



Herpetology at the Isthmus

14-22 June 2023

Trip Report

Day 1 – Wednesday, 14 June 2023

Guest arrival & Orientation

Night walk of upper Semaphore Hill Road and Canopy Tower

Throughout the day, we welcomed all the participants of our 4th Herpetology at the Isthmus program to the Canopy Tower. This year, our herpetologist, Dr. Stephen Mullin (“Steve”), was assisted by Jessica Yates (“Jessie”), a doctoral student at the University of Central Florida whose specialty is semi-aquatic reptiles. As participants arrived, we were able to point out a young Central American Boa Constrictor that had taken up a foraging posture near one of the hummingbird feeders by the sundeck. Before dinner, Steve and our guides for the Tower portion of this program, Jorge and Erick, provided an overview of the facilities, and explained the general life-history traits for the groups of reptiles and amphibians that we would observe. During this time, people were distracted by the House Geckos that scurried across the walls – this introduced species is effectively a co-resident of all Canopy facilities.

After dinner, Jorge, Erick, Steve, and Jessie, took everyone for a short hike along Semaphore Hill Road to look for night-active amphibians and reptiles. In addition to seeing several examples of Fitzinger’s Robber Frogs, Jorge was successful at locating an Agua Buena Robber Frog. Whereas the males of this species were just as easily heard as those of other taxa, the small size of Agua Buena Robber Frogs makes them difficult locate amongst the dense foliage. Jessie made two attempts to catch the much-larger Savage’s Thin-toed Frogs, but they were quicker to hop into their burrows. The hike also introduced us to examples of Tungara Frogs and Turbo White-lipped Frogs, as well as a sleeping Neotropical Green Anole. Along the sides of the Tower, we also encountered several Yellow-headed Geckos and an adult Turnip-tailed Gecko.

Daily totals: 24 species, all of which were new for the tour.

Day 2 – Thursday, 15 June 2023

Plantation Road Trail & Ammo Dump Ponds

Night walk along Pipeline Road Trail

We started the day on the observation deck at dawn. While enjoying coffee and tea on the roof, we were able to observe many colorful parrots, tanagers, and honeycreepers in the forest canopy. After breakfast, we headed down to the trailhead of Plantation Road in the hope of finding some herps. Walking through dense lowland tropical rainforest, we were serenaded by many Rainforest Rocket Frogs, leaf-litter specialists that are related to the dart-poison frogs. We spotted several Forest Toads and South American Common Toads, gaining an appreciation for

the range of color and pattern variation seen in both species. Within several shallow depressions along the early sections of the trail, we were able to observe the foam nests made by Tungara Frogs. By turning over coarse woody debris, Steve and Jessie were able to show us several examples of Yellow-headed Geckos. Jorge alertly spotted the head of a Yellow-spotted Night Lizard sticking out of a hole in the bank along the trail. Steve was unsuccessful in securing this wary lizard with his telescoping catch-pole.

After lunch, we climbed aboard the open-canopied “El Tinamou” truck for a drive over to the Ammo Dump Ponds, just north of the city of Gamboa. Along the way, we spotted a few Black Spiny-tailed Iguanas basking along the adjacent bank of the Panama Canal. After searching the debris along an abandoned set of railroad tracks, Erick set up the spotting scope to view a couple of Meso-American Slider Turtles. Because we had also seen a few Common Basilisks and subadult Green Iguanas in the nearby vegetation, Jessie went to retrieve her catch-pole from the gear that we had set down on the rail bed. To everybody’s surprise, she encountered a hatchling American Crocodile between the tracks that we had all overlooked just a few minutes earlier!

As we continued our walk, Jorge was able to provide a brief view on the spotting scope of a wary Olive Keelback peeking out from the vegetation. Further on, Steve successfully caught a Grass Anole, and we also encountered a small Rhombic Cat-eyed Snake. Opposite the last of the ponds, we must have spooked an adult American Crocodile because it slid out from under the trees along a small bay of the Canal. We also had a startling (and very brief!) look at a Giant Ameiva as it dashed out from underneath a large railroad tie.

After dinner, we drove over to the Discovery Center at Pipeline Road to search for nocturnal herps along the trail and Juan Grande stream that passes underneath it. Among the first of several frog species were a Masked Treefrog and Boulenger’s Snouted Treefrog. Leaving the trail to explore the streambed, we initially encountered a Clay-colored Rain Frog. Jorge then spotted two Ghost Glass Frogs on vegetation immediately alongside the stream channel. As we took turns admiring the intricate reticulations on the eyes of one of these frogs, everybody’s attention was suddenly drawn to a subadult Fer-de-Lance crawling slowly along the water’s edge. We watched this snake emerge from the stream to take up a coiled position on the leaf litter under the branches of a small tree. Further on, Steve caught a hatchling Common Basilisk which he was able to coax into running across the width of the stream. Our cheering of the lizard’s successful demonstration must have disturbed a subadult American Crocodile because several folks towards the rear of the group suddenly noticed it swimming in the stream channel. After it took up a resting position in a deeper pool, Steve and Jessie were able to sneak up and grab it. Nobody expected to have two crocodiles in the hand on the same day!

Daily totals: 30 species, 20 of which were new.

Day 3 – Friday, 16 June 2023

*Pipeline Road Trail & Summit Ponds/Old Gamboa Road
Night walk in Plantation Swamp*

Among this morning's sightings from the observation deck was a young Green Iguana that Erick spotted amongst the foliage below. After breakfast, we returned to hike the trail along Pipeline Road. Before even entering the forest, we enjoyed good views of Green Iguanas and Common Basilisks, and Jessie was successful at extracting a Black Spiny-tailed Iguana that had dashed into a hollow tree root. Not far into the hike, Erick spotted a subadult Tiger Ratsnake on a thin branch about three meters above the trail. After photographing the snake *in situ*, Steve caught it with his catch-pole so that everybody could closely examine the detailed patterning on its scales. It wasn't too much further that Jorge spotted a young Parrot Snake in a similar basking position, which Jessie caught before it escaped into the forest vegetation. Jessie also tried her hand at catching a Giant Ameiva with her catch pole, but the smooth scales allowed the lizard to summersault out of the snare before it could be secured in the hand. At the end of our hike, however, Jessie was able to snare a Bridled Anole, the largest representative within that lizard group.

After lunch at the Canopy Tower, we headed out to Summit Ponds and Old Gamboa Road. At the ponds on either side of the trailhead, we spotted Common Basilisks, Meso-American Sliders, and both an American Crocodile and a Spectacled Caiman. Although only visible through the spotting scope, the latter had just captured a meal because it was tossing what looked like a frog around in its mouth. A little further along the trail edge, Steve discovered a Gamboa Worm Salamander underneath some coarse woody debris. This species was remarkable not only because it represented a group of lungless vertebrates, but also for being the only type of salamander seen during the entire program. We returned to the Tower for appetizers and Jessie's lecture about the biology of crocodylians.

Sam Sucre, a biologist with the El Valle Amphibian Conservation Center, joined us to lead the evening hike through the swamp near the trailhead for Plantation Road. On account of this year's El Niño conditions, the swamp was dry with water available only in the adjacent streambed. Nevertheless, we found good examples of Rhombic Cat-eyed Snakes, Rosenberg's Gladiator Treefrogs, and Red-eyed Treefrogs. Sam was even able to catch a large adult Savage's Thin-toed Frog, and he illustrated its ability to secrete skin toxins. When arriving back on the Tower property at the end of the evening, Sam also found a Blunt-headed Treesnake that was moving among the bushes along the fence.

Daily totals: 28 species, 6 of which were new.

Day 4 – Saturday, 17 June 2023

Semaphore Hill Road & Gamboa Rainforest Resort

Night walk along lower Semaphore Hill Road (including creek channel)

The local troop of Howler Monkeys provided this morning's alarm, after which everybody made their way up to the observation deck for birdwatching and coffee. After breakfast, we headed down Semaphore Hill Road, stopping to inspect the treefrog egg masses overhanging a cistern that was just off the roadbed. The road was a little quiet for herps, but Steve was able to catch a young Yellow-spotted Night Lizard and a Night Ground Snake. The latter is one of the weaker mimics of coral snakes, and it flared the anterior portion of its body to highlight the contrasting

bands of color. We were also able to observe several good examples of Fitzinger's Robber Frogs, Forest Toads, and South American Common Toads. A unique observation that morning occurred upon reaching the bottom of the hill, when Jorge spotted a female Three-toed Sloth that had just given birth.

After lunch, we headed over to the Gamboa Rainforest Resort (GRR) property so that we could walk through the "Tierra de Ranas" exhibit. Within this enclosed habitat for dart-poison frogs, we observed several Strawberry Poison Frogs and Green-and-black Poison Frogs. The resort grounds nearby provided examples of Giant Ameivas and Green Iguanas, but were otherwise busy with a film production crew. So, we drove over to the GRR marina, along the Chagres River. Steve and Jessie teamed up in an attempt to snare one of the ameivas, but were interrupted by Jorge alerting the group to a large Olive Keelback that had dashed into the vegetation at the water's edge. We searched the area carefully, and had just about given up before Jessie bolted up the boat ramp to catch the snake as it attempted to slither past us. Crossing the Chagres River on our way back to the Tower, we held up traffic on the bridge when Jessie spotted an adult Spectacled Caiman basking on the bank. Before dinner, Steve delivered a lecture about the loss of lungs and limbs among various groups of amphibians and reptiles.

Our night walk focused on the flatter terrain at the bottom of Semaphore Hill Road. Our first snake that evening was Jorge's spotting a Brown Vinesnake perched on some eye-level branches. Near the Plantation Road trailhead, we were also able to clearly view Savage's Thin-toed Frogs, Red-eyed Treefrogs, and Fleischmann's Glass Frogs. Upon returning to the Tower property, Steve and Jessie spotted three subadult Turnip-tailed Geckos, and confirmed that the young Central American Boa Constrictor was still hanging out by sundeck hummingbird feeders.

Daily totals: 28 species, 2 of which were new.

Day 5 – Sunday, 18 June 2023

Transfer to Canopy Lodge & Lodge property

Night walk at Canopy Lodge

This morning was leisurely; we enjoyed our last morning on the observation deck at Canopy Tower prior to breakfast. After a group photo with last night's Brown Vinesnake, we loaded up into the van and drove two hours to the Canopy Lodge in El Valle de Anton, nestled in the lush foothills along the northwestern portion of a volcanic caldera. We arrived just before midday and were met by Eliécer ("Ely"), our guide for the Lodge portion of the program. As we were settling into our rooms before lunch, a large Puffing Snake was discovered crawling along the paved walkway. Everybody agreed that this observation was an auspicious start to our time at Canopy Lodge.

Our afternoon hike followed the trail system around the Lodge property, throughout which we were serenaded by Boquete Rocket Frogs. We enjoyed good views of Common Basilisks, Brilliant Forest Frogs, and a couple of introduced Pond Sliders in one of the garden ponds. We missed an opportunity to snare a species of whiptail lizard, but Steve was able to find a Litter

Gecko underneath some coarse woody debris. Back along the paved walkway near the buildings, we also spotted a Cane Toad.

Our pre-dinner presentation by Steve explained the mechanisms by which snakes are able to detect, subdue, and ingest prey items of various types and sizes. We donned our headlamps after dinner, and returned to the network of trails across the Canopy Lodge property. From the dining room, we could already hear frogs calling from across the stream. Despite a relatively dry day, the males of several species were chorusing from various vantage points around the garden ponds. Ely, Steve, and Jessie were able to show everyone a few examples of Hourglass Treefrogs, Small-headed Treefrogs, and Red-Webbed Treefrogs. In addition to hearing many Fleischmann's Glass Frogs, we also happened upon a Plantation Glass Frog. Ely pointed out a Black-backed Frog, and led us up to a swimming pool where we discovered a few Masked Treefrogs. Returning to the Lodge buildings, we found a "resident" Truando Toad foraging for insects in the glow of the pathway lighting.

Daily totals: 21 species, 9 of which were new.

Day 6 – Monday, 19 June 2023

Cerro Gaital Trail & trails at Canopy Adventure
Night walk at Cerro Gaital

Our morning hike traversed the Cerro Gaital National Monument, a protected area along the north rim of the caldera covered in lush montane forest. Before even starting up the trail, Steve discovered a Hoffmann's Earth Snake under a rock. We observed a few species of tadpoles in a small pond, and Steve was able to snare a Stream Anole from the nearby vegetation. We ascended further to a portion of the trail having some steep slopes where the plants were relatively sparse. In this setting, after a few attempts, Steve was able to snare a Dunn's Spiny-tailed Lizard. This unique species lives up to its name but the animal's head also reminded us of a miniature dinosaur. We continued our ascent to the look-out platform between neighboring peaks of the caldera, and then returned downhill to the van.

After our lunch at the Lodge, we searched the network of pathways at the neighboring property of Canopy Adventure. In addition to seeing several Brilliant Forest Frogs, Steve caught a Water Anole with his catch-pole just below the base of the Chorro El Macho waterfall. This specimen provided an opportunity to illustrate differences in dewlap color among males of different anole species. As we hiked back down to the Lodge, we enjoyed watching the Common Basilisks basking along the rocks in the stream. Before dinner, Steve and Jessie encountered other examples of both Hoffmann's Earth Snake and Litter Gecko.

We returned to the Cerro Gaital trail for our night hike, during which we were occasionally enveloped by the fog of low cloud cover. As might be expected given the conditions, we observed lots of frog species. In addition to seeing several Red-eyed Treefrogs, we were able to catch a Clay-colored Rain Frog and a Banded Robber Frog. Steve also detected the high-pitched whistle of a Yellow Dyer Rain Frog. Other highlights of the evening's experience were two encounters with Blotched Snail-eating Snakes crawling along the branches of small trees.

Daily totals: 20 species, 6 of which were new.

Day 7 – Tuesday, 20 June 2023

Valle Bonito at Altos del Maria

Night walk along Candelario Trail at La Mesa

After breakfast, we headed up to the highest elevation we would reach during the program, a beautiful area along the northeastern rim of the crater called Altos del Maria. The housing development being constructed there is controversial, but there are beautiful examples of cloud forest protected in the area of Valle Bonito. This is the region where the Panamanian Golden Frog, now extinct in the wild, was once found. Our hike initially followed the shoreline of a small lake, and we spotted a couple of Red-eyed Treefrogs in their sleeping positions atop philodendron leaves near the lakeshore. As we turned away into the forest, we observed several examples of Brilliant Forest Frogs and Panamanian Dry Forest Toads. Jessie also caught a Humble Anole, which again provided us with an opportunity to compare dewlap colors between species. Further along our hike, Jorge pointed out an Emerald Glass Frog that had taken refuge within a young banana leaf.

After the morning hike, most of us enjoyed a relaxed picnic lunch along the shoreline of Lago Bonito. Jessie was determined, however, to snare a Delicate Ameiva that she observed skittering around the rocks on the hillside above. After a few attempts with her catch-pole, she caught one which immediately bit Steve as he freed the lizard from the snare. We then drove over to another trailhead within Valle Bonito, and had barely stepped on to the trail when encountering a Panamanian Spiny Tegu. Also seen along this shorter hike were Chiriqui Robber Frogs and several subadult Brilliant Forest Frogs.

Back at the Lodge, Steve provided an entertaining lecture on the wide variety of reproductive strategies practiced by different amphibian species. Our hike that evening was along a portion of the Candelario Trail, near La Mesa. After passing along one end of an agricultural field, this trail enters the forest and parallels the ecotone between the field and forest habitats. Male frogs were calling throughout the experience, and we were lucky enough to add two new species to our total for the program: a Banded Robber Frog and a Granular Streamside Frog. We were welcomed back to the Lodge property with plenty of other chorusing frogs.

Daily totals: 20 species, 7 of which were new.

Day 8 – Wednesday, 21 June 2023

Candelario and Las Minas Trails; El Valle Amphibian Conservation Center, El Valle Serpentarium & Artisanal Market

Optional night walk on Canopy Lodge grounds

After breakfast, we explored a pair of trails back up in the La Mesa area. The first was a longer loop of the Candelario Trail, and we could now see that the vegetation was dripping with moss

and epiphytes. We again had good opportunities to view Humble Anoles and Slim-fingered Rain Frogs. It was otherwise a fairly quiet hike until Jessie saw a snake's tail skittering away from a log that Steve had overturned. Ely, Steve, and Jessie coordinated their efforts to surround the snake in order to catch it, but it escaped into the dense understory. Fortunately, both Ely and Jessie were able to view enough of the animal to identify it as a Brown Forest Racer.

Our second hike that morning was the first 150 meters of Las Minas trail. Like our hikes along Candelario Trail, this path follows the ecotone between a parcel of forest and an adjacent poultry farm. Here, we heard more Bouquete Rocket Frogs, and saw more Humble Anoles. Unfortunately, another hoped-for outcome — spotting an Eyelash Viper — did not pan out at this site.

In the afternoon, we visited three attractions in El Valle. Ely first took us to the El Valle Amphibian Conservation Center (EVACC). This small facility is dedicated to the conservation of Panamanian Golden Frogs, a beautiful toad endemic to the El Valle area, and other native amphibian species. We learned about the captive propagation efforts and a possible future where these and other frog species could be re-introduced to their historic habitats. We perused the other species on display in the center, all native to the region. The EVACC's dedication to critical amphibian conservation was very apparent, and we thoroughly enjoyed the visit.

Next, it was over to the El Valle Serpentarium, run by Mario Urriola, a local biologist and wildlife rescuer. The facility has a primary focus on snakes, but one of Mario's student assistants described their activities as being involved in rescue of all wildlife. The assistant showed us some of the snakes are used in education programs, another important component of the Serpentarium's mission. Before returning to the Lodge, we stopped at the local market and artisanal shops in town, a great opportunity to acquire some beautiful souvenirs to commemorate our collective experience in El Valle.

In his last pre-dinner lecture, Steve focused on conservation, highlighting some of the key contributors to species loss in the Central American tropics, as well as other exemplary cases from around the world. We also recapped the day's sightings, memorable events of the program, and indulged in a final evening of delicious appetizers, dinner, and some great conversation. We made sure to say our goodbyes to Steve and Jessie, who were each leaving early the next morning. The evening was not complete, however, because two participants strolling along the network of trails at the Lodge, came upon a Helmeted Iguana. This odd-looking lizard provided a terrific conclusion to a successful program.

Daily totals: 9 species, 1 of which was new.

Day 9 – Thursday, 22 June 2023

Departures

This morning we enjoyed the birds and wildlife around the Canopy Lodge, soaking up as much as possible prior to departure. Two participants who elected to remain an extra day at the Lodge were lucky enough to observe more Boquete Rocket Frogs and another example of a Neotropical Green Anole. A fantastic time was had by all and everybody learned a great deal about tropical herpetology. Our thanks to Dr. Steve Mullin and Jessica Yates for their

enthusiasm and wealth of knowledge, to our guides, Jorge, Erick, and Eliécer, and to the participants who joined us this year. Overall, we saw 75 species of herps — with a nearly-even split of 38 amphibian species and 37 reptile species — along with so many other great tropical plants and animals. It was a very memorable program!

(Trip report written by Steve Mullin)