Scarlet Indian-paintbrush

Castilleja coccinea

Photo credits: *Bruce Gillman*

Scientific Name	*Castilleja coccinea* (L.) Spreng.
Family Name	Scrophulariaceae Figwort Family

Did you know?
Castilleja coccinea was first described as a new species in 1737 by Linnaeus who placed it in the genus Bartsia. It was later transferred to the genus Euchroma in 1818 and finally to the genus Castilleja in 1825. The genus Castilleja was named for Domingo Castillejo, Spanish botanist and Professor of Botany in Cadiz, Spain, in 1782 by Jose Celestino Mutis in Linnaeus' son's book Supplementum Plantarum. The moving around does not stop there as the genus Castilleja has recently been transferred with other hemiparasitic members of the family Scrophulariaceae into the family Orobanchaceae. Even though it may be difficult to grow because of its need for certain host plants the seeds are available through various wildflower nurseries.

Summary

Protection Endangered in New York State, not listed federally.

This level of state protection means: listed species are those with: 1) 5 or fewer extant sites, or 2) fewer than 1,000 individuals, or 3) restricted to fewer than 4 U.S.G.S. 7 ? minute topographical maps, or 4) species listed as endangered by U.S. Department of Interior.

Rarity G5, S1

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 S1 means: This plant is endangered/critically imperiled in New York because of extreme rarity (typically 5 or fewer populations or very few remaining individuals) or is extremely vulnerable to extirpation from New York due to biological

factors.

Conservation Status in New York

There are two large and three small populations and all of them are threatened in the long term by invasive species and habitat succession. There are 20-30 historical occurrences mostly from the 1880s through the 1920s.

Short-term Trends

At the two large sites in the state the plants are remaining stable. The three smaller sites have not been resurveyed and their status is unknown.

Long-term Trends

This species was most common in New York from the 1880s through the 1920s when there was much more open prairie-like habitat that has since regrown to forest or has been developed and farmed. The populations have declined substantially since then and will likely remain in low numbers.

Conservation and Management

Threats

There are no immediate threats to the larger populations but in the long term the invasive black swallowwort may threaten their open limestone habitats. The small populations in Dutchess County and St. Lawrence County may be threatened by succession of their open habitats or by destruction by ATVs.

Conservation Strategies and Management Practices

Prevent the invasion of black swallowwort.

Research Needs

Research could be done into the feasibility of augmenting existing populations.

Habitat

In New York Scarlet Indian-paintbrush is found on open, usually calcareous sites, including on limestone bedrock in alvar grasslands, an old field at the edge of a fen, and a mowed right-of-way on a sandy logging road (New York Natural Heritage Program 2007). A rare native on the barrens of the northern Lake Plains only; also escaping cultivation widely elsewhere in NY (Mitchell and Tucker 1997). Meadows, moist prairies, and damp sandy soil (Gleason and Cronquist 1991). Peaty meadows, prairies and damp sands and gravels (Fernald 1970).

Associated Ecological Communities

Alvar Grassland
A community that occurs on shallow soils over level outcrops of calcareous bedrock (limestone or dolomite). Apparently alvar grasslands are restricted to areas that are seasonally flooded in spring or after heavy rainfall, as well as seasonally dry by late summer.

Other Probable Associated Communities

Alvar woodland
Rich graminoid fen
Sedge meadow

Associated Species

Spreading Dogbane (*Apocynum androsaemifolium*)
Yellow Sedge (*Carex flava*)
Poverty Oatgrass (*Danthonia spicata*)
Virginia Strawberry (*Fragaria virginiana*)
Prairie Goldenrod (*Oligoneuron album*)
Eastern Bracken (*Pteridium aquilinum*)
Hardhack Spiraea (*Spiraea tomentosa*)
Symphyotrichum pt
Eastern Poison Ivy (*Toxicodendron radicans*)
Red Clover (*Trifolium pratense*)

Identification Comments

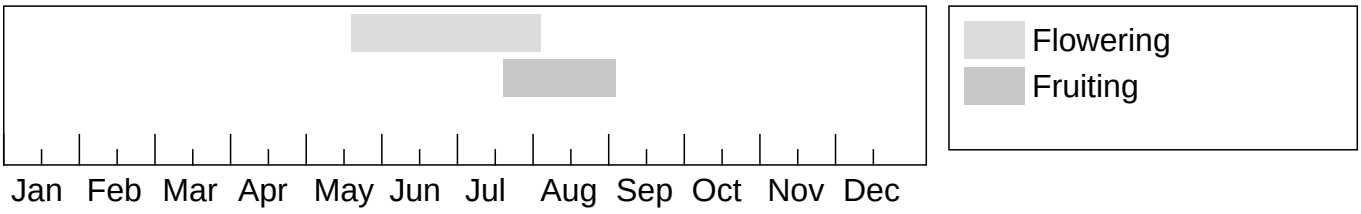
This species is an annual or biennial wildflower with short (20-60cm) finely hairy stems. The common name refers to the flower bracts, which look as if they were dipped in scarlet paint, and are divided into 3 to 5 scarlet-tipped lobes. The actual flowers are a much less conspicuous pale yellow, 17-25mm long, and often at least partially obscured by the scarlet bracts and calyx.

Best Life Stage for Identifying This Species

Stems with flowers or fruits are best for identification, though since many populations are small it is better to take a photograph than a specimen.

The Best Time to See

This species may display its conspicuous red flowers from May through July; fruits persist through the summer.



The time of year you would expect to find Scarlet Indian-paintbrush in New York.

Similar Species

There are no other species of Castilleja in the state, and our species is distinctive. However, some populations may represent escapes from garden cultivation or roadside seed mixes.

Taxonomy

Kingdom Plantae
└─ **Phylum** Anthophyta
└─ **Class** Dicots (Dicotyledoneae)
└─ **Order** Scrophulariales
└─ **Family** Scrophulariaceae (Figwort Family)

Additional Common Names

Indian-paintbrush
Painted Cup
Scarlet Paintbrush

Additional Resources

Links

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

New York Flora Atlas
http://www.newyork.plantatlas.usf.edu/Plant.aspx?id=2940

NatureServe Explorer
http://natureserve.org/explorer/servlet/NatureServe?searchName=CASTILLEJA+COCCINEA

Google Images
http://images.google.com/images?q=CASTILLEJA+COCCINEA

Missouri Plants
http://www.missouriplants.com/Redalt/Castilleja_coccinea_page.html

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

Clemants, Steven and Carol Gracie. 2006. Wildflowers in the Field and Forest. A Field Guide to the Northeastern United States. Oxford University Press, New York, NY. 445 pp.

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.

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.

Newcomb, Lawrence. 1977. Newcomb's Wildflower Guide: An Ingenious New Key System for Quick, Positive Field Identification of the Wildflowers, Flowering Shrubs, and Vines of Northeastern and North-Central North America. Little, Brown and Company. Boston.

Reschke, Carol. 1990. Ecological communities of New York State. New York Natural Heritage Program, New York State Department of Environmental Conservation. Latham, NY. 96 pp. plus xi.

Rhoads, Ann F. and Timothy A. Block. 2000. The Plants of Pennsylvania, an Illustrated Manual. University of Pennsylvania Press, Philadelphia, PA.

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/

Weldy, Troy W. and David Werier. 2005. New York Flora Atlas. [S.M. Landry, K.N. Campbell, and L.D. Mabe (original application development), Florida Center for Community Design and Research. University of South Florida]. New York Flora Association, Albany,

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