



RARE PLANTS OF NEW HAMPSHIRE

Arethusa

Arethusa bulbosa L. **Synonyms:** dragon's mouth, swamp pink, bog rose

Orchid family (Orchidaceae)

What Does It Look Like?

This showy orchid has a single stem and a solitary flower. The stem arises from a perennial bulb-like tuber and bears 1-3 loose, blunt bracts toward the base but is otherwise leafless until after flowering. Plants reach 6-40 cm (2.3-15.8 in.) in height. As with other members of the Orchid family, the perennial tuber may not produce a flowering stem every year, lying dormant underground. As a result, flowering populations may appear to dramatically fluctuate from year to year.

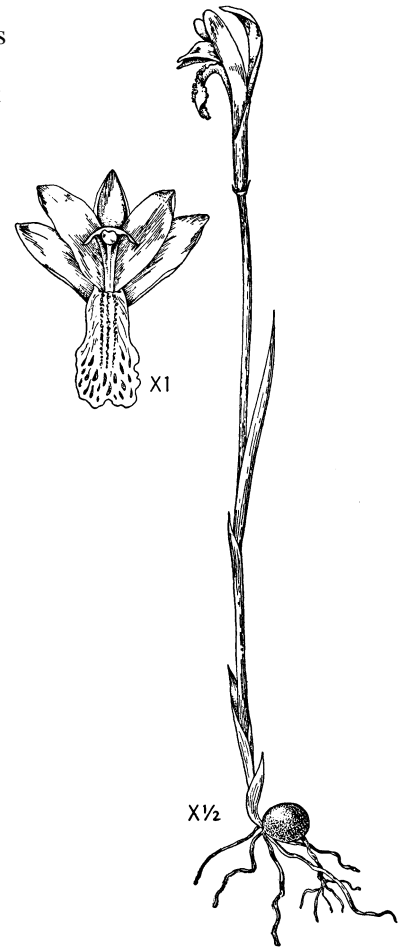
Leaves: A single grass-like leaf arises from within the upper bract, usually after flowering has occurred.

Flowers: The magenta flower petals and sepals arch upward. The wider pinkish-white petal, or lower lip, curves downward, is spotted and streaked with purple and yellow, and is distinctly hairy. Flowers are 3-6 cm (1.2-2.4 in.) long. Flowering is near the end of May and into early June. Double-flowered plants are occasionally found. Rarely, flowers can be white or bluish.

Fruit: The fruit is an ellipsoid, erect capsule, about 2.5 cm (1 in.) long.

Key features: Its habitat (peatlands), the distinctive flower, and the leafless stem when in flower.

Similar species: Rose pogonia (*Pogonia ophioglossoides*) flowers a little later, in the spring to early summer, has a wide leaf on its stem, and a wide leafy bract behind the usually lighter pink flower. The lateral flower petals tend to arch outward rather than upward. Grass pink (*Calopogon pulchellus*) is similar in color but very distinct in shape and usually has 2-10 flowers per stem. The lip is at the top and tipped with yellow, the lower and lateral petals arch downward, and a long and narrow stem leaf are present during flowering.



Where Is It Found?

A northern species, *Arethusa* is found in open peatlands such as fens or bogs, particularly where conditions are minerotrophic (with increased minerals and nutrients). Fens, which usually receive water from a stream, groundwater, or upland run-off, tend to be more minerotrophic than nutrient-poor bogs, where fresh water inputs are limited.

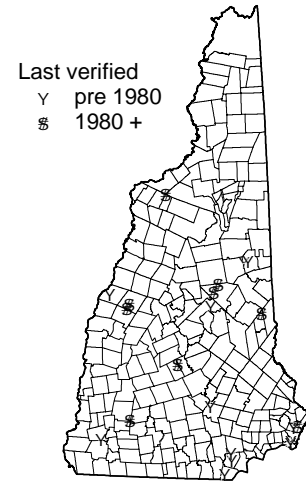
Plant species characteristic of this habitat include speckled alder (*Alnus incana* var. *americana*), sweet gale (*Myrica gale*), bog rosemary (*Andromeda glaucophylla*), and leather-leaf (*Chamaedaphne calyculata*) as well as many sedges and other fen-adapted flowering herbs. Because *Arethusa* is an early-successional species, it disappears where shrub cover becomes too thick.



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Conservation status: *Arethusa* is endangered in New Hampshire. Of 21 known locations, only nine have been verified since 1980. One of these populations has persisted in the same location for over 100 years. Most populations are very small with just a few individuals; only a few have 100 or more plants.

Range: Newfoundland south to New Jersey, west to Saskatchewan, Minnesota and Illinois. Also in the mountains of North and South Carolina and disjunct (isolated) in Louisiana. Most abundant in the northern Great Lakes region.



Why Is It Rare?

The preferred habitat, peatlands, has experienced decline and loss. Orchids are also highly vulnerable to over-collection. For unknown reasons, *Arethusa* appears to also be limited by poor pollination and seed set.

Conservation Considerations:

The peatlands where *Arethusa* occurs are maintained by a delicate balance of ecological factors that extend beyond their physical setting to adjacent wetland and upland systems. Changes in water levels or water quality can result in habitat and species decline and loss. For example, when water levels are permanently raised, populations can be drowned along with the habitat. Alterations within adjacent uplands can result in increased sediment, nutrient, and pollutant inputs. Natural vegetated buffers immediately surrounding the wetlands can offer some measure of protection, but have a limited buffering capacity and do not prevent certain contaminants such as salt or heavy metals from reaching the wetland.

Alterations of natural disturbance patterns such as fire and periodic flood can also reduce habitat by allowing shrubs and other woody species to encroach and crowd out *Arethusa*. In addition to natural succession, the introduction of non-native species is also a serious threat.

Changes to upland areas may also impact natural pollinator populations. *Arethusa* is pollinated by bumble bees, which are typically ground nesting insects. *Arethusa* is very slow to spread vegetatively, and typically produces few seeds in the wild. Any further reduction in pollination due to declines in bumble bee populations would aggravate an existing problem.

The information in this fact sheet is current as of December 2002. It is based on a database maintained by the NH Natural Heritage Program, a bureau in the Division of Forests & Lands in the Department of Resources and Economic Development. NH Natural Heritage is a member of NatureServe, which represents an international network of Heritage programs. Illustration by Anne Rogelberg. Reprinted with permission from The New York Botanical Garden Press. Originally published in H. A. Gleason, *The New Britton and Brown Illustrated Flora of the Northeastern United States and Adjacent Canada*, Vol. I, p. 466, copyright 1952, The New York Botanical Garden.

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