

LivingWithBugs Guide

identification, life cycles and management

Natural Enemies

updated: 6/06

Predators and parasites of pest species are called natural enemies or “beneficials”. Predators kill their prey outright while parasites do not.

Parasites live off their host and their own survival depends on the survival of the host.

Using natural enemies to manage pest numbers is done by *encouraging local species* of predators and parasites or by *releasing* large numbers of a native species.

The latter is called *augmentative biological control*. A third method, called *classical biological control*, involves the release of non-native, exotic species.

The simplest way to encourage local, native species is to limit the use of broad spectrum insecticides. Broad spectrum insecticides are not selective and disrupt natural enemies along with pests. Pest species usually have higher reproduc-

tive rates so in the absence of natural enemies their populations “explode”.

“Broad spectrum” insecticides include most products available to homeowners with the exception of baits, insecticidal soap and horticultural oil. Farmers have access to more targeted, selective

insecticides but these have not yet made it to the homeowner market. Soaps and oils are technically not selective but their effects on natural enemies are short-

lived so they are considered “soft on beneficials”.

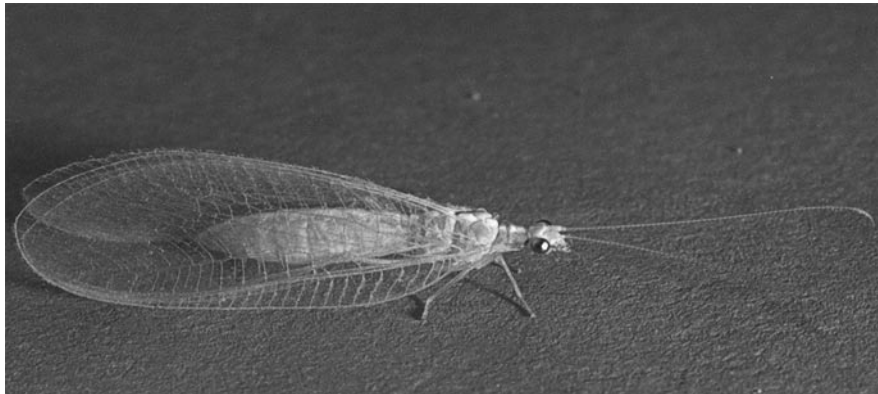
Classical biological control (release of non-native

natural enemies) is tricky and probably best left to commercial growers who have access to expertise needed to pull this off. Augmentative biological control is practiced by both commercial

growers and home gardeners with varied success.

Release of lady beetles (ladybugs) has become particularly popular. However, we generally discourage this practice, for several reasons. First, lady beetles that you release into your garden have a strong tendency to fly off, wasting your time and

“...encourage native species by limiting the use of broad-spectrum insecticides.”



Western green lacewing (black & white). (length about 1/2”, wing tips - head). Both adults and larvae are predators. Original color photo by Ken Gray.

effort. Better results have been obtained when the beetles are released in enclosed spaces like greenhouses. Second, beetles collected



Lady beetle and aphids on leaf. Lady beetles might lay eggs near a colony of aphids.

Environmental Protection Agency published a list of suppliers operating in North America at that time titled **“SUPPLIERS OF BENEFICIAL ORGANISMS IN NORTH AMERICA”** by Charles D. Hunter. While a bit out-of-date this publication should be a good starting point in your search.

See www.LivingWithBugs.com for additional information.

from wild populations are found to have relatively high levels of their own parasites and disease. Thus, a portion of the beetles you’ve purchased will be unable to function as effective predators. Finally, the practice of collecting beetles can result in habitat damage and disruption of wild populations.

For detailed information about the “ladybug industry” see

“... native (naturally occurring) natural enemies [are] always a better option for home gardeners.”

the excellent article by Sue Hubbell in *The New Yorker* magazine, October 7, 1991, pp. 103-111).

Encouraging native (naturally occurring) natural enemies is always a better option for home gardeners. However, if you want to try augmentative release, better candidates than lady beetles are those natural enemies that are reared for this purpose such as syrphid flies, predator mites and lacewings.

A number of companies produce natural enemies for homeowners and growers. Pick a supplier and follow their suggestions for implementing your plan.

In 1997 the California



Tiny, tear-shaped, amber-colored predator mite. About the size of a spider mite.



Parasitic wasp and aphid “mummy”. A parasitic wasp lays an egg inside aphid. Developing wasp larva eventually kills aphid host turning it into a hollow, bloated shell, often golden in color. Adult wasp emerges through a hole cut in the outer shell (not shown).