



Best Survey Period



Status: State threatened

Global and state rank: G4/S2

Synonyms: *Ranunculus ovalis* Raf.

Family: Ranunculaceae (buttercup family)

Total range: The distribution of prairie buttercup is centered in the northern Great Plains, occurring from British Columbia to Quebec in the north and ranging at its southern limit from Washington to Idaho, Nebraska, Iowa, Illinois, New York, and Massachusetts. This species is considered rare in British Columbia, Illinois, Nebraska, and Ontario, and is known only from historical records in Quebec (NatureServe 2003).

State distribution: *Ranunculus rhomboideus* has an unusual Michigan distribution, occurring in three widely separated areas of the state, consisting of Kent and Ionia counties in southwest Lower Michigan, Gogebic County in the western Upper Peninsula, and Isle Royale in northern Lake Superior (Keweenaw County), collectively comprising just over 30 occurrences. On Isle Royale, it has been collected at 21 scattered localities, many of identified during an extensive rare plant survey from 1992-1993. Five occurrences have been documented in Kent County, all of these colonies small and highly localized along forest and highway

margins. Turn-of-the-century (1900 era) records also exist from Washtenaw, Ionia, St. Clair, and southern Kent counties.

Recognition: Prairie buttercup produces a **basal rosette of prostrate, undivided hairy leaves** that are from 1-5 cm long, with ovoid, **scallop-margined blades**. The upright stems, which may range from 8-20 cm in height, bear smaller, deeply cleft or lobed leaves and terminate in a cluster of a few to several flowers, each with **five, shiny yellow petals** (5-9 mm in length) that **usually exceed the sepals** in length. The fruits are globose clusters of **short-beaked, plump achenes (each achene about 1.6-2.2 mm long)**. The hairy leaves, stems, and petioles, and simple, scalloped basal leaves readily distinguish *Ranunculus rhomboideus* from all other Michigan buttercups.

Best survey time/phenology: In southern Michigan, prairie buttercup has been observed in bloom from late April through May, and in late May in the western Upper Peninsula. On Isle Royale, however, this species has been observed in bloom over a very broad period, ranging from late May through early August. The best survey period depicted above references only the state's mainland area.

Habitat: Distinctive as one of Michigan's few upland buttercup species, *R. rhomboideus* (in southern



Michigan) inhabits openings and edges of oak woods (mostly roadsides and mowed areas) in a region that formerly supported open oak woodland or savanna. In the absence of fire, these remnant habitats are now kept open by artificial disturbance and tend to be weedy in nature. Sparse competition, sandy soils, and an open overstory seem to characterize this species' microhabitat in southern Lower Michigan. The largest known colony of about 200+ plants in Kent County grows beneath a thin canopy of northern pin and white oak on dry Plainfield sand. The understory is very open (perhaps recently burned or raked) and ground cover is 50% or less, including associates such as *Carex pensylvanica* (Pennsylvania sedge), *Hieracium* sp. (hawkweed), and *Antennaria* sp. (field pussy-toes).

On Isle Royale, prairie buttercup has been collected mostly from dry ridge tops and rock outcrops, with a few specimens anomalously cited from marshy or wet, seepy sites. Recent surveys, which identified many new occurrences for this large national park, resulted in the observation of very large colonies (1000+ plants) in and around glades and rocky ridges above seepage areas; this species was found to be characteristically occurring in the thin soils of basalt glades on steep, fire prone, southeast-facing slopes. The Gogebic County occurrence was found in a grassy opening near rocky cliffs, and thus western Upper Peninsula habitats are more similar to those of Isle Royale than southern Michigan sites.

Elsewhere within its range, prairie buttercup inhabits dry woodlands and prairies, growing in Illinois "on well-drained morainic hills where the prairie grasses and forbs are sparse and short" (Swink and Wilhelm 1994). Xeric areas of glacial moraine in southeastern Ontario provide habitat for numerous occurrences of *R. rhomboideus* (Williams 1984).

Biology: The prairie buttercup is a perennial that usually blooms in very late April and early May. Seeds mature in July and may germinate the same season. The young plants bloom the following spring, thus the classification of this species as what is known as a "winter annual". Williams (1984) suggests that in Ontario, this species often survives as a winter annual, with plants often dying during summer droughts, and seeds germinating during autumn rains to overwinter and flower/fruit the following spring. Fall germination and the development of persistent juvenile rosettes

enable this species to mature quickly in spring, likely conveying an advantage in the competition for pollinators and other resources.

Conservation/management: While this species' habitat on Isle Royale is probably under little threat, most occurrences in Kent County are in highly vulnerable situations, including roadside rights-of-way and lawn edges. One small colony in a county park occupies a fairly natural habitat and should be protected from trampling, monitored, and perhaps managed with prescribed burning. While this species may persist in small, vulnerable openings, perpetuating it in southern Michigan will eventually require the management of remnant oak barrens, hillside prairie relicts, and similar sites of a reasonably large nature.

It is reported that plants may be propagated by dividing clumps or by planting seeds, the latter requiring no stratification (Rock 1981). Williams (1985) reports that there has been some exploitation of this species by gardeners in Ontario.

Research needs: Since this prairie species will require the maintenance and creation of openings and the application of prescribed fire, experimental management and monitoring are strongly suggested research. It is highly probably that little is known of the population structure of Michigan occurrences, thus demographic and life history studies may provide insights that would assist in focusing conservation and management efforts.

Related abstracts: Dry sand prairie, oak barrens, oak openings, purple milkweed, prairie smoke, Alleghany plum, eastern box turtle, Karner blue butterfly

Selected references:

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