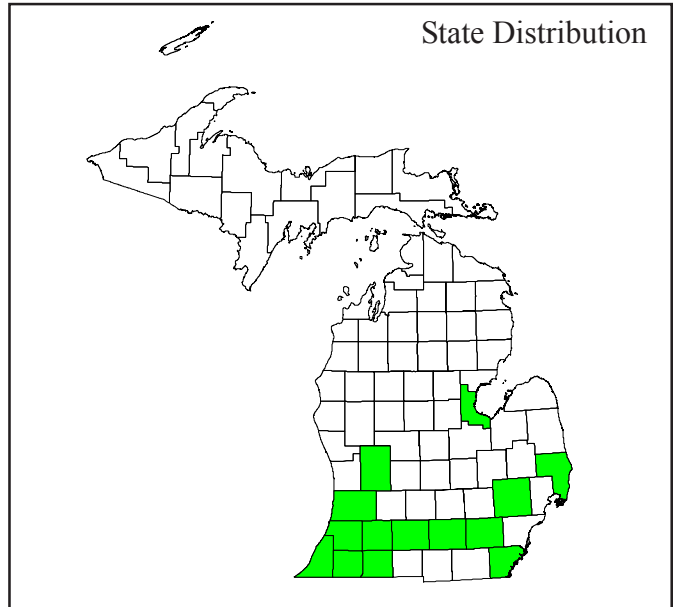
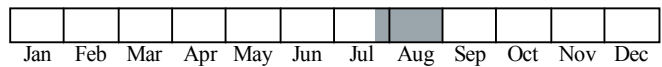




Photo by Susan R. Crispin



Best Survey Period



Status: State threatened

Global and state rank: G5/S2

Other common names: yellow-fringe orchid, orange-fringed orchid

Synonyms: *Habenaria ciliaris* R. Br.;
Blephariglottis ciliaris Rydb.

Family: Orchidaceae (orchid family)

Taxonomy: Long known as *H. ciliaris*, this orchid, along with several other species of *Habenaria*, is now placed within the genus *Plantanthera*.

Total range: Primarily a species of the eastern United States, yellow fringed-orchid occurs from Wisconsin, Michigan, and southern Ontario to Vermont and Massachusetts, ranging south along the Atlantic Coastal Plain to Florida and west to eastern Texas, Arkansas, and Missouri. It is considered rare in Connecticut, Illinois, Indiana, Maryland, Missouri, New York, New Jersey, Ohio, Oklahoma, Pennsylvania, Rhode Island, Virginia, and Ontario, is known only from historical records in Delaware and District of Columbia, and is thought to be extirpated from Massachusetts and New Hampshire (NatureServe 2003).

State distribution: This orchid, comprising just over 40 occurrences as tallied by Michigan Natural Features Inventory (MNFI), ranges widely across southern Lower Michigan, occurring mostly within the southern three tiers of counties and extending as far north as Bay, Kent, and St. Clair counties. Five colonies of one hundred plants or more have been observed in Allegan, Berrien, and Calhoun counties, five others are reported to have 25-100 plants, and one less than ten plants. Field surveys by MNFI staff have failed to relocate extant populations at several historical collection sites, including four localities where this species is almost certainly extirpated due to the loss of habitat in what are now heavily developed and urbanized areas.

Recognition: This relatively stout, robust orchid varies in height from 20-100 cm. The shoots are **leafy**, with basal leaves (which sheath the stem) oblong-lanceolate in shape, 7-30 cm in length, terminating with a long, pointed tip. Upwards the widely-spaced leaves become much reduced, linear, and bract-like. The stem is terminated by a **densely flowered, 4-20 cm long raceme of strikingly orange to yellow-orange flowers**, each flower with an unlobed, **prominently fringed lower lip**, the fringes up to 1 cm in length and more than one-half the length of the undivided part of the lip. At its base, the lower fringed petal is prolonged into a **slender, curved, 2-3 cm long nectar spur**. Relatively inconspicuous are the narrow, 4-9 mm long



upper petals, which bear a small fringe at their tips.

The more common *P. blephariglottis*, white fringed-orchid, which occurs throughout the Lower Peninsula, is a wide-ranging, very similar species that may grow with *P. ciliaris* and might be confused with it, mainly by virtue of the hybrids known to occur between these species. *P. blephariglottis* flowers, however, are pure white and the fringe hairs of the lower lip are about one-half as long (or less) as the undivided portion of the lip. Hybrids, *P. Xbicolor* (Raf.) Beckner, are not particularly uncommon when these species are found together, and can usually be identified by the intermediacy of their flower color and fringe length. Case (1987) notes at least three stations where these hybrids are more common than the parent species, observing that within these sites a wide spectrum of genetic combination for color occurs.

Best survey time/phenology: Yellow fringed-orchid blooms primarily from late July through August. Fruiting plants have been observed in late September, and occasionally plants may bloom in early September. Fruiting plants have been observed into late September and are probably visible into early October.

Habitat: Yellow fringed-orchid tolerates a variety of habitat conditions throughout its range but is more restricted in Michigan (Case 1987). In southern Michigan it is frequently found on the open mat of *Sphagnum* bogs where its associates include *Chamaedaphne calyculata* (leatherleaf), *Sarracenia purpurea* (pitcher-plant), *Rhynchospora alba*, (beak-rush), *Eriophorum virginicum* (cotton-grass), *Vaccinium macrocarpon* (cranberry), *Carex oligosperma* (sedge), *Xyris difformis* (yellow-eyed-grass), *Pogonia ophioglossoides* (rose pogonia), *Cypripedium acaule* (pink lady's-slipper), *P. blephariglottis*, and other typical plants of acid peat bogs. *Larix laricina* (larch or eastern tamarack) is also a common associate, but *P. ciliaris* usually occurs in openings within the larch zone of bogs, tolerating some light shading and becoming diminished or absent in heavily shaded areas. *Picea mariana* (black spruce), which reaches the southern edge of its range limit in southern Lower Michigan, may also be an associate, particularly in isolated kettle hole bogs in southern tier counties where it may be considered a good indicator of potential habitat.

This orchid also occurs in damp sandy meadows or in

acid soils adjacent to marshes (Case 1987). Several old records from southeastern counties appear to be from moist sands (similar to habitat in adjacent Ohio), but no extant populations are known from such habitats in the state, although there is potential in lakeplain wet prairie remnants. Elsewhere in its range it can occur in a variety of habitats, including bogs, meadows, floodplains, and seepage areas, especially in sites with damp, acid sandy soil.



Photo by Susan R. Crispin

Biology: This perennial species arises from fleshy rootstocks that produce buds which will become the following season's growth. Therefore damage to a plant in a given year will affect the vigor and size of the next year's plant (Case 1987). Drought and other ecological conditions may also significantly impact colonies.

This orchid usually flowers from late July through about mid-August. The primary pollinators are swallowtail butterflies. In a study of the pollination ecology of a *P.*



ciliaris population in a southwestern Michigan bog, Smith and Snow (1976) found the spicebush swallowtail (*Papilio troilus*) to be the main pollinator, and also observed that individual plants growing in semi-open conditions set 50% fewer fruits (capsules) when compared to individuals growing in the open, non-shaded habitats. *P. blephariglottis*, which occurred at the study site, along with hybrids, was found to be pollinated primarily by night-flying moths (mostly likely hawk moths, Sphingidae).

Conservation/management: Urbanization, residential (especially lakeside) development and drainage of wetlands have spelled the demise of this species at many locations. Habitat succession and resultant shading by woody species (probably due to fire suppression and/or hydrologic changes) continues to degrade and destroy populations (Case 1987). About half of one large colony lies within a Michigan Nature Association preserve; one large and one small colony lie within State Game Areas where they are protected by land managers, and another occurrence of moderate size occurs at least partially within a park/nature preserve owned by the City of Portage. Additional inventory is warranted to continue to ascertain the status of occurrences and monitor and rank the condition of priority sites. Experimental management, such as prescribed fire or the mechanical removal of woody plants, may have merit in sites that have become shaded due to tree and shrub succession.

Research needs: Recent research has focused on molecular studies to ascertain systematic (taxonomic) relationships among related *Habenaria* groups as well as to identify the degree of genetic diversity within and between populations and allied species. These studies are useful and will assist in the conservation of this species. However, it is likely that the population structure of most Michigan occurrences is poorly known, and thus demographic studies – as well as general life history and perhaps breeding system research – is recommended to more reliably prioritize and manage sites.

Related abstracts: Lakeplain wet prairie, lakeplain wet-mesic prairie, relict conifer swamp, panicked screwstem, northern appressed clubmoss, meadow-beauty, Hall's bulrush, yellow pitcher-plant, Blanchard's cricket frog, eastern box turtle, red-legged spittlebug, spotted turtle

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