IDENTITY: ***Achatina fulica*** **Bowdich, 1822**
Systematics: ACHATINIDAE, PULMONATA, GASTROPODA, MOLLUSCA
Common names: Giant African Snail, Escargot Géant.

DESCRIPTION:
Dimensions: Up to 20 cm in length and 12 cm in maximum diameter.
Description: "When full-grown, the shell of *A. fulica* consists of from 7 to 9 (very exceptionally 10) whorls, with a moderately swollen body-whorl and a sharply conical spire, which is distinctly narrowed but scarcely drawn out at the apex. The outline varies greatly, even in the same colony, from very slender to moderately obese, the broader specimens tending to be shorter for the same number of whorls. All whorls are decidedly convex, due to the broadly impressed sutures. The aperture is relatively short, even in the broadest specimens, being always shorter than the spire, often considerably so. The outer lip is usually sharp and thin, rarely somewhat thickened or even slightly expanded in very old specimens; it is very convex, evenly curved into a regular semi-ellipse, and inserted on the body-whorl at a sharp, open angle, the upper part of the body-whorl being scarcely or not flattened behind the lip. The columella is more or less concave, sometimes rather weakly so, in which case it may be slightly or even much twisted; it tends to be more concave in broader shells. It should be noted that in *A. fulica* all stages, from the nepionic shell on, have the umbilical slit completely closed and the columella truncate. In all specimens seen, which on general shape and sculpture were referable to *A. fulica*, both columella and parietal callus are white or bluish-white, without any trace of pink." (Bequaert, 1950)
HOSTS: As a phytophagous gastropod, this species is not host-specific. It has been documented as causing economic damage to a wide variety of crop plants, as well as plants of horticultural and medicinal importance. The variety of plants upon which it feeds is believed to be far greater than what has been reported in the available literature, as researchers tend to be more focused on economically-important plant species.

GEOGRAPHIC DISTRIBUTION:
Original distribution: believed native to coastal **East Africa** (**Kenya** and **Tanzania**).
Introduced to: (dates of introduction, when given, are approximate)
Further spread in EAST AFRICA and INDIAN OCEAN ISLANDS: north to southern **Ethiopia** and southern **Somalia**, and south to northern **Mozambique** (unknown)**; Madagasar** (prior to 1800)**; Mauritius** (*ca*. 1800)**; Seychelles** (1840)**;**
NORTH AFRICA: Morocco (1987)**;**
WEST AFRICA: Ivory Coast (1988)**;** southwestern **Ghana** (1994)**; Annobón** and **São Thomé** (1994)**;**
SOUTHERN ASIA: Bengal, **India** (1847), as well as Assam and Orissa**; Ceylon** (1900)**; Bangladesh** (prior to 1962)**;**
SOUTHEASTERN and EASTERN ASIA: Malaya (1911)**; Taiwan** (1932)**; Vietnam** (1935)**; Sumatra** and **Java** (1925), as well as **Bali**, **Sulawesi**, the **Moluccas**, **Flores**, **Timor** and **Irian Jaya** (1964)**;** Chiang Mai, **Thailand** (1964)**; Japan** (1935)**; Hong Kong** (1937)**;** Kwangtung, Fukien and Hainan Provinces, mainland **China** (by 1959)**;**
AUSTRALASIA: Bougainville (1970)**; New Guinea** (1945)**; New Ireland** and **New Britain** (1949)**;** Port Moresby, **Papua** (early 1960s)**; New Caledonia** (1972)**; Queensland, Australia** (1977 - eradicated)**;**
POLYNESIA and other PACIFIC ISLANDS: Hawaiian Islands (O'ahu (1936); Hawai'i (1958); Maui (1960); Molokai (1960))**; Marianas** (1936-1938)**; Bonin** (1937)**; Caroline Islands** (1938)**; Guam** (1943)**; Wake** (prior to 1962)**; Society Islands** including Tahiti (1967)**; Vanuatu** (1972)**; Cook Islands** (1972)**; American Samoa** (1978)**; Western Samoa** (1990)**; Micronesia** (1998)**;**
NORTH AMERICA: USA: near Mesa, **Arizona** (1959 - eradicated the same year)**; Florida** (1966 - eradicated 1973)**;** Routinely intercepted by Quarantine Authorities at US airports and seaports, especially in Honolulu (preclearance program), and various ports in California.
WEST INDIES: Cascade aux Ecrevisses, Basse-Terre, **Guadeloupe** (1984), spreading to Sainte Anne, Grande Terre (1987)**;** Morne Rouge, **Martinique** (1988)**; St. Lucia** (2000)**; Barbados** (2000)**;**
SOUTH AMERICA: Brazil (1996)**: São Paulo; Rio de Janeiro; Minas Gerais; Parana; Santa Catarina;**

LIFE HISTORY:

It should be noted that this species is highly adaptable to a wide range of environments, modifying its life cycle to suit local conditions. Its life history should therefore be studied wherever it appears to have become established, so that control and eradication strategies can be developed.

Snails reach sexual maturity in less than a year (assuming no delays due to hibernation or aestavation), and can live for up to 9 years, although 3-5 years is more normal. Reciprocal copulation, typically lasting 6-8 hours, must occur to produce viable eggs. Eggs are laid in clutches of 10-400 eggs within 8-20 days of copulation, usually in nests excavated in the soil, but sometimes among leaves and stones on the ground surface. Repeated laying of egg clutches can occur from a single mating, as the sperm is stored in each snail. The frequency of egg-laying depends on the local climate, particularly according to the duration and frequency of the rainy seasons; periods of drought will prevent or delay feeding activity and reproduction. Therefore, according to the climate, individuals can lay up to 500/year in Sri Lanka, up to 300/year in Hong Kong, and well over 1000/year in Hawaii and Calcutta, India. Upon emerging from the eggs, the hatchlings will consume their eggshells, as well as unhatched siblings and surrounding organic detritus, remaining underground for 5-15 days. Once out of the nest, the young snails continue to feed on organic detritus and preferred host plants, remaining fairly close to the nest for a couple of weeks. After this time, they will range further afield, each individual ultimately establishing a home range within 2 months, feeding primarily on plants at night and returning to roost before dawn. Animals whose shells measure between 5 and 30 mm in length appear to cause the most damage to plants. Food preferences depend on the availability of plant species. Larger snails continue to feed on plant material, but also become increasingly detritus-feeders as they age.

MOVEMENT AND DISPERSAL

Natural spread: Natural spread is extremely slow.

Man-assisted spread: Escapes from snail-farming operations; transportation on local produce; intentional spread by individuals; "hitch-hikers" on various shipping containers, *etc.*

Routinely intercepted by the USDA in baggage of international travellers, on and in shipping containers, and in plant shipments from the Hawaiian Islands, Guam and other Pacific Island groups.

PEST SIGNIFICANCE

Economic impact: Crops reported affected by this species include coffee in Tanzania; outside of Africa, economically important crops affected include amararanth, banana and plantain, various beans and peas, carambola and blimbi, breadfruit and jackfruit, eggplant/aubergine, various cultivars of *Brassica* (cabbage, broccoli, cauliflower, *etc.*) and radishes, cacao, carrot, cassava/yucca, castor, chilies and peppers, citrus, coffee, cotton, corm, cotton, drumstick, eucalyptus, fig, pumpkins and melon, cucumber, jute, kokko, mahogany, mulberries, okra, onions, palm nuts, passionfruit, potato, rubber, shishu, soursop, spinach, sunflower, sweet potato, taro, tea, teak, tobacco, tomato, vanilla and yam.

A wide variety of horticultural and medicinal plants have also been reported as attacked by the Giant African Snail.

In most parts of the world, the amount of damage is greatest when the species is first established; snails during this periods are usually very large, and their population can become immense. This is followed by a stable population phase, and then ultimately a period of decline.

PARASITOLOGY AND PUBLIC HEALTH SIGNIFICANCE

Achatina fulica is reported as an intermediate vector of the Rat Lungworm *Angiostrongylus cantonensis*, causing eosinophilic meningoencephalitis in humans, as well as a gram-negative bacterium, *Aeromonas hydrophila*, causing a wide variety of symptoms, especially in persons with compromised immune systems.

SELECTED REFERENCES:

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