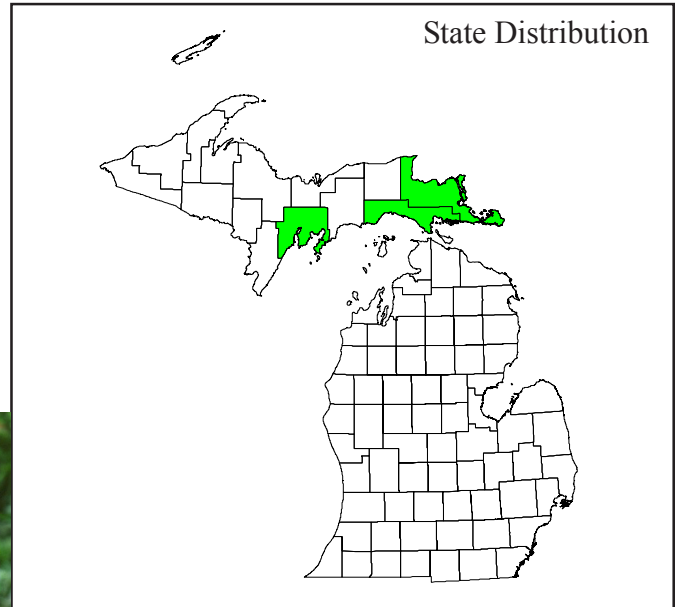




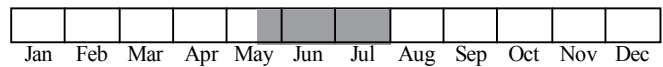
Photo by Gary A. Reese
Comparison of goldthread (left)
with Lapland buttercup (right).



Photo by Michael R. Penskar



Best Survey Period



Status: State threatened

Global and state rank: G5/S1S2

Family: Ranunculaceae (buttercup family)

Total range: Lapland buttercup is a circumpolar species, ranging around the world in arctic and boreal latitudes. In North America, this species occurs from Alaska through most of the Canadian provinces, ranging east to Quebec, Labrador, and Newfoundland (Morin et al. 1996). In the southernmost portions of the North America distribution, it ranges into the northern Great Lakes region (Minnesota and Michigan) and northern Maine. This buttercup is considered rare in Maine, Minnesota, and New Brunswick.

State distribution: Currently, four Michigan sites are known for this boreal species. A small colony was found in 1977 near the southern shore of Munuscong Lake in Chippewa County. In 1978, only 37 plants were counted at this site. A large colony of more than 1000 plants was discovered in Delta County in 1987 by MNFI field workers. The Delta county site, near the north shore of Lake Michigan, represents the southernmost known occurrence of *R. lapponicus* in North America and perhaps throughout its entire range (Morin et al. 1997, Hultén 1970). More recently, a site in Mackinac

County near the shore of Lake Huron was discovered in 1992 in the eastern unit of the Hiawatha National Forest, while a second locality was identified in Delta County in 2001 a few miles east of the first county site.

Recognition: Lapland buttercup is a small, low, trailing plant. Both leaves and the delicate flowering stems arise from the nodes of slender, creeping stems. The **long-stalked** basal leaves are **kidney-shaped**, with the blades **deeply divided into three lobes** with coarsely scalloped (crenate) to shallowly lobed margins. The flowers, which are solitary, are borne on relatively long, slender stalks that sometimes bear a single mid-stem leaf. The small, delicate flowers are only 8-12 mm wide, bearing **three greenish sepals and five pale yellow petals**. The fruit of this tiny buttercup is a tight cluster of oblong (2-3 mm), lens-shaped (lenticular) achenes that taper to a slender, sharply hooked or recurved beak at their apex.

Lapland buttercup is most likely to be confused with goldthread, *Coptis groenlandica*, a widespread species that commonly occurs in the same habitat and has quite similar looking leaves and superficially similar flowers. Goldthread, however, can be distinguished by its **sharply fine-toothed, compound leaves that are divided into three distinct segments**, as opposed to merely being lobed (note differences in photo). Also, the leaves of goldthread are evergreen (as opposed to



the deciduous leaves of Lapland buttercup) and are relatively shiny. Goldthread can be further distinguished by its **white-petaled flowers, stalked fruits, and especially the bright yellow-orange rhizome** from which the common name is derived.

Best survey time/phenology: Michigan's few records for this largely boreal species indicate that flowering and fruiting occur from about the last week of May through July. Plants in fertile condition are likely to be found outside this reasonably broad blooming period. Owing to the specific habitat type for this species, as well as its relatively distinctive leaves, it is possible to identify plants in sterile condition.

Habitat: Within the main portion of its range, Lapland buttercup grows in conifer swamps, bog habitats, and is also associated with tundra, muskegs, and boreal forest (Morin et al. 1997, Benson 1948). Its habitat in Michigan is thus far known to be rich conifer swamp in coastal areas of the eastern Upper Peninsula. These conifer swamps often comprise portions of large wooded dune and swale complexes that formed within post-glacial lake embayments. Within these wetland forests dominated by northern white cedar (*Thuja occidentalis*), this rare buttercup is usually found near or within mucky depressions, seeps, groundwater springs, and similar cool, wet pockets, particularly where *Sphagnum* mosses are abundant and form extensive beds or "lawns".

In addition to northern white cedar, balsam fir (*Abies balsamea*) is a common overstory associate, and there may be lesser amounts of black spruce (*Picea mariana*), white spruce (*Picea glauca*), and larch (*Larix laricina*). Additional associates include such species as oak fern (*Gymnocarpium dryopteris*), starflower (*Trientalis borealis*), naked miterwort (*Mitella nuda*), goldthread (*Coptis trifolia*), and sedge (*Carex leptalea*). Common *Sphagnum* (peat moss) species to be expected include such taxa as *S. centrale*, *S. girghensonii*, *S. recurvum*, and *S. magellanicum*.

Biology: *Ranunculus lapponicus* can spread vegetatively via rhizomes that branch and elongate as the older portions die (Jessen 1911). Overall, very little is known of the biology and ecology of this species in Michigan.

Conservation/management: All of Michigan's Lapland buttercup populations appear to receive some

level of protection. The habitat of Michigan's small *R. lapponicus* colony in Chippewa County lies within a Michigan Nature Association preserve. Elsewhere, the remaining populations occur within the Hiawatha National Forest, two within the Forest's western unit and one within the eastern unit. In Delta County, one *R. lapponicus* population, perhaps comprising the largest state occurrence, lies within a site nominated as a Research Natural Area (RNA). Threats to all occurrences include potential changes in hydrology and excessive logging activities, which pose both direct and indirect impacts.

Research needs: Virtually any time of research on this species would greatly assist in management and conservation. Population studies, including life history research, as well as any studies that elucidate specific habitat requirements would be particularly applicable.

Comments: According to a source cited in Morin et al. (1997), certain Eskimo groups were known to consume Lapland buttercup as a survival food.

Related Abstracts: Rich conifer swamp, wooded dune and swale complex, round-leaved orchid, calypso orchid, ram's head orchid, limestone oak fern, Michigan monkey-flower, marsh grass-of-Parnassus, sweet coltsfoot, Northern goshawk, massasauga, Blanchard's cricket frog.

Selected references:

- Benson, L. 1948. A treatise on the North American *Ranunculi*. Amer. Midl. Nat. 40: 1-261.
- Coffin, B. and L. Pfannmuller, eds. 1988. Minnesota's Endangered Flora and Fauna. Univ. of Minn. Press, Minneapolis. 473 pp.
- Crow, G.E. and C.B. Hellquist. 2000. Aquatic and Wetland Plants of Northeastern North America. Volume 1. Pteridophytes, Gymnosperms, and Angiosperms: Dicotyledons. University of Wisconsin Press, Madison. 480 pp.
- Hultén, E. 1970. The circumpolar plants II. Almqvist & Wiskell, Stockholm.
- Jessen, K. 1911. The structure and biology of Arctic flowering plants. VI. Ranunculaceae. Medd. om. Grfnland 36: 333-440.



Morin, N. et al. 1997. Flora of North America, North of Mexico. Volume 3: *Magnoliophyta: Magnoliidae and Hamamelidae*. Oxford Univ. Press. New York, NY. 590 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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