

## HABITAT PREFERENCES OF TWO FLORIDA TURTLES, GENUS *KINOSTERNON*

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Recent studies on the biology of turtles at Corkscrew Swamp Sanctuary in Big Cypress Swamp, Collier County, Florida, have revealed several differences in the habitat preferences and behavior of two sympatric mud turtles *Kinosternon baurii palmarum*, the striped mud turtle, and *K. subrubrum steindachneri*, the Florida mud turtle.

*Kinosternon b. palmarum* usually inhabits flowing water of a depth greater than 24 inches but has been observed in the deeper sloughs, canals, ponds, and lettuce lakes in the cypress swamps. These bodies of water are permanent and the turtles are not forced to aestivate during dry periods. The dominant aquatic plants are smaller duckweed, *Lemna minima*; spatterdock, *Nuphar* sp.; broad-leaved arrowhead, *Sagittaria latifolia*; water hyacinth, *Eichhornia crassipes*; and water lettuce, *Pistia stratiotes*; while bald cypress, *Taxodium distichum*, is the dominant tree. The pig frog, *Rana grylio*, and the two-toed amphiuma, *Amphiuma m. means*, occur with *K. b. palmarum* and its habitat is often indicated by the grunts of the frog. These deeper flowing waters are also the home of the American alligator, *Alligator mississippiensis*; the cottonmouth, *Agkistrodon piscivorus conanti*; the Florida snapping turtle, *Chelydra osceola*; the Florida redbellied turtle, *Chrysemys nelsoni*; the stinkpot, *Sternotherus odoratus*; and the Florida softshell, *Trionyx ferox*. In the emergent vegetation are various hylid frogs, the green anole, *Anolis carolinensis*, the southeastern five-lined skink, *Eumeces inexpectatus*, the yellow rat snake, *Elaphe obsoleta quadrivittata*, and kingsnake, *Lampropeltis getulus floridana* x *g. brooksi*.

*Kinosternon s. steindachneri* is more frequently encountered in standing water of depths up to 30 inches; it is most often found in marshes and pools of water in fields. Such bodies of water are entirely dependent on rainfall and undergo drastic seasonal fluctuations in depth. The turtles aestivate during dry periods, and they are rarely found from December to March. Living *Kinosternon s. steindachneri* have been plowed up during this period. The pH of these bodies of water changes drastically within a short time. Two pools tested had pH drops of 7.3 to 6.9 and 8.6 to 7.2, respectively, in about 24 hr. At times following heavy rainfall such pools may have a pH as low as 5.0. The primary submergent vegetation associated with these habitats consists of naiad *Najas* sp.; waterweed, *Elodea* sp.; eelgrass, *Vallisneria* sp.; and water hyssop, *Bacopa caroliniana*. The dominant emergent plants are maiden cane, *Panicum hemitomon*; pickerelweed, *Pontederia cordata*; grass-leaved arrowhead, *Sagittaria graminea*; reed, *Phragmites communis*; and St. John's-wort, *Hypericum fasciculatum*. The terrain surrounding these



bodies of water is typical of southern inland Florida with the major vegetative types being Florida slash pine, *Pinus elliotii*; saw palmetto, *Serenoa repens*; wax myrtle, *Myrica cerifera*; and sparse bald cypress. Amphibians that commonly breed in these pools are the little grass frog, *Limnoedus ocularis*; the Florida cricket frog, *Acris geyllus dorsalis*; the Florida chorus frog, *Pseudacris nigrita verrucosa*; the eastern narrow-mouthed toad, *Gastrophyrne carolinensis*; and the oak toad, *Bufo quercicus*. *Natrix sipedon pictiventris*, the Florida water snake, and *Thamnophis sauritus sackeni*, the southern ribbon snake, are the most commonly associated reptiles.

During the rainy periods of late April to July, both mud turtles are frequent overland wanderers and habitat differences are more difficult to detect.

Based on our encounters with these turtles, *K. s. steindachneri* appears to be the more terrestrial of the two. However, Carr (1952) stated that *K. b. palmarum* "is probably the least confirmedly aquatic of the North American kinosternids" (note that this has been corrected for the recent taxonomic reversal of *K. b. palmarum* and *K. b. baurii* by Uzzell and Schwartz, 1955) and reported (Carr, 1940) *K. s. steindachneri* as very aquatic and rarely seen on land. This is the reverse of our findings. *Kinosternon b. palmarum* is most active on land at dusk or shortly thereafter, while *K. s. steindachneri* may be encountered at any time. Both species are active on land immediately following rains.

The temperament of the turtles we handled was quite different. *Kinosternon b. palmarum* was shy and retiring and seldom bit, even when provoked; *Kinosternon s. steindachneri*, however, was pugnacious and bit viciously.

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