



**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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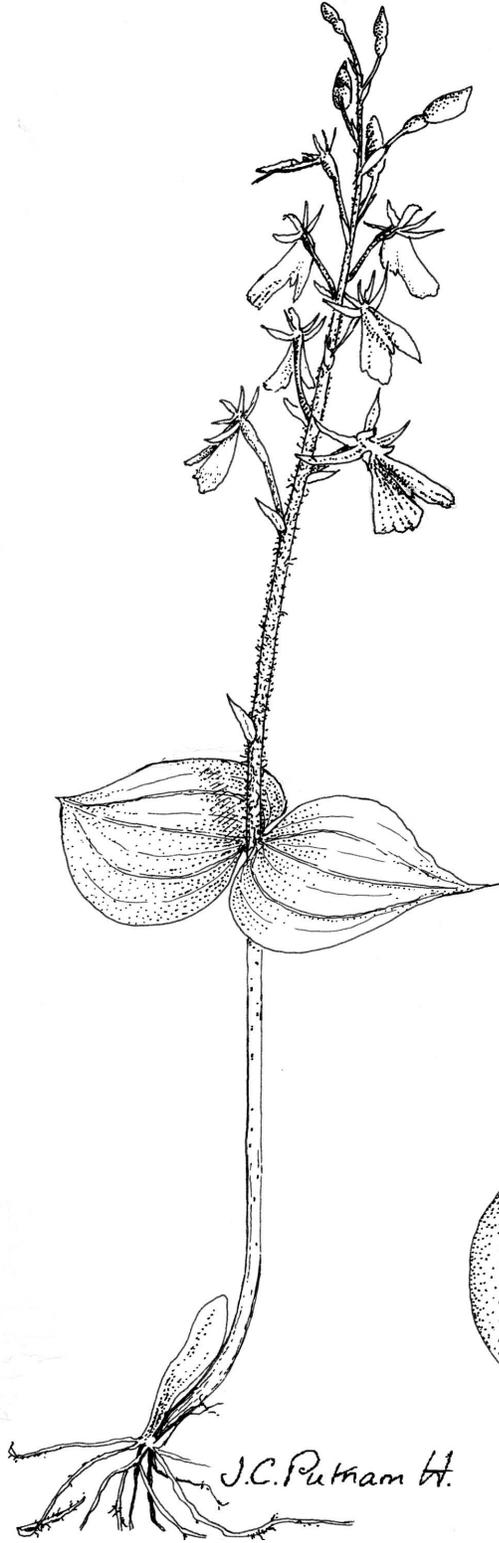
**Date Compiled or Updated:**

L. Chafin, May 2007: original account

K. Owers, Feb. 2010: added pictures

APPALACHIAN TWAYBLADE

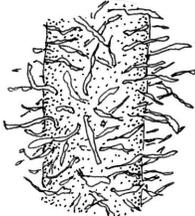
*Listera smallii*



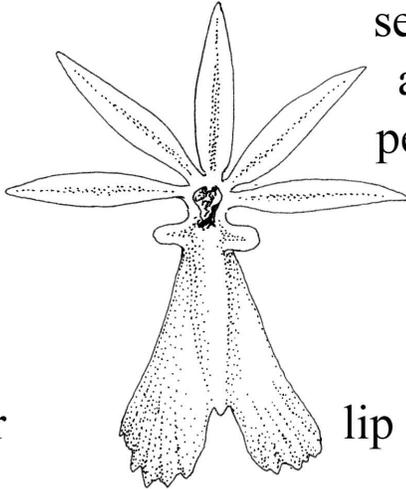
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lip

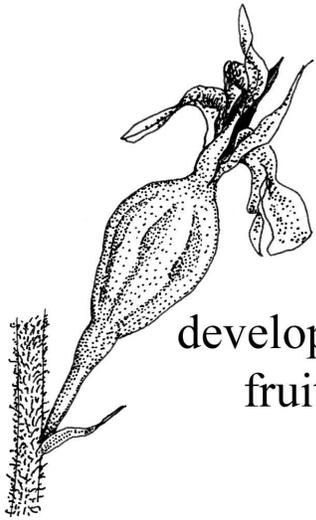
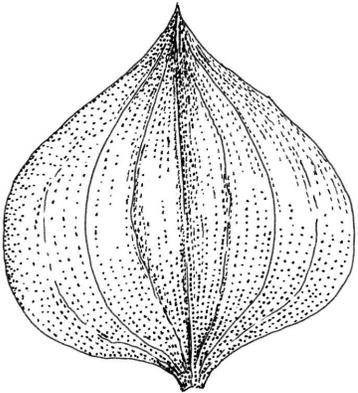


hairy upper stem



sepals and petals

lip



developing fruit



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Inflorescence



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Flower