



Status: State threatened

Global and state rank: G5/S2S3

Other common names: reflexed trillium, toadshade, red trillium, bloody noses

Synonyms: *Trillium unguiculatum* Raf., *Trillium reflexum* Clute, *Phyllantherum recurvatum* (Beck) Nieuwland.

Family: Liliaceae (lily family)

Taxonomy: Trilliums are divided into two subgenera: *Trillium*, which are pedicellate (having flowers on stalks) and *Phyllantherum*, which are sessile (flowers not stalked). Having sessile flowers, *T. recurvatum* belongs to the later group.

Range: Wide-ranging for a sessile-flowered trillium, *T. recurvatum* reaches the northern limits of its range in southern Michigan and Wisconsin, ranging west to eastern Iowa and Missouri, east into Pennsylvania, and south through the heart of its range in Indiana and Illinois into northern Louisiana and Alabama. It is considered rare in Alabama, Iowa, Louisiana, North Carolina, Ohio, Texas, and Wisconsin (NatureServe 2006).

State distribution: In Michigan, prairie trillium is known from more than 40 sites, but virtually all occur within a very limited geographic range encompassing the extreme southwestern counties of Berrien and Cass. An apparent record from Wayne County has not been observed in over 100 years. Several populations are protected, including one of the largest known in the state at Warren Woods State Park. Elsewhere, colonies may number as many as several thousand plants, but more typically occur in the hundreds. Just south of Michigan, in Indiana and Illinois, this plant is quite common.

Recognition: Prairie trillium generally occurs as individual stems or in small, scattered clumps. The stems are 2-5 dm tall and are topped by a whorl of **three, ovate, mottled leaves, each with a definite petiole**. The single, **sessile, upright flower** is comprised of **three erect maroon petals**, and three lanceolate sepals strongly reflexed downward against the stem. Species similar to *T. recurvatum* include *T. sessile*, another rare species, which can be distinguished by its broad, sessile leaves and spreading (not reflexed) sepals. The common large-flowered white trillium (*T. grandiflorum*), which occurs throughout Michigan, differs substantially from prairie trillium in having a stalked flower with white petals and sessile (unstaked) leaves that are not mottled.



Best survey time/phenology: Prairie trillium is best sought when in flower, which usually occurs from early May to early June in Michigan. Flowers are relatively long-lasting, and plants can also be identified any time during the early growing season by their petioled, mottled leaves.

Habitat: Throughout its range, prairie trillium is found primarily in floodplain forests, moist ravines, mesic woods, and other forested areas with rich limestone-derived soils. In the heart of its range in Indiana and Illinois it was also likely associated with moist oak savannas (Swink and Wilhelm 1994). It commonly occurs with other species of mesic southern and floodplain forests such as *Platanus occidentalis* (sycamore), *Acer saccharinum* (silver maple), *A. saccharum* (sugar maple), *A. nigrum* (black maple), *Fagus grandifolia* (American beech), *Quercus rubra* (red oak), *Tilia americana* (basswood), *Asimina triloba* (paw paw), *Lindera benzoin* (spicebush), *Vitis riparia* (riverbank grape), *Parthenocissus quinquefolia* (Virginia creeper), *Podophyllum peltatum* (mayapple), *Asarum canadense* (wild ginger), *Smilacina racemosa* (false Solomon's-seal), *Geranium maculatum* (wild geranium), *Arisaema triphyllum* (jack-in-the-pulpit), *A. dracontium* (green dragon), *Toxicodendron radicans* (poison ivy), *Isopyrum biternatum* (false rue anemone), *Trillium grandiflorum* (large-flowered trillium), *T. sessile* (toadshade), *Dicentra cucullaria* (dutchman's breeches), *Claytonia virginica* (spring beauty), *Sanguinaria canadensis* (bloodroot), and numerous other species typical of rich southern woods and floodplain forests.

Biology: Prairie trillium is a rhizomatous perennial that emerges in spring. Flowers are insect-pollinated, producing a capsule-like berry that matures by mid summer. Attached to the mature seeds are food bodies known as elaiosomes. Ants collect the seeds and feed on the elaiosomes, discarding the seeds in their tunnels where they later germinate following a double dormancy (Case 1997). In general, trillium seedlings typically appear above ground two springs following seed dispersal, and plants require a minimum of four to five more years of growth before producing flowers, though time to flowering may increase if light and nutrients are limited (Case 1997).

Conservation/management: Of the 35 populations verified extant since 1980, 11 are located in protected areas such as state and local parks and private nature preserves. Outside these sanctuaries, prairie trillium is

threatened by habitat destruction and forest fragmentation. At nearly every site, the spread of invasive species like *Alliaria petiolata* (garlic mustard) and *Hesperis matronalis* (dame's rocket) is a major concern. Although it may be tolerant of disturbance (Swink and Wilhem 1994), logging and other disturbances should be avoided because they remove the protective canopy and also created potential colonization sites and in-roads for invasive species. On both private and public-owned sites excessive deer densities are also of major concern, as trilliums are a highly favored food, and overbrowsing has been known to drive large colonies of other species of trillium to near extirpation within two to three years (Case 1997). Reducing deer densities can help, as evidenced by a recent study in Illinois, which found that colonies of prairie trillium protected from deer grew taller, had larger rhizomes, and had markedly increased flowering rates when compared to plants impacted by browsing (Frankland and Nelson 2003). In addition to being protected as a threatened species, prairie trillium, like all trilliums, is protected by the Michigan Christmas Greens Act, a law that prohibits picking flowers or leaves as these practices often result in the death of the whole plant, even if the perennial rhizome is left behind.

Comments: Though many trilliums are affected by virus-like mycoplasmas that often result in green-streaked petals and leaf abnormalities, this condition is quite rare in *T. recurvatum* and other sessile members of the genus (Case 1997). *T. recurvatum* is also one of the more easily cultivated species in eastern North America, though transplanting should be avoided, since the shallow, brittle rhizome is also easily damaged when plants are dug up, and collecting wild plants from the state is illegal without a permit.

Research needs: Though extensive research has been done on cultivating this and other trillium species, few studies have focused on reproduction in its natural environment. Life history studies of any sort would provide information useful to the conservation and management of this species.

Related abstracts: mesic southern forest, floodplain forest, Virginia snakeroot, ginseng, goldenseal, showy orchis, Jacob's ladder, painted trillium, broad-leaved sedge, black rat snake, cerulean warbler, prothonotary warbler, yellow-throated warbler, Louisiana waterthrush, and regal fern borer.



Selected references:

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