

STATUS REPORT: BIOLOGICAL CONTROL OF SWALLOW-WORTS

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ABSTRACT

Two swallow-worts (*Vincetoxicum nigrum* and *V. rossicum*), originating from Europe, have become established in the eastern United States and Canada. Swallow-worts are herbaceous perennials that persist in a variety of habitat types in North America although their distribution in Europe is restricted. In North America, populations of *V. nigrum* grow in open habitats and along forest margins whereas *V. rossicum* penetrates dense forests. Their population expansion and aggressive growth threaten native biodiversity and disrupt ecological processes. Swallow-worts are becoming increasingly problematic in pastures and no till field crops. The lack of herbivore pressure in North America and the difficulty in controlling these weeds has spawned interest in a biological control program.

In 2006, we collected five insect species on swallow-worts in Central and Eastern Europe. In Europe, insect herbivores demonstrate strict habitat preferences—open fields or forests and seldom is a single species found in

both. More insect herbivores are found on *Vincetoxicum hirundinaria* in Europe than on *V. rossicum* and *V. nigrum*, the targets of biological control efforts in North America. Based on two seasons of host specificity studies, we tentatively conclude that the leaf-feeding larvae of the noctuids *Abrostola asclepiadis* and *Hypena opulenta* are specific to *Vincetoxicum*, while the larvae of chrysomelids *Chrysolina a. asclepiadis* (leaf-feeder) and *Eumolpus asclepiadeus* (root-feeder) can develop on additional plant genera. We are currently assessing adult beetle host preferences to determine their potential for nontarget effects. We recently confirmed acceptance and development of the seed predator *Euphranta connexa* on the target weeds. Further host specificity testing will determine whether North American plants are at risk from *E. connexa*. In 2008, we initiated impact studies with *A. asclepiadis*, *E. asclepiadeus*, and *H. opulenta*. Future studies will focus on host-specific herbivores and determining their impacts on swallow-wort population dynamics as individual species and in combinations.