Common Name: CLEARWATER BUTTERWORT

Scientific Name: *Pinguicula primuliflora* Wood & Godfrey

Other Commonly Used Names: southern butterwort, primrose-flowered butterwort

Previously Used Scientific Names: none

Family: Lentibulariaceae (bladderwort)

Rarity Ranks: G3G4/S1

State Legal Status: Threatened

Federal Legal Status: none

Federal Wetland Status: OBL

Description: Perennial **herb** with a **rosette** of leaves up to 7 inches (18 cm) wide. **Leaves** 2½ - 3½ inches (6 - 9 cm) long and ¾ - 1 inch (2 - 2.5 cm) wide, fleshy, bright green, with inrolled edges and blunt tips; upper surfaces with a wet look and oily feel. **Flower stalks** 3 - 6 inches (8 - 15 cm) tall, leafless, with scattered, gland-tipped hairs (10x magnification recommended). **Flowers** 1 inch (2.5 cm) across, pale blue-purple with a ring of white at the base of the petals; **petals** 5, more or less the same size, notched at the tip; **flower tube and spur** yellow with reddish-brown veins; **palate** (small structure protruding from the lower petal and covering the entrance to the flower tube) is covered with yellow hairs.

Similar Species: There are two other blue-flowered species of butterwort in Georgia. Blue butterwort (*Pinguicula caerulea*) flowers have dark blue veins on the petals; the hairs on the flowering stalk are a mix of straight hairs (on the lower part of the stalk) and gland-tipped hairs (on the upper part of the stalk). Dwarf butterwort (*Pinguicula pumila*) rosettes are usually less than 1½ inches (3 - 4 cm) across, and the flowers are usually less than ½ inch (1.5 cm) wide.

Related Rare Species: None in Georgia.

Habitat: Shallow water of sand-bottomed streams and spring-runs and in sphagnum mats along stream banks, Atlantic white cedar swamps, and bogs.

Life History: Clearwater butterwort is a perennial herb that reproduces sexually and also vegetatively by producing tiny plantlets on the tips of the leaves; as the older plant's leaves decay, the new plants take root and become established. Butterwort flowers are adapted for cross-pollination by long-tongued insects such as butterflies, which probe the nectar-containing spur with their tongues. As they probe, they pick up pollen on their heads from the stamens which are near the top of the throat and transfer it to the stigma (also near the top of the throat) of another butterwort flower. Butterwort seeds are dispersed by the wind; if conditions are moist, the fruit will close and not re-open until the humidity drops, favoring wind dispersal.

Butterworts are carnivorous species which use a "flypaper" strategy to trap and digest insects on their leaves. Tiny, stalked glands on the upper surface of the leaf exude a sticky substance that looks wet and attracts insects in search of water. Small insects such as mosquitoes and gnats are trapped in this sticky substance. Once an insect has been trapped, the edges of the leaf roll inward, not to trap the insect, but to bring more sticky glands into contact with the insect's body. The insect is then dissolved by enzymes secreted by low glands on the leaf surfaces; the nutrients contained in the insect's body are then absorbed into the leaves through microscopic holes. The boggy soils where butterworts grow tend to be nitrogen-deficient, a shortage that is compensated for by the nitrogen absorbed from insect bodies.

Survey Recommendations: Surveys are best conducted during flowering (March–May) when the gland-tipped hairs are present on the flower stalk. Late-summer plants may have tiny plantlets growing on the tips of the leaves; no other butterworts in Georgia produce plantlets on their leaves.

Range: Coastal Plain of Georgia, Florida, Alabama, and Mississippi.

Threats: Draining and filling of wetlands. Runoff and sedimentation into springs and spring-runs. Digging by feral hogs. Logging and clearing in floodplains and stream bottoms. Collection by carnivorous plant hobbyists.

Georgia Conservation Status: Seven populations are known, none on conservation lands. The Early County populations have been destroyed.

Conservation and Management Recommendations: Avoid polluting springs and spring-runs. Prevent sedimentation into streams during bridge and road construction. Protect wetlands from ditching, draining, and filling. Eradicate feral hogs. Avoid logging along streams and in floodplains. Prosecute plant poachers.

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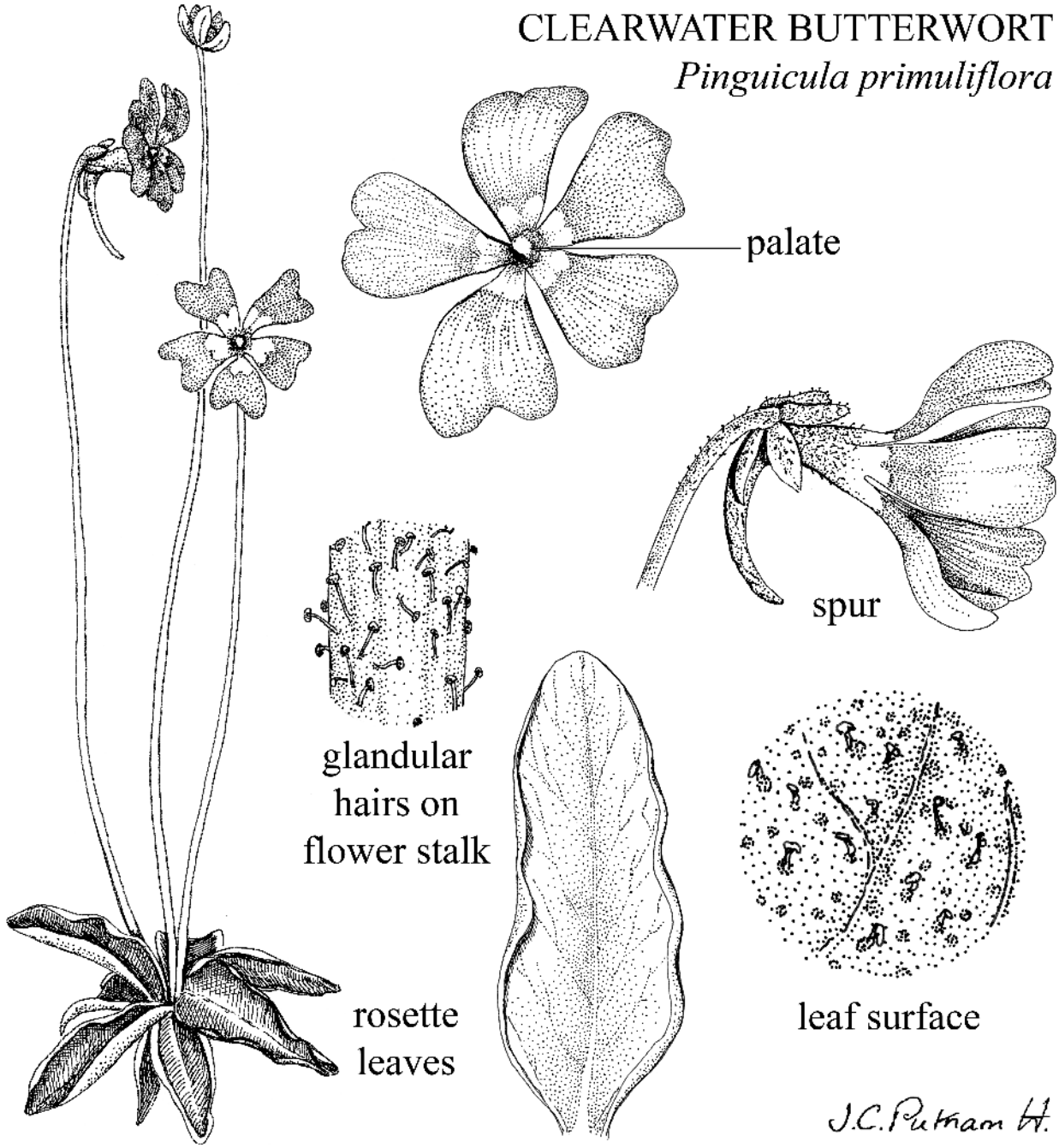
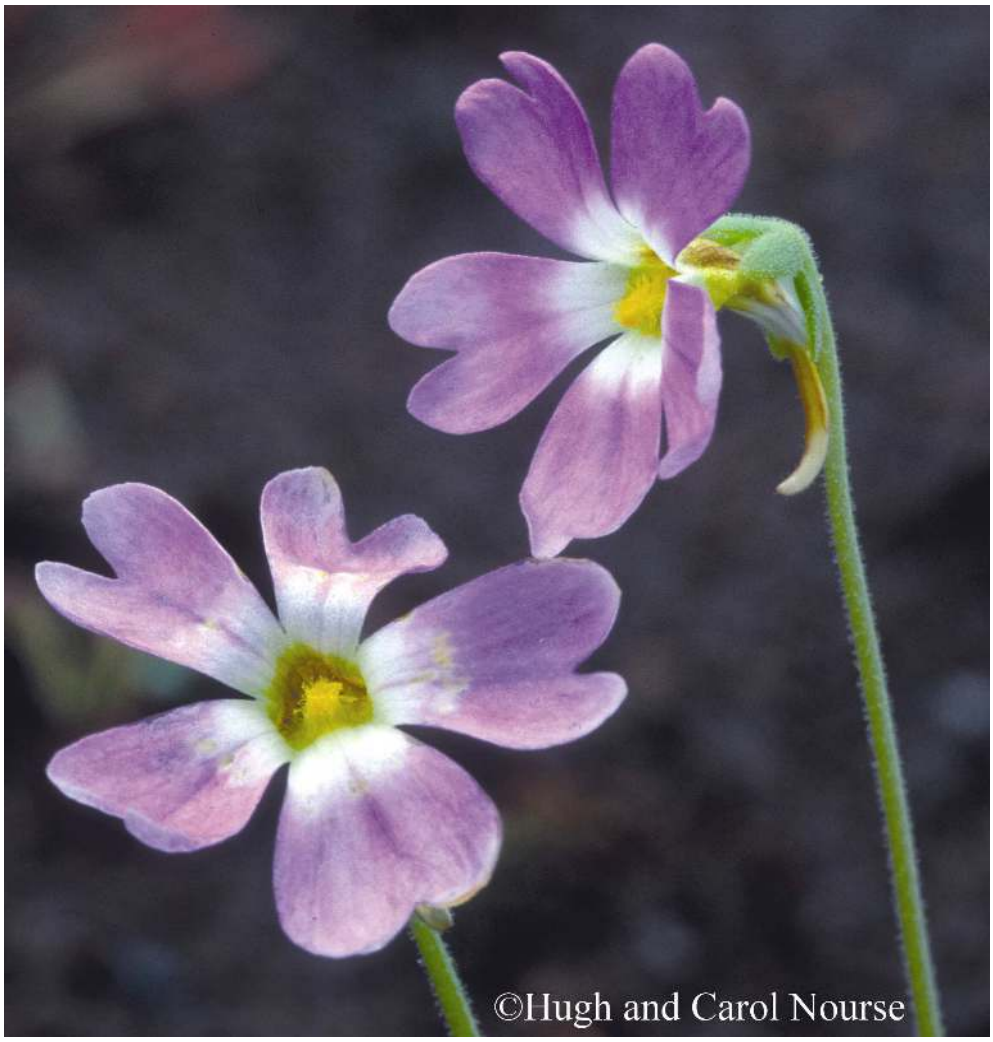
Date Compiled or Updated:
L. Chafin, July 2008: original account
K. Owers, Feb. 2010: added pictures

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