Entomology Circular No. 285
July 1986

Fla. Dept. Agric. & Consumer Serv.
Division of Plant Industry

# SNAIL-EATING SNAILS OF FLORIDA[1]

Kurt Auffenberg[2] and Lionel A. Stange[3]

In Florida, there are 3 native and 2 introduced species of snails belonging to 5 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. These will be dealt with separately in a future circular. 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., 198Ø) in California as an effective biological control agent of the Brown Garden Snail. Relatively little is known of the other 3 species of snail-eating snails, two of which are less than 1Ø 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 (Fig. 1) is large (up to 76mm in height, 27.5mm 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.

FIG.1

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 on ***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,ØØØ snails were harvested for release in other

---

1/Contribution No. 637, Bureau of Entomology
2/Division of Malacology, Florida State Museum, Univ. of Florida, Gainesville, Fl 32611
3/Taxonomic Entomologist, FDACS, Division of Plant Industry, P.O. Box 1269, Gainesville, FL 326Ø2

Hawaiian Islands, New Guinea, Okinawa, Palau Islands, Philippines, and the Bonin Islands. Chiu & Chou (1962) gave details of the biology of *Euglandina* in Taiwan. Individuals live up to 24 months. 25-35 eggs are laid in a shallow pocket in the soil. These hatch after 30-40 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 (Fig. 2) is large (up to 45mm in height, 14mm in diameter), but only retains 4-7 whorls in adulthood, the other 8-10 whorls being lost. The shell is perforate, glossy and sculptured with prominent axial growth lines and fine spiral striae (fig. 2). 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.

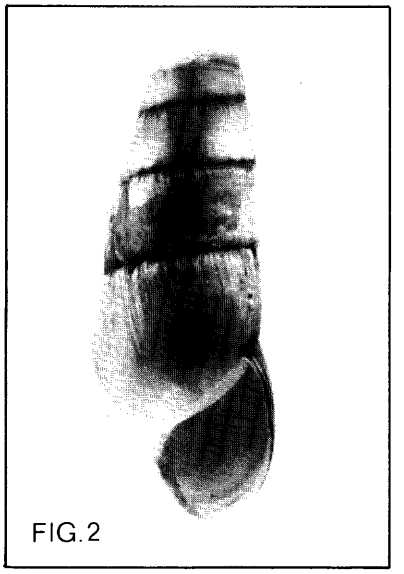

FIG.2

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 (Fig. 3,4) is large (10 to 22mm in diameter, 5 to 10mm 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).

FIG.3

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.

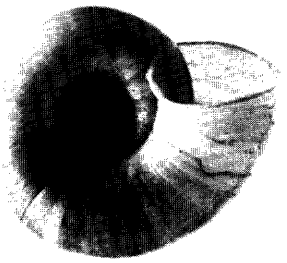

FIG. 4

***Gulella bicolor*** (Hutton, 1834)

(Family Streptaxidae)

IDENTIFICATION: The shell (Fig. 5) is small (5 to 7.5mm height, 1.5 to 2.Ømm 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 4 prominent teeth.

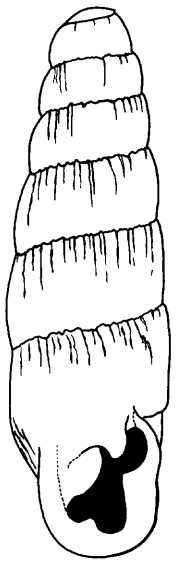

FIG. 5

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 4 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 (Fig. 6) is small (6 to 8mm in height, 1.5 to 1.7mm 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 6 to 8 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.

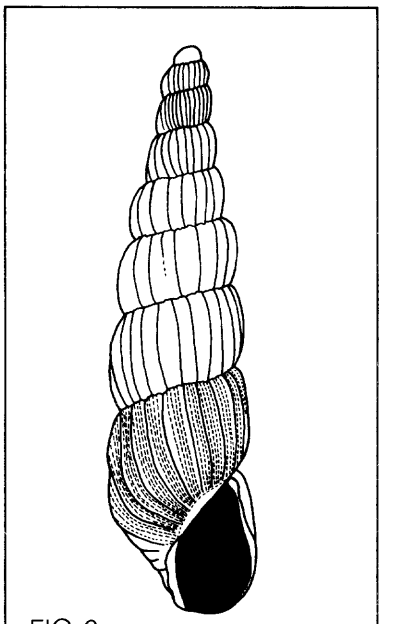

FIG. 6

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.

LITERATURE CITED:


Brantlinger. 1953. A European Snail. Arizona Cooperative Economic Insect Report 3:849.

Burch, J.B. 1962. How to know the eastern land snails. Wm. C. Brown Co. Publishers, Dubuque, Iowa, 214 pp.

Chiu, Shui-Chen, and Ken-Ching Chou. 1962. Observations on the biology of the carnivorous snail, ***Euglandina rosea*** Ferussac. Bull. Inst. Zool. Acad. Sinica 1:17-24.

Dundee, D.S. 1970. Introduced Gulf Coast Mollusca. Tulane Studies Zool. Bot. 16:101-115.

_____, 1974. Catalog of introduced molluscs of eastern North America (North of Mexico). Sterkiana 55:1-37.

_____, and R.J. Baerwald. 1984. Observations on a micropredator ***Gulella bicolor*** (Hutton) (Gastropoda:Pulmonata:Streptaxidae). Nautilus 98(2):63-68.

Fisher, T.W., R.E. Orth, and S.C. Swanson. 1980. Snail against snail. California Agriculture (Nov.-Dec.) :3 pp.

Hart, A.D. 1978. The onslaught against Hawaii's tree snails. Natural History Mag. (December):46-56.

Hubricht, L. 1985. The distributions of the native land mollusks of the eastern United States. Fieldiana, Zoology (new series) No. 24:i-viii, 1-191.

Mead, A.R. 1961. The Giant African Snail; a problem in economic Malacology. Univ. Chicago Press, 257 pp.

Pilsbry, H.A. 1946. Land Mollusca of North America (North of Mexico). Acad. Nat. Sci. Philadelphia Monographs No. 3, 2(1):i-vi, 1-520.



This publication was issued at a cost of $850.80 or .24 per copy to provide information on proper recognition of plant pests. PI86T-28