Non-native Reptiles in Florida

Forty-one exotic species of amphibians and reptiles are known to occur in Florida, and more are being discovered on a regular basis. A hospitable climate, disrupted natural ecosystems, a mobile and growing human population, and service as the major transportation center for the U.S. pet trade all contribute to the increasing numbers of invasive species.

ENGE AND KRYSKO (2004. *Florida Scientist* 67:226–230) documented an established population of the Asian agamid lizard commonly called the Bloodsucker (*Calotes versicolor*) in St. Lucie County, Florida. This population was apparently introduced in 1978, and approximately 100 specimens have been captured by two commercial collectors in the past 10 years. All specimens were captured from nocturnal roosts 1–9 m high in weeds, vines, bushes, and trees. The known population boundaries extend approximately 10 km east-west and north-south, and they encompass citrus groves, Brazilian pepper (*Schinus terebinthifolius*) thickets, mesic flatwoods, and canals. The authors did not attempt to assess the possible ecological impact of this species on native wildlife, but it has been known to feed on small vertebrates in Asia.

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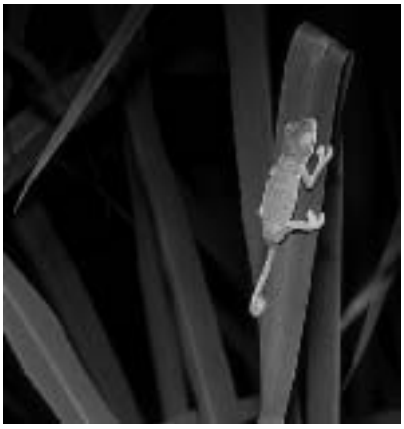
Gravid female and neonate Bloodsuckers (*Calotes versicolor*) from St. Lucie Co., Florida.

KRYSKO ET AL. (2004. *Florida Scientist* 67:249–253) documented an established population of the Veiled or Yemen Chameleon (*Chamaeleo calyptratus*) in Fort Myers, Lee County, Florida. The authors recorded at least 70 individuals, including both genders and all size classes in consecutive years, indicating a reproducing population. *Chamaeleo calyptratus* also has been reported from areas near Lehigh Acres and Alva, Lee County, and Naples, Collier County, suggesting independent introductions of this popular exotic lizard. Monitoring of this population should continue, and eradication should be attempted if adverse ecological impact on native species is observed.



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Adult and juvenile (*Chamaeleo calyptratus*) from Lee Co, Florida.

ENGE ET AL. (2004. *Florida Scientist* 67:303–310) documented populations of the introduced African Rainbow Lizard (*Agama agama africana*) in Homestead, Miami-Dade County; Hollywood, Broward County; Palm City, Martin County; Punta Gorda, Charlotte County; and Sanford, Seminole County. The Homestead and Punta Gorda populations have been established for over 10 years and have expanded at least 0.5 km from the point of introduction. The Palm City population has been established since 1999 and the Sanford population since 2000. All lizards were in urban or suburban situations. Maximum clutch size and maximum snout-vent length (SVL) of male and female *A. a. africana* in Florida exceeded those in native Nigerian populations. All adult females (> 94 mm SVL) collected May–August contained 5–18 vitellogenic follicles or oviductal eggs, but a female collected on 19 September was not gravid. Monitoring should be conducted to determine whether the species could invade natural habitats and exert a negative impact on native wildlife.

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African Rainbow Lizard (*Agama agama africana*) from Miami-Dade Co., Florida (UF 134222).

The Nile Monitor (*Varanus niloticus*), the longest lizard in Africa, was first observed in southwestern peninsular Florida in the Cape Coral area of Lee County in about 1990. From April 2001 through July 2003, ENGE ET AL. (2004. *Southeastern Naturalist* 3:571–582) compiled data from 146 sightings or captures of this species. Numerous individuals of all size classes were observed or collected, suggesting the occurrence of a reproducing population. Although records are mostly confined to Cape Coral, the data indicate that *V. niloticus* has recently expanded its range northwards and to nearby islands. Because this large lizard has the potential to disperse into nearby ecologically sensi-

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This 5-foot, 15-pound Nile Monitor (*Varanus niloticus*) was captured at a residence in Cape Coral.

tive areas and preserves where it could pose a serious threat to waterbirds, Burrowing Owls (*Athene cunicularia*), sea turtles, and other native wildlife, population monitoring and eradication are warranted.

KRYSKO AND ENGE (2005. *Florida Scientist* 68:247–249) confirmed the existence of the Butterfly Lizard (*Leiolepis belliana*) in Miami, Miami-Dade County, Florida. The authors found *L. belliana* active during the daytime in an area encompassing six square city blocks, where it was observed basking and foraging on open grassy lawns and inhabiting burrows. The population of *L. belliana* originated from a tropical fish dealer and has been established since at least 1992. If eradication of the Miami population is desired, it should be attempted while the population remains localized.

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Butterfly Lizard (*Leiolepis belliana*) from Miami-Dade Co., Florida.

Green Iguanas (*Iguana iguana*) are firmly established in southern Florida, including a large population on Key Biscayne. In its native range, *I. iguana* is known to be almost strictly herbivorous. Juveniles are often reported to be somewhat omnivorous, but prey items are rarely identified. The tree snail *Drymaeus multilineatus* is common in southern Florida, where it is found on stems and leaves and in edificarian habitats. TOWNSEND ET AL. (2005. *Southeastern Naturalist* 4:361–364) examined *I. iguana* stomachs from Bill Baggs Cape Florida State Park, Key Biscayne, and discovered *D. multilineatus* in two lizards, including 12 snails in one juvenile *I. iguana*. The large and rapidly growing *I. iguana* populations in southern Florida may have the potential to devastate some highly localized native species of tree snails.

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The tree snail *Drymaeus multilineatus* is common in southern Florida, where it is known to be eaten by introduced Green Iguanas (*Iguana iguana*). Such observations suggest that the large and rapidly growing *I. iguana* populations in southern Florida may have the potential to devastate some highly localized native species of tree snails.

MESHAKA ET AL. (2005. *Southeastern Naturalist* 4:521–526) searched for introduced Northern Curlytails (*Leiocephalus carinatus armouri*) along Florida's southeastern coast from Port Salerno, Martin County, north to the Indian River/Brevard County line to determine the extent to which this species has expanded its range since its introduction to Palm Beach County almost 50 years ago. They found the distribution of these lizards to be almost uninterrupted in heavily modified coastal habitats from northern Broward County through Palm Beach County. Despite urban heat islands, the authors suggested that frost isotherms would prevent stable populations from becoming established north of Fort Pierce on the eastern coast and just below Sarasota along the state's western coast.

Recent studies of geographic patterns of nonindigenous species richness suggest that a few key biogeographic and anthropogenic factors explain much of the variation in the richness of established species. However, the factors identified in these studies may be taxon- and scale-specific or general rules might apply broadly across taxa and spatial scales. To address this issue, SMITH (2006. *Biological Conservation* 127:327–335) identified factors that contributed significantly to variation in nonindigenous herpetofaunal richness at a relatively small spatial scale, the county level, in Florida. The author also used the Jaccard similarity index to determine if nonindigenous species affect the biotic similarity of the herpetofaunas of Floridian counties. County latitude strongly and negatively affected nonindigenous herpetofaunal richness, explaining approximately two-thirds of the variation in this variable. To a smaller degree, human population and university presence both related positively with nonindigenous herpetofaunal richness. Several other variables, including county land area, were not significantly related to nonindigenous herpetofaunal richness. The consistent importance of human population to nonindigenous species richness in this and past studies suggests that the influence of anthropogenic factors may be universal and are as or more important than the natural biogeographic factors that generally relate with native species richness. The author found no evidence of overall homogenization, but a significant relationship between homogenization scores and distance between counties suggested that the effect of nonindigenous herpetofaunal richness on the similarity of county biotas is scale-dependent, such that adjacent counties tend to experience homogenization. The results of this and similar studies may be useful in predicting the introduction and spread of nonindigenous species and in evaluating the effects of such introductions on native biodiversity.

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Northern Curlytail (*Leiocephalus carinatus*) from Palm Beach Co., Florida.