



Amphibians and Reptiles Encountered During an Expedition to Panama

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Abstract.—During a recent expedition to five protected areas in Panama (Parque Nacional Volcán Barú and Reserva Forestal Fortuna, Chiriquí Province; Parque Nacional Santa Fe, Veraguas Province; Parque Nacional Darien, Rancho Frío, Darien Province; and Mamoni Valley Private Reserve, Panama Province), we observed 95 species of amphibians and reptiles (51 amphibians and 44 reptiles). We made opportunistic observations of many of them, including noteworthy updates on the conservation status of critically endangered or endangered taxa (*Atelopus glyphus*, *A. limosus*, *A. varius*, *Isthmohyla angustilineata*, *I. tica*, *Oedipina grandis*), the third and fourth distribution records for Panama of *Trilepida macrolepis*, the second distribution report of *Leptophis cupreus* for the country, the fourth country record of *Bachia blairi*, new behavior and maximum size for *Oophaga vicentei*, and the second known specimen of *Norops triumphalis*.

Resumen.—Durante una expedición reciente a cinco áreas protegidas en Panamá (Parque Nacional Volcán Barú y Reserva Forestal Fortuna, Provincia de Chiriquí; Parque Nacional Santa Fe, Provincia de Veraguas; Parque Nacional Darién, Rancho Frío, Provincia de Darién y Reserva Privada Valle Mamoni, Provincia de Panamá), observamos 95 especies de anfibios y reptiles (51 anfibios y 44 reptiles). Hicimos observaciones oportunistas de muchos de ellos, incluidas actualizaciones notables sobre el estado de conservación de taxones en peligro crítico o en peligro de extinción (*Atelopus glyphus*, *A. limosus*, *A. varius*, *Isthmohyla angustilineata*, *I. tica*, *Oedipina grandis*), el tercer y cuarto registros de distribución para el país de *Trilepida macrolepis*, el segundo reporte de distribución de *Leptophis cupreus* para el país, el cuarto reporte para *Bachia blairi* en el país, un nuevo comportamiento y tamaño máximo para *Oophaga vicentei*, y el segundo ejemplar conocido de *Norops triumphalis*.

The search for amphibians and reptiles is a global trend nowadays, and this includes many amphibian and reptile enthusiasts not only enjoying vacation or vocational tours, but also taking data in the form of natural history notes and even discovering species new to science or seeing very rare species long missing. Panama is the most biodiverse country in Central America, with 232 species of amphibians and 281 species of reptiles (Frost 2022; Uetz et al. 2022). Nevertheless, many areas are still little known and new reports are published and new species described (Batista et al. 2015, 2020; Batista and Wilson 2017).

In an expedition sponsored by CRWild in collaboration with Fundación Los Naturalistas in March 2019, we visited five protected areas in Panama and obtained new data on

little-known species. In addition, we took the opportunity to add further data for some other species in western Panama acquired during surveys in the region by AB from 2002 to 2011.

Methods

During a field trip to various localities in Panama from 20 March to 4 April 2019 in the middle of the dry season (normally in the area from December to May), the weather was generally dry to very dry, and only in Fortuna on 20 March and Santa Fe on 22 March did we encounter some rain during the evening and/or night.

The following acronyms are used for study sites throughout the text and in Fig. 1: PNVB (Parque Nacional Volcán

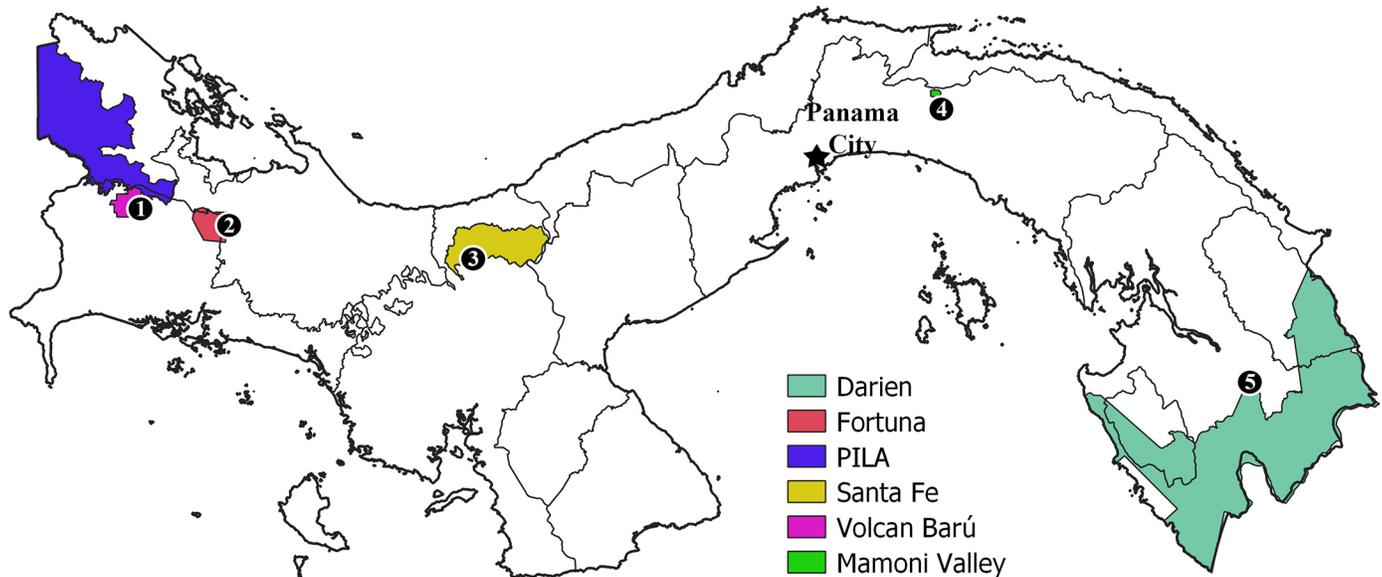


Fig. 1. Map of Panama showing the five protected areas visited: 1. Parque Nacional Volcán Barú, Chiriquí Province; 2. Reserva Forestal Fortuna, Chiriquí Province; 3. Parque Nacional Santa Fe, Veraguas Province; 4. Mamoni Valley Private Reserve, Panama Province; 5. Parque Nacional Darien, Rancho Frío, Darien Province. This map was created using QGIS (QGIS 2018).

Barú, Chiriquí Province); MVPR (Mamoni Valley Private Reserve, Panama Province); PND (Parque Nacional Darien, Cerro Pirre Base, Darien Province); RFLF (Reserva Forestal Fortuna; Chiriquí Province), PNSF (Parque Nacional Santa Fe, Veraguas Province). We do not provide concrete localities for critically endangered species. New reports include coordinates.

Encounter methods consist of opportunistic visual surveys during day and night. Animals were photographed in situ and those species with new records were collected and preserved following the protocol by Batista et al. (2016). Specimens were deposited at the Museo Herpetológico de Chiriquí (MHCH, Universidad Autónoma de Chiriquí, David) in Panama. Other acronyms used are: ANSP: Academy of Natural Sciences, Philadelphia, Pennsylvania, USA, and SMF: Natur-Museum und Forschungsinstitut Senckenberg, Frankfurt am Main, Germany.

Results

In this report, we provide new records for 14 species (eight amphibians and six reptiles) and a checklist of the 95 herpetofaunal species observed during our surveys (51 amphibians and 44 reptiles):

Amphibia: Anura Family Bufonidae

Atelopus varius (Lichtenstein and von Martens 1856) (Fig. 2A)

This species has a long and interesting history of decline and survivorship. An abstract of what has been happening in Costa Rica appears in Barrio-Amorós et al. (2021). In

Panama, the species was thought to be extinct in 2002 (Hertz et al 2012), but it persists in several locations (Ramírez et al. 2020). We found one small juvenile during the afternoon and three sleeping adults on the night of 21 March 2019 at PNSF.

Atelopus glyphus Dunn 1931 (Fig. 2B)

Very little is known about this species of harlequin toad, which has a restricted distribution in the Serranía de Pirre in Darien Province, Panama (Lotters 1996). Another record in Colombia from much farther south in Chocó (Acosta-Galvis 2022) probably represents confusion with *A. spurrellii*. The last previously published reports (to 2002) note that the species was common in its range (Ibáñez et al. 2019a). This species was being monitored by MQ during 2015 and 2016 and her results will be published elsewhere. However, in one visit on 29 March 2019 to PND, we saw only one male at a creek (typical numbers in the same area indicate observations of 4–12 individuals per monitoring day). The male was immobile on a rock immediately next to a small rapid. On 12 December of the same year, through an established project devoted to this species, 11 individuals were reported in the same stream by MQ. In 2020, in a single field expedition on 28 September, only two individuals were observed outside the creek transects (data and results obtained from this project will be published elsewhere; MQ and AB, in prep.).

Atelopus limosus Ibáñez, Jaramillo, and Solís 1995 (Fig. 2C)

This species is considered Critically Endangered under IUCN criteria (IUCN SSC Amphibian Specialist Group 2019b). During our visit to MVPR, Mark Arie Kmetsh

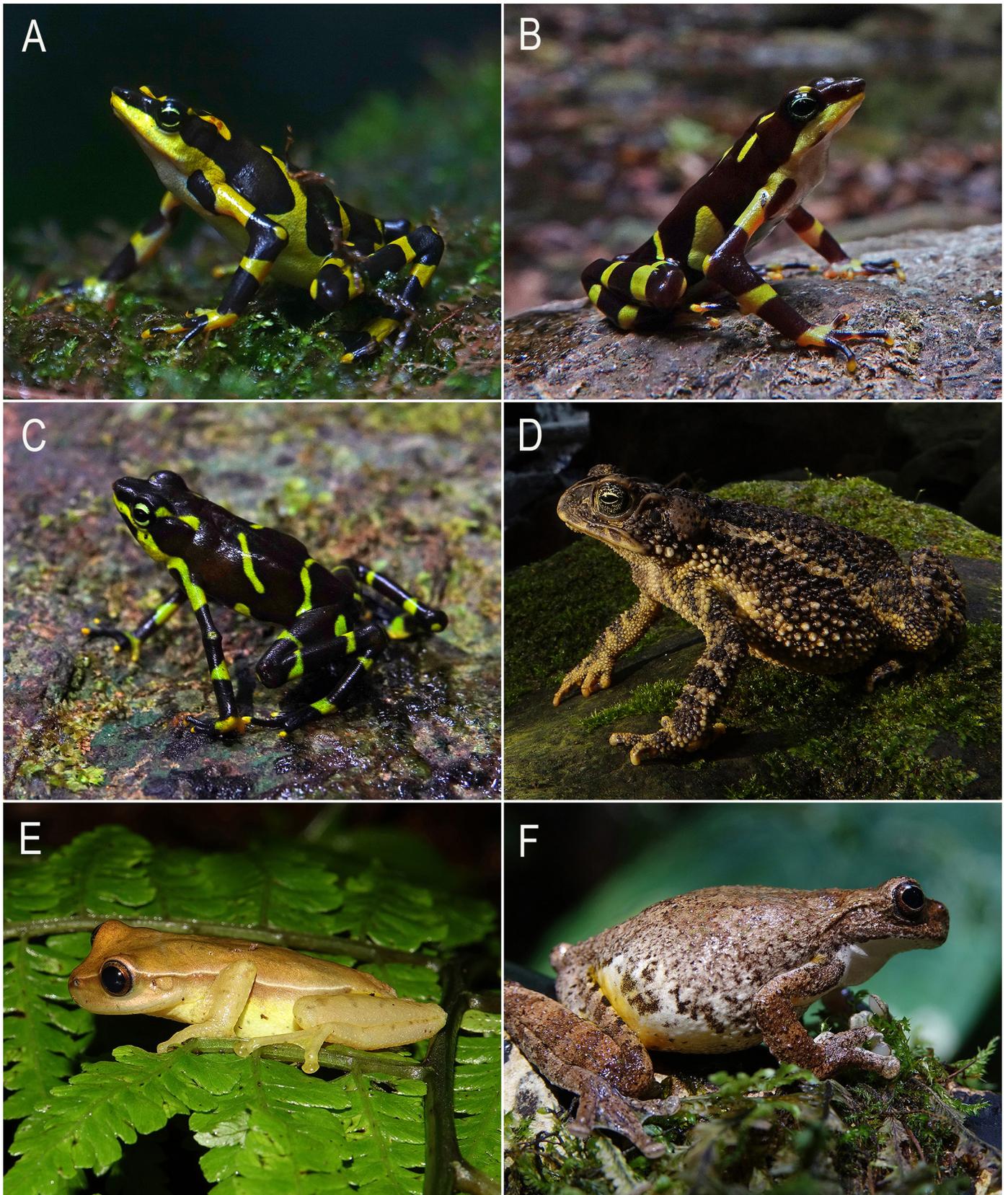


Fig. 2. Photographic record of amphibians observed during the expedition: (A) *Atelopus varius*; (B) *Atelopus glyphus*; (C) *Atelopus limosus*; (D) *Incilius signifer*; (E) *Isthmohyla angustilineata* female as found; (F) *Isthmohyla tica* female (MHCH 3118). Photographs by César L. Barrio-Amorós.

(Manager of Leadership Programs), mentioned to us that release trials have been carried out by scientists led by R. Ibañez, but documentation has not yet been published. One visit to one of the remaining known populations, yielded only one subadult on 1 April 2019. Local guides and scientists visiting the creek normally see larger numbers of individuals in the dry season (M.A. Kmetsh, pers. comm.). A team of trained herpetologists (6 x 5 = 30 person hours) finding only a single living individual is cause for concern and this site should be closely monitored.

Incilius signifer Mendelson, Williams, Sheil, and Mulcahy 2005 (Fig. 2D)

This recently described species is a dry forest inhabitant in the *I. coccifer* group. We found several individuals in a very humid area along creeks in the PNSF. Since the description of *I. signifer*, recent reports by Flores et al. (2017) and Sosa-Bartuano et al. (2018) documented the species in Los Santos Province. *Incilius signifer* had already been reported in Veraguas Province in Naturalista (2022a). Our sighting confirmed the presence of the species in Veraguas Province.

Family Hylidae

Isthmohyla angustilineata (Taylor 1952) (Fig. 2E)

This critically endangered species (Leenders 2016: IUCN SSC Amphibian Specialist Group 2020a) is known to occur in Costa Rica and Panama in scattered mountain localities from Monteverde (Puntarenas Province, Costa Rica) to Fortuna (Chiriquí Province, Panama). It has been seen as recently as 2016 in Costa Rica (Nishida 2006; Rodríguez et al. 2020) but it was last seen in Panama at Cerro Horqueta, PILA, in 2006 (Hertz et al. 2012). A male and a female were found at Sendero de los Quetzales, Boquete, PNVB, close to a creek along a dirt road on low ferns on 31 March 2019. Both individuals appeared to be healthy. No tadpoles or any breeding activity (calling) was observed. This observation indicates that the species survives in Panama.

Isthmohyla tica (Starrett 1966) (Fig. 2F)

This Critically Endangered species (Leenders 2016; IUCN SSC Amphibian Specialist Group 2020b), which was fairly common in Costa Rica and Panama until the 90s, has recently been seen only rarely in Costa Rica (IUCN SSC Amphibian Specialist Group 2020b; Rodríguez et al. 2020). Hertz et al. (2012) reported a couple of males in 2010 at Cerro Pando, PILA, Panama, and the species was observed in January 2018 at a private reserve, Mount Totumas, Nueva California, Tierras Altas, Chiriquí Province, also in Panama. An adult and ovigerous female were found on low foliage over a small creek at PNVB on 31 March 2019 (MHCH 3118). We heard no calls signifying breeding activity.

Family Dendrobatidae

Oophaga vicentei (Jungfer, Weygoldt and Jurasque 1996) (Fig. 3A)

Little is known about this species' behavior in the wild. It inhabits arboreal bromeliads (Jungfer et al. 1996), and different color patterns occur throughout its range (Lotters et al. 2007). On 25 March 2019, while in Santa Fe (Veraguas Province), we encountered a female on an arboreal bromeliad of the genus *Aechmea* ~ 12 m above the ground. This female was large (24 mm) and represents the largest specimen known so far. While photographing it in situ, we repeatedly saw it adpress its body on the leaf while extending its limbs in response to every sudden movement of the leaf, presumably to increase surface contact with the leaf and keep from falling. This behavior likely is meant to avoid being blown away by the wind and, to the best of our knowledge, this is the first report of such behavior for any bromeliad-dwelling dendrobatid (Lotters et al. 2007; Kahn et al. 2016).

Dendrobates auratus (Girard 1855) (Fig. 3B)

During our stay at MVPR, we found many white-and-black morphs, commonly known as Campana or Kuna Yala (Lotters et al. 2007). One pair was living in a burrow (apparently excavated by a rodent), which they used as a retreat whenever they felt threatened. Others were seen on the forest floor and one was microsympatric with *Andinobates fulguritus*.

Andinobates minutus (Shreve 1935) (Fig. 3C)

This common species of diminutive dendrobatid is present in all of northern Panama, from the center to the east in lowland Caribbean rainforest. It was heard calling from the forest floor after short heavy rains, and seen only after a thorough search or seen adventitiously when jumping to avoid a walker. On one occasion we discovered one inside a dry rolled leaf near a scorpion (*Centruroides* sp.) without prompting any predatory response by the arachnid. Comparing populations from Panama (Barro Colorado Island is the type locality) with those of Chococoan Colombia is necessary.

Colostethus cf. *panamansis* (Dunn 1933) (Fig. 3D)

Despite being relatively widely distributed in eastern Panama (Köhler 2011), little is known about this species. It was removed from the synonymy of *C. latinasus* by Grant (2004), where it had been placed by Heatwole and Sexton (1966). This species has a complicated taxonomic and nomenclatural history (Grant 2004); Grant et al. (2006) attempted to emend its name as *panamensis*, but the original name was retained by the International Commission for Zoological Nomenclature (Anonymous 2008). We found it abundant at PND along creeks and microsympatric with *Colostethus pratti*.



Fig. 3. Photographic record of amphibians observed during the expedition (continued): (A) *Oophaga vicentei* female; (B) *Dendrobates auratus*; (C) *Andinobates minutus*; (D) *Colostethus panamansis*; (E) *Sachatamia albomaculata*; (F) *Agalychnis spurrelli*. Photographs by César L. Barrio-Amorós.

Family Centrolenidae

Sachatamia albomaculata (Taylor 1949) (Fig. 3E)

This abundant species is present along creeks and rivers in western and central Panama. We found populations at PNSF and MVPR. The taxonomy of the species is under study by CBA and AB.

Family Phyllomedusidae

Agalychnis spurrelli Boulenger 1913 (Fig. 3F)

This species has a wide distribution from the central Caribbean lowlands of Costa Rica through northern Panama to the Darien and then southward through the western Chocó in Colombia and adjacent Ecuador, with an isolated population in southern Costa Rica. This last population deserves taxonomic attention, as individuals are much smaller than Caribbean and Colombian conspecifics, and have less extensive webbing. A male from Rancho Frío, Darién, showed characters typical of the southern Costa Rican population. A thorough morphological and genetic review is necessary.

Family Strabomantidae

Pristimantis caryophyllaceus (Barbour 1928) (Fig. 4A)

A relatively common species at PNSF, where several individuals were seen in one night on low vegetation along a creek and also along a path in the forest near the town of Santa Fe. Some doubt remains regarding the taxonomic status of the species (Batista et al. 2014a; Frost 2022).

Pristimantis pardalis (Barbour 1928) (Fig. 4B)

This little-known species is more often heard calling than seen. We saw two individuals at PNSF at night directly on tree trunks along the forest path. Barrio-Amorós and Barrio-Amorós (2017) indicated that this species is the only one in the genus that employs shrinking behavior.

Pristimantis gaigei (Dunn 1931) (Figs. 4C–D)

This particular species is a mimic of species of *Phyllobates* where they occur in sympatry. In the southeastern Caribbean lowlands of Costa Rica it mimics *Phyllobates lugubris* (although it resembles even more closely a parapatric species, *P. vittatus*). In Panama its distribution does not overlap with any species of *Phyllobates* and the farther away individuals are from the range of any *Phyllobates*, the less similar they are. For example, the frog from Mamóní (Fig. 3C) has more solid dorsolateral stripes than that from Darien (Fig. 3D), as the former lives closer to the Costa Rican populations mimicking *P. lugubris*. The situation is different in Colombia, where no species of *Phyllobates* occur (e.g., Departamento Santander), *P. gaigei* lacks dorsolateral stripes altogether, whereas at Morromico (Departamento Chocó), where it is sympatric with *Phyllobates aurotaenia*, *P. gaigei* is a perfect mimic of the former (CBA pers. obs.). Either selection strongly favors

mimicry of a highly toxic species or *P. gaigei* is a complex of species that needs to be resolved.

Amphibia: Urodela

Family Plethodontidae

Bolitoglossa biseriata Tanner 1962 (Fig. 4E)

This species, which currently is known from northern Panama south to northwestern Ecuador (Köhler 2011; Hervas and Pazmiño-Armijos 2019, IUCN SSC Amphibian Specialist Group 2020c), very likely represents a species complex (Batista et al. 2014b). At MVPR we found a male and a female in primary forest on low vegetation.

Oedipina grandis Brame and Duellman 1970 (Fig. 4F)

This Endangered species appeared to be common at its type locality (northern slopes of Cerro Pando at elevations of 1,810–1,930 m asl, Bocas del Toro Province, in extreme western Panamá near the border with Costa Rica) and surroundings in the 90s (Lips 1993, 1998; IUCN SSC Amphibian Specialist Group 2020d). Reports ceased suddenly in both Panama and Costa Rica until January 2006 (Hertz et al. 2012), which was the last report for Panama. We found an adult female inside a rotten log in Sendero los Quetzales (PNVB) on 31 March 2019 (MHCH 3117). Although a few non-published records exist for recent years (Marcos Ponce saw one individual at Alto Chiquero, also in PNVB; M. Ponce to MQ, pers. comm.). We suggest starting surveys in areas around known localities. The lack of focused surveys using appropriate methods to identify species could yield flawed conclusions when developing conservation assessments for endangered species.

Reptilia: Squamata (lizards)

Family Anolidae

Dactyloa maia Batista, Vesely, Mebert, Lotzkat, and Köhler 2015 (Fig. 5A)

Few reports exist since the original description, and they are limited to records on the iNaturalist site (Naturalista 2022b; Batista et al. 2015). During our surveys in the MVPR, we observed an adult male at dusk (1815 h) in primary forest hanging on a leaf and six additional individuals in the same general area perched on branches ready to sleep. *Dactyloa maia* is green and of moderate size, which distinguishes it from many other species of *Dactyloa* (Batista et al. 2015).

Anolis triumphalis Nicholson and Köhler 2014 (Fig. 5B)

This recently described species from eastern Panama belongs to the *N. pentaprion* species group and was known only from the type specimen (Nicholson and Köhler 2014) until we found one individual at the Rancho Frio Biological Station in the Darien National Park, 54 km east of the type locality (8.450981 N, 78.00002 W). This male was found

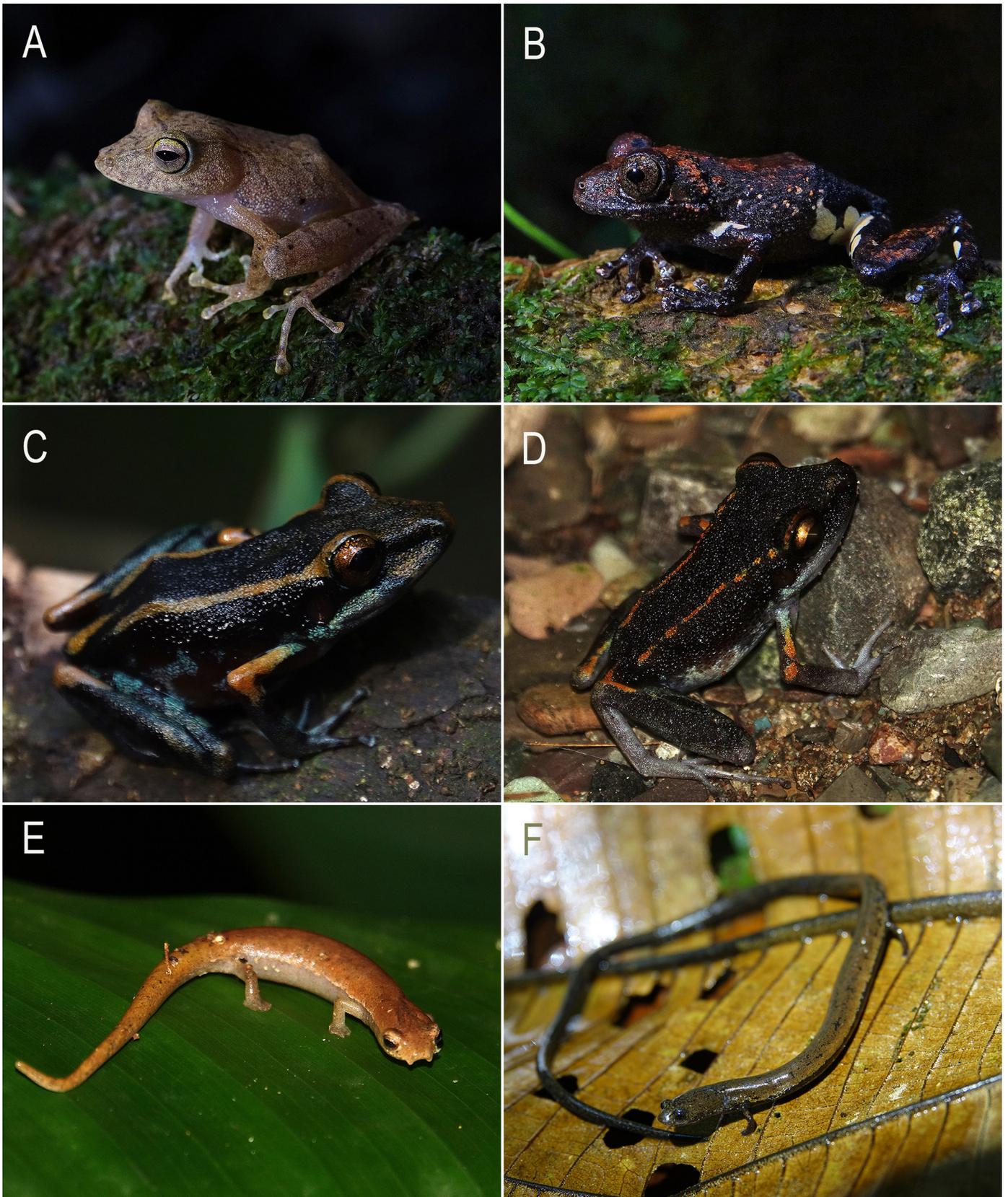


Fig. 4. Photographic record of amphibians observed during the expedition (continued): (A) *Pristimantis caryophyllaceus*; (B) *Pristimantis pardalis*; (C) *Pristimantis gaigei* from Mamoní, note the presence of the bronze dorsolateral stripes; (D) *Pristimantis gaigei* from Darién, with less striking dorsolateral stripes; (E) *Bolitoglossa biseriata*; (F) *Oedipina grandis* (MHCH 3117). Photographs by César L. Barrio-Amorós.

during daytime in the corner of the little hut with the kitchen sink. It had a very large yellowish-orange dewlap and other characters agree well with the original description. This is

the second known specimen for the species, although another unconfirmed report exists from Buenaventura, Colombia (Naturalista 2022c).

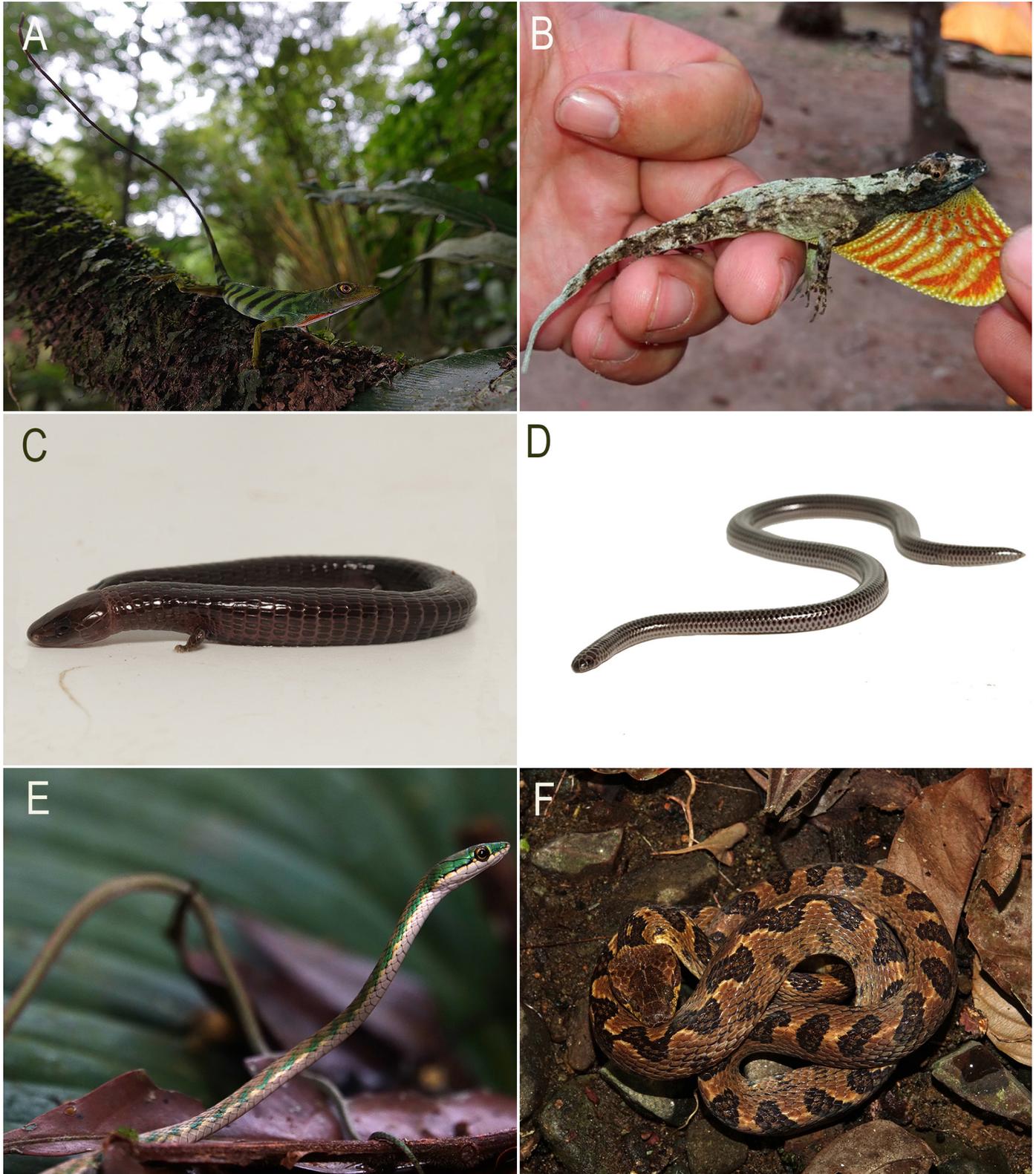


Fig. 5. Photographic record of reptiles observed during the expedition: (A) *Dactyloa maia*; (B) *Norops triumphalis*; (C) *Blachia blairi* (MHCH 3114); (D) *Trilepida macrolepis* (MHCH 3115); (E) *Leptophys cupreus* (MHCH 3116); (F) *Leptodeira rhombifera*. Photographs by César L. Barrio-Amorós (A, E, F), Abel Batista (C, D), and Michelle Quiroz (B).

Table 1. Checklist of observed amphibians and reptiles in the CRWild Expedition. PNVB (Parque Nacional Volcán Barú, Chiriquí); PNSF (Parque Nacional Santa Fe, Veraguas); PND (Parque Nacional Darien, Cerro Pirre base, Darien); MVPR (Mamoni Valley Private Reserve, Panama); RFF (Reserva Forestal Fortuna, Chiriqui).

Species	PNVB	PNSF	PND	MVPR	RFF
Amphibia					
<i>Atelopus glyphus</i>			X		
<i>Atelopus limosus</i>				X	
<i>Atelopus varius</i>		X			
<i>Incilius coniferus</i>					X
<i>Rhaebo haematiticus</i>		X	X	X	
<i>Rhinella horribilis</i>		X	X	X	
<i>Rhinella signifer</i>		X			
<i>Espadarana prosoblepon</i>					X
<i>Sachatamia albomaculata</i>		X	X	X	
<i>Teratohyla pulverata</i>			X		
<i>Craugastor crassidigitus</i>		X		X	
<i>Craugastor fitzingeri</i>			X	X	
<i>Craugastor monnichorum</i>	X				
<i>Craugastor sp. aff. bransfordii</i>			X		
<i>Craugastor raniformis</i>			X		
<i>Pristimantis caryophyllaceus</i>		X			
<i>Pristimantis cerasinus</i>				X	
<i>Pristimantis cruentus</i>					X
<i>Pristimantis gaigei</i>			X	X	
<i>Pristimantis pardalis</i>		X			
<i>Pristimantis ridens</i>					X
<i>Pristimantis taeniatus</i>				X	
<i>Allobates talamancae</i>			X	X	
<i>Andinobates fulguritus</i>				X	
<i>Andinobates minutus</i>				X	
<i>Colostethus panamensis</i>			X	X	
<i>Colostethus pratti</i>			X	X	
<i>Dendrobates auratus</i>		X	X	X	
<i>Oophaga vicentei</i>		X			
<i>Silverstoneia flotator</i>			X	X	
<i>Silverstoneia sp.</i>		X			
<i>Diasporus diastema</i>			X	X	
<i>Diasporus quidditus</i>				X	
<i>Boana boans</i>			X		
<i>Boana rosenbergi</i>			X		
<i>Hyloscirtus colymbus</i>		X			
<i>Isthmohyla angustilineata</i>	X				
<i>Isthmohyla tica</i>	X				
<i>Smilisca phaeota</i>		X			
<i>Smilisca sila</i>		X	X		
<i>Trachycephalus vermiculatus</i>			X		
<i>Leptodactylus insularum</i>			X		
<i>Leptodactylus melanonotus</i>				X	
<i>Leptodactylus savagei</i>			X		
<i>Engystomops pustulosus</i>				X	
<i>Agalychnis callidryas</i>		X			

<i>Agallychnis spurrelli</i>			X		
<i>Lithobates taylori</i>					X
<i>Lithobates warszewitschii</i>	X			X	
<i>Bolitoglossa biseriata</i>				X	
<i>Oedipina grandis</i>	X				
Reptilia					
<i>Mesoamericus bilobatus</i>		X			
<i>Datyloa frenata</i>				X	
<i>Dactyloa ginaelisae</i>	X				
<i>Dactyloa ibanezi</i>			X		
<i>Dactyloa maia</i>				X	
<i>Norops kemptoni</i>	X				
<i>Norops lemurinus</i>			X	X	
<i>Norops limifrons</i>			X		
<i>Norops lionotus</i>			X		
<i>Norops pachypus</i>	X				
<i>Norops poecilopus</i>					X
<i>Norops purpurescens</i>			X		
<i>Norops triumphalis</i>			X		
<i>Norops vittigerus</i>			X		
<i>Gonatodes albogularis</i>				X	
<i>Lepidoblepharis emberawoundule</i>				X	
<i>Hemidactylus frenatus</i>		X	X		
<i>Thecadactylus rapicauda</i>			X	X	
<i>Bachia blairi</i>				X	
<i>Echinosaura palmeri</i>			X		
<i>Echinosaura panamensis</i>		X			
<i>Leposoma southi</i>		X			
<i>Ptychoglossus festae</i>			X		
<i>Marisora unimarginata</i>				X	
<i>Scincella cherriei</i>		X			
<i>Holcosus leptophrys</i>		X			
<i>Chironius grandisquamis</i>				X	
<i>Dendrophidion sp 1</i>				X	
<i>Dendrophidion sp2</i>			X		
<i>Lampropeltis micropholis</i>			X		
<i>Leptophis cupreus</i>				X	
<i>Mastigodryas pleei</i>				X	
<i>Phrynonax poecilonotus</i>				X	
<i>Enulius sclateri</i>				X	
<i>Hydromorphus concolor</i>				X	
<i>Geophis godmani</i>	X				
<i>Geophis hoffmani</i>				X	
<i>Imantodes cenchoa</i>			X	X	
<i>Leptodeira sp. aff. ornata</i>		X			
<i>Leptodeira rhombifera</i>			X		
<i>Oxyrhopus petolaris</i>				X	
<i>Rhadinaea decorata</i>				X	
<i>Trilepida macrolepis</i>				X	
<i>Bothrops asper</i>				X	

Family Gymnophthalmidae

Bachia blairi (Dunn 1940) (Fig. 5C)

This bizarre lizard is known from southeastern Costa Rica and western Panama. In Panama, it has been reported from only three localities (Köhler 2008; Batista et al. 2020). We found one individual (MHCH 3114) crossing the parking lot in the MVPR, Chepo, Panama Province, at 1542 h. It was in an open area covered by small patches of garden grass between areas of exposed soil; the area is surrounded by a garden and secondary growth forest. This record extends the distributional range ca. 410 km to the east (9.31974 N, 79.14185 W; 238 m asl) from the previous known record along the Río Chiriquí Viejo (Batista et al. 2020).

Reptilia: Squamata (snakes)

Family Leptotyphlopidae

Trilepida macrolepis (Peters 1858) (Fig. 5D)

Scolecophidians are small, fossorial snakes (often called blindsnakes) that are usually difficult to find and which hold little appeal to most herpetologists; therefore, few specimens exist in collections. Five species in two families (Anomalepididae and Leptotyphlopidae) occur in Panama, but little is known about distribution and natural history. We found one *T. macrolepis* (MHCH 3116) at MVPR on 1 April 2019 inside a fallen tree. Pérez-Santos (1999) mentioned two localities in Panama (ANSP 21906: Bayano Valley, Cañita, Darien, and Reserva Kuna-Yala, Guna Yala). Starace (2013) and Wallach et al. (2014) noted the presence of the species in the country without providing specific localities, and Ray (2017) reported it from a single locality. This and another specimen (SMF 97639) from Serranía de Jingurudo, Darien (7.70893 N, 78.0426 W; 744 m asl), collected by AB on 25 September 2011, are the third and fourth reports in Panama. The basic meristics and morphology of the first agreed well with the diagnostic characters for the species (Pinto and Fernandes 2017): (1) snout truncate in dorsal and ventral views and rounded in lateral view; (2) supraocular present; (3) rostral subtriangular in dorsal view not reaching the anterior limit of the ocular; (4) rostral similar in size to supranasals; (5) frontal longer than other middorsal cephalic shields and smaller than supraoculars; (6) three supralabials (2 + 1); (7) four infralabials; (8) 10 scales at midtail; (9) fused caudals present; (10) 204 middorsal scales (vs 218–243 in males); (11) 210 midventrals; (12) 19 subcaudals; and (13) seven dorsal scale rows with dark brown to black pigmentation in contrast with seven pale brown rows with scales in ventral rows bearing lighter borders; SVL = 116 mm, tail = 8 mm. Due to the secretive nature of the species, its distribution is almost certainly underestimated.

Family Colubridae

Leptophis cupreus (Cope 1968) (Fig. 5E)

This species was recently reported for Panama from the border with Colombia (Batista and Wilson 2017). We found one individual at MVPR ca. 245 km NW of that Panamanian record. It matched well with *L. cupreus*, in having the following combination of characters: a uniformly copper-colored dorsum, unstriped in adults, color pattern without dark oblique bands and keels absent on the first dorsal scale rows (Albuquerque and McDiarmid 2010). The snake was coiled sleeping at night 1 m above the ground. It measured 221 mm SVL and 141 mm tail length (MHCH 3115).

Family Dipsadidae

Leptodeira rhombifera (Gunther 1882) (Fig. 5F)

This species has a wide Mesoamerican distribution that extends from southern Mexico through Guatemala, El Salvador, Honduras, Nicaragua, and Costa Rica to Panama (Barrio-Amorós 2019). In Panama, the distribution of this species was addressed by Pérez Santos (1999) and Ray (2017), both noting the species' presence in the Darien. Barrio-Amorós (2019) reported it in Panama as far as Chepo (Panamá Province), and Ray (2017) mentioned it occurring in the country, including many localities in Darien Province, just across the border with Colombia. At Parque Nacional Darien, *L. rhombifera* was abundant, corroborating previous reports.

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