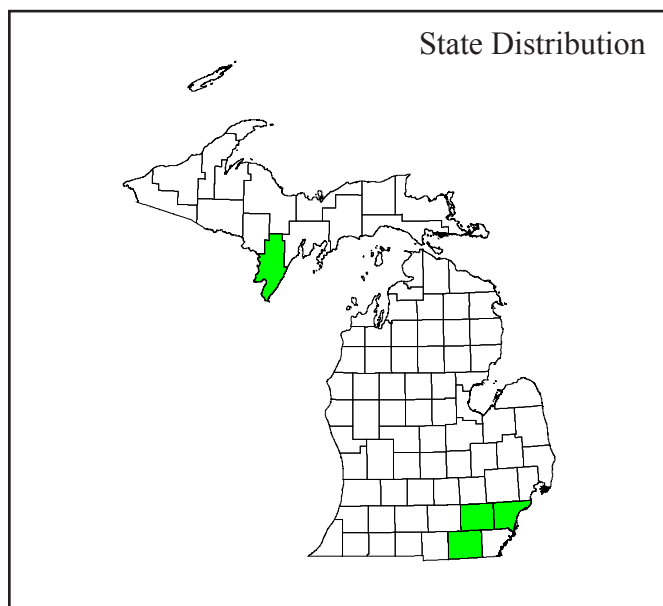
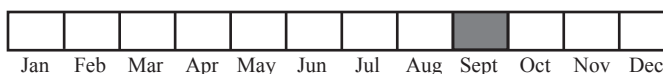




Merel Black- Univ. Wisc. Stevens Point



Best Survey Period



Status: State special concern

Global and state rank: G5/S3

Other common names: hairy sunflower, stiff-hair sunflower

Family: Asteraceae (aster family); also known as the Composite

Synonyms: *Helianthus hirsutus* var. *stenophyllus* Torrey & A. Gray; *H. hirsutus* var. *trachyphyllus* Torrey & A. Gray; *H. stenophyllus* (Torrey & A. Gray) E. Watson; *H. leptocaulis* (S. Watson) S. F. Blake (Flora of North America 2006).

Taxonomy: A detailed infrageneric classification of *Helianthus* was proposed by Schilling and Heiser (1981); however, the reader is referred to the contemporary treatment of the Asteraceae in the Flora of North America (2006).

Range: *Helianthus hirsutus* occurs in the eastern United States, where it is distributed from Pennsylvania to Minnesota in the north and ranging from Florida to Texas in the south. It is considered rare in Iowa, North Carolina, and Virginia (NatureServe 2006).

State distribution: Currently, the Michigan distribution as shown via the heritage database is problematical, owing to the fact that this easily overlooked species has not been verified in many localities via the collection of voucher specimens. Several reported records include field surveys by subsequent surveyors that suspect misidentification of the more common *H. divaricatus* (woodland sunflower), thus these localities are suspicious and require further investigation, including the acquisition of vouchers. It also appears that some sites based on putative specimens have now been determined to be invalid. Voss (1996) indicates the distribution as consisting of Wayne, Washtenaw, Lenawee, and Menominee counties, which is the distribution depicted here.

Recognition: *Helianthus hirsutus* is a **perennial, leafy-stemmed forb arising from long rhizomes**, ranging up to 2 m in height. The **finely hairy stems** bear opposite, **ascending, lanceolate (lance-shaped) leaves with short leafstalks**. The leaves are **widest at the very base of the leaf blade**, where they are **broadly rounded to somewhat cordate (heart-shaped)**. In contrast to the wide-ranging and common *H. divaricatus*, with which it is very similar and most likely to be confused, *H. hirsutus* has **stems that are at least somewhat hairy and stem leaves with the lowest**



pair of lateral (secondary) veins meeting the midrib just above the base of the blade. *H. divaricatus*, by comparison, has leaves with the lowest pair of lateral veins meeting the midrib at the junction with the short leafstalk, i.e. at the very base of the blade. *H. strumosus* (pale-leaved sunflower), which is also similar, can be distinguished from *H. hirsutus* by its smooth stems and dark (versus yellow) anther appendages. Although *Helianthus* is likely to be regarded as a difficult genus by many, careful study of the excellent key provided by Voss (1996), which typically provides many alternative characters, should enable one to make reliable identifications.

Best survey time/phenology: Of the few verified collections for southeastern Michigan, all specimens were obtained from early to mid-September, and until more information is obtained regarding the status of this species, the most reliable survey period is presumed to be the month of September.

FQI Coefficient and Wetland Category: 10, UPL

Habitat: Of the few collections and observations made of this species in Michigan, only limited data are available. An historical record for Ann Arbor by Allmendinger in 1868 provides only vague locality information and no additional label data. The only substantive habitat information derives from relatively recent collections in Lenawee County. In one site (Hayes State Park), several plants were observed in a weedy old field area with successional and prairie species, including *Fraxinus pennsylvanica* (red ash), *Populus deltoides* (Eastern cottonwood), *Rhamnus cathartica* (buckthorn), *Vitis riparia* (riverbank grape), *Rubus occidentalis* (black raspberry), *Rhus glabra* (smooth sumac), *Solidago altissima* (tall goldenrod), *Toxicodendron radicans* (poison ivy), *Aster lateriflorus* (side-flowering aster), *Monarda fistulosa* (bee-balm), *Asclepias tuberosa* (showy milkweed), *Daucus carota* (wild carrot), *Desmodium* spp. (tick-trefoil), *Rudbeckia hirta* (black-eyed Susan), *Oenothera parviflora* (evening primrose), and *Achillea millefolium* (yarrow). Based on pre-European settlement vegetation maps, this area was likely an oak savanna or similar prairie environment. Another collection in Lenawee County consisted of an isolated colony within a railroad right-of-way.

Elsewhere, this sunflower is known general from dry woodlands (Gleason and Cronquist 1991). In the

Chicago region, *H. hirsutus* occurs primarily in open woodlands where *H. decapetalus* (pale sunflower) and *H. strumosus* (pale-leaved sunflower) are common associates (Swink and Wilhelm 1994).

Biology: There is little information on the biology and ecology of this species. *H. hirsutus* is a perennial arising from long rhizomes. Gaines et al. (1974) studied four species of *Helianthus*, including *hirsutus*, in a comparison of reproductive strategies and growth patterns. Using *H. grosseserratus*, *H. laetiflorus*, *H. annuus*, and *H. hirsutus*, they evaluated the allocation of resources for reproduction and vegetative growth by examining the biomass of the respective reproductive and vegetative portions of plants, including seed production. This was conducted to determine if sunflowers followed a strategy similar to that of other species which develop different biotypes in plant communities according to seral stage. Gaines et al. concluded that sunflowers demonstrate the same reproductive and vegetative growth strategies that goldenrods and other forbs exhibit within communities over varying stages of disturbance and ecological succession.

Conservation/management: Although little is known about this species in Michigan, it likely occurred within prairie grassland and oak savanna landscapes, and is thus adapted – as shown by several of its associated species – to successional communities dependent on periodic wildfire and other natural disturbances. Management that promotes grasslands and oak savanna and oak barrens complexes would help perpetuate prairie openings that maintain habitat for this species.

Comments: Kalisz and Boettcher (1990) used analyses of phytoliths (microscopic silica particles produced in some plants) extracted from soil layers to help determine the vegetation history of a forest opening, demonstrating a different substrate (clay lenses) from surrounding areas that were composed of acid shales. In concluding that forbs rather than grasses dominated in this tract, *H. hirsutus* was shown to be a significant component.

Research needs: In addition to more comprehensive inventory to better assess the status of this species, studies regarding natural history and restoration management would greatly assist in conservation.



Related abstracts: Oak barrens, oak openings, black rat snake, culver's root borer, dusted skipper, Eastern massasauga, frosted elfin, Karner blue, leadplant flower moth, red-legged spittlebug, Alleghany plum, dropseed, Gattinger's gerardii, Hill's thistle, paniced hawkweed, prairie smoke, Richardson's sedge, and smooth beard tongue.

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Abstract citation:

Penskar, M.R. 2009. Special Plant Abstract for whiskered sunflower (*Helianthus hirsutus*). Michigan Natural Features Inventory, Lansing, MI. 3 pp.

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MSU Extension is an affirmative-action, equal-opportunity organization.

Funding for abstract provided by the Michigan Department of Transportation.

