



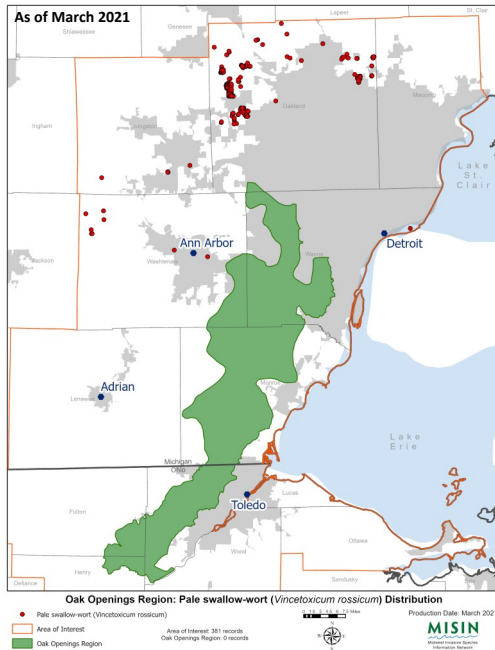
Pale Swallow-wort

Vincetoxicum rossicum

**Alert**

This Best Management Practice (BMP) document provides guidance for managing pale swallow-wort in the Oak Openings Region of Northwest Ohio and Southeast Michigan. This BMP was developed by the Green Ribbon Initiative (GRI) and its partners & uses available research & local experience to recommend environmentally safe control practices.

INTRODUCTION AND IMPACTS — Pale swallow-wort (*Vincetoxicum rossicum*), or also known as dog-strangling vine, is a perennial vine native to the Ukraine and Southwestern Russia. Pale swallow-wort (pale s-w.) was first brought to North America in the 1800s, presumably as ornamental plants or horticultural specimens. Pale s-w. is invading New England states like New York, as well as in adjacent areas of Canada, i.e. southern Quebec (the Great Lakes Region). It is becoming a serious problem in adjacent northern states like Michigan as it appears to be spreading quickly west. According to multiple invasive plant distribution databases, pale s-w. has not been recorded in Ohio; however, it is labeled as an alert species. In Michigan, records are found mainly between the cities of Ann Arbor (north of), Detroit (northwest of) and Flint (south and east of).



As of spring 2021, the Midwest Invasive Species Information Network (MISIN) has 381 records of pale swallow-wort (red points on map above) that are just outside of the Oak Openings Region (OOR) (approx. 20 mi radius). In the MISIN database, there are no occurrences currently mapped (spring 2021) within the OOR boundaries (green polygon above); however, current records have been observed in 3 of 7 OOR counties, these include: Oakland, Washtenaw and Wayne counties of Michigan.

Pale swallow-wort has many characteristics that contribute to its classification as an invasive species. It can be an aggressive competitor, growing in extensive patches that allow displacement of desirable native plants. Pale s-w. has strong associations with beneficial arbuscular mycorrhizal fungi (AMF), which improve nutrient cycling and overall plant growth and aggressiveness. It threatens rare plant communities such as alvars, mesic prairies and oak savannas.

Pale s-w. roots are toxic to mammals (incl. livestock) and the stems and leaves are toxic to insect larvae, including monarch caterpillars. New areas may be colonized via seed dispersal (wind & water).

SIMILAR SPECIES - Pale swallow-wort can easily be confused with black swallow-wort (black s-w.), a very similar and related species that has invaded an analogous but larger range in North America.

Vegetative differences are difficult to discern so, it is best to have a flowering specimen. Pale s-w. flowers are purple to pink, usu. much lighter, and with petals longer than wide; also smooth above (without hairs). Black s-w. has dark purple to nearly black flowers, petals about as long as wide (shorter length than pale s-w.) and hairy above. A native (rare) species that is known from southern Ohio is climbing milkvine or c. milkweed (*Matelea obliqua*). It has similar flowers but petals are longer and usu. twisted; leaves wider and more cordate than swallow-worts, and with spiky pods.



pale swallow-wort

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black swallow-wort

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climbing milkvine

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HABITAT- Pale swallow-wort has demonstrated the ability to establish and spread readily in disturbed sunny sites but is also shade tolerant. Typical habitats include roadsides, gardens, old fields and pastures, forests and edges of fens (and alvars). It can tolerate some flooding, but only brief periods. It thrives in calcareous soils.

IDENTIFICATION - Habit: An herbaceous, twining perennial vine growing up to ~7 feet in length. With opposite leaves, purple to pink flowers and distinctive milkweed-like seed pods. Stem/leaf sap is clear and watery, not milky.



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seed pods w/ leaves

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Leaves: Opposite with entire margins, sometimes wavy; shape is oval to oblong, leaf bases rounded to nearly heart-shaped and leaf tips pointed. 5 - 13 cm long (2 - 5 in) and 2 - 6.5 cm wide (1-2.5 in).

Stems: twining stems covered in downy hairs (fine hairs); often found twining on other swallow-wort plants but also climbs up or twines around trees, shrubs, herbaceous plants and other vines.

Flowers: Plants flower in June (MI) continuing through July; flowers emerge at the axils of the leaves in clusters of 5-20; five petals per flower are star-like; color ranges from red-brown/maroon to pinkish.

Fruits and Seeds: In Michigan, seed pods (follicles) form in late July thru August; two smooth pods are found at each leaf axil; 4-7 cm long (1.5-3 in) and 0.5 cm wide (0.2 in); pods have milky sap; seeds have feathery hair-like tufts attached for wind dispersal.

Roots: rhizomes absent or short.

Pale Swallow-wort Timeline	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Life History: perennial vine	winter dieback		shoots emerge in spring; resprouts from roots			flowering (fruits begin in June, thru Sept)	seed pods begin to form	seed pods mature, then seed dispersal (mostly by wind)				winter dieback
Mechanical Treatments: reg. mowing, hand-pulling, digging, cutting					control before pods fully form and open; destroy pods			remove mature pods before pulling, etc.				
Chemical Treatment: foliar spray						apply before seed set; apply glyphosate twice in same season						
Prescribed fire	not recommended alone as it often stimulates vigorous resprouting from the root crown (see below)											

REPRODUCTION AND DISPERSAL—Pale swallow-wort reproduces by seed and spreads rapidly after a few plants have colonized a new area. With the formation of beneficial arbuscular mycorrhizal fungi (AMF), plant growth and aggressiveness is extremely high. Seed dispersal is by wind (and sometimes water), which can move the seeds long distances. Seeds can also disperse well through human activities: via boot/shoe treads, ATVS, tires, and equipment. **Thoroughly cleaning equipment is a critical prevention measure for pale s-w. in the OOR. Land managers should consider incorporating pre- and post-project equipment cleaning into contracts.**

REPORTING—Pale swallow-wort is identified as an **alert** species in the OOR. Reporting locations of pale s-w. is essential for its management and control. To report or to find out specific ways you can help map occurrences, contact [MISIN](#), [GRI \(OO-CWMA\)](#) or your county CWMA/CISMA. Early detection of pale s-w. invasions limits the future effort needed to reduce established populations.

CONTROL—According to Ontario Invasive Plant Council, land managers should first focus their efforts on preventing spread by removing isolated pale s-w. plants and small populations (satellite infestations) outside the main infested area. When action is taken early it can significantly reduce the cost of control. It is also important to develop a control plan; one that incorporates integrated pest management (IPM) principles.

Chemical: It is the responsibility of the applicator to comply with herbicide labels and regulations when planning chemical treatment. Where appropriate, use herbicides approved for aquatic areas. Also, use herbicides with the appropriate non-ionic surfactant. For pale s-w., use adjuvant due to waxy cuticles.

Foliar or Backpack Spraying —Glyphosate and triclopyr are both effective on pale s-w. According to several sources, a glyphosate



treatment should be applied twice in the growing season, during flowering (in June) and again in August. Triclopyr treatment is recommended once per season and two forms are commonly used, an amine and an ester formulation. Due to pale s-w.'s waxy leaves (cuticle), an adjuvant or non-ionic surfactant should be used to penetrate this barrier.

Mechanical: *Pulling:* removes above ground vegetation but often leaves the root crown which can regrow, often more aggressively. Pulling helps control seed abundance, so repeated seasonal pulling will usu. be necessary, as well as, a minimum of 3 years follow-up.

Digging—a viable eradication measure for small populations. Reported to be more effective than hand pulling and, in some cases, than herbicide. Dig and remove the plant and all the roots; re-visits needed; at least 3 years.

Cutting—Timing is important. Cut stems just after plants flower, and prior to seed pods maturing. Cutting-only will not eradicate the pop.

Mowing—Timing is important. Mow just after plants flower, and prior to seed pods maturing. Mowing-only will not eradicate the pop. Mowing/cutting late in the growing season will distribute seeds in the treatment area and likely increase the population. Mowing treatments are best for monoculture invasions.

Covering/Tarping—best for medium to large infestations that have formed monocultures. Recommended for high light areas where roots/soil can heat up and “cook” in the sunlight. Start treatment in spring and leave cover in place through the growing season. Once cover is removed, replanting with native sp. is often recommended.

Disking/Tilling- Not recommended. Soil disturbance. Pieces of root may survive and spread.

Biological: *Hypena opulenta*, a leaf-eating moth species, has gone through trial releases in multiple areas of the Northeast and Canada.

Prescribed Fire: not recommended alone; often stimulates vigorous resprouting from the root crown; however, burning can kill seedlings and several burns can exhaust the seed bank.

DISPOSAL—Do not compost. During fruit stage, carefully put all plant material in black plastic bags. Seal the bags tight and leave them to “cook” in direct sunlight for 1 -3 weeks. If flowers/seed pods have not formed, allow stems and roots to dry out completely before disposing of them.

Herbicide	Trade Names	Concentration**
Triclopyr	Garlon 4 Ultra ®	1.5 - 3% AI*
Triclopyr	Garlon 3A ®	2 - 3% AI*
Triclopyr	Garlon 3A® or 4 Ultra ®, Renovate ®	1 - 5% by volume
Glyphosate	Roundup ®, Rodeo ®, Accord ®, XRT-II ®	1 - 3% AI*
Glyphosate	Roundup ®, Rodeo ®, Accord ®, XRT-II ®	2 - 6% by volume

** all concentrations refer to foliar spray treatments

*AI: Active Ingredient