



**Natural Heritage
& Endangered Species
Program**

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Massachusetts Division of Fisheries & Wildlife

**Southern Twayblade
Neottia bifolia
(Raf.) Baumbach**

State Status: **Threatened**

Federal Status: **None**

DESCRIPTION: Southern Twayblade, (*Neottia bifolia*, syn. *Listera australis* Lindl.) is a small, up to 25 cm (10 in.) tall, herbaceous perennial in the Orchid family (Orchidaceae). Plants have two opposite leaves and one flowering stalk with 5 to 25 reddish-purple flowers in a raceme (flowering stem with a main axis and flowers on pedicels or individual stems). The flowering time in Massachusetts is from late April to June in the coastal plain red maple/shrub swamps where it occurs. Pollination is by a variety of flying insects, often by fungus gnats, seeking nectar. As the common name indicates, it has a more southern distribution than other species in the genus. Orchids of this genus are known to have mycorrhizal associates.



Photo by Kristen Fauteux

AIDS TO IDENTIFICATION: Southern Twayblade has reddish-purple stems (although a green form of the plant is present in the Massachusetts populations) with two sub-opposite, dark green, ovate leaves, 1.3–4 cm in length. The axis of the inflorescence (flowering stem) and pedicels (individual flower stems) are glandular-hairy. The small petals are recurved, 1.5mm. The lip (lower petal of an orchid flower) is 6–12mm and split half way into two linear lobes with a minute tooth in the sinus between them. The fruiting capsules are 8mm long and have a horizontal orientation. Flower parts remain when the plant is in fruit.

SIMILAR SPECIES: Heart-leaf Twayblade (*Neottia cordata* [syn. *Listera cordata*]), found in coastal plain coniferous swamps, is the only other species in this genus to be found in Massachusetts. It differs from Southern Twayblade in having pronounced cordate (heart-shape) leaves, a glabrous (no hairs) axis of the inflorescence, flowers slightly larger with the lip split halfway to two-thirds into two linear, spreading lobes, and basal auricles that protrude sideways like horns (see fact sheet for *Neottia cordata*).

HABITAT IN MASSACHUSETTS: In Massachusetts, Southern Twayblade is found growing in deciduous leaf litter in red maple/shrub dominated swamps. Associated shrubs are typical of coastal plain shrub swamps, and include Highbush Blueberry (*Vaccinium corymbosum*), Swamp Azalea (*Rhododendron viscosum*), Sweet Pepperbush (*Clethra alnifolia*), and Inkberry (*Ilex glabra*). Associated herbaceous species are Cinnamon Fern (*Osmundastrum cinnamomeum*), Massachusetts Fern (*Parathelypteris simulata*), Canada Mayflower (*Maianthemum canadense*), Sensitive Fern (*Onoclea sensibilis*), and Jack-in-the-Pulpit (*Arisaema triphyllum*). In other locations, this species is found in bogs, sedge-shrub fen openings, and forested wetlands on hummocks (above water level), often with sphagnum moss. Recent studies have shown a larger number of individuals are present in areas with less woody canopy cover.

RANGE: Southern Twayblade is found in scattered locations throughout its range with the closest populations to Massachusetts in Vermont, Long Island, and New Jersey. Populations are found from southern

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

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Quebec, Ontario, and Maritime Provinces, where it is considered endangered, south along the eastern coastal plain to Florida and Gulf states to Texas.

POPULATION STATUS: Southern Twayblade is listed under the Massachusetts Endangered Species Act as Threatened (T). All listed species are protected from killing, collecting, possessing, or sale and from activities that would destroy habitat and thus directly or indirectly cause mortality or disrupt critical behaviors. Only two populations are known in Massachusetts, both in Dukes County, recently discovered in 2001. It is considered of conservation concern throughout its range in North America in all but the southernmost U.S.; it has fewer than 300 known occurrences in North America. Although similar habitat is common within the state, because of the small size of the plants, small flowers, and early flowering time, it may be overlooked.

THREATS: Possible threats include browsing, trampling, and development of all kinds. Presence of deer in the vicinity of populations has been observed, but it was not determined whether deer have a negative effect by browsing the orchids, or a positive influence by browsing nearby vegetation and thus providing light openings. Other threats which are typical in Massachusetts wetlands, such as invasive species, changes in hydrology whether from natural or anthropogenic influences, or nearby forest management practices, may have a negative impact on this species and its habitat.

MANAGEMENT RECOMMENDATIONS: As of 2015, current populations are located on protected land; however, monitoring to determine impacts of deer browsing and competing vegetation should be completed. Potential habitat in Massachusetts is fairly common throughout the coastal plain and searches for additional populations during flowering time when plants are easiest to identify should be done. Assessment of threats should be done on a case by case basis. All active management of state-listed plant populations, including invasive species removal, is subject to review under the Massachusetts Endangered Species Act, and should be planned in close consultation with the Massachusetts Natural Heritage & Endangered Species Program.

PHENOLOGY

April	May		June		July		Aug		Sept	
	fl	fl	fl	fl	fl/fr	fr	fr			

fl: flowering; fr: fruiting

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