



Natural Heritage & Endangered Species Program

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Massachusetts Division of Fisheries & Wildlife

Sandplain Gerardia *Agalinis acuta*

State Status: **Endangered**
Federal Status: **Endangered**

DESCRIPTION: *Agalinis acuta* (formerly *Gerardia acuta*) is a delicate, sparsely branched, light yellowish-green annual plant in the Broom-rape family (Orobanchaceae). Although it may occasionally grow up to 40 cm tall, it usually grows from 10 to 20 cm (4-8 in.) high. The stem is smooth and slender, and the opposite, linear leaves are 0.5-1 mm (0.02 - 0.04 in.) wide and 10-25 mm (0.4 - 1 in.) long. The flower stalks are 10-30 mm (0.4 - 1.2 in.) long, one to three times the length of the subtending leaf-like bracts. Sandplain Gerardia's rather bell-shaped flowers are arranged in a terminal raceme (a cluster of stalked flowers on an elongate, unbranched axis) and also in shorter lateral racemes. The blossoms are pink-purple, with two cream-colored lines. The corolla tube (cylindrical structure formed by the fusion of petals) is 7-9 mm (0.28 - 0.35 in.) long and ends in 3-4 mm (0.12 - 0.16 in.) long lobes that are either shallowly notched or square at their tips. The white throat (opening at the summit of the corolla tube) is marked with purple spots. Flowering season is from late August through late September, and individual blossoms last for only a day. Sandplain Gerardia's fruits are ovoid capsules (fruits that are derived from a compound pistil and that contain many seeds). The tiny, yellow-brown seeds are covered with a net-like pattern.



Sandplain Gerardia. Photo by Michael W. Nelson, NHESP.

RANGE: Sandplain Gerardia has a very restricted distribution. The maximum documented range includes only Massachusetts, Connecticut, Rhode Island, New York, and Maryland.

SIMILAR SPECIES: Three other species of the genus *Agalinis* may also occur in fields. Purple Gerardia (*Agalinis purpurea*) and Small-flowered Gerardia (*A. paupercula*) normally occupy wet pond shores, meadows, and seasonally wet power line rights-of-way. Their flowers are much larger than those of Sandplain Gerardia, the petals are rounded, and the pedicels (flower stalks) are much shorter than the subtending leaf-like bracts. (Sandplain Gerardia's corolla lobes are notched or squared-off, and its pedicels are at least as long as the bracts.) Slender Gerardia (*A. tenuifolia*) usually occurs on dry, rocky slopes, but it occasionally grows on sandy fields as well. Nevertheless, the petals of this small, many-branched, bushy plant are rounded, and the pedicels vary from only one-half as long to as long as the subtending bracts.



A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan

Massachusetts Division of Fisheries & Wildlife

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HABITAT IN MASSACHUSETTS: Sandplain Gerardia grows in dry, sandy soils of grasslands and roadsides; in pine/oak scrub openings, usually where there is considerable growth of lichens and scattered patches of bare soil; and in sandy plains. Both poor soils and habitat disturbance may create the open, relatively competition-free areas required by Sandplain Gerardia. Habitats in Massachusetts are dry grasslands, including cemeteries with native species maintained by mowing. Associated plant species include Little Bluestem (*Schizachyrium scoparium*), Pussytoes (*Antennaria neglecta*), Bearberry (*Arctostaphylos uva-ursi*), Poverty Oatgrass (*Danthonia spicata*), Early Low Blueberry (*Vaccinium angustifolium*), Red Fescue (*Festuca rubra*), Stiff Aster (*Ionactis linariifolia*, formerly *Aster linariifolius*), pinweed species (*Lechea* spp.) and Bird's Foot Violet (*Viola pedata*). Bushy Rockrose (*Crocianthemum dumosum*, formerly *Helianthemum dumosum*) is a rare Massachusetts plants that has been found with Sandplain Gerardia. Although a green plant, Sandplain Gerardia does not survive in plots by itself; it is a hemiparasite on Little Bluestem and, possibly, other plants. After germination, its roots connect up with those of a host plant in order to obtain some of its nutrients.

POPULATION STATUS: In 1988, Sandplain Gerardia was given Endangered status by the federal government. As of 2005, there were fewer than twenty-three extant populations worldwide, including seven in Massachusetts. The plant is listed under the Massachusetts Endangered Species Act as Endangered in the state. All state-listed species are protected from killing, collecting, possessing, or sale and from activities that would destroy habitat and thus directly or indirectly cause mortality or disrupt critical behaviors. It is currently known from Barnstable and Dukes Counties and is historically known from Barnstable, Bristol, Dukes, Middlesex, Nantucket, and Worcester Counties. Sandplain Gerardia is considered Globally Imperiled, and is very rare and in danger of extinction throughout its range.

THREATS AND MANAGEMENT

RECOMMENDATIONS: It is believed that the plant's decline is due to habitat loss resulting from vegetational succession, fire suppression, and land development. Periodic disturbances through prescribed fire, mowing, or grazing are important for maintaining the open grassland habitat. Annual mowing (after seed dispersal) has maintained open, short, grassy habitat at several sites. Because Sandplain Gerardia is an annual, there can be great variation in its numbers from year to year.

Updated 2015

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