

Black Swallow-Wort (*Vincetoxicum nigrum*) Control Fact Sheet

About *Vincetoxicum nigrum*

Characteristics

Black swallow-wort is known as *Vincetoxicum nigrum*, *Cynanchum louiseae* and *C. nigrum*. A related species, *C. rossicum* (*V. rossicum* in Canada and Europe), commonly called Pale swallow-wort, is also found in New England and has been deemed invasive in Massachusetts and Connecticut. These plants share many characteristics and habitats, but the primary concern in Rhode Island is for eradication and control of *C. louiseae*, not only because of its ability to displace native plants, but also because of its impact on the reproductive success of the monarch butterfly (and possibly other species). Monarchs normally lay eggs on native milkweeds, which are disappearing due to competitive pressure from swallow-worts. In addition, monarchs' eggs which are laid on Black swallow-wort have nearly 0% hatching success, apparently due to allelopathy.

Members of the Milkweed family (*Asclepiadaceae*), both species of swallow-wort are herbaceous, with twining vines growing three to six feet in height. Both have opposite, shiny leaves, 2" to 4" long, and both have clusters of small (<1/4") flowers. Black swallow-wort usually bears purple-black flowers while pale swallow-wort usually shows light maroon flowers, but this cannot be used for reliable identification. The flowers of Black swallow-wort have petals that are about half as wide (at the base) as they are long, whereas the flowers of pale swallow-wort are much narrower at the base than their length. In addition, the inner petals of Black swallow-wort flowers are hairy, whereas the inner petals of pale swallow-wort are hairless. Both produce seed pods 1½" to 3" in length, bearing numerous seeds which are typically wind-distributed, but they may also be transported on clothing or on animal fur, via hairy coma. The name "swallow-wort" comes from the shape of the fruit, which resembles the forked "swallow tail."

Both Black and Pale swallow-wort grow from strong, central rhizomes. While some suggest this provides an asexual means of distribution, others contend the primary benefit is in perenniation, not dispersal. Mowing the shoots merely delays the reproductive cycle; the plant quickly replaces cut shoots from buds

on the rhizome. In addition, Black swallow-wort has a strong, fibrous root system which makes eradication by digging difficult, since the plants can regenerate from root fragments.

History and Habitat

Black swallow-wort is native to south-western Europe, along the Mediterranean coast. It is thought to have been brought to the United States for horticultural purposes. The plant is first referenced in Gray's *Manual of Botany* in 1867 (Fifth Edition) as having escaped from a garden in Cambridge, MA.

Black swallow-wort is found in North America in a variety of upland areas, comprising a wide range of soils and environmental conditions. It is commonly reported in rocky shores above high-tide, in fields (both agricultural and natural), in woodlands and in quarries. It tolerates full sun as well as part to full shade (though its growth and reproduction are favored by sunlight). It seems to tolerate thin soils as well as deep, fertile soils, and neither pH nor salt seems to affect its survival markedly. It is often associated with disturbed landscapes, but it does not require them. Once it establishes in an area it rapidly spreads, particularly downwind, and quickly takes over a wider area.

In New England, shoots typically emerge in spring and flowers begin to appear in June or July. Seed pods form and seed broadcast begins in late July to early August (continuing through October in some areas). Shoots die to the ground in winter. The plants survive the winter through both seeds and rhizomes. Abundance of sunlight promotes earlier and more prolific seed production. A healthy stand of Black swallow-wort may produce between 1000 and 2000 seeds per square meter per year, depending on the sunlight. Life-span for individual plants is unknown, but stable populations of 70+ years of age are documented.

Management

Control of Black swallow-wort is particularly difficult because of the persistence of the rhizome and the fibrous root. Many authors recommend vigilant early

detection and physical removal as the best means of preventing infestation. Chemical methods are rarely 100% effective, and once the plant is established, it will reappear readily from seed. At present no promising biological control agents are available.

Mechanical Methods

Repeated cutting and digging of small stands can be effective in preventing spread of Black swallow-wort, provided the plants are removed before seeds are released. Cutting is most effective when there are rare small, immature pods on the plants. Cutting during the flowering period, before pod formation will allow plants to recover and still produce a viable seed crop. This is often impractical for larger stands due to the regenerative capability of the rhizomes and the fibrous roots, which must be removed completely.

Digging up the root crowns has proven more effective than pulling alone. In addition, once a stand has released seeds, the seeds have a long persistence in the seed bank, so eradication is unlikely. Still, in environmentally sensitive areas physical removal may be the only acceptable solution. To be effective, mow shoots repeatedly to 5" height. Remove all seed pods and roots and bag securely and dispose them. Also, plan to replace the swallow-wort with native species known to emerge early and compete strongly for resources (light, nutrients, etc.).

Grazing, burning, and flooding have not demonstrated effectiveness in controlling Black swallow-wort.

Chemical Methods

IMPORTANT: Read and follow all herbicide labels carefully before use. Both triclopyr (Garlon 3A™) and glyphosate (Round-up Pro™) have been used to control swallow-wort. Round-up Pro™ is not recommended for use where surface water is present or in intertidal areas below the mean high water mark. Garlon 3A has specific restrictions regarding use in and around water. Both may be sprayed or applied to cut stems. Foliar application has been generally more effective where it is appropriate, but application to cut stems is more acceptable near wetland areas.

Glyphosate is generally sprayed at 2% to 5% concentration and triclopyr at 1%. Because triclopyr is primarily effective on broadleaf plants, it is preferred in areas where native grasses are growing among the swallow-wort. Foliar application is less effective in mixed (tall and short) stands since the shorter shoots may be sheltered by the taller. In addition, plants should not be sprayed too early – they need adequate leaf area for adsorption of the herbicide. Generally, spray after flowers appear, but before seed pods are set.

Cut-stem applications of glyphosate (50% to 100%) have been 98%-100% effective at controlling adult plants. Cut-stem applications of triclopyr (25%, 50%, 100%) have been less effective, but there may be compelling reasons (i.e. wet conditions at the site rendering Round-up Pro™ unfit for use) to consider it. In all cases, repeat application is required to control newly-emerged shoots.

As with mechanical control methods, the best herbicide control results from an integrated program of eradication, control, and restoration. Choose native plants which emerge early and which can out-compete the Black swallow-wort for light and other resources. If you are using chemical control methods, native grasses are beneficial since they are resistant to herbicides which selectively control broadleaf plants.

Herbicide application is always hazardous, particularly when working with concentrated agents. Trained, certified applicators should be employed for such work. Note that special permits may be required to perform this work in environmentally-sensitive areas.

NOTE: Not all glyphosate formulations are labeled for use with the cut stem and stem injection control methods. Be sure to use an herbicide that is approved and legal to use for the control method that you choose (e.g. Garlon™ and Roundup Pro™ are approved and legal to use for these methods in RI). The label is the law. Be sure to secure the required permits from the appropriate regulatory agency before applying herbicides.

Mention of pesticide products in this document does not constitute endorsement of any material

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