

# Snails Eating Snails of Florida (*Euglandina rosea* (Ferussac 1821) (Gastropoda: Spiraxidae), *Rumina decollata* (Linnaeus 1758) (Gastropoda: Subulinidae), *Haplotrema concavum* (Say 1821) (Gastropoda: Haplotrematidae), *Gulella bicolor* (Hutton 1834) (Gastropoda: Streptaxidae), *Varicella gracillima floridana* Pilsbry 1907) (Gastropoda: Oleacinidae)<sup>1</sup>

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## Introduction

In Florida, there are three native and two introduced species of snails belonging to five different families known to feed on other snails. In addition, several introduced species of the Subulinidae are considered carnivorous, but little is known of their biology and identification is difficult. The best known of the Florida predator snails is the rosy predator snail, *Euglandina rosea* (Ferussac), which was exported to Hawaii and other areas (Mead 1961) in vain attempts to control the giant african snail (*Achatina fulica* Bowdich). A Mediterranean snail, the decollate snail, *Rumina decollata* (Linnaeus), is much heralded today (Fisher et al. 1980) in California as an effective biological control agent of the brown garden snail. Relatively little is

known of the other three species of snail-eating snails, two of which are less than 10 mm long. All of these Florida predaceous snails are easy to identify and the following account summarizes what is known of their distributions, identification and habits.

## ***Euglandina rosea* (Ferussac 1821) (Family Spiraxidae) - "Rosy Predator Snail"**

### Identification

The shell is large (up to 76 mm in height, 27.5 mm in diameter), thick and has prominent growth lines. The shape of the shell is fusiform with a narrow ovate-lunate aperture and a truncated columella. Typically, the shell color is brownish-pink.

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**Figure 1.** *Euglandina rosea* (Ferussac 1821) - the "Rosy Predator Snail." Credits: Division of Plant Industry

### Distribution

Southeastern Texas, Louisiana, Mississippi, Alabama, Georgia, South Carolina and Florida. Widespread in Florida including the Keys. Widespread, but usually found singly in hardwood forests, roadsides and urban gardens (Hubricht 1985).

### Comments

This snail was chosen as a possible biological control agent of the giant african snail. Live specimens were sent to Hawaii in 1955 (Mead 1961). Although feeding in *Achatina* was observed, as well as on *Bradybaena similaris* (Ferussac) and native tree snails (Hart 1978), no real control was achieved. The snail reproduced rapidly in Hawaii and by 1958, 12,000 snails were harvested for release in other Hawaiian Islands, New Guinea, Okinawa, Palau Islands, Philippines, and the Bonin Islands. Chiu and Chou (1962) gave details of the biology of *Euglandina* in Taiwan. Individuals live up to 24 months. 25 to 35 eggs are laid in a shallow pocket in

the soil. These hatch after 30 to 40 days. In Taiwan, *Euglandina* consumed as many as 350 *Achatina* during its lifetime.

## ***Rumina decollata* (Linnaeus 1758) (Family Subulinidae) - "The Decollate Snail"**

### Identification

The adult shell is large (up to 45 mm in height, 14 mm in diameter), but only retains four to seven whorls in adulthood, the other eight to 10 whorls being lost. The shell is perforate, glossy and sculptured with prominent axial growth lines and fine spiral striae. The columella is straight, its lip margin reflexed but the outer lip is simple. The shell color is pinkish brown. It is not easily confused with any other snail in Florida.



**Figure 2.** *Rumina decollata* (Linnaeus 1758) - "The Decollate Snail." Credits: Paul M. Choate, University of Florida



**Figure 3.** *Rumina decollata* (Linnaeus 1758) - "The Decollate Snail." Credits: Paul M. Choate, University of Florida

### Distribution

Native to the Mediterranean area. Introduced widely in the United States, Bermuda and Mexico. Widespread but localized in the Sun Belt from

California east to Florida and north along the Atlantic coast to Pennsylvania. Very localized populations in Florida are known from Pensacola (Dundee 1970), Miami (new record UF coll.) and Key Vaca, Marathon (new record UF coll.).

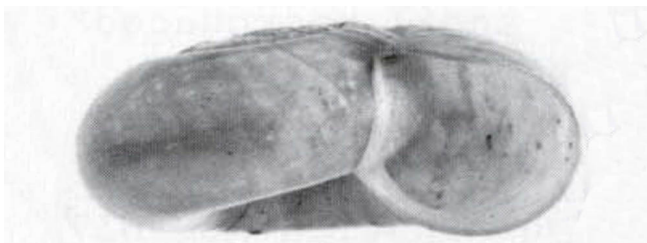
### Comments

This snail was long considered a minor plant pest (Brantlinger 1953), although recognized as omnivorous. In California (Fisher et al. 1980) studies showed this snail an effective predator of half-grown brown garden snails in particular and, like the brown garden snail, prospered only in cultivated habitats with frequent irrigation. It is thought that rodents limit the feral spread of the snails. Decollate snails will feed on new sprouts, old leaves, especially those in contact with the soil, and fallen bruised fruit. Their value in controlling the brown garden snail is considered to outweigh their minor pest attributes in California. These snails are ground dwellers, living among leaves, and sometimes burrowing in the upper one inch of soil (Fisher et al. 1980).

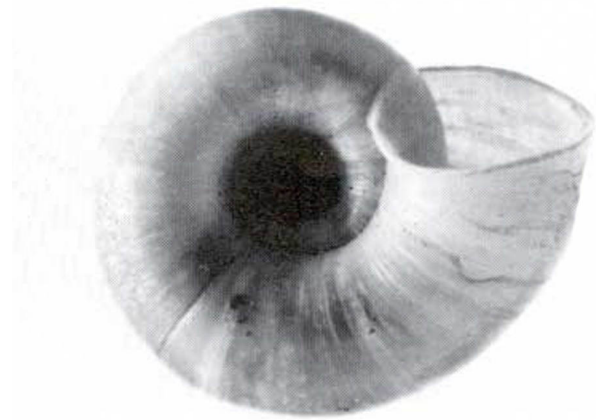
### ***Haplotrema concavum* (Say 1821) (Family Haplotrematidae)**

#### Identification

The shell is large (10 to 22 mm in diameter, 5 to 10 mm in height) depressed with 5 to 5 1/2 whorls. The whorls are convex with deeply impressed sutures. Umbilicus is broadly open, about 1/3 shell diameter. Shell is moderately strong, shining and smooth except for irregular axial striations and occasional fine spiral incised lines. Aperture is round to lunate. Parietal callus yellowish, usually with thickened edge. Shell color is white to very pale brown (dead) or greenish-white to light yellow (alive).



**Figure 4.** *Haplotrema concavum* (Say 1821) . Credits: Paul M. Choate, University of Florida



**Figure 5.** *Haplotrema concavum* (Say 1821) . Credits: Division of Plant Industry

#### Distribution

Southern Canada to the Gulf States and west to eastern Nebraska and Oklahoma (Hubricht 1985). In Florida, it is presently known only from counties bordering the Apalachicola River.

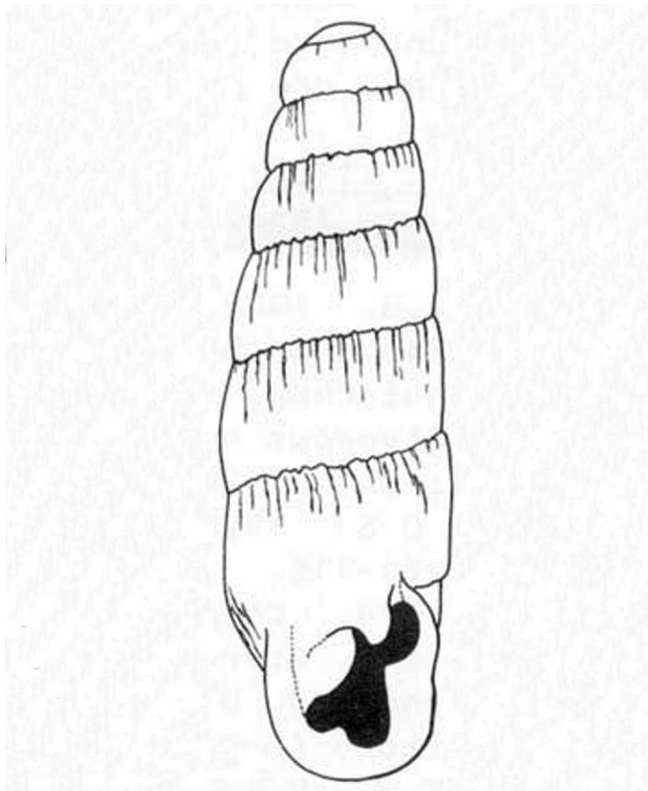
#### Comments

Found in humid hardwood forests, living in leaf litter at tree bases, or under rotting logs. Pilsbry (1946) states that this family is rapacious, but Hubricht (1985) has found this species feeding on dead shells more often than living snails, suggesting that this species may be using other snails as a source of lime rather than as prey. In Florida, these snails, especially juveniles, could be confused with the smaller, introduced species of *Oxychilus*. However, the much broader and open umbilicus of *Haplotrema* is distinctive.

### ***Gulella bicolor* (Hutton 1834) (Family Streptaxidae)**

#### Identification

The shell is small (5 to 7.5 mm in height, 1.5 to 2.0 mm in diameter), elongate and sturdy. Shell color is very pale brown to white; live specimens are bright orange due to body color. Shell sculpture is smooth, except at sutures where axial riblets are present. Well developed axial ribs are present behind apertural lip and in the umbilical region. Aperture with four prominent teeth.



**Figure 6.** *Gulella bicolor* (Hutton 1834). Credits: Division of Plant Ind

### Distribution

Introduced from Orient (Burch 1962) or southern Africa (Dundee 1974). Widespread in the Caribbean region. Also known from Louisiana (New Orleans) and South Carolina (Charleston) (Dundee 1974).

### Comments

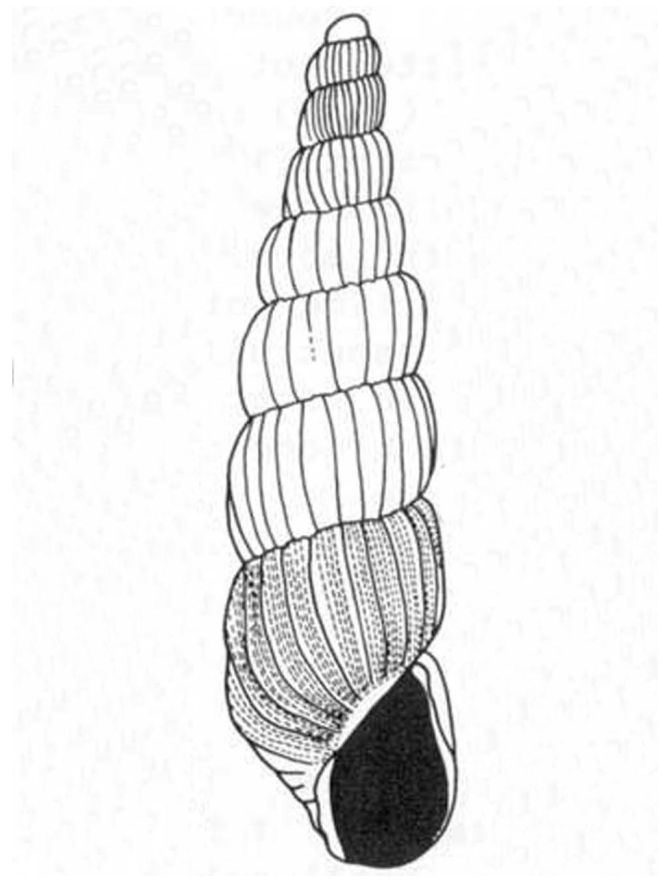
This snail is apparently an effective predator of *Subulina octona* (Bruguiere) (Mead 1961) and pupillids (Dundee and Baerwald 1984). In Florida, the presence of four apertural teeth is diagnostic except for some tiny species of Pupillidae which are distinguished by their ovate or pupate shapes.

### ***Varicella gracillima floridana* Pilsbry 1907 (Family Oleacinidae)**

#### Identification

The shell is small (6 to 8 mm in height, 1.5 to 1.7 mm in diameter), elongate, somewhat scariform and thin. The whorls number 8 to 8 1/2, and are convex with deeply impressed sutures. Shell sculpture is

distinctive with about 25 straight, narrow axial ribs, between which are six to eight fine axial striae. The shell is imperforate, the aperture ovate, and the outer lip slightly sigmoid, arching forward at middle but receding at base. The columella is straight and slightly calloused. Shell color is pale brown.



**Figure 7.** *Varicella gracillima floridana* Pilsbry 1907. Credits: Division of Plant Ind

### Distribution

Collected only from the Florida Keys and the Miami area. The typical subspecies, *Varicella g. gracillima* (Pfeiffer 1851) occurs in Western Cuba (Pilsbry 1946).

### Comments

These snails live under leaf litter, logs and rocks, usually in hardwood hammocks. No studies have been made of their biology, but Burch (1962) implied they are predatory on other snails.

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