

COSEWIC
Status Appraisal Summary

on the

Poor Pocket Moss
Fissidens pauperculus

in Canada

ENDANGERED
2011

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 would like to acknowledge Judith A. Harpel for writing the status appraisal summary on the Poor Pocket Moss, *Fissidens pauperculus*, prepared under contract with Environment Canada. This status appraisal summary was overseen and edited by René Belland, Co-chair of the COSEWIC Mosses and Lichens Specialist Subcommittee.

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COSEWIC Assessment Summary

Assessment Summary – May 2011

Common name

Poor Pocket Moss

Scientific name

Fissidens pauperculus

Status

Endangered

Reason for designation

This western North American endemic reaches its northern range limit at a single, isolated Canadian locality in southwestern British Columbia. Here, it occurs as several small colonies within a geographically restricted area, making the Canadian population especially vulnerable to human disturbance and events such as unusually heavy local rainfall, erosion, and treefall.

Occurrence

British Columbia

Status history

Designated Endangered in November 2001 and May 2011.

Quantitative Analysis:

Change in estimated probability of extirpation:

yes no unk

Details:

Summary and Additional Considerations:

The Lynn Canyon, British Columbia, population is still the only known location in Canada. A Recovery Strategy for the Poor Pocket Moss was completed and released by Environment Canada in December 2010 and this calls for an action plan to be posted by 2011 by British Columbia.

The trail has been fenced and the park rangers are aware of the site. The following suggested changes to protection outlined in the provincial Recovery Strategy (Poor Pocket Moss Recovery Team 2010) include: (1) developing an exclusion zone to protect the site (i.e., District of North Vancouver, through the park master planning process), (2) increasing the fencing and adding more signs restricting access, (3) increasing public awareness, i.e., signage noting the significance of the site could be placed at each end of the trail, (3) blocking off the small infrequently used footpath that leads down to near the populations, and/or (4) electing to completely decommission the trail. Brown (pers. comm. 2010) suggested putting in a boardwalk to help focus hikers away from the area; however, this strategy is subject to available funds. In addition to the specified actions, a stewardship approach could be used to increase the protection for this species.

Table 1. Patch size over time for *F. pauperculus* based on observations by R. Belland (2001) and T. McIntosh (2009).

Year observed	North Gully (no of patches indicated by numbers of columns completed for each year, and also indicated in parentheses beside each year)						South Gully
1961	site was first found, size of patch was not measured						
2000 (2)	about ? size 625 cm ²						
2001 (2)	? size	not found					
2003 (2)	? size	? size					
2004 (2)	about 50 cm ²	smaller patch ? size					
2005, March	heavy rain event, no patches found						
2005 (6), July	Patch 1 2-3 cm ²	Patch 2 2-3 cm ²	Patch 3 2-3 cm ²	Patch 4 6 cm ²	Patch 5 6 cm ²	Patch 6 up to 40 cm ²	
2007 (5)	about 150 cm ²	about 30 cm ²	about 1.5 m ²	about 60 cm ²	about 40 cm ²	?	10 x 5 cm found
2009 (6)	about 150 cm ²	about 30 cm ²	about 1 m ²	about 60 cm ²	about 40 cm ²	?	10 x 5 cm

List of authorities contacted to review the status appraisal:

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Poor Pocket Moss Recovery Team
Section Manager, Environmental Protection
District of North Vancouver

Mike Brown
Poor Pocket Moss Recovery Team
District of North Vancouver, Community Forester

Brenda Costanzo
Poor Pocket Moss Recovery Team Chair
Plant Species at Risk Biologist, Ecosystems Branch, BC Ministry of Environment

Karen Golinski
Poor Pocket Moss Recovery Team

Steve Joya
Recent bachelor degree graduate from the UBC Botany Department and local bryologist

Scot Kinssinger
Manager of the Lynn Canyon Ecology Centre

Terry McIntosh
Poor Pocket Moss Recovery Team
Author of Recovery Strategy for Poor Pocket Moss

Mike Ryan
Poor Pocket Moss Recovery Team

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Species at Risk Biologist, BC Ministry of Environment

Sources of information:

Belland, R.J. 2001. COSEWIC report on Poor Pocket Moss (*Fissidens pauperculus* M. Howe). vi+15 pp. Can. Wildl. Serv., Environ. Can., Ottawa, ON.

Brown, M. Personal communication June 2010. Community Forester, District of North Vancouver and Poor Pocket Moss recovery team member.

Hallingbäck, T and N. Hodgetts. 2000. Status survey and conservation action plan for bryophyte - mosses, liverworts, and hornworts. IUCN/SSC Bryophyte Specialist Group. Cambridge, U.K. 106 pp.

- Joya, S. Personal communication June 2010. Recent bachelor degree graduate from the UBC Botany Dept. and local bryologist.
- McIntosh, T.T. Personal communication June 2010. Poor Pocket Moss expert and recovery team member.
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TECHNICAL SUMMARY

Fissidens pauperculus

Poor Pocket Moss

Fissident appauvri

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(2008) is being used)	Unknown
Is there an [observed, inferred, or projected] continuing decline in number of mature individuals?	Unknown, but population has varied in size in past 10 yrs
Estimated percent of continuing decline in total number of mature individuals within [5 years or 2 generations]	Unknown
[Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over the last [10 years, or 3 generations].	Unknown
[Projected or suspected] percent [reduction or increase] in total number of mature individuals over the next [10 years, or 3 generations].	Unknown
[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.	Unknown
Are the causes of the decline clearly reversible and understood and ceased?	No
Are there extreme fluctuations in number of mature individuals?	No

Extent and Occupancy Information

Estimated extent of occurrence	4 km ² based on the size of one 2x2 km ² grid square. Biological EO is much less.
Index of area of occupancy (IAO)	1 grid = 4 km ² (based on 2x2 km ² grids).
Is the total population severely fragmented?	No
Number of "locations*"	1
Is there an [observed, inferred, or projected] continuing decline in extent of occurrence?	Unknown
Is there an [observed, inferred, or projected] continuing decline in index of area of occupancy?	Unknown
Is there an [observed, inferred, or projected] continuing decline in number of populations?	Unknown
Is there an [observed, inferred, or projected] continuing decline in number of locations?	Unknown
Is there an [observed, inferred, or projected] continuing decline in [area, extent and/or quality] of habitat?	Unknown
Are there extreme fluctuations in number of populations?	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 definition of location.

Number of Mature Individuals (in each population)

Population	N Mature Individuals
1 population with 6 colonies, sizes = 1 m ² , 60 cm ² , 150 cm ² , 30 cm ² , 40 cm ² , 50 cm ²	6 colonies totalling about 1.03 m ²
Total	6 colonies

Quantitative Analysis

Probability of extinction in the wild is at least [20% within 20 years or 5 generations, or 10% within 100 years].	Unknown
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Threats (actual or imminent, to populations or habitats)

Stochastic events such as high rainfall events; hikers; changes in tree canopy structure; encroachment of habitat by other bryophytes.
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Rescue Effect (immigration from outside Canada)

Status of outside population(s)? Apparently rare throughout global range.	
Is immigration known or possible?	No
Would immigrants be adapted to survive in Canada?	Yes
Is there sufficient habitat for immigrants in Canada?	Unknown
Is rescue from outside populations likely?	No

Status and Reasons for Designation

Status: Endangered	Alpha-numeric code: D1
Reason for Designation: This western North American endemic reaches its northern range limit at a single, isolated Canadian locality in southwestern British Columbia. Here, it occurs as several small colonies within a geographically restricted area, making the Canadian population especially vulnerable to human disturbance and events such as unusually heavy local rainfall, erosion, and treefall.	

Applicability of Criteria

Criterion A: Not applicable: data are not available to calculate decline.
Criterion B: Not applicable: decline and fluctuation data are not available.
Criterion C: Not applicable: decline data are not available.
Criterion D: Meets criteria for EN (numbers of individuals <250 individuals, actual = 6).
Criterion E: Not applicable.



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 (2011)

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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