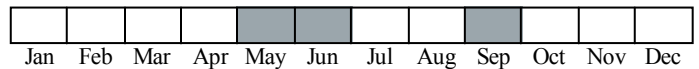


Best Survey Period



Status: State endangered

Synonyms: *Prosartes hookeri*, *Disporum oregonum* Miller

Taxonomy: Michigan collections are var. *oreganum* (S. Watson) Q. Jones, once included in the genus *Prosartes*.

Family: Liliaceae (lily)

Global/state rank: G4G5/S1

Total Range: *Disporum hookeri* is primarily a plant of the Pacific Northwest, distributed from British Columbia to Alberta and ranging south to Oregon, California, Montana, and Idaho. It is considered rare in Alberta. Further east, it is known only from five collections in Michigan, representing a striking disjunction. Michigan plants are referred to var. *oreganum*, which is otherwise restricted to the northern part of the species main range in the West.

State distribution: Fairy bells is known in Michigan only from Ontonagon County in the western Upper Peninsula. It was first collected in 1968 in the Porcupine Mountains and was relocated near its original collection site 20 years later. In 1995, two additional occurrences were discovered within 5 miles of the earlier collections, one of which was estimated at over 1000 individuals scattered over two quarter sections. Recently, in 1999, two large populations were discovered in the Trap Hills area of the Ottawa National Forest.

Best survey time: The best survey time for fairy bells is in late May and early June when it is most likely to flower, or in late summer and early fall when the berries mature

and become red.

Recognition: *D. hookeri* produces arching stems that may reach nearly 1 meter in height. The stems fork above the middle, bearing alternate, broadly elliptic leaves that are stalkless, slightly clasping at their bases, and short hairy below. Clusters of funnel-shaped, creamy white flowers (8-18 mm long), typically borne in threes, arise from the stem tips. Each flower has six spreading corolla lobes and an ovary that is very finely hairy. It produces pubescent, red berries when in fruit. *Disporum maculatum* (nodding mandarin), a southern species once collected near Farmington in Oakland County and now considered extirpated in Michigan, can be distinguished by its yellowish-green petals that are strongly purple-dotted, and ovaries that are densely glandular pubescent. In addition, the hairs on the leaf margins of *D. maculatum* are somewhat spreading, in contrast to the forward pointing cilia of *D. hookeri* (Voss, 1972). Species of the vegetatively similar *Polygonatum* (Solomon's seal) and *Streptopus* (twisted stalk) can be easily distinguished by their smaller flowers and fruits that are borne conspicuously from the axils of stem leaves. The leaves of *D. hookeri* are thin and papery with a dull upper surface which distinguishes it from the fleshy leaved *Polygonatum* species and the tough leaved *Smilacina* or *Streptopus* species (Mladenoff 1990).

Habitat: In the Pacific Northwest, this species inhabits a variety of habitats from moist upland forests to moist wooded ravines and riverbanks dominated by *Tsuga heterophylla* (western hemlock) and *Pseudotsuga menziesii* (Douglas-fir), to the varied montaine forests of the Cascades and Rocky Mountains (Mladenoff 1990).



Michigan collections are from mesic northern forests dominated by *Tsuga canadensis* (hemlock) and *Acer saccharum* (sugar maple). These forests have a rich ground flora including such species as *Gymnocarpium dryopteris* (oak fern), *Dryopteris carthusiana* (toothed woodfern), *Maianthemum canadense* (Canada mayflower), *Lycopodium lucidulum* (shining clubmoss), *Trillium cernuum* (nodding trillium), *Osmorhiza claytonii* (sweet cicily), and several violet species (*Viola* spp.).

Biology: *D. hookeri* is a rhizomatous perennial which annually produces one aerial shoot from the rhizome (underground stem) tip. In Michigan it typically flowers in May and June and its fruits (berries) become bright red upon maturation in late summer.

Conservation/management: Little is known of management concerns for this species, however all known Michigan populations are in remote locations that currently experience little unnatural disturbance. It is likely vulnerable to human disturbances, especially those that alter the forest canopy. Fairy bells could be seriously impacted by overstory clear-cutting. Logging should be limited to careful selective harvesting during the winter until the effects of timbering activities are better known. It would be wise to periodically monitor the health of known populations to ensure prompt attention should negative impacts be detected.

Research needs: New discoveries of this plant in recent years indicate that it may be more common in Michigan than previously thought. A systematic survey to determine its true status in Michigan is of high priority, as are studies of virtually any aspect of its biology and ecology. In particular, the response of this species to artificial disturbances such as canopy reduction by logging should be studied.

Related abstracts: mesic northern forest, Assiniboia sedge, ginseng, goblin fern, large toothwort, showy orchis, red-shouldered hawk

Selected references

Jones, Q. 1951. A cytotaxonomic study of the genus *Disporum* in North America. Contr. Gray Herb. No. 173. 39 pp.

Marquis, R.J. and E.G. Voss. 1981. Distributions of some western North American plants disjunct in the Great Lakes region. Mich.Bot. 20:53-82.

Mladenoff, D.J. 1990. A Pacific Northwest disjunct, *Disporum hookeri*, in Upper Michigan. Mich. Bot. 29:97-102.

Abstract citation

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