



# Amphibian and reptile diversity along a ridge-to-reef elevational gradient on a small isolated oceanic island of the central Philippines

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## Abstract

Despite multiple recent field studies, herpetological species diversity of the Romblon Island Group in the central Philippines—particularly Sibuyan Island—has remained underestimated. Recently, we investigated the diversity of the herpetofauna of Mount Guiting-Guiting Natural Park, based on an elevational transect (10–1557 m a.s.l.). Our surveys resulted in a total of 47 species of amphibians and reptiles, including 14 new island records and one atypical occurrence of a snake species recorded for the first time from a high elevation (939 m a.s.l.). These new records constitute a notable increase (21%) in Sibuyan’s herpetological species diversity as compared to surveys from a decade ago. We also provide updates of the taxonomy and identification of species endemic to this island (e.g., members of the genera *Platymantis* Günther, 1858, *Brachymeles* Duméril & Gibron, 1839, and *Pseudogekko* Taylor, 1922), and discuss the importance of continued surveys and field-derived data to inform conservation status assessments of Sibuyan’s unique assemblage of amphibians and reptiles.

## Keywords

Biodiversity, conservation, ecology, endemism, faunal region

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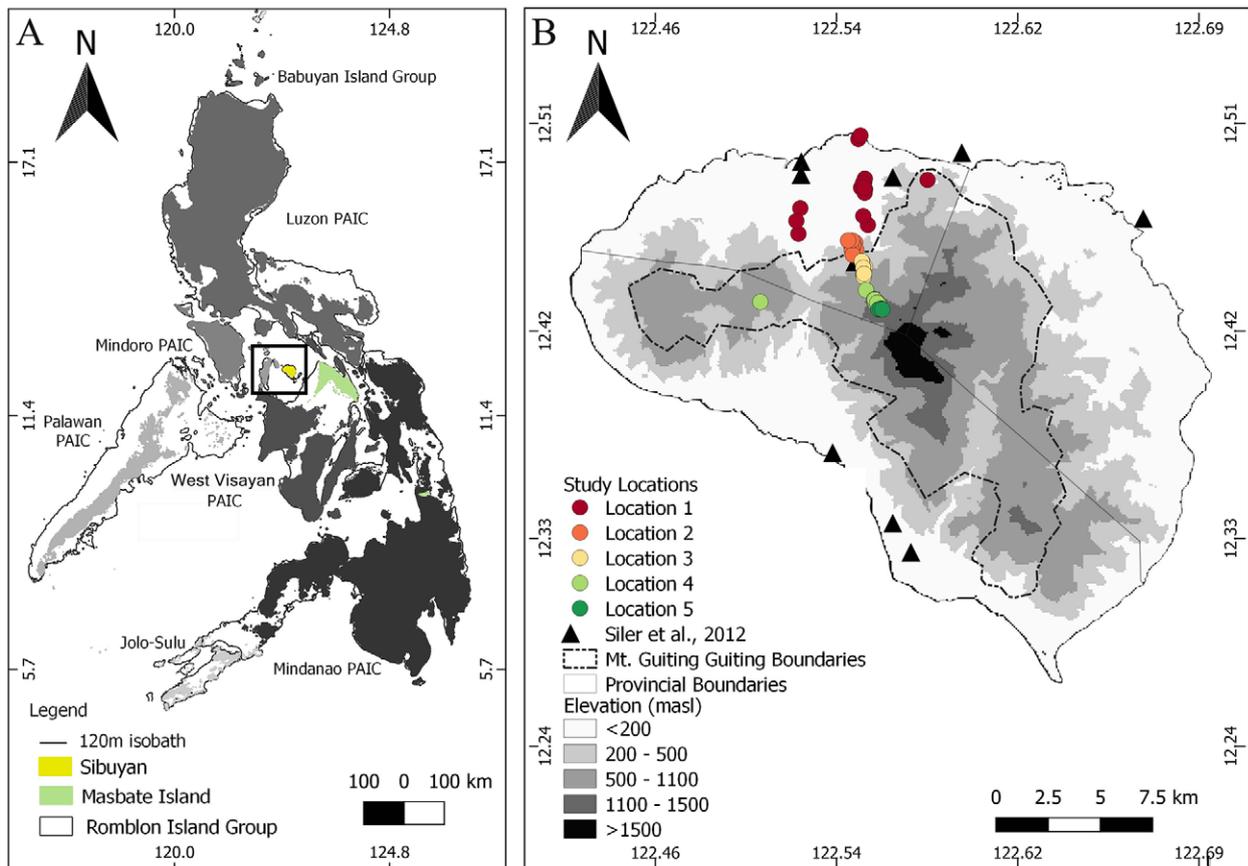
## Introduction

The Philippine archipelago comprises over 7100 islands strewn over the Western Pacific Ocean (Goodman et al. 1995; Heaney and Regalado 1998; Heaney et al. 2005). The partitioned nature of the archipelago has contributed to the evolution of many unique and range-restricted life forms (Brown and Diesmos 2009), and the country is now believed to harbor the greatest diversity of land vertebrate species per unit land area on earth (Brown et al. 2013a; Myers et al. 2000).

Our understanding of Philippine terrestrial vertebrate biodiversity has improved significantly over the past few decades (Brown et al. 2013a; Diesmos et al. 2015; Leviton et al. 2018). Extensive field surveys, coupled with major advances in analyses of available data have demonstrated that the Philippine fauna is far richer—with proportionally higher endemism and with more variable and complex evolutionary and biogeographic histories—than previously assumed (Brown et al. 2002, 2008, 2013a; Brown and Diesmos 2002; Brown and Guttman 2002; Diesmos et al. 2002b). Of the 1196 native species of amphibians, birds, mammals, and reptiles currently known to occur in the country, nearly 46% are endemic, with many more island endemics continually being discovered (Brown and Diesmos 2009; Evans

et al. 2003; Heaney and Regalado 1998; McGuire and Heang 2001; Peterson et al. 2008). Much of this shift in appreciation of evolutionary diversification in the archipelago has resulted from an increased understanding of the complex geological history of the archipelago (Hall 1998; Yumul et al. 2009), which is believed to have played a major factor in the evolution of the Philippines' soaring levels of terrestrial vertebrate diversity (Heaney 1986, 1998, 2000; Brown et al. 2013a). Centers of endemism in the archipelago are coincident with the physiography of the greater Pleistocene Aggregate Islands Complexes (PAICs) of Luzon, Palawan, Negros-Panay (West Visayan islands), Mindoro, Mindanao, and the Sulu Archipelago during Pliocene and Pleistocene sea level regressions (Inger 1954; Voris 2000). However, until relatively recently, little attention has been paid to fully inventorying smaller islands like those in central Romblon Province.

The Romblon Island Group (RIG; Fig. 1) is approximately 350 km south of Manila and is situated in the Sibuyan Sea, south of Marinduque Island and north of Panay Island. East of the RIG is the island of Masbate; to the island group's west is the large Mindoro Island (Fig. 1). Aside from being renowned for its lush vegetation and mineral resources, the RIG is also known for



**Figure 1.** **A.** Map of the Philippines showing the five recognized major Pleistocene Aggregate Island Complexes (PAICs). The location of the Romblon Island Group in the central Philippines is outlined by the inset, Sibuyan Island is indicated by yellow shading and Masbate Island by green shading. **B.** Close-up of Sibuyan Island, showing the sites surveyed in this study. Elevational contours are indicated with incrementally darkened shading, and sampling sites at varied elevation ranges (see key) are indicated by colored circles. Black triangles represents sampling localities summarized by Siler and team in 2012.

its diverse offshore fisheries, where migration paths of many marine species from the Sulu and Visayan seas pass the Tablas Strait, Sibuyan Sea, and Romblon Pass (Carpenter and Springer 2005; Han et al. 2009; Leyzack et al. 2014). Hence, not only the landscapes but also the seascapes of the RIG are rich in biodiversity and possibly in need of wholesale faunistic studies and conservation management (DENR-PAWB 2009; Clemente et al. 2017).

Owing to the central position of the RIG and its geologic significance in the context of the Philippines' geologically dynamic arc-continent collision system (Yumul et al. 2009), the small islands of the RIG are of keen interest to geologists and biogeographers (Brown and Alcala 1970, 1974; Goodman and Ingle 1993; Esselstyn and Goodman 2010; Siler et al. 2012). Romblon Province is composed of three major islands: Tablas has a land area of 668 km<sup>2</sup>, making it the largest; Sibuyan is the second largest (449 km<sup>2</sup>); and Romblon Island proper is the smallest, with a land area of just 82 km<sup>2</sup>. The channel between Romblon and Tablas is less than 50 m deep and, thus, the two islands were likely connected by a Pleistocene land bridge at their northern ends (Allen 2006; Brown et al. 2011a; Siler et al. 2012); however these islands are separated from Sibuyan Island by water more than 500 m deep (Gordon et al. 2011), suggesting that the latter remained isolated during the entirety of the Pleistocene. The RIG's complex, mobile geologic history resulted from various crustal plate movements, spreading rift zones, and subduction—all of which could have contributed to the island group's terrestrial vertebrate biodiversity (Yumul et al. 2003, 2009; Siler et al. 2012). Additionally, over the most recent millennia (Pleistocene: 2.5 million years ago), none of the landmasses of Romblon Province, including Sibuyan Island have been connected by dry land to the larger, surrounding landmasses of the Luzon, Mindoro, or West Visayan PAICs (Brown and Diesmos 2002, 2009; Fig. 1).

On Sibuyan Island lies a prominent massif, called Mount Guiting-Guiting (Fig. 1), which is central to Mount Guiting-Guiting Natural Park. Together with its forests, it is recognized as a key biodiversity area (Ingle 1993; Goodman et al. 1995; Rickart et al. 2005; Siler et al. 2012) and is noted as one of only a few remaining mountains in the Philippines with relatively intact habitats from sea level to its peak (Goodman and Ingle 1993; Tongson and McShane 2006; Siler et al. 2016). The mountain spans 45,600 ha, and roughly 70% is covered with forest along its entire elevational gradient relief (Tongson and McShane 2006). The Philippines' National Integrated Protected Areas Program (NIPAP) reported several distinct habitats types (vegetation zones) as: summit heathland and grasslands, mossy forests, montane forests, lowland evergreen forest, and forest over ultrabasic rocks (Goodman et al. 1995). This environmental and habitat diversity supports rich biodiversity that contributes to global recognition of the Philippines as a megadiverse, global conservation hotspot country

(Myers et al. 2000; Von Rintelen et al. 2017). This fact warrants continued research and conservation effort focused on Mount Guiting-Guiting Natural Park.

Throughout the past three decades, the rich biodiversity of this protected area has been characterized, and new species discovered, by focusing on Mount Guiting-Guiting itself, which has bolstered the case for its extremely high conservation value (Esselstyn and Goodman 2010; Brown et al. 2011a; Siler et al. 2012, 2016). However, even as scientific research continues to highlight the protected area's rich natural resources, the mountain's rugged terrain and inaccessibility, together with limitations in resources for prolonged research, has resulted in the paradoxical situation in which the actual forests on the mountain itself have not been extensively studied. With rapidly expanding agricultural croplands, illegal logging, and human settlements (Goodman and Ingle 1993; Goodman et al. 1995; Esselstyn and Goodman 2010; Siler et al. 2016), a continuous degradation of Mount Guiting-Guiting's landscape, and potential loss of biodiversity and ecosystem services have contributed to recent estimates of nearly 30% of its original forests suffering some form of degradation (Heaney and Regalado 1998). As a consequence, an empirically documented understanding of Mount Guiting-Guiting's current environmental status has now become imperative. This spatial, elevational, and taxonomic analysis of biodiversity can serve as a resource to determine the status of the protected areas (Allen 2006; Brown and Diesmos 2009; Davis et al. 2016).

Among the established indicators of environmental health are amphibians and reptiles which differentiate on a fine scale with environmental, elevational, and geographic history variation (Brown and Alcala 1961; Inger 1980; Lieberman 1986; Blackburn et al. 2013; Wollenberg-Valero et al. 2019). Alcala (1986) emphasized that proper management, conservation, and preservation of the natural resources of the Philippines depends on the availability of comprehensive and up-to-date biodiversity inventory information. Thus, updated and augmented information generated in this study will serve as a critical baseline for future amphibian and reptile ecological and systematic studies, and should prove significant for the assessment of conservation status of terrestrial fauna of the Mount Guiting-Guiting Natural Park Protected Area (Diesmos et al. 2014, 2015; Leviton et al. 2018).

Sibuyan was identified for this study as a focal site for research because of its unique complex ecosystem with notable geologic history that contributed with its high endemism—oceanic origin, geographic isolation, elevational relief, and relatively intact forests. In addition, Sibuyan Island presents biogeographically compelling questions relating to the colonization history of organisms that could only have arrived on Sibuyan by dispersing over water (Goodman and Ingle 1993; Siler et al. 2012). We also initiated the present study under the premise that a comprehensive characterization of the

diversity and distribution of amphibians and reptiles of Mount Guiting-Guiting would be highly desirable on the part of the local government, specifically the Protected Management Board and the regional Department of Environment and Natural Resources (Region IV-B) for future management planning. The additional information and data will strengthen their existing conservation programs ideally by engaging local communities, wildlife managers, ecotourists, and university researchers in Romblon Province.

Here, we provide a comprehensive report of characterizing amphibian and reptile records for Mount Guiting-Guiting Natural Park and provide comparisons with previous faunal summaries of Romblon Province. We also follow suggestions of Siler et al. (2012) and emulate Goodman et al. (1995) in discussing biogeographical and evolutionary affinities of Sibuyan's endemic taxa. The study presents an up-to-date list with new island records of the diversity of amphibians and reptiles, which suggests the necessity and significance of periodic, repetitive surveys, and to revisit and augment the findings of previous studies in protected areas and other sites of high-value conservation importance.

## Study Area

Sibuyan Island is the second largest island of Romblon Province; it is a small, geologically young island which is approximately six millions years old (Hall and Holloway 1998), surrounded by diverse source pools of potential vertebrate colonist from islands of Leyte, Luzon, Mindoro, and Panay (Esselstyn and Goodman 2010; Fig. 1). Sibuyan Island has not been connected to any other island throughout its geological history because it is oceanic in origin (Hall 1998; Heaney 1986; Inger 1954; Voris 2000). It measures 28 km from east to west and 24 km from north to south. The island is located at 12°24', 122°33'E and has a total land area of approximately 44,500 ha.

At Sibuyan's heart is Mount Guiting-Guiting Natural Park (MGGNP), which is bounded on the north by the Municipality of Magdiwang. Mount Guiting-Guiting is a steep mountain with jagged topography (Fig. 2A), standing 2058 m above sea level (a.s.l.); it is considered to be one of only a few remaining mountains in the archipelago with intact, forested habitats that covers an area of 10,000–15,000 ha out of Sibuyan's total area of 44,500 ha (comprising different vegetation types and floral communities) along its entire elevational gradient from sea level to its peak (Goodman et al. 1995; Goodman and Ingle 1993; Tongson and McShane 2006; Fig. 2). Mount Guiting-Guiting is formed by intrusive Sibuyan island ultramafic geology (Proctor et al. 1997; Yumul et al. 2003, 2005, 2008), and vegetational zonation associated with ultramafic rocks has been described as unusually distinctive and highly variable (Dimalanta et al. 2009; Payot et al. 2009; Yumul et al. 2009).

Fieldwork was conducted along the primary elevational gradient composing Mount Guiting-Guiting

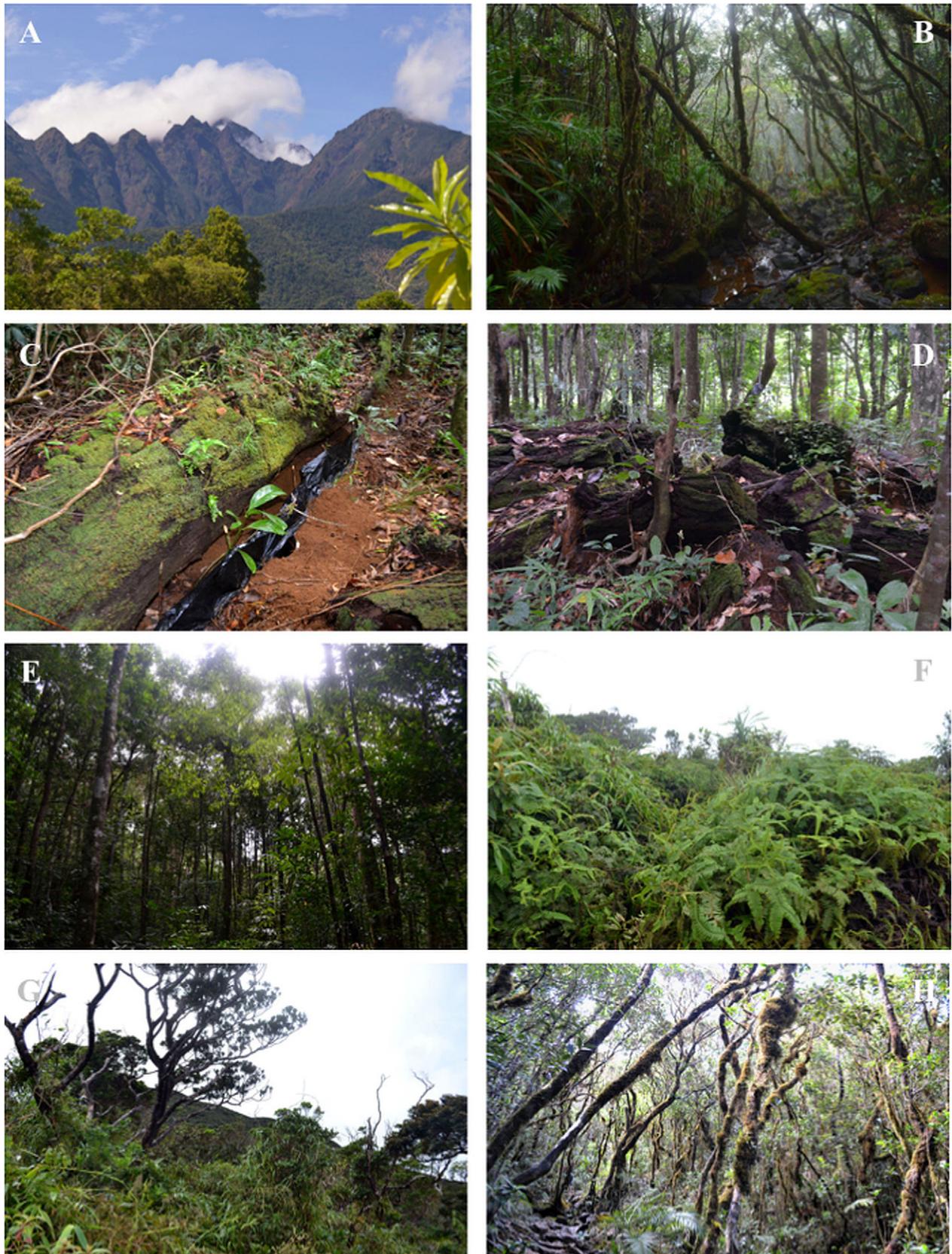
Natural Park. Our surveys were conducted at five major sites, and involved two separate seasonal sampling efforts. Locations 1–5 were surveyed 23 October–23 November 2016 and 24 May–25 June 2017 (six days exhaustive sampling per elevational base-camp increment), corresponding to the onset of the monsoon season, and then also to the final months of the dry season, respectively. Base-camp sampling sites were chosen with reference to the altitudinal gradient study of Goodman et al. (1995). Survey areas included the lowland evergreen forest, montane forest, mossy forest, coastal areas, and agricultural areas distributed throughout varying elevations between 10 and 1557 m a.s.l. (Fig. 1). The actual summit (>1600 m a.s.l.) was excluded in the sampling due to the limitation of financial resources, difficulty of the trail, time constraints, and extreme weather conditions.

Below is the summary of the ranges of elevation that were surveyed in different location sites.

**Location 1:** 10–148 m a.s.l. (12°28'53"N, 122°33'01"E). The site was characterized by secondary-growth forest mixed with private agricultural lands, and coastal mangrove forest stands. Several small to medium-sized streams and large rivers are found in the area (e.g., Lambingan Fall, Gaong River, Jao-asan River, and the Tampayan Dam). Location 1 was commonly characterized with frequently densely overhanging rocky streams, with habitat features such as rotten logs, tall grass, dipterocarp trees, swampy areas, cultivated rice paddies, and coconut palm and mango plantations.

**Location 2:** 213–405 m a.s.l. (12°27'17"N, 122°32'40"E). This area is characterized by its steeply sloping terrain and is composed of branching tributaries leading to the Gaong River and others leading to Barangay Tampayan. Common trees belong to the families Dipterocarpaceae, Lauraceae, and Anacardiaceae, with emergent trees reaching maximum heights of 30–40 m. Epiphytic plants include mostly Araceae, Pandanaceae, and ferns. Formerly intact lowland dipterocarp forest, logging activities have reduced climax forest to a few remnant patches (Fig. 2C, D), and illegal logging and hunting continue to the present (CGM pers. observ.).

**Location 3:** 576–939 m a.s.l. (12°26'51"N, 122°32'58"E). The area at this location was described by Goodman et al. (1995) as montane forest (Fig. 2E) and is composed of varied vegetation including Sabiaceae (*Meliosma* sp.), Clusiaceae (*Callophyllum* sp.), Apocynaceae (*Tabernaemontana pandacaqui*), Myrtaceae (*Syzygium* sp.), Podocarpaceae (*Podocarpus* sp.), Pittosporaceae (*Pittosporum pentandrum*), Burseraceae (*Canarium* sp.), Rubiaceae (*Morinda* sp. and *Psychotria* sp.), Lauraceae (*Cinnamomum mercadoi*), and Pandanaceae (*Freycinetia leptophylla*). Forest understory at this site consists of ferns, rattan, and *Pandanus*, and larger trees had lianas and occasionally climbing *Freycinetia* spp. and rattans. A dramatic change in slope (steeper) and temperature (cooler) occurs between 600–1000 m a.s.l. In addition, dried tributaries and streambeds leading to the woodland interior were observed, but no standing water sources



**Figure 2.** Examples of habitat types sampled and assessed in Mount Guiting-Guiting Natural Park, Sibuyan Island: **A.** Mount Guiting-Guiting's steep and jagged topography. **B.** Rocky streams with overhanging trees. **C, D.** Evidence of illegal logging activities: rotten logs at 213–405 m a.s.l. **E.** Montane forest at 576–939 m a.s.l. **F, G.** Ferns and climbing bamboo at 1121–1492 m a.s.l. **H.** Mossy forest at 1500–1557 m a.s.l. Photos by CGM.

were identified. At this site, forest leaf litter was less than 1 cm deep, and numerous exposed rocks and boulders, covered by tangled vines, were observed among trunks of hardwood trees.

**Location 4:** 1121–1492 m a.s.l. (12°26′01″N, 122°33′15″E). This site is characterized as the transition site from montane forest to mossy forest and a sharp shift in slope (much steeper) was observed. Ultramafic rocks are common; *Medinilla*, *Pandanus*, and climbing bamboo (*Dinochloa* spp.) were the most common plants observed. Stunted trees covered with ferns, bryophytes, and lichens are abundant; *Nepenthes sibuyanensis*, *N. merrilli*, and climbing bamboos are abundant up to 1400 m a.s.l. (Fig. 2F, G).

**Location 5:** 1500–1557 m a.s.l. (12°25′45″N, 122°33′26″E). Our Location 5 is mossy forest, with evidently stunted (2.5–3.0 m tall) trees, covered with thick moss and lichens (Fig. 2H), and the forest understory is densely covered by an unidentified species of *Pandanus*. Exposed ultramafic rocks are abundant and an expanse of heathland was present and separated from patches of mossy forest.

## Methods

Fieldwork was conducted under Wildlife Gratuitous Permit to Collect No. MIMAROPA-2017-0005. We employed a combination of time-constrained searches, focused microhabitat sampling, drift-fencing and pitfall trapping, and bioacoustical-auditory surveys (Alcala et al. 2004; Heyer et al. 1994). Opportunistic sampling technique was carried out in steep terrains across the full range of altitudes and habitats, with the intent of increased sampling of behaviorally cryptic and/or patchily distributed species. Purposive sampling was performed by five persons during both daytime (6:00–8:00 hr, 10:00–11:00 hr, and 16:00–17:00 hr) and night-time (18:00–23:00 hr) hours, at all sites. Sampling hours were modified depending on weather conditions and logistical constraints. Exhaustive searches of all microhabitats were performed at the most accessible sites per elevational increment; these included rotting vegetation and logs in contact with the forest floor, tree stumps, leaf litter, leaf axils of *Pandanus*, rock crevices, tree trunks, bark crevices, riparian habitats, tree holes, forest trails, and clearings. To avoid disturbance, sampling sites visited during daytime were adjacent to, but different from those targeted at night. Subsequently, rotational sampling was employed, to ensure sampling of all areas and microhabitats at different times. A total of approximately 300 person-hours (60 hours/person) of time-constrained efforts were accumulated throughout this study.

We recorded the heaviest precipitation during the period of October–November 2016 with an average of 288.0 mm, coinciding with two typhoons brought by the southwest monsoon (mean temperatures from 17.7–18.9 °C; 97.8–100% relative humidity): daily intermittent rain from one full day at 1121–1551 m a.s.l. On the other hand,

we recorded an average of 15.0 mm precipitation during May–June 2017 (mean temperatures from 25.5–27 °C; 76.2–100% relative humidity).

Combined pitfall trapping and drift-fencing techniques were used to sample rare, secretive, and/or fossorial species of reptiles. We installed 24 plastic, 7 L buckets (23" height × 25" top diameter × 20" bottom diameter) at random locations, with unstandardized size of plastic tarp fences spanning pitfalls, in a variety of microhabitat types. These trap arrays extended ±75 m elevation, above and below each base-camp site. Trap arrays were set approximately 10–15 m apart, and were checked by two additional observers during daytime (6:00–8:00, 10:00–11:00, and 16:00–17:00 hr).

Specimens were collected, euthanized with chloroform, dissected for tissue samples (liver preserved in 100% ethanol), fixed in 10% buffered formalin, and eventually (<2 months) transferred to 70% ethanol for long-term storage (Heyer et al. 1994; Simmons 2015). New specimens contributing to this report are deposited in University of the Philippines Los Baños Museum of Natural History (UPLB-MNH), College, Los Baños, Laguna, Philippines.

Following Siler et al. (2012), we considered Sibuyan's nearest surrounding potential colonization sources (major islands or PAICs) and calculated Simpson similarity indices (S) using the formula  $S = C / N$ , where C is the number of species common to both Sibuyan and the respective source landmass, and N, is the number of species on the island of interest (Cheatham and Lazell 1969). This index summarizes the degree of faunal similarity with surrounding PAICs, assuming correct taxonomy. Regression analyses were performed, using PAST v. 3 (Hammer et al. 2001) to explore species diversity as a function of increasing topographical relief, along our focal elevational gradient.

## Results

We provide documentation of 47 species of amphibians and reptiles, including 11 anurans, 21 lizards, 14 snakes, and one freshwater turtle (Table 1). Fifteen new amphibian and reptile distribution records for Mount Guiting-Guiting were recorded in the Municipality of Magdiwang (i.e., excluding the Municipalities of San Fernando, Cajidiocan, and small offshore islands; refer to Siler et al. [2012] for records from the aforementioned localities). The calculated Simpson similarity indices support significant contributions from the Luzon, West Visayan, and Mindoro PAICs as biogeographical source populations for Sibuyan's herpetofauna (Tables 2, Table 3). Of the 15 new species distributional and elevational records, 10 are associated with unresolved taxonomic uncertainty; these will require future consideration (Table 4) before identifications are fully confirmed. These include frogs of the genera *Platymantis* and *Kaloula*; lizards of the genera *Gonocephalus*, *Lepidodactylus*, *Luperosaurus*, *Parvosцинus*, and *Pinoyscincus*; and snakes of

**Table 1.** Updated checklist of shared terrestrial herpetofauna along elevation gradient of Mount Guiting-Guiting Natural Park, Magdiwang, Sibuyan Island between Luzon, Mindoro, and Visayan Pleistocene Aggregate Island Complexes (PAIC: Brown and Diesmos 2002) and the islands of the RIG, compiled on the basis of Siler et al. (2012) and Supsup et al. (2016).

Taxon	Carabao	Cresta de Gallo	Maestre de Campo	Romblon	Sibuyan	Tablas	Luzon PAIC	Mindoro PAIC	West Visayan PAIC	Sibuyan, this study
<b>Class Amphibia</b>										
<b>Order Anura</b>										
<b>Family Bufonidae</b>										
<i>Rhinella marina</i>					X	X	X	X	X	X
<b>Family Ceratobatrachidae</b>										
<i>Platymantis (Lahatnanguri) pygmaeus</i>					X	X	X			X
* <i>Platymantis (Lupaculus) paengi</i>				X	X	X			X	X
<i>Platymantis (Tirahanulap) lawtoni</i>					X	X				X
<i>Platymantis (Lahatnanguri) levigatus</i>					X	X				X
<b>Family Dicroglossidae</b>										
<i>Fejervarya moodiei</i>	X			X	X	X	X	X	X	X
<i>Fejervarya vittigera</i>				X	X	X	X	X	X	X
<i>Limnonectes leytensis</i>	X				X	X			X	X
<i>Occidozyga laevis</i>				X	X	X	X	X	X	X
<b>Family Microhylidae</b>										
<i>Kaloula conjuncta negrosensis</i>	X				X	X			X	X
<b>Family Ranidae</b>										
<i>Hylarana erythraea</i>				X	X	X	X	X	X	X
<b>Family Rhacophoridae</b>										
<i>Polypedates leucomystax</i>				X		X	X	X	X	
<i>Rhacophorus pardalis</i>						X	X		X	
<b>Class Reptilia</b>										
<b>Order Testudines</b>										
<b>Family Bataguridae</b>										
<i>Cuora amboinensis amboinensis</i>					X	X	X	X	X	X
<b>Order Squamata (Lizards and Snakes)</b>										
<b>Family Agamidae</b>										
<i>Bronchocela marmorata</i>	X				X	X	X	X	X	X
<i>Draco quadrasi</i>				X	X			X		X
<i>Hydrosaurus pustulatus</i>				X	X	X	X	X	X	X
<i>Gonocephalus sophiae</i>					X		X	X		X
<b>Family Gekkonidae</b>										
<i>Cyrtodactylus philippinus</i>				X	X	X	X	X	X	X
<i>Gehyra multilata</i>	X				X	X	X	X	X	
<i>Gekko gekko</i>	X		X			X	X	X	X	X
<i>Gekko mindorensis</i>			X				X	X	X	
<i>Gekko romblon</i>				X		X				
<i>Gekko coi</i>					X					X
<i>Hemidactylus frenatus</i>	X	X	X		X	X	X	X	X	X
<i>Hemidactylus platyurus</i>	X		X		X	X	X	X	X	
* <i>Lepidodactylus christiani</i>									X	X
<i>Lepidodactylus lugubris</i>	X					X	X		X	
<i>Pseudogekko isapa</i>					X	X				X
* <i>Luperosaurus corfieldi</i>									X	X
<b>Family Scincidae</b>										
<i>Brachymeles dalawangdaliri</i>					X	X				X
<i>Brachymeles tridactylus</i>	X								X	
<i>Brachymeles talinis</i>	X				X	X			X	X
<i>Eutropis multifasciata</i>					X	X	X	X	X	
* <i>Eutropis borealis</i>							X			X
<i>Lamprolepis smaragdina philippina</i>	X		X	X	X	X	X	X	X	X
<i>Lipinia vulcania</i>					X		X			
<i>Lipinia auriculata kempi</i>						X		X		
<i>Otosaurus cumingi</i>					X		X	X		X
<i>Parvosцинus decipiens</i>					X	X	X			X
* <i>Pinoyscincus coxi divergens</i>							X	X	X	X

Taxon	Carabao	Cresta de Gallo	Maestre de Campo	Romblon	Sibuyan	Tablas	Luzon PAIC	Mindoro PAIC	West Visayan PAIC	Sibuyan, this study
<i>Parvosцинus steerei</i>					X	X	X	X	X	X
* <i>Pinoyscincus jagori grandis</i>							X	X	X	X
<b>Family Varanidae</b>										
<i>Varanus nuchalis</i>					X				X	X
<b>Family Homalopsidae</b>										
<i>Cerberus schneiderii</i>					X	X	X		X	X
<b>Family Colubridae</b>										
* <i>Ahaetulla prasina preocularis</i>						X	X		X	X
* <i>Boiga cynodon</i>						X	X		X	X
<i>Chrysopelea paradisi</i>					X	X	X		X	X
<i>Dendrelaphis marenae</i>	X					X	X		X	
* <i>Dendrelaphis luzonensis</i>										X
<i>Dryophiops philippina</i>					X		X	X		X
<i>Lycodon capucinus</i>	X				X	X	X	X	X	
<i>Oligodon modestus</i>						X	X		X	X
* <i>Calamaria gervaisii</i>	X					X	X	X	X	X
<i>Pseudorabdion mcnamarae</i>					X	X	X		X	
* <i>Pseudorabdion talonuran</i>									X	X
** <i>Gonyosoma oxycephalum</i>							X	X	X	X
<b>Family Cyclocoridae</b>										
<i>Cyclocorus lineatus alcalai</i>					X	X	X	X	X	X
<b>Family Natricidae</b>										
* <i>Rhabdophis spilogaster</i>							X	X		X
<b>Family Typhlopidae</b>										
<i>Rhamphotyphlops braminus</i>					X	X	X	X	X	
<i>Malayotyphlops ruficaudus</i>					X	X	X			X
<b>Family Gerrhopilidae</b>										
<i>Gerrhopilus hedraeus</i>						X	X	X	X	
<b>Family Elapidae</b>										
* <i>Laticauda colubrina</i>			X				X	X	X	X
Total number of species	15	1	6	11	39	44	45	33	45	47
Total number of Island Endemic	0	0	0	0	1	0				
Percentage of Island Endemic	0%	0%	0%	0%	3%	0%				

\*Newly recorded from Sibuyan island.

\*\*New highest elevation record on Mount Guiting-Guiting.

**Table 2.** Indices of herpetofaunal similarity of Sibuyan Island’s recent herpetofaunal survey with the Luzon, Mindoro, and West Visayan Pleistocene Aggregate Island Complex (PAIC; Brown and Diesmos 2002) as compared to Siler et al.’s (2012) study.

	Simpson similarity index		
	Luzon PAIC	Mindoro PAIC	West Visayan PAIC
<b>Carabao</b>	71%	64%	100%
<b>Cresta de Gallo</b>	100%		100%
<b>Maestre de Campo</b>	100%	100%	100%
<b>Romblon</b>	73%	82%	82%
<b>Sibuyan</b>	71%	67%	68%
<b>Tablas</b>	77%	70%	79%
<b>This study (Sibuyan)</b>	76%	73%	75%

**Table 3.** Indices of herpetofaunal similarity among previously surveyed islands of the Romblon Island Group by Siler et al. (2012) and this study.

	Simpson similarity index						
	Carabao	Cresta de Gallo	Maestre de Campo	Romblon	Sibuyan	Tablas	This study
<b>Carabao</b>	—						
<b>Cresta de Gallo</b>	100%						
<b>Maestre de Campo</b>	67%	100%					
<b>Romblon</b>	18%	0%	17%				
<b>Sibuyan</b>	71%	100%	50%	82%			
<b>Tablas</b>	93%	100%	67%	91%	82%		
<b>This study</b>	71%	100%	67%	82%	82%	74%	

**Table 4.** List of species identified with uncertainty represented with possible taxonomic and molecular justifications of temporary identification and possibility of new species discovery.

Previously reported nomen	Tentative species identification	Evidence justifying tentative identification	Unresolved uncertainty requiring future taxonomic reconsideration	References
1. <i>Platymantis cf. dorsalis</i>	<i>Platymantis (Lupaculus) paengi</i>	Close relationship to <i>P. paengi</i> in mtDNA phylogeny	Skin texture, shape of digital discs, and advertisement call differs structurally from <i>P. paengi</i> at the species type locality (NW Panay Island)	Siler et al. 2007; Brown et al. 2015
2. <i>Platymantis cf. pygmaeus</i>	<i>Platymantis (Lahatnanguri) pygmaeus</i>	Very small body size, similar advertisement call	More closely-related to <i>P. levigatus</i> (mtDNA phylogeny)	Siler et al. 2007; Brown et al. 2015a;
3. <i>Kaloula cf. conjuncta negrosensis</i>	<i>Kaloula conjuncta negrosensis</i>	Phenotypic similarity	Dissimilarity of advertisement call; unrelated to type locality <i>K. c. negrosensis</i> (mtDNA phylogeny)	Blackburn et al. 2013; Welton et al. 2017
4. <i>Gonocephalus cf. sophiae</i>	<i>Gonocephalus sophiae</i>	General phenotypic similarity to northern Philippine form	2–3 named species; indiscriminately applied to 12 Clades endemic to the archipelago; species delimitation advisable	Welton et al. 2017
5. <i>Lepidodactylus</i> sp.	<i>Lepidodactylus cristiani</i>	Phenotypic similarity	Exhibits a tail structure and pattern not observed in Panay endemic species	Brown et al. 2013a; Eliades et al. 2021; Ota et al. 1995
6. <i>Luperosaurus</i> sp.	<i>Luperosaurus corfieldi</i>	Phenotypic similarity in terms of built and size	Morphological structure such as eye color, superciliaries, and body pattern are in between <i>L. cumingi</i> (Luzon) and <i>L. corfieldi</i>	Brown et al. 2011a; Gaulke et al. 2007
7. <i>Pinoyoscincus</i> sp. ( <i>P. cavi divergens</i> complex)	<i>Pinoyoscincus cavi divergens</i>	Black markings on the chin and elongated tail	Tail longer than its body and skinks are very complex species that needs additional inspection and genotyping for definite identification	Brown and Alcala 1980; Linkem et al. 2010b
8. <i>Parvosincincus</i> sp. ( <i>P. decipiens</i> complex)	<i>Parvosincincus decipiens</i>	Color pattern similarity	Skinks are very complex species that needs additional inspection and genotyping for definite identification	Linkem and Brown 2013
9. <i>Pinoyoscincus</i> cf. <i>jagori</i>	<i>Pinoyoscincus jagori grandis</i>	Phenotypic similarity	Skinks are very complex species that needs additional inspection and genotyping for definite identification	Linkem et al. 2010b
10. <i>Pseudorababdon</i> sp.	<i>Pseudorababdon talonuran</i>	Elevational and close phenotypic similarity (large size)	Close comparison of its other morphological data is in between <i>P. mcnamarae</i> and <i>P. talonuran</i>	Brown et al. 1999; Siler et al. 2012

the genus *Pseudorhabdion*. Below we provide species accounts, notes on natural history, and in some cases, a revised conservation status assessment (with justification) based on International Union for Conservation of Nature categories (IUCN 2022).

#### AMPHIBIANS

Order Anura

Family Bufonidae

#### *Rhinella marina* (Linnaeus, 1758)

**Material examined.** PHILIPPINES – Romblon • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan and Jao-asan, Mount Guiting-Guiting Natural Park, Location 1; 12°28'53"N, 122°33'01"E; 20–37 m a.s.l.; 20.XI.2016; C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4771.

**Identification.** This species was identified by its reddish to dark brown body color with back marked with dark spots (UPLB-MNH-Z-NS 4771: SVL 84.6 mm) as described by Siler et al. (2012) in the previous survey. Skin is warty with large, prominent triangular to oblong parotid glands, matching Brown et al. (2011a) and Shine's (2010) descriptions.

**Remarks.** *Rhinella marina* is an introduced invasive species found on all large islands of the Philippines (Diesmos et al. 2006, 2015). Its natural range extends from South Texas to Central Amazonia, but due to translocation, the species have also established populations in

the central United States, Australia, Japan, Philippines, Taiwan, Papua New Guinea, the Caribbean, and the Pacific. Commonly, individuals observed in this study were observed and collected around the disturbed habitat and were abundant in rice fields and mango plantations around Mount Guiting-Guiting Natural Park headquarters in Location 1. No individuals were observed within the protected area (between 70–1500 m a.s.l.). Its conservation status is classified as Least Concern (IUCN 2022). Residents of Sibuyan refer to it by various colloquial names such as Mindoro Frog, Palakang Nazareth, or simply bullfrog.

**Philippine distribution.** Alabat, Bohol, Calayan, Catanduanes, Cebu, Cocomo, Dinagat, Gigantes Norte, Leyte, Lubang, Luzon, Marinduque, Masbate, Mindanao, Mindoro, Negros, Palawan, Panay, Polillo, Romblon Island Group, Sicogon, Samar, Ticao, Verde (Diesmos et al. 2015).

Family Ceratobatrachidae

#### *Platymantis (Lahatnanguri) pygmaeus* Alcalá, Brown & Diesmos, 1998

Figure 3

**Material examined.** PHILIPPINES – Romblon • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°29'24"N, 122°35'24"E; 50–150 m a.s.l.; 25.III.2005; C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; 5 ♂, KU 300431–300433, 309117, 30434 • Tablas Island,



**Figure 3.** *Platymantis (Lahatnanguri) pygmaeus* collected at Location 5 (1500–1557 m a.s.l.), Municipality of Magdiwang, Barangay Tampayan, Sitio Logdeck: color pattern variation. From upper left to right, UPLB-MNH-Z-NS 4427, 4428, 4438, 4443. Photos by CGM.

Municipality of Calatrava, Barangay Balogo; 12°36'19"N, 122°02'44"E; 150–400 m a.s.l.; 08–13.I.2008; C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; 6 ♂, KU 315300–315305 • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°25'45"N, 122°33'26"E; 50–1557 m a.s.l.; 25.X.2016; C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 11 ♂, UPLB-MNH-Z-NS 4416–4426 • same locality; 26.X.2016; C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 8 ♂, UPLB-MNH-Z-NS 4427–4429, UPLB-MNH-Z-NS 4431, UPLB-MNH-Z-NS 4433–4436; 2 ♀, UPLB-MNH-Z-NS 4430, 4432 • same locality; 28.X.2016; C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 2 ♂, UPLB-MNH-Z-NS 4437 and 4438; 5 ♀, UPLB-MNH-Z-NS 4439–4443 • same locality; 11–14.XI.2016; C.G. Meneses, W. Bulalacao, S.A. Gonzales leg.; 18 ♂, UPLB-MNH-Z-NS 4444–4461 • same locality; 15–16.XI.2016; C.G. Meneses, W. Bulalacao leg.; 8 ♂, UPLB-MNH-Z-NS 4564–4569, UPLB-MNH-Z-NS 4570–4571; 3 ♀, UPLB-MNH-Z-NS 4562–4563, UPLB-MNH-Z-NS 4572 • same locality; 19.XI.2016; C.G. Meneses, W. Bulalacao leg.; 1 ♀, UPLB-MNH-Z-NS 4573 • same locality; 22.XI.2016; C.G. Meneses, W. Bulalacao leg.; 1 ♂, UPLB-MNH-Z-NS 4574 • same locality; 26–28.V.2017; C.G. Meneses, W. Bulalacao leg.; 20 ♂, UPLB-MNH-Z-NS 4447, 4449, 4450, 4453–4458, 4460, 4461, 4563–4571; 5 ♀, UPLB-MNH-Z-NS 4448, 4451, 4452, 4459, 4462 • same locality; 1.VI.2017; C.G. Meneses, W. Bulalacao leg.; 2 ♂, UPLB-MNH-Z-NS 4473, 4475; 5 ♀, UPLB-MNH-Z-NS 4472, 4474, 4476–4478 • same locality; 10.VI.2017; C.G. Meneses, W. Bulalacao leg.; 1 ♂, UPLB-MNH-Z-NS 4479 • same locality; 13.VI.2017; C.G. Meneses, W. Bulalacao leg.; 1 ♀, UPLB-MNH-Z-NS 4480 • same locality; 14.VI.2017; C.G. Meneses, W. Bulalacao leg.; 1 ♀, UPLB-MNH-Z-NS 4481.

**Identification.** *Platymantis (Lahatnanguri) pygmaeus* was recorded by Siler et al. (2012) from both Sibuyan and Tablas islands. This species is distinguished from other Philippine *Platymantis* by its small adult body size (SVL 11.7–15.8 mm) with coloration that varies extensively. Its terminal phalanges end in blunt or rounded finger disks that are narrower than those of the toes, and scarcely broader than the widths of digits proximal to disks, as described by Alcalá et al. (1998). It also has a few tubercles and some short, irregular folds on the anterior dorsum. This species can be recognized by its high-frequency, single note/pulse advertisement call “click-click-click ...” (Brown et al. 2012, 2013b; Diesmos et al. 2015).

**Remarks.** Advertisement calls were recorded along elevational gradients; specimens (UPLB-MNH-Z-NS 4262, 4416–4481) were heard calling from leaf litter and from within mossy rock crevices at high elevation. Like all members of the genus *Platymantis*, *P. (L.) pygmaeus* (subgenus *Lahatnanguri*; Brown et al. 2015a) is Philippine endemic species, found in the Sibuyan and montane

central and northern Cordilleras and Sierra Madre mountain ranges of Luzon Island (Brown et al. 2012, 2013b; Diesmos et al. 2015). On Luzon, *P. (L.) pygmaeus* ranges from 400–1000 m a.s.l. (Diesmos et al. 2015), but we recorded this species at a higher elevation (up to 1557 m a.s.l.) on Mount Guiting-Guiting, which appears to represent a new elevational record. Originally classified as Vulnerable (IUCN 2022), this threat category may no longer be tenable (IUCN 2022), and we agree that the species' conservation status should be downgraded to Near Threatened, given that the original justification, Blab(iii), relied on the assumption that *P. (L.) pygmaeus* was reliant on the forest, inhabited a restricted, fragmented forest range, and that this species may have been negatively impacted by habitat degradation (Brown et al. 2013b; Gonzalez et al. 2018)—all of which needs to be re-evaluated in conjunction with the more expansive extent of occurrence established here. The Romblon Province population of *P. (L.) pygmaeus* has not yet been taxonomically assessed.

**Philippine distribution.** Luzon, Isabela Province, Municipality of Palanan, Barangay Didian, Sitio Natapdukan, Northern Sierra Madre Natural Park (Brown et al. 2012; Diesmos et al. 2015). Notably, the occurrence of *Platymantis (Lahatnanguri) pygmaeus* on Mount Guiting-Guiting, on Sibuyan, and on Tablas Island (Siler et al. 2012), was not included in the IUCN (2022) estimate of the species' extent of occurrence.

***Platymantis (Lupacolus) paengi* Siler, Linkem, Diesmos & Alcalá, 2007**

Figure 4

**Material examined.** PHILIPPINES – Romblon • Tablas Island, Municipality of Odiongan, Barangay Anahaw; 12°23'23"N, 122°59'53"E; 0–150 m a.s.l.; 30.XII.2007; C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; 3 ♂, KU 315306–315308 • Tablas Island, Municipality of Calatrava, Barangay Balogo; 12°36'19"N, 122°02'44"E; 150–400 m a.s.l.; 06–13.I.2008; C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; 1 ♀, KU 315320; 18 ♂, KU 315309–315319, 315321–315324, 315326–315328 • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°28'53"N, 122°33'1"E; 50–148 m a.s.l.; 17–19.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 16 ♂, UPLB-MNH-Z-NS 4482–4497 • same locality; 21.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4323 • same locality; 10.VI.2016, C.G. Meneses, J. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4319.

**Identification.** *Platymantis (Lupacolus) paengi* is a moderate-sized frog (SVL 23.0–30.0 mm) (Alcalá 1986; Alcalá and Brown 1999; Siler et al. 2007) with digital discs of fingers and toes slightly expanded beyond the width of the penultimate phalanx. Its skin is rugose on dorsal



**Figure 4.** *Platymantis (Lupacolus) paengi* (UPLB-MNH-Z-NS 4497) on forest floor leaf litter. Specimen was collected at Location 1 (55 m a.s.l.). Photo by CGM.

and ventral surfaces, its supratympanic fold rugose and protuberant, and its tympanic annulus is large (9% SVL). Although its advertisement call consisted of frequency sweeps and amplitude modulated notes, similar to the *P. (L.) paengi* on Panay, full taxonomic verification of its identification has not yet been undertaken. Hence, our tentative assignment of the Sibuyan population to *P. (L.) paengi* requires further quantitative analysis of advertisement calls and comparison to calls of true *P. (L.) paengi* at its type locality (northwest Panay Island).

**Remarks.** *Platymantis (Lupacolus) paengi*, until now, has been considered a Panay Island endemic, known from Mount Lihidan, a limestone karst mountain of Pandan, Antique Province (Siler et al. 2007; Gaulke 2011). It was commonly observed and collected calling from leaf litter, herbaceous vegetation (<1 m), stumps, and fallen logs, and even in residential areas surrounding the park's borders. The conservation status of *P. (L.) paengi* has been classified as Endangered (IUCN 2022), but the Romblon Province population of *P. (L.) paengi* has not yet been assessed taxonomically, which prevents conclusive characterization of its conservation status.

**Philippine distribution.** Panay Island (Diesmos et al. 2015). Further assessment is deemed necessary.

***Platymantis (Tirahanulap) lawtoni* Brown & Alcalá, 1974**

Figure 5

**Material examined.** PHILIPPINES – Romblon • Tablas Island, Municipality of Calatrava, Barangay Balogo; 12°36'19"N, 122°02'44"E; 150–400 m a.s.l.; 12.I.2008; C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; 8 ♂, KU 315280–315286 • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°28'53"N, 122°33'01"E; 300–1200 m a.s.l.; 25–26.X.2016, C.G. Menses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 16 ♂, UPLB-MNH-Z-NS 3910, 3914, 3915, 3923–3928, 3930, 3931, 3936, 3943, 3945, 3946, 4415; 22



**Figure 5.** Four *Platymantis (Tirahanulap) lawtoni* specimens, demonstrating the species' highly polymorphic color pattern variation collected at Location 5. From upper left to right, UPLB-MNH-Z-NS 3927, 4089, 4053, and 3913. Photos by CGM.

♀, UPLB-MNH-Z-NS 391–622, 3907, 3908, 3911, 3929, 3932–3935, 3937, 3938, 3940–3942.

**Identification.** Specimens have moderately expanded terminal digital disks and wide lateral dermal flanges along all digits of the hands and feet. Subarticular tubercles have flat ventral surfaces and, like all species of *Tirahanulap*, *P. (T.) lawtoni* has greatly reduced first fingers. Its color patterns are highly polymorphic, SVL ranges from 26.0–39.0 mm, yet it can easily be recognized by its tonal (chiming, or ringing) advertisement call. The call is made up of two continuous notes, with the second note of higher frequency than the first, matching the description of Siler et al. (2012).

**Remarks.** This is a RIG endemic species that is an arboreal shrub frog, or cloud frog, of the *Platymantis hazelae* group (Brown et al. 2015a) and which has been documented on Tablas and Sibuyan islands but not yet on Romblon proper (Siler et al. 2012). Individuals were observed and heard calling on epiphytic *Pandanus* sp., from sapling leaves and branches (1–7 m above the ground in lowland forest, 70–1000 m a.s.l.) and 1–3 m above the ground in mossy forests (1100–1560 m a.s.l.); this species has not been observed calling from the ground; all observations were made by us far from the streams. We documented a clutch of six jelly-coated eggs attached to the upper surfaces of a leaf; paternal clutch attendance was observed (CMG pers. obs.). This species has previously been documented at elevation ranges from 300–1200 m a.s.l. (our specimens constitute the lowest and highest elevational records), and in this study, we recorded *P. (T.) lawtoni* from 70–1557 m a.s.l. (see also Brown and Alcala 1974; Diesmos et al. 2015); thus, our specimens constitute the lowest and highest elevational records ever reported. We noted extreme polymorphic color pattern variation (Fig. 5). This endemic species' conservation status is classified as Endangered (IUCN 2022) based solely on the size of its area of occurrence (most of which occurs within a protected area), so we anticipate necessary revision of this somewhat arbitrary classification.

**Philippine distribution.** Restricted to the RIG (Diesmos et al. 2015): Sibuyan and Tablas islands.

***Platymantis (Lahatnanguri) levigatus* Brown & Alcala, 1974**

Figure 6

**Material examined.** PHILIPPINES – Romblon • Tablas Island, Municipality of Calatrava, Barangay San Roque; 12°37'04"N, 122°03'42"E; 25.III.2005, C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; 11 ♂, KU 304507, 304508, 304511–304515, 304517, 304518, 315298; 5 ♀, KU 304506, 304509, 304516, 304519, 304520 • Sibuyan Island, Municipality of Magdiwang, Barangay Talaba, Mount Guiting-Guiting Natural Park; 12°27'40"N, 122°39'52"E; 150–400 m a.s.l.; 23–24.III.2005, C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; 20 ♂, KU 304522, 304525, 304529, 304541, 304542, 304545, 304548, 304946, 304949, 304950, 304953,



**Figure 6.** *Platymantis (Lahatnanguri) levigatus* (UPLB-MNH-Z-NS 4326), frequently found in rock crevices in a stream at Location 2 (213–405 m a.s.l.). Photo by CGM.

304955, 304957–304962, 304964, 304966, 304969; 25 ♀, KU 304523, 304526, 304527, 304528, 304530, 304533, 304534, 304539, 304540, 304544, 304546, 304547, 304943–304945, 304947, 304948, 304951, 304952, 304954, 304956, 304965, 304967, 304968, 304970 • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°28'53"N, 122°33'01"E; 112–405 m a.s.l.; 11.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 18 ♂, UPLB-MNH-Z-NS 4326–4332, 4337, 4338, 4341–4349; 14 ♀, UPLB-MNH-Z-NS 4333–4336, 4339, 4340, 4350–4357.

**Identification.** *Platymantis (Lahatnanguri) levigatus* is a moderate-size frog (males SVL 21.4–34.0 mm, female SVL 33.0–42.0 mm) with non-expanded digital discs, and slightly smaller finger discs than toe discs. Among all *Platymantis*, *P. (L.) levigatus* appears to have unusually smooth and delicate skin (prone to scratches and tears during routine handling by researchers; pers. obs.; Fig. 6). Most individuals were collected or heard calling from rock crevices mid-stream or along banks of fast flowing streams. Notable among all described species of the genus, when disturbed, *P. (L.) levigatus* jumps, directly into flowing water and often hides in rock crevices. It can be identified by its unique, tonal, peeping advertisement call.

**Remarks.** This species is a unique RIG endemic member of the subgenus *Lahatnanguri* (Brown et al. 2015a) and is unusual in that it has a strictly riparian microhabitat preference which, until recently (Brown et al. 2013b), had not been observed in other members of the genus *Platymantis*. It occurs in the forests of Romblon, Tablas, and Sibuyan islands. This RIG endemic species' conservation status was formulaically classified as Endangered (IUCN 2020) based solely on the size of its area of occurrence (which occurs on Sibuyan in the vicinity of water, along stream banks, within the protected area), so we anticipate necessary revision of this arbitrary classification.

**Philippine distribution.** Restricted to the RIG (Diesmos et al. 2015).

Family Dicroglossidae

***Fejervarya moodiei* (Taylor, 1920)**

**Material examined.** PHILIPPINES – **Romblon** • Romblon Island, Municipality of Romblon, Barangay Li-o; 12°34'27"N, 122°17'38"E; 150–400 m a.s.l.; 27.I.2001, C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; sex unknown, KU 301976, 301977 • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°28'53"N, 122°33'01"E; 20–37 m a.s.l.; 19–20.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 7 ♂, UPLB-MNH-Z-NS 4592, 4594–4596, 4598, 4600, 4602; 4 ♀, UPLB-MNH-Z-NS 4593, 4597, 4599, 4601 • same locality; 10.VI.2017, C.G. Meneses, W. Bulalacao leg.; 1 ♀, UPLB-MNH-Z-NS 4604 • same locality; 20.VI.2017, C.G. Meneses, S.A. Gonzales leg.; 1 ♀, gravid, UPLB-MNH-Z-NS 4605.

**Identification.** This species' body ranges from medium-sized to large, with SVL 35.5–59.0 mm in males and 50.0–69.0 mm in females. This species belongs to the *Fejervarya cancrivora* complex, as indicated by its possession of a free dermal flap along the outer edge of the fifth toe (Inger 1954). The head length is slightly greater than its width, the dorsum has irregular skin folds, not arranged in series, the skin on its dorsum and flanks has minute spinules and glandular warts, and the feet are moderately webbed—matching the descriptions by Yodthong et al. (2019) and Inger (1954).

**Remarks.** Individuals were collected along the road of Barangay Tampayan, in a muddy canal near coastal mangroves. This is a widespread non-endemic species that is commonly found near human habitation or disturbed habitats in coastal areas. It has been observed previously on Tablas, Sibuyan, and Romblon in the 2012 study (Siler et al. 2012), and its conservation status is classified as Data Deficient (IUCN 2022).

**Philippine distribution.** Apo, Bohol, Boracay, Busuanga, Cagragay, Calagna-an, Caluya, Camiguin Sur, Cebu, Clara, Cuyo, Dumarán, Dinagat, Gigantes Norte and Sur, Guimaras, Inampulugan, Jau, Lapinin Chico, Lapinig Grande, Leyte, Lubang, Luzon, Mactan, Marinduque, Masbate, Mindanao, Mindoro, Negros, Pacijan, Palawan, Pan de Azucar, Panay, Polillo, Ponson, Rapu-Rapu, Romblon Island Group, Sicogon, Sulu Archipelago, Ticao, Tintiman, Verde (Diesmos et al. 2015).

***Fejervarya vittigera* (Wiegmann, 1834)**

**Material examined.** PHILIPPINES – **Romblon** • Romblon Island, Municipality of Romblon, Barangay Li-o; 12°34'27"N, 122°17'38"E; 150–400 m a.s.l.; 27.I.2001, C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; 1 ♂, KU 302067 • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Lambingan

Falls; 12°28'53"N, 122°33'01"E; 20–37 m a.s.l.; 19–21.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4603.

**Identification.** Body ranges from medium-sized to large (female, SVL 29.9–84.0 mm). We only collected one specimen (male, SVL of 35.0 mm) of this widespread species, but its presence was frequently noted, on the basis of its unique call (below). It can be identified by its head length (slightly greater than width), its more pointed snout (relative to *F. moodiei*), dorsum with irregular skin folds not arranged in series, skin on dorsum smooth and glandular warts present on its flanks. This species has darkly pigmented bands dark bands, transversely arranged across the dorsal surfaces of the forelimbs and transverse bands on dorsal surfaces of the hindlimbs, and feet moderately webbed. Lastly, we confirmed this identification of the Sibuyan population of *F. vittigera*, by its loud “honking” advertisement call, frequently heard in other parts of the archipelago (Brown et al. 2012; Siler et al. 2012; Diesmos et al. 2015).

**Remarks.** This is a widespread Philippine endemic species that can be found in disturbed habitats. It is also common in land cleared for agriculture and flooded rice fields away from coastal areas. This species has been recorded on Tablas, Romblon, and Sibuyan islands (Siler et al. 2012), and its conservation status is classified as Least Concern (IUCN 2022).

**Philippine distribution.** Bohol, Cagraray, Caluya, Camiguin Sur, Cebu, Cocomo, Dinagat, Guimaras, Leyte, Lubang, Luzon, Marinduque, Masbate, Mindanao, Mindoro, Negros, Palawan, Pan de Azucar, Panay, Polillo, Romblon Island Group (Diesmos et al. 2015).

***Limnonectes leytensis* (Boettger, 1893)**

Figure 7

**Material examined.** PHILIPPINES – **Romblon** • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan; 12°28'53"N, 122°33'01"E; 20–55 m a.s.l.; 19–20.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 2 ♂, UPLB-MNH-Z-NS 4504, 4507; 5 ♀, UPLB-MNH-Z-NS 4499, 4503, 4505, 4506, 4508 • same locality; 19–20.XI.2016, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 5 ♂, UPLB-MNH-Z-NS 4510, 4515, 4516, 4518, 4519; 3 ♀, UPLB-MNH-Z-NS 4513, 4514, 4517.

**Identification.** *Limnonectes leytensis* is a small-bodied Philippine species of fanged frog (adult male SVL 33.0–41.0 mm, female 44.0–49.0 mm) distinguished by its rugose, irregular folded and ridged dorsum, the presence of an  $\Lambda$ -shaped mark in the scapular region, and a moderately pointed snout. This species lacks dermal asperities, and its feet have reduced interdigital webbing. These characters match the descriptions of Inger (1954) and Siler et al. (2009). Moreover, the species can be identified by their distinct and unique, loud “shot-gun and flatulence” advertisement call.



**Figure 7.** *Limnonectes leytensis* (UPLB-MNH-Z-NS 4504) at Location 1 (50–55 m a.s.l.). Photo by CGM.

**Remarks.** Individuals of *L. leytensis* were observed near water sources of various types, ranging from small temporary pools to stream banks, and swamps. In addition to these habitats, we collected individuals from riverbanks, and swamps in a mixed agricultural secondary-growth forest. And the species' conservation status is classified as Least Concern (IUCN 2022).

**Philippine distribution.** Basilan, Bohol, Camiguin Sur, Cebu, Dinagat, Leyte, Mindanao, Negros, Romblon Island Group, Samar, Sulu Archipelago (Diesmos et al. 2015).

#### *Occidozyga laevis* (Günther, 1858)

Figure 8

**Material examined.** PHILIPPINES – **Romblon** • Romblon Island, Municipality of Romblon, Barangay Lunas; 12°30'57"N, 122°16'58"E; 150 m a.s.l.; 20.III.2005, C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; sex unknown, KU 303519–303522 • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan; 12°28'53"N, 122°33'01"E; 20–55 m a.s.l.; 17–19.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 3 ♂, UPLB-MNH-Z-NS 4576, 4578, 4579; 11 ♀, UPLB-MNH-Z-NS 4575, 4577, 4580–4588 • Sibuyan Island, Municipality of Magdiwang, Barangay Jao-asan; 12°28'53"N, 122°33'01"E; 20–55 m a.s.l.; 20.VI.2016, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 2 ♀, UPLB-MNH-Z-NS 4590, 4591.

**Identification.** This species' adult SVL ranges from 29.0–53.0 mm in both sexes. It has a short snout, with a squat, stocky, and muscular body. It has a small head with orbits situated on the dorsal surface and the skin of its anterior dorsum is slightly corrugated or smooth. The legs are muscular and short with fully webbed feet. Color variation is apparent, with some individuals solid gray or brown and others possessing a light vertebral stripe. The species can be recognized by its uniquely variable advertisement call, which consists of alternating fast (19.0 ms inter-click call interval) and slow (38.0–40.0 ms inter-click interval) rates of note delivery; note (click) repetition rate progressively increases across the call.

**Remarks.** It is commonly found in disturbed habitats,



**Figure 8.** *Occidozyga laevis* (UPLB-MNH-Z-NS 4586) at Location 1 (50–55 m a.s.l.). Photo by CGM.

and we collected specimens from buffalo wallows and along a small stream, where they were observed in shallow side pools near residential and agricultural areas. We note that in October and November most females were gravid; large clutches of eggs were visible through the translucent abdominal skin. This non-endemic species of puddle frog commonly inhabits shallow muddy puddles, slow-moving streams, temporary and stagnant bodies of water (e.g., buffalo wallows), and side pools of forest streams. This species' conservation status is classified as Least Concern (IUCN 2022).

**Philippine distribution.** Alabat, Balabac, Bohol, Busuanga, Cagraray, Calagna-an, Calauit, Camiguin Sur, Catanduanes, Cebu, Coron, Dinagat, Guimaras, Inampulugan, Leyte, Lubang, Luzon, Marinduque, Masbate, Mindanao, Mindoro, Negros, Palawan, Panay, Polillo, Romblon Island Group, Samar, Sicogon, Sulu Archipelago (Diesmos et al. 2015).

Family Microhylidae

#### *Kaloula conjuncta negrosensis* (Peters, 1863)

Figure 9

**Material Examined.** PHILIPPINES – **Romblon** • Tablas Island, Municipality of Calatrava, Barangay Balogo; 12°36'19" N, 122°02'42"E; 150–400 m a.s.l.; 08.VI.2008; C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; sex unknown, KU 315233 • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan; 12°24'36"N, 122°32'59"E; 50 m a.s.l.; 31.XII.2000, C.G. Meneses leg.; 9 ♂, KU 328606–328614; 1 ♀ KU 328615 • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan; 12°27'17"N, 122°32'40"E; 213–405 m a.s.l.; 14.XI.2016, C.G. Meneses leg.; 1 ♂, UPLB-MNH-Z-NS 4520 • same locality; 12°28'53"N, 122°33'01"E; 50–55 m a.s.l.; 17–22.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 6 ♂, UPLB-MNH-Z-NS 4523–4527, 4529; 6 ♀, UPLB-MNH-Z-NS 4521, 4522, 4528, 4530–4532 • same locality; 12°26'01"N, 122°33'15"E; 1121 m a.s.l.; 23.V.2017. W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4533 • Sibuyan Island, Municipality of Magdiwang, Barangay Jao-asan; 12°28'53"N, 122°33'01"E; 50–55 m



**Figure 9.** *Kaloula conjuncta negrosensis* (UPLB-MNH-Z-NS 4533) found in the trail at Location 4 (1492 m a.s.l.). Photo by CGM.

a.s.l.; 20.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4538; 3 ♀, UPLB-MNH-Z-NS 4535–4537.

**Identification.** The specimens were identified by their size (SVL 30.0–50.0 mm) and stout body appearance, and all have a short snout and a rounded canthus rostralis. Both males and females of have predominantly smooth dorsal skin, with occasional scattered tubercles. Their terminal digital disks are widely expanded beyond the penultimate digital segment. The Sibuyan population is phenotypically similar to *Kaloula conjuncta negrosensis* collected on Negros, Panay, and Guimaras islands, and have a similar dorsal color pattern. But no modern taxonomic studies have been undertaken to verify possible taxonomic differences of among these populations (Ferner et al. 2000; Blackburn et al. 2013).

**Remarks.** *Kaloula conjuncta negrosensis* was collected at three different elevations between 50 and 1121 m a.s.l., usually from mixed secondary and primary forests. Most individuals were collected in water-filled tree holes near Mount Guiting-Guiting Natural Park's headquarters at Location 1. Individuals were also heard calling from stagnant pools and buffalo wallows in privately owned mango plantations and rice fields, near residential areas, and at shallow pools near the bank of the Jao-asan River. The *Kaloula conjuncta* group has a patchy and unpredictable distribution that each may warrant specific status (e.g., *K. conjuncta conjuncta* from Luzon and *K. conjuncta negrosensis* from western Visayan islands of Panay, and Negros). Recent phylogenetic analysis demonstrated the monophyletic and distinctiveness of each subspecies (Blackburn et al. 2013). Further taxonomic study is needed, given differences in advertisement calls from West Visayan (Negros and Panay) populations and levels of genetic variation distinguishing Romblon versus West Visayan populations (Blackburn et al. 2013). This endemic species' conservation status is classified as Least Concern (IUCN 2022).

**Philippine distribution.** Alabat, Boracay, Caluya, Catanduanes, Cebu, Guimaras, Leyte, Luzon, Mindanao, Mindoro, Negros, Pacijan, Panay, Polillo, Poro, Rom-



**Figure 10.** *Hylarana erythraea* (UPLB-MNH-Z-NS 4546) caught on stream bank at Jao-asan River at Location 1 (25–40 m a.s.l.). Photo by CGM.

blon Island Group, Semirara, Siquijor, Sulu Archipelago (Diesmos et al. 2015).

Family Ranidae

### *Hylarana erythraea* (Schlegel, 1837)

Figure 10

**Material examined.** PHILIPPINES – Romblon • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan; 12°28'53"N, 122°33'01"E; 50–55 m a.s.l.; 20.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4540; 6 ♀, UPLB-MNH-Z-NS 4539, 4541–4545 • Sibuyan Island, Municipality of Magdiwang, Barangay Jao-asan; 12°08'53"N, 122°33'01"E; 70 m a.s.l.; 20.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 2, ♀, UPLB-MNH-Z-NS 4539, 4541–4545.

**Identification.** The body is medium-sized to large (SVL 40.0–74.0 mm). The dorsum is light to dark green, and the ventral surfaces are white or cream. The species has smooth skin, with cream-colored dorsolateral folds that are bordered with black. It has long, slender, yellowish limbs with irregular spotting. The fingers are long, with narrow terminal disks possessing circumarginal grooves. *Hylarana erythraea* has a high frequency, squeaky, warbling advertisement call.

**Remarks.** Specimens were observed in extremely disturbed areas near human habitation. Voucher specimens were collected from the river banks of the Jao-asan River and a shallow stagnant temporary pool at Barangay Tampayan River near the dam. Individuals were also observed from the mango plantations near rice fields at Sitio Logdeck, Barangay Tampayan, Municipality of Magdiwang. This is a wide-ranging, non-native species (Diesmos et al. 2006) that has been previously recorded in the RIG (Pili et al. 2019; Siler et al. 2012). In the early 1900s, this introduced species was initially thought to be a native species on the islands of Negros, Panay, Sibuyan, and Tablas (Pili et al. 2019). However, due to its disjunct distribution within Borneo, it was suggested that it may have been introduced via the agricultural trade (Inger

1954). This introduced species' conservation status is classified as Least Concern (IUCN 2022).

**Philippine distribution.** Boracay, Calagna-an, Guimaras, Leyte, Luzon, Masbate, Mindoro, Negros, Panay, Romblon Island Group, Samar (Diesmos et al. 2015).

CLASS REPTILIA

Order Testudines (Turtles)

Family Bataguridae

***Cuora amboinensis amboinensis* (Daudin, 1802)**

Figure 11

**Material examined.** PHILIPPINES – Romblon • Tablas Island, Municipality of Odiongan, Barangay Hinagoman; 12°21'49"N, 122°01'22"E; 50 m a.s.l.; 12.XII.2001; C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; sex unknown, KU 300461 • Tablas Island, Municipality of Calatrava, Barangay Balogo; 12°36'19"N, 122°02'44"E; 50 m a.s.l.; 11.I.2008; C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; sex unknown, KU 315379–315381 • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan; 12°28'53"N, 122°33'01"E; 50 m a.s.l.; 20.VI.2017, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4941.

**Identification.** The specimens were identified on the basis of their dark olive cephalic coloration, with three yellow stripes running along each side of the head. The carapace is uniformly dark, elongate, and shallowly domed. Specimens have short stubby tails, a concave plastron, and shorter claws. These are combination of characters that distinguishes males from females of the same species (Barbour and Ernst 1992; Hall 1995).

**Remarks.** This Asian box turtle was seen crossing from a water irrigation system to rice paddies on the opposite side of the road leading to the Department of Environment and Natural Resources (DENR) office at Sitio Logdeck, Barangay Tampayan. This species is commonly found in small river systems, streams, ponds, and temporary pools of water. The population of *C. amboinensis amboinensis* on Sibuyan island continuously faces serious threats from over-harvesting, which account for population declines. Historically, according to locals, Mount



**Figure 11.** *Cuora amboinensis amboinensis* (UPLB-MNH-Z-NS 4941) collected at Location 1 (50 m a.s.l.). Photo by CGM.

Guiting-Guiting Natural Park staff, and local government unit employees, this species experienced extreme hunting and illegal poaching on Sibuyan (see also Diesmos et al. 2008) for the exotic food market, which reportedly reduced their local abundance. This species' conservation status is classified as Vulnerable (IUCN 2022; Uetz et al. 2022).

**Philippine distribution.** Unknown.

ORDER SQUAMATA (Lizards)

Family Agamidae

***Bronchocela marmorata* Gray, 1845**

Figure 12

**Material examined.** PHILIPPINES – Romblon • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan; 12°24'36"N, 122°32'59"E; 50 m a.s.l.; 17.XII.2000. R.M. Brown leg.; sex unknown, KU 326252 • Tablas Island, Municipality of Odiongan, Barangay Hinagoman; 12°21'49"N, 122°01'22"E; 50 m a.s.l.; 01.I.2008; C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; unknown, KU 315337 • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan; 12°28'53"N, 122°33'01"E; 50 m a.s.l.; 19–20. XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 4 ♂, UPLB-MNH-Z-NS 4856, 4857, 4859, 48561; 1 ♀, UPLB-MNH-Z-NS 4858 • same locality; 12°27'17"N, 122°32'40"E; 405 m a.s.l.; 08.XI.2016, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4855 • same locality; 12°27'17"N, 122°32'40"E; 405 m a.s.l.; 04.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀ gravid, UPLB-MNH-Z-NS 4860 • same locality; 12°27'17"N, 122°32'40"E; 405 m a.s.l.; 17.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂ UPLB-MNH-Z-NS 4862 • Sibuyan Island, Municipality of Magdiwang, Barangay Jao-asan; 12°28'53"N, 122°33'01"E; 20–70 m a.s.l.; 20.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 3 ♂, UPLB-MNH-Z-NS 4863–4865.

**Identification.** *Bronchocela marmorata* is readily identified by its particularly elongate body, with long, slender limbs, and tail. This species is characterized by having a tail more than three times the length of its body (SVL 90.0–98.0 mm vs. tail length (TL) 310.0–342.0 mm). Its body scales are keeled, and its nuchal crest scales are erect, laterally compressed, directed upwards, and somewhat higher (more elongate) than its vertebral crest, which is lower, continuous, with the nuchal crest, with its height decreasing caudally. Dorsal surfaces of the body and limbs are green with black streaks in some individuals collected at Location 1. This is the only species of *Bronchocela* known from Romblon Province (Siler et al. 2012).

**Remarks.** Individuals of these species were found asleep at night on branches of trees 3–5 m above the ground.



**Figure 12.** *Bronchocelea marmorata* (UPLB-MNH-Z-NS 4855) collected at Location 2 (405 m a.s.l.). Photo by CGM.

In Barangay Jao-asan, the species was very active during the day and was observed in shrubs surrounding agricultural areas and coconut plantations. This endemic species is widely distributed in the central and northern Philippines. It has been recorded on Sibuyan and Tablas islands in a previous study (Siler et al. 2012). The species' conservation status is classified as Data Deficient (IUCN 2022; Uetz et al. 2022).

**Philippine distribution.** Catanduanes, Luzon, Mindoro, Panay, and Polillo (exact distribution updates are needed) (Uetz et al. 2022), Romblon Island Group (Sibuyan, Carabao, Tablas) (Siler et al. 2012).

### *Draco quadrasi* Boettger, 1893

Figure 13

**Material examined.** PHILIPPINES – **Romblon** • Sibuyan Island, Municipality of Magdiwang, Barangay Talaba; 12°27'40"N, 122°39'52"E; 0–150 m a.s.l.; 21–23.III.2005, C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; 11 ♂ KU 305071–305075, 305077, 305078, 305081, 305082, 305084, 305085, 305085, 305089; 12 ♀,

KU 305070, 305079, 305080, 305083, 305086–305088, 305090, 305093, 305098, 305102, 305103 • Romblon Island, Municipality of Romblon, Barangay Cajimos; 12°35'41"N, 122°16'31"E; 150–400 m a.s.l.; 21.III.2005, C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; 5 ♂ 305096, 305097, 305100, 305101, 305104 • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan; 12°27'17"N, 122°32'40"E; 405 m a.s.l.; 12.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀ gravid, UPLB-MNH-Z-NS 4734 • same locality; 16.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀ gravid, UPLB-MNH-Z-NS 4735 • same locality; 12°28'53"N, 122°33'1"E; 50 m a.s.l.; 20.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀ gravid, UPLB-MNH-Z-NS 4736 • same locality; 12°27'17"N, 122°32'40"E; 405 m a.s.l.; 10–20.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 2 ♂, UPLB-MNH-Z-NS 4737, 4740; 6 ♀, UPLB-MNH-Z-NS 4738, 4739, 4741–4743.

**Identification.** Our specimens were identified by a number of distinguishing characters described by McGuire and Alcalá (2000). *Draco quadrasi* is easily distinguished from all other species by its generally uniform (without spots) yellow, or orange-yellow dorsal patagial coloration in males (McGuire and Alcalá 2000; Siler et al. 2012). Enlarged gray blotches are present along the outer margin of the patagia of males (Fig. 13B), whereas in females the patagia have an extensive dark pigmentation (Fig. 13A). The nostrils are laterally oriented and enlarged, thorn-like supraciliary scales are absent, and dorsal scales are variably keeled. Transverse dorsal body scales range 21–33 in males and 15–24 in females. Males can be identified by their lemon-yellow triangular dewlap, absent in females.



**Figure 13.** *Draco quadrasi* showing distinct morphology of a (A) a female (UPLB-MNH-Z-NS 4738) and (B) a male (UPLB-MNH-Z-NS 4737) collected from Location 2 (326–405 m a.s.l.). Photos by CGM.

**Remarks.** Individuals were found sleeping on saplings leaves 2–3 m above the ground at night, and others were observed on trunks of trees during the day. A gravid female was found in one of our pitfall traps at Location 2 (326 m a.s.l.), possibly moving on the ground if she was about to lay eggs, which has been observed within the park’s borders (RMB pers. obs., 2000). This species has been recorded on Romblon and Sibuyan islands, but not Tablas, where it is replaced by the Luzon/West Visayan PAICs species, *D. spilopterus* (Siler et al. 2012). The occurrence of *D. quadrasi* has been recorded from the islands of Mindoro, Romblon, Semirara, and Sibuyan (McGuire and Alcalá 2000). This species’ conservation status is classified as Least Concern (IUCN 2022; Uetz et al. 2022).

**Philippine distribution.** Agusan del Sur, Mindoro, Romblon, Semirara, and Sibuyan (Uetz et al. 2022).

### *Gonocephalus sophiae* (Gray, 1845)

Figure 14

**Material examined.** PHILIPPINES – **Romblon** • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan; 12°27'17"N, 122°32'40"E; 213–405 m a.s.l.; 11–15.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 4 ♂, UPLB-MNH-Z-NS 4867, 4873–4875; 6 ♀, UPLB-MNH-Z-NS 4868–4872, 4876 • same locality; 12°26'51"N, 122°32'58"E; 576–939 m a.s.l.; 19.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4866 • same locality; 12°28'53"N, 122°33'01"E; 10–148 m a.s.l.; 10.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4877; 4 ♀, UPLB-MNH-Z-NS 4878–4881 • same locality; 12°27'17"N, 122°32'40"E; 213–405 m a.s.l.; 14–18.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 2 ♂, UPLB-MNH-Z-NS 4884, 4886; 4 ♀, UPLB-MNH-Z-NS 4882, 4883, 4885, 4887.

**Identification.** This agamid lizard is distinguished by its robust body, large head, and well-developed nuchal and vertebral crests. Its tail length is nearly twice the length of the head and body combined (TL >200.0 mm vs. SVL >70.0 mm). It can be distinguished by having a strongly laterally compressed tail, with a slightly serrated upper edge, and with regular darkly pigmented bands transversely encircling the tail throughout its length. It possesses a small gular sac, without a serrated anterior edge, and covered by small, strongly keeled gular scales, intermixed with a few more enlarged scales. Dorsal body scales are feebly keeled and intermixed with irregularly scattered, larger tuberculate scales. The ventral scales are moderate in size and strongly keeled. These characters match Boulenger’s description (1885). However, the nuchal crest, reported as continuous with the vertebral crest series, is distinctly noncontinuous, that is, interrupted, with an unmistakable diastema between the nuchal and vertebral crests, in the Sibuyan population (Fig. 14). A further taxonomic study should consider the



**Figure 14.** *Gonocephalus sophiae* (UPLB-MNH-Z-NS 4868) observed sleeping on saplings at Location 2 (326–405 m a.s.l.). Photo by CGM.

status of the phylogenetically distinct Romblon population (Welton et al. 2017).

**Remarks.** Individuals of this Philippine endemic were captured at night, after first being observed sleeping on trunks of small trees and saplings, in an upright position, 1–3 m above the ground at Locations 1–3. The extent of this species’ distribution in the RIG is unknown, and the conservation status of this species is classified as Data Deficient (IUCN 2022; Uetz et al. 2022).

**Philippine distribution.** Cebu, Luzon, Masbate Mindanao, Negros, Panay (Uetz et al. 2022), Sibuyan (Siler et al. 2012).

### *Hydrosaurus pustulatus* (Eschscholtz, 1829)

Figure 15

**Material examined.** PHILIPPINES – **Romblon** • Tablas Island, Municipality of Calatrava, Barangay Balogo; 12°36'19"N, 122°02'44"E; 0–150 m a.s.l.; 28.I.2001; C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; sex unknown, KU 302537, 302538 • Romblon Island, Municipality of Romblon, Barangay Lunas; 12°30'57"N, 122°16'58"E; 150–400 m a.s.l.; 19.I.2001; C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; sex unknown, KU 302543, 302544 • same locality: 20.III.2005, C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; sex unknown, KU 303824, 305150 • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan; 12°28'53"N, 122°33'01"E; 71 m a.s.l.; 19.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 4 juveniles, UPLB-MNH-Z-NS 4929, 4930, 4932, 4933; 1 ♀, UPLB-MNH-Z-NS 4934 • same locality; 20.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4931.

**Identification.** This species is easily identified by the combination of its large body (SVL 195.0–330.0 mm; TL 405.0–500.0 mm), short snout, robust limbs, long compressed tail, and transversely expanded subdigital lamellae under the toes. Males have larger vertebral sailfins or crests and longer tails than females. Males are dark green, with prominent bright yellow patches on their flanks.



**Figure 15.** An adult female *Hydrosaurus pustulatus* (UPLB-MNH-Z-NS 4932) caught at the Gaong River (Location 1: 72 m a.s.l.). Photo by CGM.



**Figure 16.** An adult male *Cyrtodactylus philippinicus* (UPLB-MNH-Z-NS 4635) caught at Location 3 (576–939 m a.s.l.). Photo by CGM.

**Remarks.** Specimens were collected at night on branches of trees suspended over the surface of stream pools and on the upper surfaces of large boulders along the banks of the Gaong River. This species of large, semi-aquatic, endemic agamid lizard is often associated with riparian and mangrove habitats. Adults are powerful swimmers and juveniles can locomote across the surface of the water. This species occurs throughout the archipelago, excluding the island of Palawan (Siler et al. 2011c, 2012). This endemic species' conservation status is classified as Vulnerable (IUCN 2022; Uetz et al. 2022).

**Philippine distribution.** Catanduanes, Cebu, Dinagat, Guimaras, Luzon (with recent records from Bicol), Masbate, Mindoro, Negros, Panay, Tablas, Romblon, Sibuyan (IUCN 2022; Siler et al. 2012; Uetz et al. 2022).

Family Gekkonidae

### *Cyrtodactylus philippinicus* (Steindachner, 1867)

Figure 16

**Material examined.** PHILIPPINES – **Romblon** • Romblon Island, Municipality of Romblon, Barangay Lunas; 12°30'57"N, 122°16'58"E; 150–400 m a.s.l.; 20.III.2008; C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; sex unknown, KU 303852 • **Sibuyan** Island, Municipality of Magdiwang, Barangay Tampayan; 12°26'51"N, 122°32'58"E; 576–800 m a.s.l.; 7–8.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 8 ♂, UPLB-MNH-Z-NS 4632, 4634–4636, 4641, 4645–4647; 5 ♀, UPLB-MNH-Z-NS 4633, 4637, 4640, 4642, 4643; 3 juveniles, UPLB-MNH-Z-NS 4638, 4639, 4644 • same locality; 12°27'17"N, 122°32'40"E; 213–405 m a.s.l.; 10–11.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 9 ♂, UPLB-MNH-Z-NS 4648, 4649, 4652, 4654–4656, 4658, 4660, 4661; 6 ♀, UPLB-MNH-Z-NS 4650, 4651, 4653, 4657, 4659, 4662 • same locality; 12°28'53"N, 122°33'01"E; 50–148 m a.s.l.; 17–19.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 2 ♂, UPLB-MNH-Z-NS 4663,

4665; 2 ♀, UPLB-MNH-Z-NS 4664, 4666 • same locality; 12°26'51"N, 122°32'58"E; 576–800 m a.s.l.; 3–5.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 4 ♂, UPLB-MNH-Z-NS 4669, 4670, 4682, 4674; 4 ♀, UPLB-MNH-Z-NS 4667, 4668, 4672, 4673 • same locality; 12°27'17"N, 122°32'40"E; 213–405 m a.s.l.; 13–14.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 3 ♂, UPLB-MNH-Z-NS 4676, 4680, 4681; 3 ♀, UPLB-MNH-Z-NS 4677, 4678, 4679.

**Identification.** Members of the genus *Cyrtodactylus* can be identified by the absence of transversely expanded scapulars (compared to other geckos), hence their common name, bent-toed geckos. *Cyrtodactylus philippinicus* is identified by the absence of femoral pore-bearing scales (Brown and Alcalá 1978). It can be distinguished from other species in the genus by the combination of the absence of canthal stripes, 8–12 caudal annuli with dorsal tubercles, 17–25 Finger III lamellae, 19–26 toe IV lamellae, small to moderate cephalic tubercles, 7–10 cloacal scales, and the presence of dark, transverse, dorsal body bands enclosing light bands (Welton et al. 2009, 2010).

**Remarks.** This species is a Philippine endemic species that was noted to occur in Tablas, Romblon, and Sibuyan islands by Siler et al. (2012). *Cyrtodactylus philippinicus* is common in low to mid-elevation forests of Mount Guiting-Guiting, and specimens were collected on the bases and trunks (2–5 m above the ground) of trees, usually in close association with riparian habitats, under the bark of dead tree trunks, or underneath rotten logs. This endemic species' conservation status is classified as Least Concern (IUCN 2022; Uetz et al. 2022; Fig. 18).

**Philippine distribution.** Bohol, Cebu, Dinagat, Luzon, Masbate, Mindoro, Negros, Panay, Polillo, Samar, Sibuyan, Tablas, and Romblon (Uetz et al. 2022).

### *Gekko gecko* (Linnaeus, 1758)

Figure 17

**Material examined.** PHILIPPINES – **Romblon** • Sibuyan Island, Municipality of Magdiwang, Barangay Talaba; 12°27'40"N, 122°39'51"E; 0–150 m a.s.l.; 20.III.2001,



**Figure 17.** *Gekko gecko* (UPLB-MNH-Z-NS 4729) captured inside the research station at Location 1 (10–60 m a.s.l.). Photo by CGM.

C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; sex unknown. KU 302700–302703 • same locality. 22.III.2005, C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; sex unknown. KU 304163 • Tablas Island, Municipality of San Agustin, Barangay Dubduban; 12°34'30"N, 122°06'48"E; 0–150 m a.s.l.; 17.III.2005, C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; sex unknown, KU 303973–303976 • Tablas Island, Municipality of Odiongan, Barangay Hinagoman; 12°21'49"N, 122°01'22"E; 0–150 m a.s.l.; 31.XII.2007, C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; sex unknown, KU 315349 • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan; 12°28'53"N, 122°33'1"E; 20–60 m a.s.l.; 18.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 4 ♀, UPLB-MNH-Z-NS 4727–4730 • Sibuyan Island, Municipality of Magdiwang, Barangay Jao-asan; 12°28'53"N, 122°33'01"E; 20–70 m a.s.l.; 20.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 2 ♂, UPLB-MNH-Z-NS 4732, 4733; 1 ♀, UPLB-MNH-Z-NS 4731.

**Identification.** *Gekko gecko* is a large gecko (SVL 87.0–160.0 mm), with bluish-gray body coloration with scattered orange or red spots. It is characterized by the presence of more than 18 subdigital toe IV scensors, presence of tubercles on ventro-lateral folds, absence of femoral pores, and presence of precloacal pores. It can be recognized by the male's loud vocalization, frequently heard at night or early in the morning, which sounds like "tokay!" (Bauer et al. 2008; Wood et al. 2019).

**Remarks.** It is a widespread species, known to occur throughout the Philippines. Individual specimens are common in agricultural and residential areas. They are actively observed on ceilings, mango, and coconut tree trunks at night. It can be heard calling in and around residential areas. The conservation status of this common human commensal species is classified as Least Concern (IUCN 2022; Fig. 19).

**Philippine distribution.** Bohol, Calamian Islands, Camiguin Sur, Cebu, Luzon, Masbate, Maestre de Campo



**Figure 18.** *Gekko coi* (UPLB-MNH-Z-NS 4683) recorded at Location 3 (672 m a.s.l.). Photo by CGM.

Mindoro, Misamis Oriental, Palawan, Panay, Romblon Island Group (Carabao, Sibuyan, and Tablas) (Siler et al. 2012; Uetz et al. 2022).

### *Gekko coi* Brown, Siler, Oliveros, Diesmos & Alcalá, 2011

Figure 18

**Material examined.** PHILIPPINES – Romblon • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan; 12°27'17"N, 122°32'40"E; 150–400 m a.s.l.; 02.I.2001, C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; 9 ♂, KU 326208 (holotype) • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan; 12°27'17"N, 122°32'40"E; 213–405 m a.s.l.; 11–18.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 9 ♂, UPLB-MNH-Z-NS 44684, 4689, 4693, 4696, 4698–4700, 4704–4707, 4709; 12 ♀, UPLB-MNH-Z-NS 4683, 4687, 4688, 4690, 4692, 4694, 4695, 4697, 4701–4703, 4708 • same locality; 12°28'53"N, 122°33'01"E; 50–148 m a.s.l.; 19–21.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 5 ♂, UPLB-MNH-Z-NS 4685, 4686, 4710, 4713, 4715; 3 ♀, UPLB-MNH-Z-NS 4711, 4712, 4714 • same locality; 12°26'51"N, 122°32'58"E; 576–800 m a.s.l.; 03-06.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 3 ♂, UPLB-MNH-Z-NS 4717–4719; 3 ♀, UPLB-MNH-Z-NS 4716, 4720, 4721 • same locality; 12°27'17"N, 122°32'40"E; 213–405 m a.s.l.; 10–14.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 2 ♂, UPLB-MNH-Z-NS 4722, 4724; 3 ♀, UPLB-MNH-Z-NS 4723, 4725, 4726.

**Identification.** This gecko has a moderately large body size (SVL 64.0–93.0 mm), and its dorsum is medium brown to gray, with a single row of alternating light (cream) and dark (dark brown) vertebral blotches. It can be differentiated from other congeners by the high number of midbody scales (107–132), a relatively slender body, and the presence of a continuous series of precloacofemoral scales (Brown et al. 2011a).

**Remarks.** This Sibuyan island endemic species (Brown et al. 2011a) was found on large stream-side boulders and

tree trunks 2–6 m above the ground, in mixed second and primary growth forests near sea level. Its conservation status was discussed by Brown et al. (2011a) who noted its apparent rarity compared to its sister species, *G. romblon*, from Tablas and Romblon islands, despite the protection afforded to *G. coi* by Mount Guiting-Guiting National Park. Brown et al. (2011a) recommended Data Deficient until the species could be studied in depth on Sibuyan.

**Philippine distribution.** Sibuyan Island (Brown et al. 2011a; Siler et al. 2012).

***Hemidactylus frenatus* Duméril & Bibron, 1836**

**Material examined.** PHILIPPINES – Romblon • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan; 12°28'53"N, 122°33'01"E; 50–71 m a.s.l.; 20.XI.2016, C.G. Meneses, S.A. Gonzales, leg.; 1 ♂, UPLB-MNH-Z-NS 4624; 2 ♀, UPLB-MNH-Z-NS 4625, 4626 • same locality; 18–22.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 3 ♂, UPLB-MNH-Z-NS 4627, 4629, 4631; 2 ♀, UPLB-MNH-Z-NS 4628, 4630.

**Identification.** This small-bodied (SVL 38.0–53.0 mm) house gecko is characterized by its well-developed limbs, moderately dilated and unwebbed digits, a sessile claw on digit I, and a tail generally round in cross section. Its body color varies from gray or light brown to beige, but some individuals have a dark dorsal vertebral line. The forehead is concave, with smaller subcircular auricular opening, 4 or 5 scansors under inner digits, and 9 or 10 subdigital toe IV scansors. The mental is large and triangular, and its rounded tail is covered above with small smooth scales, and transverse rows of 4–6 longitudinally-keeled tubercles per annulus (Boulenger 1885; Brown and Alcalá 1978; Vasquez-Restrepo and Lapwong 2018).

**Remarks.** Specimens were collected at night on the ground in the forest, on rocks near Gaong River, and from mangroves. Others were found on walls of houses near outdoor lights, on lamp posts where they were frequently observed preying on insects, in agricultural areas, and on mango tree trunks around the vicinity of the Park headquarters. This house gecko species is often found in or near human habitation and are common on walls of buildings and other structures in residential and agricultural areas inside the park at 50–71 m a.s.l. The conservation status of this common human commensal species is classified as Least Concern (IUCN 2022; Uetz et al. 2022).

**Philippine distribution.** Widespread throughout the Philippines.

***Lepidodactylus christiani* Taylor, 1917**

Figure 19

**Material examined.** PHILIPPINES – Romblon • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan; 12°26'51"N, 122°32'58"E; 742 m a.s.l.; 07.XI.2016. J.D.V. Alvarez, C.G. Meneses, E. Cosico leg.; 1 ♂, UPLB-MNH-Z-NS 4623.



**Figure 19.** *Lepidodactylus christiani* (UPLB-MNH-Z-NS 4623) with its chevron body pattern collected at Location 3 (672 m a.s.l.). Photo by CGM.

**Identification.** Our specimens possess 23 or 24 precloacofemoral pores in a continuous series, which is within the range reported for true *L. christiani* from Negros Island (its type locality; Taylor 1917) and Panay Island (Gaulke 2011). Additionally, body coloration and the repeated dorsal chevron pattern appear to match reports for the species (Brown and Alcalá 1978). Siler et al.'s (2012) report of “*L. planicaudus*” from three islands (Carabao, Tablas, and Sibuyan) could be misidentifications of *L. christiani* from one or more of these three islands. Although *L. planicaudus* possesses 28–44 precloacofemoral pores (Eliades et al. 2021), the identification of these populations (only currently represented by old specimens at CAS, for which genetic data are unavailable) will require genetic comparisons to our specimen from Sibuyan, once tissues become available (Eliades et al. 2021).

**Remarks.** One male specimen was accidentally caught in a mist net used for capturing bats; no microhabitat preference was noted. However, *Lepidodactylus lugubris*, *L. balioburius*, and *L. planicaudus* are commonly collected under the dead external layer of the husks around the trunks of banana plants, on leaves of coastal shrubs, or understory trees along forested streams, and also from dead trees in lower- to mid-montane forests (Brown and Alcalá 1978; Eliades et al. 2021). This gecko exhibits variable morphology, which requires further study, including genetic confirmation of its affinities, to ascertain possible taxonomic assignment (Brown et al. 2013a; Eliades et al. 2021). Only *L. lugubris* was previously recorded and reported from Tablas and Carabao islands (Siler et al. 2012). This study appears to be the first to document the occurrence of *L. christiani* on Sibuyan Island, which is also the first record from Romblon Province. Its conservation status is Least Concern (IUCN 2022; Uetz et al. 2022).

**Philippine distribution.** Originally described from Mount Canlaon on Negros Island and has since been reported only from Panay (Gaulke 2011).



**Figure 20.** A specimen of *Pseudogekko isapa* (UPLB-MNH-Z-NS 4608), with tail autotomized, from Location 3 (672 m a.s.l.). Photo by CGM.

***Pseudogekko isapa* Siler, Davis, Diesmos, Guinto, Whitsett & Brown, 2016**

Figure 20

**Material examined.** PHILIPPINES – Romblon • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan; 12°26'51"N, 122°32'58"E; 576–800 m a.s.l.; 06–18.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 4 ♂, UPLB-MNH-Z-NS 4606, 4609, 4610, 4612; 2 ♀, UPLB-MNH-Z-NS 4608, 4611; 1 juvenile, UPLB-MNH-Z-NS 4607 • same locality; 12°28'53"N, 122°33'01"E; 50–148 m a.s.l.; 22.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4614 • same locality; 12°26'51"N, 122°32'58"E; 576–800 m a.s.l.; 18–19.VI.2017, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4615; 5 ♀, UPLB-MNH-Z-NS 4616–4620.

**Identification.** This genus can be distinguished by its small, but distinctively elongate, slender body proportions (female SVL 52.0–65.8 mm, male SVL 54.7–66.0 mm). The species can be distinguished from congeners by having a relatively long head, 12–15 finger III scansors, 13–18 toe IV scansors, 221–244 paravertebrals, 123–132 ventral scales, 17–20 supralabials, 15–20 infralabials, and 40–50 circumorbitals. The dorsal ground color of the head, trunk, and tail is light brownish tan to gray, with greenish lateral flank streaks or series of blotches (Meneses et al. 2020; Siler et al. 2016).

**Remarks.** Specimens were collected when perched on vines, ferns, and narrow branches of trees 2–7 m above the ground. Most specimens, collected over two field sampling seasons, share the conspicuous physical evidence of caudal autotomy (tail breakage, with or without subsequent regeneration; Fig. 20). The unusually high frequency of specimens with autotomized tails may be indicative of high intraspecific antagonism (injuries from conspecifics) or unusually high predation pressures (e.g., birds, snakes, other predatory geckos). A RIG endemic species that was only recently described (Siler et al. 2016), this slender forest gecko historically was seldom

encountered. In 1972, L.C. Alcala and his team collected an adult female perched on a small vine in a secondary growth forest on Tablas Island. It was not recorded again until 2014 when A.C. Diesmos and his team collected an adult male on Sibuyan Island which led to the description of this taxon as a new species. Treated as Data Deficient by Siler et al. (2016), based on additional observations of the species in the wild, we consider its conservation status as Vulnerable.

**Philippine distribution.** Restricted to RIG.

***Luperosaurus corfieldi* Gaulke, Rosler & Brown, 2007**

**Material examined.** PHILIPPINES – Romblon • Sibuyan Island, Municipality of Magdiwang, Barangay, Mount Guiting-Guiting Natural Park; 12°28'53"N, 122°33'01"E; 71 m a.s.l.; 18.VI.2016, C.G. Meneses, S.A. Gonzales leg.; 1 ♂, UPLB-MNH-Z-NS 4621; 2 ♀, UPLB-MNH-Z-NS 4622.

**Identification.** This rare forest gecko species is identified by its moderate to large body size (male SVL 67.0 mm, female SVL 80.0 mm) and its unique combination of characters, including well-developed interdigital webbing, no ventrolateral tail tubercles, and small, granular dorsal body scales interspaced with a few, slightly enlarged dorsolateral tubercles (Gaulke et al. 2007). It has enlarged and imbricate ventral scales and undifferentiated subcaudals; small scales entirely encircle the tail.

**Remarks.** Adult male and female specimens were collected along a stretch of the Gaong River (71 m a.s.l.). The female was caught 1–3 m above the ground at around 23:00 hr on branches and leaves of a bushy tree extending over the river. The adult male was found perched on a vine, also suspended 3–5 m above the river, and only 30–40 m from the female specimen. Forest geckos of the genus *Luperosaurus* are rarely encountered although they have been recorded from all of the archipelago's large PAIC faunal regions; however, *Luperosaurus* has never been recorded on Mindoro Island or small landmasses of the RIG (Gaulke et al. 2007; Brown et al. 2011b). This record constitutes the first report of the genus from Sibuyan Island and Romblon Province. Like most of the poorly known species of the genus, *L. corfieldi*'s conservation status is not evaluated (Gaulke 2011).

**Philippine distribution.** Presently unknown, but possibly restricted to the Romblon Island Group and Panay Island to the south (Fig. 1).

Family Scincidae

***Brachymeles dalawangdaliri* Davis, Geheber, Watters, Penrod, Feller, Ashford, Kouri, Nguyen, Shauberger, Sheatsley, Winfrey, Wong, Sanguila, Brown & Siler, 2016**

Figure 21

**Material examined.** PHILIPPINES – Romblon • Sibuyan Island, Municipality of Magdiwang, Barangay,



**Figure 21.** *Brachymeles dalawangdaliri* (UPLB-MNH-Z-NS 4848) in leaf litter at Location 3 (576–939 m a.s.l.). Photo by CGM.



**Figure 22.** *Brachymeles talinis* (UPLB-MNH-Z-NS 4823) caught under loosed soil of a large rotten log at Location 1 (50 m a.s.l.). Photo by CGM.

Mount Guiting-Guiting Natural Park; 12°27'17"N, 122°32'40"E; 213–405 m a.s.l.; 13–18.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4850; 3 ♀, UPLB-MNH-Z-NS 4848, 4849, 4851 • same locality; 12°28'53"N, 122°33'01"E; 50–55 m a.s.l.; 21.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4852 • same locality; 12°27'17"N, 122°32'40"E; 213–405 m a.s.l.; 17–18.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 2 ♂, UPLB-MNH-Z-NS 4853, 4854.

**Identification.** Species in the genus *Brachymeles* generally share elongate, slender bodies with the head weakly differentiated from the neck, poorly developed limbs and limb reduction and loss of digits varying among species. This species can be recognized by its small body size (SVL: males 54.7–74.9 mm, females 52.0–80.9 mm), its elongate, particularly slender shape, head nearly undifferentiated from body, and bidactyl forelimbs and hindlimbs. Additionally, coloration is uniform throughout the body: dorsal, lateral, and ventral surfaces are all medium brown, both in life and in preservative (Davis et al. 2016; Meneses et al. 2020).

**Remarks.** In Mount Guiting-Guiting Natural Park, individuals were captured in pitfall traps deployed in combination with drift fencing at elevation ranges of 50–800 m a.s.l. They were also encountered during purposive searches in loose soil under large rocks and rotting logs. The microhabitat of older specimens was unrecorded. This slender skink is a RIG endemic and a member of the *Brachymeles bonitae* complex (Brown and Alcalá 1980; Davis et al. 2016). *Brachymeles dalawangdaliri* appears to be a forest obligate species. It has been collected from both Tablas and Sibuyan islands. Davis et al. (2016) found that *B. dalawangdaliri* qualified for Vulnerable status, because it was known from a single small island (B2ab(iii, iv); D2; IUCN 2015). At that time, the species was known only from Tablas, but now that it is also known from Sibuyan, and that a large portion of its range occurs within a protected area, its status should be

re-evaluated. We expect it will no longer have a threatened status and that it will eventually be recognized as Least Concern.

**Philippine distribution.** Sibuyan and Tablas islands (Davis et al. 2016; Siler et al. 2012).

#### *Brachymeles talinis* Brown, 1956

Figure 22

**Material examined.** PHILIPPINES – Romblon • Sibuyan Island, Municipality of Magdiwang, Barangay Talaba; 12°27'40"N, 122°39'52"E; 50–55 m a.s.l.; 24.III.2005, C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; sex unknown, KU 303990 • Sibuyan Island, Municipality of Magdiwang, Barangay, Mount Guiting-Guiting Natural Park; 12°27'17"N, 122°32'40"E; 213–405 m a.s.l.; 16.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4813 • same locality; 12°28'53"N, 122°33'01"E; 50–55 m a.s.l.; 19–20.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 7 ♂, UPLB-MNH-Z-NS 4814, 4815, 4819, 4825, 4827–4829; 12 ♀, UPLB-MNH-Z-NS 4816–4818, 4820–4824, 4826, 4830–4832 • same locality; 10.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4835 • same locality; 12°26'51"N, 122°32'58"E; 14–18.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 2 ♂, UPLB-MNH-Z-NS 4839, 4842; 6 ♀, UPLB-MNH-Z-NS 4833, 4834, 4836–4838, 4840, 4841 • same locality; 12°28'53"N, 122°33'01"E; 50–55 m a.s.l.; 20–21.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 2 ♂, UPLB-MNH-Z-NS 4846, 4847; 2 ♀, UPLB-MNH-Z-NS 4844, 4845.

**Identification.** This species is a pentadactyl slender skink restricted to the West Visayan PAIC and the RIG (Siler et al. 2011a, 2011b). Specimens were identified from its congeners by having pentadactyl digits, 26–30 midbody scale row, 43–48 axilla-groin scale row, and absence of dark ventral pigmentation. The body coloration is not uniform, with the presence of dark lateral stripes. This species can be distinguished by the presence of

pineal eyespot, supranasals that are in medial contact, and the presence of two enlarged pairs of chin shields (Siler and Brown 2010).

**Remarks.** This endemic semifossorial slender skink is typically found in dry, decaying forest floor detritus, either inside rotting logs or underneath logs in loose soil. Individuals were captured in pitfall traps set under large rotten logs. The species was recently redescribed in conjunction with a phylogenetic analysis using molecular genetic data to infer its evolutionary relationships with other *Brachymeles* (Siler et al. 2011a, 2011b; Siler and Brown 2011). The conservation status is Least Concern (IUCN 2022).

**Philippine distribution.** Probably Guimaras, Inampulagan Island, Negros, Panay, Romblon, Sibuyan, and Tablas islands (Uetz et al. 2022).

### *Eutropis borealis* (Brown & Alcalá, 1980)

Figure 23

**Material examined.** PHILIPPINES – **Romblon** • Sibuyan Island, Municipality of Magdiwang, Barangay, Mount Guiting-Guiting Natural Park; 12°27'17"N, 122°32'40"E; 213–405 m a.s.l.; 15.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4745 • same locality; 12°26'51"N, 122°32'58"; 576–939 m a.s.l.; 13.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 2 ♂, UPLB-MNH-Z-NS 4746, 4747 • same locality; 12°27'17"N, 122°32'40"E; 213–405 m a.s.l.; 17.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4748.

**Identification.** *Eutropis borealis* has a small to medium-sized (SVL 51.0–69.0 mm), robust body, with 66–89 total subdigital toe lamellae, numerous (6–9) pronounced keels in each of its dorsal trunk scales, 35–42 vertebral scale rows, and lateral surfaces with a thick, dark brown band, bordered above and below by light lines, that extends from the eye, to a point beyond insertion of the hindlimbs, at which point the band become thinner and less distinct. This species possesses a creamy-white chin with streaks or dark markings, and its ventrum is grayish tan, with a lighter precloacal region. These traits agree with Barley et al.'s (2020) recent redescription of the species.

**Remarks.** Individuals of this species were trapped in pitfalls set at 213–405 and 576–939 m a.s.l. and others were captured by hand from under leaf litter. *Eutropis borealis* (Brown and Alcalá 1980) was formerly considered a widespread endemic subspecies of *E. multicaerinata*. Our records are the first from Sibuyan island and the RIG and confirm the prediction of Barley et al. (2020) that this species would eventually be found on Sibuyan. Further inspection and genetic confirmation of species identity should be made confirm the identification of the Sibuyan population. The conservation status of this widespread habitat generalist is Least Concern (Uetz et al. 2022).

**Philippine distribution.** Province of Zambales, Cama-



**Figure 23.** *Eutropis borealis* (UPLB-MNH-Z-NS 4745) collected at Location 2 (326 m a.s.l.). Photo by CGM.

rines del Sur, Camarines del Norte, Nueva Vizcaya, Kalinga, Aurora, Cagayan, Quezon, Cantanduanes, Polillo Island (Barley et al. 2020).

### *Lamprolepis smaragdina philippinica* (Mertens, 1928)

**Material examined.** PHILIPPINES – **Romblon** • Maestre de Campo Island, Municipality of Concepcion, Barangay San Vicente; 12°54'56"N, 122°43'30"E; 0–150 m a.s.l.; 28.III.2001, C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; sex unknown, KU 302840–302849 Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park • Sibuyan Island, Municipality of Magdiwang, Barangay Poblacion: 12°28'58"N, 122°30'58"E; 0–100 m a.s.l.; 26.I.2001, C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; sex unknown, KU 302853–302856 • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°28'53"N, 122°33'01"E; 20–40 m a.s.l.; 20.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4798 • same locality; 20.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4799.

**Identification.** This conspicuous arboreal lizard species can be readily identified by its distinctive, glossy, emerald-green overall body color; some specimens additionally possess dark spots on dorsal surfaces of the head and neck. It has a robust body, with a long and pointed snout, unkeeled body scales, and two enlarged, nuchal scales posterior to parietals. Philippine populations are presently still considered to be an endemic subspecies of the more widespread Pacific *Lamprolepis smaragdina* (Linkem et al. 2013).

**Remarks.** This arboreal subspecies is a widespread human commensal with a distinct color pattern (Brown and Alcalá 1970, 1980). It is commonly encountered in disturbed areas and agro-ecosystems with open canopies (e.g., coconut palm plantations and mango orchards). Specimens were found sleeping on a branch of a tree 3–4 m above the ground along the road near a residential area in Barangay Tampayan and were also observed active on

the trunk of a coconut tree in Barangay Jao-asan. The conservation status of this species is classified as Least Concern (Uetz et al. 2022).

**Philippine distribution.** Agusan del Norte, Agusan del Sur, Camiguin Sur, Cebu, Dinagat Island, Luzon, Palawan, Panay, Surigao del Norte, and the Romblon Island Group.

### *Otosaurus cumingi* Gray, 1845

Figure 24

**Material examined.** PHILIPPINES – Romblon • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°28'53"N, 122°33'01"E; ; 166–320 m a.s.l.; 06.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4800 • same locality; 14.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4801.

**Identification.** *Otosaurus cumingi* is a large scincid lizard (SVL 56.0–135.0 mm; total length, (TotL) 254.0 mm), with a cylindrical and robust body, covered with keeled scales. *Otosaurus cumingi* has a very large auricular opening that is vertically ovoid, and shallow, with the tympanum visible (Fig. 24). This species has separate prefrontals and a single frontoparietal, and dorsal body and limb surfaces are vibrant orange to red with black spots; a bright gold series of dorsolateral markings are also present. The ventrum is uniformly cream.

**Remarks.** Voucher specimens were caught at night in a pitfall trap installed under a large rotten log with thick leaf litter at Location 2 (260 m a.s.l.). This endemic, large-bodied, ground-dwelling skink of the *Sphenomorphus* group is widely distributed throughout the Philippines. *Otosaurus* was resurrected from the genus *Sphenomorphus* for the single Philippine endemic species (Linkem et al. 2011). This species is notable as the largest in the archipelago. This species' conservation status is classified as Least Concern (IUCN 2020; Uetz et al. 2022).

**Philippine distribution.** Bohol, Kalotkot, Dinagat Island, Leyte, Lubang, Luzon, Mindanao, Mindoro, Samar, Sibuyan, and Sicoon islands.



**Figure 24.** An adult female *Otosaurus cumingi* (UPLB-MNH-Z-NS 4800) caught by a pitfall trap at Location 1 (260 m a.s.l.). Photo by CGM.

### *Pinoyscincus coxi divergens* (Taylor, 1915)

**Material examined.** PHILIPPINES – Romblon • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°26'51"N, 122°32'58"E; 576–939 m a.s.l.; 06–11.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 4 ♂, UPLB-MNH-Z-NS 4793, 4794, 4796, 4797; 1 ♀, UPLB-MNH-Z-NS 4924 • same locality; 12°26'01"N, 122°33'15"E; 1121–1492 m a.s.l.; 31.X.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4767 • same locality; 12°25'45"N, 122°33'26"E; 1500–1557 m a.s.l.; 26–28.V.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 4 ♀, UPLB-MNH-Z-NS 4772, 4774, 4775 • same locality; 12°26'01"N, 122°33'15"E; 1121–1492 m a.s.l.; 29–31.V.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 5 ♀, UPLB-MNH-Z-NS 4780, 4782, 4783, 4786, 4789 • same locality; 12°26'51"N, 122°32'58"E; 576–939 m a.s.l.; 04–05.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 5 ♀, UPLB-MNH-Z-NS 4925–4927.

**Identification.** The common species of terrestrial skink can be identified by its moderate body size (33.0–57.0 mm), somewhat more elongate tail (66–96 mm), weakly keeled body scales, and anterior dorsum dark brown and black, intermixed with scattered, irregular, small light spots. It can be distinguished from congeners by possession of 32–44 midbody scales, unpaired, fused frontoparietal (a single shield), 21–26 subdigital lamellae under the 4<sup>th</sup> toe, four supraoculars (Linkem et al. 2011), and variable intensity of dark labial region bars on lateral surfaces of the head (Brown and Alcala 1980; Linkem et al. 2011). Our specimens key out to the subspecies *P. coxi divergens*, which reportedly possesses bold black bars beneath the eye (vertically crossing supralabial and infralabial surfaces), and irregular black markings on the chin (Brown and Alcala 1980). *Pinoyscincus coxi divergens* has been genetically confirmed (Linkem et al. 2010b) as a resident on nearby Mindoro Island to the west and Panay Island to the south (Fig. 1).

**Remarks.** Specimens were collected under rocks, from rock crevices, and while basking on rotten logs. *Pinoyscincus coxi divergens* belongs to the *P. coxi jagori abdictus* complex, presently understood as an 11-clade group (Linkem et al. 2010b; fig. 3), and additional study of phenotypic characters and genetic variation is needed for definitive identification by comparison to data presented by Linkem et al. (2010b). Genetic confirmation of the Sibuyan population is needed; see Linkem et al. (2010b) for a preliminary discussion of taxonomic challenges in this group of widespread Philippine endemic forest lizards. Our records are the first from Sibuyan. This species' conservation status is Least Concern (IUCN 2022; Uetz et al. 2022).

**Philippine distribution.** Luzon PAIC and Mindoro Island (Linkem et al. 2010b)

***Pinoyscincus jagori grandis* (Peters, 1864)**

**Material examined.** PHILIPPINES – **Romblon** • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°26'51"N, 122°32'58"E; 576–939 m a.s.l.; 07.XI.2016, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4803; 1 ♀, UPLB-MNH-Z-NS 4802 • same locality; 12°27'17"N, 122°32'40"E; 213–405 m a.s.l.; 13–17.XI.2016, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 2 ♂, UPLB-MNH-Z-NS 4806, 4808; 3 ♀, UPLB-MNH-Z-NS 4804, 4805, 4807 • same locality; 12°26'51"N, 122°32'58"E; 576–939 m a.s.l.; 05.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀ gravid, UPLB-MNH-Z-NS 4809 • same locality; 12°27'17"N, 122°32'40"E; 213–405 m a.s.l.; 15–16.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 2 ♂, UPLB-MNH-Z-NS 4810, 4811; 1 ♀ gravid, UPLB-MNH-Z-NS 4812.

**Identification.** This common, generalist, terrestrial skink is identifiable by its medium-sized to large body (SVL 50.0–92.0 mm) and its overall dorsal body coloration of homogeneous dark gray to brown, with light, transverse markings crossing the trunk (Linkem et al. 2010b); it has prominent black bars on lateral surfaces of the head, from the ventral edge of the orbit, bisecting supralabial and infralabial surfaces, and extending ventrally to the chin (Brown and Alcalá 1980; Linkem et al. 2010b: fig. 3).

**Remarks.** *Pinoyscincus jagori grandis* was commonly found under leaf litter. It was trapped in pitfall traps set under large rotten logs or rocks, and it was also captured opportunistically by hand. *Pinoyscincus jagori* is classified as Least Concern. Genetic data are required to ascertain the true affinities of the Sibuyan population (Linkem et al. 2010b).

**Philippine distribution.** Caluya, Cebu, Masbate, Negros, Panay, Sicogon, Gigante (Uetz et al. 2022).

***Parvosincincus decipiens* (Boulenger, 1895)**

**Material examined.** PHILIPPINES – **Romblon** • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°25'45"N, 122°33'26"E; 1500–1557 m a.s.l.; 26.X.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4765 • same locality; 12°26'51"N, 122°32'58"E; 576–939 m a.s.l.; 06–07.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 2 ♀, UPLB-MNH-Z-NS 4792, 4795 • same locality; 12°25'45"N, 122°33'26"E; 1500–1557 m a.s.l.; 26–27.V.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4769; 1 ♀, UPLB-MNH-Z-NS 4773 • same locality; 12°26'01"N, 122°33'15"E; 1121–1492 m a.s.l.; 26–31.V.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 4 ♂, UPLB-MNH-Z-NS 4777, 4784, 4787, 4790; 7 ♀, UPLB-MNH-Z-NS

4776, 4778, 4779, 4781, 4785, 4788, 4791.

**Identification.** This skink possesses a diminutive body size (male SVL 51.0–55.0 mm, female SVL 43.0–59.0 mm) and has 36–54 midbody scales, 20–28 toe IV lamellae, four enlarged supraoculars, and a single anterior loreal. It lacks apical pores on dorsal body scales (present on scales of lateral surfaces). The dorsum is brown without dark brown lateral spots. Lastly, both males and females have white throats (Linkem and Brown 2013).

**Remarks.** This species is similar in color pattern several new species belonging to the *P. decipiens* complex, which are widely distributed throughout the Sierra Madre Mountain Range (Cagayan and Isabela provinces; Linkem and Brown 2013). Several specimens were collected from the mid-elevation forest where this species was found in leaf litter, around fallen logs and rocks, or while basking above rocks and rotten logs. This species' conservation status is Least Concern (IUCN 2022; Uetz et al. 2022).

**Philippine distribution.** Luzon (Isabela and Cagayan).

***Parvosincincus steerei* (Stejneger, 1908)**

**Material examined.** PHILIPPINES – **Romblon** • Tablas Island, Municipality of Calatrava, Barangay Balogo; 12°36'19"N, 122°02'44"E; 0–150 m a.s.l.; 05–08.XI.2007; C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; sex unknown, KU 315365–315371 • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°26'51"N, 122°32'58"E; 576–939 m a.s.l.; 06–08.XI.2016, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 3 ♀, UPLB-MNH-Z-NS 4749–4751 • same locality; 12°27'17"N, 122°32'40"E; 213–405 m a.s.l.; 11–14.XI.2016, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4754, 2 ♀, UPLB-MNH-Z-NS 4752, 4753 • same locality; 12°28'53"N, 122°33'01"E; 50–55 m a.s.l.; 4 ♀, UPLB-MNH-Z-NS 4755–4758 • same locality; 12°26'01"N, 122°33'15"E; 1121–1492 m a.s.l.; 30.V.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4759 • same locality; 12°26'51"N, 122°32'58"E; 576–939 m a.s.l.; 05–06.VI.2017; 3 ♂, UPLB-MNH-Z-NS 4762, 4763, 4928; 3 ♀, UPLB-MNH-Z-NS 4760, 4761, 4764.

**Identification.** Our specimens were identified by their small body size (SVL 25.0–31.0 mm), with tail length longer than SVL (TL 30.0–41.0 mm). The species overall body coloration is reddish to brown, sometimes with light spots extending the throughout length of its body and tail. This skink is identifiable by the presence of dorsal, lateral, and hindlimb apical pores, and the absence of forelimb apical pores (Linkem and Brown 2013). This common, widespread endemic species is one of the smallest species in the Philippines and has been documented throughout the archipelago (Brown and Alcalá 1980). On Sibuyan, it is commonly found on the forest floor under leaf litter.

**Remarks.** Although *P. steerei* can be encountered in a

variety of habitat types and throughout the archipelago, its presence is generally associated with some form of vegetation cover, so a conservation status of Near Threatened has been proposed (Brown et al. 2012).

**Philippine distribution.** Bohol, Calagna-an, Camiguin, Cebu, Danjudoro, Gigante South, Guimaras, Leyte, Luzon, Mindanao, Mindoro, Negros, Pacijan, Panay, Ponso, Poro, Sibuyan, Sicogon, Siquijor, and Tablas islands (Uetz et al. 2022).

Family Varanidae

***Varanus nuchalis* (Günther, 1872)**

Figure 25

**Material examined.** PHILIPPINES – **Romblon** • Sibuyan Island, Municipality of Magdiwang, Barangay Talaba; 12°27'40"N, 122°39'51"E; 50–55 m a.s.l.; 21.III.2005, C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; 1 ♂. KU 305134; 1 ♀ KU 305148 • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°27'17"N, 122°32'40"E; 306 m a.s.l.; 15.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4939 • same locality; 12°28'53"N, 122°33'01"E; 55 m a.s.l.; 19.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4940.

**Identification.** This species of relatively small terrestrial monitor lizard is distinguishable from congeners by dark gray to black overall dorsal body color (Masbate and Sibuyan islands are melanistic; Gaulke 2001; Koch et al. 2010; Welton et al. 2020), with head predominantly black, overlain by occasional small white markings. The trunk has variable numbers of transverse bands of white ocelli, and its limbs are gray to black, with occasional yellow-white spots. It possesses a white or cream venter, with dark transverse bands on the snout. *Varanus nuchalis* has strongly enlarged, domed nuchal scales, 54 supralabials, and a single enlarged rostral scale.

**Remarks.** *Varanus marmoratus* is a common West Visayan water monitor that is a genetically distinct endemic species limited to the central Philippines (Welton et al. 2013a, 2013b). Masbate and Sibuyan islands are populated by *V. nuchalis* with a conspicuously melanistic color pattern (Welton et al. 2020: fig.1). It has previously been documented in mixed-agricultural habitat in Mount Guiting-Guiting Natural Park (Siler et al. 2012) and in our study, specimens were caught using snare traps baited with rotten fish. Two individuals were observed in the forest near a rapidly cascading river with steep topography at 306 m a.s.l. One individual was repeatedly observed emerging from a large tree hole, 4–5 m above the ground, and another was observed perched on a branch of a tree, 7–10 m from the ground at 50 m a.s.l. Populations are susceptible to poaching, smuggling, and illegal pet trade (Welton et al. 2020), and this species was treated as Near Threatened (IUCN 2022; Uetz



**Figure 25.** *Varanus nuchalis* (UPLB-MNH-Z-NS 4940) caught by a snare trap at Location 2 (306 m a.s.l.). Photo by CGM.

et al. 2022).

**Philippine distribution.** Cebu, Masbate, Negros, Panay, Ticao (Uetz et al. 2022), and Sibuyan islands (Siler et al. 2012).

Family Homalopsidae

***Cerberus schneiderii* (Schegel, 1837)**

Figure 26

**Material examined.** PHILIPPINES – **Romblon** • Tablas Island, Municipality of Odiongan, Barangay Liwanag; 12°24'12"N, 122°59'55"E; 0–150 m a.s.l.; 31.I.2001; C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; sex unknown, KU 302984–302987 • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°28'53"N, 122°33'01"E; 55 m a.s.l.; 19.XI.2016, C.G. Meneses, J. Bulalacao leg.; 1 ♀, UPLB-MNH-Z-NS 4911 • same locality; 22.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; sex unknown, UPLB-MNH-Z-NS 4912.

**Identification.** This moderate-sized (SVL 402.0 mm and 435.0 mm, TL 88.0 mm and 193.0 mm) aquatic snake has a head recognizably distinct by its body, small anterodorsally positioned eyes, supralabials scales that do not border the eye, and a frontal scale irregularly fragmented



**Figure 26.** *Cerberus schneiderii* (UPLB-MNH-Z-NS 4911) found at the mangrove forest at Location 1 (10–20 m a.s.l.). Photo by CGM.

into multiple smaller scales. Additionally, it is identifiable by the presence of paired internasals, positioned somewhat posterior to the nasals, which are in medial contact. Its dorsal body coloration is near-uniform gray to greenish-brown, or with faint, darker, irregular transverse markings. The species can be differentiated from congeners by the combination of <28 dorsal scale rows at midbody, imbricate and plate-like parietal scales, and the presence of smooth, horizontally divided upper labials (Weinell et al. 2019).

**Remarks.** These fully aquatic, non-endemic homatropine snake, are commonly found in brackish water and estuarine substrates throughout the Philippines (Bernstein et al. 2021). The collected specimen is in Sibuyan's mangrove forests in a coastal area. They were found beneath the surface of shallow, muddy water while actively hunting for prey. *Cerberus schneiderii* in the Philippines was formerly referred to as the widespread species *C. rhynchops* until a recent taxonomic revision (Murphy et al. 2012) restricted that name to the Indian lineage. The species' conservation status is Least Concern (IUCN 2022; Uetz et al. 2022).

**Philippine distribution.** Bantayan, Bohol, Catanduanes, Cebu, Cuyo, Dinagat, Luzon (Cavite, Laguna, Manila, Rizal, and Zambales provinces), Masbate, Negros (Negros Oriental Province), Palawan, Panay (Aklan, Antique, Capiz, and Iloilo provinces), Polillo, Romblon, Sibuyan, Siquijor, Sulu Archipelago (Jolo Province), and Tablas (Leviton et al. 2018; Siler et al. 2012).

Family Colubridae

*Ahaetulla prasina preocularis* (Taylor, 1922)

Figure 27

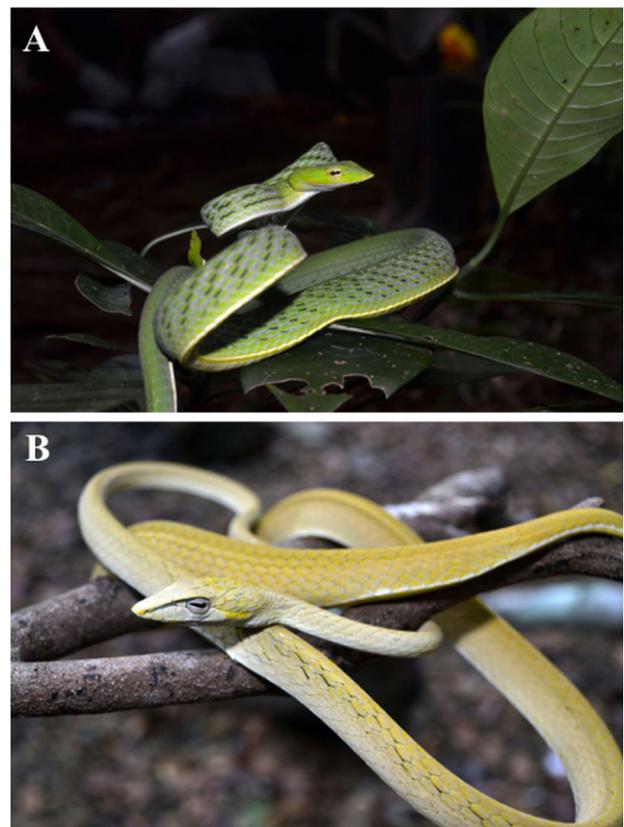
**Material examined.** PHILIPPINES – **Romblon** • Tablas Island, Municipality of Calatrava, Barangay Balogo; 12°36'19"N, 122°02'44"E; 0–150 m a.s.l.; 09.I.2008; C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; sex unknown, KU 315372 • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°27'17"N, 122°32'40"E; 213–405 m a.s.l.; 11–13.XI.2016, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4897; 3 ♀, UPLB-MNH-Z-NS 4896, 4898, 4899 • same locality; 12°26'51"N, 122°32'58"; 576–939 m a.s.l.; 17–19.VI.2016, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 2 ♀, UPLB-MNH-Z-NS 4894, 4895 • same locality; 07.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 3 ♀, UPLB-MNH-Z-NS 4900, 4901, 4902 • same locality; 12°27'17"N, 122°32'40"E; 213–405 m a.s.l.; 13.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4903 • same locality; 12°28'53"N, 122°33'01"E; 50–55 m a.s.l.; 1 ♂, UPLB-MNH-Z-NS 4904.

**Identification.** This arboreal snake has a slender body form, with a long, pointed, projecting snout and

horizontally oriented pupils. The body coloration varies from gray, dull yellow-green to fluorescent green, with lateral body scale in oblique rows. This species can be identified by the presence of a single, undivided preocular scale, two or more preoculars, 1–4 small loreals, a single preocular that is in contact with the frontal scale, and its 3rd supralabial scale which does not border the orbit (Weinell et al. 2019).

**Remarks.** *Ahaetulla prasina* is widely distributed in the Philippines and this subspecies is endemic to the archipelago (Leviton 1967). Even though its presence on Sibuyan is not surprising, our collections appear to be the first specimen-associated records from the island. The IUCN (2022) database cites a personal communication from Maren Gaulke (2008) of an observation on Sibuyan, and it is also known from nearby Tablas Island (Siler et al. 2012). The conservation status of this widespread habitat generalist is Least Concern (IUCN 2022).

**Philippine distribution.** Basilan, Batanes Islands (Batan, Sabang), Bohol, Camiguin Sur, Camiguin Norte, Cebu, Dinagat, Jolo, Leyte, Luzon (Aurora, Bulacan, Cagayan, Camarines Sur, Ifugao, Ilocos Norte, Isabela, Laguna, Kalinga, Rizal, Sorsogon, and Zambales provinces), Marinduque, Masbate, Mindanao (Agusan del Norte, Agusan del Sur, Bukidnon, Cagayan, Davao del Sur, South Cotabato, Lanao del Norte, Maguindanao, Misamis Oriental, Surigao del Sur, Zamboanga del Norte, and Zamboanga



**Figure 27.** *Ahaetulla prasina preocularis* showing two color variants. **A.** Green variant (Location 3: UPLB-MNH-Z-NS 4894). **B.** Yellow variant (Location 1: UPLB-MNH-Z-NS 4904). Photos by CGM.



**Figure 28.** *Boiga cynodon* (UPLB-MNH-Z-NS 4938), caught at Location 2 (213 m a.s.l.). Photo by CGM.

del Sur provinces), Mindoro, Negros (Negros Occidental and Negros Oriental provinces), Panay (Aklan, Antique, Capiz, and Iloilo provinces), Polillo, Samar, Sibutu, and Tablas islands (Leviton et al. 2018).

***Boiga cynodon* (Boie, 1827)**

Figure 28

**Material examined.** PHILIPPINES – **Romblon** • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°27'17"N, 122°32'40"E; 213 m a.s.l.; 15.VI.2017. W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4938.

**Identification.** Members of the genus *Boiga* are large, slender, arboreal snakes, with laterally compressed bodies, distinctly enlarged heads with a rounded snout, with large eyes and pupils oriented vertically. Our *B. cynodon* specimen was identified by its overall dorsal body color pattern, which consists of tan ground coloration, accented by irregular bands of yellow, brown, and black; like most examples of this species in the Philippines, our specimen has a conspicuous, thick, dark stripe behind the eye. The species has 23 dorsal scale rows at midbody, three anterior temporal scales, and eight infralabial scales situated anterior to the center of the eye (Leviton et al. 2018; Weinell et al. 2019).

**Remarks.** This species previously has been reported from the islands of Basilan, Culion, Dinagat, Leyte, Luzon, Mindanao, Palawan, Polillo, Panay, Tablas, and Sibutu (Sulu Archipelago) (Leviton 1963, 1970; Alcalá 1986; Ferner et al. 2000; Gaulke 2001; Siler et al. 2012). We caught our specimen downstream from Location 3 (213 m a.s.l.). It was first observed actively hunting at night, 5–7 m above the ground on a tree branch overhanging a steep rocky stream. Our record is the first from Sibuyan Island. The conservation status of this species is Least Concern (IUCN 2022; Fig. 28).

**Philippine distribution.** Babuyan Islands (Calayan, Camiguin Norte), Basilan, Bohol, Carabao, Culion, Dinagat, Inampulugan, Lubang, Leyte, Luzon (Aurora, Cagayan, Ilocos Norte, Isabela, Laguna, Nueva Ecija,



**Figure 29.** *Calamaria gervaisii* (UPLB-MNH-Z-NS 4919) caught by a pitfall trap at Location 2 (213–405 m a.s.l.). Photo by CGM.

Quezon, and Sorsogon provinces), Mindanao (Agusan del Sur, Cotabato, Davao Oriental, NE Mindanao provinces, and Zamboanga City), Negros (Negros Occidental Province), Paan de Azucar, Palawan, Panay (Aklan and Antique provinces), Polillo, Romblon, Siquijor, Sulu Archipelago (Sibutu and Tawi-Tawi provinces), and Tablas (Leviton et al. 2018).

***Calamaria gervaisii* Duméril, Bibron & Duméril, 1854**

Figure 29

**Material examined.** PHILIPPINES – **Romblon** • Tablas Island, Municipality of Calatrava, Barangay Balogo; 12°36'19"N, 122°02'44"E; 0–150 m a.s.l.; 09.I.2008; C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; sex unknown, KU 315384 • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°27'17"N, 122°32'40"E; 213 m a.s.l.; 03.XI.2016, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4919 • same locality; 12°26'51"N, 122°32'58"E; 576–939 m a.s.l.; 04.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4920 • same locality; 06–07.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4923; 2 ♀, UPLB-MNH-Z-NS 4921, 4922.

**Identification.** This small (SVL 121.0–215.0 mm, TL 10.0–15.0 mm) burrowing species has a slender body, nearly indistinguishable head, a short tail, small eyes, and a blunt snout—typical of most semifossorial snakes. The species has parietal scales in contact with supralabial scales, lacks internasal scales and differentiated temporal scales, and prefrontals are fused into a single shield. It can be distinguished from congeners by 13 dorsal scale rows at midbody and by the presence of a light stripe on the first row of dorsal body scales (Weinell et al. 2019).

**Remarks.** Generally, this species has been documented frequently in disturbed areas, secondary-growth forests, forest edges, and primary forests (Brown et al. 2012, 2013b; Leviton et al. 2018). Our specimens were collected

at three elevation increments where pitfall traps were deployed: 10–148, 213–405, and 576–405 m a.s.l. Others specimens were found coiled in cavities in a rotten log or beneath leaf litter. This is a Philippine endemic species of small, semifossorial snake that is common throughout the Philippines (Inger and Marx 1965). It was first recorded in Tablas and Carabao islands (Siler et al. 2012). Our specimens from Sibuyan represent the first records from this island. This species is classified as Least Concern (IUCN 2022).

**Philippine distribution.** Babuyan Islands (Camiguin Norte), Catanduanes, Luzon (Albay, Aurora, Bataan, Benguet, Bulacan, Cagayan, Camarines Norte, Camarines Sur, Carabao, Ilocos Norte, Isabela, Kalinga, Laguna, Manila, Nueva Vizcaya, Rizal, and Pampanga province), Mindoro (Occidental Mindoro Province), Romblon Island Group (Carabao and Tablas islands) (Leviton et al. 2018).

### *Chrysopelea paradisi* Boie, 1827

**Material examined.** PHILIPPINES – **Romblon** • Tablas Island, Municipality of Calatrava, Barangay Balogo; 12°36'19"N, 122°02'44"E; 0–150 m a.s.l.; 09.I.2008; C.D. Siler, J.C. Swab, C.H. Oliveros, A.C. Diesmos, R.M. Brown leg.; sex unknown, KU 315377 • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°26'51"N, 122°32'58"E; 939 m a.s.l.; 15.XI.2016, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4891.

**Identification.** Members of this genus are moderate-sized, active, arboreal “flying snakes”, possessing a capacity for directed aerial descent, which is unique among snakes. This species can be distinguished from congeners by having 17 dorsal scales rows at midbody, the presence of a divided last ventral body scale, and in the Philippines by its unique overall body color pattern, with light gray or tan dorsal and lateral body surfaces, and variably dark transverse bands (Weinell et al. 2019).

**Remarks.** This non-endemic species is classified as Least Concern (IUCN 2022).

**Philippine distribution:** Babuyan Islands (Calayan, Dalupiri provinces), Balabac, Bantayan, Banton, Basilan, Camiguin, Cebu, Dinagat, Kalotkot, Leyte, Luzon (Bataan, Batangas, Bulacan, Cavite, Laguna, Quezon, Rizal, Sorsogon, and Zambales provinces), Marongas, Masbate, Medis, Mindanao (Agusan del Norte, Zamboanga del Sur provinces, and Zamboanga City), Mindoro, Negros (Negros Oriental Province), Palawan, Panay (Aklan, Antique, Iloilo provinces), Polillo, Romblon, Samar, Siargao, Sibuyan, Siquijor, Sulu Archipelago (Bongao, Bubuan, Jolo, Sanga-Sanga, Tawi-Tawi islands), and Tablas Island (Leviton et al. 2018).

### *Dendrelaphis luzonensis* Leviton, 1961

Figure 30

**Material examined.** PHILIPPINES – **Romblon** • Si-



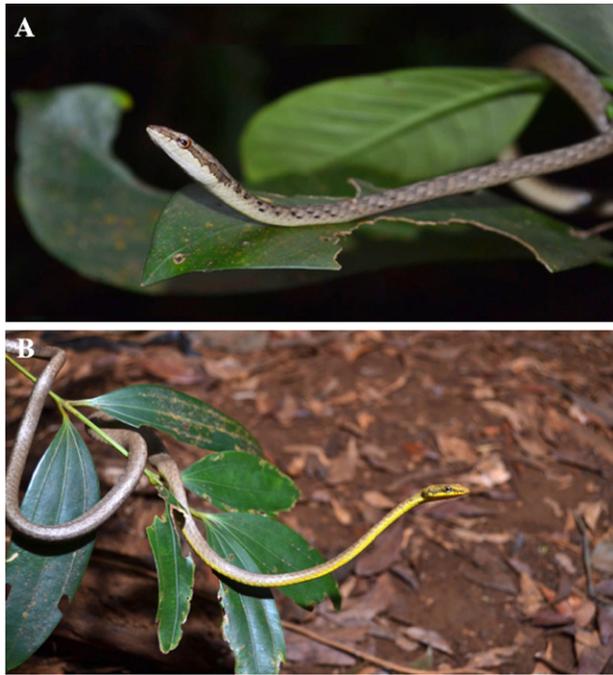
**Figure 30.** *Dendrelaphis luzonensis* (UPLB-MNH-Z-NS 4890) caught at Location 1 (50–55 m a.s.l.). Photo by CGM.

buyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°26'51"N, 122°32'58"E; 939 m a.s.l.; 21.XI.2016, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4888 • same locality; 12°27'17"N, 122°32'40"E; 213 m a.s.l.; 17.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4889 • same locality; 12°28'53"N, 122°33'01"E; 55 m a.s.l.; 21.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4890.

**Identification.** *Dendrelaphis luzonensis* is an elongate, slender, moderate-sized, arboreal snake with a head that is distinct from the rest of the body, large eyes, and a relatively long tail. Body ranges from: juvenile (UPLB-MNH-Z-NS 4888: Total length [TotL] 343.0 mm), adult (UPLB-MNH-Z-NS 4889: TL: 741.0–1123.0 mm). The Luzon Bronzeback can be distinguished from other members of the genus *Dendrelaphis* by 13 rows of dorsal scales at midbody, and undifferentiated (not enlarged) vertebral scales (compared to *Dendrelaphis marenae*; Weinell et al. 2019). The absence of a yellow stripe from the neck distinguishes it from the *D. fuliginosus* from the adjacent Panay. However, the distinction between *D. philippinensis* and *D. luzonensis* is unreliable (van Rooijen and Vogel 2012) and, currently, somewhat hypothesized on the basis of geography. Hence, with some uncertainty, we assign the Sibuyan bronzeback population to *D. luzonensis*.

**Remarks.** This is a widespread and semi-arboreal species of snake found in Luzon PAIC (Brown et al. 2012; Leviton et al. 2018) that is often associated with varied microhabitats of mixed vegetation, forest edges, agricultural, and residential areas. Specimens were found 2–4 m above the ground, coiled, and sleeping on branches or shrubs. Our specimens are new island records for the Romblon Island Group. The conservation status of this widespread habitat generalist species has been classified as Least Concern (Brown et al. 2012).

**Philippine distribution.** Luzon (north of the Tayabas Isthmus).



**Figure 31.** *Dryophiops philippina* showing two different ventral color variations. **A.** White (UPLB-MNH-Z-NS 4905). **B.** Yellow (UPLB-MNH-Z-NS 4907). Photos by CGM.

### *Dryophiops philippina* Boulenger, 1896

Figure 31

**Material examined.** PHILIPPINES – **Romblon** • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°26'51"N, 122°32'58"E; 576–939 m a.s.l.; 17.XI.2016, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4905 • same locality; 19.XI.2016, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4906 • same locality; 03.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4907.

**Identification.** This Philippine whipsnake is a slender, arboreal snake with typical features of elongate body, (TotL 649.0–946.0 mm), head distinctly enlarged, with light brown (cream) dorsal body coloration and fluorescent yellow or pale yellow to cream ventral coloration. The species can be distinguished from its relatives by 15 dorsal scale rows at midbody, vertebral scales similar in size to other dorsal body scales, postocular not darkly pigmented, and loreal scale absent. Ventral scales ranges from 177 to 188 (Weinell et al. 2019).

**Remarks.** This is a widespread but uncommon endemic Philippine vine snake, found in central and southern Luzon (i.e., Mount Makiling, Bataan, Zambales, southern Cordillera Mountains), Mindoro, Marinduque, Panay, Negros, Siquijor, western Mindanao and Sibuyan Island (Brown et al. 2012, 2013b; Leviton et al. 2018). It is arboreal but so seldomly observed, that we have very little information about its specific microhabitat preferences (Gaulke 2011; Leviton et al. 2018). Specimens were collected between 576–939 m a.s.l. and all individuals were found actively hunting (between 20:00–22:00 hr) on tree

trunks, climbing up or down, and seemingly foraging for food. This species' conservation status is classified as Vulnerable (IUCN 2022).

**Philippine distribution:** Luzon (Bataan, Batangas, Bulacan, Cagayan, Laguna, Nueva Vizcaya, Rizal, [Subic Bay], and Zambales provinces), Marinduque, Mindanao (Davao del Sur [Mount Talomo], and Zamboanga del Sur [Zamboanga City] provinces), Mindoro, Negros (Province: Negros Occidental, Negros Oriental), Panay (Aklan and Antique province), Romblon, Sibuyan, Siquijor, Samar (Leviton et al. 2018).

### *Oligodon modestus* Günther, 1864

Figure 32

**Material examined.** PHILIPPINES – **Romblon** • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°28'53"N, 122°33'01"E; 50–71 m a.s.l.; 10.XI.2016, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4917.

**Identification.** Our specimen was identified to the genus *Oligodon* by having a cylindrical body, short tail, head indistinct from neck, small eyes with round pupils, dorsal body scales arranged in 15 rows throughout the length of the body (unreduced posteriorly), and 47 pairs of subcaudals. The species has homogeneous dark brown dorsal body coloration, a reddish brown vertebral stripe, and quadrangular black markings on ventral body surfaces (Gaulke 2011; Weinell et al. 2019).

**Remarks.** An endemic Philippine terrestrial snake known to be Panay, Negros, and Tablas islands (Leviton 1963; Leviton et al. 2018). It was found actively crawling on a trail during the day between 50 and 71 m a.s.l. near the Mount Guiting-Guiting Natural Park, DENR office at Sitio Logdeck. Our specimen is the first record of the occurrence of this species on Sibuyan Island; This species' conservation status is classified as Vulnerable (IUCN 2022).

**Philippine distribution.** Luzon (Manila Province), Mindanao (Surigao del Sur Province), Negros (Negros Occidental and Negros Oriental provinces), Panay (Aklan and Antique provinces), and Tablas (Leviton et al. 2018).

### *Pseudorabdion talonuran* Brown, Leviton & Sison, 1999

**Material Examined.** PHILIPPINES – **Romblon** • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°25'45"N, 122°33'26"E; 1542 m a.s.l.; 26.V.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 2 ♂, UPLB-MNH-Z-NS 4908, 4909 • same locality; 12°26'01"N, 122°33'15"E; 1492 m a.s.l.; 1 ♀, UPLB-MNH-Z-NS 4910.

**Identification.** Species of the genus *Pseudorabdion* are small, secretive, burrowing snakes with cylindrical bodies, small heads which are indistinct from the neck,



**Figure 32.** An individual of *Oligodon modestus* (UPLB-MNH-Z-NS 4917) collected at location 1 (55–60 m a.s.l.). Photo by CGM.

minute eyes, and short tails This rare, fossorial, forest species was identified by its small body size (males SVL 228.0–267.0 mm; female SVL 340.0 mm), and numbers of subcaudals (39–43 for males, 27 for female), and ventrals (159–160 for males, 172 for females). It can be distinguishable from congeners by the absence of a nuchal collar, anterior chin shields that contacting the mental scale, and an elongate loreal that borders the orbit. It is distinguished from *P. mcnamarae* by its absence of a light nuchal collar and subcaudals numbering more than 30 (vs 17–30). Our identification of the species should be viewed as tentative, pending taxonomic study and verification of the Sibuyan population's affinities, preferably with molecular data.

**Remarks.** This species of fossorial snake was found in the primary forest of Mount Guiting-Guiting. It was collected actively crawling during the day on the trail. This species' conservation status is classified as Vulnerable (IUCN 2022).

**Philippine distribution:** Panay Island.

### *Gonyosoma oxycephalum* (Boie, 1827)

Figure 33

**Material examined.** PHILIPPINES – Romblon • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°26'51"N,

122°32'58"E; 576–939 m a.s.l.; 05.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 2 ♂, UPLB-MNH-Z-NS 4935, 4936 • Sibuyan Island, Municipality of Magdiwang, Barangay Jao-asan; 12°28'53"N, 122°33'01"E; 25–37 m a.s.l.; 1 ♂, UPLB-MNH-Z-NS 4937.

**Identification.** This genus is represented in the Philippines by a single species, which is readily distinguished by its large body size (SVL: 805.0–1372.0 mm; TL: 239.0–426.0 mm), projecting and elongate snout, typically emerald green color throughout the body with a dark red tail, and smooth dorsal scales in 23–27 rows at midbody (Weinell et al. 2019). The Sibuyan population, however, appears unique in that there are two distinct color dimorphisms: the typical green morph, and a unique, golden-yellow phase (Fig. 33).

**Remarks.** This Red-tailed Green Rat Snake is a non-endemic, widespread species, found throughout Southeast Asia. This genus is represented in the Philippines by a single species. It is known to occur in almost all major islands of the Philippines (Alcala 1986; Ferner et al. 2000; Gaulke 2011; Leviton et al. 2018). Specimens were collected at between 576 and 939 m a.s.l., atypical snake species occurrence that was recorded for the first time from an unusually high elevation and one was found asleep on a tree branch (UPLB-MNH-Z-NS 4936: 6–7 m high above the ground) and another was first observed resting on a large fallen log (UPLB-MNH-Z-NS 4935). At Barangay Jao-asan (25–37 m a.s.l.) we observed a greenish morph individual asleep and coiled around a tree branch, 7–10 m high, overhanging a river at night. In 2013, a road-killed specimen was reported from the Cabitangahan River area (Sy and Tan 2013). Our one golden-yellow morph individual (UPLB-MNH-Z-NS 4935) from Mount Guiting-Guiting Natural Park is considered the first record for the protected area.

The conservation status of this widespread non-endemic generalist species is classified as Least Concern (Brown et al. 2012; Leviton et al. 2018).

**Philippine distribution.** Babuyan Islands (Calayan and Camiguin Norte provinces), Balabac, Bataan, Bohol, Di-



**Figure 33.** *Gonyosoma oxycephalum* showing two color morphs collected at Location 3 (576–939 m a.s.l.) **A.** green (UPLB-MNH-Z-NS 4936) and **B.** golden-yellow morphs (UPLB-MNH-Z-NS 4935). Photos by CGM.

nagat, Leyte, Lubang, Luzon (Aurora, Ilocos Norte, Isabela, Laguna, Nueva Vizcaya, Quezon, Sorsogon, Zambales provinces), Marinduque, Mindanao (Agusan del Sur, Davao Oriental, South Cotabato, Surigao del Sur provinces, Zamboanga City), Negros, Palawan, Panay (Aklan, Antique, Iloilo provinces), Sabtang, Sibuyan, and Sulu Archipelago (Bongao Province) (Leviton et al. 2018).

Family Cyclocoridae

***Cyclocorus lineatus alcalai* Leviton, 1967**

Figure 34

**Material examined.** PHILIPPINES – **Romblon** • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°26'51"N, 122°32'58"E; 576–939 m a.s.l.; 03.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4913 • same locality; 12°27'17"N, 122°32'40"E; 300 m a.s.l.; 03.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4915 • same locality; 12°28'53"N, 122°33'01"E; 50–55 m a.s.l.; 1 ♀, UPLB-MNH-Z-NS 4914.

**Identification.** The phenotypically distinct members of the genus *Cyclocorus* can be distinguished from other snakes of the family Cyclocoridae by their shared possession of a moderate-sized (males SVL 42.0–53.0 mm; females SVL 33.0–44.0 mm) cylindrical body, head only slightly distinct from neck, eyes small with round pupils, and unique dentition (Gaulke 2011); they also have unusually high numbers of subcaudal scales (Weinell et al. 2019). Our confirmation of the Sibuyan population as *Cyclocorus lineatus alcalai* is based on Leviton's (1965) original diagnosis, emphasizing two anterior temporals, eight supralabials, 142–159 ventrals, 33–53 undivided (single) subcaudals, cloacal scale single, venter dark, with irregularly triangularly-shaped blotches well-developed only along the lateral edges of ventral shields.

**Remarks.** *Cyclocorus* is one of four snake genera endemic to the Philippines (Brown et al. 2013b) and *Cyclocorus lineatus alcalai* is the West Visayan endemic subspecies found in Negros, Cebu, and Panay. Previously, it was noted on Tablas Island (Leviton et al. 2018;

Siler et al. 2012). Individuals in this study were found at three elevation sites (Locations 1–3, with elevations ranging from 300–939 m a.s.l.), in two different habitat types: lowland and montane forest. Individuals were found actively crawling under leaf litter near stream banks, on a forest trail, and under rocks. Recently, a male individual was reported from Sibuyan Island and recorded from Barangay Jao-asan secondary forest (Pili and Del Prado 2018). *Cyclocorus lineatus*' conservation status is classified as Least Concern (IUCN 2022; Leviton et al. 2018).

**Philippine distribution:** Cebu, Guimaras, Inampulugan, Negros (Negros Occidental, Negros Oriental provinces), Panay (Aklan and Antique provinces), and Tablas (Leviton et al. 2018).

Family Natricidae

***Rhabdophis spilogaster* (Boie, 1827)**

Figure 35

**Material examined.** PHILIPPINES – **Romblon** • Sibuyan Island, Municipality of Magdiwang, Barangay Tampayan, Mount Guiting-Guiting Natural Park; 12°27'17"N, 122°32'40"E; 213–260 m a.s.l.; 16.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4892 • same locality; 12°28'53"N, 122°33'01"E; 71 m a.s.l.; 18.VI.2017, C.G. Meneses, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4893.

**Identification.** This semi-aquatic species is medium-sized (TotL: 723.0–750.0 mm), with moderately elongated body and tail, dorsal scales strongly keeled, head distinctively enlarged relative to its neck, and with large eyes (with large, round pupils) and a divided cloacal scale. This natricine species has a pale nuchal spot, 17 rows of dorsal scale rows at midbody, and pale ventral coloration (Weinell et al. 2019).

**Remarks.** This natricine species is commonly recorded at low elevation areas throughout the archipelago (Leviton et al. 2018; Malnate and Underwood 1988). On Sibuyan Island, specimens were collected at two sites: at 71 and between 213 and 260 m a.s.l. These sites are mixed agricultural, second-growth forest, and primary



**Figure 34.** A *Cyclocorus lineatus alcalai* (UPLB-MNH-Z-NS 4915) collected at Location 1 actively foraging at daytime. Photos by CGM.



**Figure 35.** *Rhabdophis spilogaster* (UPLB-MNH-Z-NS 4890) caught at location 1 (213 m a.s.l.). Photo by CGM.

growth forests. This is a Philippine endemic that was not previously recorded in Romblon Province, and this record from Sibuyan also represents a new island record. Specimens were observed actively crossing rocky trails at both sampling sites during the daytime. The conservation status of this widespread species is classified as Least Concern (IUCN 2022).

**Philippine distribution.** Babuyan Islands (Camiguin Norte Province), Batanes Islands (Batan Province), Catanduanes, Lubang, Luzon (Aurora, Bataan, Batangas, Bulacan, Camarines Norte, Cavite, Ifugao, Ilocos Norte, Isabela, Laguna, Manila, Mountain, Nueva Vizcaya, Pampanga, Quezon, Rizal, Zambales provinces), Polillo Island (Leviton et al. 2018).

Family Typhlopidae

***Malayotyphlops ruficaudus* (Gray, 1845)**

Figure 36

**Material examined.** PHILIPPINES – Romblon • Sibuyan Island, Municipality of Magdiwang, Barangay Tampang, Mount Guiting-Guiting Natural Park; 12°27'17"N, 122°32'40"E; 306 m a.s.l.; 13.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♀, UPLB-MNH-Z-NS 4916.

**Identification.** Our specimen was compared to older museum collections (CAS 169979) and the redefinition of the *M. ruficaudus* group, provided by Wynn et al. 2016), and we initially noted its general body size, short tail (broader than long; McDowell 1974), and stratified body color pattern: dark brown dorsum, demarcated from lighter yellow ventrals. In this species, dorsal body transverse rows between head and tail are fewer than 350, and the rostral scale is rounded. The total length (TotL) of our specimen is 246.0 mm (Weinell et al. 2019).

**Remarks.** An endemic Philippine species of blind snake that, like so many fossorial species, is poorly known due to a paucity of specimens and a problematic history of specimen misidentification (Wynn et al. 2016). It has been recorded from Luzon, Marinduque, Tablas, and Sibuyan (CAS 169979; Leviton et al. 2018). Little is known about the species' habitat and ecology. We collected an individual at 306 m a.s.l., where it was captured (between 06:00–07:00 hr) in a pitfall/drift-fence trap, installed under a large, rotten dipterocarp trunk and thick leaf litter. This cryptic species' conservation status is classified as Data Deficient (IUCN 2022).

**Philippine Distribution.** Babuyan Islands (Camiguin Norte Province), Luzon (Bulacan, Camarines Sur, Isabela, Laguna, Manila, Zambales provinces), Marinduque, Negros, Sibuyan, Tablas (Leviton et al. 2018).

Family Elapidae

***Laticauda colubrina* (Schneider, 1799)**

Figure 37



**Figure 36.** A *Malayotyphlops ruficaudus* (UPLB-MNH-Z-NS 4916) showing a bicolor body pattern that was collected at Location 2 (326 m a.s.l.). Photo by CGM.



**Figure 37.** *Laticauda colubrina* (UPLB-MNH-Z-NS 4918) caught at the coast of Sibuyan Sea covered by Location 1 (10–11 m a.s.l.). Photo by CGM.

**Material examined.** PHILIPPINES – Romblon • Sibuyan Island, Municipality of Magdiwang, Barangay Tampang, on the coast near Lambingan Falls; 12°28'53"N, 122°33'01"E; 11 m a.s.l.; 21.XI.2016, C.G. Meneses, J. Bulalacao, W. Bulalacao, S.A. Gonzales, G. Campomanis leg.; 1 ♂, UPLB-MNH-Z-NS 4918.

**Identification.** This entirely aquatic marine sea snake has an elongate, cylindrical body, short indistinct head, blunt snout, and a laterally compressed tail. It has an attractive silver and black banding pattern that covers the entire body, from its neck to the tip of its tail. This species has an undivided rostral scale, nasal scales separated (internasal scales present), and a yellow upper labial region; additionally, the width of its ventral body scales is exceeds  $\frac{1}{3}$  of its body width and its total length (TotL) is 608.0 mm (Weinell et al. 2019).

**Remarks.** *Laticauda colubrina* is a widespread sea snake, which we recorded in coastal habitats in the vicinity of Lambingan Falls. One individual was found crossing sand, as it moved from rocks to the seashore at 22:00 hr; another was found dead behind boulders, 20 m from the shore (presumed killed by residents known to hunt octopus and crabs after dark). This species is found in a wide range of marine microhabitats, including shallow

waters surrounding Sibuyan Island.

It was previously recorded on the coast of Maestre de Campo Island (part of Romblon Province) by Siler et al. (2012) although records from coastal northwest Panay may constitute the most geographically proximate previous record of the species' regional occurrence. Leviton et al. (2018), in summarizing the species' distribution, found no records of the species in the seas surrounding Romblon, Tablas, or Sibuyan islands, and, as such, our record appears to be the record of the species for Sibuyan Island and Romblon proper. This non-endemic species' conservation status is classified as Least Concern (IUCN 2022).

**Philippine distribution.** Babuyan Islands (Babuyan Claro, Barit, Calayan, Dalupiri, Mabag), Bantayan, Bohol, Cebu, Luzon (Manila Bay, Verde Island Passage; [Province: Zambales {Subic Bay}]), Maestre de Campo (Romblon Island Group), Mindanao (Zamboanga City), Negros (Negros Oriental Province), Panay, Siquijor, Sulu Archipelago (Jolo, Sitanki islands) (Leviton et al. 2018).

## Discussion

Our study highlights the degree to which underestimates of species diversity can persist problematically through time, mostly as a result of a lack of deliberate, focused attention to study design, methodology, and study replication. By emphasizing seasonal/atmospheric (i.e., rainy season and dry season, survey and resurvey sampling regime) and environmental and microhabitat variation (such as sampling an extensive elevational gradient), we added numerous species of high conservation value to the total documented amphibian and reptile fauna of Sibuyan Island. In some ways, our results are concerning and should be taken as a warning about the pitfalls associated with negative data or the assumption of completeness of species diversity estimates for an area such as a particular island, protected area, or even an established national park. Even after an apparent comprehensive inventory (Siler et al. 2012) built on years of intensive local fieldwork (Brown and Alcalá 1974, 1978, 1980) in a celebrated protected area that had been considered reasonably well characterized (Goodman and Ingle 1993; Goodman et al. 1995; Allen 2006), we were still able to increase Sibuyan's known herpetological species diversity by 21% (Tables 1–3). This has become a pattern with repeated, survey-and-resurvey, follow-up field studies (Brown et al. 1996, 2000, 2012, 2013b; Diesmos et al. 2004; Siler et al. 2011c; Devan-Song and Brown 2012) and serves as a continuous reminder of the crucial need for regular, ongoing, repeated biodiversity inventories, surveys, and re-estimates of species diversity—particularly in high conservation value sites like national parks and other protected areas. This is of utmost importance in Philippine National Parks where increased bureaucratic and administrative oversight (often as part of protected area management boards in collaboration with indigenous peoples' groups), and a very understandable

and justified effort to protect biodiversity can result in strong sentiments and policies against hunting or commercial collecting of animals (Brown et al. 2002). Unfortunately, if commercial versus scientific faunal collecting is not clearly defined, and legislatively distinguished at national and local levels, a general tendency to discourage the collection of any specimens from within protected areas may result (Brown et al. 2020). In the case of Sibuyan's protected area, it is clear that incomplete knowledge of amphibians and reptiles species diversity, and a shortage of information on their patterns of distribution and habitat requirements within Mount Guiting-Guiting Natural Park has negatively impacted conservation management priorities, and misinformed policy assessments, even though Mount Guiting-Guiting is widely recognized as a high-value conservation priority and federally managed protected area (Goodman and Ingle 1993; Goodman et al. 1995; Heaney and Regalado 1998; Rickart et al. 2005; Esselstyn and Goodman 2010).

The data we have presented paints a revised picture of Sibuyan Island's herpetofauna, particularly Mount Guiting-Guiting amphibian and reptile diversity—which is still far from completely known (Table 1). Here we augment a growing body of extensive scientific literature on Sibuyan Island biodiversity, with new and up-to-date data, including many surprises and discoveries, which build directly on the study of Siler et al. (2012), with the notable addition of species by Supsup et al. [2016]), which was synthesized data from six Romblon Province islands and 28 surveyed localities, resulting in the documentation of 56 species of amphibians and reptiles. A review of the summarized records from the 2012 and 2016 reported observations, combined with specimen-associated data from vouchered records among all global museum collections, resulted in the identification of nine new geographical records for Tablas, eight for Romblon, five for Sibuyan, and five for Maestro de Campo (Siler et al. 2012).

We summarize the results of the past and the previous survey, providing extensive new specimen-based data for a total of 63 species of amphibians and reptiles. These include one introduced species, 53 Philippine endemic species, and nine non-endemic species; 13 species of frogs, 30 lizards, one turtle, and 19 snakes, distributed among 18 families and 46 genera (Table 1). Recently collected data consisted of 14 amphibian and reptile species recorded for the first time from Sibuyan Island and maybe the RIG and one substantial elevational record for the snake, *Gonyosoma oxycephalum* (742 m a.s.l.) (Table 1).

Our resurveys increase Sibuyan's herpetological species diversity by an 21%. This substantial proportional increase possibly results from sampling different drainages, different microhabitat types, and sampling a wider range of elevations—all known axes of environmental variation documented to have distinct herpetofaunal communities (Brown et al. 1996, 2000, 2012, 2013b; Diesmos et al. 2004; Siler et al. 2011c; Devan-Song and Brown 2012). This posits the importance of repeated

visits, a combination of sampling techniques, focusing on different times of the year, covering sufficiently broad ranges of distinct habitat types, and targeting different elevations characterized by variable atmospheric, precipitation, and temperature conditions. Exhaustive and repeated sampling approaches have the potential to fill in gaps in biodiversity data, that have plagued earlier studies which were unable to offset or account for the often-patchy distributions of many amphibian and reptile species in a given area (Diesmos et al. 2005; Diesmos and Brown 2011; Oliveros et al. 2011; Siler et al. 2011c; Brown et al. 2013b). We consider a 21% proportional increase in Sibuyan's herpetological biodiversity to constitute an important accomplishment, given the previous lack of information on amphibian and reptile diversity in the protected area situated on such a celebrated mountain, Mount Guiting-Guiting. All 21% constitute significant records or range extensions for the recognized species.

Because of the geographic position of Romblon Province, which is situated between three major adjacent island banks, and distinct Philippine faunal regions (the Luzon, Mindoro, and the West Visayan PAICs; Brown and Diesmos 2009), we used simple Simpson similarity indices to evaluate the degree to which each surrounding region has possibly served as a biogeographic source for Sibuyan's species and which uniquely assembled to form the remarkable and biogeographically noteworthy herpetofauna of Sibuyan. Siler et al. (2012) concluded that, with few exceptions, the Luzon, Mindoro, and West Visayan PAICs had contributed disproportionately to the faunal diversity they found on the islands of Romblon Province. One exception is Carabao Island, wherein the degree of similarity indicated a simple West Visayan PAIC origin of that island's fauna, which makes sense given its geographic position, between Tablas and Panay islands. In this study, the biogeographical species affinities for Sibuyan's herpetofauna were skewed towards the Luzon PAIC (76%), followed by West Visayan PAIC (75%), then the Mindoro PAIC (73%) (Tables 2, 3). Siler et al. (2012) estimated these same similarities at 77%, 74%, and 66%, respectively. The similar proportional similarity estimates may be because we include some widespread species (i.e., *Ahaetulla prasina preocularis* and *Gonyosoma oxycephalum*) which we would expect to find on most Philippine islands (Brown and Alcalá 1970; Leviton et al. 2018) among the 14 additional species added by our study. However, we also take note of important new Sibuyan records for species that most likely have Western Visayan PAIC and Luzon PAIC biogeographical affinities: *Oligodon modestus*, *Pseudorabdion talonuran* (phenotypically similar to *P. talonuran* from Panay), *Luperosaurus corfieldi* (morphologically intermediate between *L. cumingii* [Luzon] and *L. corfieldi* [Panay]) and *D. luzonensis*, respectively. We do not doubt that with the constant field research, and application of new industry-standard technologies (DNA sequencing, bioacoustics monitoring) many new and interesting herpetofaunal discoveries will be recorded and that other interesting

biogeographical relationships with the surrounding PAICs will be revealed (Tables 1, 2).

Two species of frogs (*Platymantis lawtoni* and *P. levigatus*) are assessed by the IUCN (2022) and AmphibiaWeb (2022) as Endangered; two species of lizards (*Parvosцинus steerei* and *Varanus nuchalis*) are listed as Near Threatened; four species (one species of lizard: *Hydrosaurus pustulatus*; one species of a turtle: *Cuora amboinensis amboinensis*; and two species of snakes: *Dryophiops philippina* and *Oligodon modestus*) are listed as Vulnerable; and four species (one species of frog: *Fejervarya moodiei*; two species of lizards: *Bronchocela marmorata* and *Gonocephalus sophiae*; and one species of snake: *Malayotyphlops ruficaudus*) are listed as Data Deficient. Several endemic species have not yet been assessed, including two recently described gekkonid lineages (*Gekko coi* and *Pseudogekko isapa*); two species of scincid lizards (*Brachymeles dalawangdaliri* and *Pinoyscincus jagori grandis*), and one species of homalopsine snake (*Cerberus schneiderii*). In addition, we tentatively identified 10 species that need confirmation, and therefore, we recommend additional specimen-based evaluations of these taxa, including genotyping, for verification (*Platymantis pygmaeus*, *P. paengi*, *Kaloula conjuncta negrosensis*, *Gonocephalus sophiae*, *Lepidodactylus christiani*, *Luperosaurus corfieldi*, *Pinoyscincus coxi divergens*, *Parvosцинus decipiens*, *Pinoyscincus jagori grandis*, and *Pseudorabdion talonuran*) (Table 4). Aside from this list of uncertain taxa, there are two unidentified species of frogs from the genus *Platymantis* recorded in high-elevation habitats of Mount Guiting-Guiting Natural Park not included in our annotated list of species.

In Table 4, we showed evidences of species' unresolved uncertainty that requires future taxonomic reconsideration, it showed that all *Platymantis* are new since Siler et al. (2012). Our tentative identification of *P. paengi* and *P. pygmaeus* were mainly based on the close relationship of these species to *P. pygmaeus* in Luzon and *P. paengi* in Panay based on the initial result of our molecular analysis. The unresolved uncertainty of the morphological data of the *Platymantis* populations on Sibuyan as compared to the true and identified species suggests that additional studies are needed before we can confidently establish their identities. The same uncertainties were observed with the other species. *Kaloula conjuncta negrosensis* displays phenotypic similarities (like color pattern and overlapping SVL) and shares microhabitat preferences, but exhibits a different advertisement call. Lizard species such as *Gonocephalus sophiae*, *Pinoyscincus coxi divergens*, *Parvosцинus decipiens*, and *Pinoyscincus jagori grandis* require integrated taxonomic studies to delimit unresolved species complexes. Lastly, *Pseudorabdion talonuran*, specimens exhibit some physical characteristics similar to *P. mcnamarae* which has been recorded on Tablas and Sibuyan islands (Siler et al. 2012) but our specimen is similar in other respects to the true *P. talonuran*, a Panay Island high-elevation endemic

recorded from Mount Madja-as (Brown et al. 1999). Its large size precludes us from confidently assigning it to *P. talonuran*, and our specimen requires additional close comparison to *P. macnamarae* and *P. talonuran* and genetic analysis before we can confidently establish its taxonomic identity. Similarly, our specimens of *Luperosaurus corfieldi*, are morphologically similar to *L. cumingii* and *L. corfieldi* but cannot be reliably identified as either species, and we are hesitant to include this species in our list until genetic data can be analysed.

Our survey also discovered two undescribed high-elevation species of *Platymantis*; *Platymantis* cf. *polillensis* (temporary identification), which belongs to the *Platymantis hazelae* group according to Brown et al. (2015a) based on information from Brown et al. (1996). The Sibuyan Island population is phenotypically most similar to *P. polillensis*. Its SVL ranged from 21.5–26.1 mm, based on six individuals with similar morphological characteristics. They were observed in shrubby vegetation, at the peak of Mount Guiting-Guiting. This arboreal species can be distinguished from its sympatric congener, *P. lawtoni*, by its uniformly yellow body and bluish eye ring, both typical of *P. polillensis*, but the uniform body coloration was only observed at the highest elevations (1557 m a.s.l.) along our elevational transect. Despite the morphological distinctiveness of this Mount Guiting-Guiting peak population (which, alone, is usually not sufficient for identifying species with a highly polymorphic color variation like *Platymantis*), we hesitate to describe this potentially distinctive species because we were unable to obtain advertisement call recordings. Thus, acoustic and molecular data are needed (e.g., Brown and Gonzalez 2007; Siler et al. 2007; Brown et al. 2015a).

The second unidentified *Platymantis*, *Platymantis* cf. *dorsalis* (previously reported nomen; collected at higher elevations) is from the *P. dorsalis* group. It is clearly of the subgenus *Lupacolus* (Brown et al. 2015b) and was collected from elevations of 55–1557 m a.s.l. within Mount Guiting-Guiting Natural Park. Individuals collected at 1121–1492 m a.s.l. have notably extensive morphological and microhabitat preference variation, and at these higher elevations, individuals were observed calling on branches of trees or saplings, on the ground near large boulders, within leaf axils of *Pandanus*, perched on top of fallen logs, and on the tops of rocks and leaf litter on the forest floor. The SVL of an adult male and female ranges from 18.0–55.0 mm, and the higher elevation form resembles *P. paengi* (uncertain species: from lower elevations; with SVL of 23.0–30.0 mm). It is conceivable that the high-elevation form is a variant of the same species (*P. paengi*) but that at higher elevations, the colder environmental conditions have locally selected a substantially larger body size (consistent with Bergman's Rule; Olalla-Tarraga and Rodriguez 2007; Liao et al. 2016; Guo et al. 2019; Yu et al. 2019). However, this hypothesis warrants further study of intermediate

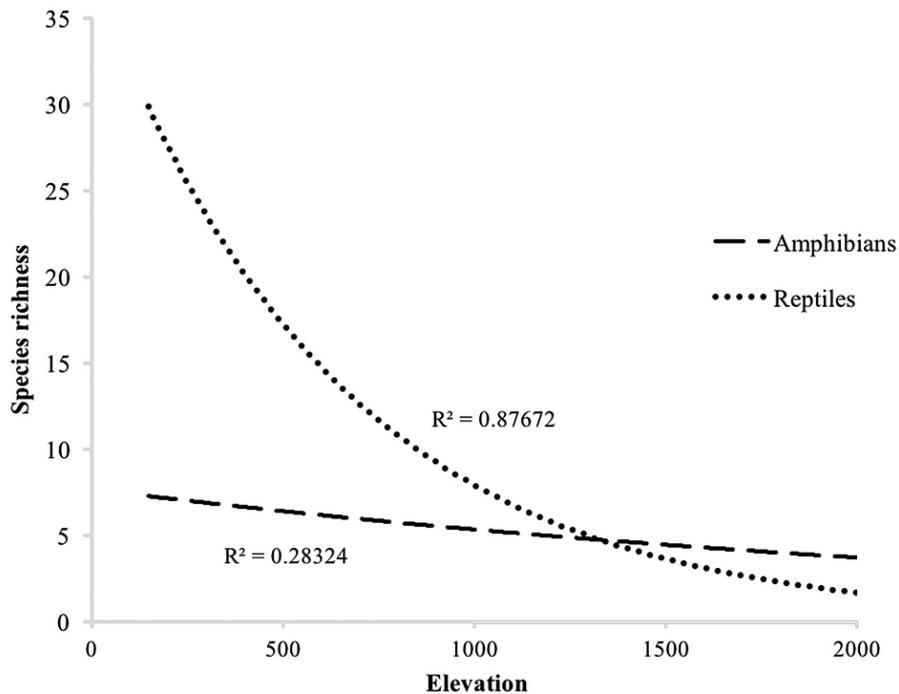
elevations and body sizes, and overall verification, with molecular and bioacoustic data.

Aside from taxa potentially new to science, our study also provides many new records and geographical range extensions for previously known species of amphibians and reptiles. Our study updates the species list from Sibuyan by including specimen-associated data and properly prepared scientific specimens now archived in publicly accessible biodiversity repositories. These collections, like conservation and research resources, not only allow future verification of uncertain species identifications but also for complete taxonomic description in the event that any are determined to be new species. The increase in the number of Sibuyan species detected, including new island records and possibly new species, all from a single island and a formerly poorly surveyed protected area, emphasizes how much more there is to learn about the fauna of Sibuyan Island, despite historic interest and a rich tradition of literature (Alcala and Alviola 1970; Brown and Alcala 1970, 1974, 1978, 1980; Heaney 1986; Dickinson et al. 1991; Goodman and Ingle 1993; Ingle 1993).

We observed a clear decline in amphibian and reptile species diversity with increasing elevation: herpetological diversity was highest at our low-elevation sampling areas and, conversely, lowest at higher elevations (Fig. 38). Previous studies have observed this same pattern: generally, the archipelago's richest herpetofauna diversity estimates have been recorded in lower montane forests, including moderate percentages of Philippine-endemic species, with species diversity varying inversely-proportional to elevation (however, higher proportions of Philippine-endemic species result from well-studied sites at higher elevations; Brown et al. 2000; Siler et al. 2012; Supsup et al. 2020).

Biogeographers and conservationists recognize that former dry land exposure forged connections among modern islands during Pleistocene sea-level oscillations, which influenced the assembly and partitioning of terrestrial biodiversity and may have in part contributed to the evolution of some taxa by means of isolation and divergence (Taylor 1928; Inger 1954; Heaney 1985; Brown and Diesmos 2009). Considering that Sibuyan Island is separated on all sides by deep-water channels, it is not surprising that the island harbors largely distinct biological communities, derived from faunal elements bearing biogeographical relationships to the surrounding adjacent landmasses (Brown and Alcala 1974, 1978; McGuire and Alcala 2000; Siler et al. 2012, 2016).

Past considerations of the biogeographical relationships of Sibuyan's fauna (Brown and Alcala 1970; Esselstyn and Goodman 2010; Goodman et al. 1995; Siler et al. 2012) emphasized their perspectives, derived from amphibians, reptiles, birds, and mammals, that the unique species assemblages on Sibuyan were all ultimately derived from over-water dispersal, colonization, and in the case of the island's endemic species, subsequent isolation and divergence (Brown and Alcala 1970;



**Figure 38.** Observed elevational species richness pattern for the amphibians and reptiles of Mount Guiting-Guiting Natural Park.

Gillespie 2013; Brown and Diesmos 2009). It is assumed in such cases, that the combined effects of isolation and time have allowed for the development of Sibuyan’s unique, biogeographically combined biota. Thus, there is much to be learned from natural patterns of diversification even on this single island; dimensions of biodiversity patterns associated with isolation, topography, climate, habitat structure, species interactions, and individual species’ microhabitats should all be the subject of future studies on Sibuyan using continued integrative and multidisciplinary research.

From a conservation perspective, a rapid loss, extirpation, or extinction of Sibuyan’s biodiversity remains possible—even in its large, protected areas—as a consequence of the underestimated estimates of its biodiversity. Sibuyan’s amphibians and reptiles face continuous threats via incessant anthropogenic activities, including poaching, forest habitat degradation, and overharvesting (Siler et al. 2012; Welton et al. 2013a, 2013b, 2020). Curtailing or restricting legitimate scientific research only serves to undercut management of protected areas for the simple reason that protected areas need biodiversity information to prioritize the conservation value of individual species, identify threats, fuel public education, increase environmental awareness, and enhance local stakeholder pride and engagement.

Aside from the impact on taxonomic and biogeographical studies, incorporating enhanced biodiversity data collection and regular, periodic monitoring, will provide a tractable, mechanistic strategy for future effective, sustainable, data-driven, and Sibuyan-specific conservation programs. Engaging civic-minded Sibuyan residents in citizen science efforts may be particularly effective if combined with a collection of photographic

records, genetic samples, and passive environmental monitoring of frogs using acoustic data. Increased and IT-enabled collection of scientific data combined with insights from local community stakeholders will provide essential information in the formulation of appropriate management strategies directed toward the conservation of amphibian and reptile diversity in Sibuyan—and the Philippines in general.

Sibuyan Island’s rich amphibian and reptile diversity could be utilized to enhance the public’s appreciation of the Philippines’ conservation value via promotional campaigns (e.g., former “More Fun in the Philippines, the Galapagos of Asia”) and other proven tools for public education. This is because Sibuyan embodies an extreme biological “island syndrome” case study in which, in addition to Mount Guiting-Guiting Natural Park’s striking land-and-seascape beauty, clearly exhibits (1) an island characterized by extreme isolation, (2) a truly “oceanic island” with no history of connection to any surrounding landmasses, and (3) high species diversity, present in a unique combination of amphibians and reptiles, that colonized Sibuyan from at least three different sources, and (4) a surprisingly high proportion of Sibuyan-endemic species: distinct species that ecotourists can find nowhere else on Earth (i.e., *P. levigatus*, *P. lawtoni*, *Brachymeles dalawangdaliri*, *Pseudogekko isapa*, and *Gekko coi*).

Finally, within this tiny island is a remarkable array of distinct and accessible classes of environments: five forest types, each representing unique environments: (tropical lowland evergreen rainforest, unique forests of limestone formations, forest associated with ultramafic rock, coastal beach forest, and mangrove forest. Sibuyan supports 70–80% uninterrupted forest cover and is one

of only a few places left in the Philippines where intact ridge-to-reef continuous elevational gradients still exist as they did before the arrival of the first European conquistadores (Tongson and McShane 2006). Given its unique flora and fauna, the island should remain a priority for sustainable conservation efforts, which will require enhanced mobilization of resources associated with environmental protection and collaboration at local, national, and global scales.

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## References

- Alcala AC (1986) Guide to Philippine flora and fauna: amphibians and reptiles. Natural Resource Management Center, Ministry of Natural Resources and University of the Philippines, Manila, Philippines, 195 pp.
- Alcala AC, Alviola III A (1970) Notes on the birds and mammals of Boracay, Caluya, Carabao, Semirara and Sibay islands, Philippines. *Silliman Journal* 17: 444–454.
- Alcala AC, Brown WC (1999) Philippine frogs of the genus *Platymantis* (Amphibia: Ranidae). *Philippine Journal of Science* 128 (4): 281–287.
- Alcala AC, Brown WC, Diesmos AC (1998) Two new species of the genus *Platymantis* (Amphibia: Ranidae) from Luzon Island, Philippines. *Proceedings of the California Academy of Sciences (Series 4)* 50: 381–388.
- Alcala EL, Alcala AC, Dolino CN (2004) Amphibians and reptiles in tropical rainforest fragments on Negros Island, the Philippines. *Environmental Conservation* 31 (3): 254–261. <https://doi.org/10.1017/S0376892904001407>
- Allen D (2006) New records and other observations of birds on the island of Tablas, Romblon province, Philippines. *Forktail* 22: 77–84.
- Barbour R, Ernst C (1992) *Turtles of the world*. Smithsonian Institution Press, Washington, DC, USA, 280 pp.
- Barley AJ, Diesmos AC, Siler CD, Martinez CM, Brown RM (2020) Taxonomic revision of Philippine sun skinks (Reptilia: Squamata: Scincidae: *Eutropis*), and descriptions of eight new species. *Herpetological Monograph* 34 (1): 39–70. <https://doi.org/10.1655/herpmonographs-d-19-00009.1>
- Bauer AM, Sumontha M, Pauwels OSG (2008) A new red-eyed *Gekko* (Reptilia: Gekkonidae) from Kanchanaburi Province, Thailand. *Zootaxa* 1750 (1): 32–42. <https://doi.org/10.11646/zootaxa.1750.1.3>
- Bernstein JM, Murphy JC, Voris HK, Brown RM, Ruane S (2021) Phylogenetics of mud snakes (Squamata: Serpentes: Homalopsidae); a paradox of both undescribed diversity and taxonomic inflation. *Molecular Phylogenetics and Evolution* 160: 107109. <https://doi.org/10.1016/j.ympev.2021.107109>
- Blackburn DC, Siler CD, Diesmos AC, McGuire JA, Cannatella DC, Brown RM (2013) An adaptive radiation of frogs in a Southeast Asian island archipelago. *Evolution* 67 (9): 2631–2646. <https://doi.org/10.1111/evo.12145>
- Boulenger GA (1885) Catalogue of the lizards in the British Museum (Nat. Hist.) I. Gekkonidae, Eublepharidae, Uroplatidae, Pygopodidae, Agamidae. Taylor and Francis, London, UK, 450 pp.
- Brown GP, Phillips BL, Shine R (2011) The ecological impact of invasive cane toads on tropical snakes: field data do not support laboratory-based predictions. *Ecology* 92 (2): 422–431.
- Brown RM, Leviton AE, Sison RV (1999) Description of a new species of *Pseudorabdion* from Panay Island, Philippines, with a revised key to the genus. *Asian Herpetological Research* 8: 7–12. <https://doi.org/10.5962/bhl.part.24610>
- Brown RM, Diesmos AC (2002) Application of lineage-based species concepts to oceanic island frog populations: the effects of differing taxonomic philosophies on the estimation of Philippine biodiversity. *Silliman Journal* 42 (1): 133–162.
- Brown RM, Diesmos AC (2009) Philippines, biology. In: Gillespie R, Clague D (Eds.) *Encyclopedia of islands*. University of California Press, Berkeley, California, USA, 723–732.
- Brown RM, Guttman SI (2002) Phylogenetic systematics of the *Rana signata* complex of Philippine and Bornean stream frogs: reconsideration of Huxley’s modification of Wallace’s Line at the Oriental–Australian faunal zone interface. *Biological Journal of the Linnean Society* 76 (3): 393–461. <https://doi.org/10.1111/j.1095-8312.2002.tb01704.x>
- Brown RM, Gonzalez JCT (2007) A new forest frog of the genus *Platymantis* (Amphibia; Anura: Ranidae) from the Bicol Peninsula of Luzon Island, Philippines. *Copeia* 2007 (2): 251–266. [https://doi.org/10.1643/0045-8511\(2007\)7\[251:anfot\]2.0.co;2](https://doi.org/10.1643/0045-8511(2007)7[251:anfot]2.0.co;2)
- Brown RM, Siler CD (2013) Spotted stream frog diversification at the Australasian faunal zone interface, mainland versus island comparisons, and a test of the Philippine ‘dual-umbilicus’ hypothesis.

Alcala AC (1986) Guide to Philippine flora and fauna: amphibians and reptiles. Natural Resource Management Center, Ministry of Nat-

- Journal of Biogeography 41 (1): 182–195. <https://doi.org/10.1111/jbi.12192>
- Brown RM, Diesmos AC, Alcalá AC (2002) The state of Philippine herpetology and the challenges for the next decade. *Silliman Journal* 42 (1): 18–87.
- Brown RM, Diesmos AC, Alcalá AC (2008) Philippine amphibian biodiversity is increasing in leaps and bounds. In: Stuart SN, Hoffmann M, Chanson JS, Cox NA, Berridge R, Ramani P, Young BE (Eds.) *Threatened amphibians of the world*. Lynx Ediciones/IUCN/Conservation International/NatureServe, Barcelona, Spain, 82–83.
- Brown RM, Diesmos AC, Oliveros C (2011b) A new flap-legged forest gecko (genus *Luperosaurus*) from the northeastern Philippines. *Journal of Herpetology* 45 (2): 202–210. <https://doi.org/10.1670/10-123.1>
- Brown RM, Ferner JW, Sison RV, Gonzales PC, Kennedy RS (1996) Amphibians and reptiles of the Zambales mountains of Luzon Island, Philippines. *Herpetological Natural History* 4 (1): 1–17.
- Brown RM, McGuire JA, Ferner JW, Icarangal N, Kennedy RS (2000) Amphibians and reptiles of Luzon Island, II: preliminary report on the herpetofauna of Aurora Memorial National Park, Philippines. *Hamadryad* 25 (2): 175–195.
- Brown RM, Siler CD, Oliveros CH, Diesmos AC, Alcalá AC (2011a) A new *Gekko* from Sibuyan Island, central Philippines. *Herpetologica* 67 (4): 460–476. <https://doi.org/10.1655/herpetologica-d-11-00025.1>
- Brown RM, Siler CD, Richards S, Diesmos AC, Cannatella DC (2015a) Multilocus phylogeny and a new classification for Southeast Asian and Melanesian forest frogs (family Ceratobatrachidae). *Zoological Journal of Linnean Society* 174 (1): 130–168. <https://doi.org/10.1111/zoj.12232>
- Brown RM, de Layola LA, Lorenzo II A, Diesmos MLL, Diesmos AC (2015b) A new species of limestone karst inhabiting forest frog, genus *Platymantis* (Amphibia: Anura: Ceratobatrachidae: subgenus *Lupacolus*) from southern Luzon Island, Philippines. *Zootaxa* 4048 (2): 191–210. <https://doi.org/10.11646/zootaxa.4048.2.3>
- Brown RM, Oliveros CH, Siler CD, Fernandez JB, Welton LJ, Buenavente PAC, Diesmos AC (2012) Amphibians and reptiles of Luzon Island (Philippines), VII: herpetofauna of Ilocos Norte Province, Northern Cordillera Mountain Range. *Check List* 8 (3): 469–490. <https://doi.org/10.15560/8.3.469>
- Brown RM, Su YC, Barger B, Siler CD, Sanguila MB, Diesmos AC, Blackburn DC (2016) Phylogeny of the island archipelago frog genus *Sanguirana*: another endemic Philippine radiation that diversified ‘Out-of-Palawan’. *Molecular Phylogenetics and Evolution* 94: 531–536. <https://doi.org/10.1016/j.ympev.2015.10.010>
- Brown RM, Siler CD, Oliveros CH, Welton LJ, Rock A, Swab J, Van Weerd M, van Beijnen J, Jose E, Rodriguez D, Jose E, Diesmos AC (2013b) The amphibians and reptiles of Luzon Island, Philippines, VIII: the herpetofauna of Cagayan and Isabela Provinces, northern Sierra Madre Mountain Range. *Zookeys* 266: 1–120. <https://doi.org/10.3897/zookeys.266.3982>
- Brown RM, Siler CD, Oliveros CH, Esselstyn JA, Diesmos AC, Hosner PA, Linkem CW, Barley AJ, Oaks JR, Sanguila MB, Welton LJ, Blackburn DS, Moyle RG, Peterson AT, Alcalá AC (2013a) Evolutionary processes of diversification in a model island archipelago. *Annual Review of Ecology Evolution, and Systematics* 44: 411–435. <https://doi.org/10.1146/annurev-ecolsys-110411-160323>
- Brown RM, Meneses CG, Wood Jr. PS, Fernandez JB, Cuesta M, Clores M, Tracy C, Buehler M, Siler CD (2020) Unexpected discovery of another new species of Philippine False Gecko (Gekkonidae; *Pseudogekko*) from the Bicol Peninsula of Luzon Island. *Herpetologica* 76 (3): 315–329. <https://doi.org/10.1655/herpetologica-d-19-00029.1>
- Brown WC, Alcalá AC (1961) Populations of amphibians and reptiles in the submontane and montane forests of Cuernos de Negros, Philippine Islands. *Ecology* 42: 628–636. <https://doi.org/10.2307/1933494>
- Brown WC, Alcalá AC (1970) The zoogeography of the Philippine Islands, a fringing archipelago. *Proceedings of the California Academy of Sciences (Series 4)* 38 (6): 105–130.
- Brown WC, Alcalá AC (1974) New frogs of the genus *Platymantis* (Ranidae) from Philippines. *Proceedings of the California Academy of Sciences (Series 4)* 113: 1–12.
- Brown WC, Alcalá AC (1978) Philippine lizards of the family Gekkonidae. *Silliman University Press, Dumaguete City, Philippines*, 146 pp.
- Brown WC, Alcalá AC (1980) Philippine lizards of the family Scincidae. *Silliman University Press, Dumaguete City, Philippines*, 264 pp.
- Carpenter KE, Springer VG (2005) The center of the center of marine shore fish biodiversity: the Philippine Islands. *Environmental Biology of Fishes* 72 (1): 467–480. <https://doi.org/10.1007/s10641-004-3154-4>
- Cheatham AH, Lazell JE (1969) Binary (presence-absence) similarity coefficients. *Journal of Paleontology* 43 (5): 1130–1136.
- Clemente KJE, Baldia SF, Cordero Jr PA (2017) The marine macroalgal flora of the Romblon Island Group (RIG), central Philippines. *Aquaculture, Aquarium, Conservation and Legislation* 10 (5): 983–1000.
- Davis DR, Geheber AD, Watters JL, Penrod ML, Feller KD, Ashford A, Kouri J, Nguyen D, Shauberg L, Sheatsley K, Winfrey C, Wong R, Sanguila MB, Brown RM, Siler CD (2016) Additions to Philippine slender skinks of the *Brachymeles bonitae* complex (Reptilia: Squamata: Scincidae) III: a new species from Tablas Island. *Zootaxa* 4132 (1): 30–43. <https://doi.org/10.11646/zootaxa.4132.1.3>
- Devan-Song A, Brown RM (2012) Amphibians and reptiles of Luzon Island, Philippines, VI: the herpetofauna of the Subic Bay area. *Asian Herpetological Research* 3 (1): 1–20. <https://doi.org/10.3724/sp.j.1245.2012.00001>
- Dickinson EC, Kennedy RS, Parkes KC (1991) The birds of the Philippines: an annotated check-list. B.O.U. Check-list no. 12. *British Ornithologists’ Union, Tring, Hertfordshire, UK*, 448 pp.
- Diesmos AC (2008) Ecology and diversity of herpetofaunal communities in fragmented lowland rainforests in the Philippines. PhD thesis, National University of Singapore, Singapore, 10–46.
- Diesmos AC, Brown RM (2011) Diversity, biogeography, and conservation of Philippine amphibians. In: Das I, Has A, Tuen AA (Eds.) *Biology and conservation of tropical Asian amphibians*. Institute of Biodiversity and Environmental Conservation, Universiti Malaysia Sarawak, Kota Samarahan, Sarawak, Malaysia, 26–49.
- Diesmos AC, Brown RM, Alcalá AC (2002b) New species of narrow-mouthed frog (Amphibia: Anura: Microhylidae; genus *Kaloula*) from the mountains of southern Luzon and Polillo Islands, Philippines. *Copeia* 2002 (4): 1037–1051. [https://doi.org/10.1643/0045-8511\(2002\)002\[1037:nsonmf\]2.0.co;2](https://doi.org/10.1643/0045-8511(2002)002[1037:nsonmf]2.0.co;2)
- Diesmos AC, Brown RM, Gee GVA (2004) Preliminary report on the amphibians and reptiles of Balbalasang-Balbalan National Park, Luzon Island, Philippines. *Sylvatrop* 13 (1/2): 63–80.
- Diesmos AC, Diesmos ML, Brown RM (2006) Status and distribution of alien invasive frogs in the Philippines. *Journal of Environmental Science and Management* 9 (1): 41–53.
- Diesmos AC, Parham JF, Stuart BL, Brown RM (2005) The phylogenetic position of the recently rediscovered Philippine forest turtle (Bataguridae: *Heosemys leytensis*). *Proceedings of the California Academy of Sciences (Series 4)* 56 (3): 31–41.
- Diesmos AC, Brown RM, Alcalá AC, Sison RV (2008) Status and distribution of nonmarine turtles of the Philippines. *Chelonian Conservation Biology* 7 (2): 157–177. <https://doi.org/10.2744/ccb-0672.1>
- Diesmos AC, Alcalá AC, Siler CD, Brown RM (2014) Status and conservation of Philippine Amphibians. In: Heatwole H, Das I (Eds.) *Conservation biology of amphibians of Asia*. Natural History Publications (Borneo), Kota Kinabalu, Malaysia, 310–336.
- Diesmos AC, Watters JL, Huron NA, Davis DR, Alcalá AC, Crom-

- bie RI, Afuang LE, Gee-Das G, Sison RV, Sanguila MB, Labonte MJ, Davey CS, Penrod ML, Leone EA, Diesmos ML, Sy EY, Welton LJ, Brown RM, Siler CD (2015) Amphibians of the Philippines, part I: checklist of the species. *Proceedings of the California Academy of Sciences (Series 4)* 62 (20): 457–539.
- Dimalanta CB, Ramos EGL, Yumul Jr GP, Bellon H (2009) New features from the Romblon Island Group: key to understanding the arc-continent collision in Central Philippines. *Tectonophysics* 479 (1–2): 120–129. <https://doi.org/10.1016/j.tecto.2009.02.015>
- Dubois A, Ohler A, Pyron RA (2021) New concepts and methods for phylogenetic taxonomy and nomenclature in zoology, exemplified by a new ranked cladonomy of recent amphibians (Lissamphibia). *Megatataxa* 5 (1): 1–738. <https://doi.org/10.11646/megatataxa.5.1.1>
- Eliades S, Brown RM, Huang WS, Siler CD (2021) Taxonomic revision of scaly-toed geckos (Reptilia: Gekkonidae: *Lepidodactylus*) in the northern Philippines, with descriptions of four new species. *Herpetological Monograph* 35 (1): 90–111. <https://doi.org/10.1655/herpmonographs-d-19-00014>
- Esselstyn JA, Brown RM (2009) The role of repeated sea-level fluctuations in the generation of shrew (Soricidae: *Crociodura*) diversity in the Philippine Archipelago. *Molecular Phylogenetics and Evolution* 53 (1): 171–181. <https://doi.org/10.1016/j.ympev.2009.05.034>
- Esselstyn JA, Goodman SM (2010) New species of shrew (Soricidae: *Crociodura*) from Sibuyan Island, Philippines. *Journal of Mammalogy* 91 (6): 1467–1472. <https://doi.org/10.1644/10-mamm-a-002.1>
- Evans BJ, Brown RM, Mcquire JA, Supriatna J, Andayani N, Diesmos AC, Iskandar D, Meinick, DJ, Cannatella DC (2003) Phylogenetics of fanged frogs: testing biogeographical hypotheses at the interface of the Asian and Australian faunal zones. *Systematic Biology* 52 (6): 794–819. <https://doi.org/10.1093/sysbio/52.6.794>
- Ferner JW, Brown RM, Sison RV, Kennedy RS (2000) The amphibians and reptiles of Panay Island, Philippines. *Asian Herpetological Research* 9: 1–37. <https://doi.org/10.5962/bhl.part.15561>
- Gaulke M (2001). Die Herpetofauna von Sibaliw, einem der letzten Tiefland Regenwaldgebiete der West-Visayas, Philippinen – Teil I: Amphibien und Echsen. *Herpetofauna* 23 (1): 1–14.
- Gaulke M (2011). The herpetofauna of Panay Island, Philippines: an illustrated field guide. Edition Chimaira, Frankfurt-am-Main, Germany, 387 pp.
- Gaulke M, Roesler H, Brown RM (2007) A new species of *Luperosaurus* (Squamata; Gekkonidae) from Panay Island, Philippines, with comments on the taxonomic status of *Luperosaurus cumingii* (Gray, 1845). *Copeia* 2007: 413–425. [https://doi.org/10.1643/0045-8511\(2007\)7\[413:ansols\]2.0.co;2](https://doi.org/10.1643/0045-8511(2007)7[413:ansols]2.0.co;2)
- Gillespie RG (2013) Oceanic islands: models of diversity. In: Levin SA (Ed.) *Encyclopedia of biodiversity* (second edition). Academic Press, San Diego, USA, 1–13. <https://doi.org/10.1016/b978-0-12-384719-5.00231-8>
- Goodman SM, Ingle NR (1993) Sibuyan Island in the Philippines: threatened and in need of conservation. *Oryx* 27 (3): 174–180. <https://doi.org/10.1017/S0030605300027988>
- Goodman SM, Willard DE, Gonzales PC (1995) The birds of Sibuyan Island, Romblon Province, Philippines, with particular reference to elevational distribution and biogeographic affinities. *Fieldiana Zoology* 82: 1–57. <https://doi.org/10.5962/bhl.title.3526>
- Gordon AL, Sprintall J, Field A (2011) Regional oceanography of the Philippine Archipelago. *Oceanography* 24 (1): 14–27. <https://doi.org/10.5670/oceanog.2011.01>
- Guo C, Gao S, Krzton A, Zhang L (2019) Geographic body size variation of a tropical anuran: effects of water deficit and precipitation seasonality on Asian common toad from southern Asia. *BMC Evolutionary Biology* 19 (1): 208. <https://doi.org/10.1186/s12862-019-1531-z>
- Hall G (1995) Asian box turtles. *Reptile and Amphibian Magazine* 1995 (May/June): 110–116.
- Hall R (1998) The plate tectonics of Cenozoic SE Asia and the distribution of land and sea. In: Hall R, Holloway JD (Eds.) *Biogeography and geological evolution of SE Asia*. Backhuys Publishers, Leiden, the Netherlands, 99–131.
- Hammer Ø, Harper DAT, Ryan PD (2001) PAST: paleontological statistics software package for education and data analysis. *Palaeontologia Electronica* 4 (1): 9.
- Han W, Moore AM, Levin J, Zhang B, Arango HG, Curchitser E, Di Lorenzo E, Gordon A, Lin, J (2009) Seasonal surface ocean circulation and dynamics in the Philippine Archipelago region during 2004–2008. *Dynamics of Atmospheres and Oceans* 47 (1–3): 114–137. <https://doi.org/10.1016/j.dynatmoce.2008.10.007>
- Heaney LR (1985) Zoogeographic evidence for middle and upper Pleistocene land bridges to the Philippine islands. In: *Indo-Pacific Prehistory Association Philippines, Congress 12, the Netherlands*, 127–143.
- Heaney LR (1986) Biogeography of mammals in SE Asia: estimates of rates of colonization, extinction and speciation. *Biological Journal of the Linnean Society* 28 (1–2): 127–165.
- Heaney LR (1998) A synopsis of the mammalian fauna of the Philippine Islands. *Fieldiana. Zoology. New Series* 88: 1–61.
- Heaney LR (2000) Dynamic disequilibrium: a long-term, large-scale perspective on the equilibrium model of island biogeography. *Global Ecology and Biogeography* 9 (1): 59–74. <https://doi.org/10.1046/j.1365-2699.2000.00163.x>
- Heaney LR, Regalado Jr. JC (1998) *Vanishing treasures of the Philippine rainforest*. The Field Museum, Chicago, USA, 88 pp.
- Heaney LR, Walsch JS, Peterson AT (2005) The roles of geological history and colonization abilities in genetic differentiation between mammalian populations in Philippines archipelago. *Journal of Biogeography* 32 (2): 229–247. <https://doi.org/10.1111/j.1365-2699.2004.01120.x>
- Heyer WR, Donnely MA, McDiamird RW, Hayek LAC, Foster MS (1994) *Measuring and monitoring biological diversity: standard methods for amphibians*. Smithsonian Institution Press, Washington, DC, USA, xvii +364 pp.
- Inger RF (1954) Systematics and zoogeography of Philippine amphibians. *Fieldiana* 33: 181–531.
- Inger RF (1980) Relative abundances of frogs and lizards in forests of Southeast Asia. *Biotropica* 12: 14–22. <https://doi.org/10.2307/2387769>
- Inger RF, Marx H (1965) The systematics and evolution of the Oriental snake genus *Calamaria*. *Fieldiana* 49: 1–304.
- Ingle N (1993) Sibuyan Island, Philippines. *Oryx* 27: 198.
- IUCN (2022) The IUCN Red List of Threatened Species. Version 2020-1. <https://www.iucnredlist.org>. Accessed on: 2022-4-25.
- Koch A, Auliya M, Ziegler T (2010) Updated checklist of the living monitor lizards of the world (Squamata: Varanidae). *Bonn Zoological Bulletin* 57 (2): 127–136.
- Leviton AE (1963) Remarks on the zoogeography of Philippine terrestrial snakes. *Proceedings of the California Academy of Sciences (Series 4)* 31: 369–416.
- Leviton AE (1967) Contributions to a review of Philippine snakes, X, the snakes of the genus *Ahaetulla*. *Philippine Journal of Science* 96 (1): 73–90.
- Leviton AE (1970) Contributions to a review of Philippine snakes, X, the snakes of the genus *Boiga*. *Philippine Journal of Science* 97 (3): 291–314.
- Leviton AE, Siler CD, Weinell JL, Brown RM (2018) A synopsis of the snakes of the Philippines: a synthesis of data from biodiversity repositories, field studies, and the literature. *Proceedings of the California Academy of Sciences (Series 4)* 64: 399–568.
- Leyzack A, Chenier R, Hinds S (2014) Marine corridors: a methodology for planning and prioritizing hydrographic surveys, products and services. In: *Proceedings of the Canadian Hydrographic Conference, St. John's, Newfoundland and Labrador, April 14–17, 2014*. Canadian Hydrographic Society, Ottawa, Canada, 1–9.
- Liao WB, Luo Y, Lou SL, Lu D, Jehle R (2016) Geographic variation in life-history traits: growth season affects age structure, egg size and clutch size in Andrew's toad (*Bufo andrewsi*). *Frontiers in Zo-*

- ology 13 (1): 6. <https://doi.org/10.1186/s12983-016-0138-0>
- Lieberman SS (1986) Ecology of the leaf litter herpetofauna of a Neotropical rain forest: La Selva, Costa Rica. *Acta Zoologica Mexicana* 13 (15): 1–72. <https://doi.org/10.21829/azm.1986.13152050>
- Linkem CW, Brown RM (2013) Systematic revision of the *Parvosцинсus decipiens* (Boulenger 1894) complex of Philippine forest skinks (Squamata: Scincidae: Lygosominae) with descriptions of seven new species. *Zootaxa* 3700 (4): 501–533. <https://doi.org/10.11646/zootaxa.3700.4.1>
- Linkem CW, Diesmos AC, Brown RM (2011) Molecular systematics of the Philippine forest skinks (Squamata: Scincidae: *Sphenomorphus*): testing morphological hypotheses of interspecific relationships. *Zoological Journal of Linnean Society* 163 (4): 1217–1243. <https://doi.org/10.1111/j.1096-3642.2011.00747.x>
- Linkem CW, Hesed K, Diesmos AC, Brown RM (2010b) Species boundaries and cryptic lineage diversity in a Philippine forest skink complex (Reptilia; Squamata; Scincidae: Lygosominae). *Molecular Phylogenetics Evolution* 56 (2): 572–585. <https://doi.org/10.1016/j.ympev.2010.03.043>
- Linkem CW, Brown RM, Siler CD, Evans BJ, Austin CC, Iskandar DT, Diesmos AC, Supriatna J, Andayani N, McGuire JA (2013) Stochastic faunal exchanges drive diversification in widespread Wallacean and Pacific Island lizards (Squamata: Scincidae: *Lamprolepis smaragdina*). *Journal of Biogeography* 40 (3): 507–520. <https://doi.org/10.1111/jbi.12022>
- Malnate EV, Underwood G (1988) Australasian natricine snakes of the genus *Tropidonophis*. *Proceedings of the Academy of Natural Sciences of Philadelphia* 140 (1): 59–201.
- McDowell SB (1974) A catalogue of the snakes of New Guinea and the Solomons, with special reference to those in the Bernice P. Bishop Museum, Part I. *Scolecophidia*. *Journal of Herpetology* 8: 1–57.
- McGuire JA, Alcalá AC (2000) A taxonomic revision of the flying lizards of the Philippine Islands (Iguania: Agamidae: *Draco*), with a description of a new species. *Herpetological Monograph* 14: 92–145. <https://doi.org/10.2307/1467046>
- McGuire JA, Heang KB (2001) Phylogenetic systematics of Southeast Asian flying lizards (Iguania: Agamidae: *Draco*) as inferred from mitochondrial DNA sequence data. *Biological Journal of Linnean Society* 72 (2): 203–229. <https://doi.org/10.1006/bijl.2000.0487>
- Meneses, CGM, Siler CDS, Gonzalez JCTG, Wood Jr. PL, Brown RM (2020) Molecular phylogenetic estimates of evolutionary affinities and the first reports of phenotypic variation in two secretive, endemic reptiles from the Romblon Island Group, central Philippines. *Philippine Journal of Systematic Biology* 14 (2): 1–20. <https://doi.org/10.26757/pjsb2020b14002>
- Murphy JC, Voris HK, Karns DR (2012) The dog-faced water snakes, a revision of the genus *Cerberus* Cuvier, (Squamata, Serpentes, Homalopsidae), with the description of a new species. *Zootaxa* 3484 (1): 1–34. <https://doi.org/10.11646/zootaxa.3484.1.1>
- Myers N, Mittermeier RA, Mittermeier CG, Da Fonseca GA, Kent J (2000) Biodiversity hotspots for conservation priorities. *Nature* 403 (6772): 853–858. <https://doi.org/10.1038/35002501>
- Olalla-Tarraga MA, Rodriguez MA (2007) Energy and interspecific body size patterns of amphibians faunas in Europe and North America: anurans follow Bergmann's rule, urodeles its converse. *Global Ecology and Biogeography* 16 (5): 606–617. <https://doi.org/10.1111/j.1466-8238.2007.00309.x>
- Oliveros CH, Ota H, Crombie RI, Brown RM (2011) The herpetofauna of the Babuyan group of islands, northern Philippines. *Scientific Publications of the Natural History Museum of the University of Kansas* 43: 1–20.
- Payot BD, Arai S, Tamura A, Ishimaru S, Tamayo Jr RA (2009) Unusual ultra-depleted dunite from Sibuyan Island (the Philippines): a residue for ultra-depleted MORB? *Journal of Mineralogical Petrological Sciences* 104 (6): 383–388. <https://doi.org/10.2465/jmps.090620b>
- Peterson AT, Brooks T, Gamauf A, Gonzalez JCT, Mallari NAD (2008) The avifauna of Mount Kitanglad, Bukidnon Province, Mindanao, Philippines. *Fieldiana Zoology* 114 (1): 1–43.
- Pili AN, Del Prado YLC (2018) Alcalá's Triangle-spotted Snake *Cyclocorus lineatus alcalai* on Sibuyan Island, Romblon Province, Philippines. *Southeast Asian Vertebrates Records*: 16–17.
- Pili AN, Sy EY, Diesmos MLL, Diesmos AC (2019) Island hopping in a biodiversity hotspot archipelago: reconstructed invasion history and updated status and distribution of alien frogs in the Philippines 1. *Pacific Science* 73 (3): 321–343. <https://doi.org/10.2984/73.3.2>
- Proctor J, Argent GC, Madulid DA (1997) Forests of the ultramafic Mount Giting-Giting, Sibuyan Island, the Philippines. *Edinburgh Journal of Botany* 55 (2): 295–316. <https://doi.org/10.1017/s0960428600002201>
- DENR-PAWB (Department of Environment and Natural Resources, Protected Areas and Wildlife Bureau) (2009) The Verde Framework: the Verde Island Passage Marine Corridor management plan framework. Manila, Philippines, 8–12 pp. <http://www.naujan.com/wp-content/uploads/2013/11/The-Verde-Framework.pdf>. Accessed on 2022-5-16.
- Rickart EA, Heaney LR, Goodman SM, Jansa S (2005) Review of the Philippine genera *Chrotomys* and *Celaenomys* (Murinae) and description of a new species. *Journal of Mammalogy* 86 (2): 415–428. <https://doi.org/10.1644/bel-124.1>
- Shine R (2010) The ecological impact of invasive cane toads (*Bufo marinus*) in Australia. *The Quarterly Review of Biology* 85 (3): 253–291. <https://doi.org/10.1086/655116>
- Siler CD, Brown RM (2010). Phylogeny-based species delimitation in Philippine slender skinks (Reptilia: Squamata: Scincidae: Brachymeles): taxonomic revision of pentadactyl species groups and description of three new species. *Herpetological Monographs* 24 (1): 1–54. <https://doi.org/10.1655/herpmonographs-d-10-00003.1>
- Siler CD, Brown RM (2011) Evidence for repeated acquisition and loss of complex body-form characters in an insular clade of Southeast Asian semi-fossorial skinks. *Evolution* 65 (9): 2641–2663. <https://doi.org/10.1111/j.1558-5646.2011.01315.x>
- Siler CD, Linkem CW, Diesmos AC, Alcalá AC (2007) A new species of *Platymantis* (Amphibia: Anura: Ranidae) from Panay Island, Philippines. *Herpetologica* 63 (3): 351–364. [https://doi.org/10.1655/0018-0831\(2007\)63\[351:ansopa\]2.0.co;2](https://doi.org/10.1655/0018-0831(2007)63[351:ansopa]2.0.co;2)
- Siler CD, McVay J, Diesmos AC, Brown RM (2009) A new species of fanged frog (Dicroglossidae; genus *Limnonectes*) from southern Mindanao Island, Philippines. *Herpetologica* 65 (1): 105–114. <https://doi.org/10.1655/08-041R1.1>
- Siler CD, Diesmos AC, Alcalá AC, Brown RM (2011a) Phylogeny of Philippine slender skinks (Scincidae: *Brachymeles*) reveals underestimated species diversity, complex biogeographical relationships, and cryptic patterns of lineage diversification. *Molecular Phylogenetics Evolution* 59 (1): 53–65. <https://doi.org/10.1016/j.ympev.2010.12.019>
- Siler CD, Fuiten AM, Jones RM, Alcalá AC, Brown RM (2011b) Phylogeny-based species delimitation in Philippine slender skinks (Reptilia: Squamata: Scincidae) II: taxonomic revision of *Brachymeles samarensis* and description of five new species. *Herpetological Monographs* 25 (1): 76–112. <https://doi.org/10.1655/herpmonographs-d-10-00013.1>
- Siler CD, Welton LJ, Siler JM, Brown J, Bucol A, Diesmos AC, Brown RM (2011c) Amphibians and Reptiles, Luzon Island, Aurora Province and Aurora Memorial National Park, northern Philippines: new island distribution records. *Check List* 7 (2): 182–195. <https://doi.org/10.15560/7.2.182>
- Siler CD, Davis DR, Diesmos AC, Guinto F, Whitsett C, Brown RM (2016) A new species of *Pseudogekko* (Squamata: Gekkonidae) from the Romblon Island Group, Central Philippines. *Zootaxa* 4139 (2): 248–260. <https://doi.org/10.11646/zootaxa.4139.2.8>
- Siler CD, Swab JC, Oliveros CH, Diesmos AC, Averia L, Alcalá AC, Brown RM (2012) Amphibians and reptiles, Romblon Island Group, central Philippines: comprehensive herpetofaunal inventory. *Check List* 8 (3): 443–462. <https://doi.org/10.15560/8.3.443>

- Simmons J (2015) Herpetological collecting and collections management. Third edition. Society for the study of Amphibians and Reptiles, Shoreview, USA, 191 pp.
- Supsup CE, Redoblado BR, Guinto FM (2016) First record of rare endemic tree skink *Lipinia vulcania* on Sibuyan Island, Philippines, with notes on its conservation and taxonomic status. *Herpetological Review* 47: 24–26.
- Supsup CE, Asis AA, Carestia UV, Diesmos AC, Mallari NAD, Brown RM (2020) Variation in species richness, composition and herpetological community structure across a tropical habitat gradient of Palawan Island, Philippines. *Herpetozoa* 33: 95–111. <https://doi.org/10.3897/herpetozoa.33.e47293>
- Sy EY, Tan EK (2013) Geographic distribution: *Gonyosoma oxycephalum* (red-tailed green ratsnake). *Herpetological Review* 44: 275.
- Taylor EH (1917) *Brachymeles*, a genus of Philippine lizards. *Philippine Journal of Science* 12: 267–279.
- Taylor EH (1928) Amphibians, lizards, and snakes of the Philippines. In: Dickerson R (Ed.) *Distribution of life in the Philippines*. Monograph 21, Philippine Bureau of Science, Manila, Philippines, 214–241.
- Tongson E, McShane T (2006) Securing land tenure for Biodiversity Conservation in Sibuyan, Romblon, Philippines. *Policy Matters* 14: 286–296.
- Uetz P, Freed P, Hosek J (2022) The reptile database. <http://reptile-database.org>. Accessed on: 2022-4-23.
- Van Rooijen J, Vogel G (2012) A revision of the taxonomy of *Dendrelaphis caudolineatus* (Gray, 1834) (Serpentes: Colubridae). *Zootaxa* 3272 (1): 1–25. <https://doi.org/10.11646/zootaxa.3272.1.1>
- Von Rintelen K, Arida E, Häuser C (2017) A review of biodiversity-related issues and challenges in megadiverse Indonesia and other Southeast Asian countries. *Research Ideas and Outcomes* 3: e20860. <https://doi.org/10.3897/rio.3.e20860>
- Voris HK (2000) Maps of Pleistocene sea levels in Southeast Asia: shorelines, river systems and time durations. *Journal of Biogeography* 27 (5): 1153–1167. <https://doi.org/10.1046/j.1365-2699.2000.00489.x>
- Weinell JL, Hooper E, Leviton AE, Brown, RM (2019) Illustrated key to the snakes of the Philippines. *Proceedings of the California Academy of Sciences (Series 4)* 66 (1): 1–49.
- Welton LJ, Siler CD, Diesmos AC, Brown RM (2009). A new bent-toed gecko (genus *Cyrtodactylus*) from Southern Palawan Island, Philippines and clarification of the taxonomic status of *C. annulatus*. *Herpetologica* 65 (3): 328–343. <https://doi.org/10.1655/08-057r1.1>
- Welton LJ, Reccio I, Wood Jr PL, Brown RM (2020) Phyloforensics in action: genetic identity of an illegally trafficked Philippine Monitor Lizard. *Herpetological Review* 51 (2): 215–220. <https://doi.org/10.1016/j.biocon.2012.10.013>
- Welton LJ, Siler CD, Linkem CW, Diesmos AC, Brown RM (2010) Philippine bent-toed geckos of the *Cyrtodactylus agusanensis* complex: multilocus phylogeny, morphological diversity, and descriptions of three new species. *Herpetological Monographs* 24: 55–85. <https://doi.org/10.1655/herpmonographs-d-10-00005.1>
- Welton LJ, Siler CD, Oaks JR, Diesmos AC, Brown RM (2013b) Multilocus phylogeny and Bayesian estimates of species boundaries reveal hidden evolutionary relationships and cryptic diversity in Southeast Asian monitor lizards. *Molecular Ecology* 22 (13): 3495–3510. <https://doi.org/10.1111/mec.12324>
- Welton LJ, Siler CD, Grismer LL, Diesmos AC, Sites JW, Brown RM (2017) Archipelago-wide survey of Philippine forest dragons (Agamidae: *Gonocephalus*): multilocus phylogeny uncovers unprecedented levels of genetic diversity in a biodiversity hotspot. *Biological Journal of the Linnean Society* 120 (2): 410–426. <https://doi.org/10.1111/bj.12878>
- Welton LJ, Siler CD, Linkem CW, Diesmos AC, Diesmos ML, Sy E, Brown RM (2013a) Dragons in our midst: phyloforensics of illegally traded Southeast Asian water monitor lizards. *Biological Conservation* 159: 7–15. <https://doi.org/10.1016/j.biocon.2012.10.013>
- Wood PL, Guo X, Travers SL, Su YC, Olson KV, Bauer AM, Grismer LL, Siler CD, Moyle RG, Andersen MJ, Brown RM (2019) Parachute geckos free fall into synonymy: gekko phylogeny, and a new subgeneric classification, inferred from thousands of ultra-conserved elements. *Molecular Phylogenetics Evolution* 146: 1–43. <https://doi.org/10.1016/j.ympev.2020.106731>
- Wollenberg-Valero KC, Marshall JC, Bastiaans E, Caccone A, Camargo A, Morando M, Niemiller ML, Pabijan M, Russello MA, Sinervo B, Werneck FP, Sites JW, Wiens JJ, Steinfartz S (2019) Pattern, mechanisms and genetics of speciation in reptiles and amphibians. *Genes* 10 (9): 646. <https://doi.org/10.3390/genes10090646>
- Wynn A, Diesmos AC, Brown RM (2016) Two new species of *Malayotyphlops* from the northern Philippines, with redescription of *M. luzonensis* (Taylor) and *M. ruber* (Boettger). *Journal of Herpetology* 50: 157–168. <https://doi.org/10.1670/14-104>
- Yodthong S, Stuart BL, Aowphol A (2019) Species delimitation of crab-eating frogs (*Fejervarya cancrivora* complex) clarifies taxonomy and geographic distributions in mainland Southeast Asia. *ZooKeys* 883: 119–153. <https://doi.org/10.3897/zookeys.883.37544>
- Yu TL, Wang DL, Busam M, Deng YH (2019) Altitudinal variation in body size in *Bufo minshanicus* supports Bergmann's rule. *Evolutionary Ecology* 33 (3): 449–460. <https://doi.org/10.1007/s10682-019-09984-1>
- Yumul GP, Dimalanta CB, Tamayo Jr, RA (2005) Indenter-tectonics in the Philippines: example from the Palawan microcontinental block–Philippine mobile belt collision. *Resource Geology* 55 (3): 189–198. <https://doi.org/10.1111/j.1751-3928.2005.tb00240.x>
- Yumul GP, Dimalanta CB, Marquez EJ, Maglambayan VB (2008) Tectonic setting of a composite terrane: a review of the Philippine island arc system. *Geosciences Journal* 12 (1): 7–17. <https://doi.org/10.1007/s12303-008-0002-0>
- Yumul GP, Dimalanta CB, Tamayo Jr. RA, Maury RC (2003) Collision, subduction, and accretion events in the Philippines: a synthesis. *Island Arc* 12 (2): 77–91. <https://doi.org/10.1046/j.1440-1738.2003.00382.x>
- Yumul GP, Dimalanta CB, Marquez EJ, Queaño KL (2009) Onland signatures of the Palawan microcontinental block and Philippine mobile belt collision and crustal growth process: a review. *Journal of Asian Earth Sciences* 34 (5): 610–623. <https://doi.org/10.1016/j.jseaes.2008.10.002>