Four non-native applesnail species have been observed in Florida. There is one species native to Florida. All are in the genus *Pomacea*.

*Pomacea paludosa*  Florida applesnail (native)
*P. insularum*  Island applesnail
*P. canaliculata*  Channeled applesnail
*P. diffusa*  Spike-topped applesnail
*P. haustrum*  Titan applesnail

Non-native *Pomacea* are indigenous to South America, while *P. paludosa* is native to Florida, Cuba, and Hispaniola. All are tropical/subtropical species, not known to withstand water temperatures below 10°C.

The most common introduced species is *P. insularum*. Originally thought to be the channeled applesnail, the Island applesnail (IAS) was most likely released in the southern region of the state in the early 1980s by persons in the tropical pet industry. FWC biologists first observed IAS in 1987 in the canal systems south of Lake Okeechobee. Within the past ten years populations have expanded rapidly throughout the state. The Florida Department of Agriculture and Consumer Services (DOACS) has documented the spread of the snail from south Florida to as far north and west as Tallahassee. Large populations have been found near urban centers including Tampa, Orlando, Jacksonville, and Tallahassee. Populations can be established due to releases or escapes from aquariums and culture tanks; in addition, large scale relocation of adults and juveniles can occur through flooding associated with seasonal storm events and hurricanes. In addition to Florida, introductions have occurred in Alabama, Georgia, North Carolina, Texas, Arizona, California, and Hawaii.

The channeled applesnail (CAS) has been documented from only one site in north Florida.

The spike-topped applesnail is marketed as an aquarium species (“golden applesnail”) and is locally abundant in south Florida.

The titan applesnail is rare in Florida.

**Potential Impacts**

Because they eat aquatic plants, IAS are a potential threat to Florida aquatic ecosystems, although serious impacts have yet to be documented. Significant damage from CAS to rice and taro crops in the Pacific islands and southeast Asia has been documented. It is not known if IAS and CAS have similar feeding preferences; however, no damage attributable solely to IAS has been noted in Florida, even with their presence in-state stretching back over 20 years. FWC and the Florida Department of Environmental Protection are sponsoring research to assess these potential effects, as well as potential competition with the native applesnail.
Control

Eradication using chemicals has been researched and attempted; however, no effective chemical treatment has been developed to-date. Currently, the most effective control methods are hand or mechanical removal of snails and egg masses. Predators in Florida include limpkins, Everglades (snail) kites, raccoons, turtles and alligators. In addition, redear sunfish and certain ducks most likely consume smaller immature snails.

Egg masses can be scraped off and allowed to fall into the water since inundated eggs will not hatch. Only pink egg masses should be scraped or removed. The larger white egg masses of the native Florida applesnail should be left undisturbed. At no time should applesnails from aquaria be released in the wild.

Federal Regulation

Effective April 5, 2006, USDA APHIS requires permits for importation or interstate shipment of all marine and freshwater snails. Permits are not being issued for members of the genus Pomacea, with the exception of the spike-topped apple snail, P. diffusa.

Biology

The primary diet of IAS and CAS consists of rooted aquatic vegetation, whereas native applesnails feed heavily on periphyton. In the lab, CAS will eat water lettuce, but IAS refuse it. Both IAS and CAS have rapid growth rates and live 2-4 years. Mating and egg laying begins in March and can continue through October. Females emerge from the water, usually at night, to lay bright pink egg masses on stable substrates such as tree trunks, pilings, or seawalls. In response to adverse conditions, IAS may burrow into sediments, seal their shells with a large operculum, and remain isolated from their surroundings in this condition for several months. Adult CAS may survive dessication for up to one year; juveniles up to 5 months.

Identification

IAS and CAS are distinguished from the native applesnail by deeply incised grooves on the shell. Adult IAS are the largest of the introduced Pomacea, reaching 85 mm (shell width); CAS are somewhat smaller with a shell width of 60 mm, while an adult Florida applesnail reaches 40-55 mm. Golden specimens have been bred for aquarium use, while shell color is variable in the field, with banding and bleaching common.
It is much easier to distinguish native and non-native applesnails by the color and size of their eggs. The Florida applesnail has white relatively large eggs, typically deposited on aquatic vegetation; clutch size is <100. IAS egg clutches may have over 1000 pink eggs in a clutch, although egg color fades closer to hatching (2-3 weeks). CAS eggs are also pink but slightly larger than IAS’ and with smaller clutches (300+ eggs).

Five Applesnail egg clutches

a – Titan applesnail
b – Spike-topped applesnail
c – Channeled applesnail
d – Florida applesnail
e – Island applesnail
Florida Fish and Wildlife Conservation Commission
Exotic Applesnail Locations
15 November 2006

Legend

Credibility
- Field Collection
- Museum Collection
- Published Literature
- Verified Report
- Multiple Professional Reports
- Single Professional Report + Other Reports
- Single Professional Report
- Multiple Non-Professional Reports
- Single Non-Professional Report
- Multiple Informed Public Reports
- Single Informed Public Report
- Multiple Public Reports
- Single Public Report
Station 4