



BUG BIZ

Pest Management and Insect Identification Series



Megarhyssa spp., The Giant Ichneumons (Hymenoptera: Ichneumonidae)

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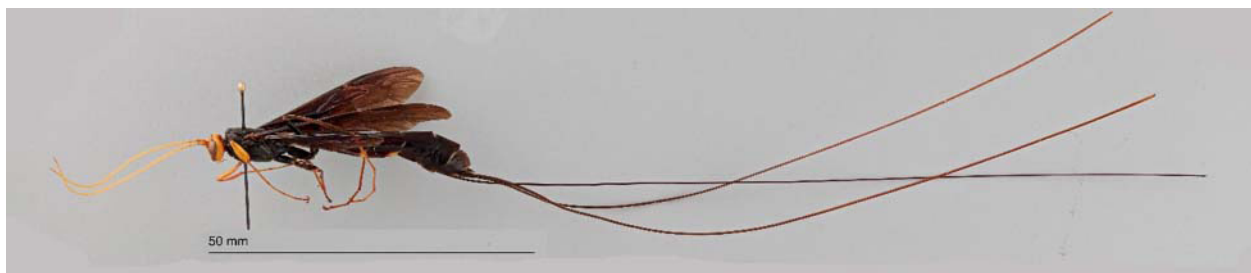
Description

Giant ichneumons are members of the most diverse family of wasps in the world (Ichneumonidae), and are the largest ichneumonids in Louisiana. Female adults are 1.5 to 3 inches (35 to 75 mm), and male adults are 0.9 to 1.6 inches (23 to 38 mm) in body length. Females can be easily distinguished from males as they possess extremely long, slender egg-laying organs called ovipositors that are much longer than their bodies. When the ovipositors are included in body length measurements, the total length ranges from 2 to 4 inches (50 to 100 mm). The color of

Megarhyssa adults comprises combinations of bluish black, dark brown, reddish brown and/or bright yellow. Female members of the species *M. atrata*, possess distinct bright yellow heads with nearly black bodies and black wings, easily distinguishing them from the other three species. In the U.S. and Canada, four species of giant ichneumons can be found, three of which are known from Louisiana, *M. atrata*, *M. macrurus* and *M. greenei*. Species other than *M. atrata* require identification by specialists because of their similar yellow- and brown-striped color patterns.



Male *Megarhyssa macrurus*. Louisiana State Arthropod Museum specimen.



Female *Megarhyssa atrata*. Louisiana State Arthropod Museum specimen.

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Life Cycle

During spring, starting around April in Louisiana, male giant ichneumons emerge from tree holes and aggregate on the trunks of stressed pine trees during the day to await the emergence of virgin females. When the female emerges, she mates with a male, then flies in search of host insects. The remaining males engage in male-to-male mounting behaviors or insertion behavior into empty tree holes from which females emerged. When a mated female finds a tree containing a host insect, she taps the tree trunk using her antennae in order to locate a potential host insect beneath the bark, a process called antennation. When the female discovers a host, she begins to lift her abdomen to bring the ovipositor almost vertical to the surface of the tree. In this position, semitransparent membranes between the last three abdominal segments are extruded, appearing somewhat similar to a large whitish balloon. After positioning, the wasp drills a hole using its ovipositor, then injects a paralyzing venom and lays an egg within the host insect. When the giant ichneumon larva hatches, the paralyzed host is consumed by the larva and eventually dies. The giant ichneumon larva then pupates in the tunnel of the consumed host during winter and emerges the following spring to repeat the cycle.

Ecological Significance

The members of this genus are relatively host-specific, largely parasitizing the larvae of the large, wood-boring insect *Tremex columba* (pigeon tremex), as well as other horntails and wood wasps (Siricidae), which are considered to be forest insect pests. In fact, the giant ichneumon *M. nortoni* has been used as a biocontrol agent to manage populations of the invasive wood wasp *Sirex noctilio*. Giant ichneumons are considered to be important beneficial insects against forest pests Louisiana. While the ovipositors of bees and stinging wasps are modified to stingers, the ovipositors of the giant ichneumons are only utilized to lay their eggs on other insects. Thus, they are incapable of stinging.

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