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Town and country Cane Toads

Florida's landscape varies from sandy beaches to dense forests and swampy wetlands. This range of habitats allows a wide variety of animals to thrive. One of our larger groups of animals is the amphibians, which includes frogs, toads, and salamanders. In Florida there are more than 30 species of frogs and toads. And in Highlands County, our own backyard, one can find 18 different types of frogs and toads. However, not all of these species were originally from Florida; a few are non-native and some of these are considered invasive.

Florida is home to many invasive species of reptiles and amphibians, including the Burmese Python, Cuban Treefrog, and Cane Toad. Cane Toads (*Rhinella marina*) were first introduced to Florida in the 1930s and became more widely established in the 1950s. You may have heard them referred to as giant toads, marine toads, or even Bufo poisonous toads. Originally from Central and South America, Cane Toads were introduced to many locations around the world, including Australia, Hawaii, and Florida, for the purpose of controlling insect

pests. They proved to be extremely adaptable to different habitats in their new environments, to the point where they are now considered pests themselves.

Cane Toads can live up to 10 years in the wild. As adults, they range from 4 to 8 inches long and weigh almost 3 pounds on average. They have dry, warty skin with glands on the back of the head that produce a milky-white, toxic substance which can fatally poison predators, including domestic dogs, that try to eat them. Female Cane Toads lay between 8,000 and 30,000 eggs and can breed year-round. Even their aquatic eggs and tadpoles are defended by toxic chemicals.

Dr. Betsie Rothermel, Herpetology and Restoration Ecology Director at Archbold explains, “Cane Toads are fairly common within the city limits of Sebring and Lake Placid, during spring you can hear them calling from lakes and other water bodies. Their call sounds like a low-pitched trill, a bit like the sound of an engine idling.”

Until recently, there had never been a detailed study of Cane Toad habitat use in Florida. In 2015, Audrey Wilson, a graduate student from the University of Florida, set out to fill this knowledge gap and document the spread of Cane Toads outside of known established populations. Wilson says, “My main goal has been to determine whether these toads are mostly in just urban areas or also present in natural areas.” When asked why she chose to study Cane Toads she explained that, “While studying abroad in Costa Rica—where I first learned about Cane Toads—I thought they were really interesting animals.” And then a few years later, when Wilson learned they were introduced in Florida, she decided to conduct her thesis research on them, noting, “I felt there were a lot of important unanswered questions.”

Working with her advisor, Dr. Steve Johnson, and with support and assistance from the U.S. Geological Survey and Florida Fish & Wildlife Conservation Commission, Wilson set up surveys across multiple Florida landscapes. Each survey is a 'line transect' representing a gradient ranging from urbanized areas to modified areas (such as agricultural land) to natural areas. One of these gradients included Highlands County, where she surveyed a range of sites, including urban neighborhoods in Lake Placid and the natural scrub habitat at Archbold, which includes a lot of wetlands. She surveyed sites by using small recording devices and customized

software that recognizes frog calls so she could determine Cane Toad presence from their distinctive calls on the sound files.

Wilson's research verified that Cane Toads are well-established in urban areas. In agricultural areas some Cane Toads were detected, but not many. She found they were absent from native forest and scrub habitat. She explains, "This is somewhat good news, because it means Cane Toads have not yet invaded natural areas of Florida."

Cane Toads being restricted to developed urban areas is good news for native species, such as Oak Toads and Southern Toads, whose tadpoles might be out-competed by Cane Toad tadpoles. It also reduces risks to potential predators of Cane Toads, such as Eastern Indigo Snakes or wading birds like herons, because they do not recognize Cane Toads as a toxic prey. At Archbold, you can find a diverse array of native frogs and toads throughout the seasonal wetlands and scrub landscape. In recent years, there have been a handful of Cane Toad sightings at Archbold, but Dr. Rothermel says, "They were only found near the buildings, consistent with Audrey's overall findings."

However, Cane Toads are a problem in urban areas. Wilson notes, "If you are looking to help repel these toads, and keep them away from the backyard, one of the best ways is by turning off outside lights at night and not leaving out bowls of pet food. Be cautious if handling Cane Toads and use rubber gloves since their skin is poisonous." Wilson also adds, "Cane Toads can look like the smaller native Southern Toads, which are desirable and not toxic, so check out this University of Florida-IFAS website (<http://ufwildlife.ifas.ufl.edu/frogs/canetoad.shtml>) for identification tips and current research on control methods." You can find a list of all the native and non-native species of amphibians present at Archbold, Highlands County, Florida on the Archbold website: <http://www.archbold-station.org/documents/herpetology/ABS%20Herp%20Checklist.pdf>

Photo 1: Cane toads have glands on the back of the head that produce a milky-white, toxic substance which can fatally poison predators. Photo by Audrey Wilson.



Photo 2: Native frogs and toads are found in many wetlands like this one at Archbold Biological Station. Cane toads are mostly found in developed urban areas. Photo by Elizabeth Shadle.

