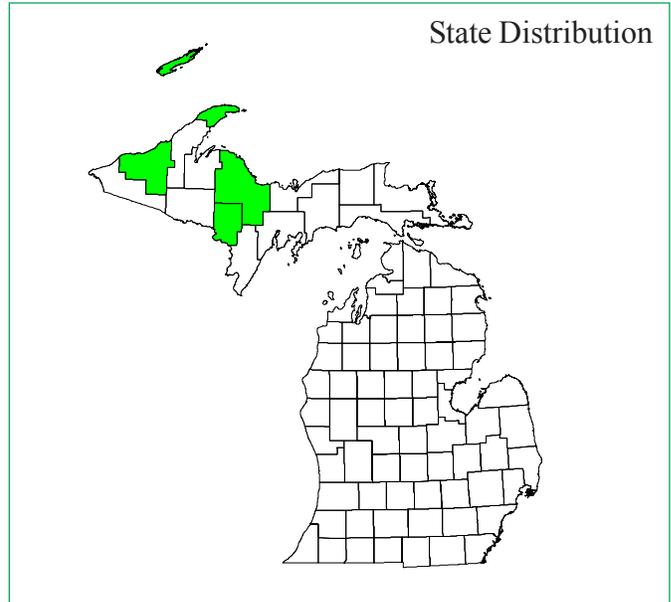
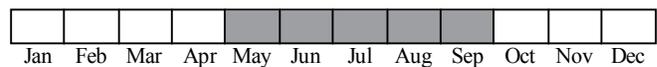


Photo by Michael R. Penskar



Best Survey Period



**Legal status:** Special concern

**Global and state rank:** G5/S3

**Other common names:** Fragrant fern

**Family:** Dryopteridaceae (wood fern family)

**Total range:** *Dryopteris fragrans* is an interruptedly circumboreal species with a broad North American range. It occurs from Labrador to Alaska, ranging south to Maine, New Hampshire, Vermont, New York, Ontario, Upper Michigan, northern Wisconsin, Minnesota, the Northwest Territories, and northern British Columbia.

**State distribution:** This fern species is known from four counties in the Upper Peninsula: Dickinson, Gogebic, Keweenaw, and Ontonagon. There are more than 20 records for the state, approximately half of which occur on Isle Royale (Keweenaw County) in northern Lake Superior.

**Recognition:** *Dryopteris fragrans* is a medium-sized to relatively small wood fern that typically grows in small, tight tussocks from stout, erect rhizomes lodged in narrow crevices and concavities of vertical rock faces and other outcrops. The frond (leaf) of this wood fern is borne on a stipe (stalk) about 2-11 cm long and consists of an **evergreen, pinnate-pinnatifid blade (i.e. divided to the midrib, with each leaflet (pinnule) divided in a similar fashion)**. The stipe is **sparsely**

**glandular, with large, pale, reddish-brown scales at the base.** The blade of the frond is from about 6-30 cm long and up to about 5 cm wide, tapering from the middle to the base and tip, although somewhat more **acute at the apex**. There are usually about 15-20 pairs or more of **pinnae** (leaflets) that form the body of the frond. The **pinnae are linear-oblong, with about 6-10 scalloped (crenate) lobes.** The **sori (sporangia clusters), which are found on the undersides of the pinnae,** are relatively large, overlapping, and are borne beneath whitish to brown, **glandless indusia** (flaps that cover the sori). A noteworthy characteristic of this species is the **persistence of old fronds that form distinctive brown, curled masses hanging below plants,** and which help to immediately distinguish this from other species.

Fragrant cliff woodfern might be confused with species of woodsia (*Woodsia* spp.), a similar looking fern genus that frequently occurs in the same outcrop habitats. *Dryopteris fragrans* is perhaps most likely to be confused with rusty woodsia (*Woodsia ilvensis*), a rather common species that can be distinguished by its **jointed and persistent stipe bases** and overall **glandular, scaly appearance,** as well as the **smaller, scattered sori found within indusia composed of numerous scaly hairs.**

Fronds are necessary for correct identification; however, the distinctive growth habit, particularly the characteristic of retaining withered fronds, as well as



the required outcrop habitat can enable one to reliably distinguish this fern from similar-looking species.

**Habitat:** This species is found growing on rocks, talus slopes, and in cliff crevices in shady locations. In Michigan this species tends to occur on basalts and other types of circumneutral to somewhat calcareous outcrops and talus slopes. Species commonly associated with *Dryopteris fragrans* include rusty woodsia (*Woodsia ilvensis*), northern honeysuckle (*Diervilla lonicera*), fragile fern (*Cystopteris fragilis*), common polypody (*Polypodium virginianum*), bulblet fern (*Cystopteris bulbifera*), slender cliff-brake (*Pellaea glabella*), poison ivy (*Toxicodendron radicans*), and overstory species such as balsam fir (*Abies balsamea*), paper birch (*Betula papyrifera*), hophornbeam (*Ostrya virginiana*), and white and red pine (*Pinus strobus* and *P. resinosa*).

**Best Survey Time:** This fern can be sought during most of the growing season, from May through much of September. The distinctive appearance via the presence of withered fronds may enable survey to be conducted beyond this period.

**Biology:** *Dryopteris fragrans* is the smallest of the North American wood ferns. It is a perennial species that sometimes hybridizes with *Dryopteris marginalis* to form *Dryopteris Xalgonquinensis*.

**Conservation/management:** The primary conservation strategy for this species at present is the protection of outcrop habitats that sustain this and several additional fern taxa. The species is likely secure within Michigan, where it is relatively rare. However, local measures may be necessary to protect populations from potential impacts due to increasing numbers of hikers and rock climbers.

**Research needs:** Relatively little appears to be known about the population dynamics of this species, and thus virtually any natural history study would assist in management and conservation.

**Related abstracts:** Mesic northern forest, assiniboia sedge, cerulean warbler, fairy bells, ginseng, goblin moonwort, Hart's tongue fern, showy orchis, walking fern, northern goshawk, rapids clubtail, and red-shouldered hawk.

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