

**COSEWIC**  
**Rapid Review of Classification**

on the

**Brook Spike-primrose**  
*Epilobium torreyi*

in Canada

**ENDANGERED**  
**2018**

**COSEWIC**  
Committee on the Status  
of Endangered Wildlife  
in Canada



**COSEPAC**  
Comité sur la situation  
des espèces en péril  
au Canada

The Rapid Review of Classification process is used by COSEWIC for Wildlife Species that have not changed status since the previous COSEWIC assessment. Readily available information from the previous status report or status appraisal summary, recovery documents, recovery teams, jurisdictions, conservation data centres, and species experts was initially reviewed by the relevant Species Specialist Subcommittees before being reviewed by COSEWIC. The following is a summary of the relevant information.

COSEWIC Rapid Review of Classification 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. 2018. COSEWIC Rapid Review of Classification on the Brook Spike-primrose *Epilobium torreyi* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x pp. (<http://www.registrelep-sararegistry.gc.ca/default.asp?lang=en&n=24F7211B-1>).

Production note:

Please note this is an addendum to the existing 2006 COSEWIC Assessment and Status Report on the Brook Spike-primrose, *Epilobium torreyi* in Canada. For a copy of the existing report, please refer to the 2006 Status Report posted on the Public Registry at this link: [https://wildlife-species.canada.ca/species-risk-registry/species/speciesDetails\\_e.cfm?sid=944](https://wildlife-species.canada.ca/species-risk-registry/species/speciesDetails_e.cfm?sid=944)

COSEWIC would like to acknowledge Del Meidinger, Co-chair, Vascular Plants Specialist Subcommittee, for preparing the addendum on the Brook Spike-primrose, (*Epilobium torreyi*), with support from the COSEWIC Species Priority Setting Working Group.

For additional copies contact:

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

Tel.: 819-938-4125

Fax: 819-938-3984

E-mail: [ec.cosepac-cosewic.ec@canada.ca](mailto:ec.cosepac-cosewic.ec@canada.ca)  
<http://www.cosewic.gc.ca>

Également disponible en français sous le titre Examen rapide de la classification du COSEPAC sur L'epilobe de Torrey (*Epilobium torreyi*) au Canada.

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## COSEWIC Assessment Summary

### Assessment Summary – November 2018

**Common name**

Brook Spike-primrose

**Scientific name**

*Epilobium torreyi*

**Status**

Endangered

**Reason for designation**

This annual herb has not been seen since 1993. One of the sites where it was last found was in a regional park. It is possible that viable seeds are dormant there and may germinate given the right conditions.

**Occurrence**

British Columbia

**Status history**

COSEWIC: Designated Endangered in April 2006. Status re-examined and confirmed in November 2018.



## **COSEWIC Rapid Review of Classification**

### **PREFACE**

Since the 2006 Report, (COSEWIC 2007), a Recovery Strategy (Parks Canada Agency 2013) was produced. A threats assessment is included in the Recovery Strategy. In addition, the Craigflower Meadow site was visited in 2009 and 2013 but no individuals were observed.

Updated map: ☐ Required x Not required

#### **Explanation / updated map provided:**

Not required. See previous assessment (COSEWIC 2006).

## TECHNICAL SUMMARY

*Epilobium torreyi*

Brook Spike-primrose

Epilobe de Torrey

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

### 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)	1+ yrs (annual with potential seed-banking)
Is there an [ <b>observed</b> , inferred, or projected] continuing decline in number of mature individuals?	No decline in past 10 years as no individuals have been observed since 1993.
Estimated percent of continuing decline in total number of mature individuals within [5 years or 2 generations]	No decline observed in last 5 years; population estimate is 0.
[ <b>Observed</b> , estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over the last [10 years, or 3 generations].	No decline observed in last 10 years; population estimate is 0.
[Projected or <b>suspected</b> ] percent [reduction or increase] in total number of mature individuals over the next [10 years, or 3 generations].	Unknown; population may recover from seed bank.
[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.	No change.
Are the causes of the decline a. clearly reversible and b. understood, and c. ceased?	<p>a. unknown b. yes c. unknown</p> <p><i>The 2006 status report states that apparent extirpation is a result of its inherent rarity and the degradation/loss of habitats where it formerly occurred.</i></p>
Are there extreme fluctuations in number of mature individuals?	Unknown, but likely not. Only observed during one survey period.

### Extent and Occupancy Information

Estimated extent of occurrence (EOO)	<p>0-4 km<sup>2</sup> (if extant, only one site – Craigflower Meadow)</p> <p><i>Actual EO estimated at 0.4 sq. km. (COSEWIC 2006)</i></p>
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Index of area of occupancy (IAO) (Always report 2x2 grid value).	0-4 km <sup>2</sup> (if extant, only one site – Craigflower Meadow)  <i>Biological area of occupancy estimated at 50 sq. m. (COSEWIC 2006)</i>
Is the population “severely fragmented” i.e., is >50% of its total area of occupancy 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. Not applicable as no mature individuals observed since 1993.  b. Yes.  <i>None of the occurrences in BC have good viability because both are considered extirpated based on surveys in 2001 - 2004. The habitats favoured by this species have been the subject of extensive botanical investigation for many years. The Craigflower Meadows subpopulation was last seen in 1993 and was not relocated during intensive surveys in 2001, 2003, 2004, 2009 and 2013. The McTavish Road subpopulation was seen once in 1966 but subsequent intensive searches in 2001 and 2003 failed to rediscover the population. It is possible that viable seeds exist in seed bank — although not known if this species has seeds that can remain dormant, the attribute is common with species of ephemeral wetlands (vernal pools). Brook Spike-primrose is believed to be a seed banking species in light of seed dormancy and light requirements for germination (Parks Canada Agency 2013).</i>
Number of “locations”* (use plausible range to reflect uncertainty if appropriate)	0-1
Is there an [ <b>observed</b> , inferred, or projected] decline in extent of occurrence?	Unknown. Historical loss of McTavish Road subpopulation; possible loss of Craigflower Meadow subpopulation.
Is there an [ <b>observed</b> , inferred, or projected] decline in index of area of occupancy?	Unknown. Historical loss of McTavish Road subpopulation; possible loss of Craigflower Meadow subpopulation.
Is there an [ <b>observed</b> , inferred, or projected] decline in number of subpopulations?	Unknown. Historical loss of McTavish Road subpopulation; possible loss of Craigflower Meadow subpopulation.
Is there an [inferred, or projected] decline in number of “locations”**?	Unknown. Historical loss of McTavish Road subpopulation; possible loss of Craigflower Meadow subpopulation.
Is there an [observed, inferred, or projected] decline in [area, extent and/or quality] of habitat?	Yes
Are there extreme fluctuations in number of subpopulations?	Unknown but likely not.
Are there extreme fluctuations in number of “locations”?	No

\* See Definitions and Abbreviations on [COSEWIC web site](#) and [IUCN](#) (Feb 2014) for more information on this term

Are there extreme fluctuations in extent of occurrence?	No
Are there extreme fluctuations in index of area of occupancy?	No

#### Number of Mature Individuals (in each subpopulation)

Subpopulations (give plausible ranges)	N Mature Individuals
<i>In BC, Brook Spike-primrose is known from two subpopulations, but both are considered extirpated because they have not been found in recent intensive surveys. If seeds persist in the soil bank and are still viable, they are protected at one of the sites. Known population size is currently zero. No change in past 10 years.</i>	
Craigflower Meadow	0 (2001, 2003/4, 2009, 2013) 50-100 (1993)
McTavish Road	Unknown (1966) 0 (2001, 2003, 2004)
Total	0

#### Quantitative Analysis

Is the probability of extinction in the wild at least [20% within 20 years or 5 generations, or 10% within 100 years]?	
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#### Threats (direct, from highest impact to least, as per IUCN Threats Calculator)

Was a threats calculator completed for this species? No. Threats are identified in recovery strategy (Parks Canada Agency 2013)
<ul style="list-style-type: none"> <li>i. Invasive species (medium to high level of concern)</li> <li>ii. Changes in ecological dynamics/natural processes – Suppression of fire regime (high level of concern) and Plantings (high level of concern)</li> <li>iii. Climate change (medium level of concern)</li> <li>iv. Recreational activity (medium level of concern)</li> <li>v. Housing development (low level of concern)</li> <li>vi. Changes to water quality/quantity (low level of concern)</li> </ul> <p><i>The occurrence at Craigflower Meadow is protected because it is located in Thetis Lake Regional Park, managed by the Capital Regional District (CRD). The CRD recently has given conservation and management of rare species precedence over all other park uses. The McTavish Road population occurred on private land and even if it could be reintroduced, the habitat would have no legal protection.</i></p> <p>What additional limiting factors are relevant?</p>

#### Rescue Effect (immigration from outside Canada)

Status of outside population(s) most likely to provide immigrants to Canada.	Healthy but disjunct.
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Is immigration known or possible?	Not known. Only likely possible with assistance.
Would immigrants be adapted to survive in Canada?	Likely
Is there sufficient habitat for immigrants in Canada?	Possibly. There are some vernal pool habitats remaining in Saanich Peninsula.
Are conditions deteriorating in Canada?+	Yes.
Are conditions for the source (i.e., outside) population deteriorating?+	Unknown.
Is the Canadian population considered to be a sink?+	Unknown.
Is rescue from outside populations likely?	No.

### Data Sensitive Species

Is this a data sensitive species?	No
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### Status History

COSEWIC: Designated Endangered in April 2006. Status re-examined and confirmed in November 2018.

### Status and Reasons for Designation:

<b>Status:</b> Endangered	<b>40. Alpha-numeric codes:</b> D1
<b>Reasons for designation:</b> This annual herb has not been seen since 1993. One of the sites where it was last found was in a regional park. It is possible that viable seeds are dormant there and may germinate given the right conditions.	

### Applicability of Criteria

Criterion A (Decline in Total Number of Mature Individuals): Not applicable.
Criterion B (Small Distribution Range and Decline or Fluctuation): Does not apply as there are no known mature individuals.
Criterion C (Small and Declining Number of Mature Individuals): Does not apply as there are no mature individuals.
Criterion D (Very Small or Restricted Population): As there are fewer than 250 mature individuals, Endangered D1 applies.
Criterion E (Quantitative Analysis): No data for analysis.

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



## **ACKNOWLEDGEMENTS AND AUTHORITIES CONTACTED**

Jenifer Penny, Botanist, B.C. Conservation Data Centre.

## **INFORMATION SOURCES**

B.C. Species and Ecosystem Explorer. 2018. *Epilobium torreyi*. Website:  
<http://a100.gov.bc.ca/pub/eswp/> [accessed February 2018]

COSEWIC. 2006. COSEWIC assessment and status report on the brook spike-primrose *Epilobium torreyi* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 17 pp. ([www.sararegistry.gc.ca/status/status\\_e.cfm](http://www.sararegistry.gc.ca/status/status_e.cfm)).

Parks Canada Agency. 2013. Recovery Strategy for the Brook Spike-primrose (*Epilobium torreyi*) in Canada. Species at Risk Act Recovery Strategy Series. Parks Canada Agency, Ottawa. vi + 21 pp.

## **WRITER OF RROC**

Del Meidinger, Co-chair, COSEWIC Vascular Plants Specialist Subcommittee

## **APPENDIX 1. RAMAS .RED FILE OUTPUT.**

For a copy of the RAMAS output for this species, please contact the COSEWIC Secretariat.



## 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)

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