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Beneficial Parasitic Braconid Wasps

Braconid wasps (Family Braconidae) are a large and important group of wasps, with more than 1,900 North American species. They don't attack people but instead are parasites of other insects. Therefore, they are very important as natural controls for many pest insects. *Bracon, Chelonus, Cotesia, Leiophron, Macrocentrus* and *Opius* are common genera. Most species are less than half-inch long.

Adult female wasps lay eggs in or on the bodies of other insects which might be at various stage of development. Life cycles of these parasites and their hosts are closely synchronized, and the larvae may not kill their hosts for a long period, maintaining themselves on a diet of nonvital tissues. In one instance 500 braconid larvae were counted in the body of a hornworm that showed no signs of injury. Ultimately, however, they are lethal to the host. Some braconids are solitary, with one wasp developing in a host, while others are gregarious, with dozens or even hundreds of wasps emerging from a single host.

Gardeners who raise tomatoes are grateful for braconids that attack hornworm caterpillars. The female wasp uses her ovipositor to deposit eggs just under the skin of a hornworm.. The larvae feed inside the caterpillar and when they are fully grown, they chew their way out of the host's body to pupate. Once outside, they spin their own tiny oval cocoons that look like large grains of rice on the back or sides of the hornworm. Tiny adult wasps eventually emerge from the cocoons and seek out new hornworm hosts. Hornworms with white cocoons attached to their bodies should be preserved on the plant or relocated to nearby weeds to further this process beneficial to gardeners.

Tobacco hornworm (*Manduca sexta*) with braconid cocoons, on tomato.

Spiny oak slug caterpillar (*Euclea delphinii*) with braconid cocoons.

The silky white cocoons of hundreds of braconid wasps covering a hornworm on the leaf of *Carica papaya*.