

PEST ALERT

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Giant African Land Snail and Giant South American Snails: Field Recognition

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INTRODUCTION: Two agricultural pest snails, the giant African land snail (*Achatina fulica*) (Bowditch) (Fig. 1) and the giant South American snails (*Megalobulimus* spp. and relatives) (Fig. 2), are presently not established in Florida or the Continental US. These snails are of regulatory significance and are not allowed to be possessed or sold within Florida, even though both are popular as pets. Both of these large snails are known to feed on many varieties of plants, in some cases causing serious damage.

Any very large snail will draw attention and may be considered exotic and possibly invasive. Yet, there are native snails which are similar in appearance and occasionally reach large size (up to 3 inches in length). Immature snails or smaller specimens of these exotic snails can be easily confused with native species that are protected by state and federal laws.

The following information will assist in the field recognition of these pest snails, support state and federal regulatory efforts to prevent establishment of the snails in Florida, and help protect our native snails by preventing unnecessary collection and destruction.

IDENTIFICATION: There are many snails in Florida which can become very large. These species are mostly aquatic or marine snails and are not the subjects under consideration. For example: Florida has several species of apple snails (*Pomacea* spp.) (Fig. 3) some of which can be up to 4 inches in length, and are considered serious pests of our waterways (Anonymous 2010; FWC 2006; Stange 1998). They are readily distinguished by their more globose shape and the fact they are always found in or near aquatic situations.

The giant African and South American snails are terrestrial or land snails with more elongate, conical shells. Although they may be found near water, they cannot survive prolonged submersion in water.

Native Floridian Tree Snails (*Orthalicus* spp. (Fig. 4), *Liguus fasciatus* (Muller) (Fig. 5), and other genera). Adults up to 3 inches in length, most are less than 2 inches long. Shell elongate-oval, apex conical, shell usually ceramic-like. Columella of shell usually short, smooth, and lacking free curled edge (some *Liguus* specimens have a thickened edge), never truncate at apex. Coloration can be quite variable (Deisler 1983, Frank 2010), entirely pale, but usually with distinct bands and stripes.



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There are many terrestrial or semi-terrestrial snails that may be encountered when searching for snails. Some (e.g., *L. fasciatus*) are endangered and legally protected from collection wherever they occur. Many of our other native tree snails are also declining in numbers. These native snails feed on algae or other debris growing on plants. They are not known to harm plants and are considered beneficial because of their cleaning activities on plants. It is preferred that none of these native snails be collected.

Rosy Predator Snail (*Euglandina rosea* (Ferussac)) (Fig. 6). Adults relatively large, up to 2.6 inches long. Shell narrowly elongate-lanceolate, apex conical, shell somewhat thickened. Columella smooth with a truncate apex. Coloration generally a rosy-cream color with no banding.

This snail is easily recognized by its narrowly elongate, often pinkish shell. This native snail is a predator of other snails. It has been used as a potential biological control agent and introduced into other countries (Auffenberg and Stange 1986).

Giant African Land Snail (*Achatina fulica* (Bowditch)). Adults large, up to 6.7 inches in length or more. Shell elongate-oval, apex conical, shell thin and ceramic-like. Columella of shell with long, inwardly curled free edge with truncate apex. Coloration usually with regular longitudinal bands.

Achatina fulica is partially characterized by having only the regular longitudinal bands. Other species of *Achatina* vary in the amount of banding that is present with some almost entirely pale, but none have distinct transverse banding. King (2010) provides pictures of various *Achatina* spp. and some identification aids. In contrast to the giant African land snail, our native tree snails have transverse banding varying from very distinct to moderately vague. Coloration and body size also varies which makes smaller *Achatina* difficult to distinguish from native snails. However, none of the native terrestrial snails have the long truncate columella of *Achatina*. Any snails with an elongate oval shell and a truncate columella are to be considered suspect African snails.

Giant South American Snails (*Megalobulimus* spp.). Adults large up to 3 inches in length. Shell elongate-oval, apex conical, shell thick and calcareous. Columella broad and smooth, no free curled edge. Coloration generally cream colored, not banded, columella often pink. The thickened shell is a character not present on any of our native terrestrial snails. (See also Deisler and Stange 1982.)

BIOLOGY OF GIANT AFRICAN LAND SNAIL: This snail is able to survive in many different environments. They require areas rich in calcium, thriving in locations with limestone, marl and places with concrete and cement. Snails are able to sexually reproduce in about one year. They may live 3-5 years to a maximum of 9 years. Although adult snails have both male and female sexual organs, reciprocal copulation is necessary to produce viable eggs. A snail can begin laying eggs 8 to 20 days after mating and can lay eggs for up to 380 days producing 400 to 1000 eggs in one year. Eggs are placed in cool moist soil and under objects on the ground. After eggs hatch, juvenile snails eat their egg shells and then burrow underground for up to 2 weeks. The snails typically have a home range, feeding primarily on plants and returning to home before dawn. Larger snails feed on plants and may become detritus feeders as well. Although nocturnal, the snail may become active at twilight on overcast days with moist and warm soil. There is a risk of snails moving long distances when they cling to cargo, vehicles or machinery. During unfavorable environmental conditions, the snail can bury itself in soil and remain inactive for up to a year (USDA-APHIS-PPQ 2007).

SURVEY: Many snails, including those discussed here, are known to possess toxins or harbor parasites that can affect or infect humans. While short-term handling of a snail by the shell is probably safe, it is strongly recommended to wear gloves when handling them. Always wash hands thoroughly after handling snails and do not touch your face or mouth with dirty hands

When conditions are damp or overcast these snails may be on the move and could be found nearly anywhere, on the ground, up in trees or on buildings. When conditions are dry or hot, they prefer to shelter on or near the ground. These sheltered areas are the best places to look for snails and include: under or in debris on the ground, water meter boxes, under dense vegetation, and similar protected locations. Look also for large slime trails or slimy feeding damage on plants to indicate potential presence of snails.

Any one surveying for these snails must be familiar with a few characters that distinguish these large pest snails from our protected native snails. Thus, when surveying for giant African land snails, collect suspect snails that have the inwardly curled, truncate columella. When surveying for giant South American snails, collect snails that have thickened calcareous shells. If in doubt, please contact the senior author to receive instructions on sending a digital picture.

Once properly identified, a snail can be killed by placing it in a plastic bag and then placing in a refrigerator freezer. If there is a heavy infestation, snail baits laced with pesticides are readily available in most lawn and garden supply stores. Unfortunately, baits kill all snails including the beneficial ones.

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Figure 1a. *Achatina fulica*, giant African land snail- large



Figure 1b. *Achatina fulica*, giant African land snail - small



Figure 2. *Megabulimus sp.*, giant South American snail



Figure 3. *Pomacea sp.*, apple snail



Figure 4. *Orthalicus sp.*, a Florida tree snail



Figure 5. *Liguus sp.*, a Florida tree snail



Figure 6. *Euglandia rosea*, Rosy predator snail