

**Species Listing PROPOSAL Form:**  
 Listing Endangered, Threatened, and Special Concern Species in Massachusetts

Scientific name: *Symphyotrichum prenanthoides*

Current Listed Status (if any): Special Concern

Common name: Crooked – stem Aster

**Proposed Action:**

☐ Add the species, with the status of: \_\_\_\_\_

☒ Remove the species

☐ Change the species' status to: \_\_\_\_\_

Change the scientific name to: \_\_\_\_\_

Change the common name to: \_\_\_\_\_

(Please justify proposed name change.)

**Proponent's Name and Address:**

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Association, Institution or Business represented by proponent: Natural Heritage and Endangered Species Program

Proponent's Signature:



Date Submitted:

7/6/2018

Please submit to: Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries & Wildlife, 1 Rabbit Hill Road, Westborough, MA 01581

**Justification**

Justify the proposed change in legal status of the species by addressing each of the criteria below, as listed in the Massachusetts Endangered Species Act (MGL c. 131A) and its implementing regulations (321 CMR 10.00), and provide literature citations or other documentation wherever possible. Expand onto additional pages as needed but make sure you address all of the questions below. The burden of proof is on the proponent for a listing, delisting, or status change.

**(1) Taxonomic status.** Is the species a valid taxonomic entity? Please cite scientific literature.

*Symphyotrichum prenanthoides* (Muhl. ex Willd.) G.L. Nesom is the accepted name at <https://itis.gov/>. The basionym was Asteraceae *Aster prenanthoides* Muhl. ex Willd. Sp. Pl., ed. 4 [Willdenow] 3(3):2046. 1803 [Apr-Dec 1803]. This name was updated in 1995 from *Aster p.* to *Symphyotrichum p.* in G.L. Nesom. 1994. "Review of the taxonomy of *Aster sensu lato* (Asteraceae: Astereae), emphasizing the New World species." *Phytologia* 77 (3): 141-297 (1994) [Sept. 1994 publ. 31 Jan 1995]. See also: Kartesz, J.T. 1999. A synonymized checklist and atlas with biological attributes for the vascular flora of the United States, Canada, and Greenland. First edition. In: Kartesz, J.T., and C.A. Meacham. *Synthesis of the North American Flora*, Version 1.0. North Carolina Botanical Garden, Chapel Hill, N.C.

**(2) Recentness of records. How recently has the species been conclusively documented within Massachusetts?**

Five populations of *Symphyotrichum prenanthoides* were observed/updated in 2017. All but four of the twenty-eight known populations have been observed within the last five years. The remaining current EOs have all been observed since 2003.

**(3) Native species status. Is the species indigenous to Massachusetts?**

Yes, the species is indigenous to Massachusetts. Many of the earliest herbarium records date to the early 1900s, including J.R. Churchill, 1915 in Lanesborough; F. Walters, 1912 in Sheffield; Clarence H. Knowlton, 1915 in Lanesborough; and R. Hoffmann, 1912 in Alford.

The species is listed as native in Cullina et al. 2011 in Berkshire, Franklin and Hampshire counties.

**(4) Habitat in Massachusetts. Is a population of the species supported by habitat within the state of Massachusetts?**

Twenty-eight known populations of *Symphyotrichum prenanthoides* occur within Massachusetts. Its primary habitats are exposed gravelly shores, banks, open thickets in rich alluvial soils of river floodplains. It is also found in damp, partially wooded swamps and their edges, and along semi-open roadsides near drainage ditches. The species may be found near trails at stream crossings or through floodplains. The species has been shown to be intermediate to closely related members of the Asteraceae in its ability to capture light (Banta et al. 2008) which matches closely the habitat in which it tends to thrive.

**(5) Federal Endangered Species Act status. Is the species listed under the federal Endangered Species Act? If so, what is its federal status (Endangered or Threatened)**

This species is neither currently, nor proposed to be, listed under the federal Endangered Species Act.

**(6) Rarity and geographic distribution.**

(a) Does the species have a small number of occurrences (populations) and/or small size of populations in the state? Are there potentially undocumented occurrences in the state, and if so, is it possible to estimate the potential number of undocumented occurrences?

*Symphyotrichum prenanthoides* has a limited range in Massachusetts. It currently has been observed only in Berkshire (23 current EOs), Franklin (3 current EOs and 1 recently approved observation in VPRS) and Hampshire (1 current EO) Counties. However, within Berkshire county, it is widespread and occurs throughout the county. Eighteen of the 32 towns support populations, and additional populations are likely to be found in other towns.

(b) What is the extent of the species' entire geographic range, and where within this range are Massachusetts populations (center or edge of range, or peripherally isolated)? Is the species a state or regional endemic?

NatureServe Explorer maps the population in Massachusetts as near the northeastern extent of the species. The population is illustrated as occurring from Vermont west to Minnesota, south to Mississippi, east to North Carolina and up the eastern seaboard to Massachusetts. It is not a state or regional endemic. Healthy populations were only recently confirmed in Vermont in the last few years, and it is considered State Historic in Connecticut. It is ranked S5 in New York State.

**(7) Trends.**

Is the species decreasing (or increasing) in state distribution, number of occurrences, and/or population size? What is the reproductive status of populations? Is reproductive capacity naturally low? Has any long-term trend in these factors been documented?

The number of known occurrences in the state has increased, due to increased survey effort in both Berkshire and Franklin Counties. The reproductive capacity in this species does not seem to be a limiting factor. A healthy plant in appropriate habitat can produce several seeds per head (from 39 to 50 disk florets) and has few to many flowering heads. The seeds are wind-dispersed.

**(8) Threats and vulnerability.**

(d) What factors are driving a decreasing trend, or threatening reproductive status in the state? Please identify and describe any of the following threats, if present: habitat loss or degradation; predators, parasites, or competitors; species-targeted taking of individual organisms or disruption of breeding activity.

The primary threats noted at observations of *Symphyotrichum prenanthoides* include competition with invasive species, deer browse, road salt and shading. When the species occurs under a canopy, it may not bloom until a break in the canopy occurs. It thrives in areas of disturbance, particularly along riverbanks, but will also grow along damp edges of roads, provided the mowing regime allows it to grow and mature.

This is a clonal species, thus a large number of stems does not necessarily represent a large population, instead it may be a single clonal, genetically plant. As with all asters, it is self-incompatible (COSEWIC 2012) and at least two genetically different individuals need to be present in order for viable seed to be produced.

Mowing along roadsides where this plant grows may be an additional threat to the species, which could affect flowering, cross pollination and seed production.

(e) Does the species have highly specialized habitat, resource needs, or other ecological requirements? Is dispersal ability poor?

In Massachusetts, the species occurs on exposed river cobbles and rich alluvial soils in river floodplains, partially wooded swamps, and along semi-open to open roadsides. It often is found where trails cross small streams. Its habitat specificity is low in the western portion of the state.

**Conservation goals.**

What specific conservation goals should be met in order to change the conservation status or to remove the species from the state list? Please address goals for any or all of the following:

(a) State distribution, number of occurrences (populations), population levels, and/or reproductive rates

In 2010, this species was proposed to have its rank changed from Threatened to Special Concern. At that time, the conservation goals for the species stated, “The number of current distinct EOs reaches at least 25, and half are ranked BC or greater; 90% should be ranked C or greater.”

NHESP has 28 distinct EOs in the NHESP database, and if one includes sub-EOs, there are 34. Twenty-three (including the sub-Eos) or 68% are ranked as A, AB, B or BC, with populations of over 100 plants. Thirty, or 90%, of these are ranked as “C” or better, meeting the previous conservation goals for this species. It is likely that there are additional populations of this species that are still unknown, as two new populations were reported to NHESP in 2017. This species is ranked as G4G5, and only occurs in the eastern US and Ontario. NHESP plans to keep *Symphyotrichum prenanthoides* on the Watch List so that these populations may continue to be tracked. It is listed as Division 2 in Flora Conservanda 2012.

(b) Amount of protected habitat and/or number of protected occurrences

The species moves around in response to natural and man-made disturbance, and needs the disturbance to survive. Sixteen of the current EOs occur on protected land.

(c) Management of protected habitat and/or occurrences

No criteria are set.

**Literature cited, additional documentation, and comments.**

Banta, Joshua A., Scott C. Stark, Martin H. H. Stevens, Thomas H. Pendergast, Anthony Baumert, and Walter P. Carson. “Light Reduction Predicts Widespread Patterns of Dominance between Asters and Goldenrods.” *Plant Ecology* 199, no. 1 (November 1, 2008): 65–76. <https://doi.org/10.1007/s11258-008-9412-3>.

Brouillet, Luc, John C. Semple, Geraldine A. Allen, Kenton L. Chambers, and Scott D. Sundberg. 2006. “*Symphyotrichum*” in *Flora of North America* Editorial Committee. *Flora of North America*. Vol. 20.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2012. COSEWIC Assessment and Status Report on the Crooked-stem Aster *Symphyotrichum prenanthoides* in Canada. Canadian Wildlife Service, Environment Canada, Ottawa, ON K1A 0H3. [https://www.registrelep-sararegistry.gc.ca/virtual\\_sara/files/cosewic/sr\\_aster\\_fausse-prenanthe\\_crooked-stem%20Aster\\_1013\\_e.pdf](https://www.registrelep-sararegistry.gc.ca/virtual_sara/files/cosewic/sr_aster_fausse-prenanthe_crooked-stem%20Aster_1013_e.pdf) (Accessed 7/6/2018).

Consortium of Northeastern Herbaria. <http://neherbaria.org/> website (Accessed 2/27/2018).

Cullina, M.D., B. Connolly, B. Sorrie, and P. Somers. 2011. *The Vascular Plants of Massachusetts: A County Checklist, First Revision*. Massachusetts Natural Heritage and Endangered Species Program, Massachusetts Division of Fisheries and Wildlife.

Gleason, H.A. and A. Cronquist. 1991. *Manual of Vascular Plants of Northeastern United States and Adjacent Canada*, Second Edition. The New England Botanical Garden. Bronx, NY.

Haines, A. 2011. *New England Wild Flower Society’s Flora Novae Angliae*. Yale University Press. New Haven and London.

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