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Ecological Status of the Ocellated Gecko, *Sphaerodactylus argus argus* Gosse 1850, in Florida, with Additional Herpetological Notes from the Florida Keys

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ABSTRACT.—A recent field survey in the Florida Keys, Monroe County, resulted in much noteworthy herpetological information. We confirm the existence of the ocellated gecko (*Sphaerodactylus argus argus*) on Stock Island and Key West, a species that had not been found in 26 years. Additionally, we report range expansion in the common (*Hemidactylus frenatus*) and tropical (*H. mabouia*) house geckos and Madagascar giant day gecko (*Phelsuma madagascariensis grandis*), as well as provide size and reproduction data, respectively, for the marine toad (*Bufo marinus*) and red-eared slider (*Trachemys scripta elegans*).

KEYWORDS.—Ecology, exotic, introduced, lizard, non-native

The Florida Keys support a large and dynamic non-native herpetofauna. As exotic species have been introduced onto these islands, they have exhibited varying degrees of success in the establishment of viable populations, long-term persistence, and dispersal to other islands. Some of these exotic species such as the ocellated gecko, *Sphaerodactylus argus argus* Gosse 1850, and yellow-headed gecko, *Gonatodes albogularis* (Duméril and Bibron 1836), have either always been difficult to find or have become harder to detect over the last few decades (pers. obs.; Krysko and King 2002), possibly due to competitive exclusion, suboptimal habitat, or habitat modification. While conducting surveys in the Florida Keys over the last decade, we have uncovered numerous geographic distribution records and discovered new exotic species with established populations (Krysko and Decker 1996; Krysko and King 2002; Krysko et al. 2003a; Krysko et al. in press). Herein, we report collections of *S. argus* in Florida, and present additional noteworthy herpetological data from a recent survey in the Florida Keys.

We surveyed areas in the Florida Keys, Monroe County, during 7-11 April 2004, including Key Largo, Plantation Key, Grassy Key, Big Pine Key, Little Torch Key, Sugarloaf Key, Boca Chica Key, Stock Island, Fleming Key, and Key West. Specimens were deposited in the Florida Museum of Natural History (FLMNH), University of Florida (UF collection).

Sphaerodactylus argus argus was first reported in Florida in 1944 on Key West (Savage 1954). To date, only 11 specimens are known to have been collected from Florida (see Krysko and King 2002), and when

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found, this species was always in very low numbers compared to the ashy gecko, *S. elegans* MacLeay 1834, and Florida reef gecko, *S. notatus* Baird 1859. The last known Florida specimen of *S. argus* was collected in 1978 (Love 1978), which prompted Krysko and King (2002) to suggest that this species might be extirpated from Florida. On 8 March 2004 at 915 h, we collected a juvenile (18.1 mm snout-vent length [SVL]) *S. argus* (UF 141192) ca. 1.5 m above ground under bark of an Australian pine tree, *Casuarina equisetifolia* Linnaeus 1759, on Stock Island. It was syntopic with *S. elegans* and tropical house geckos, *Hemidactylus mabouia* (Moreau de Jonnès 1818) (UF 141193-97). This is the first *S. argus* reported from Florida in 26 years and first known voucher specimen from a locality other than Key West (Krysko and King 2002). Later the same day at 1700 h, we collected an adult (31.3 mm SVL) *S. argus* (UF 141217; Fig. 1) underneath a flat cement slab on Key West. In its native range of Jamaica, *S. argus* is found under rocks, trash, and loose tree bark, and occasionally in dry bromeliads high above ground in trees (Lynn and Grant 1940). *Sphaerodactylus argus* has also been introduced into the Yucatán peninsula, where it is found beneath fallen palm fronds, boards, and other surface debris in and around human habitations, on the sides of buildings, and under loose bark of trees and fence posts (Lee 1996). These are typically the same types of microhabitats where *Sphaerodactylus* occurs in the lower Florida Keys (Krysko et al. 2003b). Our findings indicate that *S. argus* persists on both Stock Island and Key West, but in relatively low densities, as we have surveyed the same microhabitats at these sites more than 20 times since 1995 without finding this species.

FIG. 1. The ocellated gecko, *Sphaerodactylus argus argus*: UF 141217, Key West.

Additional Notes:

Sauria

The common house gecko, *Hemidactylus frenatus* Duméril and Bibron 1836, is the most recently introduced of the four hemidactyline geckos in Florida, and was first reported from Stock Island and Key West, Monroe County, in 1993 (Meshaka et al. 1994) and Fort Myers, Lee County, in the late 1990s (Townsend and Krysko 2003). *Hemidactylus frenatus* occurs in relatively low numbers in the lower Florida Keys (Krysko et al. 2003b), and range expansion from Stock Island and Key West is undocumented. On 7 March 2004 at 2000 h, we collected a single adult (5.6 cm SVL) male *H. frenatus* (UF 141216) on the wall of the Cracked Egg Cafe at 30739 Overseas Hwy, Big Pine Key, which extends the species range ca. 50 km NE of the previous most northern locality in the Florida Keys (Krysko et al. 2003b). Also found on the same building were four *H. mabouia* (collected one, UF 141185).

Hemidactylus mabouia was first documented in 1990 from Crawl Key in the middle Florida Keys (Lawson et al. 1991). This species has since expanded its range rapidly throughout much of the Florida Keys (Gunther et al. 1993; Watkins-Colwell and Watkins-Colwell 1995; Powell et al. 1998; Krysko et al. 2003b; Townsend and Krysko 2003) and southern peninsula (Butterfield et al. 1993; Powell et al. 1998; Blihovde and Owen 2002; Klowden 2002; Townsend et al. 2002; Krysko et al. 2003b; Townsend and Krysko 2003; Krysko et al. in press), and is now the most commonly encountered gecko in southern Florida (Krysko at al. 2003a). On 9 March 2004, we found six adult *H. mabouia* (collected three, UF 141202-04), one *Sphaerodactylus elegans*, and the shed skin of a corn snake, *Elaphe guttata* (Linnaeus 1766), under the bark of *Casuarina equisetifolia* on Fleming Key, an island maintained by the U.S. Coast Guard

with highly restricted access, where these species have been previously undocumented. In addition, we collected a single communal nest there containing six eggs in the same microhabitat. These eggs were taken and incubated at 28° C, and upon hatching neonates were verified as *H. mabouia* (UF 141505-10).

The Madagascar giant day gecko, *Phelsuma madagascariensis* Gray 1870, was first reported breeding in Florida on Plantation Key, Grassy Key, Big Pine Key, and Little Torch Key (Krysko et al. 2003a). On 29 May 2003, we received an anecdotal report of *P. m. grandis* from a previously undocumented locality at 19474 Seminole Street, Sugarloaf Key. On 10 March 2004, we visited a nearby site (ca. 0.2 km NE of the report) on Mayan Avenue, where a resident divulged releasing offspring of this species on their property in 2002 because of its low demand in the pet trade. In April 2004, *P. m. grandis* was observed at this introduction site (A. Borgia pers. comm.), which represents the fifth independent and intentional introduction of *P. m. grandis* in the Florida Keys. Krysko et al. (2003a) reported that *P. m. grandis* was introduced on Cunningham Lane, Big Pine Key, but had insufficient data to report on the species range expansion since the time of introduction. In November 2003, a juvenile (UF 140503, photographic voucher) and adult (UF 140722, photographic voucher) *P. m. grandis* were observed and photographed on a coconut palm, *Cocos nucifera* Linnaeus 1753, and slash pine, *Pinus elliottii* Engelmann 1880, at 263 Shipps Way, Big Pine Key (J. Hobbs pers. comm.), ca. 2.7 km W of the introduction site. On 16 March 2004, an adult *P. m. grandis* was photographed (UF 141515, photographic voucher) on the porch of a residence at 3925 Hall Road on the northern end of Big Pine Key (R. Grau pers. comm.), ca. 8.0 km NW of the introduction site. These records illustrate that *P. m. grandis* now occurs throughout Big Pine Key.

Anura

The marine toad, *Bufo marinus* (Linnaeus 1758), was first reported breeding from southeastern peninsular Florida in 1957 (Neill 1957). Although three independent introductions occurred in Florida during the 1930s-1950s, this species failed to establish itself at these times (Lobdell 1936; Neill 1957; Duellman and Schwartz 1958; Riemer 1958; Krakauer 1968, 1970). *Bufo marinus* was subsequently reported breeding on Stock Island (Krakauer 1970) and Key West (Wilson and Porras 1983). We were given a large (17.1 cm SVL) female *B. marinus* (UF 141181) that was collected on 10 November 2003 in a drained residential swimming pool at 820 Windsor Lane, Key West (A. Borgia pers. comm.). Although this specimen is comparable in size to large individuals from the species native range of Honduras (McCranie and Wilson 2002), it is longer than the largest Florida specimen (16.1 cm SVL) in the UF collection.

Testudines

The red-eared slider, *Trachemys scripta elegans* Wied 1839, has been reported as far south as Stock Island, where a single specimen (AUM 33634) was collected in September 1993 from a roadside ditch (Butterfield et al. 1994). However, Butterfield et al. (1994) stated that they were unable to determine if this species was breeding there. On 8 March 2004, we collected two small (3.0 and 7.0 cm standard carapace length, UF 141198-99) *T. s. elegans* from the Key West Botanical Garden, Stock Island. The relatively small sizes of these specimens suggest that reproduction may be occurring in the wild.

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