Butterwort

Pinguicula vulgaris

Photo credits: *Troy Weldy*

Scientific Name	*Pinguicula vulgaris* L.
Family Name	Lentibulariaceae Bladderwort Family

Did you know?
Butterwort is New York's only insectivorous plant which is not found in a marsh, bog, or swamp. Sometimes its pollinators are also unlucky enough to be caught and absorbed by the leaves. The name butterwort comes from its old world reputation of having medicinal and culinary uses. The juices from the leaves were rubbed onto cows' udders to protect them from infection. Another reference to butter was the use of its leaves to curdle milk. The genus name Pinguicula can be translated as little fat one or fattish for the greasy texture of the leaves.

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 ? minute topographical maps, or 4) listed as threatened by U.S. Department of the 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

There are six known populations and approximately six additional historical populations of this plant. Most of these populations are on well-protected cliffs, but some cliffs may be subject to natural or artificial sloughing. This plant has a limited range, and an even greater limited habitat. As a plant at the southern limit of its range, it has always likely been rare in New York.

Short-term Trends

The short-term trend of this plant seems to be stable. This plant is difficult to survey and population counts from year-to-year are usually not recorded. Changes would be noted only if the area where the plants occur was drastically altered but this has not occurred in the recent past.

Long-term Trends

Over half of the seven historical sites for this plant have been rediscovered and no sites have been considered extirpated. The habitat for this plant is not common but it is isolated and inaccessible enough that the plants are expected to remain here for many decades.

Conservation and Management

Threats

There are few threats to these plants since the sites are inaccessible and not open to disturbance. Changes in the amount of groundwater available to the sites could affect them in the future. So far no exotic invasive plants have been seen affecting these sites.

Conservation Strategies and Management Practices

Sites should be monitored for changes in groundwater availability and for any new invasive plants that might be affecting them.

Research Needs

There are no research needs to report at this time.

Habitat

A plant of seepage areas on open limey-shale cliffs or in the mist of a nearby waterfall. These sites have been lumped under the cliff community designation, but they may be best described as vertical marly fens. The sites are usually surrounded by birch, hemlock, and maple. (New York Natural Heritage Program 2005). A distinct calciphile, growing on alkaline rocks and sands (as on interdunal flats and hollows), marly flats, and occasionally in marly fens and on moist rock outcrops; frequently growing with *Primula mistassinica* (Voss 1996). Wet rocks and shores, occasionally in bogs and wet meadows inland. (Gleason and Cronquist 1991). Wet rocks and open spots, chiefly in calcareous areas (Fernald 1970).

Associated Ecological Communities

Cliff Community

A community that occurs on vertical exposures of resistant, non-calcareous bedrock (such as quartzite, sandstone, or schist) or consolidated material; these cliffs often include ledges and small areas of talus.

Shale Cliff And Talus Community

A community that occurs on nearly vertical exposures of shale bedrock and includes ledges and small areas of talus. Talus areas are composed of small fragments that are

unstable and steeply sloping; the unstable nature of the shale results in uneven slopes and many rock crevices.

Other Probable Associated Communities

Calcareous cliff community

Associated Species

Wild Columbine (*Aquilegia canadensis*)
Yellow Sedge (*Carex flava*)
Conocephalum conicum
Bulblet Fern (*Cystopteris bulbifera*)
Spotted Jewelweed (*Impatiens capensis*)
Kalm's Lobelia (*Lobelia kalmii*)
Carolina Grass-of-parnassus (*Parnassia glauca*)
Bird's-eye Primrose (*Primula mistassinica*)
Yellow Mountain Saxifrage (*Saxifraga aizoides*)
Virginia Saxifrage (*Saxifraga virginiensis*)
Colt's Foot (*Tussilago farfara*)

Identification Comments

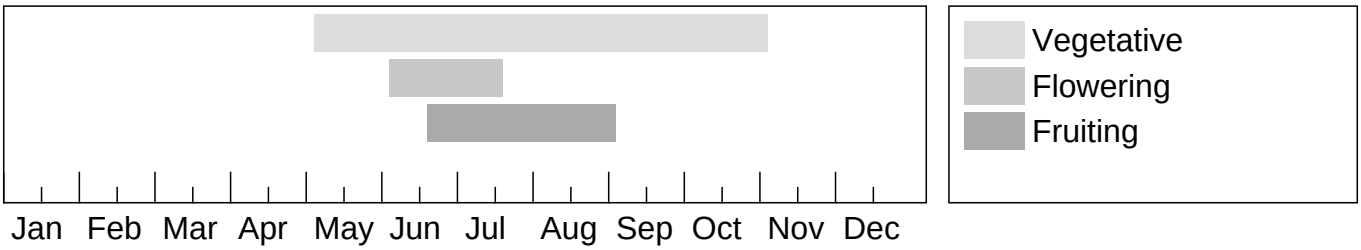
Butterwort is a small insectivorous plant. It has a small basal rosette of bright green to yellow-green, narrow tongue-shaped leaves that are covered with sticky glands that give it a shiny, waxy appearance. The margins of the leaves curl inward as insects are trapped and digested. One to nine flower stalks grow up to 6 inches high from the basal rosette and are topped by a single, tubular, violet flower. The flower has 5 petals in two lips and they are white and hairy at the base. The bottom of the flower ends in a long spur. In the winter the leaves die back to form a bulblike winter bud or hibernacula that has smaller daughter buds that ring the main winter bud. These then germinate in the spring to grow more plants.

Best Life Stage for Identifying This Species

This plant is easiest to identify in flower, but may also be identified vegetatively. To verify the identification, a few good pictures and a description of the habitat should suffice.

The Best Time to See

This cliff species flowers from late May to early July, with fruits persisting through the end of summer. Since this plant can be identified vegetatively, surveys can be conducted at any point during the growing season.



The time of year you would expect to find Butterwort in New York.

Similar Species

The combination of habitat and morphology make this plant rather unique, particularly when in flower. Vegetative leaves of *Lobelia kalmii* and other plants with basal rosettes may look somewhat similar to those unfamilar with these species. The slimy leaf surface of *Pinguicula* is unique.

Taxonomy

Kingdom Plantae
└─ **Phylum** Anthophyta
  └─ **Class** Dicots (Dicotyledoneae)
    └─ **Order** Scrophulariales
      └─ **Family** Lentibulariaceae (Bladderwort Family)

Additional Common Names

Bog-violet

Synonyms

Pinguicula vulgaris var. *americana* (Gray)

Additional Resources

Links

New York Flora Atlas
http://www.newyork.plantatlas.usf.edu/Plant.aspx?id=1788

NatureServe Explorer
http://natureserve.org/explorer/servlet/NatureServe?searchName=PINGUICULA+VULGARIS

USDA Plants Database
http://plants.usda.gov/java/nameSearch?mode=sciname&keywordquery=PINGUICULA+VULGARIS

Google Images
http://images.google.com/images?q=PINGUICULA+VULGARIS

Best Identification Reference

Gleason, Henry A. and A. Cronquist. 1991. Manual of Vascular Plants of Northeastern United States and Adjacent Canada. The New York Botanical Garden, Bronx, New York. 910 pp.

References

Fernald, M.L. 1950. Gray's manual of botany. 8th edition. D. Van Nostrand, New York. 1632 pp.

Gleason, Henry A. and A. Cronquist. 1991. Manual of Vascular Plants of Northeastern United States and Adjacent Canada. The New York Botanical Garden, Bronx, New York. 910 pp.

Holmgren, Noel. 1998. The Illustrated Companion to Gleason and Cronquist's Manual. Illustrations of the Vascular Plants of Northeastern United States and Adjacent Canada. The New York Botanical Garden, Bronx, New York.

Keys, Jr.,J.; Carpenter, C.; Hooks, S.; Koenig, F.; McNab, W.H.; Russell, W.;Smith, M.L. 1995. Ecological units of the eastern United States - first approximation (cd-rom), Atlanta, GA: U.S. Department of Agriculture, Forest Service. GIS coverage in ARCINFO format, selected imagery, and map unit tables.

Mitchell, Richard S. and Gordon C. Tucker. 1997. Revised Checklist of New York State Plants. Contributions to a Flora of New York State. Checklist IV. Bulletin No. 490. New York State Museum. Albany, NY. 400 pp.

NatureServe. 2005. NatureServe Central Databases. Arlington, Virginia. USA

New York Natural Heritage Program. 2010. Biotics database. New York Natural Heritage Program. New York State Department of Environmental Conservation. Albany, NY.

Schnell, Donald E. 2002. Carnivorous Plants of the United States and Canada. Second edition. Timber Press, Portland, Oregon.

Voss, Edward G. 1996. Michigan Flora Part III. Dicots Concluded (Pyrolaceae - Compositae). Cranbrook Institute of Science Bulletin 61 and University of Michigan Herbarium. 622 pp.

Weldy, T. and D. Werier. 2010. New York flora atlas. [S.M. Landry, K.N. Campbell, and L.D. Mabe (original application development), Florida Center for Community Design and Research http://www.fccdr.usf.edu/. University of South Florida http://www.usf.edu/

New York Natural Heritage Program
625 Broadway, 5th Floor,
Albany, NY 12233-4757
Phone: (518) 402-8935
acris@nynhp.org

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