment

Range:

Change in Extent of Occurrence (EO): yes ☐ no ☐ unk ☒

Change in Index of Area of Occupancy (IAO) : yes ☐ no ☐ unk ☒

Change in number of known or inferred current locations*: yes ☐ no ☐ unk ☒

Significant new survey information yes ☐ no ☒

Explanation:

No additional data since last assessment. The range of the species in Canada has not changed since the last assessment.

* Use the IUCN definition of "location"

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 ☒

Explanation:

No additional data since last assessment. Area of habitat might be increasing because of restoration efforts by Nature Conservancy Canada (NCC).

Threats:

Change in nature and/or severity of threats:

yes ☒ no ☐ unk ☐

Explanation:

Approximately 25 breeding Wild Turkeys (*Meleagris gallopavo*) were released at various points on Pelee Island in 2002 with the co-operation of the Ministry of Natural Resources, the Wild Turkey Release Program, the Township of Pelee and the Pelee Island Sportsman's Club (Municipality of Pelee Island 2013). Following this initial release, a large population of Wild Turkeys now exists on the Island and starting in 2004 there has been a Wild Turkey Hunt on the Island (OMNR 2007). Jim Bogart (pers. comm. 2013) and Mike Oldham (pers. comm. 2013) report that Wild Turkeys have potentially devastating consequences for salamanders as predators and for microhabitat destruction. Bogart has observed turkey destruction of habitat elsewhere, at Backus Woods and in Parry Sound District; the turkeys leave few salamander hiding places untouched.

New species of trematode parasites have been identified in Small-mouthed Salamanders in US populations (McAllister *et al.* 2008, 2010), but any threat they pose to population viability is unknown.

Protection:

Change in effective protection:

yes ☒ no ☐

Explanation:

The species is listed as Endangered under Schedule 1 of the *Species at Risk Act* (SARA). Under Ontario's *Endangered Species Act*, 2007 regulations, the Small-mouthed Salamander is protected from being killed, harmed, and possessed. Habitat is protected in two Provincial Nature Reserves, one of which includes part of the largest population of Small-mouthed Salamanders on Pelee Island. Other publicly or privately owned conservation lands on the island protect additional habitat. In the past 10 years, Nature Conservancy Canada has made several land purchases that may contain salamander habitat.

Rescue Effect:

Change in evidence of rescue effect:

yes ☐ no ☒

Explanation:

No additional data since last assessment

Quantitative Analysis:

Change in estimated probability of extirpation

yes ☐ no ☐ unk ☒

Details:

No quantitative analysis since last assessment

Summary and Additional Considerations:

Habitat management guidelines generally applicable to Pelee Island have been produced by the Nature Conservancy of Canada (2008). A draft recovery strategy has been prepared for the Small-mouthed Salamander in Ontario (Hamill, 2014).

No recovery efforts have been implemented.

The introduction of Wild Turkeys to Pelee Island constitutes a threat to Small-mouthed Salamanders that has likely resulted in decline in number of mature individuals by predation and habitat destruction. This could result in increased population fragmentation and further decline in the area and quality of habitat.

Acknowledgements and authorities contacted:

James Bogart. Professor Emeritus, University of Guelph.

Michael Oldham. Ontario Ministry of Natural Resources, Peterborough.

Scott Gillingwater, Upper Thames River Conservation Authority.

Joe Crowley. Ontario Ministry of Natural Resources, Peterborough.

Information sources:

Bogart, J. *Email correspondence to D. Green*. March 4, 2013. Professor Emeritus, University of Guelph, Ontario.

Hamill, Stewart E. 2014. DRAFT Recovery Strategy for the Small-mouthed Salamander (*Ambystoma texanum*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. vii + 18 pp.

McAllister, C.T., C.R. Bursey, and S.E. Trauth. 2008. New host and geographic distribution records for some endoparasites (Myxosporea, Trematoda, Cestoidea, Nematoda) of amphibians and reptiles from Arkansas and Texas, USA. *Comparative Parasitology* 75:241-254.

McAllister, C.T., C.R. Bursey, J.A. Crawford, A.R. Kuhns, C. Shaffer, and S.E. Trauth. 2010. Metacercariae of *Clinostomum* (Trematoda: Digenea) from three species of *Ambystoma* (Caudata: Ambystomatidae) from Arkansas and Illinois, USA. *Comparative Parasitology* 77:25-30.

Municipality of Pelee Island. Web site: <http://www.pelee.org/i?page=wildturkeys&sid=W11362427586R4> [Accessed March 5, 2013].

Nature Conservancy of Canada (NCC). 2008. Management Guidelines: Pelee Island Alvars. NCC – Southwestern Ontario Region, London, Ontario. 43 pp.

Oldham, M. *Email correspondence to D. Green*. March 5, 2013. Ontario Ministry of Natural Resources, Peterborough, Ontario.

OMNR. 2007. Wild Turkey management plan for Ontario. Ontario Ministry of Natural Resources. 44 pp.

TECHNICAL SUMMARY

Ambystoma texanum

Small-mouthed Salamander

Range of occurrence in Canada: Ontario

Salamandre à petite bouche

Demographic Information

Generation time	3 yrs
Is there a projected continuing decline in number of mature individuals?	Yes based on new threats
Estimated percent of continuing decline in total number of mature individuals	Unknown
Percent reduction or increase in total number of mature individuals over the last 10 years, or 3 generations.	Unknown
Percent reduction or increase in total number of mature individuals over the next 10 years, or 3 generations.	Unknown
Percent reduction or increase in total number of mature individuals over any time period including both the past and the future.	Unknown but there is an anticipated decline of mature individuals because of new threats
Are the causes of the decline clearly reversible and understood and ceased?	no
Are there extreme fluctuations in number of mature individuals? [other species of <i>Ambystoma</i> have fluctuating population sizes (Green 2003)]	highly likely because of the short generation time and new threats

Extent and Occupancy Information

Estimated extent of occurrence [Area of Pelee Island: 4,262ha]	43 km ²
Index of area of occupancy (IAO) (Always report 2x2 grid value).	12 km ²
Is the population "severely fragmented", i.e., >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 large distance?	no
Number of locations* [three known current breeding sites, all could be wiped out in single, catastrophic flood or severe storm]	1
Is there an inferred continuing decline in extent of occurrence?	no
Is there a projected continuing decline in index of area of occupancy?	yes
Is there a projected continuing decline in number of populations?	yes
Is there a projected continuing decline in number of locations*? [only 1 location in IUCN terms]	no
Is there a projected continuing decline in quality of habitat? [due to introduced Wild Turkeys]	yes
Are there extreme fluctuations in number of subpopulations?	no
Are there extreme fluctuations in number of locations*?	no
Are there extreme fluctuations in extent of occurrence?	no
Are there extreme fluctuations in index of area of occupancy?	no

See Definitions and Abbreviations on the [COSEWIC website](#) and [IUCN 2010](#) for more information on this term.

Number of Mature Individuals (in each subpopulation)

Subpopulation	N Mature Individuals
Total	Unknown but undoubtedly very small (<2500 adults)

Quantitative Analysis

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

Threats (actual or imminent, to populations or habitats)

<ul style="list-style-type: none"> - environmental degradation (mostly historical) - modified drainage patterns (historical) - habitat destruction due to introduced Wild Turkeys (ongoing)
--

Rescue Effect (immigration from outside Canada)

Status of outside population(s) most likely to provide immigrants to Canada?	USA: N5 Michigan (S1, Endangered), Ohio (no special status)
Is immigration known or possible?	no
Would immigrants be adapted to survive in Canada?	yes
Is there sufficient habitat for immigrants in Canada?	yes
Is rescue from outside populations likely?	no

Data-Sensitive Species

Is this a data-sensitive species?	yes
-----------------------------------	-----

COSEWIC Status History

Designated Special Concern in April 1991. Status re-examined and designated Endangered in May 2004 and May 2014.
Additional Sources of Information: Green, D.M. 2003. The ecology of extinction: population fluctuation and decline in amphibians. Biological Conservation 111:331-343.

Status and Reasons for Designation

Status: Endangered	Alpha-numeric Code: B1ab(iii,v)+2ab(iii,v)
Reasons for Designation: The Canadian distribution of this salamander is restricted solely to Pelee Island. The entire Canadian range is only about 40 km ² , and only three breeding sites are known. Although this species was first assessed as Endangered 10 years ago, there is little new information and new threats exist for this salamander. The continued existence of the population is precarious because of habitat degradation of wetland breeding sites. Predation and habitat destruction by recently introduced Wild Turkeys is a new threat to the existence of salamanders on Pelee Island.	

Applicability of Criteria

Criterion A (Decline in Total Number of Mature Individuals): Not applicable. Decline is likely, but there is insufficient information to calculate percentage decline.

Criterion B (Small Distribution Range and Decline or Fluctuation): Meets Endangered B1ab(iii,v)+2ab(iii,v) since both the EO and IAO are below the threshold values, the number of locations is less than 5 (a) and there are inferred and suspected continuing declines (b) in extent and quality of habitat (iii), and number of adults (v) based on habitat trends, including the introduction of Wild Turkeys. There is insufficient information to determine the number of mature individuals in each subpopulation.

Criteria C (Small and Declining Number of Mature Individuals): May qualify for Endangered under Criterion C2b as it is estimated that fewer than 1,000 adults exist on Pelee Island, there has been decline in abundance inferable from losses of breeding sites, and population sizes probably fluctuate to a great extent. However, these cannot be determined with as much certainty as those under Criterion B. Criterion C2 a(ii) might also apply because most mature individuals occur in one subpopulation but it is not clear that the subpopulation holds >95% of the mature individuals.

Criterion D (Very Small or Restricted Population): Meets the criterion for Threatened D2 because the index of area of occupancy is less than 20 km² and there are less than 5 locations.

Criterion E (Quantitative Analysis): Insufficient information to calculate.



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 (2014)

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.



Environnement
Canada

Canadian Wildlife
Service

Environnement
Canada

Service canadien
de la faune

Canada

The Canadian Wildlife Service, Environment Canada, provides full administrative and financial support to the COSEWIC Secretariat.