

# Suwannee Cooter

*Pseudemys concinna suwanniensis*



Photo by Jonathan Mays, FWC.

## Species Overview

**Status:** Removed from Florida's Endangered and Threatened Species List

### Current Protections

- 68A-4.001, F.A.C., General Prohibitions and Requirement – Prohibits the take, transport, sale, and possession of wildlife.
- 68A-1.004, F.A.C., Take – The term take shall include taking, attempting to take, pursuing, hunting, molesting, capturing, or killing any wildlife or freshwater fish, or their nests or eggs by any means whether or not such actions result in obtaining possession of such wildlife or freshwater fish or their nests or eggs.
- 68A-25.002(4), F.A.C., Regulations Relating to the Taking of Reptiles - Prohibits the take of cooters (*Pseudemys* spp.) along with other species of freshwater turtles.

## Biological Background

This section describes the biological background for the Suwannee cooter and provides context for the following sections. It focuses on the habitats that support this subspecies and the threats faced by these populations.



Three Suwannee cooters basking on a floating log in the Ichetucknee River. Photo by Jonathan Mays, FWC.

The Suwannee cooter (*Pseudemys concinna suwanniensis*) is a moderately large river turtle and the largest member of the family Emydidae in the United States. Adult females (up to 43 cm [17 in] shell length) are larger than males (FWC 2013). Suwannee cooters have head stripes that are yellow to cream colored, irises that may be somewhat turquoise, and a mostly black carapace (upper portion of shell) that typically has faint yellow lines that appear as concentric and reversed C-shapes; these lines tend to be more pronounced in juveniles. The plastron (lower portion of shell)

is yellow-orange in color with black pigment, from a few bands to a complex pattern, along the seams. The bridge (side of the shell that connects the carapace to the plastron) typically has spots that often have concentric dark and lighter pigment with a black bar underneath them.

The Suwannee cooter is considered to be a subspecies of the more widespread river cooter (*Pseudemys concinna*), which occurs throughout the southeastern United States. This subspecies (*Pseudemys concinna suwanniensis*) inhabits Gulf coastal rivers from the central Panhandle (Ochlockonee River and eastward) into

the peninsula as far south as Phillippi Creek (Sarasota County; see also Jackson 1999 and 2006; Heinrich et al. 2015; Ballou et al. 2016; Heinrich and Walsh 2016 and 2019).

Suwannee cooters are restricted to rivers and large streams (lotic systems) and associated permanent freshwater habitats, including blackwater, alluvial and spring-run streams (FWC 2013). Key habitat features are moderate current, aquatic vegetation, and basking structures (Jackson 2006). They require nesting habitat in surrounding terrestrial habitats associated with streambanks, riparian areas, etc., that have well-drained upland soils and receive moderate to high solar exposure. Such sites are only 1 to 2 m (3.3 to 6.6 ft) above and within 1 km (0.62 m) of the floodplain (usually much less; Jackson and Walker 1997).



Riverine and nesting habitat typical of Suwannee cooters.  
Photograph by Jonathan Mays, FWC.

Suwannee cooters are considered mostly herbivorous and forage on a wide diversity of aquatic plants and algae (Allen 1938, Lagueux et al. 1995, Bjorndal et al. 1997). Although this subspecies will forage on non-native plant species, such as hydrilla (*Hydrilla verticillata*), non-native plants have detrimental impacts to the environment (e.g., thick mats of non-native plants can shade out other aquatic species). Optimally, forage plants should be native species in unpolluted waterways (FWC 2013).

The nesting season runs from spring to late summer, typically March through August with a peak May-June. Females lay as many as 4 to 5 clutches of 8 to 27 eggs each year; however, most nests are consumed by predators (Jackson

and Walker 1997). Females become sexually mature after 10 to 15 years, with a life expectancy > 30 years for both sexes. Populations can achieve very high densities locally (Jackson and Walker 1997).

Further background information pertaining to the Suwannee cooter may be found in the [Florida Suwannee Cooter Biological Status Review Report](#) (FWC 2011) and [A Species Action Plan for the Suwannee Cooter](#) (2013).

### Threats

A Biological Status Review (BSR) found that the Suwannee Cooter did not meet the criteria for state listing in Florida (FWC 2011). However, there are identified threats that may affect the Suwannee cooter in the future. Principal threats to the Suwannee cooter include illegal take (Heinrich et al. 2010), water pollution, riverine habitat degradation (impoundment, channel dredging, snag removal, siltation, deadhead logging), impacts from motorized boats (e.g., Heinrich et al. 2012), impacts from fish hooks and other bush hooks, trotlines, and setlines (FWC 2013), and predation of turtles and eggs (e.g., raccoons [*Procyon lotor*], fish crows [*Corvus ossifragus*], and feral hogs [*Sus scrofa*]; Jackson 2006, FWC 2013).

Like many riverine turtles, the Suwannee cooter requires high-quality, unpolluted, aquatic habitats (including exposed surfaces for basking) to maintain their health and reproductive opportunities, and nesting habitat in surrounding sandy soils. Therefore, activities that decrease water quality or quantity are expected to have negative impacts on Suwannee cooters (e.g., chemical runoff, siltation, upstream water withdrawals, spring water withdrawals; FWC 2013). Groundwater withdrawal that reduces spring input into blackwater streams can drastically reduce the growth of submergent vegetation, the principal food of the Suwannee cooter, because of reduced sunlight penetration. For example, this subspecies has been documented moving out of areas where vegetation died from environmental factors (Jerry Johnston, personal communication). Therefore, activities that reduce the biomass of aquatic vegetation eaten by Suwannee cooters, such as

chemical or mechanical treatment, will detrimentally impact populations or cause them to move to areas that retain vegetation. Turtle growth rates may be negatively impacted by removing basking opportunities (e.g., direct removal of woody structure, increased boating activity that prevents turtles from maximizing basking opportunities; Jackson 2006, Heinrich et al. 2010, Heinrich et al. 2012).

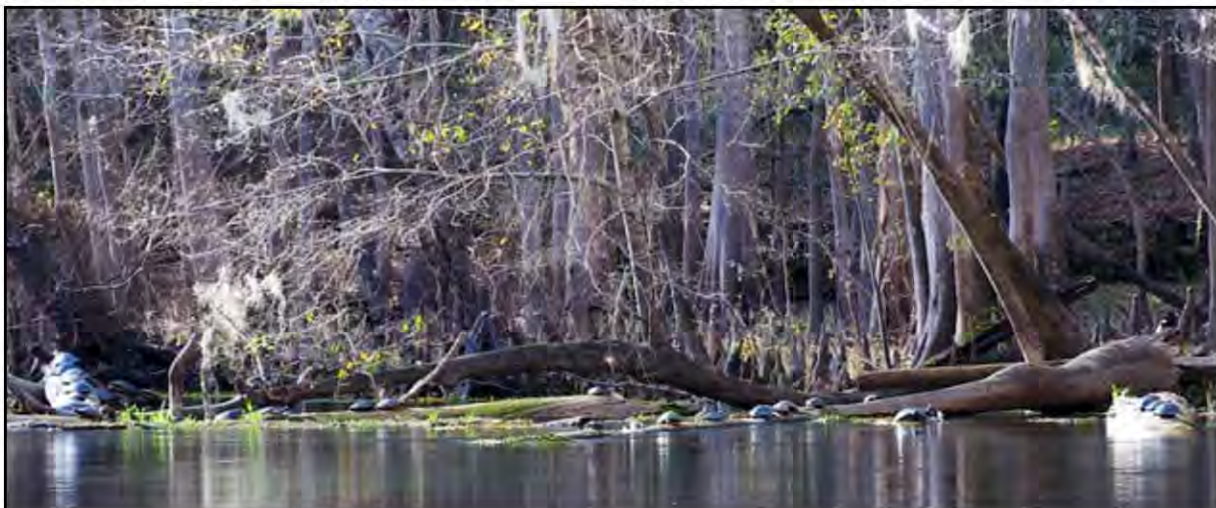


*Barge traffic typical of large lotic systems in Florida. Photograph by Jonathan Mays, FWC.*

Ingestion of fishhooks and accidental entanglement with bush hooks, setlines, and trotlines can cause population impacts on riverine turtles (FWC 2013; e.g., Steen and Robinson 2017). These turtles are vulnerable to take from these fishing methods because they can be opportunistic foragers (which can lead to hook ingestion) while also being active swimmers (which can lead to accidental entanglement). Currently, rule 68A-23.004 F.A.C. requires all trotlines, set lines, and bush hooks to be labeled with the harvester's information, which

helps minimize unintentional take of freshwater turtles by increasing accountability for deployed fishing gear. However, hooks can become ingested and/or lines can become entangled around turtles and other wildlife (e.g., wading birds, riverine mammals, etc.) when lines are abandoned, and/or lines become accidentally severed.

The Suwannee cooter is subject to overcollection from the wild because of contemporary global demands on freshwater turtles both for the pet trade and for human consumption. Turtle extirpations from overharvest have been extensively documented by the Turtle Extinction Working Group (2015). This subspecies was collected historically for human consumption (e.g., Heinrich et al. 2010), a practice that is now illegal. Its desirability in the contemporary pet trade is unknown, although it is not as likely to be coveted in the pet trade as other native freshwater turtle species (e.g., striped mud turtles, musk turtles, diamondback terrapins).



*Thirty-three Suwannee cooters basking on woody debris. Photograph by Jonathan Mays, FWC.*

## Distribution and Survey Methodology

The range map represents the principal geographic range of the Suwannee cooter, including intervening areas of undocumented habitat. These maps are for information purposes only and not for regulatory use.

**Counties:** Alachua, Citrus, Columbia, Dixie, Gilchrist, Hamilton, Hernando, Hillsborough, Jefferson, Lafayette, Leon, Levy, Madison, Manatee, Marion, Pasco, Sarasota, Sumter, Suwannee, Taylor, Union, and Wakulla.

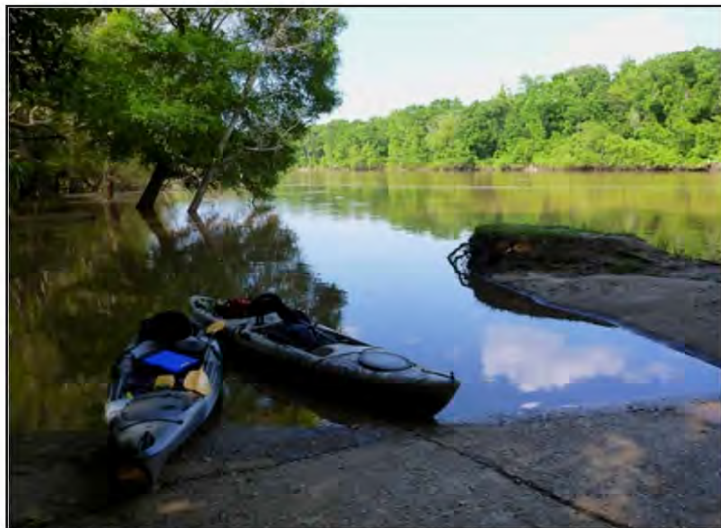
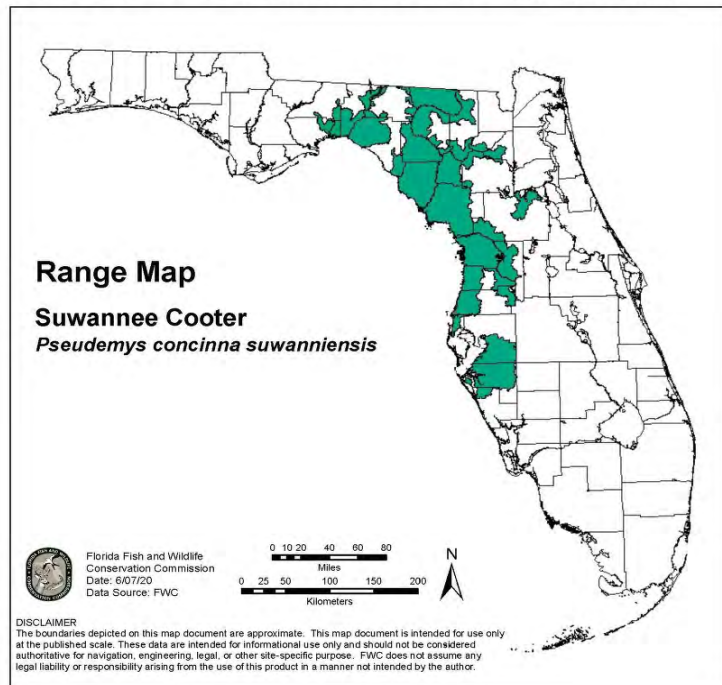
### Recommended Survey Methodology

Surveys, though not required, can be used to determine if the Suwannee cooter is present in an area. Basking and snorkeling surveys are the most reliable methods of detection.

Basking surveys occur when an observer looks for cooters resting upon exposed rocks, ledges, vegetation, boat ramps, etc., in riverine systems and connected backwater habitats. These turtles can be observed from passive watercraft (e.g., kayaks) or stationary structures, when available (e.g., bridges).

- A slow approach in passive watercraft may allow observers the best opportunity for a positive identification of basking turtles before they submerge themselves.
- Surveys should examine all potential shorelines and structures that a turtle may use.
- Because turtles are wary of approaching boats, binoculars and cameras can be used to aid identification.
- Although it is possible to view this species throughout the year, the greatest likelihood of seeing animals is typically spring – fall (approximately March – October, rangewide) during the sunniest part of the day, typically 10am – 2pm.
- Heavy rains make positive identification more difficult and deter turtles from basking.

Snorkeling surveys are an alternative to basking surveys when basking habitat is not available or if positive



*Passive watercraft and lotic turtle habitat. Photograph by Jonathan Mays, FWC.*

identification cannot be made during basking surveys (e.g., if basking areas are too close to the area of observance and the turtle submerges before identification). Snorkeling surveys are best for turtle identification in areas where the water is clear (e.g., springs). Snorkeling is not recommended for anyone who is not a capable swimmer, or for observers working alone.

If the Suwannee cooter is detected, refer to [Prohibitions and Permitting](#) to determine if coordination with FWC is needed. Surveys may also detect other imperiled species; refer to [Species Conservation Measures and Permitting Guidelines](#) for those species for information pertaining to state-Threatened wildlife.

Although it is possible to detect the Suwannee cooter with traps (e.g., encounter nets, basking traps, hoop traps, fyke nets), it is not an efficient methodology compared to basking surveys. Additionally, some traps are difficult to deploy in strong currents with large floating debris and/or boat traffic. Even under optimal conditions, trapping comes with added risks to wildlife (e.g., by-catch, accidental drowning, etc.). By-catch could include state-Threatened species. Thus, trapping is not recommended for surveys unless coordinated with FWC. A permit is required to trap or capture the Suwannee cooter.

## Recommended Conservation Practices

Recommended Conservation Practices are general measures that could benefit the Suwannee cooter but are not required. No FWC permit is required to conduct these activities. Further assistance on recommended conservation practices may be provided by the [FWC Landowner Assistance Program](#).

- Avoid causing changes that would degrade aquatic habitats inhabited by Suwannee cooters. Specifically, avoid creating artificial impoundments, dredging channels in rivers, creating dredge spoils within rivers, and removing snags from waterways. Avoid the displacement of existing snags and rocks to maintain basking structures in rivers.
- Avoid removal of submerged logs and deadhead logging in areas where turtles are present and when the activity would disturb sandy nesting areas; this activity is particularly bad for riverine turtles and should be avoided.
- Avoid activities that would remove excess water from rivers and springs, especially during times of drought.
- Avoid activities that would degrade or alter riparian zones adjacent to areas inhabited by Suwannee cooters. Specifically, avoid removing trees and shrubs, disturbing soil and ground cover, and operating off-road vehicles in riparian zones. For nesting, it is imperative to maintain all moderate to high sandy beaches, natural berms, and uplands extending at least 250 m (820 ft) beyond the floodplain (Jackson and Walker 1997).
- Minimize or eliminate activities that degrade water quality (e.g., siltation and pollution) in waterways inhabited by the Suwannee cooter. Guidelines for minimizing erosion and runoff from roadways can be found in the State of Florida [Best Management Practices \(BMP's\) for stormwater runoff](#) and in the [Florida Department of Agriculture Consumer Services \(FDACS\) silviculture BMP's](#).
  - If road crossings are needed, use techniques to reduce sedimentation entering habitat (e.g., bridges, bank stabilization) and add informational signs about turtles crossing the road.
- Remove abandoned or illegally placed bush hooks, setlines, and trotlines.
- Minimize livestock access to waterways inhabited by the Suwannee cooter.
- Locate and implement stormwater management systems that provide treatment before flushing into occupied habitat.
- Control predators (e.g., raccoons and fish crows) to prevent unusually dense populations of these predators (e.g., associated with residential garbage).
- Avoid or minimize fertilizer, herbicide, and pesticide runoff into occupied habitat.

- Prior to using herbicides or pesticides in or around suitable or occupied habitat, review labels for potential effects on non-target organisms.
- Use only herbicides that are labeled for aquatic use and check that any adjuvants are aquatic compatible.
- Avoid building road crossings through suitable or occupied habitat.
- Report illegal dumping to local authorities. If these activities occur on FWC-managed property, or if dumpsites contain turtle shells, report those activities directly to FWC (Wildlife Alert 1-888-404-3922).

## Prohibitions and Permitting

The Suwannee cooter is protected by the general prohibitions outlined in Rule 68A-4.001, F.A.C.: no wildlife or freshwater fish or their nests, eggs, young, homes, or dens shall be taken, transported, stored, served, bought, sold or possessed in any manner or quantity at any time except as specifically permitted by these rules nor shall anyone take, poison, store, buy, sell, possess or wantonly or willfully waste the same except as specifically permitted these rules. Take is defined in Rule 68A-1.004, F.A.C., as pursuing, hunting, molesting, capturing, or killing (or attempting to do those things). A permit is required for any activity that involves the possession, capture, sell, purchase, transport, hunting or killing of the Suwannee cooter. These permits are issued for justifiable purposes as outlined in Rule 68A-9.002, F.A.C. Justifiable purposes are scientific, educational, exhibition, propagation, management or other justifiable purposes. Collection (taking) of reptiles is controlled by Rule 68A-25.002, F.A.C., which specifies take and possession limits and methods, transport, and sale for reptiles; take and possession of Suwannee cooters are prohibited except as authorized in 68A-25.002, F.A.C. Collection of freshwater turtle eggs and sale of wild caught turtles is also prohibited by Rule 68A-25.002, F.A.C .

### No Permit Needed

The following activities could cause take, but are authorized to be conducted without an FWC-issued permit:

- Water and land management actions for human health and safety, such as flood control
- Mechanical invasive aquatic plant removal that does not include removal of dead woody debris
- Activities associated with removal of abandoned or illegally placed bush hooks and trotlines.

### Permits for Justifiable Purposes - Scientific Collecting and Educational Use

Scientific collecting permits may be issued for the Suwannee cooter. Activities requiring a permit include any research that involves capturing, handling, or marking wildlife; conducting biological sampling, including collecting tissue samples (e.g. blood, skin etc.) or genetic material for taxonomic analyses; or other research that may cause take. Basking surveys that do not involve handling animals do not require a permit. A scientific collecting permit is required to possess Suwannee cooters or to use them for education and outreach purposes; a scientific collecting permit will not be issued for the sole purpose of removing a Suwannee cooter from the wild to use as an educational or outreach animal. Suwannee cooters permitted for educational and outreach purposes should be used for a minimum of 12 educational engagements equating to a minimum of 48 hours of contact time.

- Applicants can apply for scientific collecting permits on the FWC's [online permitting site](#).
- Scientific collecting permit applications should include a justification, objectives, and scope of the project.
- Applications should include detailed description of project methods, including duration, sample size, disposition of individuals, and capture/handling procedures (including measures taken to reduce the risk of injury or death). Handling protocols, and a justification of methods, must be included in the permit application and should identify measures to lessen stress for captured turtles.

- The proposal should also include a thorough description of the project's methods, timeframe, and final disposition of all individuals. Permit amendment and renewal applications must be "stand-alone" (i.e., include all relevant information on objectives and methods).
- Permits may be issued to display a specimen if the specimen was obtained via rehabilitation facility or was encountered dead.
- Permits may be issued for captive possession (removal from the wild) if the individual is deemed non-releasable.
- Methodologies for any collection of tissues (such as blood) should be clearly spelled out, including measures taken to reduce stress and injury to the turtles.
- Disposition involving captive possession for any period must include a full explanation of whether the facility has appropriate resources for accomplishing the project objectives and for maintaining the animals in a safe and humane manner.
- Any mortality should be reported immediately to FWC at the contact information below. FWC will provide guidance on proper disposition of specimens.
- Data must be provided to FWC in the specified format in the permit conditions.
- A final report should be provided to FWC in the format specified in the permit conditions.

### Other Permits

For any other justifiable purpose permit that does not fall under scientific collecting or educational use, please submit your request to [WildlifePermits@myFWC.com](mailto:WildlifePermits@myFWC.com).

## Additional Information

Information on Economic Assessment of the ISMP and all guidelines can be found at <http://myfwc.com/wildlifehabitats/imperiled/management-plans/>

## Contact

For more species-specific information or related permitting questions, contact FWC at (850) 921-5990 or [WildlifePermits@myFWC.com](mailto:WildlifePermits@myFWC.com). For regional information, visit <http://myFWC.com/contact>.

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