



Giant African Snail (*Lissachatina fulica*) and Other Invasive Achatinids

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Four species of Achatinidae of Concern



***Lissachatina fulica* (GAS)**
 from East Africa; established in India,
 Pacific Basin (HI), South America
 and W.I.

Achatina achatina
 from West Africa

Archachatina marginata
 from West Africa; introduced to
 Martinique (2009)

Limicolaria aurora
 from West Africa;
 established in Martinique
 and Singapore

Giant African Snail (*Lissachatina fulica* (Bowdich))

- Considered one of the most damaging snails in the world



Why is the snail one of the worst?

- High reproduction
- Self-reproducing
- Estivates



Mating cluster, Hilo, HI



Dead snail along roadside, Barbados



Snail nest, Miami, FL



Estivating snail found in planter, Old San Juan, PR



Why is the snail one of the worst?

- Consumes over 500 types of plants
 - Often not documented as pest on most plants

HOWEVER:

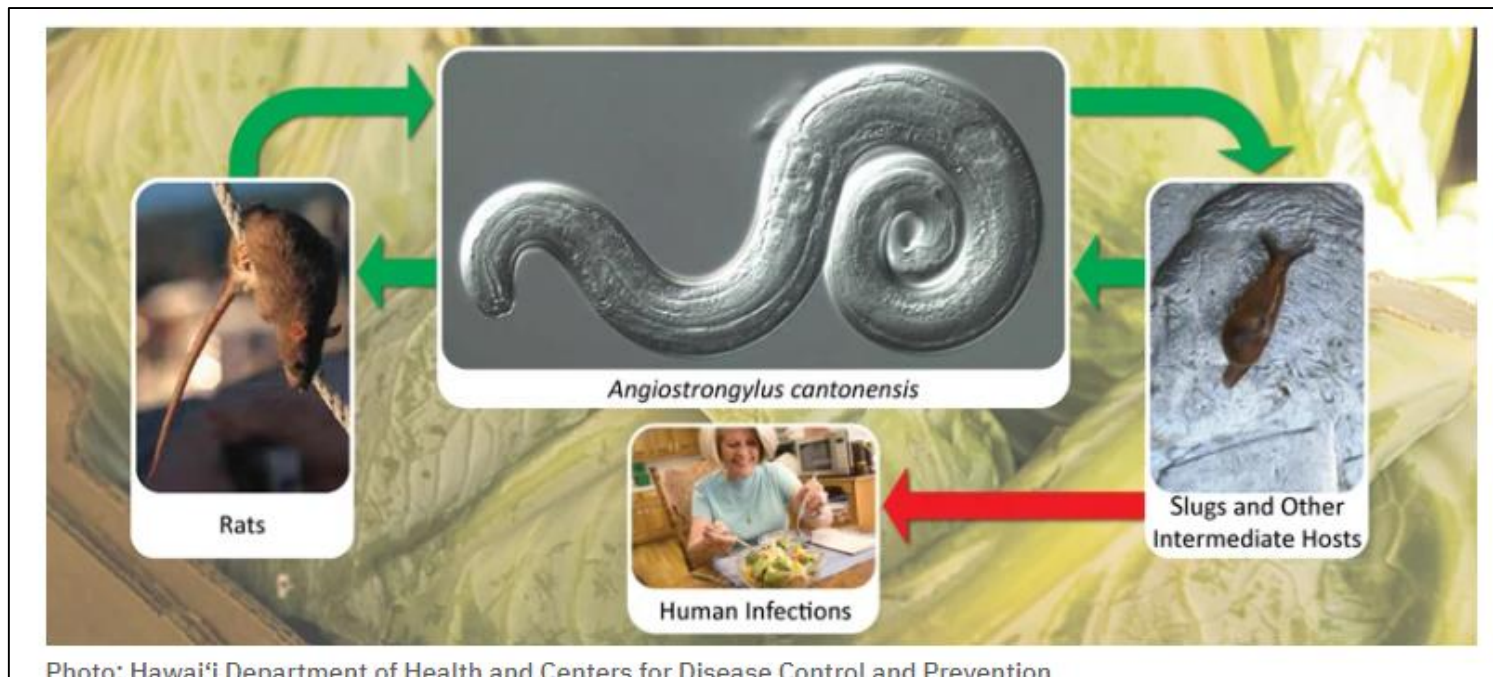
- Farmers reporting 100% damage/loss of squash
- Feeding of on okra foliage found to reduce the production of pods
- Large cost for pesticides to control snails



Snail feeding damage on squash and okra
Mt. Lambert, Trinidad

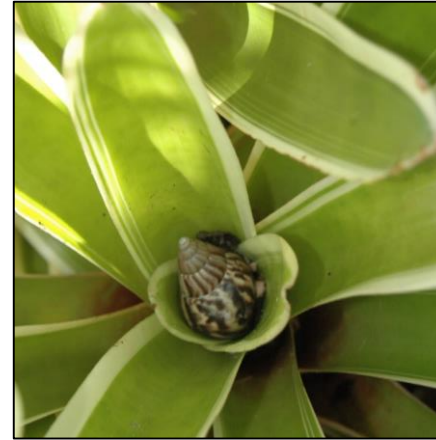
Why is the snail one of the worst?

- Can vector plant pathogens (*Phytophthora* spp.)
- Threaten human health while functioning as a host in the life cycle of rat lung worm (*Angiostrongylus cantonensis*)



Why is the snail one of the worst?

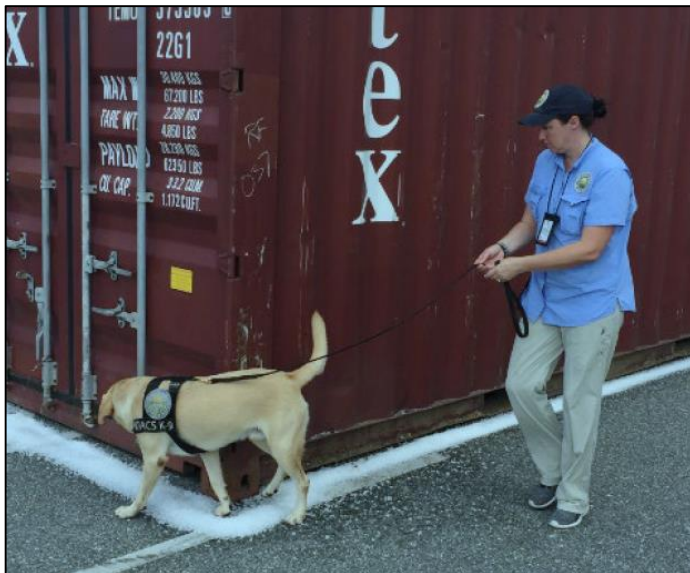
- It's a hitch hiker
 - Shipping Containers
 - Potted plants
 - Vehicles
 - Debris/Garbage



Snails hidden in potted plant
Miami, FL



Snails in public trash bins
Mt. Lambert, Trinidad



FDACS snail canine
surveying sea containers
with snail interceptions
Jacksonville, FL

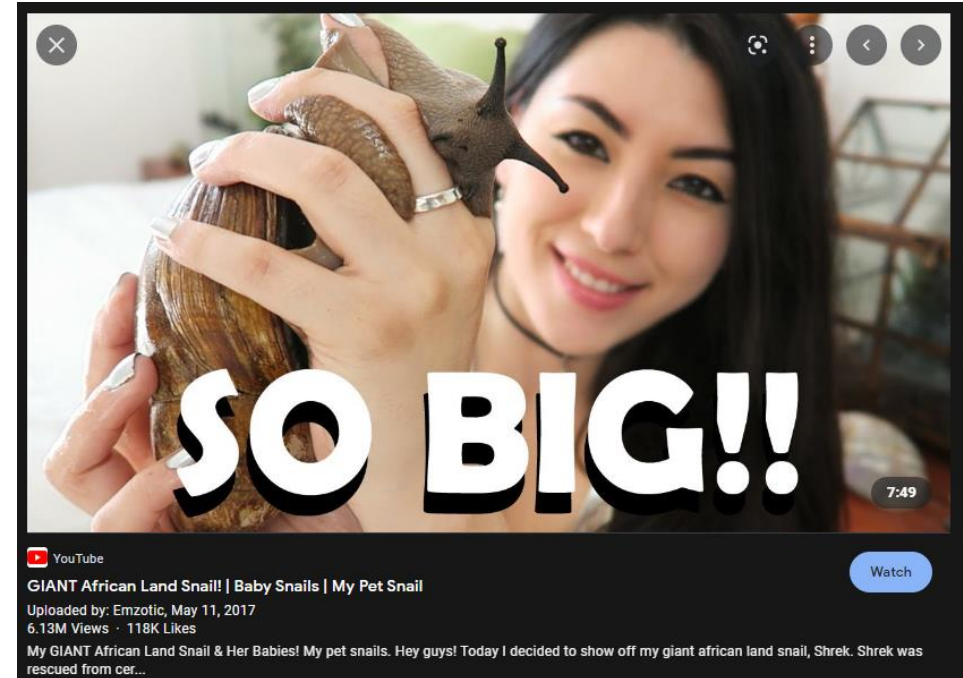


Why the snail one of the worst?

- Intentionally moved and released
 - People think they are cute
 - People thought they would be tasty
 - Religious use



Acatina spp. dish TOASTIES
: <https://toasties.ng/>



<https://www.wikihow.com/Care-for-Giant-African-Land-Snails>

<https://www.wikihow.com/Play-With-a-Pet-Snail>

Spread of Giant African Snail

- 1984 intentional introduction occurred in the Parc National de la Guadeloupe, on the island of Basse-Terre
- Probably from French islands in the Southwestern Pacific



Ground Zero: La Cascades aux Écrevisses, Parc National de la Guadeloupe (photo: M. Ciomperlik)



Spread of Giant African Snail

- In 1987 school-children transported **GAS** to Sainte-Anne on Grande-Terre, Guadeloupe, and shortly thereafter the snail spread throughout both principal islands of Guadeloupe



Spread of Giant African Snail

- In July 1988 **GAS** was introduced to Martinique by a family from Les Abymes, Guadeloupe



Spread of Giant African Snail

- By 1995 the islands of Marie-Galante and Saint Martin/Sint Maarten became infested

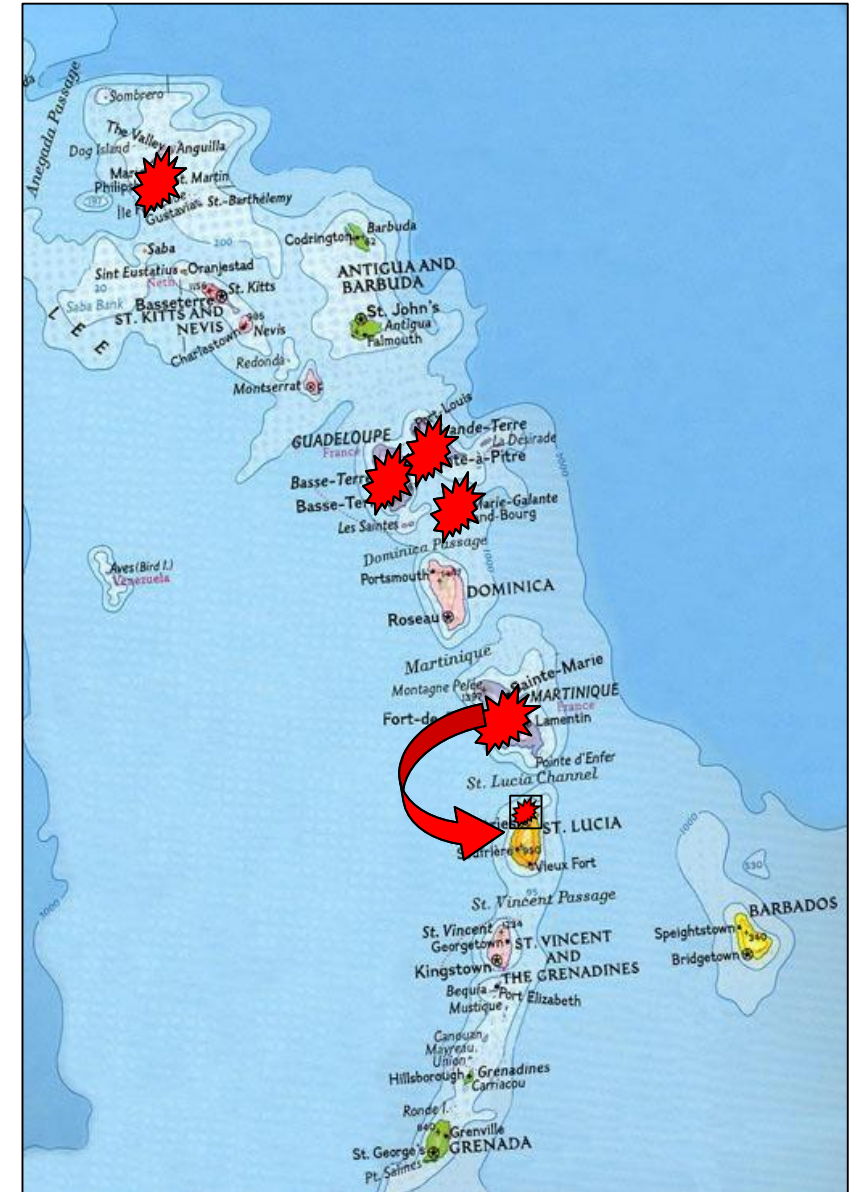


Spread of Giant African Snail

- In early 2000, agriculture officials indicated that **GAS** was introduced to northern Saint Lucia

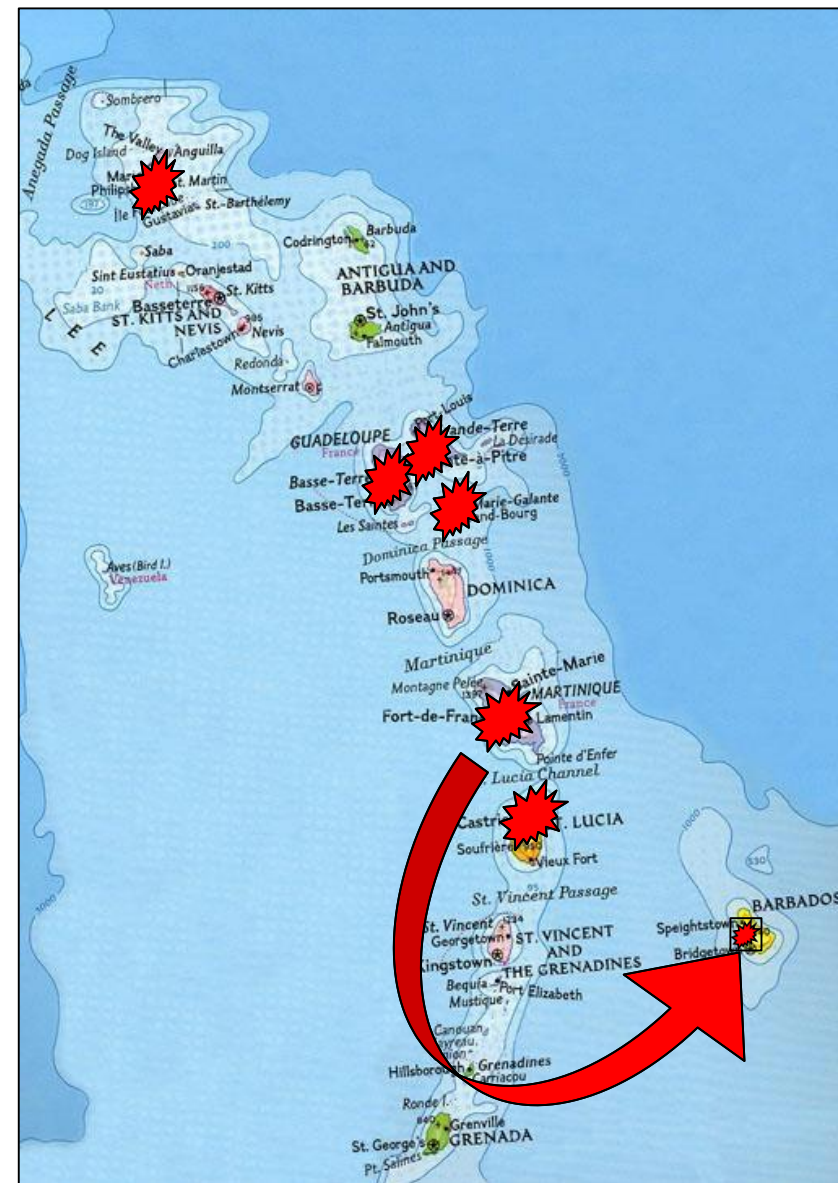


Two color forms GAS in Choc (near Castries)



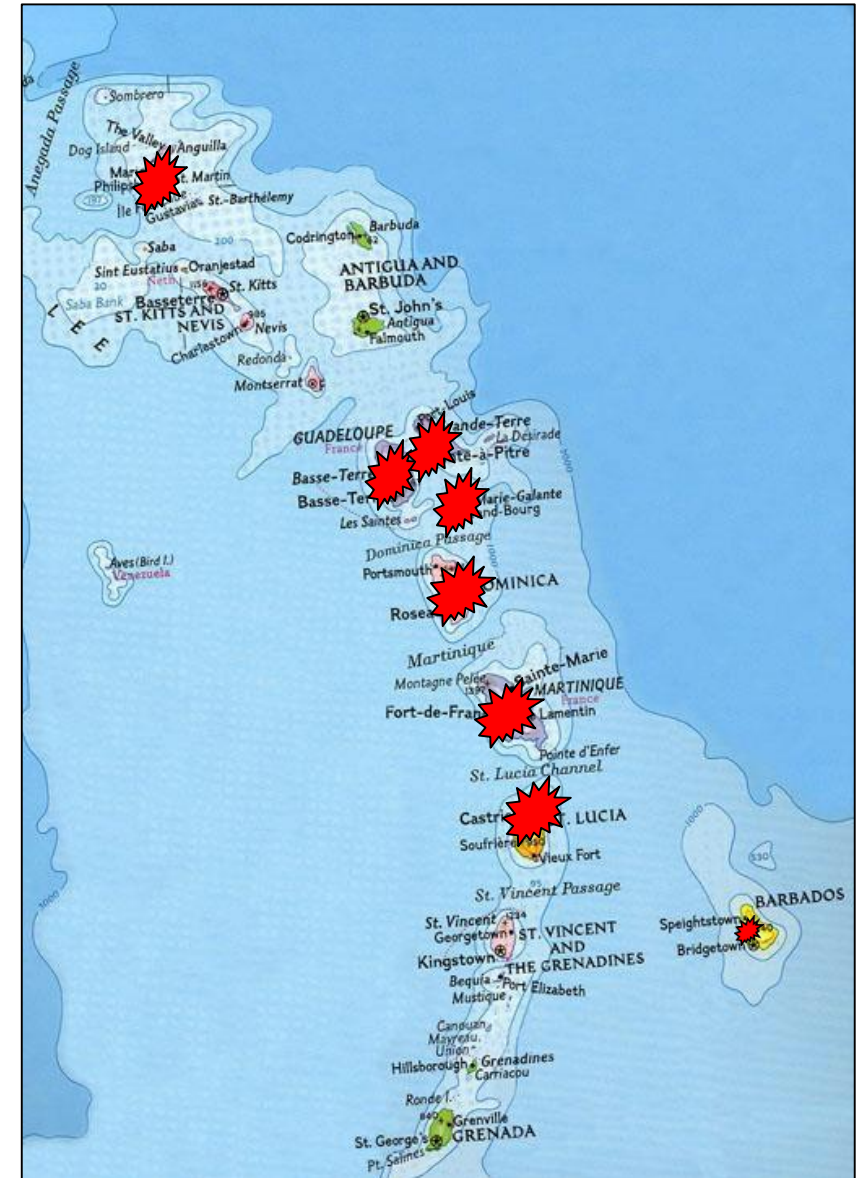
Spread of Giant African Snail

- Later 2000 **GAS** was detected in Barbados, probably introduced on shipments from Martinique to the *Mount Gay* rum factory



Spread of Giant African Snail

- 2005 Anguilla
- 2007 Dominica (shipment)



Spread of Giant African Snail

- 2008 detected in Antigua and Barbuda and Trinidad and Tobago
- 2011 South Florida
- 2014 Cuba
- 2016 Curacao and D.R.
- 2018 Puerto Rico
- 2020-21 FL and PR Eradicated
- 2022 Central Florida



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Archachatina marginata

- *Archachatina marginata* (Swainson) is the largest species of the invasive achatinids (it can be considerably larger than GAS – up to 21 cm in length, and is sometimes known as the Banana rasp snail)
- It is believed to have been introduced in Martinique in the early 1990's
- Even though it is phytophagous, it is not considered to represent a major pest threat as its reproductive capacity is very low
- It lays small clutches of pigeon egg-sized eggs



Archachatina marginata (photo: P. Marquez)

Archachatina marginata

- *Archachatina marginata* is a popular food item in West Africa; a study (Udofia, 2009) indicates that its meat has more protein and iron, and is better-flavoured than beef
- In contrast, West Africans refuse to consume GAS as it has poor flavour



Archachatina marginata for sale as food near Ibadan, Nigeria (photos: L. Garcia)

Limicolaria aurora

- *Limicolaria aurora* (Jay) is the other achatinid species established Martinique, first detected along Saint Esprit river in January 1989
- By August 1989 area residents were reporting large numbers of the snail, and considerable damage to yam, bean, pepper, Jerusalem artichoke, cucumber, okra and sweet potato
- Local inquiries suggest that the snail was introduced about three years earlier (1986) by Martinicans who had lived in West African and developed a taste for them
- In Cameroon, *L. aurora* causes damage to palm fruits and leguminous cover crops
- It is the smallest of the 4 achatinids, reaching about 4.5-6 cm in height
- It remains unknown whether *L. aurora* vectors any diseases
- Dr. Albert Mead, the world authority on the Achatinidae, suggested in 1992 that this species may prove a worse pest than **GAS**
- When Dr. Robinson visited Martinique in 2005, the snail was more widely distributed on the island, and apparently replacing **GAS**
- In 2007, *L. aurora* was reported in Singapore, believed to have been introduced on plants (orchids) from Martinique; recent communications indicate it is currently replacing **GAS** on that island



Limicolaria aurora

Limicolaria aurora

- *Limicolaria aurora* (Jay) is a popular food item in West Africa
- It is a variably-coloured species, and can be spotted, striped or completely pale
- Further taxonomic study may show that this taxon may consist of more than one species



Limicolaria aurora from Guinea, West Africa (photo: I. Muratove)



Limicolaria aurora from the Ducos area, Martinique

Achatina achatina

- *Achatina fulica* is another species that is frequently intercepted in passenger baggage from Europe and Africa
- It is a popular food item in West Africa, and commonly part of the pet trade in Europe (legally)
- It is approximately the same size as **GAS** and is also phytophagous, but has yet to be reported as invasive



Achatina achatina

Achatina achatina (continued)

- Because of its (legal) pet status in Europe, some shipments of live snails have used to smuggle illegal drugs
- In this particular case, twelve wooden crates filled with *A. achatina* was intercepted in London's Heathrow Airport. 2-inch squares of pure cocaine wrapped in brown tape, were pressed into the mantle cavity of each snails
- A total of 23 kg of cocaine was seized in this one interception



Conclusions

- Giant African snail continues to spread
- The biology and behavior of the snail promotes its invasiveness
- The snail can cause damage to crops in the Caribbean
- Giant African snail can be eradicated
- Other Achatinidae threaten the region
- Citizens play an important role



GAS feeding on okra leaf
Mt. Lambert, Trinidad