

SWALLOW-WORT BIOLOGICAL CONTROL



Swallow-wort at the edge of a pasture in RI.



V. nigrum flowers



V. nigrum seed pods



V. rossicum flowers

SWALLOW-WORT IDENTIFICATION

Both species have dark green leaves, belong to the milkweed family (Apocynaceae) and have strong root systems. They produce seed-pods with wind-borne seeds similar to milkweeds.

Vincetoxicum nigrum flowers are dark violet, and *V. rossicum* flowers are pale pink.



Monarch butterfly laying eggs on swallow-wort, jeopardizing the survival of the hatching larvae, as swallow-worts are unsuitable hosts.

URI'S BIOLOGICAL CONTROL PROJECT

Classical biological control is the use of a natural enemy of an invasive species from its native range. Surveys in Europe and Ukraine found a moth species, *Hypena opulenta*, which was determined to be the best candidate for



Hypena opulenta moth

biocontrol. Successful larval development of *H. opulenta* only occurs on swallow-worts. This species can have multiple generations a year, and has the potential to cause significant impact on swallow-worts.

LIFE STAGES OF THE MOTH

L to R below:

- 1.) Mating adults;
- 2.) Eggs on lower surface of leaves;
- 3.) Larva that feeds on leaves, stems, and pods; and
- 4.) Pupa.



What Are Swallow-worts?

Black and pale swallow-wort (*Vincetoxicum nigrum/rossicum*) are two perennial invasive species of climbing vine.

Vincetoxicum nigrum originated from the Mediterranean regions of France, Italy, Portugal and Spain, and *V. rossicum* originated from Ukraine and southeastern Russia. Both species were introduced to North America as horticultural plants during the late 1800s. They are both now widely distributed along the Atlantic coast of the United States and in Ontario and Quebec in Canada. The plants

thrive in forests, pastures and urban areas. Swallow-worts pose a real threat to ecological stability by changing soil chemistry and displacing native plants. Grazing animals avoid eating swallow-worts due to their toxicity.

Efforts to control these plants using conventional control methods such as mowing, hand pulling, and applying herbicides have been largely unsuccessful. This led URI researchers to initiate a biological control program for swallow-worts in 2005.

Biocontrol Project Status

After URI entomologists and other collaborators completed the research on the safety of *Hypena opulenta* as a biological control agent, Canada made the first releases of *H. opulenta* in North America in 2014. In 2017, the USDA approved release of this biological control agent in the United States. The first U.S. releases were made in Massachusetts and Rhode Island in 2017. URI is monitoring these and subsequent releases and will work with other states and agencies to make additional releases.