Black Swallow-wort

Cynanchum louiseae Kartesz & Gandhi
Milkweed family (Asclepiadaceae)

NATIVE RANGE

Europe (Italy, France, Portugal, and Spain)

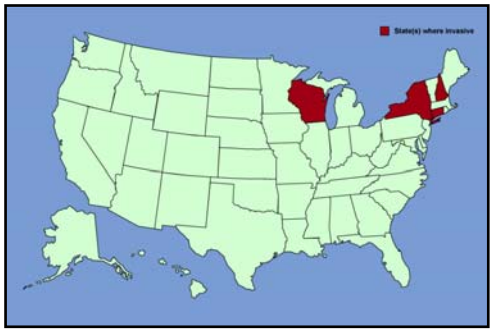
DESCRIPTION

Black or Louis' swallow-wort (previously *Vincetoxicum nigrum* and *Cynanchum nigrum*) is a perennial, twining herbaceous vine. The leaves are oval shaped with pointed tips, 3-4 in. long by 2-3 in. wide, and occur in pairs along the stem. The small five-petaled star shaped flowers are dark purple to almost black with white hairs, about ¼ in. across, and are borne in clusters. The fruits are slender tapered pods, 2 to 3 in. long by about ¼ in. wide, turning from green to light brown as they mature. Plants have rhizomes (underground stems) that sprout new plants and grow in clumps of several to many stems, forming extensive patches.

NOTE: There are many native species of Cynanchum, including honeyvine (*Cynanchum laeve*) which occurs throughout the eastern U.S. and could be confused with black swallow-wort. Honeyvine has white flowers, and its leaves have a distinct heart-shaped base.

ECOLOGICAL THREAT

Black swallow-wort can form extensive patches that crowd out the native vegetation. Old field habitats of goldenrod and grasses can be replaced almost exclusively by swallow-wort, completely changing their physical structure. Impacts of the change in physical structure and insect communities on grassland and old field nesting birds is not yet known. A preliminary study of impacts on grassland birds in New York suggests that as coverage by a sister species of swallow-wort (pale swallow-wort, *Cynanchum rossicum*) increases, grassland bird presence declines. The globally rare alvar ecosystems (limestone pavement barrens supporting unique plant communities), are threatened by many rapidly expanding swallow-wort populations in Jefferson County, New York. Black swallow-wort threatens to displace Jessop's milk vetch, a federally listed plant, on the banks of the Connecticut River valley in central Vermont. Investigations into impacts on the monarch butterfly, which requires milkweeds for reproduction, indicate that the butterfly will cue into black swallow-wort and lay eggs, but the larvae do not survive.



DISTRIBUTION IN THE UNITED STATES

Black swallow-wort has been reported to be invasive in natural areas in California, Connecticut, New Hampshire, New York, and Wisconsin.

HABITAT IN THE UNITED STATES

Black swallow-wort is associated exclusively with upland areas and is tolerant of a range of light and moisture conditions. It has been reported to occur above the high tide line of some rocky coastal areas where it can tolerate relatively high salt concentrations. Typical habitats include old fields, hedgerows, brushy areas, and the ground layer of woodlands. Both natural and human-caused disturbance including ice-scoured river banks, talus slopes, transportation corridors, quarries and abandoned agricultural fields provide acceptable habitats. Black swallow-wort has also been reported to be an intractable weed in gardens of New England. There does not appear to be a distinct lime or alkaline association, however, as it is also found in granitic systems.

BACKGROUND

The first collection of black swallow-wort in North America was from Ipswich, Essex County, Massachusetts, in 1854. An 1864 Essex County collector recorded that it was "escaping from the botanic garden where it is a weed and promising to become naturalized." The fifth edition of Gray's Manual of Botany reports black swallow-wort to be a weed escaping from gardens in the Cambridge Massachusetts area.

BIOLOGY & SPREAD

Black swallow-wort emerges in spring and flowers from June to July. The flowers are self-pollinating. Fruits are soon produced, turning from green to light brown as they mature. The number of pods is directly related to the level of light available. When ripe, the fruits open along a seam and release flattened seeds equipped with downy parachutes that aid in wind dispersal. Black swallow-wort spreads long distances by seed and Local spread and establishment is through clones arising vegetatively from rhizomes. Thick infestations in full sun can produce 2,000 seeds per square meter. The seeds are polyembryonic with one to four embryos per seed which greatly increases the likelihood of seed survival and establishment. Wind dispersal of seed begins in late July to early August in open areas and continues throughout late summer and fall. Populations growing under dense wooded canopy may have inadequate resources to produce flowers or seeds. Black swallow-wort dies back to the ground every winter.

MANAGEMENT OPTIONS

As with all invasive species, early detection and removal is the best approach for preventing the establishment and spread of this plant. If you find some black swallow-wort, look for more, and aim to remove all plants at a site. Stay out of patches that are actively dispersing seeds, unless you plan to collect and dispose of the seeds carefully. Clean all machinery that has traveled through swallow-wort patches that have maturing or dispersing pods. For large established infestations, chemical control is the most effective means.

Biological

There are no biological controls available for this plant.

Chemical

Two systemic herbicides - Garlon® 4 (triclopyr ester) and Roundup Pro® (glyphosate) – have been found to be effective in controlling pale swallow-wort. These herbicides should be applied when plants are actively growing, after flowering has begun. DO NOT SPRAY TOO SOON. Avoid the temptation to spray the plants as soon as they emerge in May. Only when the plants flower will they be large enough to receive enough spray on the exposed leaf surface to deliver a killing dose to the roots. Plants that are sprayed before pods form will probably not produce a viable seed crop that season. Be patient. Systemic herbicides do not cause a "burn down" of plants like contact herbicides do. Within 1-2 weeks the plants will look sick. There may be dead tissue spots on most leaves many yellowing leaves. Do not waste herbicide, money or effort by spraying plants twice. Sick plants cannot effectively absorb the herbicide through the leaf surface or move the herbicide to the roots. Swallow-wort control may take a few years and it is important not to use more herbicide than is necessary.

Cut stem application

For cut stem applications use a 50 to 100% solution of herbicide concentrate. Roundup Pro® is much more effective than Garlon® 4 for cut stem application. Apply the herbicide solution immediately to cut stem surfaces. As mentioned above with foliar applications, if treated plants have mature pods the seeds may ripen after treatment and disperse, leading to new infestations. If possible, cut plants low and bag and dispose of the portions with pods.

Foliar application

Experience shows that foliar sprays of systemic herbicides (i.e., herbicides absorbed into the plant and carried internally) only kill plants in the upper layers of the infestation, requiring repeated applications to effectively control the entire mass. It is important to treat plants before pods begin to form to ensure that viable seeds are not produced. If that is not possible, plants with pods should be cut or mowed first and then sprayed once they regrow. Regrowth will be rapid in summer. Herbicide application to the new growth should be conducted from August through early September. If mowing is not possible, for example in wooded areas, cut plants by hand just below the lowest pods, and spray the new growth. In

situations where foliar sprays are undesirable, for example when desirable native plants or other non-targets would be harmed, sponging the herbicide on individual plants, using the same concentration as foliar sprays is an option.

Manual
Remove pod-bearing plants from the site and destroy them. Eradication on a small scale must be very thorough and requires dedication. The complete root crown must be dug out before the seeds ripen. Plants bearing seeds should be burned or bagged and disposed of in a landfill. Infested land might be brought under control by plowing and planting an annual crop until the seed soil bank is depleted, possibly as long as five years.

Mechanical
Mowing, even several times a year, will not eradicate swallow-wort however, it can be employed to prevent a seed crop. Cutting is most effective at preventing a mature seed crop if done in early to mid-July, when there are small, immature pods on the plants. Cutting during the flowering period but before pod formation will allow plants to recover and still produce a viable seed crop. Monitor mowed areas and mow a second time if pods reach mature size in late summer or early fall. Hay cutters can contribute to the spread of swallow-wort if cutting is not timed correctly. Hay crops infested with swallow-wort and then sold elsewhere can be a means of introducing swallow-wort to new areas.

USE PESTICIDES WISELY: Always read the entire pesticide label carefully, follow all mixing and application instructions and wear all recommended personal protective gear and clothing. Contact your state department of agriculture for any additional pesticide use requirements, restrictions or recommendations.

NOTICE: mention of pesticide products on this page does not constitute endorsement of any material.

RESTORATION
Rehabilitation efforts will vary by habitat and age of infestation. Young infestations may have enough of the enduring seed bank and dormant plants of the displaced plant community to recover without active management. In degraded habitats, establishing cool season grasses will permit application of broad leaf herbicides to control swallow-wort plants recruited from the seed bank and from nearby infestations. Research on restoration of swallow-wort infested areas is on-going.

CONTACTS
For more information on the management of black swallow-wort, please contact:

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SUGGESTED ALTERNATIVE PLANTS
In the eastern U.S., the native honeyvine (*Cynanchum laeve*) can be substituted for the invasive black swallow-wort. Other attractive native vines that are widely available in the East include trumpet creeper (*Campsis radicans*), trumpet honeysuckle (*Lonicera sempervirens*), Dutchman's pipe (*Aristolochia macrophylla*), Virginia creeper (*Parthenocissus quinquefolia*) and native wisteria (*Wisteria frutescens*). Check with your state or local native plant society for more information on species native to your ecological region and for native plant sources.

OTHER LINKS
- http://www.invasive.org/search/action.cfm?q=Cynanchum%20louiseae
- http://www.lib.uconn.edu/webapps/ipane/browsing.cfm?descriptionid=5

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