

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

Scientific name: *Crataegus schizophylla*
 Egglest. _____

Current Listed Status (if any):
 Historic _____

Common name: Cleft-leaved hawthorn _____

Proposed Action:

Add the species, with the status of:

E _____

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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Fax:

Association, Institution or Business represented by proponent: None

Proponent's Signature: Gregory Palermo 

Date Submitted: July 24, 2023

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.

Yes. It was first published by W. W. Eggleston in the Bulletin of the Torrey Botanical Club in 1911.

It is recognized as a valid species by

Arthur Haines, Flora Novae Angliae 2011,

Flora of North America Editorial Committee (2014). Flora of North America North of Mexico vol. 9,

http://floranorthamerica.org/Crataegus_schizophylla

Kew Gardens Plants of the World Online <https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:68966-2>

Ron Lance, hawthorn author and expert, pers. comm. 2023

(2) Recentness of records. How recently has the species been conclusively documented within Massachusetts?
2023 Ron Lance, hawthorn author and expert, visit to Martha's Vineyard with Greg Palermo and Margaret Curtin.
2021 (PHARB03608 Gregory Palermo, Timothy Boland, Hatsy Potter, Claire Thacher 21-180, 10-10-20214,
Dukes County, 294 Chappaquiddick Road, 41.375622 -70.470523.)

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

Yes. It is endemic to Martha's Vineyard. Herbarium records accessible through the Consortium of Northeastern Herbaria Portal date back to 1901.

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

Yes. The habitat is sandy outwash plains, scrub oak barrens, much of which occurs on Martha's Vineyard.

(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)

No.

(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?

Following the May 2023 visit by hawthorn expert Ron Lance, there are now six known populations, all on Martha's Vineyard.

1. Pennywise Preserve in Edgartown
2. Oyster Pond Road in Edgartown
3. Chappaquiddick Island (Edgartown)
4. Felix Neck in Edgartown
5. Aquinnah
6. Tea Lane in Chilmark

All populations are small between one and fourteen plants. The highest likelihood of undocumented occurrence is on relatively undeveloped land in Aquinnah.

Elsewhere in the Commonwealth, the likelihood of further populations being discovered is very low, due to plants being woody and very long lived, are present year-round, are easy to detect due to long sharp thorns, and the fact that hawthorns have been heavily researched, collected, grown ex-situ, and sought after for more than a century across the bay state.

(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?

This species is endemic to Martha's Vineyard.

(7) Trends.

(c) 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 species distribution on Martha's Vineyard has decreased by half. Herbarium records document the past presence of *Crataegus schizophylla* in all six Martha's Vineyard towns. It is known now from only Edgartown, Chilmark, and Aquinnah. The largest population (Edgartown) is in poor condition and produces very limited quantities of fruit. The reproductive status is uncertain, though some populations produce a significant amount of fruit. Hawthorns are long-lived; populations can persist with low recruitment rates.

(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.

Habitat loss seems to represent the greatest threat. Plant pathogens are a severe problem for the largest population. Polly Hill Arboretum Director Timothy Boland examined the shrubs of that population and found them to be suffering from "apple scab (*Venturia inaequalis*), powdery mildew (*Podosphaera oxycanthae*), Cedar Apple Rust (*Gymnosporangium globosum*) and stem rust (*Gymnosporangium clavipes*)." Canopy closure has threatened the primary population in Edgartown. Sites need to be managed to prevent overgrowth of vines and competing species.

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

A highly specialized habitat does not seem to be required. The Flora of North America treatment describes its habitat as “thickets and banks on sandy soil.” All Martha’s Vineyard populations are in thickets on sandy soil. The species needs a fair amount of sunlight and low humidity. Dispersal by birds is common, as the fruits are red and attractive to birds, as in common in the rose family.

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
Removal from the Massachusetts list should require more than 20 populations showing evidence of reproduction, on conservation land.

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

One of the Edgartown populations is protected by being located on conservation land, but it can perhaps benefit from interventions to support plant health. Two other Edgartown populations are on land owned by the Town of Edgartown. These would benefit from a conservation restriction or transfer of the land to a conservation organization. A fourth Edgartown population is owned by MassAubudon. The Aquinnah and Chilmark populations are on privately owned land.

The Polly Hill Arboretum is attempting to propagate *Crataegus schizophylla* from seed and is interested in propagation from cuttings as well.

(c) Management of protected habitat and/or occurrences

Management should include regular clearing and removal of excess vine growth and especially invasive, non-native species. Prescribed fire should be included as an experimental treatment.

Literature cited, additional documentation, and comments.

W. W. Eggleston, New *Crataegi* of the northeastern manual range, Bulletin of the Torrey Botanical Club 38: 243 (1911).

Arthur Haines (2011) *Flora Novae Angliae*, Yale University Press, New Haven and London.

Flora of North America Editorial Committee (2014). *Flora of North America North of Mexico* 9: 1-713. Oxford University Press, New York, Oxford.

Kew Gardens Plants of the World Online <https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:68966-2>

Phipps JB, O’Kennon R, Lance RW, others (2003) *Hawthorns and medlars*. Timber Press

Phipps J (2005) A review of hybridization in north american hawthorns. Another look at" the *Crataegus* problem". *Annals of the Missouri Botanical Garden* 113–126