

The Status of
Low Northern Rockcress
(Neotorularia humilis)

in

Newfoundland and Labrador



THE SPECIES STATUS ADVISORY COMMITTEE
REPORT NO. 1

September 30, 2004

ASSESSMENT

Assessment: Endangered	Current designation: None
Criteria met: D 1) < 250 mature individuals	
Reasons for designation: Qualifies as " <i>endangered</i> " under the SSAC/COSEWIC criteria D 1) with supporting evidence from B 2. (a) and B 2.(b) iii): <ul style="list-style-type: none">• Single population in province• Arctic-alpine disjunct• Population is very small with less than 50 mature adults• Population is highly threatened by adjacent road, communication towers and contaminated soils which are located within a few metres of the population• Site is highly degraded and under threat suggesting that the quality of the habitat has declined since it was discovered in 1914 (prior to present installation), but no data exist to confirm the decline in the habitat quality• Data pertaining to the rate of decline or fluctuations in number of mature individuals is not known at this time	

STATUS REPORT

***Neotorularia humilis* (C.A. Meyer) Hedge & J. Léonard (= *Braya humilis* (C.A. Meyer) B.L. Robinson)**

Low northern rockcress

Brassicaceae

Herbaceous perennial plant; forb

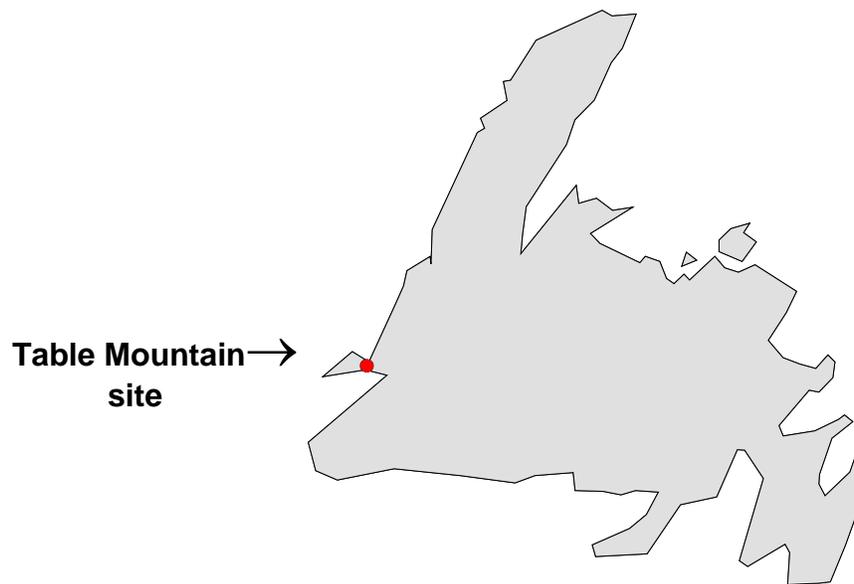
Distribution

Global: Greenland, Canada, USA, Siberia, Asia

North America: Arctic islands (Baffin, Ellesmere, Perry Islands, Banks and Victoria) with disjunct populations from Greenland to Alaska, south to Newfoundland, Vermont, Michigan, Alberta and British Columbia.

Provincial: Restricted to Table Mountain, Western Newfoundland

Annotated range map - Provincial distribution showing Table Mountain location.



Description and habitat



photos: Marilyn Anions

Stems simple or branching, up to 35 cm high, 1 to several, from a taproot, erect or ascending. Basal leaves oblanceolate to spatulate, toothed or entire, 0.5-4.0 cm or more long, glabrous or pubescent with simple or branching hairs; stem leaves alternate, scattered, 3-8, narrow, entire or toothed, becoming smaller upwards. Inflorescence capitate, becoming much elongated in fruit; pedicels 2-6 mm long, ascending; sepals about half the length of the petals, greenish, deciduous; petals 2.8-5.0 mm long, white or lilac; siliques 0.7-25.0 mm long, linear, about 1 mm wide (Cody 1996).

The low-northern rockcress grows on calcareous substrates, gravel and scree slopes and occasionally along roadsides.

The Newfoundland population is found between limestone ridges on a flat mountain crest. The substrate consists of sorted limestone gravel (coarse alternating with fine). It blooms in June.

Overview of Biology

The Newfoundland population of low northern rockcress is widely isolated from the main part of the species range in the Arctic Archipelago. Currently little is known about the demography or life history of this species or population. Permanent monitoring plots were established and individual plants were tagged in July and August 2004 to determine population demography and threats to the long-term viability of the population.

Population size

During the 1999 survey, 55 individuals (20 juvenile and 35 adults (=reproductive plants)) were counted in an area 18 m X 44 m, an area encompassing the majority of plants. A few individuals were also found scattered elsewhere in the same general area. Surveys done in summer of 2004 indicated that the plants are present in the same area, with

approx. 50-60 reproductive individuals in the population. Counts within the newly established permanent quadrats indicate that there are a total of 161 plants (38 seedlings, 109 juvenile non-flowering plants, 24 mature flowering plants) in an area of 5 m². The area of the permanent quadrats does not cover the entire area; therefore a count of the entire area is needed.

Traditional and local ecological knowledge

Not Applicable

Trends

This species was first collected on Table Mountain in 1914 and has persisted since; the population was last re-located in 2004. Population surveys taken in 1999 and 2004 indicate an increase in the number of younger, non-reproductive individuals, but a decrease in the number of mature, reproductive individuals. This will have repercussions for the seed production and recruitment of new plants, and may indicate that the population may decrease in the near future. The fate of the younger age classes must be monitored to understand the future population change. Presently long-term changes in population size over time are unknown.

Threats and limiting factors

Threats to this population are inherent due to rarity, adjacency to a well used roadway and habitat degradation, especially vehicle traffic, and soil contamination. The site is adjacent to an access road and communication towers, and may be threatened by further development of present infrastructures and by ongoing soil pollution mitigation.

Existing protection

Land is under federal jurisdiction and is currently managed by Transport Canada. The site is identified as a "Sensitive Wildlife Area" on the provincial Crown Land Atlas because of the occurrence of low northern rockcress. This offers limited protection against future registered development proposals.

Special significance (Scientific or cultural)

The Newfoundland population is widely isolated from the main part of the species range in the Arctic Archipelago, and from other disjunct populations across North America. It may represent a unique genetic unit of the species. Such isolated populations can also often provide significant insight into the geological history of an area. The species is

also closely related to Long's and Fernald's braya (*Braya longii* and *B. fernaldii*), two rare endemic species.

Ranks or Status

	Rank or Status
G-rank/IUCN	G4
N-rank/National General Status/COSEWIC	N?
General Status – provincial	May be at risk
Newfoundland – S-rank/General Status	May be at risk
Labrador – S-rank/General Status	n/a

United States - listed in Michigan and Vermont, which are disjunct populations.

Michigan Rank - Threatened

Vermont Rank - Threatened

Sources of information and list of references

Aiken, S., et al. 1999 onwards. Flora of the Canadian Arctic Archipelago
<http://www.mun.ca/biology/delta/arctic/ca/www/babrhu.htm>. Accessed
March 12, 2004.

Bouchard, A., S. Hay, L. Brouillet, M. Jean and I. Saucier. 1991. *The Rare Vascular Plants of the Island of Newfoundland*, Syllogeus No. 65. Canadian Museum of Nature, Ottawa, ON.

Cody, W. J. 1996. *Flora of the Yukon Territory*. NRC Research Press, Ottawa, ON

Inland Fish and Wildlife Division, Newfoundland and Labrador Department of Tourism, Culture and Recreation. Rare Plant Database, Feb. 15, 2004.

Michigan Natural Features Inventory.
<http://web4.msue.msu.edu/mnfi/data/rareplants.cfm?species=Braya+humilis>.
Accessed March 12, 2004.

USDA. National Resources Conservation Service. Plants Profile. *Braya humilis*.
<http://plants.usda.gov/>. Accessed March 12, 2004.

Collections examined

Provincial Museum (NFM) - 1 specimen

TECHNICAL SUMMARY

Distribution and Population Information	Criteria Assessment
<ul style="list-style-type: none"> • <i>extent of occurrence (EO)(km²)</i> 	<1
<ul style="list-style-type: none"> • <i>area of occupancy (AO) (km²)</i> 	<1
<ul style="list-style-type: none"> • <i>number of extant locations</i> 	1
<ul style="list-style-type: none"> • <i>specify trend in # locations, EO, AO (decline, stable, increasing, unknown)</i> 	Apparently stable (first coll. in 1914, still present in 2004)
<ul style="list-style-type: none"> • <i>habitat trend: specify declining, stable, increasing or unknown trend in area, extent or quality of habitat</i> 	Decline in quality, area and extent
<ul style="list-style-type: none"> • <i>generation time (average age of parents in the population) (indicate years, months, days, etc.)</i> 	Unknown
<ul style="list-style-type: none"> • <i>number of mature individuals (capable of reproduction) in the Provincial population (or, specify a range of plausible values)</i> 	50
<ul style="list-style-type: none"> • <i>total population trend: specify declining, stable, increasing or unknown trend in number of mature individuals or number of populations</i> 	Unknown
<ul style="list-style-type: none"> • <i>are there extreme fluctuations (>1 order of magnitude) in number of mature individuals, number of locations, AO and/or EO?</i> 	Unknown, but not probable
<ul style="list-style-type: none"> • <i>is the total population severely fragmented (most individuals found within small and isolated populations between which there is little exchange, i.e., ≤ 1 successful migrant / year)?</i> 	Yes Single population, widely disjunct
Rescue Effect (immigration from an outside source)	
<ul style="list-style-type: none"> • <i>does species exist elsewhere?</i> 	Yes
<ul style="list-style-type: none"> • <i>status of the outside population(s)?</i> 	Secure (Cody)
<ul style="list-style-type: none"> • <i>is immigration known or possible?</i> 	Impossible
<ul style="list-style-type: none"> • <i>would immigrants be adapted to survive here?</i> 	Unknown
<ul style="list-style-type: none"> • <i>is there sufficient habitat for immigrants here?</i> 	Unknown

