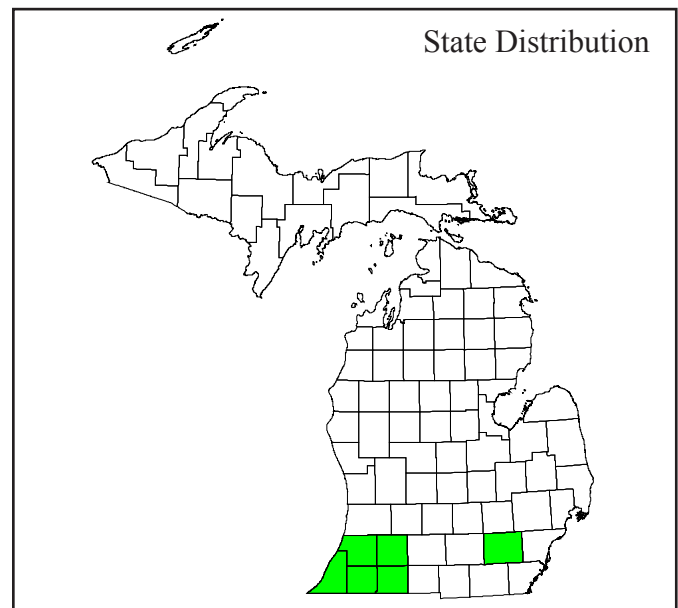
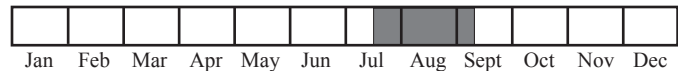




Photo by Susan R. Crispin



Best Survey Period



Status: State threatened

Global and state rank: G5/S2

Other common names: Square-stemmed rose-pink, bitter-bloom.

Family: Gentianaceae (gentian family)

Range: Occurring over much of the eastern United States, rosepink is distributed from New York west to Illinois and eastern Kansas, ranging south to the Florida panhandle and Texas. It is considered rare in Kansas and New York, and is considered to be extirpated in Ontario (NatureServe 2007).

State distribution: All but one of Michigan's 21 documented localities for this species are in southwestern Lower Michigan counties, with twelve dating from the 1970's and 1980's (one of those now believed to be destroyed), and four from the 1800's. Most recently surveyed populations were found to be small and very localized, with only three occurrences reported to number in the hundreds of plants.

Recognition: *Sabatia angularis* is a fairly robust plant, producing stout leafy stems that range from about 20-80 cm in height. **The stems are conspicuously 4-sided, bearing narrow, membranous wings on the**

angles, and have opposite, broadly ovate leaves that are strongly clasping. Upward the leaves become narrower and the stems much branched, terminating in showy and often dense clusters of **bright, rose-pink flowers. The flower has a narrow calyx and the corolla tube is short (4-7 mm), abruptly forming 5 oblong to obovate lobes up to 1 cm long.** The fruit is a cylindrical capsule. *Sabatia* could potentially be confused with *Centaurium* (centaury), a superficially similar, five-petaled pink gentian represented by two non-native species in Michigan. *Centaurium*, in addition to being a smaller plant, can be distinguished by its corolla lobes, which are much shorter than the tube and only range up to ca. 5 mm in length, and its broader, shorter stigmas (Voss 1996).

Best survey time/phenology: Flowering typically occurs in August but may extend from mid-July through early September.

FQI Coefficient and Wetland Category: 9, FAC+

Habitat: Rosepink grows on the wet sand of lakeshores and moist, grassy swales, usually associated with former lakeshore areas, including coastal plain marshes, intermittent wetlands, and even dune pannes. Common associates include *Calamagrostis canadensis* (bluejoint grass), *Spiraea tomentosa* (steeplesh), *Eleocharis elliptica* (spike-rush), *Lycopus uniflorus* (water-



horehound), *Leersia oryzoides* (cut grass), *Hypericum kalmianum* (Kalm's St. John's-wort), *Juncus balticus* (rush), *Carex lasiocarpa* (sedge), *Schoenoplectus pungens* (three-square), and *Juncus effusus* (rush). One Berrien County locality observed in 1985 was the moist bottom of a sand mining pit, where rosepink occurred with *Pycnanthemum verticillatum* whorled mountain-mint), sedges, and rushes.

To the south, in the heart of its range, this species occurs in a diverse variety of habitats, such as floodplains, marshes, poorly drained pine woods, steep-sloped ravines, rich pine-hardwood forests, open woodland margins, prairies, granite outcrops, old fields, and pastures (Godfrey and Wooten 1981).

Biology: Although Wilbur (1955) considered this species to be an annual, Perry (1971) has confirmed it as a biennial. Seeds germinate in the spring and establish a rosette that persists through the first summer and winter, producing flowering stems the second summer. Stamens mature and dehisce before the stigmas are receptive (Hill 1891). Bees are the primary pollinators, but plants are also self-compatible (Perry 1971). Dudash (1991) found that large plants of rosepink contributed disproportionately to the production of offspring, and that the production of fruits in large plants was significantly greater than in small plants, but also that the proportion of pollen removed from small versus large plants was the same. *S. angularis* is a self-compatible species, but vulnerable to inbreeding depression (Dudash 1990), and thus small colonies may not be viable over the long-term.

Conservation/management: One of the larger populations of this species occurs within Grand Mere State Park, and a small colony occurs within a Michigan Nature Association preserve. One of the state's larger, extant colonies persists in a county park, where a portion of the dune panne is disturbed, but the site is now vulnerable to potential impacts from a golf course developed immediately adjacent to and around the population. The ability of this species to colonize ditches, sand mining pits, and other types of excavated ground perhaps indicates its requirement for a dynamic natural disturbance regime, such as that found in its more typical habitat of coastal plain marshes and similar types of natural communities with fluctuating water tables.

Comments: Perry (1971) notes that *S. angularis* is the most widely distributed species of the genus and within its range the one most likely to be encountered.

Research needs: Rosepink is a poorly understood species for which long-term monitoring may be required to adequately understand its natural history, particularly with respect to the role of disturbance and how seed banks function and are best maintained.

Related abstracts: Coastal plain marsh, emergent marsh, intermittent wetland, open dunes (see the MNFI Rare Species Explorer for a comprehensive listing of the numerous related rare species associated with these natural community types).

Selected references:

- Dudash, M.R. 1993. Variation in pollen limitation among individuals of *Sabatia angularis* (Gentianaceae). *Ecology* 74: 959-962.
- Dudash, M.R. 1991. Plant size effects on female and male function in hermaphroditic *Sabatia angularis* (Gentianaceae). *Ecology* 72: 1004-1012.
- Dudash, M.R. 1990. Relative fitness of selfed and outcrossed progeny in a self-compatible, protandrous species, *Sabatia angularis* L. (Gentianaceae): A comparison in three environments. *Evolution* 44: 1129-1139.
- Godfrey, R.K. and Wooten. 1981. Aquatic and Wetland Plants of Southeastern United States. Dicotyledons. Athens, GA. Univ. of Georgia Press. 712 pp.
- Hill, E. G. 1891. The fertilization of three native plants. *Bull. Torrey Bot. Club.* 18:111-118.
- NatureServe. 2007. NatureServe Explorer: an online encyclopedia of life [web application]. Version 6.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: September 11, 2007).
- Perry, J. D. 1971. Biosystematic studies in the North American genus *Sabatia* (Gentianaceae). *Rhodora* 73:309-369.



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

Wilbur, R. L. 1955. A revision of the North American genus *Sabatia* (Gentianaceae). Rhodora 57:1-33; 43-71; 78-104.

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