

HUDSONIA HARLEM VALLEY BIODIVERSITY MANUAL SUPPLEMENT

Indian paintbrush (*Castilleja coccinea*)

An annual or biennial herb with a glabrous to pubescent stem, entire to three-lobed leaves, and a dense spike of small, scarlet flowers, Indian paintbrush is designated Endangered in New York and ranked S1 (highest rarity) by the New York Natural Heritage Program. Indian paintbrush is most easily recognized when in bloom, from late May through June in the study area.

Habitats in the Study Area

Important habitat characteristics include lack of overshadowing trees or shrubs, ample moisture, and circumneutral to alkaline soils. Herbaceous wetlands, fens, wet meadows; open woodlands of marble knolls, calcareous sands of glacial outwash, and maintained openings (e.g. utility corridors) are typical habitats.

Study Area Distribution

Of five known extant locations in New York State, only one is in the study area, in the Town of Dover, eastern Dutchess County. However, there may be undiscovered occurrences in suitable habitat elsewhere in the study area (primarily Dutchess County and Putnam County). Mitchell (1997) reports that this species escapes from cultivation in New York. Its rarity suggests that such escapes do not lead to long-term establishment.

Other Relevant Aspects of Ecological Niche and Behavior

Indian paintbrush requires considerable sunlight, and is typically found in open habitats among plants similar in size. Though it may be a poor competitor, this plant is partially parasitic, and requires host species (typically other herbs) for optimum health. A diversity of host plants appears to provide the best conditions for its growth, reproduction and population longevity (Shenk & Holsinger 2001). Habitats need not be pristine; some weedy herbs common in hay fields (e.g. yarrow, ox-eye daisy, wild strawberry) may serve as hosts of Indian paintbrush (Shenk & Holsinger 2001). E. Kiviat (personal communication) observed larvae of a regionally rare butterfly, the Baltimore, defoliating Indian paintbrush.

Description and Identification

Mature plants are 20-40 cm tall, with one- to 3-lobed leaves. The terminal spike of bright scarlet flowers is conspicuous. The red coloration belongs to three-lobed bracts subtending the actual flowers, and to the thin calyx above the bracts. The corolla is greenish yellow. Most plants in our latitude bloom from late May to early July.

Threats and Conservation

Vegetational succession, largely due to a shift away from agricultural land use (haying and pasturing), has greatly reduced suitable habitat, occurrences and numbers of plants. In adjacent New England, habitat losses from development have extirpated historically known populations. Conservation requires maintenance of open habitat and suppression or removal of invasive plants, especially aggressive woody species such as multiflora rose and Japanese barberry.

Survey Technique Constraints

Searches for Indian paintbrush are most successful in the flowering period (late May-early July). Monitoring should include annual counts of individuals, plants per unit area, and mapping of the occurrence, in order to track changes in population numbers, density and distribution. Similar data should be collected for potentially competing species, especially invasive shrubs and trees.

References to Identification Literature

Gleason, H. A. and A. Cronquist. 1991. Manual of vascular plants of the northeastern United States and Adjacent Canada. Second edition. New York Botanical Garden. Bronx, NY.

Newcomb, L. 1977. Newcomb's Wildflower Guide. Little, Brown and Company. Boston, MA. 490 p.

References cited

Mitchell, R. S. and G. C. Tucker. 1997. Revised Checklist of New York State Plants. Bulletin No. 490. New York State Museum. Albany, NY. 400 p.

Shenk, G. and K. Holsinger. 2001. *Castilleja coccinea* (L.) Sprengel (Indian Paintbrush) conservation and research plan for New England. New England Wild Flower Society. Framingham, Massachusetts. 18 p. plus appendices.



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