

SPECIES PROFILE: Nile Monitors (*Varanus niloticus*) in Florida

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Varanidae is a monotypic family of about 50 species of Old-World lizards containing only the genus *Varanus*. These generally large, intelligent, carnivorous lizards occur in Africa, Australia, and Southeast Asia in habitats ranging from deserts and savannahs to tropical rainforests and mangroves. At least one large species has gained a foothold in the Western Hemisphere and may represent a considerable threat to native wildlife populations.

The Nile monitor, *Varanus niloticus*, ranges naturally throughout central and southern Africa. Two subspecies, the Common (*V. n. niloticus*) and Ornate (*V. n. ornata*) Nile Monitor were once recognized, but full species status was recently awarded them both. The former has a blue tongue and 6–9 gold dorsal bands and the latter has a pinkish tongue and 3–5 dorsal bands. The oft-used vernacular name “Money Monitor” refers to its coin-sized, gold dorsal spots. Reaching a maximum total length of over two meters (usually about 1.5 m) and a maximum weight of over 10 kg (usually 5–8 kg), this is one of

the largest lizard species on Earth. They often live to be 10 or more years old, but reach sexual maturity in under three years, and larger, older females may lay 60–80 eggs in a clutch. In Kenya, they reach densities of 40–60 lizards/km². As a result of their large size, high reproductive rates, and abundance, this species is heavily exploited for meat and leather, and is considered valuable in its native lands — but this species is particularly unwelcome outside its native range.

At least 13 years ago, this species became established in Cape Coral, a sprawling coastal residential area near Ft. Myers in southwestern Florida. In the 1950s, the wetlands of this region were ‘reclaimed’ for development by using the spoils dug from an over 400-mile-long network of deep canals. Additional aquatic and wetland habitats were created in the areas’ numerous golf courses. Moreover, Cape Coral is fringed by extensive mangroves and remote barrier islands. These freshwater canals, lakes, and wetlands, combined with a low density of homes and remote coastal mangroves, provide ideal conditions for the establishment and spread of this species. The origin of the introduced lizards remains unknown, but the extent of the problem became apparent in 2000 due to the efforts of Kraig Hankins (City of Cape Coral), Kenneth Krysko (University of Florida), and Kevin Enge (Florida Fish and Wildlife Conservation Commission). This species currently occupies over 50 km² of residential areas, canal banks, and surrounding pine flatwoods, mangroves,



This 5-foot, 15-pound Nile Monitor was captured at a residence in Cape Coral.



The remote pine flatwoods of the Charlotte Harbor Buffer Preserve provide valuable habitat for native species, but also may be a corridor for expansion of Nile Monitors.



Nile Monitors construct burrows in the banks of over 400 miles of canals in Cape Coral.

barrier islands, and other natural habitats in and around Cape Coral.

The impact of this species on native wildlife is largely anecdotal at this time, but in southwestern Cape Coral, pets have been disappearing, feral cats are relatively rare, and residents tell tales of monitors eating rabbits in their yards and goldfish in their ponds. In their native range, Nile Monitors are generalist carnivores that will take snails, spiders, crustaceans, insects, fish, amphibians, reptiles, birds, bird eggs, and mammals. Their diet changes with age from crabs and other invertebrates to vertebrates and carrion. They can dig their own burrows, but prefer to sequester an existing burrow after making a meal of the resident. These intelligent, stealthy predators are at home above and below ground, in water, and in trees. The potential for impact on native species is not yet known, but a few legally protected taxa may be particularly vulnerable.

Cape Coral has a notoriously large population of Burrowing Owls, a small species of terrestrial owl that digs burrows in open habitats and canal banks. The eggs and hatchlings of the Gopher Tortoise, another burrowing species, may be vulnerable to adult monitors. Nile Monitors compete with and consume Dwarf Crocodiles in their native haunts, suggesting that American Alligators could be at risk. Nile Monitors also harbor introduced parasites that could be transmitted to other vertebrates and even humans.

In July 2003, I initiated a research program at the University of Tampa with funding from the Charlotte Harbor National Estuary Program and the National Fish and Wildlife Foundation. With the help of local residents, lizards are being located, trapped, and ethically euthanized to obtain information about their current geographic distribution, density, natural history, reproductive cycle, diet, and impact on native



Nile Monitors patrol regular pathways and excavate burrows along artificial canal banks in Cape Coral, but also cross the canals and enter the surrounding natural mangrove habitats in the Charlotte Harbor Buffer Preserve.

species — and to assess the potential for range expansion and the possibility of eradicating this species from the area. Total eradication may prove unfeasible, but the knowledge gained will assist in managing populations of this and other introduced carnivorous lizards in Florida and elsewhere.



The author with the first Nile Monitor to trapped in his attempt to eradicate the species from Cape Coral.

References

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All photographs by the author.