

## Biological Control of *Ambrosia artemisiifolia*: Learning from the Past

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### Abstract

Common ragweed, *Ambrosia artemisiifolia* L., has uniquely raised the awareness of invasive plants. The main concern is its particularly large production of highly allergenic pollen that causes allergic rhinitis and severe asthma in over 20% of the population of affected areas. Furthermore, ragweed is presently the worst weed of major crops in North America and several countries in Eastern Europe. Its range is still expanding in Europe and is likely to accelerate under a changing climate. We plan to initiate and coordinate long-term management options such as biological control and vegetation management, as sustainable control measures are lacking in Europe. Ragweed is an excellent target for biological control and up to now *Ambrosia* has been subjected to classical biological control programs in Russia, Australia, and eastern Asia with variable success, as Australia alone has implemented a successful biological control program, resulting in a benefit to cost ratio of >100. Recently the first successes have also been documented for China. Building on the extensive studies on antagonists of ragweed in its native range in North America and on the biological control activities conducted worldwide, we recently proposed a set of seven prime candidate agents for a classical or inundative biological control of *Ambrosia* in Europe. Of special interest are agents with a very narrow host-range that reduce pollen and seed production, the stage most sensitive for long-term population management of this winter annual. Integration of biological control and of habitat management into existing short-term control measures may then lead to a sustainable management strategy of *Ambrosia* in Europe.

See our recent publication: Gerber, E., Schaffner U., Gassmann A., Hinz, H.L., Seier M. and Müller-Schärer H. (2011) Prospects for biological control of *Ambrosia artemisiifolia* in Europe: learning from the past. *Weed Research* **51**, 559-573.