

Additions to the herpetofauna of Panay Island, Philippines¹

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Zusammenfassung

Ergänzungen zur Herpetofauna der Insel Panay, Philippinen.

Während biologischer, auf der nordwestlichen Panay-Halbinsel durchgeführter Untersuchungen wurden der Ruderfrosch *Rhacophorus pardalis*, die Gekkoniden *Luperosaurus* cf. *cumingi* und *Pseudogekko* cf. *brevipes*, und die Schlangen *Dryophiops philippina* und *Ophiophagus hannah* erstmals für die Insel Panay nachgewiesen. Damit erhöht sich die Zahl der für Panay nachgewiesenen Amphibien (von denen einige noch unbeschrieben sind) von 22 auf 23 und die Zahl terrestrischer Reptilien von 57 auf 61. Ein zweites Exemplar der kürzlich beschriebenen Wolfszahnatter *Lycodon fausti* wurde untersucht. Während *Rhacophorus pardalis* und *Ophiophagus hannah* eine weite Verbreitung in Südostasien haben, sind die anderen drei Arten seltene und fast unbekannte Endemiten der Philippinen. Beschreibungen der seltenen Arten und Informationen zur Variationsbreite und Biologie von *R. pardalis* und der Verbreitung von *O. hannah* werden gegeben.

Schlagwörter: Philippinen, Insel Panay, *Rhacophorus pardalis*, *Luperosaurus* cf. *cumingi*, *Pseudogekko* cf. *brevipes*, *Dryophiops philippina*, *Lycodon fausti*, *Ophiophagus hannah*, Verbreitungsneunachweise, Taxonomie, Biologie.

Abstract

During biological investigations on the northwestern Panay Peninsula the rhacophorid frog *Rhacophorus pardalis*, the gekkonid lizards *Luperosaurus* cf. *cumingi* and *Pseudogekko* cf. *brevipes*, and the snakes *Dryophiops philippina* and *Ophiophagus hannah* were recorded for this island for the first time. This raises the number of amphibians (some of them still undescribed) reported for Panay from 22 to 23, and the number of terrestrial reptiles from 57 to 61. A second specimen of the recently described wolf snake *Lycodon fausti* was examined. While *Rhacophorus pardalis* and *Ophiophagus hannah* are widespread in Southeast Asia, the other three species are rare and little known Philippine endemics. Descriptions of the rare species and informations on the variability and biology of *R. pardalis* and the distribution of *O. hannah* are presented.

Key words: Philippines, Panay Island, *Rhacophorus pardalis*, *Luperosaurus* cf. *cumingi*, *Pseudogekko* cf. *brevipes*, *Dryophiops philippina*, *Lycodon fausti*, *Ophiophagus hannah*, new distributional records, taxonomy, biology.

1 Introduction

Panay is one of the larger Philippine islands, with an area of approximately 123,000 km². It is situated in the center of the Archipelago. Together with Cebu, Guimaras, Masbate, Negros, and several smaller islands, Panay belongs to the West Visayan Faunal Region, one of the five major faunal subprovinces within the Philippines, which are characterized by a number of endemic taxa (e. g. HEANEY & REGALADO 1998). Following a long time of negligence, herpetofaunal inventories in different areas of Panay started about 15 years ago. Resulting from these more recent surveys and including all older island records, a total number of 22 frogs and 57 terrestrial reptiles is reported for this island so far (BROWN et al. 1999, 2001; BROWN et al. 1997, FERNER et al. 1997, 2001; GAULKE 2001a,b,c, 2002; GAULKE & CURIO 2001, SISON et al. 1995).

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Fig. 1. Foam nest of *Rhacophorus pardalis*, enclosed in leaves.

Schaumnest von *Rhacophorus pardalis*, eingehüllt in Blätter.



Fig. 2. Reddish brown color variety of *Rhacophorus pardalis*.

Rötlichbraune Farbvariante von *Rhacophorus pardalis*.



Fig. 3. Light brown *Rhacophorus pardalis* with distinct, darker markings on head and back.
Hellbrauner *Rhacophorus pardalis* mit dunklen Zeichnungselementen auf Kopf und Rücken.



Fig. 4. *Rhacophorus pardalis* with distinct white spots on lateral margins.
Rhacophorus pardalis mit auffälligen, weißen Flecken entlang der Körperseiten.

As became evident during the more recent investigations, Panay is home of a number of endemic species, which do not occur on the other islands of the West Visayan Faunal Region. As well as some mammals, one of the frogs (BROWN et al. 1997), two of the lizards (FERNER et al. 1997, GAULKE & CURIO 2001), and three of the snakes (BROWN et al. 1999, 2001; GAULKE 2002) are Panay endemics. Some of the listed frogs are still undescribed (FERNER et al. 2001, GAULKE 2001a), due to the scarcity of material or the lack of vocal records.

The herpetological studies conducted in north-western Panay as part of the work of the Philippine Endemic Species Conservation Project (PESCP) of the Frankfurt Zoological Society in spring 2001 and 2002 resulted in further new island records, indicating that the herpetofaunal inventory of this island is far from complete.

2 Material and Methods

Herpetological field work was conducted in the primary and secondary rainforests surrounding a research station in the center of the north-western Panay Peninsula in the Province Aklan (11°49'11.6" N, 121°58'0.5" E), which was built in 1997 at approximately 450 m a.s.l. All herpetological observations made in the primary and secondary rainforests surrounding this station were recorded. When possible, pictures of observed animals were taken. Some specimens were caught for identification purposes, but most of them were released afterwards. One specimen each of *Pseudogekko* cf. *brevipes* and *Ophiophagus hannah* were preserved in alcohol, and will be deposited in the PNM. A *Lycodon fausti*, which was killed by an inhabitant of the area during the study period, was examined and deposited in the ZSM. In the "Forschungsinstitut Senckenberg", Frankfurt, the holotype of *Pseudogekko brevipes* (SMF 8988, from Samar, collector MOELLENDORFF, 1897) and one specimen of *Luperosaurus cumingi* (SMF 4181, from Central-Luzon, collector MOELLENDORFF, 1888) were examined. Slides of the holotype of *L. cumingi* (BM 1946.8.22.41) were obtained for comparisons.

Collection acronyms: BM – British Museum (Natural History), London; PNM – Philippine National Museum, Manila; SMF – Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt/M.; ZSM – Zoologische Staatssammlung München.

3 Results and discussion

Anura: Rhacophoridae

Rhacophorus pardalis GÜNTHER, 1858

New distribution record for Panay Island.

Although FERNER et al. (2001) assume that *R. pardalis* occurs on Panay, proof was missing until recently. This rhacophorid frog is widely distributed in West-Malaysia, Sumatra, Borneo, and the Philippines. The first record for Panay were pictures taken from a frog in a primary lowland rainforest close to Sibaliw station at the beginning of 2001. The species can easily be distinguished from all other rhacophorid frogs occurring in the Philippines by the broad webbing reaching the disk of the fourth finger and a distinct ridge of skin along the outer edge of the forearm.

Philippine project members to whom these pictures were shown had seen this species before, but stated that it is extremely rare. However, observations made in 2002 show that this obligate of lowland rainforests is not rare in the area. As mentioned in

MANTHEY & GROSSMANN (1997), it is probably confined to the forest canopy during most parts of the year, and therefore rarely seen.

In late May 2002, at the onset of the rainy season, frog calls were heard close to the station, where a breeding group of *R. pardalis* was discovered. The frogs were calling from the plastic cover of an empty aviary and from the surrounding trees. Calling males, mating couples, and the building of foam nests on and around the plastic cover were observed for several evenings. Tadpoles of different developmental stages occupied the small water puddles left by the rains on this plastic sheet. Foam nests directly deposited on the plastic sheet were covered by dead or freshly fallen leaves, foam nests built on overhanging branches were enclosed in leaves (Fig. 1). The much more common and opportunistic *Polypedates leucomystax*, which occurs sympatrically with *R. pardalis* at Sibaliw, was never observed to cover or enclose its foam nests (e.g. GAULKE & CADIZ 2002). Although the foam nests of *R. pardalis* are mentioned by ALCALA (1986), ALCALA & BROWN (1998), BROWN & ALCALA (1994), MANTHEY & GROSSMANN (1997), TAYLOR (1922a), and others, none of these authors state whether they were covered by, or enclosed in leaves. However, this behavior is described and pictured in ZIEGLER (2002) for *Polypedates* sp. It would be interesting to note in which rhacophorid species this protective behavior occurs, and whether it is species-specific, or only performed by some individuals or populations within one species.

R. pardalis is a highly variable species. The frogs possess the ability to change their color to some extent, but color patterns, such as the presence or absence of light spots, do not change. Within the Sibaliw population the following color morphs were seen: Almost unmarked yellowish to reddish brown individuals; yellowish, brown or reddish brown frogs with different amounts of dark markings on the back and head; brownish or reddish frogs with or without darker markings on the dorsum, and differing amounts of white or yellow spots especially on limbs, head and sides of the body (Fig. 2 to 4). The extensive webbing between toes and fingers was bright orange in all individuals, the ventral side of the body light yellow.

Sauria: Gekkonidae

Luperosaurus cf. *cumingi* GRAY, 1845

New distribution record for Panay Island.

Two juvenile geckos from the lowland rainforest of Sibaliw are tentatively referred to *Luperosaurus cumingi*, known so far from the Philippine islands of Luzon and Negros. A characteristic feature of all members of the little known Southeast Asian genus *Luperosaurus* are wide cutaneous folds on posterior and anterior surfaces of fore- and hind limbs. The differentiation of the tail is an important specific differentiation feature within this genus, as well as pholidosis and preanal pores.

L. cumingi possesses enlarged spine-like and projecting scales (at intervals of every nine to ten scales) at the lateral margins of the otherwise subcylindrical tail. This feature is not developed in both known individuals from Sibaliw. They possess round tails without laterally enlarged or spine-like scales. Possibly, this is an ontogenetic state and the enlarged and spine-like scales may develop during growth. Beside of the tail scalation, they correspond in their habitus with the descriptions of *L. cumingi* and their size is in accordance with the size of two juveniles from Negros (BROWN & ALCALA 1978). However, scale counts (e.g. numbers and differentiation of scapulars) of the



Fig. 5. *Luperosaurus* cf. *cumingi* with broad dark and small light transverse banding.
Luperosaurus cf. *cumingi* mit breiten dunklen und schmalen hellen Querbändern.



Fig. 6. *Luperosaurus* cf. *cumingi* with broad light and small dark transverse banding.
Luperosaurus cf. *cumingi* mit breiten hellen, und schmalen dunklen Querbändern.

living individuals have not been conducted, so their taxonomic status has to remain open until adults from the area are available for examination.

Until now no description of the live coloration of *L. cumingi* was available. The dorsal color of preserved specimens is described as grayish to grayish-brown mottled

by BROWN & ALCALA (1978), and as purplish-brown, marbled with darker colors in TAYLOR (1922b, from BOULENGER 1885). Both living Sibaliw specimens show an irregular pattern of light and dark brown transverse markings on their dorsal surface. Depending from the surface on which the geckos are located, either the dark brown transverse zigzag bands become more prominent, interspersed with four smaller, light brown transverse zigzag bands from shoulders to the insertion of the tail (Fig. 5), or the light brown bands become more prominent, giving the lizard a much lighter overall appearance (Fig. 6). Likewise, the tail is either dark brown with six cream colored rings, or light brown with six dark brown rings. Upper sides of the head and extremities are mottled in different shades of brown in both individuals. The small scales directly surrounding the eyes are orange. The ventral side of preserved specimens is described by BROWN & ALCALA (1978) as dirty white, deeply flecked with brown anteriorly and light with distinct brown transverse bands posteriorly, and as whitish, belly with narrow transverse brown lines in TAYLOR (1922b, from BOULENGER 1885). The live specimens have a yellow belly with irregular and rather broad brown transverse bands ventrolaterally. The bands are not confluent, but there is a row of brownish spots along the midline. The undersides of head and extremities are yellow with irregular brown mottling.

The dorsal pattern of the Sibaliw specimens resembles tree bark, on which they are perfectly camouflaged (see Fig. 5).



Fig. 7. *Dryophiops philippina*, showing the bright yellow supralabials and the yellow gular region.

Dryophiops philippina, deutlich zu sehen die gelben Oberlippenschilde und die gelbe Kehlgion.

Pseudogekko cf. brevipes (BOETTGER, 1897)

New distribution record for Panay Island.

In 2002 small and very fast moving geckos were observed between the bamboo walls of the research station at Sibaliw in the evenings. During previous years these lizards had not been observed inside the station, although small geckos high up in trees close to the station had been seen before. While some specimens were identified as *Lepidodactylus planicaudus* STEJNEGER, 1905, a rather widespread Philippine endemic, one of these small geckos in the station was identified as a member of the endemic Philippine genus *Pseudogekko* TAYLOR, 1922. BROWN & ALCALA (1978) characterize the four known members of this genus by the following external features: Dorsal tubercles lacking; habitus slender, not much depressed; cutaneous expansions on limbs lacking; digits without webs, or possibly a minute web at base; digits very long, only moderately dilated; scansors narrow, all entire and notched, terminal one entire with two or three subterminal ones divided, or several distal ones divided; tail narrow, subcylindrical.

The examined individual agrees in most characters with *P. brevipes*, a rare species known from the islands of Bohol, Cebu, Negros, and Samar (terra typica) in the Eastern and Western Visayans. This species is characterized as follows (summarized from BROWN & ALCALA 1978): Moderate in size, snout-vent-length 40 to 54 mm; habitus slender, not much depressed; number of fourth toe scansors 14 to 18; webs between toes absent or barely evident; number of upper labials 13 to 17; number of lower labials 11 to 13; head breadth usually less than 72% of head length and less than 18% of snout-vent-length. Color in preservative: Dorsal ground color reddish-tan to reddish-brown, relatively uniform, or occasionally with darker blemishes. Venter light, with brown flecks especially under the head and along the lateral margins. In life, they have an orange-colored oblong spot on head behind the eyes, fading to brownish tan in preservative (ALCALA 1986).

The Sibaliw specimen differs in the following features from the above given description: Webs between toes are well discernible; 15 lower labials; dorsal ground color light brown (in all observed specimens); underside of tail with a conspicuous dark longitudinal band; no orange-colored spot behind the eyes, but instead two whitish bands from eye to upper labials.

Examinations of further specimens from Sibaliw will show whether these differences are individual variations, or whether these geckos may represent an undescribed taxon.

Serpentes: Colubridae

Dryophiops philippina BOULENGER, 1896

New distribution record for Panay Island.

On June 1, 2002, a *Dryophiops philippina*, was found on one of the concrete pillars of the Research Station Sibaliw. This rare Philippine opisthoglyph snake is known from the islands Luzon, Mindoro, Negros, and Sibuyan. It is closely related to the only other member of the genus, *D. rubescens*. Because *D. philippina* is little known, we give a short description of the specimen from Sibaliw:

female; snout-vent-length 405 mm; tail-length 197 mm; head clearly distinct from neck; large eyes with elongated horizontal pupils; body elongate, slender, laterally compressed; scales smooth, without apical pits; tail long and slender, subcaudals divided; ventrals and subcaudals with lateral keel, notched; anal plate divided. 9

supralabials, numbers 4, 5, and 6 bordering eye; 9 infralabials; 1 preocular; 2 postoculars; no loreal; temporals 2+2 (lower one on right side vertically divided into two scales); nasals undivided; ventrals (including anal plate) 186; subcaudals 128; dorsal scales around midbody 15.

Color in life: back and sides light grayish to reddish brown; some dorsals with black margins, forming irregular transverse zigzag bands; dorsal side of head light brown with small, irregular dark markings; both parietals with one yellowish, black centered spot; a yellowish, dark bordered, longitudinal median band from back of head to neck (for a length of seven scales); a broken, fine dark line from nasals through eyes to begin of neck; supralabials bright yellow, the anterior ones with dark lateral margins, the posterior ones bordered above by a dark line; underside of head and throat up to ventral 35 bright yellow, then gradually becoming whitish with some brown spots along lateral margins.

While the scalation corresponds well with the descriptions in TAYLOR (1922c) and LEVITON (1964a), the conspicuous yellow color of supralabials and underside of head and neck (Fig. 7) have never been mentioned for *D. philippina* before, although TAYLOR (1922c) and LEVITON (1964a) provided descriptions of the color in life. A yellowish ventral side, but no yellow supralabials, is mentioned for *D. rubescens* in MANTHEY & GROSSMANN (1997).

Lycodon fausti GAULKE, 2002

Second known specimen.

The specimen (ZSM 586/2002) was found at the same locality as the holotype: Barangay Guia, Municipality Pandan, Antique Province, NW Panay Peninsula. On 20 March 2002, the snake was found by the house lady under a flowerpot in the garden, and was immediately killed. Luckily, the snake was not thrown away, but preserved in alcohol. A short description will be given. Where there are differences between the newly described specimen and the holotype, data of the holotype are given in parenthesis.

Morphology and scalation: snout-vent-length 248 mm (236 mm); tail-length 107 mm (101 mm); head distinct from neck, slightly flattened; body subcylindrical; vertebral ridge poorly developed; dorsal scales smooth, without apical pits; ventral scales slightly angulated laterally; anal shield entire; subcaudals paired. 9 supralabials, numbers 4 and 5 entering eye; 9 infralabials (9 right, 10 left); 1 loreal, almost square; 2 preoculars; 3 postoculars; temporals 2+3+3 (2+2+3) right, 2+3+4 (2+3+3) left; nasal divided by nostril; rostral narrow, triangular; 215 (207) ventrals; 148 (135) subcaudals; dorsal scales around midbody 17, 19 behind head, 15 before cloaca.

Dentition: in contrast to the holotype, in which the dentition is incomplete (GAULKE 2002), this specimen has an intact head with intact dentition. As is characteristic for the genus, the maxillary teeth are divided into three groups by two diastemata. The anterior group consists of six (seven) teeth enlarging posteriorly. The middle group consists of one (right) and two (left) small teeth, and the posterior group of three rather large and compressed, blade-like teeth.

Color in alcohol: similar to the holotype (GAULKE 2002); 29 (24) light body bands; 28 (21) light tail bands; the dark bands on body 6 to 7 (7 to 8) scales wide along midline; on the posterior part of the body the light bands are connected laterally by a fine, white, longitudinal line (not present in the type).

This specimen shows the distinction between *L. fausti* and congeners even more clearly than the type. One of the main distinguishing features given in the type

description is the higher number of subcaudals, and this specimen has 13 subcaudals more than the holotype.

Serpentes: Elapidae

Ophiophagus hannah (CANTOR, 1836)

New distribution record for Panay Island.

In October 2002, a local hunter encountered a King Cobra (*Ophiophagus hannah*) in a primary forest near Barangay Alegre, Municipality Sebaste, Antique Province. The King Cobra was swallowing a *Python reticulatus*. It was killed by the hunter and given to a PESCP member. The snake, which will be deposited in the Philippine National Museum, has a total length of 157 cm, however, a large part of its tail is missing. The largest King Cobra known from the Philippines is a specimen from Balabac, with a total length of 425 cm (TAYLOR 1922c).

So far, the King Cobra, which has a wide distribution in South- and Southeast Asia, was recorded from the following Philippine Islands: Balabac, Dinagat, Jolo, Luzon, Mindanao, Mindoro, and Negros (LEVITON 1964, ROSS & LAZELL 1990, TAYLOR 1922c). TAYLOR (1922c) also mentions that it is reported as being very common on Lubang Island, north of Mindoro, but that he could not verify these reports. Additionally, the senior author encountered one *O. hannah* on Busuanga Island (Gaulke, unpublished). ALCALA (1986) dismisses the record of *O. hannah* from Negros, supporting the assumption that no type of cobra occurs in the West-Visayas. However, there is no reason to doubt the Negros record. The specimen (collection number SU 18195) has exact locality data (Negros Oriental, ridge on south side of Maite River), and was examined by LEVITON (1964).

The record of *O. hannah* on Panay supports TAYLOR'S (1922c) assumption that King Cobras probably occur on all the larger Philippine islands, and probably on many more of the smaller ones. Due to the fact that this species seems to be rare in most areas of its Philippine distribution and that it is a forest dweller, it obviously is rarely encountered, at least by herpetologists. Inhabitants of our study area in Panay told us several times about the existence of a large, poisonous snake in the area, locally known as "Lawagun". However, most local people classify all the larger colubrid snakes of the area, such as *Elaphe erythrura* and *Zaocys luzonensis*, as poisonous though these species are collectively called "Liguason".

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