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### **Ant Lion: Fuzzy Predator from Under the Sand**

The pits and squiggles of the humble antlion or “doodlebug” are a ubiquitous feature of the sandy soils found at Archbold Biological Station and throughout the southeast. Antlions build inverted cone shaped pits by crawling backwards in a spiral and throwing piles of sand outwards. Once finished digging, they sit quietly at the bottom, waiting for prey. Ants or other creatures that step on the slope lose their footing and tumble into the pit, where the antlion waits with its powerful jaws and fast reflexes. Archbold is home to 11 different species of antlions, each with slightly different preferences for location and food.

Gently tickling the edge of a pit is often enough to coax the tiny hunter from its lair, revealing its scary looking mandibles and armored head. However, anyone brave enough to have dug the entire creature out of its pit was probably disappointed. “Despite having these big scary heads,” Archbold Intern Ann Dunn states, “they’re really just these fat little grub babies under there. They can’t sting, or even walk properly.”

Just what are antlions, anyway?

The “pit-builder” antlions that people are most familiar with are really the immature offspring of a very different looking insect. After being placed in the sand as an egg by their mother, baby or “larval” antlions spend months to years operating their pit, keeping still to save energy and collecting as much nutrition as they can. Antlion young are well adapted to living in very hot and dry habitats, and can survive for months without food or water. Once they have enough nutrition, they build a silk cocoon in the sand and develop as a pupa for about a month. The adult antlion emerges from its cocoon in a delicate, winged form, about an inch and a half long, and immediately searches for a place to hang upside-down and unfurl its wings. The adult stage looks like a long, thin moth.

Dunn says many people are surprised to learn that the famous “pit-building” hunting behavior of antlions is a skill only used during one part of the animal’s life. “Antlions building pits are a lot like caterpillars are to butterflies—they have to eat as much food as they can so they have energy to develop into adults.” Adult antlions are quite peaceful compared to their children, and pollinate flowers at night. Mark Deyrup of Archbold’s Invertebrate Laboratory says there are 22 species of antlions in Florida; more than any other state.

Although the “pit-builders” are the most famous, most antlion species do not make pits at all. For example, the beautiful and elusive *Glenurus* spends its childhood in tree holes, hunting small bugs in the debris. The largest species in Florida is *Vella americana*, which also does not build pits, and instead hunts other insects by chasing after them while buried just under the surface of sandy areas. Their huge, grape-sized young can be found by following their trails in sand roads. While antlions may try to bite if held, they are often too small to do so and their venom is not potent enough to affect humans.

Antlion larvae are frequently used as subjects for studies of animal behavior, as they are active, hardy, and common throughout the year. Earlier studies performed by Thomas Eisner on antlions at Archbold show that they are able to attack and feed on venomous ants without rupturing the ants’ venom glands. Many other studies focus on the habitat preferences of young antlions: as they spend much of their lives in sand, they are quite picky about the quality and location of their homes. For those seeking more, Archbold’s Discovering Florida Scrub curriculum, found on the Archbold website, contains an introduction to antlion ecology, as well as a lesson plan for a behavioral experiment focusing on antlions. Much remains to be discovered about antlions, making them a great starting point for the study of insects.

**Photo 1: The famous Antlion or “doodlebug” is really the grub-like young of a larger insect (photo by Brandon Woo).**



**Photo 2: Adult antlions can look like moths, but they are not closely related (photo by Brandon Woo).**

