



Natural Heritage & Endangered Species Program

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Massachusetts Division of Fisheries & Wildlife

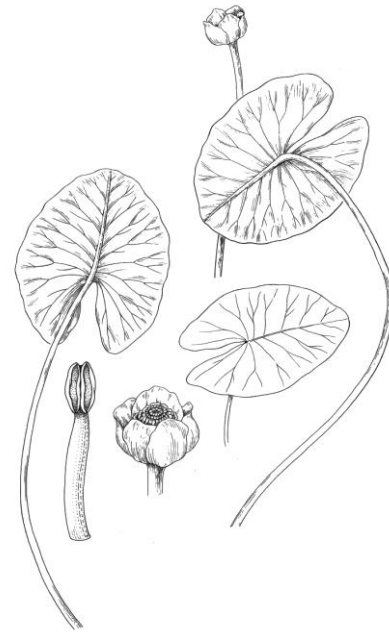
Tiny Cow-lily *Nuphar microphylla* (Pers.) Fern

State Status: **Endangered**
Federal Status: **None**

DESCRIPTION: The Tiny Cow-lily (*Nuphar microphylla*) is a perennial aquatic herb of the Nymphaeaceae family. Like other species of water-lily, its leaves float on the surface of slow-moving or still waters. The oblong leaves are notched at the base, and are pinnately veined (with a distinct central mid-vein). They have very long petioles which connect to a horizontal stem, called a rhizome, running beneath the substrate of the pond or stream-bottom. Golden-yellow flowers, similar to those of the common Spatterdock (or Yellow Water-lily), but smaller, float at the water's surface from mid-June through August.

SIMILAR SPECIES: The species most likely to be confused with the Tiny Cow-lily in Massachusetts is Spatterdock (*Nuphar variegata*). Tiny Cow-lily has smaller leaves than Spatterdock; while the size ranges do overlap, the leaves are always less than 20 cm long and less than 14.5 cm wide in the Tiny Cow-lily. In addition, the Tiny Cow-lily has smaller flowers, and the "stigmatic disc" (a flat structure of radiating stigmas in the flower's center) is red and deeply lobed. In contrast, Spatterdock has larger flowers with a yellowish green and unlobed or very shallowly-lobed stigmatic disk. Spatterdock and Tiny Cow-lily do hybridize, and the hybrid is named *Nuphar x rubrodisca*, after the reddish tinge the stigmatic disc takes on from its Tiny Cow-lily parentage. True Tiny Cow-lily may be discerned from this hybrid by its smaller flower size (2 cm or less wide, compared to 3 cm or more wide in the hybrid) and relative length of the notch in the leaf base (notch a third or less the length of the midrib in Tiny Cow lily, compared to half the length of the midrib in the hybrid).

RANGE: Tiny Cow-lily is a species of northeastern North America; it ranges from Nova Scotia and New Brunswick west to Manitoba, south to New Jersey and Minnesota.



Holmgren, N.H. 1998. *The Illustrated Companion to Gleason and Cronquist's Manual*. New York Botanical Garden.

HABITAT: In Massachusetts, Tiny Cow-lily is found in shallow, still or slow-moving waters that are not acidic. Recently, it has been observed growing in oxbows, coves and backwaters of rivers in association with Water Starwort (*Heteranthera dubia*), Long-leaved Pondweed (*Potamogeton nodosus*), Ribbon-leaf Pondweed (*P. epihydrus*), Wild Celery (*Vallisneria americana*), Water Crowfoot (*Ranunculus aquatilis*) and several invasive exotic species noted below. Historically it has been known from ponds in Massachusetts, and it is expected that it will be rediscovered in pond habitat.

POPULATION STATUS IN MASSACHUSETTS: Tiny Cow-lily is listed as Endangered under the Massachusetts Endangered Species Act. All listed species are protected from killing, collecting, possessing,

A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan

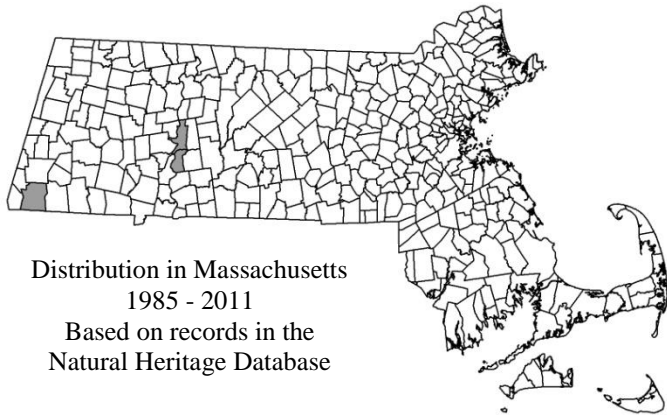
Massachusetts Division of Fisheries & Wildlife

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or sale and from activities that would destroy habitat and thus directly or indirectly cause mortality or disrupt critical behaviors. Recently documented populations of Tine Cow-lily are known from Berkshire and Hampshire Counties. Historically, it was also collected from Worcester and Middlesex Counties.



THREATS: The invasive exotic species Eurasian Water-milfoil (*Myriophyllum spicatum*), Curly-leaved Pondweed (*Potamogeton crispus*), Fanwort (*Cabomba caroliniana*), and Water-chestnut (*Trapa natans*) have been reported to co-exist with the remaining populations of Tiny Cow-lily, and may be competing with it for resources. Ironically, broad-spectrum herbiciding to control aquatic weeds could also threaten this species. Hand-pulling of aquatic invasive species is recommended around populations of rare aquatic species. Other potential threats to the remaining population include habitat alteration by beaver and from road run-off.

Flowers Present

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Updated 2015

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