



Best Survey Period



Status: State endangered

Global and state rank: G3/S1

Other common names: Pale false foxglove, Skinner's false foxglove, purple gerardia

Synonym: *Gerardia skinneriana* Wood

Family: Scrophulariaceae (snapdragon family)

Taxonomy: The genus *Gerardia*, to which Michigan's *Agalinis* species were referred prior to 1959, was found to be an illegitimate generic name for any taxon placed under its concept and thus can only be used as a common name (Voss 1996).

Total range: *Agalinis skinneriana* occurs from southwestern Ontario through the Midwest into the south-central United States, ranging west to Kansas and Oklahoma, south to Louisiana, Mississippi, and Alabama, and east to Maryland. It is considered rare in Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Mississippi, Missouri, Ohio, Oklahoma, Tennessee, and Wisconsin (NatureServe 2003).

State distribution: This species is known from a single locality in Michigan, occurring within a state park in St. Clair County where a small colony was

discovered in 1988. This site is protected and the population is presumed to persist, although a status survey in 1998 did not result in new observations of this population. This species was formerly reported by MNFI staff from three other localities, including two additional counties (Gladwin and Gratiot); however, a state status survey conducted from 1994-1995 determined that those reports were based on the incorrect identification of the common *A. tenuifolia* (Penskar and Comer 1996), although suitable habitat in these glacial lakeplain areas appeared to be present.

Recognition: Skinner's gerardia is a slender, pale green to yellowish-green, **sparsely branched annual, characterized by its strict (narrow) form with few but strongly ascending branches and narrow opposite to sub-opposite leaves that are at the most 1 mm broad.** The foliage, stem, and branches tend to remain yellowish-green to green when dried but **do not blacken.** Long-stalked flowers with pedicels ranging from ca. 7-30 mm in length are produced **primarily from the axils of leaves and bracts of the upper portion of the main stem. The tubular flowers are very pale pink to white with either very faint spots or lines on the lower lip or none at all, and the lower corolla lobes are hairless externally (though these may be ciliate).** This species is may be confused with the superficially similar *A. tenuifolia* (common gerardia) or more likely with *A.*



gattereri, with which it occurs. *A. tenuifolia* has similarly long-stalked flowers but can be distinguished by its darker green foliage which becomes blackened when dried, markedly wider leaves, and the calyx tube with at best visible longitudinal nerves versus the conspicuous reticulate (net-like) venation present in *A. skinneriana*. In addition, the seeds of *A. tenuifolia* are dark brown versus the pale to light brown seeds in *A. skinneriana*. *A. gattereri* is similar to *A. skinneriana* but differs in its much branched habit, with round or nearly round stems versus the strongly angled or ridged stems in *A. skinneriana*, and its hairy corolla lobes. Detailed descriptions of these taxa and other characters are provided by Brodowicz (1990) and Canne-Hilliker (1987).

Best survey time/phenology: This species is most easily identified during its fairly narrow blooming period, which in Michigan is from about mid-August through early September (Brodowicz 1990). A combination of several characters, such as leaf width, branching pattern, and the other recognition characteristics noted above enable this species to be identified in fruit, though careful examination is required.

Habitat: In St. Clair County, Michigan's only known population occurs principally in and around moist, sandy, borrow pit depressions within a complex of lakeplain wet prairie remnants, where it occurs with rare prairie species as well as several of Michigan's well known Coastal Plain disjuncts. Associates include *Agalinis gattereri* (Gatterer's gerardia), *Aletris farinosa* (colic-root), *Aristida longespica* (three-awned grass), *Aristida necopina* (three-awned grass), *Asclepias tuberosa* (butterfly-weed), *Baptisia tinctoria* (wild indigo), *Coreopsis tripteris* (tall coreopsis), *Hypericum gentianoides* (gentian-leaved St. John's-wort), *Juncus brachycarpus* (short-fruited rush), *Liatris spicata* (marsh blazing star), *Ludwigia alternifolia* (seedbox), *Lycopodiella inundata* (bog clubmoss), *Lycopodiella margueritae* (northern appressed clubmoss), *Panicum virgatum* (switch grass), *Salix humilis* (prairie willow), *Schizachyrium scoparium* (little bluestem), *Scleria triglomerata* (tall nut-rush), *Sorghastrum nutans* (Indian grass), *Spiranthes ochroleuca* (ladies' tress orchid), and *Spartina pectinata* (prairie cordgrass).

It is likely that the local disturbances, such as sand borrowing and scraping, have maintained the St. Clair occurrence through stimulation of the soil seed bank, as

well as by perpetuating openings and providing a moist, sandy substrate conducive to germination and growth. Elsewhere within its range, Skinner's *Agalinis* is often found in sandy soil although it is reported as growing in a variety of substrates, occurring in both moist to dry habitats including open woods, barrens, moist thickets, bluffs, and dolomite glades and prairies (NatureServe 2003).

Biology: Skinner's gerardia is an annual forb, and although commonly cited as fibrous rooted, Voss (1996) notes that all Michigan species of *Agalinis* produce a small tap root. As are many plants in the snapdragon family (Scrophulariaceae), *Agalinis* is hemiparasitic (partially parasitic), producing specialized roots that attach to the roots of host species. According to Voss, this genus has a diverse number of host species, including several graminoids (grasses and grass-like plants). This species is bee pollinated but is able to self-pollinate at a potentially high rate (Dieringer 1999).

Conservation/management: The primary need for *Agalinis skinneriana* at present is its continued protection at its sole known site in St. Clair County, where park managers and state stewardship staff are aware of this colony and its significance. Potential habitat exists elsewhere in both southeast and southwest Lower Michigan, the most likely areas where additional colonies may be discovered, and thus status surveys for this species are warranted in these areas, especially in lakeplain wet prairie remnants. Skinner's gerardia occurs primarily in open, moist to dry, fire-maintained graminoid communities (NatureServe 2003). The conservation of this species in Michigan will require experimental management, such as prescribed burning, and the necessary monitoring to determine the most suitable management regime. Conservation is probably best achieved by working with this species *in situ*, as propagation is reported to be difficult with this group, and introductions are far less suitable as a strategy.

Comments: Skinner's gerardia occurs with the state endangered Gatterer's gerardia, a species documented from three additional counties in the state. Both species should be sought during inventories of lakeplain wet prairies and oak barrens in southern Lower Michigan.



Research needs: In addition to experimental restoration management and monitoring, life history studies focusing on population demography, genetic diversity, and breeding system biology would assist in conservation.

Related abstracts: Lakeplain wet prairie, lakeplain wet-mesic prairie, oak barrens, Gattinger's gerardia, three-awned grass, chestnut sedge, Leiberg's panic grass, smooth beard tongue, few-flowered nut-rush, purple milkweed, Sullivant's milkweed, Hill's thistle, northern appressed clubmoss, eastern prairie fringed orchid, Alleghany plum, meadow-beauty, blazing star borer, culver's root borer, eastern box turtle, red-legged spittlebug, Silphium borer

Selected references:

- Brodowicz, W.W. 1990. Noteworthy collections. Mich. Bot. Vol. 29: 28-30. [*A. gattingeri* & *A. skinneriana*]
- Canne-Hilliker, J.M. 1987. Status report on Skinner's purple false foxglove *Agalinis skinneriana* (Wood) Britton, an endangered species in Canada. Dept. of Botany, Univ. of Guelph. Guelph, Ontario, Canada. 25 pp.
- Deam, C. C. 1940. Flora of Indiana. Indiana Dept. of Conservation, Indianapolis. 1236 pp.
- Dieringer G. 1999. Reproductive biology of *Agalinis skinneriana* (Scrophulariaceae), a threatened species. Journal of the Torrey Botanical Society 126(4): 289-295.
- NatureServe. 2003. NatureServe Explorer: An Online encyclopedia of life [web application]. Version 1.8. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: November 11, 2003).
- Pennell, F. W. 1935. The *Scrophulariaceae* of eastern temperate North America. 41. *Gerardia*. Acad. Nat. Sci. Philadelphia Monogr. 1: 419-476.
- Pennell, F.W. 1929. *Agalinis* and allies in North America. II. Proc. Acad. Nat. Sci. Philadelphia 1: 11-249.

Penskar, M.R. and P.J. Comer. 1996. Status Survey for Michigan Populations of Skinner's Gerardia (*Agalinis skinneriana*) and Inland Populations of Houghton's Goldenrod (*Solidago houghtonii*) Using a Landscape Approach. Report submitted to U.S. Fish and Wildlife Service, Region 3 Endangered Species Office, Fort Snelling, MN. 12 pp. + appendices.

Swink, F. and G. Wilhelm. 1994. Plants of the Chicago region, 4th edition. Indianapolis: Indiana Academy of Science. 921 pp.

Voss, E.G. 1996. Michigan Flora. Part III. Dicots (Pyrolaceae-Compositae). Bull. Cranbrook Inst. Sci. 61 & Univ. of Michigan Herbarium. xix + 622 pp.

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