



Novel Herpetofaunal Records for Great Cay and Windermere Island, Eleuthera, Bahamas

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A long and robust history of assessing the distributions of terrestrial reptiles in the Bahamas is most notable in comprehensive island lists by MacLean et al. (1977) and Buckner et al. (2012). Nevertheless, the Lucayan Archipelago, stretching 1,100 km and comprising at least 3,100 islands and islets, still contains many islands that have not been surveyed for terrestrial herpetofauna. The island of Eleuthera, in the north-central Bahamas on the eastern margin of the Great Bahamas Bank (Fig. 1), is well understood from a faunal perspective, with numerous studies of terrestrial herpetofauna (e.g., Cope 1894; Johnson et al. 2013; Hoefer et al. 2021a, 2021b; Johnson 2021; Reynolds et al. 2023). However, the terrestrial herpetofauna of several satellite islands remains understudied. We herein report herpetofaunal observations from two islands adjacent to Eleuthera. Voucher photographs were accessioned at the Museum of Comparative Zoology Herpetology Collection (MCZ:HerpOBS:56–60), and Robert Powell confirmed the identities of the species.

Windermere Island.—Windermere Island (2.69 km²), the second-largest satellite of Eleuthera located on the Atlantic coast roughly midway down the main island (25.06811, -76.11806; Fig. 1), is ~7.8 km long, has a maximum width of 0.7 km, and is oriented along a north-south axis. Windermere is separated from Eleuthera by Savannah Sound, a shallow embayment with openings to the north and south and is connected to Eleuthera by a 40-m-long concrete bridge. The island is characterized by habitats typical of Eleuthera, including whiteland coppice, mangroves, coastal dunes, rocky shores, and stands of the invasive Australian Pines (*Casuarina equisetifolia*). A substantial variety of habitats remain relatively intact despite decades of residential development and some recent clear-cutting. Although frequently visited by both tourists and naturalists, Windermere Island has a depauperate herpetofaunal record (four species) relative to nearby Eleuthera Island, which has 16 extant native species (Table 1; Buckner et al. 2012). We herein provide four additional records of the island's herpetofauna, although we suspect additional species will be discovered.

During near-annual visits from 1992 to 2018, we compiled records and sightings of herpetofauna from Windermere Island. Although visits were not designed specifically to survey herpetofauna, we opportunistically conducted surveys at different times of year and in different habitats, compiling a list of species present on the island (Table 1).

At 1230 h on 23 May 2015, we observed a single Cuban Treefrog (*Osteopilus septentrionalis*; MCZ:HerpOBS:60) of unknown sex resting under the eave of a tin-roofed shed adjacent to a leeward beach (25.045708, -76.126301; elev. 3 m asl). The south end of the shed (visible on Google Earth® image from 5 May 2010) is shaded during the morning and early afternoon by a stand of *Casuarina equisetifolia*. Cuban Treefrogs are abundant on Eleuthera (pers. obs.), although, to the best of our knowledge, the species has not been recorded previously on Windermere Island (Buckner et al. 2012).

On 29 May 2015, we observed a male and female Saw-scaled Curlytail (*Leiocephalus carinatus*; MCZ:HerpOBS:59) basking at 1800 h, as well as numerous distinctive tracks in the sand at the base of an elevated karst point on the windward side of the island connected by a sand spit (25.085302, -76.114561; elev. 2 m asl). This species is patchily distributed on Eleuthera (Hedges 2024), although it is relatively common adjacent to human habitation in Governor's Harbour and Double Bay (pers. obs.).

At 1500 h on 27 May 2015, we observed two male North Caribbean Bark Anoles (*Anolis distichus*; MCZ:HerpOBS:57) (25.046215, -76.118857; elev. 13 m asl) with cream-colored dewlaps, similar to those observed elsewhere on the north-eastern Great Bahama Bank. One male was on a 2-m high trunk of a dead Coconut Palm (*Cocos nucifera*) and the other was ~5 m away on the trunk of a 4-m tall tree. This species occurs adjacent to Windermere Island on the main island of Eleuthera and is abundant in Double Bay (RGR, pers. obs.).

On the morning of 21 March 2018, CFD observed and photographed an adult Bahamian Boa (*Chilabothrus strigilatus*; MCZ:HerpOBS:58) (Fig. 2) of unknown sex that had been

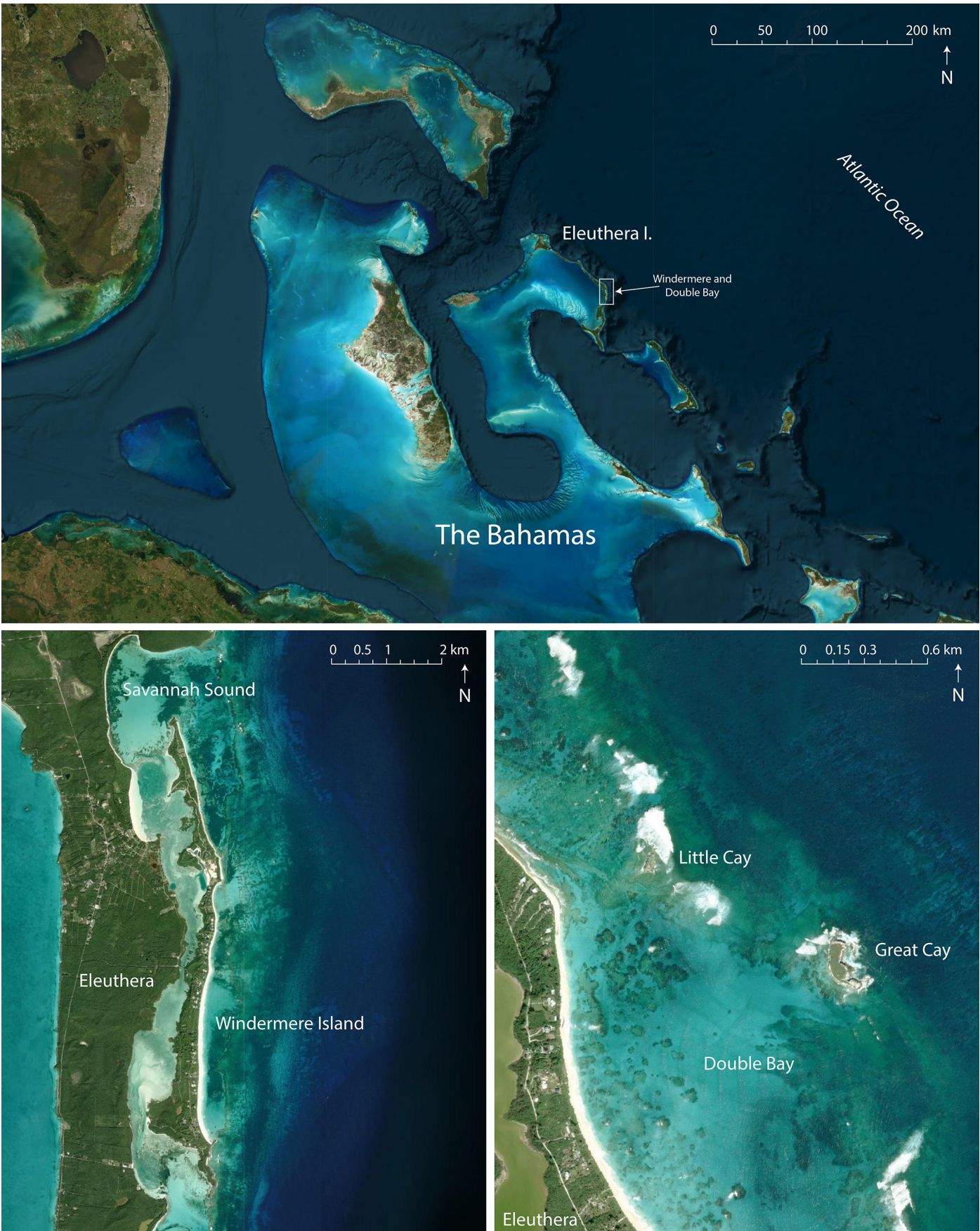


Figure 1. ArcGIS Pro® images showing an overview of the Greater Bahamas (top), Windermere Island separated from Eleuthera Island by Savannah Sound (bottom left), and Double Bay, Eleuthera, showing the locations of Little Cay and Great Cay (bottom right).

Table 1. Native extant herpetofaunal records for Eleuthera Island (from Buckner et al. 2012), Windermere Island, and Great Cay. Tentative indicates the species was observed but unconfirmed by photograph or specimen.

Eleuthera	Great Cay	Windermere Island
<i>Eleutherodactylus rogersi</i>	—	Buckner et al. 2012
<i>Osteopilus septentrionalis</i>	—	This study
<i>Pholidoscelis auberi</i>	Tentative	Buckner et al. 2012
<i>Anolis angusticeps</i>	—	—
<i>Anolis distichus</i>	—	This study
<i>Anolis sagrei</i>	This study	Buckner et al. 2012
<i>Anolis smaragdinus</i>	—	Buckner et al. 2012
<i>Leiocephalus carinatus</i>	—	This study
<i>Sphaerodactylus copei</i>	—	—
<i>Sphaerodactylus nigropunctatus</i>	—	—
<i>Sphaerodactylus notatus</i>	—	—
<i>Tarentola americana</i>	—	—
<i>Cubophis vudii</i>	—	Buckner et al. 2012
<i>Chilabothrus strigilatus</i>	—	This study
<i>Tropidophis curtus</i>	—	—
<i>Typhlops lumbricalis</i>	—	—

killed by a groundskeeper (25.045991, -76.118723; elev. 13 m asl). Although this species was mentioned as being known

from Windermere Island by Reynolds et al. (2023), that inclusion was based on an unpublished sighting by RGR.

Great Cay.—Just over 1 km north of Savannah Sound is Double Bay, a shallow embayment bordered by two islands, Great Cay (sometimes called Diamond Cay; 25.148245, -76.121431) and the rock islet Little Cay (25.152158, -76.129417). Great Cay (~1.2 ha; elev. 8 m asl) is ~1.1 km east of Double Bay Settlement and is covered by thick low vegetation including Seaoats (*Uniola paniculata*), Gullfeed (*Scaevola plumieri*), and Sea Lavender (*Tournefortia gnaphalodes*) (Fig. 3). A single Australian Pine is on the southern leeward side. This cay is separated from Eleuthera by shallow water (< 5 m deep) and a series of patch reefs, some of which are slightly subaerial at very low tides. The island rises sharply from the sea, with no landing beaches and a 1–3-m rock face surrounding it. The island is sloped from leeward to windward, such that the highest end of the island is windward. Great Cay has no previous herpetofaunal records (Buckner et al. 2012) and Little Cay has almost no terrestrial vegetation and is unlikely to support terrestrial reptiles. For Great Cay, we conducted a focused survey between 1135 and 1215 h on 27 November 2025. We reached the island via kayak and gained the summit by climbing the leeward 2-m rock face that surrounds the island (Fig. 3). Weather conditions were partly cloudy, winds 10 kts ESE, seas < 1 m, and an air temperature of 27 °C. We searched the island by walking slowly and pausing to turn over rocks at various locations (searching in particular for *Sphaerodactylus* spp.).



Figure 2. A Bahamian Boa (*Chilabothrus strigilatus*; MCZ:HerpOBS:58) killed by a groundskeeper on Windermere Island on 21 March 2018 (left) and an adult male Cuban Brown Anole (*Anolis sagrei*; MCZ:HerpOBS:56) on Great Cay, Eleuthera, Bahamas. Photographs by Cory F. Deal (left) and R. Graham Reynolds (right); photographs courtesy of the Museum of Comparative Zoology, Harvard University; ©President and Fellows of Harvard College. Creative Commons (<https://creativecommons.org/licenses/by-nc-sa/4.0/deed.en>), no changes made.



Figure 3. Habitats on Great Cay, Eleuthera, Bahamas: An Australian Pine (*Casuarina equisetifolia*) with Gullfeed (*Scaevola plumieri*) in the foreground (left) and Sea Lavender (*Tournefortia gnaphalodes*) (right). Photographs by R. Graham Reynolds.

We observed an adult male Cuban Brown Anole (*Anolis sagrei*; MCZ:HerpOBS:56) (Fig. 2) at 1203 h on the trunk of the island's only tree (25.147756, -76.121445; elev. 5 m asl) and four adult females on the ground in patches of Sea Lavender interspersed with sand at several locations across the island. No animals were captured or collected.

We observed five Bahamas Groundlizards (*Pholidoscelis auber*) between 1038 and 1115 h on the ground in low scrub vegetation. Four were along a 1-m low rock cliff (25.147649, -76.121108; elev. 5 m asl) and one was at the north end of the island (25.148791, -76.121525; elev. 5 m asl). Interestingly, none of the five individuals appeared to be longer than ~100 mm in total length and none approached the sizes that are regularly seen on Eleuthera. No animals were captured or collected, and no photographs were obtained due to the density of the vegetation and the animals' speed. Hence, we consider this record to be tentative until confirmed by photographs or specimens.

These observations doubled the number of species recorded on Windermere Island and provided the first herpetofaunal records for Great Cay. Eleuthera Island has several other satellite islands that have not been surveyed, and determining whether some of these islands have similar or different species compositions will be interesting.

Literature Cited

- Buckner, S.D., R. Franz, and R.G. Reynolds. 2012. Bahama Islands and Turks and Caicos Islands, pp. 93–112. In: R. Powell and R.W. Henderson (eds.), Island lists of West Indian amphibians and reptiles. *Bulletin of the Florida Museum of Natural History* 51: 85–166.
- Cope, E.D. 1894. The Batrachia and Reptilia of the University of Pennsylvania West Indian expedition of 1890 and 1891. *Proceedings of the Academy of Natural Sciences of Philadelphia* 46: 429–442.
- Hedges, S.B. 2024. Caribherp: Amphibians and Reptiles of Caribbean Islands. <<http://www.caribherp.org/>>.
- Hoefler, S., S. Mills, T. Pinou, and N.J. Robinson. 2021a. What the dead tell us about the living: Using roadkill to analyze the diet and endoparasite prevalence in two Bahamian snakes. *Ichthyology & Herpetology* 109: 685–690. <https://doi.org/10.1643/h2020141>.
- Hoefler, S., N.J. Robinson, and T. Pinou. 2021b. Size matters: Sexual dimorphism in the pelvic spurs of the Bahamian Boa (*Chilabothrus strigilatus strigilatus*). *Herpetology Notes* 14: 201–203.
- Johnson, S. 2021. First record of a “mating ball” in Bahamian Racers (*Cubophis vudii*) on Eleuthera, The Bahamas. *Reptiles & Amphibians* 28: 274–274. <https://doi.org/10.17161/randa.v28i2.15647>.
- Johnson, S.K., J.S. Parmerlee, Jr., D.A. Eifler, and R. Powell. 2013. Comparative water-loss rates of *Hemidactylus mabouia* and *Sphaerodactylus notatus* on Eleuthera Island, Commonwealth of the Bahamas. *Herpetology Notes* 6: 471–475.
- MacLean, W.P., R. Kellner, and H. Dennis. 1977. Island lists of West Indian amphibians and reptiles. *Smithsonian Herpetological Information Service* 40: 1–47. <https://doi.org/10.5479/si.23317515.40.1>.
- Reynolds, R.G., R.W. Henderson, L.M. Díaz, T.R. Rodríguez-Cabrera, and A.R. Puente-Rolón. 2023. *Boas of the West Indies: Evolution, Natural History, and Conservation*. Comstock Publishing Associates, Ithaca, New York, USA.