

The Status of
Tradescant's Aster
(*Symphotrichum tradescantii*)

in Newfoundland and Labrador



Photo: John E. Maunder

**THE SPECIES STATUS ADVISORY COMMITTEE
REPORT NO. 16**

February 20, 2008

ASSESSMENT

Assessment: Threatened	Current designation: None
Criteria met: D2. Area of occupancy (AO) < 20 km ² and number of locations <5	
Reasons for designation: Qualifies as " <i>threatened</i> " under the SSAC/COSEWIC criteria D2 <ul style="list-style-type: none">• Restricted distribution, extent of occurrence < 1 km² and area of occupancy << 0.01 km²• Only one population extending intermittently along a 6 km river shore• Population estimated as < 600 mature individuals• Rescue effect unlikely	

The original version of this report was prepared by John E. Maunder on behalf of the Species Status Advisory Committee.

STATUS REPORT

Symphotrichum tradescantii (Linnaeus) Nesom
Tradescant's Aster, Shore Aster; Fr. aster de Tradescant

Synonyms:

Aster saxatilis (Fernald) Blanchard *nomen illegitimum*
Aster tradescanti Linnaeus
Aster tradescantii Linnaeus
Aster tradescantii var. *saxatilis* (Fernald) House
Aster vimineus var. *saxatilis* Fernald

Family: Asteraceae (Composites)

Life Form: Herbaceous, perennial forb.

Distribution

Global:

North America: Canada [see more detail below]. United States of America: northeastern states *including* Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, New York, New Jersey (Brouillet *et al.* 2006).

National:

Newfoundland and Labrador (Newfoundland only), Nova Scotia, New Brunswick, Québec (Brouillet *et al.* 2006).

Provincial:

Within the Province of Newfoundland and Labrador, known only from one very small extended locality near the Head of St. George's Bay (Fig. 1).

Annotated Range Map

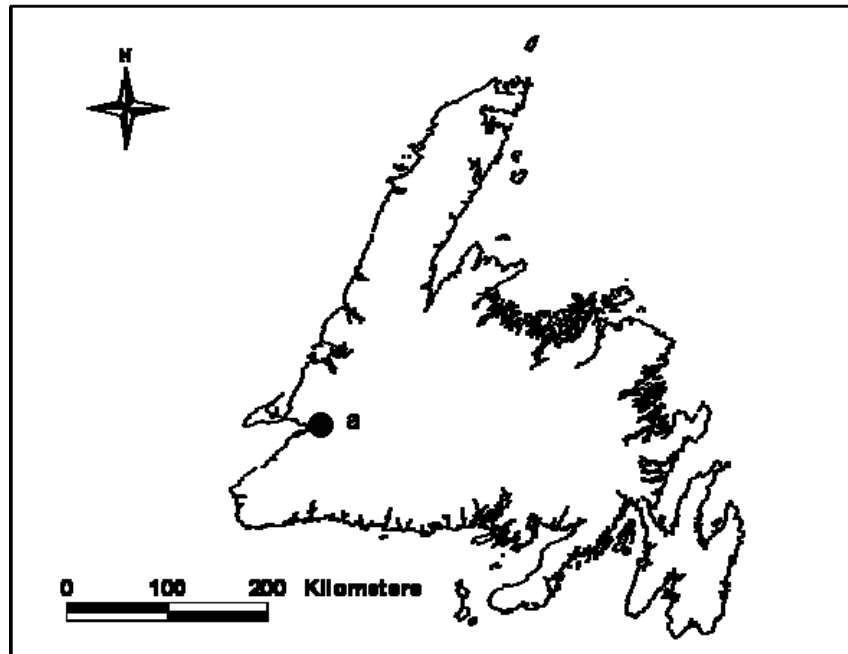


Figure 1. Known locality for *Symphyotrichum tradescantii* in Newfoundland: [a] Southwest Brook/Bottom Brook.

Description

Slender, intermittently amphibious, perennial aster, often growing in clumps; flowers white and relatively small; leaves relatively narrow.

Habitat

Damp, rocky and gravelly shores, silt- or loam-filled cracks in rocky rapids of streams or along freshwater estuaries (Brouillet *et al.* 2006)

In Newfoundland, the three, small, nearby sub-populations are located:

- [1] within a very small, rocky backwater near the mouth of a medium-sized river; shoreline around shallow pools; surrounded by forest and alder thickets; vegetation dominated by *Juncus* sp.
- [2] along the edge of a small, sedgy-rushy flat on the sandy margin of a small lake
- [3] on the sandy-muddy margin of a small river “steady” (ie. slow place).

In all three localities, the plants are periodically inundated by rising waters after significant rain events.

Overview of Biology

More or less calciphilic, insect-pollinated, seeds wind-dispersed (Brouillet *at al.* 2004) perennials. Often growing in clumps. Flowering July-August. Fruiting August-October. In Newfoundland there are usually about 20 disk florets per head and about 5-6 heads per plant. Thus there is the potential for 100-120 seeds to be produced per plant. Nonetheless, at Wilson's Lake, Nova Scotia, the seed bank for this species has been calculated as only 2 seeds/m², in lakeshore soil samples (Wisheu and Keddy 1991).

Population Size and Area of Occupancy

Southwest Brook Backwater sub-population:

Area of occupancy undetermined. Population size undetermined, but apparently very small; probably <100 (Claudia Hanel, personal communication, December 2006).

Bottom Brook First Pond sub-population:

Approximate area of occupancy: <200m² [rough estimate]
Estimated population of individuals: <400 [rough estimate]

Bottom Brook Third Pond sub-population:

Approximate area of occupancy: <50m² [rough estimate]
Estimated population of individuals: <100 [rough estimate]

[Two recent attempts by the author to more accurately census the populations (in August and October 2006) were both defeated by high water levels. The numbers given above are derived from a consensus of opinion based upon general onsite experience by John E. Maunder, Claudia Hanel, and Nathalie Djan-Chékar.]

Traditional and Local Ecological Knowledge

No published or other evidence has been found regarding the aboriginal use of *Symphyotrichum tradescantii* in Newfoundland. In particular, a specific inquiry to the Federation of Newfoundland Indians in 2007 yielded no definitive information.

Arnason *et al.* (1981) failed to mention the species in their comprehensive study of eastern Canada ethnobotany.

Trends

Unknown. First verified for the Province in 1999 (Djan-Chékar *et al.* 2004).

Threats and Limiting Factors

A very small population, very near human activity. The Southwest Brook location is below a rough gravel road, and is also directly across the river from a very active R/V campground. The First Pond, Bottom Brook location is very close to an old gravel pit that is often also used for R/V camping. Whether the First Pond gravel pit might be re-activated at some future date is unknown. The upstream Third Pond, Bottom Brook site may be secure for now, although a woods road does track up the river valley, quite near the river. At least the first two sites experience a lot of rod-and-reel fishing effort. The threat of cabin development near the First Pond site is unknown; at present, there is none.

Rank or Status

Global	
G-rank	G4Q
IUCN	not accessed
National	
N-rank	NNR (not ranked)
National General Status	4
COSEWIC	not accessed
Provincial	
Provincial General Status	2
Newfoundland S-rank	S1
Newfoundland General Status	2
Labrador S-rank	not present
Labrador General Status	not present
Adjacent Jurisdictions	
Nova Scotia S-Rank	S3
Nova Scotia General Status	4
Prince Edward Island S-Rank	not present
Prince Edward Island General Status	not present
New Brunswick S-Rank	S3
New Brunswick General Status	4
Québec S-Rank	S3
Québec General Status	3

[Note: Where available, ranking data from the biodiversity databases of the individual Provinces has been used. Otherwise, General Status ranks are based upon the “General Status of Species in Canada (2005)”, and S-Ranks are based upon “NatureServe Explorer”. Where there is apparent discrepancy, NatureServe Explorer ranks are considered to be the least current.]

[Note: A poorly understood taxon. Often confounded with reduced forms of the Lance-leaf Aster (*Symphyotrichum lanceolatum* (Willdenow) G. L. Nesom), and the One-sided Aster (*Symphyotrichum lateriflorum* (Linnaeus) Á. Löve & D. Löve). Because of this, published distributions of *Symphyotrichum tradescantii* are often erroneous (Brouillet *et al.* 2004; John Semple, University of Waterloo, personal communication, January 16, 2007). The distribution and conservation status of *S. tradescantii*, presented above, should, therefore, be viewed with some caution. The identity of the Newfoundland plants has been confirmed by Luc Brouillet (personal communication, 2001)]

Existing Protection

None.

Special Significance

None.

Sources of Information and List of References

- Anions, M. F. E., 1994. The flora of Gros Morne National Park. Resource description and analysis. Report, Gros Morne National Park, Rocky Harbour, Newfoundland, 143 p. + app.
- Arnason, T., R. J. Hebda, and T. Johns. 1981. Use of plants for food and medicine by native peoples of eastern Canada. *Canadian Journal of Botany* 59: 2189-2325.
- Bouchard, A., L. Brouillet, and S. G. Hay. 1993. The rare vascular plants of L'Anse-aux-Meadows National Historic Park. Park Services, Environment Canada. Unpublished report. 41 pp
- Bouchard, A., L. Brouillet, and S. Hay. 1996. Rare vascular plants in Gros Morne National Park, Newfoundland. Report of contract C2242-95-0005, Parks Canada, Hull.
- Bouchard, A., S. G. Hay, Y. Bergeron, and A. Leduc. 1991. The Vascular Flora of Gros Morne National Park, Newfoundland: A habitat classification approach based on floristic, biogeographical and life-form data. Pp. 123-157 *in* P. L. Nimis and T. J. Crovello (eds.), *Quantitative Approaches to Phytogeography*. Kluwer Academic Publishers, The Netherlands. 280 p.
- Bouchard, A., S. G. Hay, L. Brouillet, and M. Jean. 1992. The rare vascular plants of Port-au-Choix National Historic Park. Parks Service, Environment Canada, Ottawa. Unpublished report. 80 pp.
- Bouchard, A., S. G. 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. 191pp.
- Bouchard, A., S. Hay, L. Brouillet, and P. Turcotte. 1994. The rare vascular plants of the Big Level Plateau, Gros Morne National Park, Newfoundland. Contract K3129-91-136, Parks Service, Environment Canada, Ottawa. 54 pp.
- Bouchard, A., S. Hay, C. Gauvin, and Y. Bergeron. 1985. The rare vascular plants of Gros Morne National Park, Newfoundland, Canada. Parks Canada, Gros Morne National Park, Rocky Harbour, Newfoundland, contract GM83-20, 104 p. + app.
- Bouchard, A., S. Hay, C. Gauvin, and Y. Bergeron. 1986. Rare vascular plants of Gros Morne National Park, Newfoundland, Canada. *Rhodora*, 88 : 481-502.

- Brouillet, L., D. Bouchard and F. Coursol. 2004. Les plantes menacées ou vulnérables et autres plantes rares de l'estuaire fluvial du Saint-Laurent entre Grondines et Saint-Jean-Port-Joli. Rapport préparé pour le Ministère de l'Environnement du Québec. Direction du patrimoine écologique et du développement durable. Janvier 2004. 88pp.
- Brouillet, J., R. Charest, S. G. Hay, and A. Bouchard. 1997. Floristic analysis of the rare plants of Terra Nova National Park, Newfoundland. Contract #2242-96-0010 for Natural Resources Division, Parks Canada, Hull, Québec.
- Brouillet, L., S. Hay, P. Turcotte, and A. Bouchard. 1998. La flore vasculaire alpine du plateau Big Level, au parc national du Gros Morne, Terre-Neuve. Géographie physique et Quaternaire 52: 173-191.
- Brouillet, L., J. C. Semple, G. A. Allen, K. L. Chambers, S. D. Sundberg. 2006. *Symphytotrichum*. In: Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico. 12+ vols. Vol. 20, pp. [Online version at: http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=132022 (Last accessed February 1, 2007)]
- Djan-Chékar, N., L. Brouillet, C. Hanel, S. Hay, J. E. Maunder. 2004. Vascular plants of the island of Newfoundland, Canada: recent additions and rediscoveries. *Rhodora* 106(926): 167-177.
- Fernald, M. L. 1950. Gray's Manual of Botany. Eighth edition. American Book Company. Lxiv + 1632 pp.
- Hanel, C. 2004. Rare Plant Survey of the Squid Cove Area. Contract Report to the Department of Forest Resources and Agrifoods. Newfoundland and Labrador. Unpublished.
- Hanel, C. 2005. Doctor's Brook Rare Plant Survey. Contract Report to Western Newfoundland Model Forest. Unpublished.
- Hanel, C. 2005. Labrador Straits Botanical Initiative. Unpublished.
- Kartesz, J. T. 1994. A synonymized checklist of the vascular flora of the United States, Canada, and Greenland. 2nd edition. 2 vols. Timber Press, Portland, OR.
- NatureServe Explorer: An online encyclopedia of life [website]. Arlington, Virginia. <http://www.natureserve.org/explorer> (Last accessed October 13, 2007).

Newfoundland Rare Plant Project. [website]
<http://www.digitalnaturalhistory.com/naturalhistoryrareplant.htm> (Last accessed October 13, 2007, 2007).

Wild Species 2005: The General Status of Species in Canada. 2005. General Status Search Tool. [website]
<http://www.wildspecies.ca/wildspecies2005/search.cfm?lang=e&sec=9> (Last accessed October 13, 2007).

Wisheu, I. C., and P. A. Keddy. 1991. Seed banks of a rare wetland plant community: distribution patterns and effects of human-induced disturbance. *Journal of Vegetation Science* 2: 181-188.

Collections Examined

Provincial Museum of Newfoundland and Labrador:
Five herbarium collections.

TECHNICAL SUMMARY

Distribution and Population Information	Criteria Assessment
<i>Extent of occurrence (EO)(km²)</i>	approx. 0.6 km ²
<i>Area of occupancy (AO) (km²)</i>	0.00025 km ² [rough estimate]
<i>Number of extant locations</i>	One extended river location, with 3 small sub-locations distributed along 6 km of shoreline
<i>Specify trend in # locations, EO, AO (decline, stable, increasing, unknown)</i>	unknown
<i>Habitat trend: specify declining, stable, increasing or unknown trend in area, extent or quality of habitat</i>	Unknown
<i>Generation time (average age of parents in the population) (indicate years, months, days, etc.)</i>	unknown; perennial
<i>Number of mature individuals (capable of reproduction) in the Provincial population (or, specify a range of plausible values)</i>	<600
<i>Total population trend: specify declining, stable, increasing or unknown trend in number of mature individuals or number of populations</i>	Unknown
<i>Are there extreme fluctuations (>1 order of magnitude) in number of mature individuals, number of locations, AO and/or EO?</i>	Unknown
<i>Is the total population severely fragmented (most individuals found within small and isolated populations)</i>	only one extended population; 3 small sub-populations occurring within 6 km
Rescue Effect (immigration from an outside source)	
<i>Does species exist elsewhere?</i>	Yes
<i>Status of the outside population(s)? [adjacent Provinces only]</i>	Nova Scotia, New Brunswick, secure; Prince Edward Island, does not occur; Québec, sensitive
<i>Is immigration known or possible?</i>	Unknown
<i>Would immigrants be adapted to survive here?</i>	Unknown
<i>Is there sufficient habitat for immigrants here?</i>	Unknown

Appendix A. Population Information

Recently verified occurrences/range use (recorded within the last 25 years)

Verified occurrences consist of observations supported by the collection of a voucher specimen (i.e. a sample to be identified/confirmed by experts and deposited in a herbarium).

Bottom Brook, First Pond:

July 15, 1999. First Pond, Bottom Brook. Rocky, sandy lakeshores and floodplain. [Same site as the September 12, 2000 collection, below]. [Observer: John E. Maunder. Collection: NFM 6721 (Provincial Museum of Newfoundland and Labrador).] FIRST VERIFIED REPORT FOR THE PROVINCE.

September 12, 2000. First Pond, Bottom Brook.; Sandy lakeshore with dense patch of rushes and sedges, with *Triadenum fraseri*. [Observers: N. Djan-Chékar, C. Hanel, H. Mann. Collection: NDC 00-1692 = NFM 5580 (Provincial Museum of Newfoundland and Labrador). Verified by L. Brouillet, 2001.]

July 11, 2003. First Pond, Bottom Brook. Rocky, sandy lakeshores and floodplain. [Same site as the September 12, 2000 collection]. [Observer: John E. Maunder. Collection: Maunder 15 - 11/07/03 (Provincial Museum of Newfoundland and Labrador, collection not yet accessioned).]

Bottom Brook, upstream from Third Pond:

September 13, 2000. Bottom Brook. Edge of steady in river, water up to 10-15 cm deep; aquatic vegetation rooted in soft sandy mud; mats of the charophyte *Chara delicatula*; open. [Observers: N. Djan-Chékar, D. Brake. Collection: NDC 00-1728 = NFM 5579 (Provincial Museum of Newfoundland and Labrador). Verified by L. Brouillet, 2001]

Southwest Brook:

July 7, 2002. Southwest Brook. North shore of brook, mouth of small tributary, edge of shallow pools. Surrounded by forest and alder thickets; vegetation dominated by *Juncus* sp. Moist coarse sand between boulders. Open. [Observers: C. Hanel, S. Powell. Collection: CH 000730-36 = NFM 5549 (Provincial Museum of Newfoundland and Labrador)]

Recent Search Effort (areas searched within the last 25 years with estimate of effort)

General rare plant surveys of the west and northeast coasts of the Island were conducted by members of the Newfoundland Rare Plant Project (*q.v.*), specifically during 1999 to 2001, when 1645 individual sites were surveyed and 7622 plant collections were made. Additional general rare plant surveys have been conducted within the Province by various National Parks personnel, and by J. E. Maunder of the Provincial Museum and H. Mann of Sir Wilfred Grenfell College (early 1970's to present), as well as by N. Djan-Chékar of the Provincial Museum (2002 to present). Significant additional general collecting has been conducted, on the south coast of the Island, by R. Etcheberry, of St.-Pierre et Miquelon (1986, 1987, 1989, 1990, 1992, and 1993).

Targeted rare plant surveys were conducted by personnel from the Université de Montréal, during the course of the preparation of the publication "The Rare Vascular Plants of the Island of Newfoundland" (Bouchard *et al.* 1991), in: 1984 and 1985 (Gros Morne National Park), 1986 (southwest coast, and the general Port au Port area), 1987 (Great Northern Peninsula), 1988 (Baie Verte Peninsula, Notre Dame Bay, and central and eastern Newfoundland), 1989 (Gros Morne National Park, and the south coast), and 1990 (west coast, and Great Northern Peninsula).

Geographically focused rare plant surveys were conducted by personnel from the Université de Montréal, during the course of the preparation of contracted rare plant reports for Port au Choix National Historic Park (Bouchard *et al.* 1993), L'Anse aux Meadows National Historic Park (Bouchard *et al.* 1993), Gros Morne National Park (Anions, 1994; Bouchard *et al.*, 1985, 1986, 1991, 1994, 1996; and Brouillet *et al.*, 1998), and Terra Nova National Park (Brouillet *et al.* 1997). Additional geographically focused rare plant surveys were conducted in the Squid Cove and Doctors Brook areas, and the Labrador Straits region by C. Hanel (2004, 2005a, 2005b).

As well, on the west coast of the Island, B. Hellquist and G. Crow surveyed for aquatic species in 1986.

Historical Verified Occurrences/Range Use (recorded prior to the last 25 years)

None.

Other Observations (unverified occurrences)

Fernald (1950: 1436) recorded the species for "s. Nfld." However, the basis for this notation has not yet been ascertained. Since *Symphytichum tradescantii* is

often confounded with reduced forms of the Lance-leaf Aster (*Symphotrichum lanceolatum*) and the One-sided Aster (*Symphotrichum lateriflorum*) (Brouillet *et al.* 2004; John Semple, University of Waterloo, personal communication, January 16, 2007), the notation is not accepted here.

Potential Sites Unexplored

The shores of many rivers and ponds on the southwest coast of the Island have not been botanized critically, so the species could be more widespread. Because the species tends to inhabit areas prone to periodic flooding, and is inconspicuous except when flowering, searches should be carried out during periods of low water levels, and during the flowering season.

Appendix B. Supplementary Detail

Description (Fig. B-1)

Slender, caespitose, intermittently amphibious, perennial; small-flowered, short-rhizomatous. **Plants** 5–70 cm tall. **Stems** 1–5+; ascending to erect, straight, slender; 1–2.5(3) mm dia.; glabrous. **Leaves** thin; margins scabrous to scabrellous or eciliate; apices mucronulate; faces glabrous. **Basal leaves** persistent or withering by flowering time; petioles slightly winged and sheathing, leaf blades spatulate to elliptic or oblanceolate, 10–40 × 5–11 mm; bases cuneate to attenuate; margins crenate-serrate; apices obtuse to acute. **Proximal cauline leaves** persistent or withering by flowering time, ± broadly winged-petiolate or sessile; blades oblong, lanceolate or elliptic-lanceolate to oblanceolate, or linear-lanceolate, 20–100 × 3–9 mm; bases attenuate to cuneate, slightly clasping; margins serrulate or entire. **Distal cauline leaves** sessile; blades oblanceolate to linear-lanceolate or linear, 10–60 × 1–7 mm, gradually reduced distally; bases cuneate to tapering; margins serrulate or entire; apices acute to acuminate. **Flowering heads** (10)25–100, in paniculiform arrays; branches ascending, 1–10 heads per branch. **Peduncles** ascending, 0.2–2.5+ cm, glabrous; bracts 1–4, subulate to linear. **Involucre** cylindro-campanulate, 3.3–4.5(5) mm. **Phyllaries** in 4–5 series oblong-lanceolate (outer) to linear-lanceolate (inner) or linear (innermost), unequal; bases indurate; margins scarious, erose, hyaline, ciliolate, green zones lanceolate; apices acute to acuminate or caudate, mucronulate or apiculate, sometimes purplish; faces glabrous. **Ray florets** 14–27; corollas white, laminae 4.3–8.2 × 0.7–0.8 mm. **Disc florets** 20–30; corollas pale yellow becoming purplish, 3–4.1 mm, tubes shorter to nearly equaling funnelform throats, lobes lanceolate, 0.5–1 mm. **Cypselae** [ie. “seeds”] tan (nerves

stramineous), obovoid, ± compressed, 3.5–4 mm, 4–5-nerved, faces strigillose; **pappi** white, 3–3.6 mm. **2n** = 16, 32. (Modified after Brouillet *et al.* 2006)

Collections Examined

Provincial Museum of Newfoundland and Labrador:

NFM 5549, NFM 5579, NFM 5580, NFM 6721, Maunder 15 - 11/07/03
(collection not yet accessioned) [see: Appendix A for details].



Photos: John E. Maunder

Figure B-1. Description and Habitat: [a] young plant partially submerged during high water, [b] budding stem, [c] flower and buds, [d] whole plants, [e] group of plants, [f] plants in habitat