

# Dragon's Mouth Orchid



*Arethusa bulbosa*



Photo credits: Troy Weldy

**Scientific Name** *Arethusa bulbosa*  
L.

**Family Name** Orchidaceae  
Orchid Family

## Did you know?

Dragon's-mouth orchid is considered rare throughout much of its range. This orchid is listed as rare in 17 of the 21 states and 6 of the 9 provinces where it is found. A number of populations are known from the northern Great Lakes. This orchid is difficult to see when it is not in bloom.

## Summary

**Protection** Threatened in New York State, not listed federally.

This level of state protection means: listed species are those with: 1) 6 to fewer than 20 extant sites, or 2) 1,000 to fewer than 3,000 individuals, or 3) restricted to not less than 4 or more than 7 U.S.G.S. 7 ½ minute topographical maps, or 4) listed as threatened by U.S. Department of Interior.

**Rarity** G5, S2

A global rarity rank of G5 means: This species is demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.

A state rarity rank of S2 means: This plant is threatened/imperiled in New York because of rarity (typically 6-20 populations or few remaining individuals) or is vulnerable to extirpation from New York due to biological factors.

## Conservation Status in New York

This pink orchid, once found throughout much of the state, is currently limited to some higher quality fen and bog communities. The total number of known populations is estimated at 20. There are a number of historical populations which have not been inventoried, but most of these are believed to be extirpated. Historically, there were a number of scattered populations on Long Island, but the last time this plant was reported from Long Island was in the mid-1980s. There are probably a few scattered stems still present there, but its long-term prognosis on Long Island is grim.

### Short-term Trends

While the Long Island populations have always been small, no plants have been reported on Long Island since the mid-1980s. These populations are feared lost. Populations in the Adirondacks, central New York, and St. Lawrence Valley have been relatively stable as long as succession does not shade out the orchid.

### Long-term Trends

The orchid was once known from scattered locations on Long Island, in the Hudson Valley, and in the Mohawk Valley. Today, we do not know of any populations within these regions of the state. Fortunately, the populations in the Adirondacks and central New York have not declined.

## Conservation and Management

### Threats

Invasive plants and succession of the habitat to shrubs are a continuing threat to most of the populations present around the state. Populations on Long Island are threatened by development and natural changes in habitat. These Long Island populations are usually small with only a few plants each. As a result, even minor threats or changes to the habitat can extirpate these populations. Some upstate populations are threatened by surrounding development, but most of them are in isolated wetlands. Any hydrologic changes that impact the wetlands where this orchid is found would certainly threaten the long-term stability of the orchids in and near the impacted site.

### Conservation Strategies and Management Practices

Since development activities directly result in habitat loss and indirectly may cause an increase in invasive species, sufficient buffers are needed around sites where this orchid is known to occur. These buffers should be a minimum of 100 meters. The buffers should be greater than 100 meters in cases where drainage patterns, slope, and/or soil type may result in runoff into the wetland supporting this orchid. In areas where the orchid is known, some active management to reduce the overall shrub cover may be needed to maintain an open canopy. As a precaution to limit illegal collecting and the spread of invasive species, human visitation to sites where this orchid is found should be monitored.

## Research Needs

Habitat studies are needed on Long Island to determine the habitat requirements there. The Long Island populations are in vastly different habitat than typical habitat observed elsewhere in New York. In order to provide more detailed management requirements, a competition study is needed to determine the population dynamics of this orchid as a site succeeds from an open wetland to a shrub-dominated wetland. Habitat modeling may be helpful in locating new populations.

## Habitat

This is an orchid of sphagnum hummocks within rich graminoid fens and medium fens. Smaller populations are also located in wet depressions of maritime shrub thickets on the morainal bluffs near the Atlantic Ocean (New York Natural Heritage Program 1998). Sphagnum bogs and swampy meadows (Gleason and Cronquist 1991). Sphagnous bogs and peaty meadows (Fernald 1970).

### Associated Ecological Communities

#### **Inland Poor Fen**

A wetland fed by acidic water from springs and seeps. Plant remains in these fens do not decompose rapidly and thus the plants in these fens usually grow on older, undecomposed plant parts of mostly sphagnum mosses.

#### **Maritime Shrubland**

A shrubland community that occurs on dry seaside bluffs and headlands that are exposed to offshore winds and salt spray.

#### **Medium Fen**

A wetland fed by water from springs and seeps. These waters are slightly acidic (pH values generally range from 4.5 to 6.5) and contain some dissolved minerals. Plant remains in these fens do not decompose rapidly and thus the plants in these fens usually grow on older, undecomposed plant parts of woody material, grasses, and mosses.

#### **Northern White Cedar Swamp**

A swamp that occurs on organic soils in cool, poorly drained depressions in central and northern New York, and along lakes and streams in the northern half of the state. These swamps are often spring-fed with continually saturated soils. Soils are often rich in calcium. The characteristic tree is northern white cedar, which makes up more than 30% of the canopy cover.

#### **Rich Graminoid Fen**

A wetland of mostly grasses usually fed by water from highly calcareous springs or seepage. These waters have high concentrations of minerals and high pH values, generally from 6.0 to 7.8. Plant remains do not decompose rapidly and these grasses usually grow on older, undecomposed plant parts.

#### **Rich Shrub Fen**

A wetland with many shrubs that is usually fed by water from springs and seeps. These waters have high concentrations of minerals and high pH values, generally from 6.0 to 7.8. Plant remains in these fens do not decompose rapidly and thus the plants in these fens usually grow on older, undecomposed woody plant parts.

## Other Probable Associated Communities

Dwarf shrub bog  
Perched bog

## Associated Species

*Andromeda glaucophylla*  
Tuberous Grass-pink (*Calopogon tuberosus*)  
Lesser Panicked Sedge (*Carex diandra*)  
Little Prickly Sedge (*Carex echinata*)  
Coast Sedge (*Carex exilis*)  
American Woollyfruit Sedge (*Carex lasiocarpa*)  
Mud Sedge (*Carex limosa*)  
Leatherleaf (*Chamaedaphne calyculata*)  
Spoon-leaved Sundew (*Drosera intermedia*)  
Roundleaf Sundew (*Drosera rotundifolia*)  
Threeway Sedge (*Dulichium arundinaceum*)  
Rough Cotton-grass (*Eriophorum tenellum*)  
Sheep-laurel (*Kalmia angustifolia*)  
Pale Laurel (*Kalmia polifolia*)  
Tamarack (*Larix laricina*)  
Water Loosestrife (*Lysimachia thyrsiflora*)  
Canada May-flower (*Maianthemum canadense*)  
Bog Buckbean (*Menyanthes trifoliata*)  
Sweet Bayberry (*Myrica gale*)  
Royal Fern (*Osmunda regalis*)  
Black Spruce (*Picea mariana*)  
Rose Pogonia (*Pogonia ophioglossoides*)  
Bog Labrador Tea (*Rhododendron groenlandicum*)  
Swamp Azalea (*Rhododendron viscosum*)  
Pitcher-plant (*Sarracenia purpurea*)  
Marsh Fern (*Thelypteris palustris*)  
Northern Starflower (*Trientalis borealis*)  
Highbush Blueberry (*Vaccinium corymbosum*)  
Small Cranberry (*Vaccinium oxycoccos*)

## Identification Comments

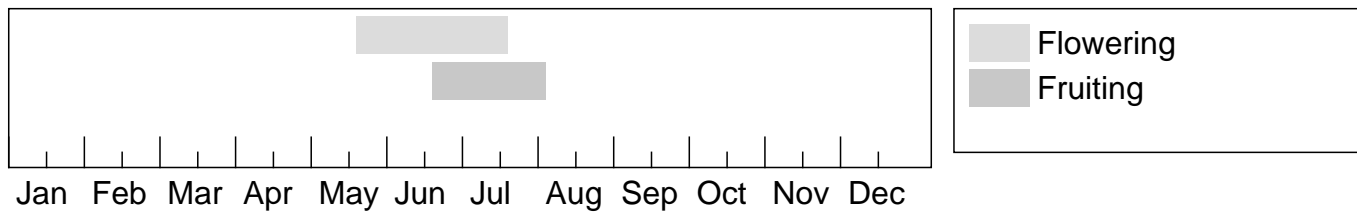
Dragon's Mouth orchid has one, sometimes two, magenta to bluish to white flowers at the top of a single narrow stem about 6-40 centimeters tall. The lip of the flower is pinkish-white with purple splotches and a yellow midvein. It curves out then down and has fringe on the top. Three petals form a hood over the lip while the two remaining petals stick up like rabbit ears. There is one long, narrow leaf halfway up the stem that is absent when the plant is in flower.

## Best Life Stage for Identifying This Species

While experts can identify this plant in fruit or even from the dried persisting fruit stalks, for easy identification it is best to search for it in flower. When flowering, this plant can be seen from a great distance if not hidden by over-topping vegetation.

## The Best Time to See

The peak blooming time is Memorial Day weekend for Long Island and early to mid-June for northern New York. Flowers may be observed until late June or early July. The fruiting capsules could persist for more than a year, but most are broken down by compaction from snowfall. Surveys should be conducted during the peak blooming periods.



The time of year you would expect to find Dragon's Mouth Orchid in New York.

## Similar Species

Rose pogonia (*Pogonia ophioglossoides*) has well developed leaves at flowering while *Arethusa* is essentially leafless at the time of flowering.

## Taxonomy

Kingdom Plantae

└ Phylum Anthophyta

└ Class Monocots (Monocotyledoneae)

└ Order Orchidales

└ Family Orchidaceae (Orchid Family)

## Additional Common Names

Arethusa  
Bog Rose  
Dragon's Mouth  
Swamp Pink  
Wild Pink

## Additional Resources

## Links

### New York Flora Atlas

<http://www.newyork.plantatlas.usf.edu/Plant.aspx?id=2036>

### Flora of North America

[http://efloras.org/florataxon.aspx?flora\\_id=1&taxon\\_id=220001074](http://efloras.org/florataxon.aspx?flora_id=1&taxon_id=220001074)

### USDA Plants Database

<http://plants.usda.gov/java/nameSearch?mode=sciname&keywordquery=ARETHUSA+BULBOSA>

### NatureServe Explorer

<http://natureserve.org/explorer/servlet/NatureServe?searchName=ARETHUSA+BULBOSA>

### Google Images

<http://images.google.com/images?q=ARETHUSA+BULBOSA>

## Best Identification Reference

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