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Cicada Killer, Giant Ground Hornet, *Sphecius hogardii* (Latreille) and *Sphecius speciosus* (Drury) (Insecta: Hymenoptera: Sphecidae)[1]

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Introduction

Cicada killers, or giant ground hornets, are among the largest wasps in Florida (up to 40 mm in length). They are conspicuous insects, since the males are territorial and will butt or grapple with intruders including other males. There are 22 species of *Sphecius* Dahlbom in the world and all hunt cicadas as far as is known. Two of four Nearctic species of *Sphecius* occur in Florida. The females of the common Florida species, *Sphecius speciosus* (Drury), hunt *Tibicen* spp. cicadas and can dig 4-foot burrows in the ground with several branches and cells. The provisioning with cicadas is nearly specific to *Sphecius* in the family Sphecidae, but is known in a few other sphecids such as *Liogorytes joergenseni* (Brethes) from Argentina (Bohart and Stange 1976).

Biology

This biology is based on *Sphecius speciosus*. Lin (1966) observed copulatory habits in these wasps. Usually, copulation was initiated while the wasps were on the ground, with the male grasping the female from behind. Then the wasps would fly out with the female dragging the usually smaller male. Their heads are diametrically opposed while in flight. However, both wasps used their wings in flight which can last up to 45 minutes.

The fertilized female begins the reproductive cycle by making burrows 0.3 to 1.2 meters in length, with numerous branches and cells. The front legs rake the soil which is pushed out behind the female with her hind legs, resulting in a large dirt mound. The burrows are left open during provisioning and may never be closed. However, the cells are carefully closed when completed. From one to four cicadas per cell are deposited depending on the size of the cicada.

The female paralyzes the host by stinging the membrane at the base of the foreleg, then carries the cicada venter to venter by dragging or flying to the nest. One egg is placed on the last cicada in each nest. Apparently, the mother wasp can determine the sex of the egg and places the female egg with the more abundant provisions. Lin and Michener (1972) saw up to four females of S. speciosus provisioning a single nest simultaneously which may indicate a step toward sociality.

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Key to Species of Sphecius in Florida

1. Body predominately rust orange color with mostly black antennae and last few segments of the abdomen black . . . . . Sphecius hogardii (Latreille)

1'. Body predominately black with first three abdominal segments with large yellow spots; legs, mesoscutellum, and part of vertex rust orange color . . . . . Sphecius speciosus (Drury)

Sphecius hogardii (Latreille)

This is a Caribbean species known from the Florida Keys (Key West) and here newly recorded from Lover's Key, Lee County, Florida, 16 July 1999, C. Porter and L. Stange, collectors. It appears to be uncommon in Florida and nothing is known of its host preferences. The rust orange coloration is distinctive. However, the black on the abdomen is variable. The Bahama populations lack the black coloration (subspecies *bahamas* Krombein)

Figure 1. *Sphecius hogardii* (Latreille), a cicada killer wasp. Credits: Division of Plant Industry

Specius speciosus (Drury)

This wasp is widely distributed east of the Rocky Mountains and south into Mexico. Sometimes common locally in Florida especially during the summer months where many wasps may nest together gregariously. Human encounters with this giant wasp are only seemingly dangerous since usually it is the stingless male which is the aggressor. The four foot burrows may have more than 16 cells which contain one to two cicadas each of many species of *Tibicen*. The wasps are parasitized by sarcophagid flies (*Senotainia trilineata* (Wulp); *Metopia argyrocephala* (Meigen)) and possibly mutillid wasps.

Figure 2. *Sphecius speciosus* (Drury), a cicada killer wasp. Credits: Division of Plant Industry

Management

Cicada killers are usually considered beneficial insects since they destroy plant feeding cicadas. Also, they rarely sting except when the females are handled. However, under certain circumstances such as when elderly persons or young children are present in the breeding areas one may want to discourage their presence. This can be done by eliminating or reducing the breeding area which usually consists of exposed, sandy soil. This area can be mulched or covered with grass. Labeled insecticides can be applied to the nesting sites to kill the wasps.

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