



Common Name: APPALACHIAN TWAYBLADE

Scientific Name: *Listera smallii* Wiegand

Other Commonly Used Names: kidney-leaf twayblade, Small's twayblade

Previously Used Scientific Names: *Ophrys smallii* (Wiegand) House, *Listera reniformis* Small

Family: Orchidaceae (orchid)

Rarity Ranks: G4/S2

State Legal Status: Special Concern

Federal Legal Status: none

Federal Wetland Status: FACW-

Description: Perennial **herb** with **stem** up to 8 inches (20 cm) tall (rarely to 14 inches or 35 cm), hairless below the leaves, glandular-hairy above the leaves. **Leaves** $\frac{3}{4}$ - $1\frac{1}{2}$ inches (2 - 4 cm) long, $\frac{1}{2}$ - $1\frac{3}{8}$ inches (1.5 - 3.5 cm) wide, broadly oval with pointed tips; in a single pair at mid-stem. **Flowers** greenish-brown, purplish, or pinkish-tan, in a spike at the top of the stem. **Flowers** with 2 petals and 3 similar sepals, each less than $\frac{3}{16}$ inch (4 mm) long and $\frac{1}{16}$ inch (1 mm) wide, pointed backwards. **Lip petal** about $\frac{3}{8}$ inch (1 cm) long, with 2 toothed lobes separated by a deep notch with a small tooth at its apex. **Fruit** an oval capsule, less than $\frac{1}{4}$ inch (5 mm) long.

Similar Species: Lily-leaved twayblade (*Liparis liliifolia*) flowers have an undivided lip. It has 2 large, basal leaves and no stem leaves.

Related Rare Species: Southern twayblade (*Listera australis*, Special Concern) occurs in 9 counties in the Piedmont and Coastal Plain in floodplains and other damp forests. It resembles Appalachian twayblade except the lip petal is elongated and divided into 2 very narrow, pointed segments.

Habitat: Shady rhododendron thickets with moist, acid soils, near streams.

Life History: Appalachian twayblade is a perennial herb that reproduces sexually; its flowers must be cross-pollinated in order to set fruit. All twayblade (*Listera*) species have two small nectaries – one on the lip and one in the interior of the flower – that attract small flying insects such as flies and gnats. When an insect visits the interior of the flower, a small drop of glue is deposited on its back; a packet of pollen is then dropped on the glue and fixed to the back of the insect. The pollen packet is then brushed off onto a subsequently visited flower. Twayblade fruits contain relatively few seeds, compared to other orchids. The seeds are minute and dust-like, dispersed by gravity and wind. The tiny seeds contain no stored food reserves, and must land on a patch of soil containing a specific fungus that provides nutrients for germination and subsequent plant growth.

Survey Recommendations: Surveys are best conducted during flowering (June–July).

Range: Georgia, South Carolina, North Carolina, Tennessee, Virginia, West Virginia, Kentucky, Maryland, New Jersey, and Pennsylvania.

Threats: Logging and other clearing, ditching and draining of wetlands.

Georgia Conservation Status: Six populations have been observed, all on National Forest land, although only 3 have been seen in recent years.

Conservation and Management Recommendations: Avoid logging on slopes and in wetlands; protect mountain bogs and wetlands from clearing and draining.

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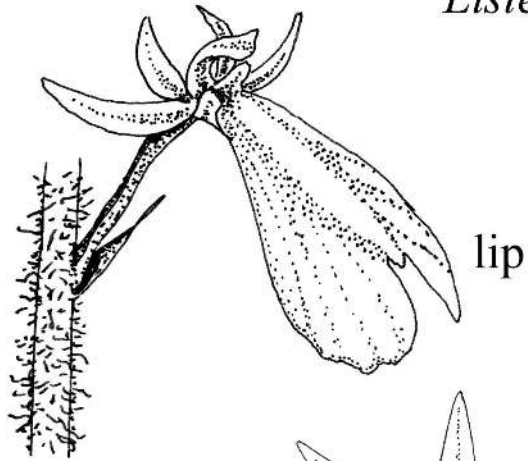
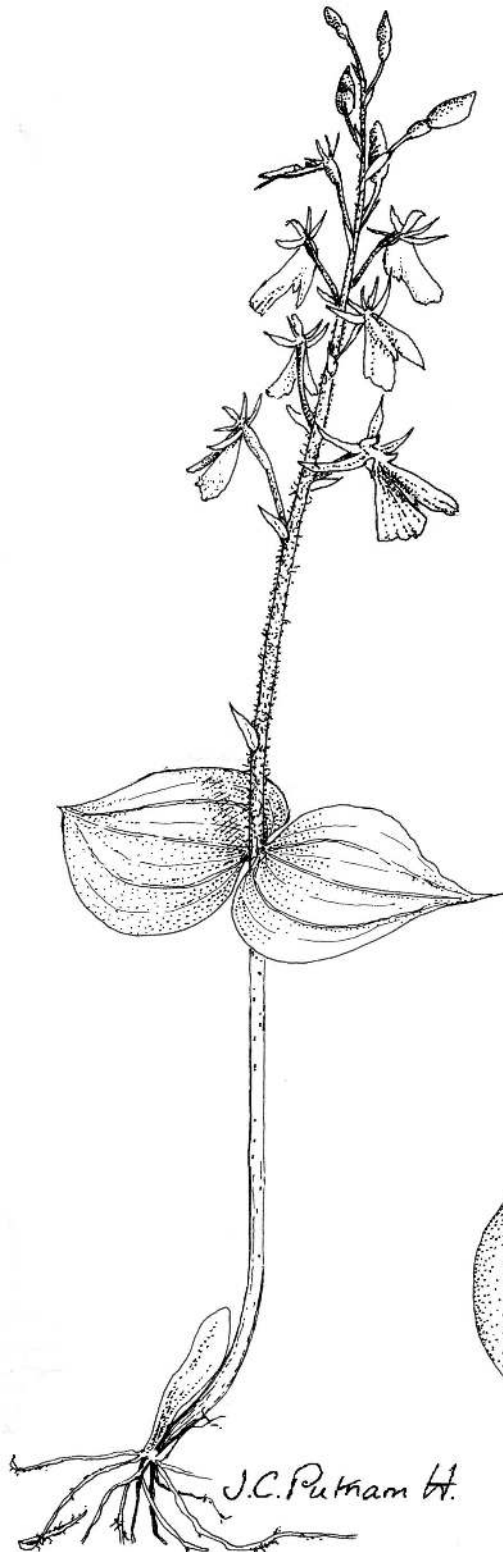
Date Compiled or Updated:

L. Chafin, May 2007: original account

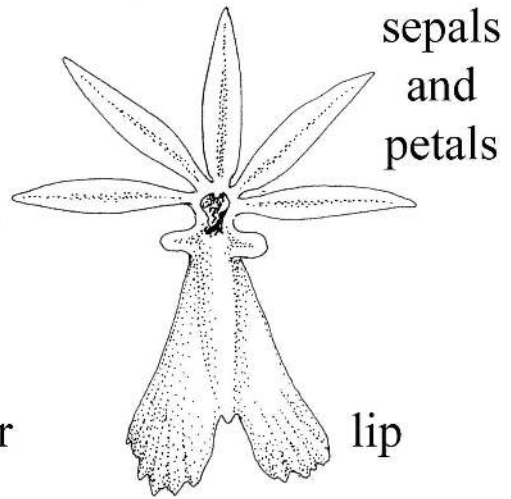
K. Owers, Feb. 2010: added pictures

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Listera smallii

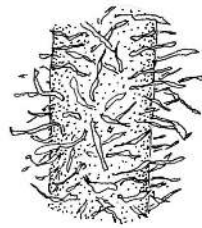


lip

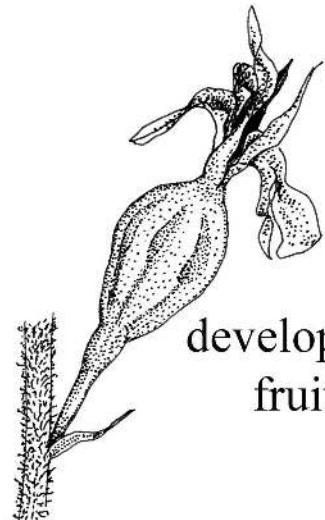
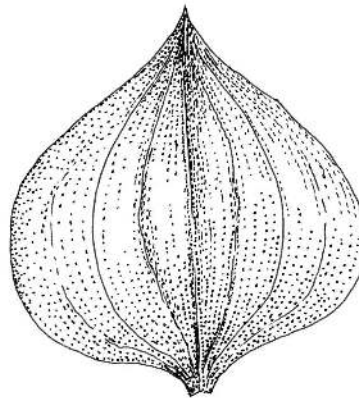


sepals
and
petals

lip



hairy upper
stem



developing
fruit



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Inflorescence



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Flower