TAXONOMIC REVISION OF THE *PSEUDOGEKKO COMPRESICORPUS* COMPLEX (REPTILIA: SQUAMATA: GEKKONIDAE), WITH DESCRIPTIONS OF THREE NEW SPECIES

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**Abstract:** Recent phylogenetic analysis of false geckos, genus *Pseudogekko*, revealed unrecognized diversity within these exceedingly rare and enigmatic Philippine forest geckos. Newly available genetic datasets revealed that two of the four currently recognized species are complexes of multiple, deeply divergent evolutionary lineages. In this paper we evaluate species diversity in the *Pseudogekko compresicorpus* Complex and describe three new species in this unique clade of endemic Philippine geckos. For nearly a century, *P. compresicorpus* has been recognized as a single, "widespread" species with a geographic range spanning three major faunal regions and several isolated islands. This perception of the species' wide geographic range has persisted due to the rarity of this species. We evaluate morphological data, in light of a recent phylogenetic study on the genus, to define species limits in *P. compresicorpus*, finding character-based evidence that unambiguously supports the recognition of four unique evolutionary lineages within the complex, three of which we describe as new species. These evolutionary species correspond to monophyletic lineages supported in recent molecular studies. We also address the historically controversial generic affiliation of *Pseudogekko labialis* and conclude that this poorly known species is a member of the genus *Lepidodactylus*. All species recognized in this study possess allopatric geographic ranges and differ from congeners by numerous diagnostic characters of external morphology and, therefore, should be recognized as full species in accordance with any lineage-based species concept. This study nearly doubles the known diversity of Philippine false geckos.

**Key words:** Biodiversity; Conservation; Endemism; False geckos; Philippines; Species complex; Taxonomy

Philippine gecko diversity represents an impressive array of diversification in morphology, behavior, and ecology (Brown and Alcala, 1978). From ancient, micro-endemic lineages with small ranges on larger islands (Rössler et al., 2006; Linkem et al., 2010) to several widespread species groups (Siler et al., 2010), and to species limited to tiny isolated islets (Brown and Alcala, 2000; Brown et al., 2011a; Siler et al., 2012a), Philippine geckos are quite ecologically variable, considering that only 57 species are currently recognized (PhilBREO, 2014). The archipelago’s gekkonids also range from morphologically conservative gecko generalists (Brown and Alcala, 1978) to delicate forest vegetation specialists and to several lineages capable of derived gliding locomotion with highly specialized cutaneous structures (e.g., *Ptychozoon* and *Luperosaurus*; Brown et al., 1997, 2012a; Dudley et al., 2007).

Other than the work of Taylor (1922a), Brown and Alcala (1978) published the only comprehensive systematic review of Philippine geckos. Their work summarized taxonomic diversity, provided an identification guide, and recognized 31 species. Many of these had been observed rarely in natural conditions and were known only on the basis of one or two specimens in museum collections. Although Brown and Alcala’s (1978) foundational work has remained the only synopsis of the archipelago’s geckos, species diversity has now nearly doubled since its original publication. Remarkably, of the country’s 57 species, 47 (82%) are Philippine.
endemics (Brown et al., 2008, 2009, 2011a,b).

Despite this dramatic improvement in our understanding of this predominantly endemic fauna, a few genera are very poorly known (i.e., Luperosaurus; Brown et al., 2007, 2011b, 2012a). A case in point is the extremely rare, endemic genus *Pseudogekko* (Taylor, 1915, 1922a), a group of four small, delicate, distinctly elongate, highly secretive, and entirely arboreal forest geckos (Brown and Alcala, 1978).

In the last two decades, our comprehensive biodiversity surveys throughout the Philippines (e.g., Siler et al., 2012b; Brown et al., 2013a,b) resulted in only a handful of vouched genetic samples (Siler et al., 2014a) for species of *Pseudogekko*. Yet even in the absence of dense population genetic sampling, Siler et al. (2014a) revealed a considerable degree of cryptic genetic diversity and high levels of genetic divergence between clades. As currently recognized, the distribution of each of these species spans multiple recognized faunal regions or Pleistocene Aggregate Island Complexes (PAICs; Brown and Guttman, 2002; Brown and Diesmos, 2009). In fact, as currently defined (Brown and Alcala, 1978; Siler et al., 2012b), the species *Pseudogekko compresicorpus* is distributed across three distinct faunal regions (Luzon, Mindanao, and Visayan PAICs) and an isolated island group (Romblon Island.

![Fig. 1.—Maximum clade credibility topology of *Pseudogekko* derived from Bayesian analyses in the recent phylogenetic study of Siler et al. (2014a). Numbers below nodes indicate maximum likelihood bootstrap values (left) and Bayesian posterior probabilities (right). Boxed numbers correspond to numbered sampling localities shown on the associated topographic map of the Philippines.](image-url)
Group; Fig. 1). Currently, there are few examples of seemingly widespread species of Philippine vertebrates that truly defy these regional biogeographic boundaries (Brown and Diesmos, 2002, 2009; Brown et al., 2002, 2013a). Phylogenetic studies support many species as more range-restricted, with patterns generally consistent with inferred PAIC formation (Siler et al., 2012c,d; Brown et al., 2013a). In fact, phylogenetic analyses reveal unique lineages of *P. compresicorpus* with apparent distributions corresponding to circumscribed biogeographic subregions of the archipelago (Brown and Diesmos, 2009; Brown et al., 2013a; Siler et al., 2014a).

Species of the genus *Pseudogekko* represent a critical conservation urgency (Alcala et al., 2004; Brown and Diesmos, 2009; Brown et al., 2012a); the named taxa are nearly all microendemics threatened by habitat destruction in the form of anthropogenic forest removal. First, all species are arboreal and considered obligate primary forest taxa or *Pandanus* spp. (screw pines) plant microhabitat specialists (Brown and Alcala, 1978). Second, based on the little information known about population health and microhabitat preferences, populations apparently have decreased over the last 100 yr (IUCN, 2013; Siler et al., 2014a). To make matters worse, the preferred habitat (lowland and coastal forests) of these species has been near completely removed throughout the Philippines (Catibog-Sinha and Heaney, 2006; Brown and Diesmos, 2009; Siler et al., 2014b). Finally, the genus has had a complex taxonomic history (Brown and Alcala, 1978). Members of *Pseudogekko* previously have been assigned alternatively and with little confidence (Taylor, 1922a; Brown and Alcala, 1978) to the genera *Luperosaurus* (Taylor, 1915) and *Lepidodactylus* (Brown and Tanner, 1949; Brown, 1964; Kluge, 1968; Brown and Alcala, 1978) and even to *Gekko* (Taylor, 1922b). The combination of these factors highlights the urgent need to assess species boundaries within the genus in order to understand unique evolutionary lineages better, as conservation targets, and to implement conservation strategies more efficiently for protecting these threatened and charismatic species (Sanguila et al., 2011; Siler et al., 2014c).

In this study, we investigate species diversity within the *Pseudogekko compresicorpus* Complex, with the understanding that several of the divergent populations identified here may represent threatened, and possibly endangered, unique evolutionary lineages (Siler et al., 2014a), worthy of both formal taxonomic recognition and prioritization for immediate conservation action. The taxonomic revisions herein are guided by the results of the recent phylogenetic study on geckos of the genus *Pseudogekko* (Siler et al., 2014a).

**Taxonomic History**

Taylor (1915) described *Luperosaurus compresicorpus* on the basis of one specimen collected from Limay, Bataan Province, Luzon Island. In this description, Taylor (1915) expressed uncertainty about the placement of this species in *Luperosaurus* (as opposed to erecting a new genus to accommodate the one specimen), noting that the new species had an elongate, compressed body form (a characteristic generally shared with the other known species of *Luperosaurus*; see Brown et al., 2000). Later, Taylor (1922a) transferred this species to a novel genus, *Pseudogekko*, where it remained a monotypic genus until the description of a new species, *Pseudogekko shebae*, from the Soloman Islands (Brown and Tanner, 1949). Unfortunately, the type specimen of *P. compresicorpus* (Philippine Bureau of Science, No. 1781) was destroyed during World War II (Brown and Alcala, 1978), which limited comparisons of this species with other newly described gekkonids from this region. However, the collection of additional specimens of *P. compresicorpus* from Mindanao and Bohol islands allowed Brown (1964) to examine shared characteristics between *Pseudogekko* and other phenotypically similar genera (*Gekko, Hemiphyllolepidae, Lepidodactylus, Pseudogekko, Pseudothecadactylus*). Brown (1964) noted similarities between *P. shebae* and *Lepidodactylus*, and *P. shebae* was later placed in this genus by Kluge (1968).

Additionally, Kluge (1968) transferred two species to *Pseudogekko: Pseudogekko brevipes*—a taxon that was originally described as a *Lepidodactylus* (Boettger, 1897), and *Pseudogekko smaragdinus*, originally described as a member of the genus *Gekko* (Taylor,
Prior to its placement in Pseudogekko, Brown (1964) questioned the assignment of P. brevipes to the genus Lepidodactylus on the basis of body proportions (e.g., "breadth of head to SVL") that appeared more similar to members of Pseudogekko than to species of Lepidodactylus. Finally, Peters (1867) originally described Pseudogekko labialis as Gecko labialis, which Bouleneger (1885) later re-described as a Lepidodactylus. However, it was not until additional specimens became available that Brown and Alcala (1978) transferred this species to Pseudogekko. Other than Brown and Alcala’s samples (collected in 1971), this exceedingly rare species had not been collected since its original description. A recent (2012) 5-wk targeted survey effort in the neotype locality (Brown and Alcala, 1978; Mt. Hilong-Hilong, northeastern Mindanao Island) by a large group of experienced herpetologists produced no specimen records (R. Brown, personal observation).

The genus Pseudogekko contains four species (P. brevipes, P. compresicorpus, P. labialis, P. smaragdinus), and no new species have been described since the late 1970s (Brown and Alcala, 1978). Recently, Siler et al. (2014a) estimated phylogenetic relationships and elucidated multiple highly divergent genetic lineages within P. compresicorpus, which the authors interpreted as probable evidence for the existence of additional, as of yet undefined species contained within P. brevipes and P. compresicorpus.

In this paper, we re-analyze new data from all available P. compresicorpus specimens, including both our own collections from the last 20 yr (see Siler et al., 2014a) and older museum specimens (Brown and Alcala, 1970, 1978; Brown et al., 2013a). We use these data and reliable diagnostic differences to revise Pseudogekko taxonomy and describe four distinct species. To relate our findings to ongoing conservation efforts, we address conservation threats and priorities and provide new or re-evaluated formal conservation status assessments (IUCN, 2013) for each species described in this study. Finally, we also reassessed the taxonomic affinities of P. labialis and refer this species to the genus Lepidodactylus, in agreement with the conclusions of Bouleneger (1885).

**Materials and Methods**

**Field Work, Sample Collection, and Specimen Preservation**

We conducted fieldwork on Bohol, Leyte, Luzon, Negros, Mindanao, and Polillo islands in the Philippines (Fig. 1). We collected specimens between 900 and 1600 h, which were euthanized via cardiac injection of nembutal or immersion in aqueous chloroform, dissected for genetic samples (liver or muscle preserved in 95% ethanol or flash frozen in liquid nitrogen), fixed in 10% buffered formalin, and eventually transferred to 70% ethanol (<2 mo later). Museum abbreviations for specimens examined or sequenced in this study are those of Sabaj Perez (2013; CAS and CAS-SU: California Academy of Sciences, San Francisco, California; KU: The University of Kansas Biodiversity Institute, Lawrence, Kansas; PNM: National Museum of the Philippines [formerly Philippine National Museum], Manila, Luzon).

**Morphological Data**

We examined fluid-preserved specimens (see Appendix) for variation in qualitative, meristic, and mensural characters using the phylogenetic results of Siler et al. (2014a) conservatively as a guide for the identification of possibly unique evolutionary lineages. We determined sex by the presence in males of precloacal or precloacal-femoral pores, or as necessary (immatures, females) by gonadal inspection. We (DRD and CDS) took measurements to the nearest 0.1 mm with digital calipers. Whenever possible, we scored meristic and mensural characters (based on Brown et al., 2005, 2009, 2011a,b, with some modifications) on the left side of the body. Characters include: snout–vent length (SVL, distance from tip of snout to vent); tail length (TL, distance from posterior margin of vent to tip of tail); total length (TotL, distance from tip of snout to tip of tail); tail width (TW, measured at widest section of tail posterior to hemipene bulge); tail height (TH, measured from ventral to dorsal surface of tail at the same point as TW); head length (HL, from tip of snout to posterior tip of mandible); head width (HW, widest measure of head width at jaw articulations); head height (HH, measured from ventral to dorsal surface of head at jaw articulations); midbody width
(MBW, measured from lateral surface to opposing lateral surface at midpoint of axilla–groin region); snout length (SNL, distance from anterior border of orbit to tip of snout); eye diameter (ED, at widest point); eye–nares distance (END, distance from anterior margin of eye to posterior margin of nares); internarial distance (IND, from dorsal aspect between most-laterally distal edges of nares); interorbital distance (IOD, distance between midline of orbits from dorsal aspect); axilla–groin distance (AGD, distance between posterior edge of arm insertion and anterior edge of leg insertion); femur length (FL); tibia length (TBL); supra-labials (SUL, number of enlarged supralabials, from first supralabial in contact with rostral to posteriormost enlarged supralabial retaining distinct, square to rectangular shape); infra-labials (IFL, number of infralabials); circumorbital (CO, number of visible, small circumorbital scales encircling the eye); pore-bearing precloacal scales (PPS, number of differentiated, enlarged, pore-bearing scales in series anterior to the cloaca); pore-bearing precloacal-femoral scales (PFPS, number of differentiated, enlarged, pore-bearing scales in series anterior to the cloaca and, in some specimens, extending into the femoral region on the ventral surface of the thigh); Finger III scanners (FinIII, scan, number of enlarged, undivided scanners beneath Finger III, starting just distal to point where skin between digits ends); Toe IV scanners (ToeIVscan, number of undivided scanners beneath Toe IV, starting just distal to point where skin between digits ends); paravertebral scales (PVS, number of scales along dorsal surface of body between midpoints of limb insertions); ventral scales (VS, number of scales along ventral surface of body between midpoints of limb insertions); and interorbital scales (IOS, total number of scales in straight line distance across interorbital region from center of each eye, across both eyelids). In the descriptions, ranges are followed by mean ± standard deviation in parentheses.

Species Concept

As with many recent taxonomic revisions of organisms endemic to island systems, we embrace the General Lineage Concept (de Queiroz, 1998, 1999) as an extension of the Evolutionary Species Concept (Simpson, 1961; Wiley, 1978; Frost and Hillis, 1990). We diagnose lineages as distinct species based on a suite of diagnostic morphological features, genetic divergence, and allopatric distributions in separate biogeographic subregions of the archipelago (Brown and Diesmos, 2009; Brown et al., 2013a). Lineage-based species concepts have been shown to be particularly appropriate when applied to Philippine land vertebrate biodiversity (for review, see Davis et al., in press). In this study we use a morphological dataset for all available specimens in museum collections of the focal lineages, conservatively guided by phylogenetic estimates of relationships (Siler et al., 2014a), to diagnose distinct lineages in this complex of false geckos, recognizing both previously described and new species on the basis of nonoverlapping morphological character states.

Results

Morphology

Although sample sizes are low for many lineages described in this study, we have evaluated and examined all known specimens in museum collections of each putative species. Despite the small sample sizes, multiple adult specimens for each focal species are available, and each of the four identified lineages of the Pseudogekko compresicorpus Complex are readily diagnosed on the basis of numerous, nonoverlapping differences in meristic, mensural, and color pattern characters (Tables 1, 2). Variation in morphological characters (Tables 1, 2) mirrors the results observed in phylogenetic analyses (Fig. 1; Siler et al., 2014a) and supports the recognition of four P. compresicorpus Complex lineages. Characters differing among these lineages include body, head, and snout length, body and digit scale counts, pore-bearing scale counts, and coloration and pigmentation patterns (Tables 1, 2; species accounts below), many of which are commonly employed diagnostic morphological characters in taxonomic studies of Philippine gekkonid lizards (Brown and Alcala, 1978; Brown et al., 2011a,b). With the exception of the presence (males) or absence (females) of pores in the precloacal or precloacal-femoral region of the body, we
Table 1.—Summary of mensural characters in all known species of Pseudogekko. In parentheses, mean ± standard deviation follows ranges.

<table>
<thead>
<tr>
<th>Character</th>
<th>P. pungkaypinit sp. nov.</th>
<th>P. ditoy</th>
<th>P. chavacano</th>
<th>P. compresicorpus</th>
<th>P. brevipes</th>
<th>P. smaragdinus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Mindanao PAIC</td>
<td>Visayan and Mindanao PAIC</td>
<td>Visayan and Mindanao PAIC</td>
<td>Visayan and Mindanao PAIC</td>
<td>Polillo Island and Bicol Peninsula (Luzon Island)</td>
<td></td>
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<tr>
<td>Snout–vent length (male)</td>
<td>54.9–59.7 (57.1 ± 2.6)</td>
<td>66.6–76.0 (71.8 ± 5.1)</td>
<td>75.2–78.9 (78.5 ± 3.6)</td>
<td>55.9–58.6 (57.6 ± 1.5)</td>
<td>39.2–41.7 (40.3 ± 1.0)</td>
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<tr>
<td>Snout–vent length (female)</td>
<td>59.9–62.6 (61.1 ± 1.9)</td>
<td>63.2–66.7 (65.4 ± 1.5)</td>
<td>75.0–77.3 (75.6 ± 3.3)</td>
<td>57.2–60.7 (59.2 ± 1.3)</td>
<td>35.7–38.6 (37.2 ± 1.5)</td>
<td></td>
</tr>
</tbody>
</table>
| Axilla–groin distance     | 27.0–32.6 (30.4 ± 2.8)   | 25.3–28.8 (28.0 ± 1.6) | 32.5–36.1 (34.3 ± 3.3) | 26.3–29.9 (28.6 ± 1.8) | 15.5–18.0 (16.6 ± 0.6) 
| Total length              | 111.9–117.3 (114.6 ± 3.8)| 112.5–114.1 (114.1 ± 1.5) | 100.0–103.0 (101.3 ± 1.6) | 84.1–87.2 (85.7 ± 1.5) | 56.2–60.4 (58.4 ± 1.8) |
| Midbody width             | 5.4–6.7 (6.0 ± 0.4)      | 6.3–7.5 (7.0 ± 0.6)    | 6.3–7.2 (6.6 ± 0.3)    | 6.4–7.3 (6.9 ± 0.5)    | 4.9–5.4 (5.1 ± 0.3) 
| Head length               | 9.2–10.2 (9.7 ± 0.5)     | 9.2–10.2 (9.7 ± 0.5)   | 9.3–9.6 (9.9 ± 0.7)    | 9.3–9.6 (9.9 ± 0.7)    | 3.9–5.4 (4.1 ± 0.3) |
| Head width                | 16–18 (17 ± 1.9)         | 17–19 (17 ± 1.0)       | 17–19 (17 ± 1.0)       | 18–19 (17 ± 1.0)       | 15–16 (15 ± 1.0) 
| Head width/snout–vent     | 1.7–2.0 (1.8 ± 0.1)      | 1.6–1.7 (1.7 ± 0.1)    | 1.6–1.7 (1.7 ± 0.1)    | 1.6–1.7 (1.7 ± 0.1)    | 0.7–1.0 (0.8 ± 0.1) |
| Snout length/head length  | 7.5–8.6 (8.3 ± 0.5)      | 7.5–8.6 (8.3 ± 0.5)    | 7.5–8.6 (8.3 ± 0.5)    | 7.8–9.4 (8.4 ± 0.6)    | 4.9–5.6 (5.3 ± 0.4) |
| snout length / body length | 8.0–8.6 (8.3 ± 0.5)    | 8.0–8.6 (8.3 ± 0.5)    | 8.0–8.6 (8.3 ± 0.5)    | 8.0–8.6 (8.3 ± 0.5)    | 5.5–6.0 (5.8 ± 0.3) |

a = Data unavailable due to small sample sizes.

One of the persistent taxonomic issues with the diversity of Pseudogekko is whether P. labidis is appropriately placed in the genus rather than with morphologically more-similar species in the genus Lepidodactylus. Not only have researchers historically considered P. labidis as a species of the genus Lepidodactylus based on morphological similarity (Boulenger, 1885; Wermuth, 1965; Kluge, 1968) but, also, other key morphological differences have been highlighted between these two genera. Kluge (1968) described the genus

**Genetic Divergence**

Uncorrected pairwise sequence divergences are quite variable within the lineages defined here as species (0.0–19.0% mtDNA divergence; Siler et al., 2014a) as compared to many recent observations of endemic vertebrate diversity in the Philippines (Siler and Brown, 2010; Welton et al., 2010; Siler et al., 2012c,d). However, genetic divergences between lineages are significantly higher, with the exception of interpopulation divergences among Luzon populations of P. compresicorpus (>26% mtDNA divergence; Siler et al., 2014a). The monophyletic lineages defined by Siler et al. (2014a; P. compresicorpus, Pseudogekko pungkaypinit sp. nov., Pseudogekko ditoy sp. nov., and Pseudogekko chavacano sp. nov., the latter three of which are first described herein) are distinguished from each other by levels of genetic divergence greater than those observed between species of most other Philippine geckos (Siler et al., 2010; Welton et al., 2010; Brown et al., 2011b). Given the higher observed intraspecific genetic diversity, we suspect that several of the strongly supported clades (Fig. 1; Clades C, D) actually represent independent evolutionary lineages (Siler et al., 2014a). However, in two cases (P. compresicorpus, P. pungkaypinit sp. nov.), divergent populations are represented by single vouchersed specimens, at times juvenile individuals, which prevents us from confidently evaluating these putatively unique, and genetically divergent, populations at this time.

**Status of Pseudogekko labidis**

One of the persistent taxonomic issues with the diversity of Pseudogekko is whether P. labidis is appropriately placed in the genus rather than with morphologically more-similar species in the genus Lepidodactylus. Not only have researchers historically considered P. labidis as a species of the genus Lepidodactylus based on morphological similarity (Boulenger, 1885; Wermuth, 1965; Kluge, 1968) but, also, over the years key morphological differences have been highlighted between these two genera. Kluge (1968) described the genus

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*PAIC = Pescador Aggregate Island Complex.*
<table>
<thead>
<tr>
<th>Character</th>
<th><em>P. compressocorpus</em> (3 male, 4 female)</th>
<th><em>P. panglappini</em> sp. nov. (4 male, 2 female)</th>
<th><em>P. ditoy</em> sp. nov. (1 male, 1 female)</th>
<th><em>P. chavacano</em> sp. nov. (1 male, 1 female)</th>
<th><em>P. brevipes</em> (4 male, 2 female)</th>
<th><em>P. smaragdinus</em> (16 male, 17 female)</th>
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<tr>
<td>Finger III scansor count</td>
<td>15 (4)</td>
<td>15 (3)</td>
<td>14 (1)</td>
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<td>12 (2)</td>
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<tr>
<td>Femoral pores</td>
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<td>Absent</td>
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<tr>
<td>Dominant body coloration</td>
<td>Dark brown to tan</td>
<td>Grayish brown</td>
<td>Light brown</td>
<td>Light brown</td>
<td>Dark brown</td>
<td>Bright neon yellow to orange (undisturbed) to neon green (disturbed)</td>
</tr>
<tr>
<td>Conspicuous head spotting</td>
<td>Dense, neon green</td>
<td>Absent</td>
<td>Absent</td>
<td>Dense, neon green</td>
<td>Sparse, cream</td>
<td>Dense black, sparse white</td>
</tr>
<tr>
<td>Conspicuous dorsolateral spotting</td>
<td>Faint neon green</td>
<td>Absent</td>
<td>Absent</td>
<td>Neon green</td>
<td>Cream</td>
<td>Large black, small white</td>
</tr>
<tr>
<td>Conspicuous limb spotting</td>
<td>Faint neon green</td>
<td>Absent</td>
<td>Absent</td>
<td>Dense, neon green</td>
<td>Absent</td>
<td>Sparse black and white</td>
</tr>
<tr>
<td>Tail banding</td>
<td>Absent</td>
<td>Absent</td>
<td>Present</td>
<td>Absent</td>
<td>Absent</td>
<td>Neon yellow, white, and neon orange</td>
</tr>
</tbody>
</table>
Pseudogekko as differing from the genera Lepidodactylus and Hemiphlylocladactylus based on the shape of the enlarged, precloacal pore-bearing scale series (series greatly arched anteromedially in Pseudogekko vs. not arched; Fig. 2). Boettger (1897) described Lepidodactylus brevipes (eventually recognized as a member of the genus Pseudogekko by Kluge [1993]), noting it could be separated from Lepidodactylus labialis Peters and Lepidodactylus pulcher Boulenger on the basis of having a more-slender body, fewer pre-cloacal pores, and less-distinctive series of submental scales. Even in their redescription of P. labialis and recognition of the species as a member of the genus Pseudogekko, Brown and Alcala (1978) recognized that the general body coloration and pigmentation patterns of P. labialis did not match the patterns of any other species in the genus Pseudogekko. They note that all individuals of P. labialis have distinct dorsal markings that range from a vertebral row of bars or spots to irregular transverse bars or even dark dorsolateral stripes (Brown and Alcala, 1978); these markings are absent in the remaining species of Pseudogekko (Brown and Alcala, 1978; C. Siler, personal observation).

Based on measurements and comparisons of individuals of P. labialis available in museum collections (see Appendix; Specimens Examined) and on published accounts documenting character differences between P. labialis and all other members of the genus Pseudogekko, we now formally recognize this species as a member of the genus Lepidodactylus. This decision is supported by a suite of diagnostic character differences between L. labialis and all other recognized species of Pseudogekko. Species of the genus Pseudogekko differ from L. labialis by having enlarged, pore-bearing scale series (precloacal or precloacal-femoral scales) that are greatly arched anteromedially (vs. not distinctly arched anteromedially; Fig. 2), having markedly narrower bodies (HW/SVL 15–16% vs. >18%), longer relative snout lengths (SNL/HW 63–71% vs. <57%), by the presence of small, juxtaposed postmental scales (vs. distinctly enlarged, strongly imbricate postmentals; Fig. 2), and the absence (vs. presence) of darkly pigmented, and often striped, body coloration.

<table>
<thead>
<tr>
<th>Character</th>
<th>P. compresicorpus</th>
<th>P. pungkaypinit sp. nov.</th>
<th>P. ditoy sp. nov.</th>
<th>P. chavacano sp. nov.</th>
<th>P. brevipes</th>
<th>P. smaragdinus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body striping</td>
<td>Absent</td>
<td>Absent</td>
<td>Absent</td>
<td>Absent</td>
<td>Light brown</td>
<td>Absent</td>
</tr>
<tr>
<td>Interorbital banding</td>
<td>Absent</td>
<td>Absent</td>
<td>Absent</td>
<td>Absent</td>
<td>Light brown</td>
<td>Absent</td>
</tr>
<tr>
<td>Ciliary ring coloration</td>
<td>Light blue</td>
<td>Absent</td>
<td>Absent</td>
<td>Absent</td>
<td>Absent</td>
<td>Absent</td>
</tr>
</tbody>
</table>
Taxonomic Conclusions
With the removal of *Lepidodactylus labialis* from the genus *Pseudogekko*, the remaining four focal lineages of this study each possess unique, nonoverlapping suites of diagnostic character states of morphology (Tables 1, 2), and all correspond to clades defined in multilocus phylogenetic analyses of DNA sequence data (Fig. 1; Siler et al., 2014a). Combined with biogeographic evidence and allopatric distributions, our data support the interpretation of four distinct evolutionary lineages (full evolutionary species) within the *P. compresicorpus* Complex.

The type of the genus, *Pseudogekko compresicorpus* (Taylor, 1915), was described on the basis of a specimen from the Bataan Peninsula of Luzon Island (Fig. 1). Our new specimens from localities close to Taylor’s (1915) type locality match the holotype description in all regards. Additionally, several distinct morphological characters not emphasized by Taylor (1915) closely ally with sampled populations from the northern Philippines (Fig. 1, Clade D; Siler et al., 2014a) and with all previously published accounts and references to the holotype (Taylor, 1915, 1922a): (1) infralabials 13–16, (2) precloacal pores 13 or 14, and (3) body coloration homogenous brown and unpatterned. Accordingly, we recognize *P. compresicorpus* as a species that occurs in the northern Philippines, restricting the species distribution to the Luzon PAIC, Romblon Island Group, and Masbate Island (Visayan PAIC). Furthermore, we recognize large-bodied populations from Mindanao Island (Fig. 1; Clade C), small-bodied populations from Leyte Island (Fig. 1; Clade B), and small-bodied populations from the Zamboanga Peninsula of Mindanao Island (Fig. 1; Clade A) as members of three, unique evolutionary lineages which we describe below as new species.

**Taxonomic Accounts**

*Pseudogekko compresicorpus* (Taylor, 1915)
(Figs. 1–8)


**Diagnosis.** — *Pseudogekko compresicorpus* can be distinguished from congeners by the following combination of characters: (1) body size large (SVL 54.9–59.7 mm); (2) axilla–groin distance 49.3–55.2% SVL; (3) head length 16.1–18.0% SVL; (4) snout long 56.9–64.6% head length; (5) Toe IV scanners 18 or 19; (6) paravertebral scales 226–234; (7) ventral scales 127–130; (8) supralabials 16–18; (9) infralabials 13–16; (10) circumporal scales 39–45; (11) precloacal pores 13 or 14; (12) femoral pores absent; (13) dominant body coloration dark brown to tan; (14) conspicuous head spotting present, neon green; (15) conspicuous dorsolateral spotting present, faint, neon green; (16) conspicuous limb spotting present, faint, neon green; (17) tail banding absent; (18) body striping absent; (19) interorbital banding absent; and (20) ciliary ring coloration present, light blue (Fig. 3; Tables 1 and 2).

**Comparisons.** — Characters distinguishing *Pseudogekko compresicorpus* from all other species of *Pseudogekko* are summarized in Tables 1 and 2. *Pseudogekko compresicorpus* most closely resembles *P. pungkaypinit* sp. nov. However, it differs from this species by having a shorter total body length (TotL, <117.3 mm vs. >125.3), narrower body (MBW <6.7 mm vs. >7.7), fewer infralabials (13–16 vs. 17–19), fewer circumorbitals (39–45 vs. 50–55), fewer precloacal pores (13 or 14 vs. 17–20), fewer paravertebral scales (226–234 vs. 265–280), a dark brown to tan (vs. grayish brown) body coloration, and by the presence (vs. absence) of conspicuous neon green spots on the head, dorsolateral region of the body, and limbs, absence (vs. presence) of striped pigmentation patterns on the body, and presence (vs. absence) of a light blue ciliary ring.

*Pseudogekko compresicorpus* can be distinguished from *P. ditoy* sp. nov. and *P.
chavacano sp. nov. by having a greater number of paravertebral scales (>226 vs. <197) and ventral scales (>127 vs. <123); from P. ditoy by having a longer snout–vent length (SVL > 54.9 mm vs. <52.6), a greater number of Toe IV scanners (18 or 19 vs. 16 or 17), fewer precloacal pores (13–14 vs. 18), by the presence (vs. absence) of neon green spots on the head, dorsolateral region of the body and limbs, and presence (vs. absence) of a light blue ciliary ring; from P. chavacano by having a longer total body length (TotL > 111.9 mm vs. 95.8), a shorter relative head length (HL 16–18% SVL vs. 19%), fewer circumorbitals (39–45 vs. 46), fewer precloacal pores (13 or 14 vs. 16), and by the absence (vs. presence) of tail banding and presence (vs. absence) of a light blue ciliary ring; from P. brevipes by having a longer snout–vent length (SVL > 54.9 mm vs. <52.5), a greater number of Finger III scanners (15–17 vs. 12–14), a
Fig. 4.—Photographic plates at ×15 magnification of lateral and ventral views of the head and dorsal views of the trunk of preserved specimens for (A) *Pseudogekko compressicorpus* (KU 326436), (B) *Pseudogekko pungkaypinit* sp. nov. (Holotype, PNM 9910, formerly KU 326435), (C) *Pseudogekko ditoy* sp. nov. (Paratype, KU 326437), and (D) *Pseudogekko chavacano* sp. nov. (Holotype, PNM 9912, formerly KU 314963). Scale bar = 2 mm. Photographs by JLW and CDS.
greater number of Toe IV scanners (18 or 19 vs. 13–15), a greater number of infralabials (13–16 vs. 12–14), a greater number of circumorbitals (39–45 vs. 35–37), and by the presence of dense, neon green spots on the head (vs. dense black and sparse white), presence of neon green (vs. large black and small white) dorsolateral spotting, presence of neon green limb spotting (vs. sparse black and white), absence of tail banding (vs. presence, neon yellow, white, and neon orange), and presence (vs. absence) of a light blue ciliary ring; and from *P. smaragdinus* by having a greater number of circumorbitals (39–45 vs. 33–35), fewer enlarged pores (13 or 14 precloacal pores vs. 32–41 precloacal-femoral pores), fewer paravertebral scales (226–234 vs. 241–252), dark brown to tan (vs. bright neon yellow to orange [undisturbed] to neon green [disturbed]) body coloration, absence (vs. presence) of femoral pores, presence of dense, neon green spots on the head (vs. dense black and sparse white), presence of neon green (vs. large black and small white) dorsolateral spotting, presence of neon green limb spotting (vs. sparse black and white), absence of tail banding (vs. presence, neon yellow, white, and neon orange), and presence (vs. absence) of a light blue ciliary ring.

*Description (based on description of holotype [Taylor, 1915] and 7 referred specimens).*—Details of the head scalation are shown in Figures 3 and 4A. Measurements and meristic data scored from the holotype are provided below in brackets. Body small, slender, SVL 54.9–59.7 mm (females), 55.9–58.8 mm (males) [62.0]; limbs well developed, moderately slender; tail slender; margins of limbs smooth, lacking cutaneous flaps or dermal folds; trunk lacking ventrolateral cutaneous fold.

Head size moderate, slightly differentiated from neck, characterized by only slightly hypertrophied temporal and adductor musculature; snout rounded in dorsal and lateral aspect (Fig. 4A); HW 118.2–146.8% MBW [120%], 77.2–89.2% HL; HL 16.1–18.0% SVL; SNL 67.9–78.8% HW, 56.9–64.6% HL; dorsal surfaces of head relatively homogeneous, with only slightly pronounced concave postnasal, internasal, prefrontal, and interorbital concavities; auricular opening moderate, ovoid, angled slightly anterovertrally and posterodorsally from beneath temporal swellings on either side of head; tympanum deeply sunken; eye large; pupil vertical, margin wavy (Fig. 4A); limbs and digits relatively short and moderately slender; thighs moderately thicker compared to brachium; tibia length 7.2–9.6% SVL, 53.5–64.6% femur length.

Rostral rectangular in anterior view, 3X as broad as high, sutured anterolaterally with anteriormost enlarged supranasals, projecting onto dorsal surface of head to point in line with midline of nasal; nostril surrounded by first labial, or first and second labials, rostral, one or two enlarged postnasals, and one or two enlarged supranasals; supranasals separated by 2–5 small median scales, or touching at midline; enlarged supranasals equal in size to enlarged postnasals or greatly enlarged compared to postnasals.
Total number of differentiated supralabials 16–20, bordered dorsally by one row of differentiated, slightly enlarged snout scales; total number of differentiated infralabials 13–16 [16], bordered ventrally by 3–5 rows of slightly enlarged scales; undifferentiated chin and gular scales; postrictal scales undifferentiated; remaining undifferentiated gulars very small, round, nonimbricate, juxtaposed (Fig. 4A), each scale surrounded by six interstitial granules, giving the appearance of a Star of David configuration under high magnification (Fig. 5).

Fig. 6.—Illustrations of precloacal pore-bearing scale series of adult males for (A) *Pseudogekko compresicorpus* (KU 331657), (B) *Pseudogekko pungkaypinit* sp. nov. (Holotype, PNM 9810, formerly KU 326435), (C) *Pseudogekko ditoy* sp. nov. (Paratype, KU 326438), and (D) *Pseudogekko chavacano* sp. nov. (Holotype, PNM 9812, formerly KU 314963). For comparison, the precloacal-femoral pore-bearing scale series of (E) *P. smaragdinus* (KU 302824) is provided for reference. Scale bar = 2 mm. Illustrations by CDS.
Dorsal cephalic scales fairly homogeneous in size, shape, disposition, and distribution; cephalic scalation slightly convex, round to oval scales; postnasal, prefrontal, internasal, and interorbital depressions; undifferentiated posterior head scales granular, slightly convex; throat and chin scales small, juxtaposed, and nonimbricate, making a moderately sharp transition to gular and pectoral region scalation, with enlarged cycloid, imbricate scales; circumorbitalts 39–45.

Axilla–groin distance 49.3–55.2% SVL [58.1]; undifferentiated dorsal body scales round, convex, juxtaposed, relatively homogeneous in size; each dorsal scale surrounded by six interstitial granules; dorsals sharply transition to imbricate ventrals along lateral body surface; paravertebrals between midpoints of limb insertions 226–234; ventrals between midpoints of limb insertions 127–130; scales on dorsal surfaces of limbs more imbricate than dorsals; scales on dorsal surfaces of hands and feet similar to dorsal limb scales, heavily imbricate; ventral body scales flat, cycloid, strongly imbricate, much larger than lateral or dorsal body scales, relatively homogeneous in size.

Ten to 14 pores [14], in continuous precloacal pore-bearing series, arranged in a widely obtuse, W-formation (Fig. 6); patch of slightly enlarged scales posterior to precloacal series, roughly three scale rows in size, forming an oval patch; precloacals situated atop a substantial precloacal bulge.

Digits moderately expanded and covered on palmar and plantar surfaces by bowed, unnotched, undivided scansors (Fig. 7); digits with minute vestiges of interdigital webbing; subdigital scansors of Finger III 15–17, Toe IV 18–19; subdigital scansors of hands and feet bordered proximally (on palmar and plantar surfaces) by 1–4 slightly enlarged scales that form a near-continuous series with enlarged scansors; all digits clawed, but first claw greatly reduced (Fig. 7); remaining terminal phalanges compressed, with large recurved claws (Fig. 7).

Tail short, 52.9–58.5 mm [48], 89.7–99.6% SVL [77.4%]; round, not heavily depressed; TH 76.1–91.9% TW; caudals similar in size to dorsals, subcaudals similar in size to ventrals.

Coloration in preservative (based on seven referred specimens).—Background dorsal body coloration light tan with intermittent small cream and dark brown speckles; pattern continued down tail but speckled areas are concentrated occasionally into larger blotches; dorsal region of head with same color pattern, except for darker brown interorbital region; dorsal surfaces of limbs with same color pattern; one individual with sparse, orangetan spots on arms and legs (KU 331657); lateral region of body with same coloring pattern as dorsal region; lateral region of head with same color patterns as body, except for

Fig. 7.—Illustration of left hand and foot of Pseudogekko compressicolor (KU 326436). Scale bar = 2 mm. Illustrations by CDS.
slightly lighter area just posterior to orbits and along both sets of labial scales; circumorbital scales with mixture of cream and medium brown coloration; ventral side of body with background cream color, with speckling pattern of lateral side of body wrapping around to approximately halfway to midpoint of venter; ventral surfaces of head with same color pattern as body; ventral surfaces of limbs cream with medium to dark brown speckles scattered sparsely throughout; palmar and plantar surfaces solid cream, except medium brown regions between scanners; ventral surface of tail solid cream with occasional light brown speckles, speckles increase in intensity towards tail tip.

Coloration in life (based on CDS and RMB field notes and photographs in life; Fig. 8A).—Dorsal ground color of head, trunk, and tail chocolate brown. Head with conspicuous light green mottling in canthal and interocular regions as well as on lateral surface between the eye and ear opening. Dorsolateral surface of body with series of eight faint, light green blotches running from nuchal region onto base of tail. Dorsal limb surfaces colored as trunk, but with random placement light green blotches. Tail colored as trunk, but with series of longitudinally elongate, paravertebral cream blotches. Ventral coloration light gray ground color with minimal chocolate brown mottling along the lateral margins. Taylor (1915) reports simply that the holotype was cinnamon brown in life.

Distribution.—Pseudogekko compresicorpus occurs on the Luzon PAIC (Luzon and Polillo islands), Visayan PAIC (Masbate Island), and the Romblon Island Group (Tablas Island; Fig. 1). Although currently not recorded from other islands in the Luzon PAIC, we would not be surprised if future surveys discover additional island populations (i.e., Catanduanes Island).

Ecology and natural history.—Pseudogekko compresicorpus has been observed in first- and secondary-growth forest (Fig. 1) on leaves of shrubs and small trees 2–4 m above the ground. Taylor (1922a) notes that two, fully developed embryos were found in eggs that had been attached to the underside of a leaf at the top of a recently felled tree. This natural history observation may indicate that species
of this genus may have a more arboreal lifestyle than currently is appreciated and that, although encountered by us in forest lower strata, this species may also inhabit tree canopies.

Both *Pseudogekko compresicorpus* and *P. smaragdinus* occur on Luzon and Polillo islands (Fig. 1); however, there is insufficient evidence to determine if populations of these species occur in sympatry. Similar to *P. pungkaypinit* sp. nov., numerous populations of *P. compresicorpus* have been observed in the wild as compared to other species in the genus. In fact, as currently recognized, *P. compresicorpus* possesses the broadest geographic distribution of any species in the genus. Unfortunately, even with this broad distribution, few specimens exist in museum collections. At this time we do not find this species qualifies for Critically Endangered, Endangered, Vulnerable, or Near Threatened status under the IUCN criteria for classification (IUCN, 2013). Therefore, we recommend that the species be considered Least Concern until additional information can be obtained concerning the health and diversity of wild populations throughout the Luzon and Visayan PAICs and Romblon Island Group.

*Pseudogekko pungkaypinit* sp. nov. (Figs. 1, 4, 6, 8)

**Holotype.**—PNM 9810 (RMB Field No. 4392, formerly KU 326435), adult male, collected in secondary-growth forest on 3 September 2002, in the Calbiga—a creek area on the Visayas State University Visca campus, Barangay Guadalupe, Municipality of Baybay, Leyte Province, Leyte Island, Philippines (10°44′44.466″N, 124°47′29.2272″E; WGS-84) by R.M. Brown.

**Paratypes.**—One adult female (CAS 131854) collected from the bark of a rotten stump on 31 March 1964 in Dusita Barrio, Municipality of Sierra Bullones, Bohol Province, Bohol Island, Philippines (09°46′59.34″N, 124°18′10.8″E; WGS-84) by S. Magusara; one adult male (CAS-SU 236655) collected on floor of lowland bamboo forest on 9 May 1962 in Dusita Barrio, Municipality of Sierra Bullones Municipality, Bohol Province, Bohol Island, Philippines (09°46′57.5″N, 124°18′10.8″E; WGS-84) by A.C. Alcala; one adult male (KU 324426) collected on 6 August 2009 in Raja Sikatuna Natural Park, Barangay Danicop, Municipality of Sierra Bullones, Bohol Province, Bohol Island, Philippines (09°42′19.836″N, 124°7′24.384″E; WGS-84) by C.D. Siler; one adult female (KU 336243) collected on 17 April 2008 on the campus of Visayas State University, Baybay City, Municipality of Baybay, Leyte Province, Leyte Island, Philippines (10°44′44.466″N, 124°47′29.2272″E; WGS-84) by R.M. Brown; one adult male (KU 334019) collected on 19 July 2012 near Gingoog River, Mt. Lumot, Sitio Kibuko, Barangay Lawaan, Municipality of Gingoog City, Misamis Oriental Province, Mindanao Island, Philippines (08°49′0.3396″N, 125°5′44.3292″E; WGS-84) by R.M. Brown.

**Diagnosis.**—*Pseudogekko pungkaypinit* can be distinguished from congeners by the following combination of characters: (1) body size large (SVL 66.6–76.8 mm); (2) axilla–groin distance 53.7–55.9% SVL; (3) head length 17.1–17.7% SVL; (4) snout 53.6–60.2% head length; (5) Toe IV scanners 17–21; (6) paravertebral scales 265–280; (7) ventral scales 125–155; (8) supralabials 16–20; (9) infralabials 17–19; (10) circumorbitals 50–55; (11) precloacal pores 17–20; (12) femoral pores absent; (13) dominant body coloration grayish brown; (14) head, body and tail immaculate; (15) body stripes present; (16) interorbital band absent; and (17) ciliary ring coloration undifferentiated (Tables 1, 2).

**Comparisons.**—Characters distinguishing *Pseudogekko pungkaypinit* from all other species of *Pseudogekko* are summarized in Tables 1 and 2. *Pseudogekko pungkaypinit* most closely resembles *P. compresicorpus*; however, *P. pungkaypinit* differs from *P. compresicorpus* by having a longer total body length (TotL > 125.3 mm vs. <117.3), wider body (MBW > 7.7 mm vs. <6.7), more infralabials (17–19 vs. 13–16), circumorbitals (50–55 vs. 39–45), precloacal pores (17–20 vs. 13 or 14), and paravertebral scales (265–280 vs. 226–234); a grayish brown (vs. dark brown to tan) body coloration, the absence (vs. presence) of neon green spots on the head, dorsolateral region of the body, and limbs, the presence (vs. absence) of dark stripes on the body, and absence (vs. presence) of a light blue ciliary ring.
Pseudogecko pungkaypinit can be distinguished from *P. ditoy* sp. nov., *P. chavacano* sp. nov., *P. brevipes*, and *P. smaragdinus* by having a longer body (SVL > 66.6 mm vs. <64.3), a longer trunk (AGD > 37.2 mm vs. <35.5), more circumorbitals (50–55 vs. <46) and paravertebral scales (>265 vs. <252), and by the presence (vs. absence) of dark dorso-lateral body stripes; from *P. ditoy* and *P. chavacano* by having a wider body (MBW > 7.7 mm vs. <7.3); from *P. chavacano* by having a shorter relative head length (HL 17–18% SVL vs. 19%), a greater number of precloacal pores (17–20 vs. 16), and by the absence (vs. presence) of neon green spots on the head, dorsolateral region of the body, and limbs, and absence (vs. presence) of tail bands; from *P. brevipes* by having greater numbers of Finger III scanners (15–17 vs. 12–14), Toe IV scanners (17–21 vs. 13–15), infralabials (17–19 vs. 12–14), and precloacal pores (17–20 vs. 13–15), and by the absence (vs. presence) of cream spots on the head and dorso-lateral region of the body, and absence (vs. presence) of interorbital band; and from *P. smaragdinus* by having fewer enlarged pores (17–20 precloacal pores vs. 32–41 precloacal-femoral pores), its grayish brown (vs. bright neon yellow to orange [undisturbed] to neon green [disturbed]) body coloration, and by the absence (vs. presence) of femoral pores, absence (vs. presence) of black and white spots on the head, dorso-lateral surfaces of the body and limbs, and absence (vs. presence) of transverse tail bands.

**Description of holotype.**—Details of the head scalation are shown in Figure 4B. Adult male in excellent condition, hemipenes everted, hemipenal bulge present; small incision in the sternal region (portion of liver removed for genetic sample). Body small, slender, SVL 71.9 mm; limbs well developed, moderately slender; tail original, slender; margins of limbs smooth, lacking cutaneous flaps or dermal folds; trunk lacking ventrolateral cutaneous fold.

Head moderate in size, slightly differentiated from neck, characterized by only slightly hypertrophied temporal and adductor musculature; snout rounded in dorsal and lateral aspect (Fig. 4B); HW 132.3% MBW, 86.5% HL; HL 17.3% SVL; SNL 69.6% HW, 60.2% HL; dorsal surfaces of head relatively homogeneous, with only slightly pronounced concave postnasal, internasal, prefrontal, and interorbital concavities; auricular opening moderate, ovoid, angled slightly anteroven-trally and posterodorsally from beneath temporal swellings on either side of head; tympanum deeply sunken; eye large; pupil vertical, margin wavy (Fig. 4B); limbs and digits relatively short and moderately slender; thighs moderately thicker compared to brachium; tibia length 10.1% SVL, 63.5% femur length.

Rostral rectangular in anterior view, 3X as broad as high, sutured anterolaterally with anteriormost enlarged supranasals; nostril surrounded by first labial, rostral, one enlarged postnasal, and two enlarged supranasals; supranasals separated by five small median scales.

Total number of differentiated supralabials 18/19 (left/right [L/R]), bordered dorsally by 1–2 rows of differentiated, slightly enlarged snout scales; total number of differentiated infralabials 17/17 (L/R), bordered ventrally by 7–9 rows of slightly enlarged scales; undifferen-tiated chin and gular scales; postrictal scales undifferentiated; remaining undifferentiated gulars very small, round, nonimbiricate to slightly imbricate, juxtaposed (Fig. 4B).

Dorsal cephalic scales fairly homogeneous in size, shape, disposition, and distribution; cephalic scalation slightly convex, round to oval scales; postnasal, prefrontal, internasal, and interorbital depressions; undifferentiated posterior head scales granular, slightly convex; throat and chin scales small, juxtaposed, and nonimbiricate, making a moderately sharp transition to gular and pectoral region scalation, with enlarged cycloid, imbricate scales; circumorbital 51/53 (L/R); interorbital scales 74.

Axilla–groin distance 54.3% SVL; undifferentiated dorsal body scales round, convex, juxtaposed, relatively homogeneous in size; dorsal scales surrounded by interstitial granules, however, granules do not give clear appearance of a Star of David configuration under high magnification; dorsals sharply transition to imbricate ventrals along lateral body surface; paravertebrals between mid-points of limb insertions 280; ventrals between
midpoints of limb insertions 140; scales on dorsal surfaces of limbs more imbricate than dorsals; scales on dorsal surfaces of hands and feet similar to dorsal limb scales, strongly imbricate; ventral body scales flat, cycloid, strongly imbricate, much larger than lateral or dorsal body scales, relatively homogeneous in size.

Twenty enlarged pore-bearing scales present, in continuous precloacal pore-bearing series, arranged in a widely obtuse, W-formation (Fig. 6); precloacals 10/10 (L/R); patch of slightly enlarged scales posterior to precloacal series, roughly four scale rows in size, forming an oval patch; precloacals situated atop a substantial precloacal bulge.

Digits moderately expanded and covered on palmar/plantar surfaces by bowed, unnotched, undivided scansors; digits with minute vestiges of interdigital webbing; digital scansors of hand: 11/10, 12/12, 15/14, 17/17, and 11/11 (L/R) on Finger I–Finger V, respectively; foot: 12/12, 14/14, 16/17, 19/19, and 12/12 (L/R) on Toe I–Toe V, respectively; digital scansors of hands and feet bordered proximally (on palmar and plantar surfaces) by 1–4 slightly enlarged scales that form a near-continuous series with enlarged scansors; all digits clawed but first claw greatly reduced; remaining terminal phalanges compressed, with large recurved claws.

Tail short, 67.2 mm, 93.5% SVL; round, not heavily depressed; TH 88.4% TW; caudals similar in size to dorsals, subcaudals similar in size to ventrals.

Coloration of holotype in preservative.—Background dorsal color medium brown with small dark brown speckles throughout, pattern continued down tail; dorsal nuchal region slightly lighter brown than remainder of body; dorsal regions of head and limbs have same color pattern as body; lateral regions of trunk have same coloration pattern as dorsum; lateral side of head has thin cream circumorbital ring of scales, lighter brown area on nuchal region continues to just posterior to orbit; remainder of head continues same pattern as trunk, except supralabial and infralabial scales are solid cream with few dark brown speckles; ventral side of trunk has cream background color, with speckling pattern of lateral side of trunk wrapping around to approximately halfway to midpoint of venter; ventral region of head follows same pattern as trunk; ventral regions of limbs, hands, and feet are cream with medium to dark brown speckles scattered sparsely throughout; ventral surface of tail is solid cream with occasional light brown speckles that increase in intensity towards tip.

Coloration in life (based on field notes and photographs in life; Fig. 8B).—Dorsal ground color of head, trunk and tail olive-brown; lateral surfaces of head and trunk with series of light brown stripes, from eye to leg insertion, stripes oriented posteroventrally; dorsal limb color similar to trunk, but lacking any discernable pattern; dorsal tail color similar to trunk, but with occasional small, cream spots; ventrum light cream ground color with minimal light olive-brown mottling along the lateral margins.

Measurements and scale counts of holotype in millimeters.—Snout–vent length 71.9; tail length 67.2; total length 139.1; axilla–groin distance 39.1; tail width 3.6; tail height 3.2; head length 12.4; head width 10.7; head height 7.0; midbody width 8.1; snout length 7.5; eye diameter 4.8; eye–nare distance 5.9; internarial distance 2.8; interorbital distance 5.8; femur length 11.4; tibia length 7.3; Finger III scansors 17; Toe IV scansors 19; supralabials 18; infralabials 17; circumorbitals 51; preanofemoral pores 20; paravertebral scales 280; ventral scales 140.

Variation.—Among the six specimens examined, we observed variation in the numbers of precloacal pores, supralabials, infralabials, and digital scansors. The number of supralabials varied between 16 (KU 334019), 18 (KU 326423, 326435), 19 (CAS-SU 23655, KU 324426), and 20 (CAS 131854); infralabials varied between 17 (CAS 131854, KU 324426, 326423, 326435), 18 (CAS-SU 23655), and 19 (KU 334019). Precloacal pore counts in adult males were observed to vary between 17 (KU 324426), 19 (CAS-SU 23655, KU 334019), and 20 (KU 326435). The number of Finger III scansors varied between 15 (CAS 131854, CAS-SU 23655, KU 326423), 16 (KU 334019), and 17 (KU 324426, 326435); Toe IV scansors varied between 17 (CAS-SU 23655), 18 (CAS 131854, KU 326423), 19 (KU 326435, 334019), and 20 (KU 324426).
Distribution.—Pseudogekko pungkaypinit is known only from Bohol, Leyte, and Mindanao islands, although it may be possible that it will eventually be discovered on other islands in the Mindanao PAIC (i.e., Samar, Dinagat, Biliran, Siargao; Fig. 1).

Ecology and natural history.—Pseudogekko pungkaypinit has been observed in disturbed, secondary-growth forest only; however, similar to assumptions about other species in the genus, we assume this species once occurred in lower elevation primary forest on Bohol, Leyte, and Mindanao islands and possibly throughout much of the Mindanao PAIC. All individuals in museum collections have been collected on top of leaves of shrubs 2–4 m above the ground. In addition to the new species, P. chavacano also occurs on Mindanao Island; however, at present there is no evidence that these two species overlap in distributions, with P. pungkaypinit seemingly distributed in the central and eastern regions of Mindanao Island and P. chavacano found in the far western region of Mindanao Island (Zamboanga Peninsula; Fig. 1). Likewise, P. pungkaypinit and P. ditoy occur in sympatry on Leyte Island, and both P. brevipes and P. pungkaypinit occur on Bohol Island, although whether they occur in sympatry is unclear. Pseudogekko pungkaypinit is known from four separate populations on three islands. Although only a handful of individuals exist in museum collections, this species appears to be more-widely distributed and, therefore, possibly experiencing less overall conservation threats than its congeners. As a result of this species broad geographic distribution (as currently recognized) and the lack of available information about the species ecology, natural history, and intraspecific diversity, we do not find this species qualifies for Critically Endangered, Endangered, Vulnerable, or Near Threatened status under the IUCN criteria for classification (IUCN, 2013). Therefore, we recommend that the species be considered Least Concern until additional information can be obtained concerning the health and diversity of wild populations throughout the Mindanao PAIC.

Etymology.—We derive the new species name from the Leyte language (Waray-Waray) terms for “treetop” (pungkay) and “lizard” (pinit) in reference to the new forest gecko’s arboreal microhabitat preference. The specific epithet is a noun of masculine gender. Suggested common name: Southern Philippine False Gecko.

Pseudogekko ditoy sp. nov. (Figs. 1, 4–6, 8)

Holotype.—PNM 9811 (RMB Field No. 4365, formerly KU 326437), adult female, collected in secondary-growth forest on 28 June 1999, in Sitio Cienda, Barangay Gabas, Municipality of Baybay, Leyte Province, Leyte Island, Philippines (10°41′N, 124°48′E; WGS-84), by R.M. Brown.

Paratype.—One adult male (KU 326438) collected in lowland, secondary-growth forest (2030 to 2300 h) on 31 August 2001, in the Calbiga—a river area, Barangay Gabas, Municipality of Baybay, Leyte Province, Leyte Island, Philippines (10°41′N, 124°48′E; WGS-84) by A.C. Diesmos.

Diagnosis.—Pseudogekko ditoy can be distinguished from congeners by the following combination of characters: (1) body size small (SVL 49.4–52.6 mm); (2) axilla–groin distance 50.7–56.5% SVL; (3) head length 18.2–18.9% SVL; (4) snout 57.4–59.3% head length; (5) Toe IV scanners 16 or 17; (6) paravertebral scales 180–185; (7) ventral scales 111–118; (8) supralabials 17–20; (9) infralabials 16 or 17; (10) circumorbitals 40 or 43; (11) precloacal pores 18; (12) femoral pores absent; (13) ground body coloration light brown; (14) head spots absent; (15) dorso-lateral body spots absent; (16) limb spots absent; (17) tail bands absent; (18) body stripes absent; (19) interorbital band absent; and (20) ciliary ring coloration undifferentiated (Tables 1, 2).

Comparisons.—Characters distinguishing Pseudogekko ditoy from all other species of Pseudogekko are summarized in Tables 1 and 2. Pseudogekko ditoy most closely resembles P. chavacano; however, P. ditoy differs from P. chavacano by having tendencies towards fewer Finger III scanners (14 or 15 vs. 15 or 16), fewer toe IV scanners (16 or 17 vs. 17–20), more paravertebral scales (180–185 vs. 195–197), more precloacal pores (18 vs. 16), and by the
absence (vs. presence) of neon green head, dorsolateral body, and limbs spots and absence (vs. presence) of transverse tail bands. *Pseudogekko ditoy* can be distinguished from *P. compresicorpus*, *P. pungkaypinit*, *P. brevipes*, and *P. smaragdinus* by having fewer paravertebral scales (<185 vs. >195) and ventral scales (<118 vs. >119); from *P. brevipes* by having greater numbers of Toe IV scanners (16 or 17 vs. 13–15), supralabials (17–20 vs. 14–16), infralabials (16 or 17 vs. 12–14), circumorbitals (40–43 vs. 35–37), and precloacal pores (18 vs. 13–15), and by the absence (vs. presence) of cream colored spotting on the head and dorsolateral regions of the body and absence (vs. presence) of interorbital banding; from *P. compresicorpus* and *P. pungkaypinit* by having a shorter snout–vent length (SVL, 52.6 mm vs. >54.9); from *P. compresicorpus* by having fewer Toe IV scanners (16 or 17 vs. 18 or 19) and a greater number of precloacal pores (18 vs. 13 or 14), and by the absence (vs. presence) of neon green spotting on the head, dorsolateral regions of the body, and limbs and absence (vs. presence) of a light blue ciliary ring; from *P. compresicorpus* and *P. pungkaypinit* by having a shorter trunk length (AGD, 29.7 mm vs. >37.2), narrower body (MBW, 7.3 mm vs. >7.7), fewer circumorbitals (40–43 vs. 50–55), and by the absence (vs. presence) of striped pigmentation patterns on the body; and from *P. smaragdinus* by having a greater number of circumorbitals (40–43 vs. 33–35), fewer enlarged precloacal pores (18 precloacs vs. 32–41 precloallemorals) and a light brown (vs. bright neon yellow to orange [undisturbed] to neon green [disturbed]) body coloration, and absence (vs. presence) of black and white spots on the head, body and limbs and absence (vs. presence) of transverse tail bands.

**Description of holotype.**—Details of the head scalation are shown in Figure 4C. Adult female in excellent condition, gravid, with two embryos visible through venter; small incision in the sternal region (portion of liver removed for genetic sample). Body small, slender, SVL 52.6 mm; limbs well developed, moderately slender; tail regenerated, slender; margins of limbs smooth, lacking cutaneous flaps or dermal folds; trunk lacking ventrolateral cutaneous fold.

Head size moderate, slightly differentiated from neck, characterized by only slightly hypertrophied temporal and adductor musculature; snout rounded in dorsal and lateral aspect (Fig. 4C); HW 105.4% MBW, 80.2% HL; HL 18.3% SVL; SNL 74.0% HW, 59.4% HL; dorsal surfaces of head relatively homogeneous, with only slightly pronounced concave postnasal, internasal, prefrontal, and interorbital concavities; auricular opening moderate, ovoid, angled slightly anteroventrally and posterodorsally from beneath temporal swellings on either side of head; tympanum deeply sunken; eye large; pupil vertical, margin wavy (Fig. 4C); limbs and digits relatively short and moderately slender; thighs moderately thicker compared to brachium; tibia length 8.0% SVL, 50.1% femur length.

Rostral rectangular in anterior view, 3× as broad as high, sutured anterolaterally with anteriormost enlarged supranasals; nostril surrounded by rostral, first labial, single enlarged postnasals, and two enlarged supranasals; supranasals separated by five small median scales.

Total number of differentiated supralabials 20/17 (L/R), bordered dorsally by one or two rows of differentiated, slightly enlarged snout scales; total number of differentiated infralabials 17/17 (L/R), bordered ventrally by 5–8 rows of slightly enlarged scales; undifferentiated chin and gular scales; posttrichal scales undifferentiated; remaining undifferentiated gulars very small, round, nonimbricate, juxtaposed (Fig. 4C), each scale surrounded by six interstitial granules, giving the appearance of a Star of David configuration under high magnification (Fig. 5).

Dorsal cephalic scales fairly homogeneous in size, shape, disposition, and distribution; cephalic scalation slightly convex, round to oval scales; postnasal, prefrontal, internasal, and interorbital depressions; undifferentiated posterior head scales granular, slightly convex; throat and chin scales small, juxtaposed and nonimbricate, making a moderately sharp transition to gular and pectoral region scalation, with enlarged cycloid, imbricate scales; circumorbitals 43/48 (L/R); interorbitals 42.

Axilla–groin distance 56.5% SVL; undifferentiated dorsal body scales round, convex, juxtaposed, relatively homogeneous in size;
each dorsal scale surrounded by six interstitial granules; dorsals sharply transition to imbricate ventrals along lateral body surface; paravertebrals between midpoints of limb insertions 185; ventrals between midpoints of limb insertions 118; scales on dorsal surfaces of limbs more imbricate than dorsals; scales on dorsal surfaces of hands and feet similar to dorsal limb scales, heavily imbricate; ventral body scales flat, cycloid, strongly imbricate, much larger than lateral or dorsal body scales, relatively homogeneous in size.

Nineteen enlarged scales (pore-bearing in males; Fig. 6), in continuous precloacal series, arranged in a widely obtuse, W-formation; precloacals 9/10 (L/R); patch of slightly enlarged scales posterior to precloacal series, roughly six scale rows in size, forming an oval patch.

Digits moderately expanded and covered on palmar/plantar surfaces by bowed, unnotched, undivided scansors; digits with minute vestiges of interdigital webbing; subdigital scansors of hand: 8/8, 10/12, 12/14, 15/15, and 10/10 (L/R) on Finger I–Finger V, respectively; foot: 8/9, 11/11, 13/15, 16/16, and 11/11 (L/R) on Toe I–Toe V, respectively; subdigital scansors of hands and feet bordered proximally (on palmar and plantar surfaces) by 1–4 slightly enlarged scales that form a near-continuous series with enlarged scansors; all digits clawed, but first claw greatly reduced; remaining terminal phalanges compressed, with large recurved claws.

Tail regenerated, short, 30.5 mm, 58.0% SVL; single distinct fracture plane present, composed of enlarged, cylindrical scales wrapping around tail, separating original tail (anteriorly) from regenerated tail (posteriorly); tail round, not depressed; TH 81.3% TW; caudals similar in size to dorsals, subcaudals similar in size to ventrals.

**Coloration of holotype in preservative.**—Background dorsal body coloration is light tan with intermittent small cream and dark brown speckles; this pattern is continued down the tail. The dorsal region of the limbs follows the same pattern with a few areas of concentrated darker blotches. The dorsal region of the head has the same speckled pattern as the trunk, except for a darker region between and just posterior to the orbits, and a slightly lighter region just anterior to the eyes. In the postnasal region there is a stripe of medium brown speckles on top of the lighter tan and cream background color. The lateral region of the trunk has the same coloring pattern as the dorsal region. The lateral region of the head has a thick, cream-colored ring of circumorbital scales and a vague line of light brown blotches from snout to orbit. The venter of the body is solid cream except for occasional light brown speckles. The ventral region of the tail is solid cream with occasional light brown speckles that increase in intensity as you continue to the tip. The gular region of the head is solid cream with light brown blotches just proximate to the infralabials. The ventral side of the limbs, hands, and feet is a solid cream except for a light brown stripe between each scanner. In this individual, Finger IV on the right hand is heavily speckled light brown.

**Coloration in life (based on field notes and photographs in life; Fig. 8C).**—Dorsal ground color of head, trunk, and tail light tan with only faint light brown motting. Head slightly darker in appearance, with increased light brown motting on canthal and interocular regions as well as in posterior margins of the head. Lateral surface of the head with conspicuous series of four dark brown stripes, extending between the eye and ear opening. Stripes oriented anterodorsally from ear opening and interspersed with olive green blotches. Dorsal limb surfaces colored as the trunk, but arms with increased light brown motting and a slightly darker appearance. Tail colored as trunk basally, then transitioning to a medium gray just posterior to tail insertion. Ventral coloration not apparent, but appears to consist of a light cream ground color with minimal light brown motting along the lateral margins.

**Measurements and scale counts of holotype in millimeters.**—Snout–vent length 52.6 mm; tail length 30.5 (regenerated); total length 83.0 (with regenerated tail); axilla–groin distance 29.7; tail width 2.2; tail height 1.8; head length 9.6; head width 7.7; head height 5.5; midbody width 7.3; snout length 5.7; eye diameter 3.5; eye–nares distance 4.4; internarial distance 1.9; interorbital distance 4.4; femur length 8.4; tibia length 4.2; Finger III scanners 14; Toe IV scanners 16; supralabials 20; infralabials 17;
circumorbitals 43; paravertebral scales 185; ventral scales 118.

Variation.—Between the two specimens examined we observed variation in the numbers of supralabials, infralabials, and digital scanners. The number of supralabials varied between 17 (KU 326438) and 20 (KU 326437); infralabials varied between 16 (KU 326438) and 17 (KU 326437). Finger III scanners were observed to vary between 14 (KU 326437) and 15 (KU 326438); Toe IV scanners varied between 16 (KU 326437) and 17 (KU 326438).

Distribution.—Pseudogekko ditoy is known only from Leyte Island (Fig. 1).

Ecology and natural history.—Pseudogekko ditoy has been observed in disturbed, secondary-growth forest only; however, we assume the species once occurred in lower-elevation primary forest on Leyte Island. The two individuals represented in museum collections were both found on top of leaves of shrubs 2–3 m above the ground. A third individual was observed but not collected on top of a leaf on a tree 3.5 m above the ground on the bank of a small stream system near a tree nursery outside of Baybay City (C. Siler, personal observation). Interestingly, at least two species of Pseudogekko occur on Leyte Island (P. ditoy and P. brevipes); however, it may be possible that additional exploration of Leyte Island will result in the discovery of populations of P. pungkaypinit as well. Whether or not P. ditoy and P. brevipes occur in sympathy across their ranges on Leyte Island is still unknown. Although little data are available on the natural history and ecology, as well as on the health of wild populations of this unique species, we believe that it qualifies as a conservation concern. We have evaluated this species against the IUCN criteria for classification and find that it qualifies for the status of Vulnerable, VU, based on the following criteria: VU A2ac; B2ab(iii); D2 (IUCN, 2013).

Etymology.—We derive the new species name from the Leyte language (Waray-Waray) term ditoy, meaning diminutive or “the smaller one” in reference to the new species small body size and its distinction from its larger sympatric congener, P. pungkaypinit. The new name is a masculine noun in apposition. Suggested common name: Leyte Diminutive False Gecko.

Pseudogekko chavacano sp. nov. (Figs. 1, 4–6, 8)

Holotype.—PNM 9812 (ACD Field No. 3784, formerly KU 314963), adult male, collected in secondary-growth forest (2000 to 2230 h) on 21 April 2008, in Barangay Pasonanca, Pasonanca National Park, Zamboanga Sur Province, Mindanao Island, Philippines (06°58'39.03"N, 122°04'01.65"E; WGS-84), by A.C. Diesmos.

Paratype.—One adult female (KU 314964) collected on 12 July 2008 in Sitio km 24, Barangay Baluno, Pasonanca National Park, Zamboanga Sur Province, Mindanao Island, Philippines (07°19’7'97"N, 123°31'8'4"E; WGS-84) by A.C. Alcala.

Diagnosis.—Pseudogekko chavacano can be distinguished from congeners by the following combination of characters: (1) body size small (SVL 54.7–55.9 mm); (2) axilla–groin distance 47.8–54.9% SVL; (3) head length 18.6–19.1% SVL; (4) snout 55.2–58.0% head length; (5) Toe IV scanners 17–20; (6) paravertebral scales 195–197; (7) ventral scales 122 or 123; (8) supralabials 15 or 16; (9) infralabials 16 or 17; (10) circumorbitals 46; (11) precloacal pores 16; (12) femoral pores absent; (13) dominant body coloration light brown; (14) conspicuous head spotting present, dense, neon green; (15) conspicuous dorsolateral spotting present, neon green; (16) conspicuous limb spotting present, dense, neon green; (17) tail banding present; (18) body striping absent; (19) interorbital banding absent; and (20) ciliary ring coloration absent (Tables 1, 2).

Comparisons.—Characters distinguishing Pseudogekko chavacano from all other species of Pseudogekko are summarized in Tables 1 and 2. Pseudogekko chavacano most closely resembles P. ditoy; however, P. chavacano differs from P. ditoy by having a tendency towards a greater number of Finger III scanners (15 or 16 vs. 14 or 15), a tendency
towards a greater number of Toe IV scanners (17–20 vs. 16 or 17), fewer supralabials (15 or 16 vs. 17–20), a greater number of circumorbitals (46 vs. 40–43), paravertebral scales (195–197 vs. 180–185), and ventral scales (122–123 vs. 111–118), and fewer precloacal pores (16 vs. 18), and by the presence (vs. absence) of neon green spotting on the head, dorsolateral region of the body, and limbs and presence (vs. absence) of tail banding.

_Pseudogekko chavacano_ can be distinguished from _P. compresicorpus, P. pungkaypinit, P. brevipes_, and _P. smaragdinus_ by having fewer paravertebral scales (<197 vs. >226); from _P. compresicorpus, P. pungkaypinit, and P. smaragdinus_ by having fewer ventral scales (<123 vs. >124); from _P. brevipes_ by having greater numbers of Finger III scanners (15 or 16 vs. 12–14), Toe IV scanners (17–20 vs. 13–15), infralabials (16 or 17 vs. 12–14), circumorbitals (46 vs. 35–37), and precloacal pores (16 vs. 13–15), and by the presence of neon green (vs. cream colored) spotting on the head and dorsolateral region of the body, presence (vs. absence) of neon green spotting on the limbs, presence (vs. absence) of tail banding and absence (vs. presence) of interorbital banding; from _P. compresicorpus, P. pungkaypinit, and P. smaragdinus_ by having a shorter total body length (TotL < 95.8 mm vs. >103.6) and a greater relative head length (HL 19% SVL vs. <18%); from _P. compresicorpus_ by having greater numbers of circumorbitals (46 vs. 39–45), and precloacal pores (16 vs. 13 or 14), and by the presence (vs. absence) of tail banding and absence (vs. presence) of a light blue ciliary ring; from _P. pungkaypinit_ by having a shorter trunk length (AGD < 30.0 mm vs. >37.2), narrower body (MBW < 6.7 mm vs. >7.7), fewer circumorbitals (46 vs. 50–55), fewer precloacal pores (16 vs. 17–20), by the presence (vs. absence) of neon green spotting on the head, dorsolateral region of the body, and limbs, presence (vs. absence) of tail banding and absence (vs. presence) of striped pigmentation patterns on the body; and from _P. smaragdinus_ by having a greater number of circumorbitals (46 vs. 33–35), fewer enlarged pores (16 precloacal pores vs. 32–41 precloacal-femoral pores), disparate body coloration (light brown vs. bright neon yellow to orange [undisturbed] to neon green [disturbed]), and by the absence (vs. presence) of femoral pores and presence of neon green (vs. black and white) spotting on the head, dorsolateral region of the body, and limbs.

**Description of holotype.**—Details of the head scalation are shown in Figure 4D. Adult male in excellent condition, hemipenes not inverted, hemipene bulge present; small incision in the sternal region (portion of liver removed for genetic sample). Body small, slender, SVL 55.9 mm; limbs well developed, moderately slender; tail regenerated, slender; margins of limbs smooth, lacking cutaneous flaps or dermal folds; trunk lacking ventrolateral cutaneous fold.

Head moderate in size, slightly differentiated from neck, characterized by only slightly hypertrophied temporal and adductor musculature; snout rounded in dorsal and lateral aspect (Fig. 4D); HW 131.7% MBW, 81.4% HL; HL 18.6% SVL; SNL 71.2% HW, 58.0% HL; dorsal surfaces of head relatively homogeneous, with only slightly pronounced concave postnasal, internasal, prefrontal, and interorbital concavities; auricular opening moderate, ovoid, angled slightly anteroventrally and posterodorsally from beneath temporal swellings on either side of head; tympanum deeply sunken; eye large; pupil vertical, margin wavy (Fig. 4D); limbs and digits relatively short and moderately slender; thighs moderately thicker compared to brachium; tibia length 8.0% SVL, 50.1% femur length.

Rostral rectangular in anterior view, 3× as broad as high, sutured anterolaterally with anteriormost enlarged supranasals; nostril surrounded by rostral, first labial, single enlarged postnasal, and two enlarged supranasals; anteriormost enlarged supranasals separated by three small median scales.

Total number of differentiated supralabials 15/15 (L/R), bordered dorsally by one row of differentiated, slightly enlarged snout scales; total number of differentiated infralabials 17/17 (L/R), bordered ventrally by 5–8 rows of slightly enlarged scales; undifferentiated chin and gular scales; postrictal scales undifferentiated; remaining undifferentiated gulars very small, round, nonimbricate, juxtaposed (Fig. 4D).
Dorsal cephalic scales fairly homogeneous in size, shape, disposition, and distribution; cephalic scalation slightly convex, round to oval scales; postnasal, prefrontal, internasal, and interorbital depressions; undifferentiated posterior head scales granular, slightly convex; throat and chin scales small, juxtaposed, and nonimbricate, making a sharp transition to gular and pectoral region scalation, with enlarged cycloid, imbricate scales; circumorbital 45/46 (L/R); interorbitals 48.

Axilla–groin distance 47.8% SVL; undifferentiated dorsal body scales round, convex, juxtaposed, relatively homogeneous in size; each dorsal scale surrounded by six interstitial granules, giving the appearance of a Star of David configuration under high magnification (Fig. 5); dorsals sharply transition to imbricate ventrals along lateral body surface; paravertebrals between midpoints of limb insertions 197; ventrals between midpoints of limb insertions 122; scales on dorsal surfaces of limbs more imbricate than dorsals; scales on dorsal surfaces of hands and feet similar to dorsal limb scales, heavily imbricate; ventral body scales flat, cycloid, strongly imbricate, much larger than lateral or dorsal body scales, relatively homogeneous in size.

Sixteen enlarged pore-bearing scales, in continuous precloacal series, arranged in a widely obtuse, W-formation (Fig. 6); precloacals 8/8 (L/R); precloacal series bordered posteriorly by single row of enlarged scales; precloacals situated atop a substantial precloacal bulge.

Digits moderately expanded and covered on palmar–plantar surfaces by bowed, unnotched, undivided scansors; digits with minute vestiges of interdigital webbing; subdigital scansors of hand: 8/8, 10/11, 13/13, 15/15, and 11/11 (L/R) on Finger I–Finger V, respectively; foot: 11/10, 13/12, 15/15, 17/16, and 12/12 (L/R) on Toe I–Toe V, respectively; subdigital scansors of hands and feet bordered proximally (on palmar and plantar surfaces) by 1–4 slightly enlarged scales that form a near-continuous series with enlarged scansors; all digits clawed but first claw greatly reduced; remaining terminal phalanges compressed, with large recurved claws.

Tail regenerated, short, 30.7 mm, 55.0% SVL; single distinct fracture plane present, composed of enlarged, cylindrical to rectangular scales wrapping around tail, separating original tail (anteriorly) from regenerated tail (posteriorly); tail round, not highly depressed; TH 67.0% TW; caudals similar in size to dorsals, subcaudals similar in size to ventrals.

Coloration of holotype in preservative.—Background dorsal body coloration light grey with intermittent small cream and dark grey speckles; pattern continued down tail; dorsum of trunk with occasional larger cream spots; limbs with same coloration pattern as trunk, without larger cream spots; dorsal region of head continues same pattern except for darker grey area above and between orbits; lateral side of trunk has same coloration pattern as dorsum; lateral side of head with thin cream circumorbital ring of scales, remainder of head with same coloration pattern as body; ventral body surface solid cream, pattern continues until just posterior to cloacal region, when coloration pattern of dorsal trunk becomes prevalent, larger cream spots absent; ventral side of head solid cream, with occasional light grey speckling along infralabial scales and thicker with light grey blotches just proximate to infralabials; ventral surfaces of limbs, hands, and feet are solid cream except for space between scansors, which is dark grey.

Coloration in life (based on field notes and photographs in life; Fig. 8D).—Dorsal ground color of head and trunk grayish brown, with light tan, irregular mottling; head with tan blotches highlighted with green centrums throughout; anterior half of canthal region heavily mottled light tan; tan mottling on trunk highlighted with green only along dorsolateral margin, forming vague longitudinal series of moderately sized blotches and ventrally paired smaller blotches extending from arm insertion to base of tail; dorsal coloration at base of tail with minimal tan mottling; dorsal limb surfaces with coloration of head, but appearing with more regular spots, coloration lighter on arms than hindlimbs; legs with higher density of greenish-tan spots; tail regenerated to base, with a light gray ground color overlain with dark brown mottling anteriorly; ventral ground trunk color cream yellow, with minimal light gray mottling along lateral margins.
Measurements and scale counts of holotype in millimeters.—Snout–vent length 55.9; tail length 30.7 (regenerated); total length 86.6 (with regenerated tail); axilla–groin distance 26.7; tail width 2.9; tail height 1.9; head length 10.4; head width 8.5; head height 6.1; midbody width 6.4; snout length 6.0; eye diameter 3.8; eye–nares distance 5.1; internarial distance 2.2; interorbital distance 4.7; femur length 9.8; tibia length 3.9; Finger III scanners 15; Toe IV scanners 17; supralabials 15; infralabials 17; preanofemoral pores 16; circumorbitals 46; paravertebral scales 197; ventral scales 122.

Variation.—Between the two specimens examined, we observed variation in the numbers of supralabials, infralabials, and digital scanners. The number of supralabials varied between 15 (KU 314963) and 16 (KU 314964); infralabials varied between 16 (KU 314964) and 17 (KU 314963). Finger III scanners were observed to vary between 15 (KU 314963) and 16 (KU 314964); Toe IV scanners varied between 17 (KU 314963) and 20 (KU 314964).

Distribution.—*Pseudogekko chavacano* is known only from the Zamboanga Peninsula of Mindanao Island (Fig. 1).

Ecology and natural history.—*Pseudogekko chavacano* has been observed in secondary-growth forest only, with the two available adult specimens collected inside the protected Pasonanca watershed. Two eggs were collected in humus on the bank of a creek in Zamboanga del Norte Province by A.C. Alcala in 1959 and were subsequently hatched in the lab a week later (CAS-SU 23548, 23549). Not only do we assume this species once occurred in previously extensive, low-elevation primary forest in western Mindanao, but also we assume it may possess a wider distribution throughout the Zamboanga Peninsula of Mindanao Island (Fig. 1).

As a testament to the rarity of *Pseudogekko* species in museum collections and our relatively poor understanding of the diversity and relationships in this clade, we note that the newly described species all have been masquerading as members of a single widespread species for nearly a century (Taylor, 1915). Despite small sample sizes, we are confident in our taxonomic decisions based on the numerous conspicuous diagnostic morphological features of all focal species (Table 2) and their deep genetic divergences (Siler et al., 2014a).

Mitochondrial sequence divergences between members of the *Pseudogekko compresicuspus* Complex are remarkably high (Siler et al., 2014a). At a minimum, *P. ditoy* and *P. chavacano* are 13.9% divergent from each other; however, many observed divergences are above 20% (Siler et al., 2014a). Also interesting is the considerable intraspecific genetic diversity observed within *P. compresicuspus* from the Luzon PAIC and *P. pungkaypinit* from the Mindanao PAIC (up
to 19% and 12%, respectively; Siler et al., 2014a). These surprisingly high levels of genetic diversity suggest that additional cryptic species remain unrecognized. In the case of these two species, the observed interpopulation diversity corresponds to isolated regions in the Luzon and Mindanao PAICs already known to contain high levels of endemism among squamate reptiles (Fig. 1). For example, the deep split between populations of *P. pungkaypinit* from Central Mindanao Island and those from Leyte and Bohol islands is similar to species-level boundaries observed in several other groups of vertebrates (e.g., *Cyrtodactylus*, *Brachymeles*, *Varanus*; Siler et al., 2014a,d), birds (Hosner et al., 2013), and mammals (Steppan et al., 2003). Likewise, Luzon Island has been the focus of several recent studies revealing discrete faunal subregions throughout the island, including the Zambales, Cordillera, and Sierra Madres mountain ranges, each with seemingly unique communities of amphibians and reptiles (Siler et al., 2011; Devan-Song and Brown, 2012; Brown et al., 2013a; Siler et al., 2014d). Unfortunately, small series containing only juvenile or subadult specimens from these areas limit our ability to evaluate these genetically unique populations taxonomically.

Recognizing the levels of threat to the survival of many of these unique, endemic geckos, future surveys should focus on these poorly sampled populations to allow for appropriate evaluations of species diversity. In an attempt to aid in efforts to quickly study and protect unique lineages within this genus, we suggest the following populations be prioritized for investigation. (1) *Pseudogekko brevipes*: The currently sampled populations of *P. brevipes* are not only genetically divergent (>20% mitochondrial sequence divergence between Leyte and Negros island populations; Fig. 1; Siler et al., 2014a), but the recognized distribution of this species spans two distinct faunal regions (Visayan and Mindanao PAICs; Fig. 1). (2) Central Mindanao Island: Collections of *Pseudogekko* from Mindanao Island are rare in museum collections. With the presence of a unique species on the Zamboanga Peninsula (*P. chavacano*) and the deeply divergent population of *P. pungkaypinit* (central, eastern Mindanao), other portions of Mindanao Island (i.e., the Cotobato coast mountains) may likely harbor additional divergent lineages of *Pseudogekko*. (3) Luzon PAIC: Numerous, possibly distinct evolutionary lineages still appear to be unrecognized throughout the Luzon PAIC. Polillo Island possesses a genetically divergent population of *P. compresicorpus*, as does the Sierra Madres Mountain Range in the northeastern portions of the island. Interestingly, outside of the holotype of *P. compresicorpus* from the Bataan Peninsula of western Luzon Island (Fig. 1), there are no records of *Pseudogekko* from much of the northwest, including the Zambales and Cordillera mountain ranges (Diesmos et al., 2004; Brown et al., 2012a; Devan-Song and Brown, 2012). Whether this genus is truly absent from these distinct faunal subcenters or these patterns are simply an artifact of limited biodiversity surveys remains to be determined. However, we have no doubt that additional survey work in the Luzon faunal region will result in the discovery of additional new species of false geckos. (4) Tablas Island: There is a single record of *P. compresicorpus* from Tablas Island in the Romblon Island Group (CAS 139713). Not only does this adult female appear to have several distinct morphological characters (e.g., infralabials 17, enlarged scales in the precloacal region 15, circumorbitals 54), but also this island group harbors numerous other endemic species (e.g., *Platymantis lautoni*, *Platymantis levigatus*, *Gekko romblon*, *G. coi*; Brown et al., 2011b; Siler et al., 2012b), suggesting that this *Pseudogekko* may be a unique species. (5) Masbate Island: Like Tablas Island, a single record of *P. compresicorpus* from Masbate Island (CAS 141560) is known. This adult female also possesses an anomalous combination of unique morphological characters (Finger III scansors 13, Toe IV scansors 16, infralabials 17, circumorbitals 49). Furthermore, although the faunal affinities of Masbate Island are still somewhat vague, the island is considered a member of the Visayan PAIC, not the Luzon PAIC (Brown and Diesmos, 2009; Brown et al., 2013a), and also harbors endemic squamate reptiles (e.g., *Brachymeles tungaoi*, *B. cf. bonitae* Siler and Brown, 2010; Davis et al., in press).
So little is known about the ecology of *Pseudogecko* that broad conclusions on archipelago-wide diversity, microhabitat breadth, and natural history cannot be made at this time (Brown and Alcala, 1978). Interestingly, at present only a few islands possess more than one species of *Pseudogecko*: Luzon, Polillo, Leyte, and Mindanao. As more information on false geckos becomes available, it will be interesting to determine whether species occur sympatrically on these and other islands. On Polillo Island, *P. smaragdinus* geckos possess a microhabitat preference for *Pandanus* leaves (Taylor, 1915, 1922b). The single collected specimen of *Pseudogecko smaragdinus* collected on Mt. Labo, Bicol Peninsula (Luzon Island) was collected from inside the husk surrounding the trunk of a wild banana plant (R. Brown, personal observation). Little is known about the Polillo Island population of *P. compressicorpus* except that specimens were found on the upper surfaces of leaves at night. Because successful conservation efforts will depend on our understanding of the habitats of species we strive to protect, future studies should attempt to document microhabitat preferences.

As a result of many recent studies aimed at investigating the diversity of geckos throughout the Philippine archipelago (Linkem et al., 2010; Welton et al., 2010; Brown et al., 2012a; Siler et al., 2014d), we will soon approach a more-accurate understanding of gekkonid diversity in the country. A few groups remain that have yet to be comprehensively evaluated for taxonomic diversity within a phylogenetic context, including *Lepidodactylus*, *Hemiphylodactylus* (Grismer et al., 2013), *Luperosaurus* (Brown et al., 2012a), *Cyrtochactylus* (Siler et al., 2010; Welton et al., 2010), and even *Gekko* (Siler et al., 2012a, 2014c); the focus of future studies should include these. Unfortunately, other groups of Philippine amphibians and reptiles remain much more poorly studied (Brown et al., 2013a), adding to the nascent body of literature demonstrating that species diversity in amphibians and reptiles in the Philippines is substantially underestimated (Brown et al., 2002; Brown and Diesmos, 2009; Brown et al., 2013a) and possibly at greater risk than is presently appreciated. Comprehensive analyses of the fauna using multiple lines of evidence and nontraditional taxonomic characters may provide the best opportunities for future integrative approaches to understanding Philippine reptile and amphibian megadiversity (Barley et al., 2013; Grismer et al., 2013; Linkem and Brown, 2013; Siler et al., 2014c).

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**Literature Cited**


APPENDIX

Specimens Examined

Numbers in parentheses following species names indicate the number of specimens examined. All specimens examined are from the Philippines. Several sample
sizes are greater than those observed in the description due to the examination of subadult specimens which were excluded from morphometric analyses.

*Lepidodactylus labialis* (10): MINDANAO ISLAND, Agusan del Norte Province, Municipality of Cabadbaran (CAS 133317, 133318, 133329, 133396, 133687, 133790); Davao del Sur Province, Municipality of Malalag (CAS 124813, 139714–16).

*Pseudogekko brevipes* (9): BOHOL ISLAND, Bohol Province, Municipality of Sierra Bullones (CAS 131855, CAS-SU 24596, 25108); NEGROS ISLAND, Negros Oriental Province, Municipality of Sibulan (CAS 128956, 128959, 128963, 128971); Municipality of Valencia, Barangay Bongbong (KU 302818, 327770).

*Pseudogekko chavacano* sp. nov. (4): MINDANAO ISLAND, Zamboanga City Province, Municipality of Zamboanga City (Holotype, PNM 9812, formerly KU 314963); (Paratype, KU 314964); Zamboanga del Norte Province, Cuot Creek (CAS-SU 23548, 23549).

*Pseudogekko compressicorpus* (9): POLILLO ISLAND, Quezon Province, Municipality of Polillo (KU 326242); LUZON ISLAND, Cagayan Province, Municipality of Gonzaga (KU 330058); Laguna Province, Municipality of Los Banos, Barangay Batong Maiake (KU 326434, 326436); Barangay Bagong Silang (KU 330735, 331657); Quezon Province, Municipality of Infanta, Barangay Magsaysay, Barangay Kipagringau (KU 334017); MASBATE ISLAND, Masbate Province, Municipality of Mobo (CAS 141560); TABLAS ISLAND, Romblon Province, Municipality of San Agustin (CAS 139713).

*Pseudogekko ditoy* sp. nov. (2): LEYTE ISLAND, Leyte Province, Municipality of Baybay, Barangay Gabas, Sitio Cienda (Holotype, PNM 9811, formerly KU 326437); (Paratype, KU 326438).

*Pseudogekko pungkaypinit* sp. nov. (6): BOHOL ISLAND, Bohol Province, Municipality of Sierra Bullones, Barrio Dusita (Paratypes, CAS 131854, CAS-SU 23655); Raja Sikatuna Natural Park (Paratype, KU 324426); LEYTE ISLAND, Leyte Province, Municipality of Baybay (Paratype, KU 326243); Barangay Guadalupe (Holotype, PNM 9810, formerly KU 326435); MINDANAO ISLAND, Misamis Oriental Province, Municipality of Gingoog City, Barangay Lawaan, Sitio Kibuko, Mt. Lumot (Paratype, KU 334019).

*Pseudogekko smaragdinus* (35): POLILLO ISLAND, Quezon Province, Municipality of Polillo (KU 302819–31, 303995–4002, 307638–47, 326240, 326241, 331721); LUZON ISLAND, Camarines del Norte Province, Municipality of Labo, Barangay Tulay Na Lupa (KU 313828).