

## What is biological control?

Biological control is a method of managing pests using their natural enemies. Biological control agents are predators or parasites of the invasive species they are dispatched to target and ultimately help to restore balance to an ecosystem. Biocontrol is the most efficacious method of invasive species control because it requires few additional management inputs after the initial release. If successfully establishment occurs, biocontrol agents produce offspring on their own, creating a long-term solution.

## Is biocontrol dangerous?

The short answer is 'No'! Classical biological control agents are non-natives from the original region that the invasive is from, and so their release can understandably be controversial. However, today years of testing must be done before any non-native predator can be authorized for release by the USDA. Completion of this rigorous process is what's known as a 'FONSI', or 'Finding of No Significant Impact'. In the case of the hemlock woolly adelgid predator, *Laricobius nigrinus*, no 'FONSI' is required, as the predator is native to the USA. All three species of parasitoid wasps used to target the emerald ash borer have completed the 'FONSI' process.

## How does the process for selecting biocontrol agents work?

All candidate biocontrol agents must go through what's known as 'centrifugal phylogenetic testing'. This process tests a potential agent's ability to feed, reproduce, and lay eggs on species within its host species' taxonomic group (i.e. its family, and genus) and economically important species such as corn, and soybeans. Only once this process is complete is the agent eligible for release consideration by USDA APHIS.

## Why use insect specialists for biological control?

The only biocontrol agents eligible for use are specialist feeders. Unlike long-lived mammals, insects have a narrowly selected host for feeding & egg-laying during their short-life cycles. For example, *Spathius*, one of the wasps CRISP uses to manage the emerald ash borer, can only lay eggs and reproduce on emerald ash borer. This makes them 'specialists' and insures that, once released, the insects will only prey upon a single, specifically selected host, i.e a target invasive species. To date there has been no case where an introduced insect has exterminated its target species or unexpectedly switched hosts, making them safe options for biocontrol.



Lab rearing facility where biocontrol agents undergo centrifugal phylogenetic testing



Evidence of biocontrol agent feeding on the target invasive species host within a sealed field cage

