



Common Name: THREE BIRDS ORCHID

Scientific Name: *Triphora trianthophora* (Swartz) Rydberg

Other Commonly Used Names: nodding pogonia, nodding ettercap

Previously Used Scientific Names: *Arethusa trianthophoros* Swartz, *Pogonia trianthophoros* (Swartz) Britton et al.

Family: Orchidaceae (orchid)

Rarity Ranks: G3G4/S2?

State Legal Status: Special Concern

Federal Legal Status: none

Federal Wetland Status: FACW-

Description: Perennial **herb** with a hairless **stem** $2\frac{3}{4}$ - 12 inches (7 - 30 cm) tall, usually less than 5 inches (13 cm), green tinged with maroon. **Leaves** $\frac{3}{8}$ - $\frac{1}{2}$ inch (1 - 1.5 cm) long and less than $\frac{1}{2}$ inch (1.5 cm) wide, broadly oval, clasping the stem, alternate, maroon-tinged. **Flowers** white or pale pink, 1 - 6 per plant, nodding on short stalks that rise from the angle between stem and upper leaves. **Flowers** with 3 spreading, lance-shaped sepals; 2 similar, forward-pointing petals; and a down-curved **lip petal** up to $\frac{3}{4}$ inch (0.8 - 2 cm) long, with a crest of 3 bumpy, green ridges. **Fruit** an oval capsule, about $\frac{1}{2}$ inch (1 - 1.5 cm) long.

Similar Species: No other orchid in Georgia has such a short stem bearing small, pale flowers and small, alternate leaves.

Related Rare Species: None in Georgia.

Habitat: Floodplain terraces along creeks in the Piedmont, moist hardwood forests and rhododendron thickets in the mountains, moist hardwood hammocks in the Coastal Plain. In northern states, three birds orchid is usually associated with beech trees.

Life History: Three birds orchid is a perennial herb that reproduces both sexually and vegetatively. Plants emerge from a fleshy, underground structure called a tuberoid (orchids do not form true tubers) in late summer when the canopy is fully closed and temperatures and humidity are high. Slender stolons (ground-level stems that spread horizontally beneath the leaf litter) radiate out from the tuberoid and form secondary tuberoids at the tips. The secondary tuberoids separate easily from the parent plant to form new – though genetically identical – plants. Colonies of three birds orchid may persist for many years as tuberoids, never sending up a stem and never flowering; some colonies have been reported to be 70 years old. Because production of tuberoids is the dominant form of reproduction, three bird orchid populations may suffer from a lack of genetic variability.

When plants do emerge and flower, the flowers remain open for only a day or so, possibly longer if not pollinated. All plants in a colony will flower in the same brief time period, which increases the chances of attracting pollinators. Little is known about three birds' pollinators although bees are likely. If pollination and fertilization do occur, fruits mature and disperse their seeds in about one month. The seeds are dust-like and dispersed by the wind. The minute seeds have no endosperm and must quickly form a mycorrhizal relationship with a soil fungus from which the developing embryo and seedling can extract nutrients and moisture. Seedling establishment is probably low – the seeds must fall on a patch of soil with the right moisture levels and the appropriate fungus in order to germinate and become established as plants. Given that the opportunity to photosynthesize is limited (plants spend most of their lives as underground tuberoids, and emergent plants spend only a brief time aboveground, live in a low light habitat, and have small leaves), it is likely that three birds orchid is dependent on mycorrhizal relationships as a source of carbohydrates throughout its life cycle.

Survey Recommendations: Surveys are best conducted during flowering (July–frost). Individual flowers usually last only for one day, from mid-morning to mid-afternoon, although a colony may flower for several days. Plants do not emerge every year, and population sizes may fluctuate greatly from year to year.

Range: Georgia, Florida, north to Maine and Ontario, west to Nebraska and Texas. Subspecies *mexicana* occurs in Mexico and Central America.

Threats: Conversion of habitat to pine plantations and developments, disturbance to soil and ground layers, removal of canopy trees, and competition from invasive pest plants.

Georgia Conservation Status: Seven populations are known, 6 on public lands, including the Okefenokee National Wildlife Refuge and Chattahoochee National Forest.

Conservation and Management Recommendations: Protect mountain bogs, hardwood forests, and wetlands from logging, clearing, and draining. Eradicate exotic pest plants.

Selected References:

Brown, P.M. and S.N. Folsom. 2002. Wild orchids of Florida. University Press of Florida, Gainesville.

Brown, P.M. and S.N. Folsom. 2004. Wild orchids of the southeastern United States, north of peninsular Florida. University Press of Florida, Gainesville.

Chafin, L.G. 2007. Field guide to the rare plants of Georgia. State Botanical Garden of Georgia and University of Georgia Press, Athens.

FNA. 2003. Flora of North America, Vol. 26, Magnoliophyta: Liliidae: Liliales and Orchidales. Oxford University Press, New York.

Godfrey, R.K. and J.W. Wooten. 1979. Aquatic and wetland plants of southeastern United States, Vol. 1, monocotyledons. University of Georgia Press, Athens.

Horn, D., T. Cathcart, T.E. Hemmerly, and D. Duhl. 2005. Wildflowers of Tennessee, the Ohio Valley, and the southern Appalachians. Lone Pine Publishing, Auburn, Washington.

Luer, C.A. 1975. The native orchids of the United States and Canada, excluding Florida. New York Botanical Garden, New York.

NatureServe. 2008. NatureServe Explorer. Arlington, Virginia.
<http://www.natureserve.org/explorer>

Ramstetter, J.M. 2001. Conservation and research plan: *Triphora trianthophora* (Swartz) Rydb., three birds orchid. New England Wild Flower Society, Framingham, Massachusetts.
www.newenglandwildflower.org/conservation/pdf/Triphoratrianthophora.pdf

Tenaglia, D. 2006. Missouri plants: photographs and descriptions of flowering and non-flowering plants of Missouri. <http://www.missouriplants.com>

Weakley, A.S. 2008. Flora of the Carolinas, Virginia, Georgia, northern Florida, and surrounding areas. University of North Carolina Herbarium, Chapel Hill.

<http://www.herbarium.unc.edu/flora.htm>

Author of Species Account: Linda G. Chafin

Date Compiled or Updated:

L.Chafin, Jan. 2009: original account

D.Weiler, Jan. 2010: added pictures



THREE BIRDS ORCHID
Triphora trianthophora

