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Island Apple Snails

Non-native snail has pros and cons

If you were an Island Apple Snail originally from South America and invading the subtropical wetlands of Florida, would your ease of travel, even at a snail's pace, matter more or less than your destination? This is the research question that Steffan Pierre, Research Assistant at Archbold's Buck Island Ranch is examining. Steffan completed his Master's thesis research at University of Central Florida on this very subject.

Pierre continues to study the occurrence and spread of the Island Apple Snail across agricultural ditches and small seasonal wetlands at Buck Island Ranch. So far, these non-native snails have invaded more than 50% of the wetlands at the Ranch. Research is ongoing to evaluate their potential environmental impact.

Originally from South America, the Island Apple Snail *Pomacea maculata* was most likely introduced to Florida waterways as released individuals from the aquarium trade (where apple snail species are marketed as 'mystery snails', and are bred to produce various color morphs).

This non-native freshwater snail is responsible for those ubiquitous bubblegum pink eggs clusters that you might have seen just above the water-line on culverts, lakeside docks, boats, and emergent plants (plants that grow in water but have part of the plant above water, such as cattails) during this time of year.

Florida's own native apple snail, the Florida Apple Snail *Pomacea paludosa*, produces eggs that are chalky white/peach in color. Despite being much smaller than the Island Apple Snail, the

Florida Apple Snail, produces considerably larger eggs that are pea-sized, compared to the tomato-seed-sized eggs of the Island Apple Snail.

The Florida Apple Snail is generally found in larger lakes and permanent wetlands, and is not usually found in water bodies where there are marked, seasonal water-level changes, such as in agricultural canals, roadside ditches and isolated wetlands. However the non-native Island Apple Snail is able to thrive in these varying environments and can progressively spread to new neighboring wetlands during flood conditions.

The expansion of these non-native Island Apple Snails into areas previously unoccupied by any apple snails appears to be supporting the recovery of previously declining birds that feed almost solely on apple snails. These include the Limpkin (a heron-like brown bird with twitchy mannerisms and a high pitched raucous cry) and the endangered native Everglades Snail Kite (a hawk-like bird with steel gray feathers, striking ruby red eyes and a sharply curved beak). Both these birds are becoming more frequent observed in Highlands County with the increasing abundance of non-native Island Apple Snails.

The new non-native apple snails highlight many of difficulties and complexities that land managers and ecologists face regarding non-native species.

Steffan explained, “On one hand, the non-native apple snails may be displacing the native Florida Apple Snail—the non-natives produce significantly more eggs, grow bigger faster, and live longer. We don’t fully know their impact on wetland plant communities here in Florida, but they have been reported to negatively affect storm water treatment areas by consuming large quantities of vegetation, allowing more sediment and nutrients to be transported downstream.”

On the other hand, the non-native snails are doing really well in wetlands that were not previously supporting any native snails, and they have become a major food resource for many local animals. Steffan noted, "At the Ranch, I've seen raccoons, otters, and even Common Grackles (a common iridescent blue-black bird) feeding on the abundance of the non-native snails. And the non-native snails are boosting numbers of Limpkins and endangered Everglades Snail Kites—both of which were rare apple snail specialists that are extremely common now at Archbold's Buck Island Ranch.”

Steffan ponders, “I think the Island Apple Snails are here to stay... and even if we could completely get rid of the non-native snailsshould we? That’s not an easy question to answer.”

Photo 1: Two juvenile Island Apple Snails (about 6 months old). Note mild striping in forward snail. Dime for size reference. Photo by Steffan Pierre.



Photo 2: Hundreds of adult Island Apple Snails gather in a retention culvert after a flooding event at Buck Island Ranch. Photo by Steffan Pierre.

