



The Species Status Advisory Committee

Status Review of
Cutleaf Fleabane

Erigeron compositus

in Newfoundland and Labrador



Department of Fisheries and Land Resources
Forestry and Wildlife Research Division

Available in alternate formats.

Please contact the Department of Fisheries and Land Resources
at 709-637-2025 or endangeredspecies@gov.nl.ca.

Cover Photographs

Whole plant: Aare Voitk

Whole plant: Aare Voitk

Recommended Citation

Species Status Advisory Committee. 2019. Status Review for Cutleaf Fleabane *Erigeron compositus* in Newfoundland and Labrador. Forestry and Wildlife Research Division, Department of Fisheries and Land Resources, Government of Newfoundland and Labrador, Corner Brook, Newfoundland and Labrador, Canada.

Authors

The initial draft of this status review was prepared by Elisabeth Belanzaran. Significant contributions to the report were made by John E. Maunder.

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SSAC Status Review Summary

Date of Status Review: March 8, 2019

Common Name

Cutleaf Fleabane

Scientific name

Erigeron compositus

Status

Endangered

Reasons for Recommendation

COSEWIC criteria D1

D1. Number of mature individuals <250

Range in Newfoundland and Labrador

Newfoundland only, 1 known location

Status History

In February 2008, the species was assessed as Endangered by the Species Status Advisory Committee. See the document entitled: "The Status of Cutleaf Fleabane (*Erigeron compositus*) in Newfoundland and Labrador" (2008)

https://www.flr.gov.nl.ca/wildlife/endangeredspecies/ssac/Cutleaf_Fleabane_SSAC.pdf

[This Web version may be abridged].

On September 27, 2013, the species was listed as Endangered in Newfoundland and Labrador under the Newfoundland and Labrador Endangered Species Act.

Because the species is not rare nationally, it has not been assessed by COSEWIC and is not protected under the federal Species at Risk Act.

Overview

Species Description and Significance

General Description of the Species

A low, often tufted, semi-woody, tap rooted perennial with leaves crowded at the base of the plant (Noyes et al. 1995). Leaves are several times dissected or lobed towards the tips. In Newfoundland, the tansy-like flower heads are rayless and solitary on the ends of the stems (Noyes et al. 1995).

Taxonomy and Designatable Units:

Erigeron compositus Pursh

Cutleaf Fleabane
Fernleaf Fleabane
Dwarf Mountain Fleabane
vergerette à feuilles segmentées
vergerette à feuilles divisées.

Family: Asteraceae (Composites)

Synonyms:

Erigeron compositus Pursh var. *compositus*
Erigeron compositus Pursh var. *discoideus* A.Gray
Erigeron compositus Pursh var. *glabratus* Macoun
Erigeron compositus Pursh var. *multifidus* J.F.Macbride & Payson
Erigeron compositus Pursh var. *typicus* Payson, *nom. inval.*
Erigeron gormanii Greene

(Synonymy adapted from Brouillet et al. 2017).

In NL, there is one designatable unit.

Taxonomic Notes:

The existence and division of subspecies in *E. compositus* has long been contested. Cronquist (1947) proposed that there were three subspecies (var. *typicus* Payson, var. *glabraus* Macoun, and var. *discoideus* A. Gray), with the Newfoundland population being of the var. *discoideus* type (Fernald 1950). In 1977 Beaman declared this arrangement “unnatural” and instead proposed that *E. compositus* was an agamosperous species complex comprising five morphologically and roughly geographically

distinct subspecies. This division was later supported by Noyes et al. (1995), Noyes and Soltis (1996), and Nesom (2006). Although informally recognized, these five subspecies are listed as subsp. *anticus*, subsp. *compositus*, subsp. *penicillatus*, subsp. *pectinipetiolatus*, and subsp. *posticus*. Notably, despite Nesom's Flora of North America treatment, the VASCAN database does not recognize subspecies for *E. compositus*.

The sexual representatives of *E. compositus* all produce ligulate (broad bladed) ray florets and abundant pollen, and all are found in western North America (Noyes et al. 1995, Noyes and Soltis 1996). Comparatively, the asexual representatives may produce ligulate ray florets, but typically produce either low quality or no pollen (Noyes et al. 1995). These asexual types are highly variable and are typically widespread, creating vast swarms of plants (Cronquist 1947, Beaman 1947). These characteristics, paired with the observation that the Newfoundland specimens are almost always rayless, indicate that the Newfoundland type is almost certainly the asexual type, although a detailed investigation into the matter has not yet been conducted.

Social and Cultural Significance:

There is no known cultural or economic significance to Cutleaf Fleabane in Newfoundland, and no published indigenous uses or significance. Notably, it was not included in Arnason et al.'s 1981 study of the ethnobotany of Eastern Canada.

In Newfoundland, inquiries on the matter were sent to representatives from the Qalipu and Miawpukek First Nations. The Qalipu First Nation (J. Strickland, pers. comm., 2018; I. Sullivan, pers. comm. 2018) had no knowledge of any social or cultural significance associated with the species. At the time of this writing no response had been received from the Miawpukek First Nation.

Distribution

Global:

E. compositus is found in Greenland, Canada, the United States of America (Arkansas, Arizona, California, Colorado, Idaho, Montana, North Dakota, South Dakota, Nevada, Oregon, Utah, Washington, Wyoming) and eastern Russia (Nesom 2006)

National:

Found in Newfoundland, Québec, Saskatchewan, Alberta, British Columbia, Yukon, Northwest Territories, Nunavut, Nova Scotia, and Manitoba (Nesom 2006).

Provincial:

Found at only one natural location in western Newfoundland, on a limestone scree slope (Bouchard et al. 1999).

The Extent of Occurrence is not precisely known, but its natural occurrence is probably restricted to the upper scree slopes of Mt. Patricia (rising above Breakfast Head), Lower Humber River; the Index of Area of Occupancy of its natural occurrence site is 4 km² (see Figure 4). See notes on transplant sites, below.

Habitat

Cutleaf Fleabane is found in Arctic-alpine environments, in calcareous (lime-rich) soils (Noyes et al. 1995, Meades et al. 2000). Common in western North America, small disjunct populations are found in Newfoundland, Nova Scotia, and Quebec (Noyes et al. 1995, Nature Serve 2017).

In Newfoundland, Cutleaf Fleabane has been found at only one locality in the western part of the island (Meades et al. 2000). As of 2018, small, calcareous, cliff ledges have been considered to be suitable habitat for Newfoundland populations of *E. compositus* (Claudia Hanel, pers. comm. 2018).

The exact number of such habitats in Newfoundland is unknown. At least 91 calcareous cliff areas have been identified in western Newfoundland, excluding the Port au Port Peninsula and Gros Morne National Park. However, many of these habitats are very small and do not show up well on aerial imagery (Claudia Hanel, pers. comm. 2018).

See below, under “Population Size and Trends”, for an indication of search effort.

Biology

The Newfoundland population of Cutleaf Fleabane has been recorded to flower from early to late June. Seeds had dispersed by July 23, 2013 (Claudia Hanel, pers. comm. 2018).

There is some indication that the Newfoundland population may be agamosperous (having a form of asexual reproduction in which seeds are produced by unfertilized ovules) due to characteristic morphological characteristics (i.e. they are almost entirely rayless). Nonetheless, a detailed study of the Newfoundland population has never been conducted (Noyes et al. 1995).

There are no data available on parasites or predators for the Newfoundland population.

Population Size and Trends

A total of 11 potential calcareous talus slope habitats have been botanically surveyed in Newfoundland (four since the previous assessment of *Erigeron compositus* in 2008) (C. Hanel, pers. comm., 2018).

Ernest Rouleau first collected *Erigeron compositus* in Newfoundland, at Breakfast Head (along the lower Humber River), in 1950. The Breakfast Head site was revisited in 1987 by L. Brouillet and L.I. Saucier of the Université de Montréal, who described an *Erigeron compositus* population of about 100-120 individuals from “boulder talus at the bottom of scree slope” (copy of collector’s field sheet – via John Maunder). The same approximate area was visited again in 2013, by Claudia Hanel and Aare Voitk, who found a number of plants along the small ledges of the lower cliffs, at the top of the talus, but none on the talus itself. No population counts were conducted and only a small portion of the potential habitat was examined, owing to the treacherous footing encountered.

A second site, the Riverside Drive site, was estimated by H. Mann to have 30-40 individuals in 1990, but was destroyed in 1991 during the building of an overpass associated with the twinning of the Trans-Canada Highway along the lower Humber River. In anticipation of this development, H. Mann established three *ex situ* transplant sites:

The Sir Wilfred Grenfell College Garden population was established in 1991 using several plants from the now extirpated Riverside Drive population. By 2007 this population was extirpated.

Prior to 2007, seedlings from the Grenfell College site were used, by Mann, to populate two other transplant sites:

Marble Mountain Quarry (AKA the “high, hanging quarry”) was established in 2000 using plants from the Grenfell College Garden. In 2006 H. Mann confirmed that 6-8 plants still existed, but, according to Claudia Hanel, the site is now extinct.

The “Humber River Gravel Pit” transplant site was established in 2006, using seedlings germinated from seed from the Grenfell College Garden plants. Not well-known, even by the local botanical community, this site is south of the Trans-Canada Highway in the Humber Gorge. The status of this transplanted population is presently unknown, since it has not been re-visited in at least a decade; at which time “there were still a few plants there” (Henry Mann, pers. comm. to John Maunder).

As far as can be determined, with the possible exception of the “Humber River Gravel Pit Site”, none of the transplant sites now survives.

Survival estimates and projections are not available for this species.

Threats and Limiting Factors

Its small population size poses the largest threat to Cutleaf Fleabane in Newfoundland, as it is highly vulnerable to extirpation owing to stochastic events.

An up-to-date threats assessment for *Erigeron compositus* in Newfoundland, employing the protocol of Salafsky et al. (2008), is presented below:

4. Transportation and Service Corridors

Of the two known natural sites in Newfoundland, one (the Riverside Drive site) was destroyed in 1991 due to highway construction (SSAC 2008). If the “Humber River Gravel Pit” transplant site still exists, it may be vulnerable to further transportation and recreation corridor development.

10. Geological Events

10.3. Avalanches and Landslides

The Breakfast Head natural site is at the foot of a large and apparently unstable scree slope. A catastrophic landslide at the locality could seriously reduce or even destroy the small *Erigeron compositus* population there.

11. Climate Change and Severe Weather

The natural site, at Breakfast Head, remains largely inaccessible and is not currently vulnerable to human encroachment. However, because of its very small size, it is vulnerable to all manner of stochastic events.

Protection, Status and Ranks

All ranks listed below for Cutleaf Fleabane are based on “Wild Species 2015: The General Status of Species in Canada” (Canadian Endangered Species Conservation Council 2016) and NatureServe (2018).

Category	Rank
Global	
G-rank:	G5
IUCN:	Not listed
National	
N-rank:	N5
COSEWIC:	Not assessed
Provincial	
Newfoundland: Labrador:	S1, critically imperiled Not present
Adjacent Jurisdictions:	
Nova Scotia Quebec S-Rank	S1, critically imperiled S2, imperiled

Cutleaf Fleabane was designated as Endangered under the Newfoundland and Labrador Endangered Species Act in September 2013.

The only known extant natural population is found within the boundaries of the City of Corner Brook. The area is designated as a Sensitive Wildlife Area (SWA) and is zoned by the city as an Environmental Conservation zone. An SWA is a non-legal habitat protection mechanism that functions to trigger a review process by the Wildlife Division or Forestry and Wildlife Research Division when new land development or use proposals are brought forward (J. Humber, pers. comm., 2018). During this review process, the proposed developments can be denied, there may be conditions placed on the development activities, and/or mitigations may be developed to address the negative effects on species at risk (J. Humber, pers. comm., 2018). Though SWAs have no legislation associated to them, they

are an important habitat protection mechanism (Jessica Humber, pers. comm. 2018).

STATUS REVIEW REPORT

Cutleaf Fleabane
Vergerette à feuilles segmentées
Erigeron compositus Pursh

Range of occurrence in NL (NL/ LB): Newfoundland only (one location)

Existing SSAC Assessment:

Status category:

XT E T SC

Date of last assessment: February 20, 2008

Reason for designation at last assessment:

- Only one natural population exists (a second historical one is now considered to be extirpated)
- Number of mature individuals <120
- Extremely restricted, extent of occurrence and area of occupancy << 0.01 km²
- Occurs in naturally unstable habitat
- Rescue effect unlikely

Criteria applied at last assessment:

- Qualified as Endangered under SSAC/COSEWIC criteria D1: Number of mature individuals <250

SSAC Recommendation:

- No change in status and criteria
 No change in status, new criteria

Evidence supporting this Status Review:

Wildlife species:	
Change in eligibility, taxonomy or designatable units:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Range:	
Change in Extent of Occurrence (EO):	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unk <input type="checkbox"/>
Change in Index of Area of Occupancy (IAO): Explanation: More properly "n/a". "AO", not "IAO", was used in the 2006 report.	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unk <input type="checkbox"/>
Change in no. of known or inferred current locations* Explanation: [*] Use the IUCN definition of location	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unk <input type="checkbox"/>
Significant new survey information:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unk <input type="checkbox"/>
Population Information:	
Change in number of mature individuals:	Yes <input type="checkbox"/> No <input type="checkbox"/> Unk <input checked="" type="checkbox"/>
Change in population trend:	Yes <input type="checkbox"/> No <input type="checkbox"/> Unk <input checked="" type="checkbox"/>
Change in severity of population fragmentation:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unk <input type="checkbox"/>
Change in trend in area and/or quality of habitat:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unk <input type="checkbox"/>
Significant new survey information:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Threats:	
Change in nature and/or severity of threats:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unk <input type="checkbox"/>
Protection:	
Change in effective protection: Explanation:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Since listing the species as Endangered in 2013, the area where Cutleaf Fleabane is found has been designated as an Environmental Conservation Zone by the City of Corner Brook and is part of a Sensitive Wildlife Area	
Rescue Effect:	
Change in evidence of rescue effect:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Quantitative Analysis:	
Change in estimated probability of extirpation:	Yes <input type="checkbox"/> No <input type="checkbox"/> Unk <input checked="" type="checkbox"/>

Summary and Additional Considerations:

Cutleaf Fleabane was listed as Endangered under the provincial Endangered Species Act in September 2013 following a 2008 assessment by the SSAC. The only known Newfoundland occurrence of the species is within the municipal boundary of the City of Corner Brook in an area which has now been included in a Sensitive Wildlife Area (SWA).

As of time of writing, a recovery plan has not been created for Cutleaf Fleabane.

Acknowledgements and authorities contacted:

Claudia Hanel – Ecosystem Management Ecologist – Botanist, Forestry and Wildlife Research Division, Government of Newfoundland and Labrador

Jessica Humber – Ecosystem Management Ecologist – Biodiversity, Forestry and Wildlife Research Division, Government of Newfoundland and Labrador

Adam Durocher - Data Manager, Atlantic Canada Conservation Data Centre

Jonathan Strickland – Director of Natural Resources, Qalipu First Nation

Ian Sullivan – GIS Technician, Department of Natural Resources, Qalipu First Nation

Author of Status Review:

Elisabeth Belanzaran

Technical Summary

Erigeron compositus

Cutleaf Fleabane

Vergerette à feuilles segmentées

Range of occurrence in the province: Newfoundland only, one known location within the limits of the City of Corner Brook

Demographic Information

1. Generation time (usually average age of parents in the population)	Unknown, but perennial
2. Is there an [observed, inferred, or projected] continuing decline in number of mature individuals?	No
3. Estimated percent of continuing decline in total number of mature individuals within [5 years or 2 generations]	Unknown
4. [Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over the last [10 years, or 3 generations].	Unknown
5. [Projected or suspected] percent [reduction or increase] in total number of mature individuals over the next [10 years, or 3 generations].	Unknown
6. [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
7. Are the causes of the decline a. clearly reversible and b. understood and c. ceased?	a. n/a b. n/a c. n/a
8. Are there extreme fluctuations in number of mature individuals?	No

Extent and Occupancy Information

9. Estimated extent of occurrence	Not precisely known
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10. Index of area of occupancy (IAO) (Always report 2x2 grid value).	4 km ²
11. 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
12. Number of locations* [exclusive of transplant sites]	1
13. Is there an [observed, inferred, or projected] continuing decline in extent of occurrence?	No
14. Is there an [observed, inferred, or projected] continuing decline in index of area of occupancy?	No
15. Is there an [observed, inferred, or projected] continuing decline in number of subpopulations?	No
16. Is there an [observed, inferred, or projected] continuing decline in number of locations*?	No
17. Is there an [observed, inferred, or projected] continuing decline in [area, extent and/or quality] of habitat?	No
18. Are there extreme fluctuations in number of subpopulations?	No
19. Are there extreme fluctuations in number of locations*?	No
20. Are there extreme fluctuations in extent of occurrence?	No
21. Are there extreme fluctuations in index of area of occupancy?	No

Number of Mature Individuals (in each natural subpopulation)

22. Subpopulation (give plausible ranges)	N Mature Individuals
Breakfast Head (lower Humber River)	100-120

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

Riverside Drive population (now extirpated)	0
Total	100-200

Quantitative Analysis

23. 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)

24. The largest threat to the population is its small size and vulnerability to stochastic events.
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Rescue Effect (immigration from outside Newfoundland)

25. Status of outside population(s) most likely to provide immigrants to Newfoundland?	Immigration unlikely. Neighboring populations in Quebec and Nova Scotia are ranked respectively as S2 and S1 (General Status 2015)
26. Is immigration known or possible?	Unknown
27. Would immigrants be adapted to survive in Newfoundland?	Unknown
28. Is there sufficient habitat for immigrants in Newfoundland?	Unknown
29. Is rescue from outside populations likely?	No

Data Sensitive Species

30. Is this a data sensitive species?

No. Even though the sole known extent of the species in the province is found within the bounds of the Municipality of Corner Brook, its existence along difficult-to-access calcareous cliffs and its lack of cultural or economic significance makes it highly unlikely to be targeted.

Current Status

31. Status History (COSEWIC or SSAC)

In February 2008, the species was assessed as Endangered by the Species Status Advisory Committee, in the document entitled: "The Status of Cutleaf Fleabane (*Erigeron compositus*) in Newfoundland and Labrador."

In September 27, 2013, the species was listed as Endangered in Newfoundland and Labrador under the Newfoundland and Labrador Endangered Species Act.

Because the species is not rare nationally, it has not been assessed by COSEWIC and is not protected under the federal Species at Risk Act.

32. Criteria (old):

D1. Number of mature individuals <250

33. Year Assessed: 2008

34. Reasons for Designation:

Qualifies as Endangered under the SSAC/COSEWIC criteria D1:

- One of only two natural populations now extirpated
- Number of mature individuals <120
- Extremely restricted, extent of occurrence and area of occupancy << 0.01 km²
- Occurs in naturally unstable habitat
- Rescue effect unlikely

35. Author of Technical Summary: Elisabeth Belanzaran

36. Additional Sources of Information: n/a

Recommended Status and Reasons for Designation

37. Recommended Status: Endangered	38. Alpha-numeric Code: D1
39. Reasons for Designation: One location with only 100-120 individuals	

Applicability of Criteria

40. Criterion D (Very Small or Restricted Population): Criteria D1 is met: population estimates are less than 250 mature individuals.
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Information Sources

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Meades, S. J., S. G. Hay, and L. Brouillet. 2000. Annotated checklist of the vascular plants of Newfoundland and Labrador. <http://digitalnaturalhistory.com/meades.htm> (Last accessed May 22, 2018)

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Noyes, R. D., and D. E. Soltis. 1996. Genotypic variation in agamosperous *Erigeron compositus* (Asteraceae). *American Journal of Botany* 83(10): 1292-1303.

Noyes, R. D., D. E. Soltis, and P. S. Soltis. 1999. Genetic and cytological investigations in sexual *Erigeron compositus* (Asteraceae). *Systematic Botany* 20(2): 132-146.

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[1739.2008.00937.x](#) or <http://cmp-openstandards.org/wp-content/uploads/2014/03/Classification-of-threats-and-actions.pdf>

SSAC. 2008. The Status of Cutleaf Fleabane [*Erigeron compositus* Pursh] in Newfoundland and Labrador. Species Status Advisory Committee, Report No.

SSAC. 2006. The Status of Mountain Fern [*Thelypteris quepaertensis* (H. Christ) Ching] in Newfoundland and Labrador. Species Status Advisory Committee, Report No. 4.

Additional Sources of information

Fernald, M. L. 1950. Gray's Manual of Botany. Eighth edition. American Book Company. lxiv + 1632 pp.

Herbarium Specimen examined for the 2008 Status Report: Agnes Marion Ayre Herbarium (Memorial University of Newfoundland). One herbarium collection.

Personal Communications

Claudia Hanel – Ecosystem Management Ecologist – Botanist, Forestry and Wildlife Research Division, Government of Newfoundland and Labrador

Jessica Humber – Ecosystem Management Ecologist – Biodiversity, Forestry and Wildlife Research Division, Government of Newfoundland and Labrador

Jonathan Strickland – Director of Natural Resources, Qalipu First Nation

Ian Sullivan – GIS Technician, Department of Natural Resources, Qalipu First Nation

Figures

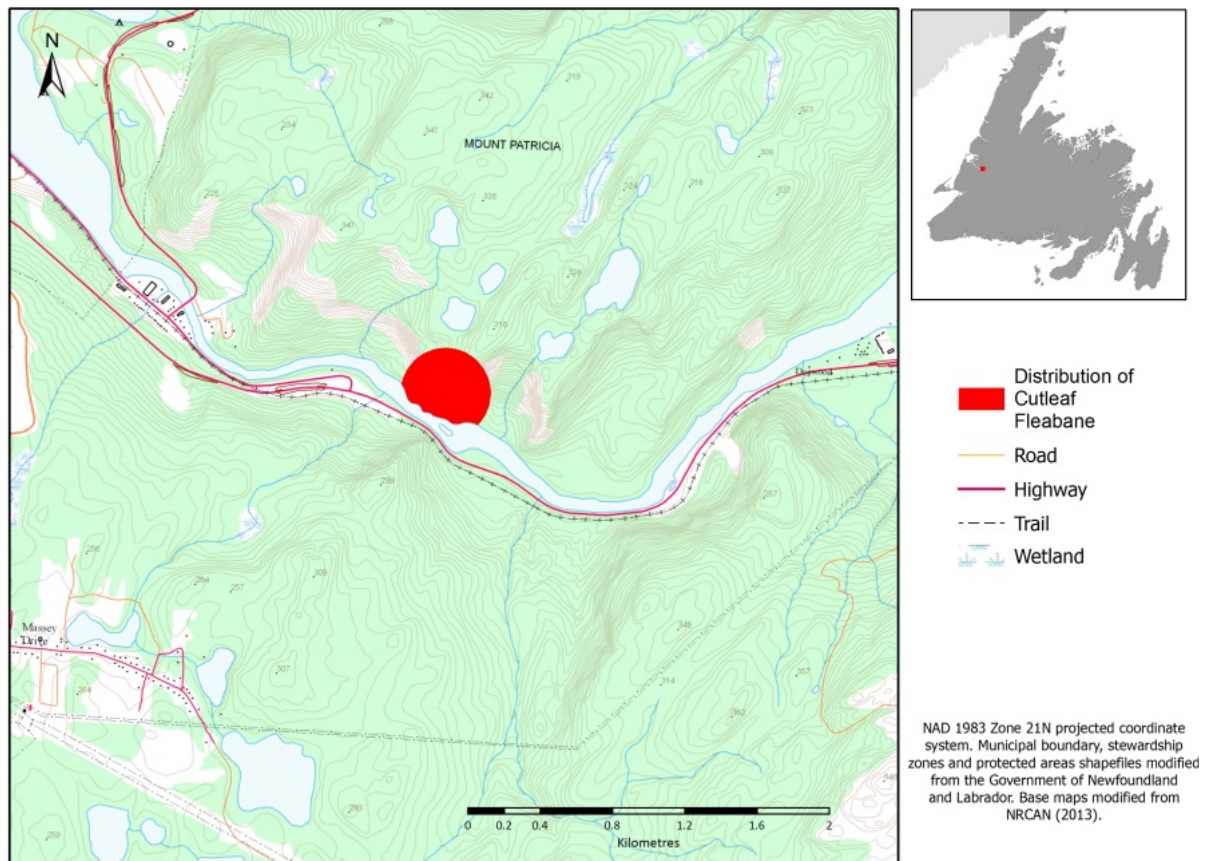


Figure 1: Map showing the location of Cutleaf Fleabane in Newfoundland (Created by Adam Durocher of the Atlantic Canada Conservation Data Centre).



Figure 2: Cutleaf Fleabane in habitat near Breakfast Head, 2013 (credit: Aare Voitk)

Figure 3: Cutleaf Fleabane habitat near Breakfast Head, 2013 (credit: Aare Voitk)

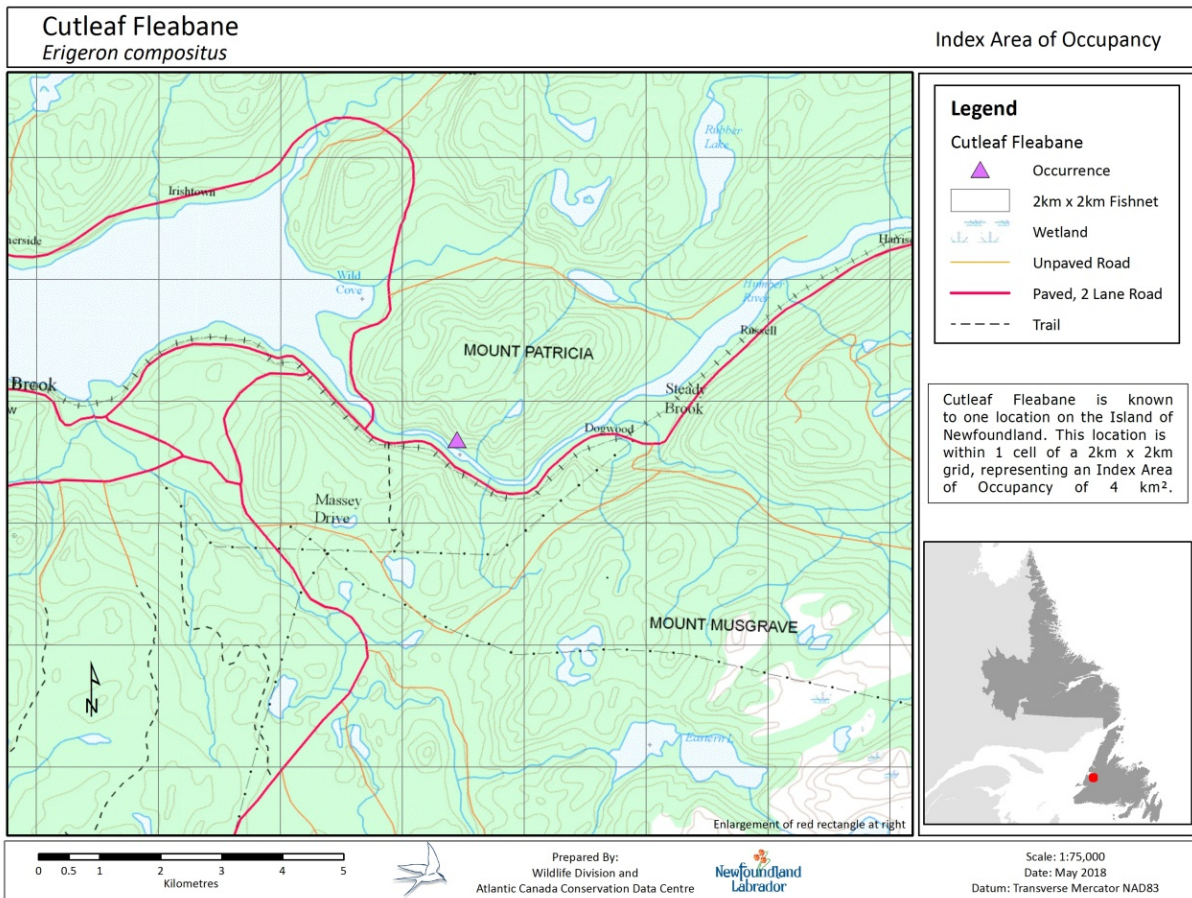


Figure 4: Map showing the index of area of occupancy of Cutleaf Fleabane in Newfoundland (created by Adam Durocher of the Atlantic Canada Conservation Data Centre).