



Rare Plants of New Hampshire

Twayblades

Auricled twayblade (*Listera auriculata* Wieg.)

Lily-leaved twayblade (*Listera convallarioides* (Swartz) Torr.)

Heart-leaved twayblade (*Listera cordata* (L.) R. Br.)

Orchid family (Orchidaceae)

What Do They Look Like?

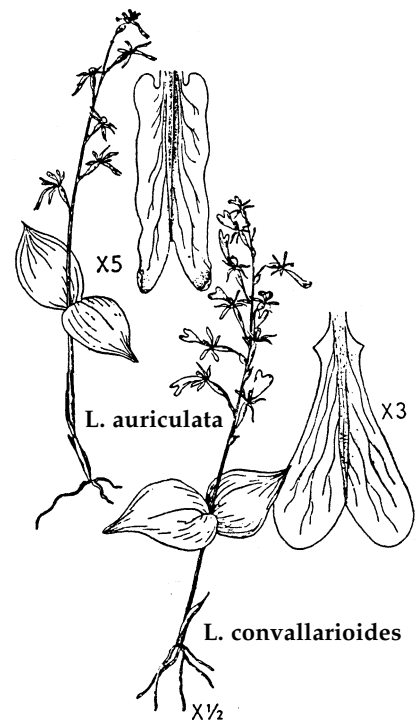
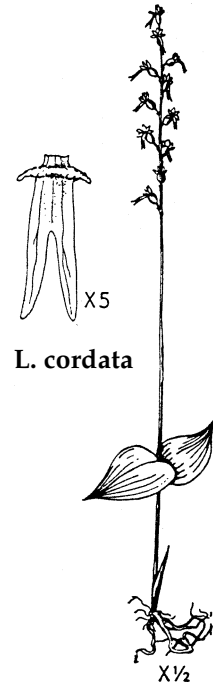
All of our twayblade species are very small herbaceous perennials. They have tiny orchid-shaped flowers and possess a distinctive leaf arrangement. The stalks are finely hairy above the leaves, smooth below. Three species occur in New England, and all are considered rare here. See the graphics to distinguish between the species.

Leaves: Twayblades have two leaves, opposite one another and mid-way up the stem. The flower stalk rises from between these two leaves. They are round to ovate to somewhat heart shaped, depending on the species, and are usually 2-5 cm (0.8-2 inches) long.

Flower: The flowering stalk contains up to 25 small green to purplish flowers, each with tiny lateral petals and a larger, flattened lip that varies in shape between the species. Twayblades generally flower from June through August.

Fruit: Round to egg-shaped capsules have several length-wise openings and contain minute seeds.

Similar species: No other orchids have a single pair of opposite leaves midway up the stem (though this characteristic may be obscured by moss or leaf litter). Another group of orchids (the genus *Liparis*) is sometimes referred to as twayblade, but these orchids are not at all hairy, have larger flowers, and have larger, more lance-shaped basal leaves that never appear midway up the stem.



Where Are They Found?

Habitat: Across its range, *Listera auriculata* grows in alluvial woods and thickets, and in cedar bogs. In New Hampshire, it is associated primarily with alder, on the water deposited sediments of river and stream banks. *L. convallarioides* is found in swampy, mossy wet woods, and is often associated with northern white cedar, usually in deep shade. Here it is associated with mossy forested or partially open forest seeps or moist *Sphagnum* in spruce-fir, northern hardwood or northern white cedar forests, swamp communities, and the bases of wet, seepy ledges. *L. cordata* is known to be a plant of wet, often scrubby woods, *Sphagnum* bogs and subalpine dwarf fir forest. In New Hampshire, it is associated primarily with mossy forested and partially open forest seeps, moist *Sphagnum* in spruce-fir, northern hardwood and northern white cedar forest and swamp communities and also at the bases of wet seepy ledges.

Associated species:

Listera auriculata is associated with speckled alder (*Alnus rugosa*), common alder (*Alnus serrulata*), high-bush blueberry (*Vaccinium corymbosum*), mountain holly (*Nemopanthus mucronata*), dogwoods (*Cornus* spp.), willows (*Salix* spp.), and viburnums (*Viburnum* spp.)

Listera auriculata and *Listera convallarioides* are associated with red spruce (*Picea rubens*), black spruce (*Picea mariana*), northern white cedar (*Thuja occidentalis*), speckled alder (*Alnus rugosa*), bunchberry (*Cornus canadensis*), goldthread (*Coptis trifolia* var. *groenlandica*), whorled aster (*Aster acuminatus*), blue-bead lily (*Clintonia borealis*), naked miterwort (*Mitella nuda*), small enchanter's nightshade (*Circaea alpina*), and *Sphagnum* moss.

Distribution: Mostly northern plants, extending south from eastern Canada to central New England and northern New York. *Listera cordata* also extends south through the southern Appalachians.

Twayblades in New Hampshire

Listera auriculata



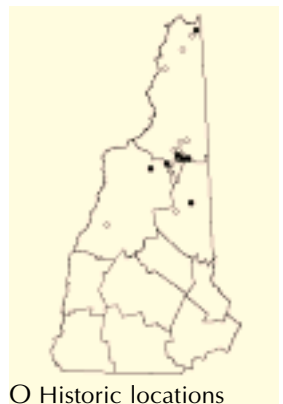
O Historic locations
● Verified since 1980

Listera convallarioides



O Historic locations
● Verified since 1980

Listera cordata



O Historic locations
● Verified since 1980



What Is Their Status?

Conservation

status: Although of widespread distribution, twayblades are uncommon and local throughout New England. *Listera auriculata* is very rare and local throughout its global range. It is critically imperiled in New Hampshire and is state listed as endangered due to its extreme rarity (only 3 of 7 known occurrences for the state have been confirmed since 1980). *L. convallarioides* and *L. cordata* are both state listed as threatened. Populations elsewhere are secure, but are they are imperiled in New Hampshire because of their rarity. Fewer than twenty-five occurrences of each are recorded for the state, and neither has been confirmed more than a half-dozen times since 1980.

Management: As a plant adapted to forest ecosystems, twayblades may not respond well to significant canopy removals (although they may be found in single tree gap areas). Canopy removals generally increase light, temperature and nutrient availability and decrease moisture levels, conditions which generally favor more competitive species. If harvesting is necessary, single tree selection is likely to have less impact than clear cutting.

A comparison of the characteristics of the three species of *Listera*:

L. auriculata

leaves: egg-shaped/round-egg-shaped
leaf-to-flower distance: shorter than leaf
blooms: late June-mid July
flowers: lip longer than wide with parallel sides, cleft into two blunt lobes
habitat: riverside alder thickets

L. convallarioides

leaves: broadly egg-shaped
leaf-to-flower distance: shorter than leaf
blooms: mid to late June-mid August
flowers: lip broad, wedge-shaped, notched
habitat: forest seeps and swamps

L. cordata

leaves: heart shaped
leaf-to-flower distance: longer than leaf
blooms: early June-mid August
flowers: lip slender, deeply cleft over half its length
habitat: forest seeps and swamps



What Should You Do If You Find This Plant?

Please report sightings of this or other rare species to the New Hampshire Natural Heritage Inventory. Documentation should include: (1) location of the sighting on USGS topographic map or road map, with written directions for relocating the plant; (2) a photo of the plant; and (3) descriptive information including how many plants there are, whether any plants are flowering or fruiting, and comments about the surrounding vegetation. Information may be sent to NHHI/DRED, PO Box 1856, Concord, NH 03302-1856. If you have any questions, please call the New Hampshire Natural Heritage Inventory Program at (603) 271-3623.

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