Natural Heritage & Endangered Species Program

Commonwealth of Massachusetts
Division of Fisheries & Wildlife
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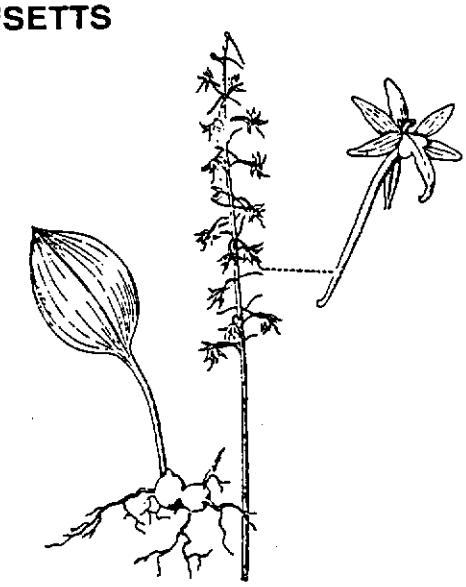
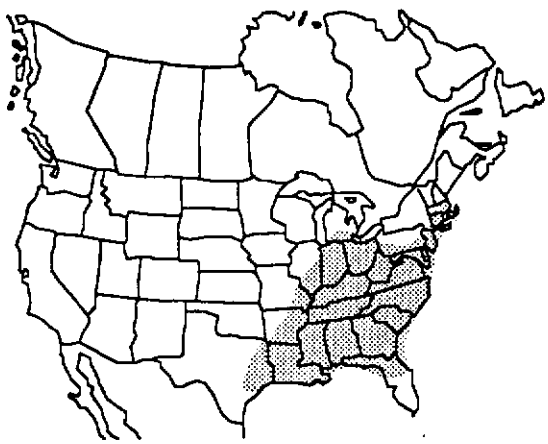
ENDANGERED SPECIES OF MASSACHUSETTS

CRANEFLY ORCHID
(*Tipularia discolor* (Pursh) Nutt.)

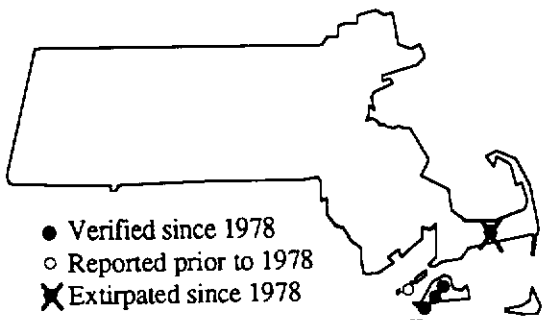


Gleason, H. A. The New Britton and Brown Illustrated Flora of the US & Adjacent Canada. NY Botanical Garden, 1952.

DESCRIPTION: Cranefly orchid is a perennial herb in the Orchid family (Orchidaceae) that produces a single basal leaf and a slender flower stalk. The ovate solitary leaf is dark green and often purple-spotted above and dark purple beneath. Its side veins run longitudinally and its edges may appear slightly ruffled. In Massachusetts, leaves are usually smaller than in the south, here approximately 2.5 - 4 cm (1 - 1.5 in.) long. The leaf is erect at first, but soon lies more or less flat on the leaf litter. Cranefly orchid's inflorescence (cluster of flowers) is slender, erect, and forms a 10 - 20 cm (4 - 8 in.) long, loose raceme (an unbranched, elongate grouping of stalked flowers) with 20 to 40 tiny blossoms (often fewer in Massachusetts). Sepals and petals are a pale brownish-greenish color with purple veins, 4 - 8 mm long by 1.5 - 3 mm wide (0.16 - 0.32 in. x 0.06 - 0.12 in.), and are arranged asymmetrically, with one petal overlapping the dorsal sepal. The pale purple lip (lowermost petal) is 3-lobed with a 1.5 - 2 cm (0.6 - 0.8 in.) long horizontal spur at the base. The flowers are horizontal to somewhat drooping and resemble crippled crane-flies. Each plant produces round tubers below ground which split off to produce new plants. The cranefly orchid can therefore grow in clusters that originated from a single plant. The growth pattern of cranefly orchid differs from that of most flowering plants in that its leaf appears in fall and dies back in the late spring. During the winter, it photosynthesizes--unless snow-covered--providing food for the tubers. There is a brief period of a few weeks, from late May-June, when nothing is visible above ground. The scape (the stem that bears the flower cluster) then emerges in mid-June in the north (or September in Florida). The visible plant subsequently develops buds, comes into flower in mid-July, puts out fruit and dies within a period of 2 - 3 months. The best time to look for cranefly orchid is in the fall.



Documented Range of Cranefly Orchid



Massachusetts Distribution by Town

RANGE: The documented range of Cranefly Orchid extends from southeastern Massachusetts and Long Island, New York, to southern Indiana, south to Florida and eastern Texas. Massachusetts is the only New England state where this species occurs.

SIMILAR SPECIES IN MASSACHUSETTS: Within its range in New England, there is no other similar orchid. Puttyroot (*Aplectrum hyemale*) has similar biology, but its basal leaf is long-elliptical, pleated lengthwise, and devoid of purple color. Canada mayflower (*Maianthemum canadense*), a common woodland plant in the Lily family, has a single, medium green basal leaf when immature, but this leaf has no purple coloring.

HABITAT IN MASSACHUSETTS: Cranefly orchid is found in mesic-damp woods with filtered light. On Martha's Vineyard it is found in deciduous woodlands near maple-tupelo swamps, near open bodies of fresh water and in mesic, hardwood forests in perched wetlands. Surrounding trees and shrubs include oaks (*Quercus* spp.), red maple (*Acer rubrum*), sweet pepperbush (*Clethra alnifolia*), black gum (*Nyssa sylvatica*), sassafras (*Sassafras albidum*), American holly (*Ilex opaca*), beech (*Fagus grandifolia*), viburnum (*Viburnum* spp.), and swamp honeysuckle (*Rhododendron viscosum*). Associated ground plants may include beech-drops (*Epifagus virginiana*), Indian pipe (*Monotropa uniflora*), and carrion-flower and greenbrier (*Smilax* spp.).

POPULATION STATUS IN MASSACHUSETTS: Cranefly Orchid is presently listed as "Endangered" in Massachusetts. As with all species listed in Massachusetts, individuals of the species are protected from take (picking, collecting, killing...) and sale under the Massachusetts Endangered Species Act. There were eleven recently (since 1978) verified sites in four towns and two historical stations (unverified since 1978, one in one of the same towns with current records) in the Commonwealth. However, one of the recently verified sites (Barnstable) was destroyed by housing development in 1984, before the passage of the Massachusetts Endangered Species Act; this was the sole known occurrence on Cape Cod. The plant is also considered rare in New York, New Jersey, Pennsylvania, Michigan, Missouri, and Oklahoma. Reasons for the plant's rarity in Massachusetts include the fact that it is at the northeastern limit of its range. Future threats in Massachusetts include encroaching developments, a possible road-widening plan, and, possibly, browsing by abundant deer, which selectively eat orchid flowers.

MANAGEMENT RECOMMENDATION: As with most rare plants, exact needs for management of cranefly orchid are not known. The following advice comes from observations of the populations in Massachusetts, where an observational study was done. The cranefly orchid, a clonal organism, appears to also reproduce sexually on Martha's Vineyard. It is not known how many years it takes to get to reproductive status from a seed. Research findings show that there are a limited number of genetically distinct individuals. Maintaining atypical environments such as hillsides is extremely important to preserve the genetic gene pool. It appears that clones do fine when they appear to be crowded or overtaken by shrubs but this theory needs exploration. Because the leaves photosynthesize all winter when the leaves are off of the deciduous forest canopy, the density of the canopy in the summer is not a limiting factor. At the moment, the populations appear to be stable, so clearing of canopy should be avoided until further explored.

There are a number of grazers such as rabbits and slugs that cause leaf reduction but do not appear to be greatly effecting the existing populations. However, disturbing the soil, altering soil moisture and soil chemistry, and erosion would be detrimental to the survival of the existing populations. Being an orchid, the species probably requires a mycorrhizal symbiont (a specialized fungus that greatly enhances the root area of a species); without the mycchorizal partner, most orchids cannot survive.

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