

Invasive Aquatic Animals



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Aquatic Invasives



Invasive Fish

- Florida has more exotic fish than any other state, mostly in S. FL
- The main exotics in our region are sailfin catfish, blue tilapia, brown haplo, and occasionally walking catfish and black acara.

Non-native Fish



Nonnative Fish
Black Acaria



Nonnative Fish
Butterfly Peacock



Nonnative Fish
Jaguar Guapote



Nonnative Fish
Spotted Tilapia



Nonnative Fish
Blue Tilapia



Nonnative Fish
Clown Knifefish



Nonnative Fish
Mayan Cichlid



Nonnative Fish
Suckermouth Catfish



Nonnative Fish
Brown Hoplo



Nonnative Fish
Common Carp



Nonnative Fish
Midas Cichlid



Nonnative Fish
Swamp Eel



Nonnative Fish
Bullseye Snakehead



Nonnative Fish
Grass Carp



Nonnative Fish
Oscar



Nonnative Fish
Walking Catfish



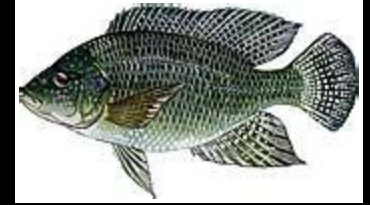
Nonnative Fish
Piranha

Blue Tilapia

Oreochromis aureus



Biology- Blue Tilapia



- **Origin:** Africa
- **Introduction:** stock
- **Diet:** plankton, det



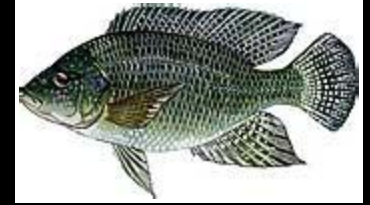
- **Reproduction:** circular nests, mouth brooding

Tilapia Nests



Tilapia nests (aka "land mines"), Lower Myakka Lake

Impact- Blue Tilapia



- Largely unknown
- Most widespread exotic fish in FL
- Extremely abundant
- Competes for spawning area, food, space
- Aggressive towards other fish- nesting
- Alters fish community structure
- Sportfish

Brown Hoplo

Hoplosternum littorale



Biology- Brown Hoplo



- **Origin:** Eastern S. America
- **Introduction:** unknown. Disc. in Indian River lagoon, expanding rapidly north
- **Diet:** benthic invertebrates, detritus
- **Reproduction:** floating nest in vegetation
 - Bubbles covered with plant material

Impacts- Brown Hoplo

- Largely unknown
- Alters food web structure
- Competes with natives for food
- Impacts invertebrates
- Sought after for food by Floridians with cultural ties to Trinidad and S. America



Sailfin Catfish



Taxonomy- Sailfin Catfish

- Confusing
- Algae eater, Plecostomus, armored catfish
- 3 main species in FL:
 - Vermiculated sailfin catfish- *Pterygoplichthys multiradiatus*
 - Orinoco sailfin catfish- *P. disjunctivus*
 - Suckermouth catfish- *Hypostomus sp.*
 - Not widespread, Miami-Dade

Biology- Sailfin Catfish

- **Origin:** S. America
- **Introduction:** release/escape from fish farms, aquariums
- **Diet:** detritus, attached algae, benthic insects
- **Reproduction:** high fecundity, >2,000 eggs, excavates burrows in banks

Impact- Sailfin Catfish



- Burrows cause siltation, shoreline instability
- Undermine canal banks and lake shorelines
- Chocking hazard for birds due to long pectoral and dorsal spines
- May displace native algal feeding fish
- Nuisance to manatees in springs

Impact- Sailfin Catfish



Invasive Apple Snails

ISLAND APPLESNAIL EGGS



Taxonomy- Invasive Apple Snails

- FL has 1 native and 4 introduced sp.



Florida- native



Spike top



Island



Channeled



Titan

Five Applesnail egg clutches

- a – Titan applesnail
- b – Spike-topped applesnail
- c – Channeled applesnail
- d – Florida applesnail
- e – Island applesnail

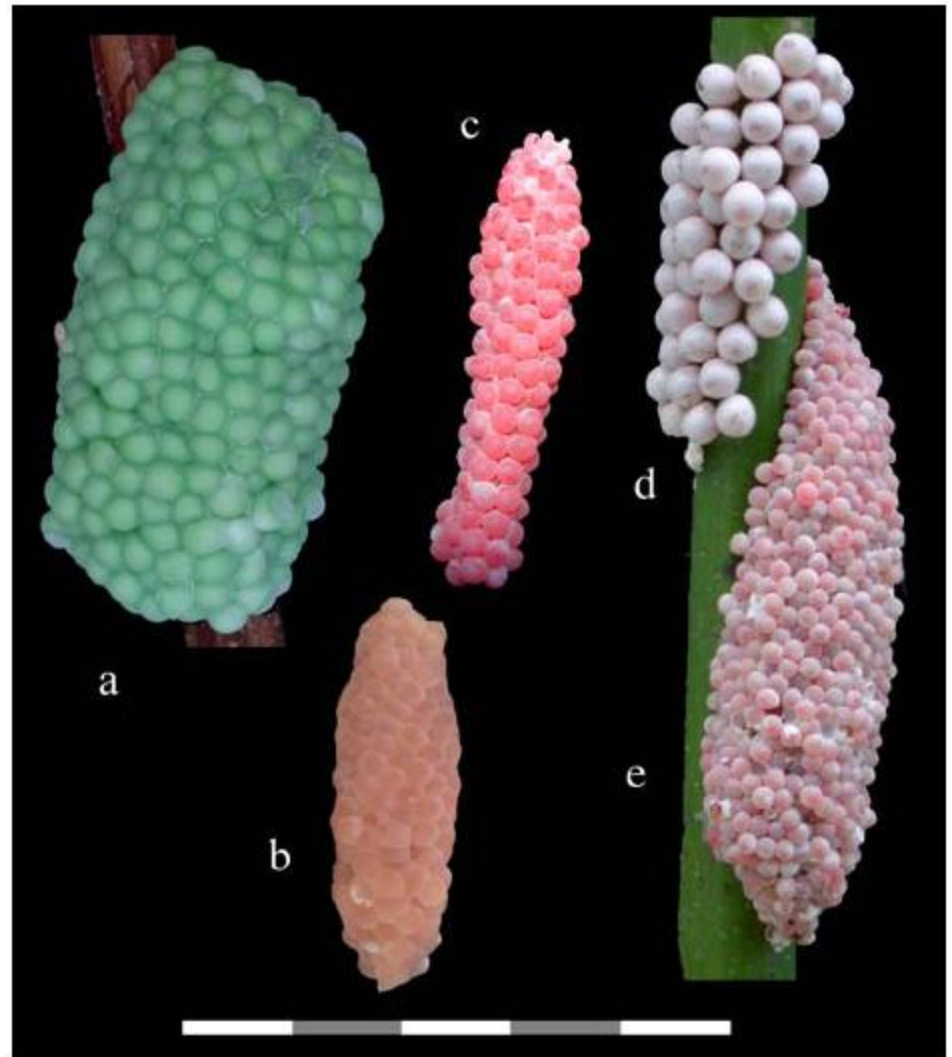


Photo by Tim Collins, FIU

Biology- Island Apple Snail

- **Origin:** S. America
- **Introduction:** deliberate/accidental release by aquarium owners. Spread with floods
- **Diet:** aquatic plants
- **Reproduction:** high fecundity, 600-1,200+ eggs per clutch



Impact- Island Apple Snail

- Impacts largely unknown
- Foraging competition
- Predatory behavior
- Humans can get parasite infection if eaten
- Expanding rapidly
- Feed on almost all aq. plants
- Food for many birds, alligators, etc.



Red-eared Slider

Trachemys scripta elegans



Biology- Red-eared Slider

- **Origin:** Mississippi River drainages
- **Introduction:** aquarium industry
- **Diet:** omnivorous- fish, snails, plants, etc.
- **Reproduction:** Female lays ~30 eggs in nest on land

Impact- Red-eared Slider

- Little is known
- Compete with native turtles for food, basking areas
- Interbreed with Yellow-bellied Sliders, *T. scripta scripta*
- *Salmonella* risk with pet turtles

Mallard/Mottled Duck Hybridization

- See handout



Mottled and Mallard Ducks in Florida: The Problem- Hybridization

Source: Florida Fish and Wildlife Conservation Commission. Adapted from <http://myfwc.com/wildlifehabitats/managed/waterfowl/hybridization> and http://myfwc.com/media/627124/Duck_MODU_MALL_ID.pdf



Historically, wild mallards (*Anas platyrhynchos*) normally winter in Florida in widely scattered, small flocks and are seldom seen in large concentrations except in some of the northern counties. These wild birds migrate out of our state to northern breeding areas in the spring and are not present in Florida during the mottled duck breeding season.

However, captive-reared mallards are being unlawfully released by humans in large numbers in Florida. It is estimated that more than 12,000 mallards are purchased statewide from feed-and-seed stores and potentially are released each year. These domesticated mallards are being purchased by well-intentioned individuals and are being released on local ponds, lakes and canals for aesthetic reasons.

Currently, these domesticated mallards can be found year-round throughout Florida on water bodies at city and county parks; apartment and condominium complexes; and in other urban and suburban areas. They are not part of Florida's native wildlife and like other exotic species, are causing problems.

State biologists are observing more and more mixed flocks and mixed pairs in the wild and these feral mallards are mating with mottled ducks, producing a hybrid offspring. These hybrid offspring are fertile, which further compounds the problem. Every mallard released in Florida can potentially contribute to the hybridization problem and the result is that fewer and fewer pure-bred Florida mottled ducks are left each year. An estimated 7 to 12 percent of mottled ducks are already exhibiting genetic evidence of hybridization and biologists list this hybridization as the biggest immediate threat to the conservation of Florida's mottled duck.

Because of the relatively small size of the mottled duck breeding population (estimated at 30,000 to 40,000), the complete hybridization could result in the extinction of the Florida mottled duck.

Check out the table!



FLORIDA UNDER SIEGE
INVASIVE SPECIES THREATEN FLORIDA'S ECOSYSTEMS

INSIDE!
Learn about:
Hydrilla • Water Lettuce • Hyacinth
Hygrophila • Non-Native Wildlife

Find out:
What's being done
How YOU can help

UNIVERSITY of FLORIDA IFAS Extension
Call UF/IFAS Extension office at 321-697-3000 for more information or scan the QR code to the right with your smartphone.



Live Invasive and Native Animals!

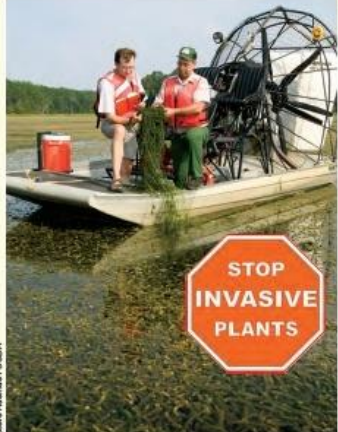
Do You Recognize These Aquatic Weeds?

Hydrilla and water hyacinth are non-native, invasive aquatic plants that can create huge infestations in our lakes and creeks.

 <p>Hydrilla <i>Hydrilla verticillata</i></p>	 <p>Water Hyacinth <i>Eichhornia crassipes</i></p>	 <p>Examining a hydrilla infestation</p>
Aquatic weeds can seriously interfere with boating and can prevent swimming and fishing. Managing these weeds requires frequent treatments.	The dilemma: Hydrilla can provide habitat and food for fish, snails, and waterfowl but it can also quickly become a problem if not managed.	Osceola County is conducting a Demonstration Project to look for new ways to manage hydrilla and other aquatic weeds.

<http://plants.ifas.ufl.edu/osceola>

INVASIVE Aquatic Plants You Should Know



STOP INVASIVE PLANTS

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