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SUBMISSION TO THE NWMB FOR

Information:

Decision: X

Issue: Approval of the proposed Recovery Strategy for the Porsild's Bryum (*Mielichhoferia macrocarpa*) in Canada, pursuant to the *Species at Risk Act* (SARA)



Background:

Porsild's Bryum was listed as a Threatened species under the *Species at Risk Act* (Schedule 1, 2011). Porsild's Bryum is a small moss that grows in small bright green colonies and has a sparkly appearance. The stems of the plant grow tightly together to form a cushion-like appearance. It grows mainly in mountainous areas on wet calcareous cliffs where there is constant water seepage and winter desiccation. There are 17 known populations of Porsild's Bryum in Canada and they are broadly distributed; including sites in Alberta, British Columbia, Newfoundland and Nunavut (Figure 1). The total population size is at least 960 colonies in Canada. It is only found in Quttinirpaaq National Park of Canada in Nunavut. There have been three populations identified in the Tanquary Fiord area (Figure 2).

The main threats to Porsild's Bryum are poor climate conditions (i.e. drought, extreme temperatures), disturbance or harm due to recreational activities (i.e. damage to individual plants, changes in hydrology and water chemistry, dust from roads); and natural processes (i.e. wildfires, random events with harmful effects on small populations). The threats to Porsild's Bryum have primarily been documented for Alberta. No work has been completed to identify threats in Nunavut.

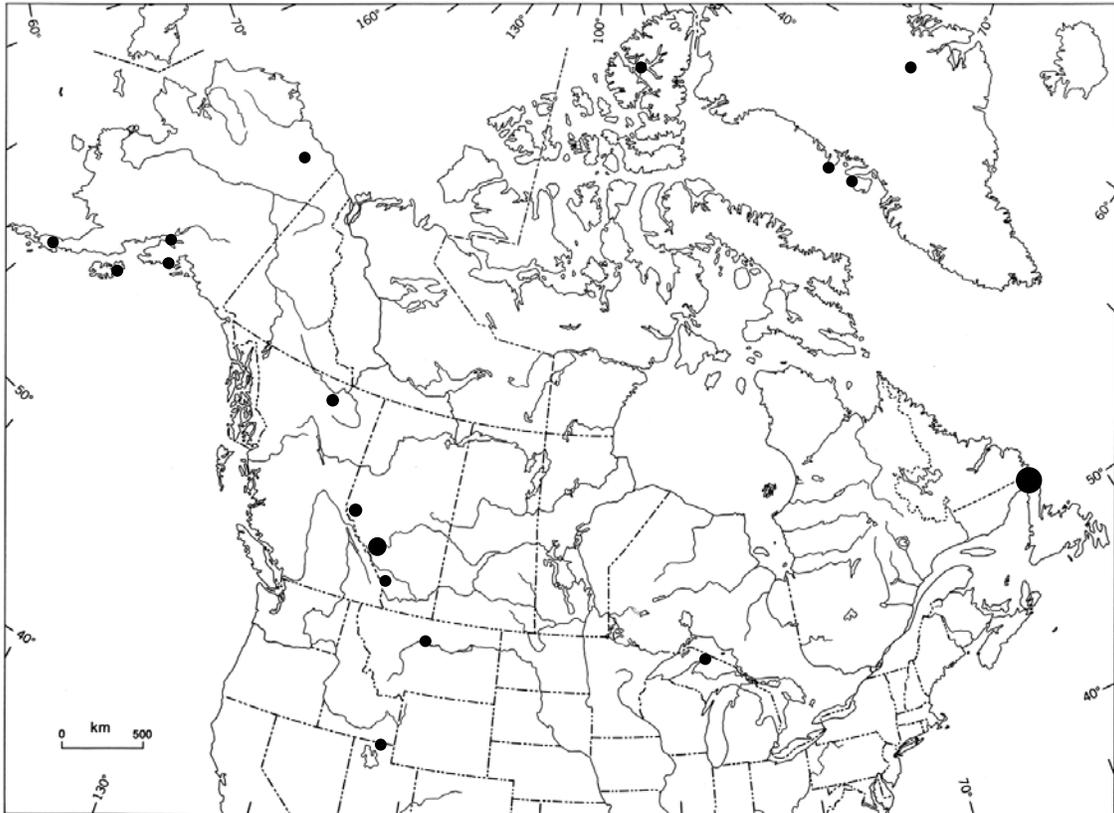


Figure 1. This figure shows the North American distribution of Porsild's Bryum. The three dots in Alberta cover 6 populations, the one dot in British Columbia covers 1 population, the Newfoundland and Labrador dot covers 7 populations and the Nunavut dot covers 3 populations.

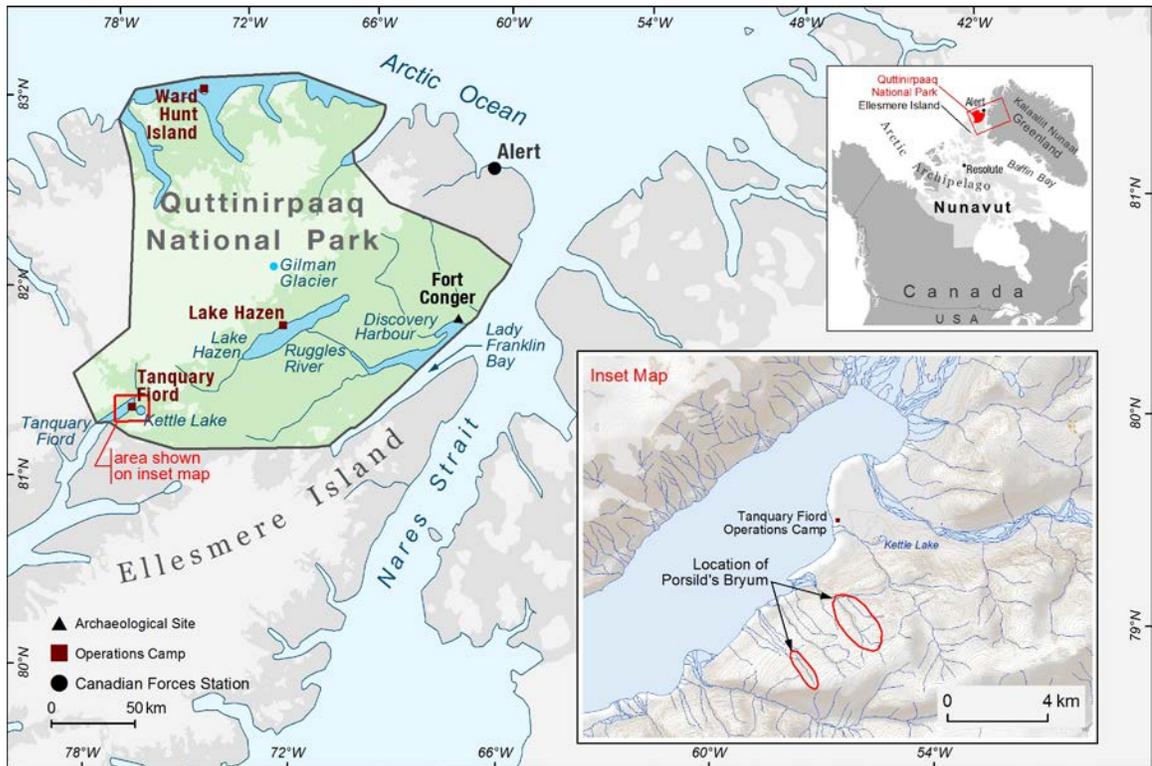


Figure 2. This figure shows the locations of Porsild's Bryum in Quttinirpaaq National Park of Canada.

Recovery Strategy:

Under SARA, if a wildlife species is listed as a threatened species, a recovery plan must be prepared. The recovery plan is made up of two documents: a recovery strategy and an action plan. The recovery strategy is one national plan addressing broad recovery goals and objectives, however there may be multiple action plans addressing the specific recovery actions within the different regions the species is present. The action plan(s) will be developed for Porsild's Bryum within two years of the recovery strategy posted on the Species at Risk public registry.

In this recovery strategy, the population and distribution objectives for Porsild's Bryum are identified as:

- to maintain or increase the number of colonies, and sub-populations for all known existing populations while also maintaining or increasing the distribution of colonies and sub-populations within each population; and
- where possible, re-introduce Porsild's Bryum to locations where it has been extirpated and previously known to exist.

The following broad strategies are recommended to achieve the above objectives and to address the threats to Porsild's Bryum:

- targeted inventory of the species
- conduct research to increase knowledge of the species
- establishment of a monitoring plan
- improve outreach and stewardship
- habitat management
- reintroduction and population augmentation

Under the *SARA*, habitat that must be protected in order for a species to survive and recover is called 'critical habitat.' Once an area is identified as critical habitat (in a recovery strategy or an action plan), the federal government is legally responsible to make sure that the habitat is properly protected.

Critical habitat has been identified for 17 extant populations of Porsild's Bryum: 6 in Alberta, 1 in British Columbia, 7 in Newfoundland and Labrador, and 3 in Nunavut. It is identified as the area occupied by individual plants or patches of plants (all records within the last 25 years, plus an additional 50 metres to encompass immediately adjacent areas).

The following combination of habitat attributes is required to support a colony of Porsild's Bryum:

- calcareous cliffs or rock outcrops
- continuous or intermittent seepage
- shaded rock face; shade maintained by size and aspect of cliff face, or a continuous tree cover
- a macro-environment characterized by lower temperatures and higher relative humidity than adjacent habitat where the species is absent.

Critical habitat also includes the entire portion of distinct ecological features that are associated with, and are integral to, the production and maintenance of suitable habitat conditions, and which provide ecological context for occupied microhabitats.

It is recognized in the recovery strategy that the critical habitat that has been identified is insufficient to achieve the population and distribution objectives for the species and activities are identified that are required to identify additional critical habitat that is necessary to support these objectives.

Community Consultation:

Since the locations of Porsild's Bryum are strictly within the Quttinirpaaq National Park, Parks Canada Agency conducted the consultation for this species. On July 4, 2013, community consultation packages were sent to

Grise Fiord and Resolute Bay Hunters and Trappers Associations (HTA). Consultation packages included a letter, a powerpoint presentation and the draft recovery strategy. There was no success in engaging the Grise Fiord HTA. A teleconference was held with the Resolute Bay HTA in September 2013. Resolute Bay indicated that they support the proposed recovery strategy.

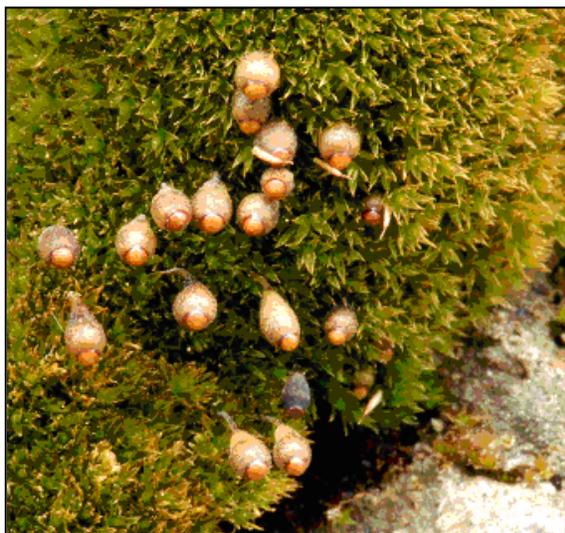
Recommendations:

The NWMB is asked to consider whether or not they wish to make a formal decision on supporting the national SARA recovery strategy for Porsild's Bryum, and if so, whether or not they approve of the recovery strategy.

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17 October 2013

Summary of the proposed 'Recovery Strategy for the Porsild's Bryum (*Mielichhoferia macrocarpa*) in Canada'



This is a summary of the information provided in the proposed recovery strategy for the Porsild's Bryum. Porsild's Bryum was assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in 2003 and listed as a Threatened species under the *Species at Risk Act* in 2011). The COSEWIC Species Assessment Information for the species is described in the box below.

Date of Assessment: November 2003

Common Name (population): Porsild's Bryum

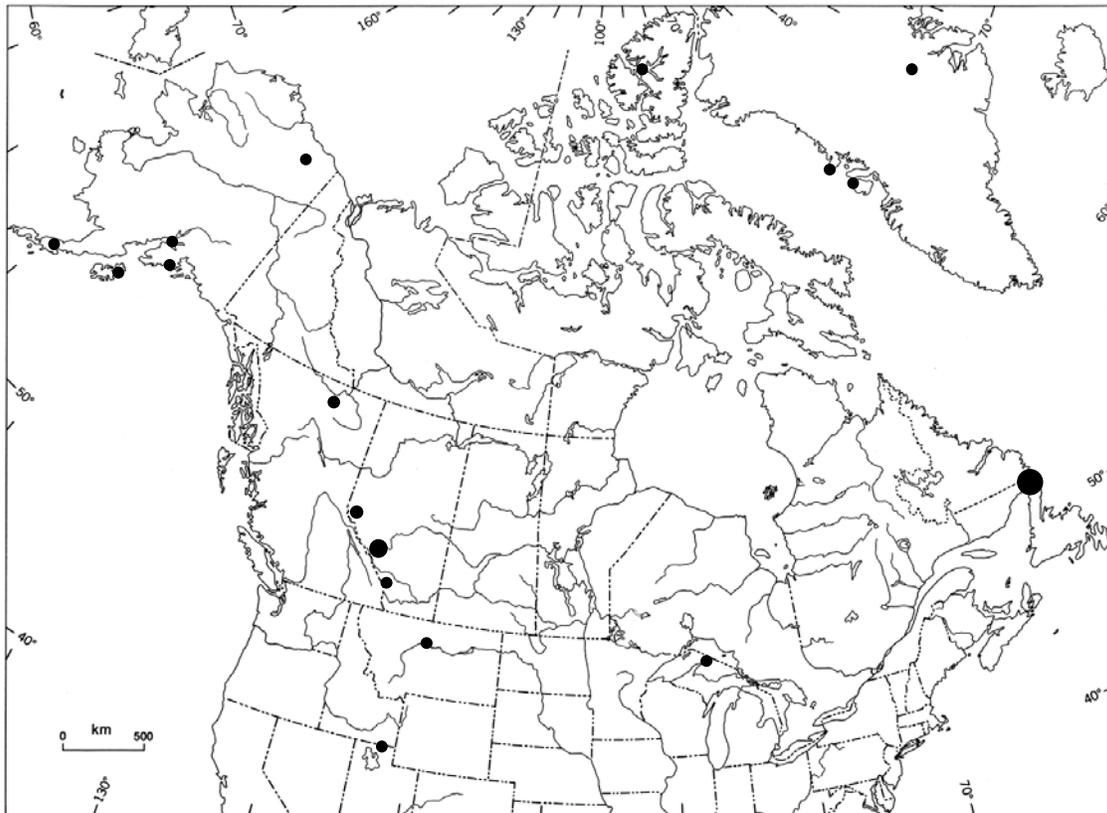
Scientific Name: *Mielichhoferia macrocarpa*

COSEWIC Status: Threatened

Reason for Designation: A rare moss with a severely fragmented distribution of 10 confirmed locations in Canada restricted to 5 general areas. The species grows in mainly mountainous areas on wet calcareous cliffs, presence of constant seepage and winter desiccation. Direct threats to populations include natural and human-caused events that destabilize the rock cliff habitat. There has been a recent decline in habitat quality at the two most abundant locations and substantial loss of mature individual plants at one of these. Only one locality is protected. There is uncertainty in status of northern Canadian populations.

Canadian Occurrence: AB, BC, NL, NU

COSEWIC Status History: Designated threatened in November 2003.



This is Figure 1 from the proposed recovery strategy. It shows the North American distribution of Porsild's Bryum. The three dots in Alberta cover 6 populations, the one dot in British Columbia covers 1 population, the Newfoundland and Labrador dot covers 7 populations, and the Nunavut dot has 3 populations. It also shows locations of other populations found in the United States and Greenland.

The proposed recovery strategy is a detailed plan that outlines the short-term objectives and long-term goals for protecting and recovering Porsild's Bryum populations in Canada. This proposed recovery strategy indicates that the recovery of Porsild's Bryum populations in Canada is possible.

This summary is based on the information in the full English version of the proposed Porsild's Bryum recovery strategy.

The original English copy of the proposed recovery strategy has been provided to the Nunavut Wildlife Management Board for reference.

Information about Porsild Bryum (pages 1-8)

This section of the proposed recovery strategy provides some information about Porsild's Bryum such as what they look like, their population and distribution within Canada, and their habitat needs:

- Porsild's Bryum is a small moss that grows in small bright green colonies and has a sparkly appearance.
- There are 17 known populations of Porsild's Bryum in Canada. They are found in Alberta, British Columbia, Newfoundland and Labrador, and Nunavut.
- Porsild's Bryum in Canada accounts for more than 70% of the global abundance of the species. There are also isolated populations in Greenland, Kazakhstan, and in the Ural and Sayan Mountains of Asia.
- The total Canadian population size of the species is at least 960 colonies.
- There are three known populations of Porsild's Bryum in Nunavut. They are all in the Tanquary Fiord area of Quttinirpaaq National Park, northern Ellesmere Island.
- It grows mainly in mountainous areas on wet calcareous cliffs where there is presence of constant seepage and winter desiccation.

Threats to Porsild's Bryum (pages 8-12)

This section of the proposed Porsild's Bryum recovery strategy describes the things that might cause Porsild's Bryum populations to decrease, or stop them from increasing. The threats to Porsild's Bryum have primarily been documented for Alberta. No work has been completed to identify threats in Nunavut.

Climate Related Threats:

- Drought

- Temperature extremes

Disturbance or Harm Related Threats:

- Recreational Activities
- Changes in the hydrological regime and water quality

Natural Processes or Activities:

- Industrial Activity
- Wildfire

Population and Distribution Objectives for Porsild's Bryum (page 12)

This section describes the population and distribution objective for Porsild's Bryum and describes the reason for creating this objective. The population and distribution objective for Porsild's Bryum is:

To maintain or increase the number of colonies, and sub-populations for all known extant populations of Porsild's Bryum, while also maintaining or increasing the distribution of colonies and sub-populations within each population, and, where feasible, to re-introduce the species to locations where it has been extirpated and previously known to exist.

How to meet the population and distribution objectives (pages 13-16)

This section the broad strategies and general approaches that will lead to the long-term conservation of Porsild's Bryum as well as activities that have been completed or are already underway.

- There are six broad strategies and general approaches to meet the objectives: inventory, research, monitoring, outreach/stewardship, habitat management, and reintroduction and population augmentation.
- Alberta and Newfoundland have prepared provincial recovery strategies for Porsild's Bryum.
- Recovery activities began in Alberta in 2010 and 2011 including: counting colonies within in monitoring plots at all locations of Porsild's Bryum;

preliminary monitoring of microclimate; analysis of rock and water chemistry and communication and outreach with stakeholders.

- In Newfoundland and Labrador, all known Porsild's Bryum locations including continuous cliff faces and some adjacent possibly suitable habitat have been proposed for designation of 'Sensitive Wildlife Areas.'

Critical Habitat for Porsild's Bryum (pages 16-20)

This section provides a description of critical habitat for Porsild's Bryum; a schedule of studies to identify additional critical habitat; and a description of the activities that will likely destroy critical habitat.

- Critical habitat is identified for 17 existing populations (6 in Alberta, 1 in British Columbia, 7 in Newfoundland, and 3 in Nunavut).
- A combination of four habitat characteristics is required to support a colony of Porsild's Bryum:
 - Calcareous cliffs or rock outcrops
 - Continuous or intermittent seepage
 - Shaded rock face
 - A macroenvironment with lower temperatures and higher relative humidity than adjacent habitat where the species is absent
- Critical habitat for Porsild's Bryum is identified as the area occupied by individual plants or patches of plants (all records within the last 25 years), plus an additional 50 meters to encompass immediately adjacent areas.
- The critical habitat identified so far is not enough to achieve the population and distribution objective so additional activities have been planned to identify additional critical habitat that is necessary to support these objectives:
 - Complete mapping of the distinct ecological features and connective habitat surrounding each population.

- Attempt to relocate and survey one historic site at Jasper National Park to confirm whether the population still exists.
- Survey five historic sites at south-eastern Queen Elizabeth Islands in Nunavut to re-confirm previous populations and identify any new populations in the area; assess whether it would be possible for re-establishment or introduction.
- Map any new populations discovered or re-established.
- Determine the micro-habitat requirements of the species with regard to water (pH, chemistry, turbidity).
- Destruction of critical habitat will occur if any part of the critical habitat is permanently or temporarily damaged or modified.
- Examples of activities that are likely to result in the destruction of critical habitat are:
 - Changes to the hydrology or water quality/chemistry
 - Rock and soil disturbance and removal
 - Deposition of harmful substances on the moss or adjacent vegetation

How will we know if recovery actions are working (page 20)

This section lists a number of indicators that will provide a way to define and measure the progress towards achieving the population and distribution objectives for Porsild's Bryum:

- Maintenance or increase in the number of colonies and the areas occupied by these colonies.
- Development of a monitoring program and initial analyses.
- Research plan for the comprehensive needs of the species.
- Completion of a study to determine whether reintroduction and population augmentation is possible; recommended methods.
- Assessment of extirpated populations and reintroductions attempted if possible.

- Increase in public outreach.
- Identification of threats for all populations and mitigation plans created and implemented where necessary.

Action Plan (page 21)

An action plan is created after a recovery strategy has been completed. It is a summary of the projects and activities that will be done in order to meet the objectives and goals described in the recovery strategy. One or more action plans for Porsild's Bryum will be developed within 2 years of the recovery strategy posting on the Species at Risk Public Registry.