INVASIVE SPECIES CONTROL FACT SHEET

Black Swallow-wort (*Cynanchum louiseae*) &
Pale Swallow-wort (*Cynanchum cincetoxicum*)
Identification and Mechanical Control
Recommendations for Long Island

**History:**
Black swallow-wort is a native of Europe and the precise method of introduction is unknown. It is theorized that it escaped from a garden planting in Massachusetts 1864. Pale swallow-wort is introduced to New York in 1897 expectedly as a garden plant. It is native to Asia and Europe.

**Biology:**
Black swallow-wort is a perennial plant that has vine-like growth habit which climbs small trees and shrubbery. This aggressive upland plant tolerates a variety of environmental conditions, from shade to full sun, droughty to moist soils, a range of pH levels, and is even known to tolerate high salinity environments.

Swallow-wort has unique reproductive habits that ensure the survival and establishment of the plant both vegetatively and by seed. The seeds are polyembryonic meaning they contain one to four embryos that can grow into new plants. This exponentially increases the potential for survival of the seed. The “parachutes” attached to the seed are indicative of the Milkweed family. This assists the seed in traveling long distances with the help of a breeze or passing animals. The vegetative reproduction of Swallow-wort occurs through its rhizomatous roots. These structures increase the plant density by sending up clones of the plant as it spreads just under the soil surface.

With such environmental tolerances and reproductive abilities, Swallow-wort invades woodlands, coastal areas, river banks. It also thrives and displays its invasive habit in open fields, field edges, under fences, forest edges, disturbed areas (road sides, mining operations), cemeteries, and pastures. Interestingly enough, low light levels limit seed production but in full sun it reportedly produces upwards of 2000 seed per square meter! Reduced invasive tendencies in shaded areas such as woodlands can be contributed to specific light levels.
Swallow-wort poses a serious threat the agricultural industry especially nurseries and Christmas tree farms where regular cultivation and mowing does not occur. In these commodities, Swallow-wort spreads rapidly, hindering crop production by shading out and killing the vegetation on which it relies.

**Identification:**
Black Swallow-wort is an unbranched twining, perennial, herbaceous plant/vine that can reach 6.5 feet in length. The leaves are opposite, shiny, smooth, dark green in color with smooth margins and pointed, ovate (oval) to lancolate in shape and 3 to 4 inches long and 2 to 3 inches wide.
Black/ Swallow-wort (*Cynanchum louiseae*)

Not to Scale

Pale Swallow-wort:

The small dark pink - purple to black (Pale swallow-wort are pink) flowers have a distinct five pointed star shape with yellow corona and occur in clusters of six to ten. On Long Island, flowering occurs in June through July and seed formation occurs in July through September. The fluffy seed is encapsulated in a pod which is green until maturity, until it turns brown and splits releasing the seeds. The seeds are flat and oval, 5 to 7 mm long and have a fluffy membranous wing along its margin. Seed production is readily influenced by light levels. In shade environments, seeds pod contain seed, persist on the vine after senescence.

Similar Species:
Many species of the genus Cynanchum are native to Long Island. Likewise care in identification is necessary prior to eradication. Honeyvine, (Cynanchum laeve), Butterfly weed (Asclepias tuberosa), Pipevine (Aristolochia macrophylla), Swamp Milkweed (Asclepias incarnata) are all species which are similar and or related to Swallow-worts.
**Control Methods:**

**Mechanism of Spread:**
As a milkweed species, seed predominately is spread by wind and mowing. Seed can stick to animals, clothing, equipment, and vehicles, and seed and plants can be a contaminant in nursery stock.

**Goal:**
Prevent seed set and spread by rhizomes.

**Target:**
Vines prior to seed set.

**Phenology:**
*Emergence/Germination:* April – May  
*Flowering:* May 15  
*Seed Set:* Aug. – Sept.

**Eradication Timing:**
April through August prior to seed set.

**Concerns:**
This plant is readily spread by seed and through its rhizomes. It is recommended that access should be prevented to areas that are actively dispersing seed due to the potential to further spread the seed.

**Equipment cleaning is critical!**

**Control Procedures:**

1. **Digging (Small infestations):** Small infestations should be removed by digging (hand pulling not recommended as vines break off and will regenerate) the plants prior to seed set*. The entire crown needs to be removed in order for this method to be effective. Digging when the soil is moist will help facilitate removal.

   *Digging during pod formation, in June, is recommended as the plants will reestablish and go to seed again if the entire plant is not removed.

   Digging should be completed by July and once seed set has occurred no further eradication efforts should be employed until the following season. Vegetation with seed pods must be bagged.

   Root crowns must be bagged and disposed of as recommended below as they will re-root if left on the ground.
2. Cultivation (Larger Infestations): In agricultural or old fields, Black swallow-wort populations can be reduced by plowing activities and the planting of a cover crop on an annual basis until the seed bank is depleted (potentially upwards of 5 years). Such plowing activities should occur in the spring, as soon as the ground is workable. The over wintered cover crop, not plowed under, should be replaced as necessary. It is critical that thorough equipment cleaning practices are applied to tractors, cultivators, and seeders in order to prevent spread of this plant to other fields.

3. Mowing: (Medium to Large Infestations) (Note, this may reduce rhizomes with repetitive mowing on a bimonthly basis. More research is necessary) Mowing is a measure which can be applied to Swallow-wort to prevent the plant from going to seed. Repetitive mowing will be necessary to prevent seed set as plants cut prior to seed pod formation will reflower and set seed. Care should be taken to not cut into the soil during mowing which may spread the rhizomes thereby expanding the area of infestation.

4. Pod picking- The last resort! This is very labor intensive and should only be attempted when no other method is possible. If pods have opened and are dispensing seed, such efforts should be terminated as this serves as a greater potential to spread the seed.

Monitoring:
Due to the rhizomes of this plant and the long life span of the seed, (5 years) monitoring and repeated control efforts are necessary for the successful control of this extremely hardy plant.

Prevention:
DO NOT ENTER SITES WHICH HAVE MATURE SEED PODS!

Disposal:
All Black swallow-wort plants must be contained to eliminate the potential of the plant re-rooting and to prevent seed spread as seed pods can mature after pulling. Plants should be disposed of in 3 mil thick black garbage bags and tightly closed. To kill the plants and seed, the bags should be placed in the sun to “cook” or liquefy. The hotter the temperature, the more likely the heat will kill the seeds. The ideal location would be on asphalt or a concrete surface. Monitor bags for tears and break down. Dispose of these bags at a transfer station at the end of the summer.

Equipment Cleaning:
Extreme care must be taken to prevent the spread of rhizomes and seed (which can stick to surfaces) of the Black swallow-wort. All equipment, tools, clothing, shoes, and machinery should be thoroughly cleaned as near to the site as possible and/or on an impermeable surface. If possible machinery should be completely sprayed down on a concrete pad with a pressure washer and debris disposed of as noted below. This cannot
be stressed enough, as in upland open areas, Black swallow-wort is most readily spread
by contaminated machinery and equipment.

References:
DCNR Invasive Exotic Plant Tutorial for Natural Land Managers. Species Management
and Control Information for Black swallow wort
http://www.dcnr.state.pa.us/Forestry/invasivetutorial/black_swallow_wort_M_C.htm

National Park Service; US Fish & Wildlife Service. Plant Invaders of Mid-Atlantic
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Plant Conservation Alliance’s Alien Plant Working Group; Black Swallow-wort Fact

Photo Credits:
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