IRCF REPTILES & AMPHIBIANS
CONSERVATION AND NATURAL HISTORY

Fifty!

Robert W. Henderson[1], Craig S. Berg[2], Billie Harrison[2], Richard A. Sajdak[3], and Penny Felski[4]

[1]Milwaukee Public Museum, Milwaukee, Wisconsin 53233 USA
[2]Milwaukee County Zoological Garden, Milwaukee, Wisconsin 53226 USA
[3]Pittsford, New York 14534 USA
[4]Buffalo Zoo, Buffalo, New York 14214 USA

***Note**: Before Hurricane Ivan hit Grenada in 2004, we witnessed sharp declines in treeboa populations on Grenada, but only at sites named and described in Henderson's 2002 book on treeboa natural history. Because these declines may have been the result of illegal collecting for commercial purposes, we do not name specific localities in the article that follows.*

"Holy shit! It's got a rat, Bob." Billie's shout came a few minutes after she'd seen a large treeboa make a quick move into the interior of the tree. The boa had obviously been hunting when Billie heard the piercing squeal of an animal in distress. She then lost sight of the boa, but after taking a detour around other roadside vegetation, she located the snake with its rodent prey. This might have been the high point of a spectacular treeboa-filled night.

Over the course of many years and hundreds of nights of searches for treeboas (*Corallus grenadensis*) on the Grenada Bank, we (in various combinations of participants) had experienced some amazingly productive hunts, sometimes seeing 20 boas in the span of an hour and perhaps 30 in a night.

Fig.1. Rich Sajdak reaching for a young *Corallus grenadensis*. Photograph by Craig Berg.

Fig. 2. Bob Henderson taking notes on one of the boas encountered at **X**. Photograph by R. A. Sajdak.

Over time and many treeboa encounters, we have been able to glean information related to various aspects of *C. grenadensis* natural history. Always searching for new sites at which to conduct long-term work, or at which to quickly accumulate data by having many encounters in a single night, we were working a fairly large area (= "**X**") that had not received a great deal of attention from Henderson and colleagues on previous trips to Grenada. Henderson needed habitat photographs for a forthcoming book on *Corallus* natural history and he solicited the treeboa hunting expertise of Berg and Sajdak to conduct boa surveys and to take photographs.

We arrived at **X** on 16 September 2013 during daylight hours to do some exploratory work and take the necessary photographs. After a dinner of fried barracuda at a very small, two-table restaurant, we started our boa surveys. Between 1645 h and 2217 h, we sampled seven sites within **X** at elevations between 19 m and 153 m. We spent anywhere from seven minutes to 45 minutes at individual sites (mean = 18.6 ± 4.8 minutes), and we encountered *C. grenadensis* at each site. From the time we started to search at a site until we found the first boa, the elapsed time was one to four minutes (mean = 2.1 ± 0.4 minutes). We encountered a total of 32 treeboas in two hours and ten minutes of actual searching. Boas ranged in size from young-of-the-year at 338 mm SVL to a large adult at 1,410 mm SVL. Some sites were, not surprisingly, more productive than others, but all produced boas with little expenditure of time. If possible, boas were collected (Fig. 1) and measured (Fig. 2). They were then released minutes later at or near the tree or bush where originally encountered. As we later sat around discussing the night's events, Henderson wondered out loud, "If we had stayed out another hour and a half, do you think we could have found fifty boas?"

A month and a half later, on 30 October 2013, Henderson, Berg, Harrison, and Felski were on board to give it a try. However, as we were going to have a *Corallus* novice (Felski) with us, we provided a hands-on primer the night before on an expanse of private property (and a cemetery in which we had permission to hunt) at **Y**. Over about 3.5 hours we observed 27 treeboas, and caught, measured, and released 20 of them (the other seven were not catchable). By the end of the evening, Penny was an expert (Fig. 3). Among the 20 boas for which we collected data on snout-vent length (SVL) a high percentage (45%) were young-of-the-year, but we also caught three adults >1,000 mm SVL (Fig. 4). A month before (12 September) at this site we encountered no young-of-the-year, indicating that parturition occurred in late September,

Fig. 3. With an adult *Corallus grenadensis* in hand, Penny Felski demonstrates her ability to learn quickly during her one-night primer. Photograph by Matt Felski.

Fig. 4. An old hand at treeboa handling, Billie Harrison displays a beautiful yellow boa with pale rose pattern elements. Photograph by Penny Felski.

into October, and possibly into November. However, neonates of *C. grenadensis* have been documented as early as August (Muñoz et al. 2013).

The goal at **X** was 50 *C. grenadensis* before midnight. After another dinner of fried barracuda (or scrambled eggs for the vegetarians among us) at the tiny restaurant, we began our quest. As Henderson wanted size/age class data, he was unable to spend much time in the actual search for boas. He stayed with the car and processed boas as they were brought to him and anyone arriving at the car without a boa was severely ridiculed. As all hunting occurred along roadside vegetation, the car was moved whenever people had extended their searches several hundred meters beyond where the car had been parked. Most of the boas were encountered along a 2.5–3.0-km stretch of unpaved road. Boa number one was found and captured within seconds of the start time of 1835 h; three hours and 18 minutes later, Berg delivered boa number 50 at 2153 h (Fig. 5). For good measure, in case Henderson had miscounted somewhere along the way, he also collected number 51. The amount of time actually spent searching was two hours and 59 minutes, and the mean time between observations/captures was 3.4 ± 0.6 minutes.

Again, all boas captured (34 of the initial 50) were measured and then released within minutes at or near the site of capture. If a boa had an obvious bulge in its body indicating a recently ingested meal, we did not attempt to capture that boa (Fig. 6). They work too hard for their meals for us to cause them stress that might result in regurgitating that meal. Young-of-the-year boas were more abundant this time, as were boas with SVLs in excess of 1,000 mm. We were able to identify fairly discrete size classes among the sample: neonates were 319 mm to about 480 mm SVL; those beginning their second year (yearlings) were 590–700 mm SVL; and those entering their third year were 850 mm to perhaps 930 mm SVL. Boas larger than, say, 950 mm SVL, were entering their fourth year or older (Fig. 7). These size classes corresponded well to those documented for a population at Pearls near the windward coast (Henderson et al. 2009). The abundance of young-of-the-year, large adults, and in-between size classes are good indicators of a healthy population.

We captured five boas in excess of 1,000 mm SVL (range = 1,002–1,210 mm SVL), and at least one other large adult was observed but not captured. That boa generated the excitement described at the beginning of this article. Harrison first

Fig. 5. Craig Berg was a dynamo on the night of 50. Here he waits with yet another boa for Bob to measure and on which to record notes as to the circumstances of its capture. Photograph by Billie Harrison.

saw the boa at 1858 h as it moved slowly along a horizontal tree branch about five meters above ground level. The boa's head was visible in profile, but seconds later it suddenly turned its head toward the interior of the tree's foliage. Billie then heard the shrill squeal and said: "I think the boa just caught a rat." For a few minutes the boa was lost in the crown of the tree until Harrison was able to relocate it at 1908 h. The rodent was held in coils toward the posterior end of the boa's body and was obviously dead (Fig. 8). As we did not want to hold our lights on it too long for fear of spooking it, we walked away to ensure the boa would finish the meal in a stress-free setting. At 1920 h the boa was re-visited; swallowing of the rat was nearly complete with only the tail extending from the boa's mouth.

Although we knew that rodents are important in the diet of larger *C. grenadensis*, this was our first observation of rodent predation in the field, and this particular episode was especially interesting for two reasons. First, we assume the boa was aware of a rodent being in proximity due at least to olfactory information, but also to infrared (thermal) and possibly visual cues. The boa's head and the forepart of its body altered their direction in an instant to capture the rat. This is in sharp contrast to observations of actively foraging treeboas stalking quiescent lizards (Yorks et al. 2003, da Costa Silva et al. 2012; Fig. 9). They move stealthily through the vegetation for prolonged periods, sometimes so slowly that movement is barely discernible, and then grab the resting lizard when within several centimeters. The capture of the rat, on the other hand, required rapid information processing and a

Fig. 6. A resting treeboa with an obvious meal in its stomach. The prey item is likely a rat but possibly a young iguana. Photograph by R.W. Henderson.

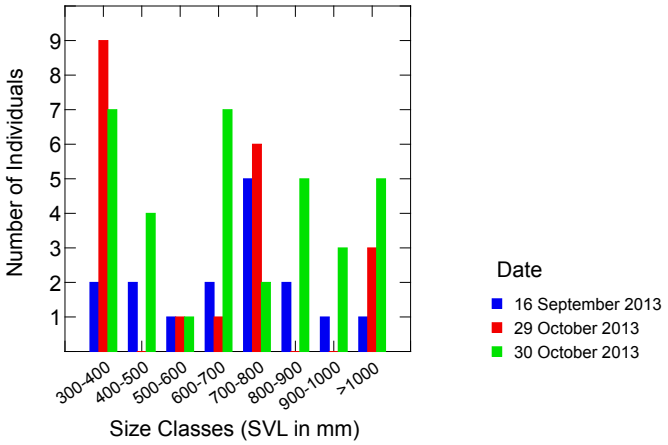

Fig. 7. Bar graph comparing size/age classes of *Corallus grenadens*is that were encountered at **X** on September 16 and October 30 and at **Y** on October 29.

quick strike from an unknown distance. The second observation of note was that after the capture and killing, the rat was observed in coils of the posterior portion of the snake's body or its tail. By the time we observed it again and swallowing was nearly complete, it was obvious the boa had moved from where prey capture and immobilization had occurred. Transporting of prey from the site of capture to a different nearby position within the habitat has also been observed in the closely related Amazon Treeboa, *C. hortulanus* (da Costa Silva et al. 2012).

It was a phenomenal night. Boas were found in a variety of roadside habitats, from less than one meter to more than 10 meters above ground. Most were active in either an active foraging mode or in an ambush posture, but several were coiled on the distal ends of branches, with or without an obvious meal. Some were foraging near streetlights, others near houses, and Berg reached over a fence to pluck one out of someone's yard. Boas were even located from the moving car; as we were closing in on 50 and searching for a new site (we were four boas short of our goal), Felski, who had one night's previous treeboa hunting experience and who was shining her headlamp out a window of the car, announced that she saw a boa. We stopped and, within three minutes, had completed our quest.

Did we just happen to hit on a couple of good nights when conditions were optimal (or close to optimal) for *C. grenadensis* activity? Possibly. Keep in mind that the night before the 51-boa night we found 27 at a far-removed site for a total of 78 treeboas over two nights. Both the September and October searches occurred during the rainy season and, although it did not rain during our searches, it had rained earlier in the day on all three days. During the September hunt the moon was approaching full and in late October we worked under a waning crescent, so we cannot implicate moon phase one way or the other. Relative to other *C. grenadensis* habitat in which we had worked, nothing was visually remarkable about the habitat at **X** or **Y**. One indication

Fig. 8. The adult *Corallus grenadensis* with the recently captured rat that caused such great excitement. Photograph by R.W. Henderson.

Fig. 9. An *Anolis aeneus* that had been sleeping a moment before with a foraging *Corallus grenadensis* nearby. Photograph by R.A. Sajdak.

that we might have serendipitously chosen a time of optimal conditions was the number of boas that appeared to have recently fed. Regardless of the reason for the abundance of snakes we encountered, it was a memorable experience.

Later that evening, as we discussed the night's adventure, Henderson wondered aloud: "If we searched from dusk to dawn, do you think we could document a hundred boas?"

Acknowledgments

We thank the Department of Forestry and National Parks on Grenada for their continued encouragement and cooperation. Henderson is grateful to the Windway Foundation for its continued support of his fieldwork with species of West Indian *Corallus*. The Milwaukee County Zoological Gardens and Zoological Society of Milwaukee have provided support for Berg's and Harrison's work with Grenada's fauna on both land and sea. We are appreciative of the logistical support provided by Matt Felski. Our colleague Marie Rush continues to be an enthusiastic collaborator on the biology of Grenada Bank *Corallus*.

Literature Cited

da Costa Silva, P., R.W. Henderson, A. Alvares Tavares, S.C. Melo Araújo, and A. Guzzi. 2012. Observations on foraging and new prey records for the Amazon Treeboa (*Corallus hortulanus*, Squamata, Boidae). *Reptiles & Amphibians* 19:187–190.

Henderson, R.W. 2002. *Neotropical Treeboas: Natural History of the* Corallus hortulanus *Complex*. Krieger Publishing Co., Malabar, Florida.

Henderson, R.W., C.S. Berg, B. Harrison, and D.T. Yorks. 2009. Notes on an unexpected decline of a population of *Corallus grenadensis* (Squamata: Boidae) in Grenada, West Indies. *South American Journal of Herpetology* 4:186–192.

Muñoz, C.A., R.W. Henderson, and J.M. Daza. 2013. First observation of mating in the arboreal boid, *Corallus annulatus* in the wild. *Herpetology Notes* 6:537–539.

Yorks, D.T., K.E. Williamson, R.W. Henderson, R. Powell, and J.S. Parmerlee, Jr. 2003. Foraging behavior in the arboreal boid *Corallus grenadensis*. *Studies on the Neotropical Fauna & Environment* 38:167–172.