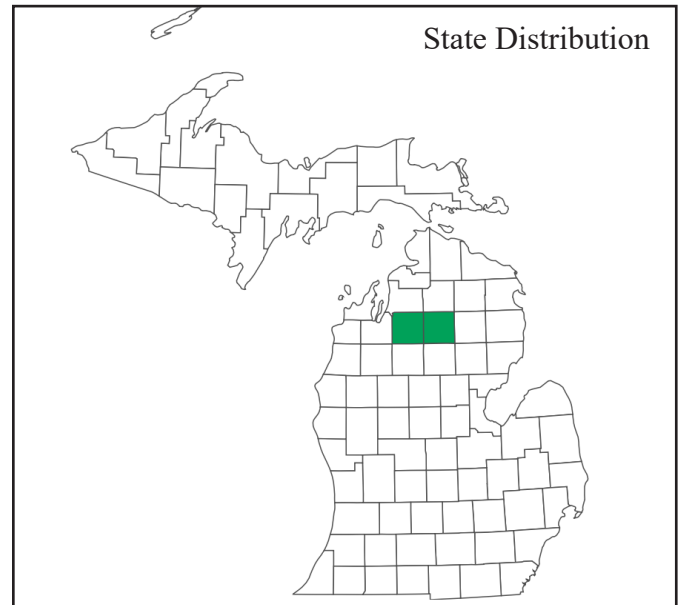
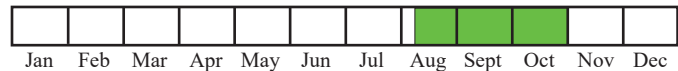


Photograph by [Nate Martineau](#), iNaturalist



Best Survey Period



Status: Federally Threatened, State Endangered

Global and state rank: G1 (Critically Imperiled) / S1 (Critically Imperiled)

Synonyms: *Oligoneuron vossii* (Nesom 2020)

Family: Asteraceae – daisy family

Taxonomy: The genus *Solidago* is placed in the order Asterales, the family Asteraceae and the subfamily Asteroideae (Stevens 2026). Voss's goldenrod belongs to subgenus *Pleiactila* and section *Ptarmicoidei* whose members are characterized by corymbose inflorescences, rosettes of large basal leaves with persistent petiole bases and oligoneurate phyllaries (Semple et al. 2023, Semple and Gandhi 2004). Voss's goldenrod is the only known octoploid species of *Solidago* (Laureto and Pringle 2010). The geographically and morphologically distinct populations were previously considered to be part of *Solidago houghtonii* but as a result of genetic studies by Laureto and Pringle (2010) were found to be a distinct species. Phylogenetic work by Semple et al. (2023) showed that the previously segregated genus *Oligoneuron* in which Nesom

(2020) placed this species still fits well within the genus *Solidago*.

Total range: The global range of Voss's goldenrod is restricted entirely to Michigan (i.e., endemic) where it occurs in a 2.25 square mile area near the border of western Crawford and eastern Kalkaska counties in northern Michigan (Laureto and Pringle 2010, NatureServe 2026). Voss's goldenrod has 3 known occurrences across 2 counties. One record is ranked A (excellent estimated viability), one record is ranked BC (good or fair estimated viability) and one is ranked F (failed to find) (MNFI 2026).

Recognition: Voss's goldenrod is an erect perennial herb with **stems 50-80 cm (17-32 in) tall**, arising singly from a thickened, branching basal rootstock structure (i.e., caudex). The lower half of the stem is glabrous and **becoming increasingly strigillose (i.e., short, stiff bristles or hairs) in the upper half of the stem towards the inflorescence (i.e., distally)**. The basal leaves taper to a long, winged and fringed petiole. The basal leaf blades are ovate and 3-nerved, with glabrous surfaces. Basal leaf margins are sparsely to regularly serrulate and each tooth appressed and **ending in a gland with acute**



leaf tips. The lower cauline leaves have tapering to winged petiole-like bases with partially clasping stems. Their shape is linear-oblongate. They are glabrous and 3-nerved with entire margins. The mid-cauline to distal leaves are sessile with leaf blades linear-lanceolate and reduced in size distally. The flowering heads are terminal, approximately 20–60 heads per plant, flat-topped or convexed (i.e., corymbiform). **Branches and peduncles are moderately to densely strigillose** with 0–3 linear bracteoles. Involucres are bell-shaped (i.e., campanulate). Phyllaries are 18–24 in 3–4 series, unequal, linear to oblanceolate and 3-nerved with ciliate margins and tips obtuse to rounded. The 6–8 ray florets and 9–14-disc florets are bright yellow. Achenes are glabrous with ribs that are sometimes darkened (Laureto and Pringle 2010, Reznicek et al. 2026).

Voss's goldenrod can be distinguished from Houghton's goldenrod (*Solidago houghtonii*) by the formers larger overall size (**larger plants of Voss's goldenrod mostly 50–80 cm tall** versus larger plants of Houghton's goldenrod mostly 30–60 cm tall), hairier distal stems, branches and pedicels of the inflorescences and most notably the **gland tipped teeth of the basal leaves**. They also occupy different habitats in different parts of the state: Voss's goldenrod grows in **swales of wetmesic sand prairie in interior counties of the Lower Peninsula** and Houghton's goldenrod is found on or near the Great Lakes shores of Lakes Michigan and Huron, centered around the Straits of Mackinac (Laureto and Pringle 2010, Reznicek et al. 2026).

Best survey time/phenology: The best time to observe Voss's goldenrod is during its flowering period between the second week of August and the fourth week of October (Laureto and Pringle 2010, MNFI 2026).

Habitat: Voss's goldenrod occurs in seasonally inundated sandy glacial outwash plains and old interdunal depressions on wet-mesic sand prairie habitat within jack pine barrens (Tyler Bassett, MNFI, personal communication, MNFI 2026, Penskar et al. 1996).

Common woody associates include leatherleaf (*Chamaedaphne calyculata*), sweetfern (*Comptonia peregrina*), shrubby cinquefoil (*Dasiphora fruticosa*), Kalm's St. John's-wort (*Hypericum kalmianum*), jack pine (*Pinus banksiana*), red pine (*Pinus resinosa*), sand cherry (*Prunus pumila*), meadow-sweet (*Spiraea alba*), low sweet blueberry (*Vaccinium angustifolium*) (Laureto and Pringle 2010, MNFI 2026).

Common herbaceous associates include big blue-stem (*Andropogon girardii*), blue joint-grass (*Calamagrostis canadensis*), indian paintbrush (*Castilleja coccinea*), sedges (*Carex conoidea* and *Carex flava*), round-leaved sundew (*Drosera rotundifolia*), golden-seeded spike rush (*Eleocharis elliptica*), long-leaved bluets (*Houstonia longifolia*), (*Iris versicolor*), pale spike lobelia (*Lobelia spicata*), marsh wild-Timothy (*Muhlenbergia glomerata*), nodding ladies'-tresses (*Spiranthes cernua*), mountain blue-eyed-grass (*Sisyrinchium montanum*), rough-leaved goldenrod (*Solidago rugosa*) (Laureto and Pringle 2010, MNFI 2026, Penskar and Comer 1995). Rare plant associates include Vasey's rush (*Juncus vaseyi*, State Threatened), Clinton's bulrush (*Trichophorum clintonii*, State Special Concern), and New England blue violet (*Viola novae-angliae*, State Threatened) (Penskar et al. 1996).

Biology: Voss's goldenrod is a distinctive and visually striking octoploid species (possessing eight sets of chromosomes [$2n = 8x = 72$]) that closely resembles a larger form of Houghton's goldenrod (*Solidago houghtonii*) (Reznicek et al. 2025). Laureto and Pringle (2010) suggests that Voss's goldenrod may have been derived by hybridization between the hexaploid Houghton's goldenrod and another member of genus *Solidago*, but the true parentage of Voss's goldenrod remains unresolved (Laureto and Barkman 2011, Todd Barkman, Western Michigan University, personal communication).

Reproductive and life cycle strategies for Voss's goldenrod have not been fully researched and documented but are likely similar to other members of the genus *Solidago*. In general, members of *Solida-*



go are perennial herbs that are spread by seed and rhizome that give rise to caespitose clumps of clonal plants. Vegetative reproduction is common in many goldenrod species. They germinate in the spring and early summer and then flower and set seed after pollination in late summer and fall. Inflorescences are gynomonoecious meaning they have both pistillate (i.e., female) and bisexual flowers. Many members of *Solidago* are self-incompatible making this group of plants reliant on their pollinators for pollination and production of seed. *Solidago* species are host to a variety of largely unspecialized insect pollinators including native and non-native honeybees, several wasps, syrphid flies and pollen-eating beetles. Honeybees collect nectar before winter while other bees use the pollen to supply their late-season nests. Seeds are wind dispersed by way of a pappus of bristles that help make the seed airborne, allowing for a wide range of dispersal.

Several insects are known to feed on *Solidago* flowers and seeds including blister beetles (*Epicauta pennsylvanica*) and the larvae of casebearers (Order Lepidoptera, Family *Coleophoridae*), which are known to be the major seed predator of *Solidago* species (Gross and Werner 1983, Laureto 2010, Pavek 2011).

Laureto and Pringle (2010) commonly observed individuals of Voss's goldenrod to be infected with a leaf fungus that forms blackish circular spots approximately 4-10 mm in diameter. This leaf fungus seems to cause no apparent harm to the plants and could serve as an unusual distinguishing feature of the species as it has not been observed in any populations of the closely related Houghton's goldenrod.

Conservation/management: Voss's goldenrod is an endangered species at risk of extinction due to its small population size and small geographic range, limited to just 2.25 square miles. Other threats to this species include habitat conversion and fragmentation and the destructive use of all-terrain vehicles (ATV) within the species delicate and state imperiled habitat. Fire suppression within this species habitat is suspected to have negative



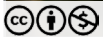
Photograph by A. A. Reznicek, courtesy of Michigan Flora

Figure 2. Seeds have pappi of bristles and are wind-dispersed.

effects on the viability of this species. Less frequent fires allow for woody encroachment and invasive species to spread unchecked, reducing habitat availability and overall health and resiliency (Cohen et al. 2020). Reintroduction of fire to these landscapes would help keep the effects of woody encroachment and the spread and establishment of many invasive species but research is needed to understand the effects of fire on this species (Laureto and Pringle 2010, MNFI 2026).

Invasion of non-native invasive species poses a serious threat to Voss's goldenrod and should be treated when feasible. Non-native species that threaten this species and its habitat include autumn olive (*Elaeagnus umbellata*), honeysuckles (*Lonicera* spp.), multiflora rose (*Rosa multiflora*), reed (*Phragmites australis* subsp. *australis*), reed canary grass (*Phalaris arundinacea*), narrow-leaved cattail (*Typha angustifolia*), hybrid cattail





Photograph by [Nate Martineau](#), iNaturalist

(*Typha* × *glauca*), and purple loosestrife (*Lythrum salicaria*) (Cohen et al. 2020).

Comments: This species is named for Dr. Edward G. Voss, an internationally recognized botanist from Michigan who wrote the manual on Michigan's flora—Michigan Flora Volumes I–III (Voss 1972; Voss 1985; Voss 1996).

The genus name *Solidago* derives from the Latin words *solidus* (whole) and *ago* (to make), translating approximately to “make whole” or “heal,” in reference to the plant's traditional association with medicinal properties (Semple and Cook 2006). European goldenrod (*S. virgaurea*) is thought to have many medicinal properties, including antioxidant, antiinflammatory, painrelieving, diuretic, and antibacterial effects, though most supporting evidence comes from laboratory and animal studies. More research, including human clinical trials, is needed to confirm both the effectiveness and safety of these claimed benefits (Fursenco et al. 2020).

Research needs: The evolutionary origins of this species is not clearly understood and further molecular and phylogenetic research is required in order to shed light on this interesting and complex hybrid

species story (Todd Barkman, Western Michigan University, personal communication).

Research into the biological, reproductive and life-history strategies of Voss's goldenrod would be of use in better understanding the species relationship to its environment as well as its conservation needs. Research into how much population health and viability depends on sexual vs. asexual reproduction would be useful information in conservation efforts (Tyler Bassett, MNFI, personal communication).

It is unclear how changes in habitat, weather, climate, and fire regime affect the few populations of Voss's goldenrod. The effects of hydrological fluctuations have not been researched, which could be helpful in establishing how it will respond to climate change as well as disturbances that affect the local water table. The effects of fire and fire suppression on Voss's goldenrod have not been investigated and would benefit conservation efforts of this species.

Related abstracts: Mesic sand prairie, Wet-mesic sand prairie, Pine barrens, Intermittent wetland, *Solidago houghtonii*



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