

Stock Island tree snail hurricane response best management practices

Specific islands: The Stock Island tree snail inhabits host trees in tropical hardwood hammocks throughout the Florida Keys and southern Miami-Dade County. Important host trees include poisonwood (*Metopium toxiferum*), pigeon plum (*Coccoloba diversifolia*), Jamaican dogwood (*Piscidia piscipula*), strangler fig (*Ficus aurea*), and gumbo limbo (*Bursera simarouba*) (Florida Natural Areas Inventory 2001).



Habitat: Hardwood Hammocks

Physical Description: The Stock Island tree snail is a large snail that can reach a length of 2.2 inches (5.5 centimeters). Its thin shell is white to light brown with three brownish to purple horizontal stripes that surround the shell. Numerous narrow brownish to purple stripes can be found stretching vertically on the shell surface. The species also has a white inner shell spiral and shell tip (Florida Natural Areas Inventory 2001).

Actions to minimize impacts of hurricane clean-up efforts:

1. Prior to removal of vegetation, inspect all material for tree snails and follow the guidelines outlined in the *Recommended Tree Snail Relocation Protocol* below.
2. Demolition and debris removal within endangered species habitat should be accomplished by hand as much as possible. Chain saw, pick up, and carry debris to place into piles rather than using traditional methods of land clearing and pushing debris into piles.
3. Removal of vegetation should be limited to felled trees only. Do not trim or remove any standing native trees. Refrain from using any pesticides (including mosquito sprays), herbicides, and any other biocides.
4. All trash resulting should be removed from the area as appropriate or disposed of properly in covered trash receptacles.

References

Florida Natural Areas Inventory. 2001. Field guide to the rare animals of Florida.
http://www.fnai.org/FieldGuide/pdf/Orthalicus_reses_reses.pdf

Recommended Tree Snail Relocation Protocol

The following procedures have been developed by Deborah A. Shaw, Ph.D with review from the Service to relocate both *Liguus* and *Orthalicus* tree snails. All tree snail collections and relocations should be done under the supervision of a qualified biologist with prior tree snail relocation experience.

Equipment needed: Igloo type cooler; clean spray bottle (plant mister type); source of fresh, clean water; paper towels; plant clippers, bucket to carry snails.

Tree snails needing relocation will be in one of three conditions: 1) sealed on a branch (aestivating during dry and/or cold weather); 2) aestivating but detached from branch with protective seal broken (snail will probably die if left in this condition); and 3) active and moving about (typical during warm, wet weather). Tree snails in condition one are the easiest to relocate as the branch can be hung in a new host tree and the snail will climb onto its new host when it awakens. Snails in conditions two and three need a little more care. Procedures for the three scenarios are discussed below.

Condition one - Snails sealed on a branch or tree trunk:

As long as the protective seal is intact, the snail can be left on the branch for relocation. Clip the branch with the snail attached. Trim extra twigs and leaves off of the branch leaving a forked branch to use as a hanger. Removing the extra branches and twigs minimizes the wrong turns that the snail can make when it awakens and leaves its twig to climb onto the new host tree and it makes it easier to handle the cut branch.

The trimmed branch with snail still attached is then placed in an appropriate host tree. The number of snails to be placed in a new host tree and the proper way to hang them requires prior tree snail handling experience. Knowledge of snail predators and other hazards is also necessary.

If the snail is sealed onto the tree trunk or on a branch too large to handle, the snail will have to be removed from the tree bark. This can be done safely by spraying the snail with clean fresh water which will soften the adhesive seal. After the seal softens, gently peel the snail off the tree bark. This should be done by an experienced tree snail handler. The adhesive membrane (seal) will be broken in this process so the snail will then have to be awakened to be relocated. See procedures for snails in conditions two and three.

Condition two – Tree snails detached from branch or with broken protective seals:

Aestivating tree snails with broken protective seals will die of desiccation unless they are awakened by being held in a warm, moist box for a period of time (usually a few hours or less).

To awaken aestivating snails, place them in a tree snail holding pen (cooler). On the bottom of the cooler lay two layers of clean paper towels saturated with clean fresh water. Fill the cooler with cut fresh Pigeon plum, *Coccoloba diversifolia*, branches with leaves attached. Pigeon plum is a favorite host tree for tree snails (particularly *Liguus sp*) and the leaves stay fresh in the cooler for a long time. Spray the branches with water to keep the air in the cooler saturated. Spray the protective membrane of each snail with clean fresh water. As it softens, peel it off to hasten the snail's awakening. Keep the drain plug open and keep the cooler lid open slightly to allow good air flow. Open the cooler lid too much and you have to round up the snails. Once they are active, they can be placed in a new host tree using the same technique described in the next section on active snails. Between uses, the cooler should be thoroughly cleaned and dried.

Condition three – Active snails:

If the weather is warm and humid, active tree snails can be easily relocated by simply spraying the bark of the new host tree with clean fresh water. Place the snail on the wet bark and support it until it gets a firm grip. The snail will climb up the tree. If conditions are warm but dry, the snail can still be released as it will simply reseal itself on the new tree as soon as it perceives the dry conditions. If conditions are too cold (below 70 degrees F is cold for a tree snail) and dry, tree snails should not be relocated except by a biologist experienced in working in those conditions.

Note: These are guidelines and are not meant to replace biological training or experience. Tree snails or any wildlife should only be handled by persons knowledgeable about the species' biology, natural history, protected status, habitat requirements and host plant identification.