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Herpetofaunal records from Pulau Bangkaru, Sumatra.

Benjamin Tapley^{1*} and Maggie Muurmans²

Abstract. The first report of reptile and amphibian species from Pulau Bangkaru, Sumatra is presented. 23 species were recorded, one species of Dicroglossidae, one species of Ranidae, one species of Rhacophoridae, four species of Gekkonidae, four species of Agamidae, one species of Scincidae, one species of Varanidae, three species of Colubridae, one species of Natricidae, one species of Lamprophiidae, one species of Crocodylidae, one species of Dermochelyidae, two species of Cheloniidae, and one species of Trionychidae.

Keywords. Aceh ; Amphibian, Indonesia, Inventory, Reptile,

Introduction

Sumatra's herpetological fauna is poorly known (Inger & Iskander, 2005; Teynié et al. 2010) and recent herpetological collections have been infrequent (Inger and Iskander, 2005). Even less is known about the herpetofauna of Sumatra's numerous offshore islands. Relative to other Sunda islands the herpetofauna of Sumatra has been understudied (Iskandar and Erdelen 2006) and geographic distribution patterns for many species remain unknown. It is in this light that the results of a recent sampling expedition to Pulau Bangkaru, Aceh are presented.

Materials and methods

Pulau Bangkaru (Fig 1) is the most westerly of the Banyak islands. It is uninhabited except for a small base camp operated by Yayasan Pulau Banyak (YPB) and inhabited by a team of 6 staff members and international volunteers. YPB has been working on the Banyak islands since 1994 where it protects the globally important turtle nesting beaches, raises public awareness to environmental issues and supports community programmes including eco-tourism development and teacher training.

Field work was conducted in an area of lowland swamp forest around the base camp and turtle nesting beach (02°6'15.7"N 097°15'59.0"E). Visual encounter surveys and opportunistic searches were conducted by day and by night daily from

the 6/11/10 – 29/11/10. The night time visual encounter surveys focused on the 1km long path from the base camp to the turtle nesting beach on the west of Pulau Bangkaru. Head torches were used and the habitat was searched for amphibians and reptiles. By day a more active approach was taken and whilst searching for reptiles and amphibians around the base camp suitable refugia such as rotten logs and leaf litter were over turned and searched through and hollow trees were investigated with a head torch. Specimens were photographed and measured. Specimens were identified to the species level, where possible, using Das (1996), Cox et al. (1998), Malkmus et al. (2002), Mistar (2003), Inger and Steubing (2005), Das (2006) and Inger et al. (2009). A single report and photographic voucher of the turtle *Dogania subplana* was sent to the authors by the staff on the island in August 2011 and has been included in the species inventory. The collection of voucher specimens was beyond the scope of this study.



Figure 1. Map of the Banyak Islands (map courtesy of Yayasan Pulau Banyak)

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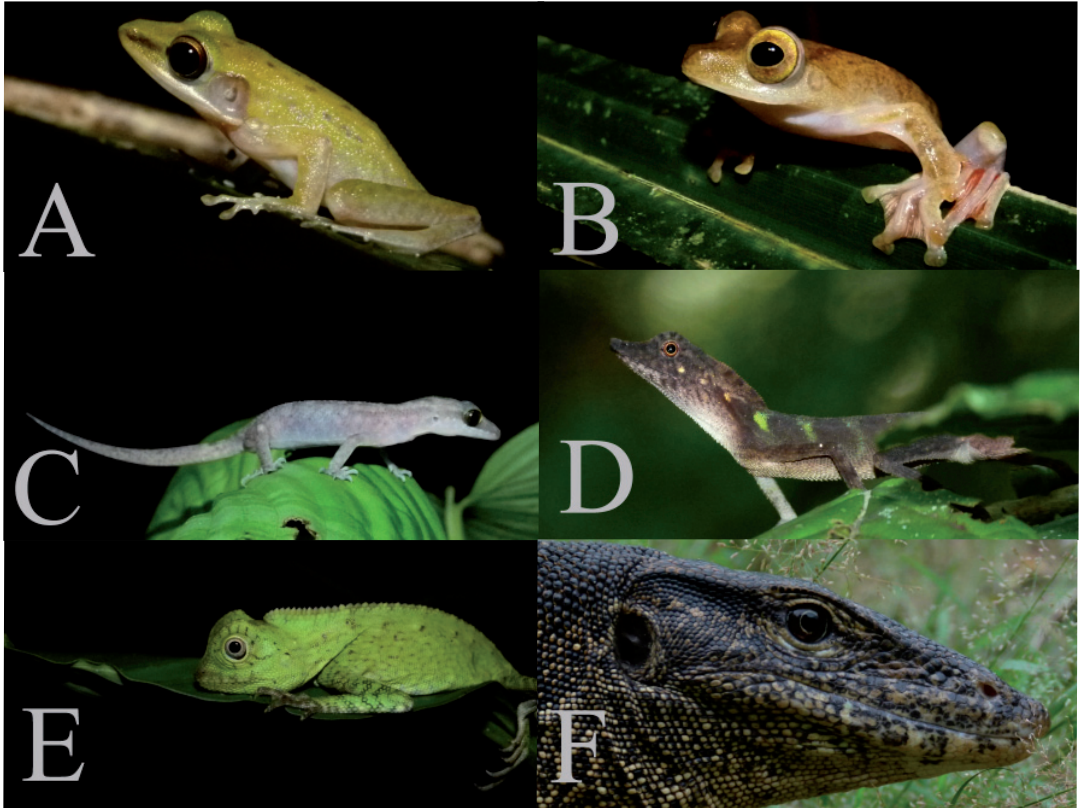


Figure 2. A: *Hylarana parvacola*; B: *Rhacophorus pardalis*; C: *Cyrtodactylus* species 1; D: *Aphaniotis acutirostris*; E: *Gonocephalus chameleontinus*; F: *Varanus salvator*. All specimens from Pulau Bangkaru.

Results

Amphibia

Dicroglossidae

Limnonectes cf shompenorum (Das, 1996)

Remarks. These frogs were encountered daily in swampy areas at night. Males were observed calling from beneath the leaf litter. One female (SVL 35mm) was found with eggs visible through the ventral surface on the 21st November.

Ranidae

Hylarana parvacola (Inger, Stuart and Iskandar, 2009)
Figure 2:A.

Remarks. These frogs were frequently encountered around standing water in swampy areas. Congregations of calling males were observed 1-1.5m above the waters edge. By night the males (SVL 32-35mm) were green in colour. Several females (SVL 44-45mm) were observed

basking during the day during the day 1-2m from the ground, usually in vegetation at the edge or overhanging pools of water but occasionally considerable distance from water bodies. Basking females were very alert and turned from bright green to brown in a matter of seconds when disturbed.

Rhacophoridae

Rhacophorus pardalis (Günther, 1858) Figure 2:B.

Remarks. Calling males were observed at night in *Pandanus* thickets above standing water in swampy areas. One female (SVL 56mm) was found with eggs visible through the ventral surface on November 23rd. No foam nests were observed. Elsewhere *R. pardalis* often have white spots on the dorsum. White spots were not seen on the dorsum on any of the individuals observed on Pulau Bangkaru.

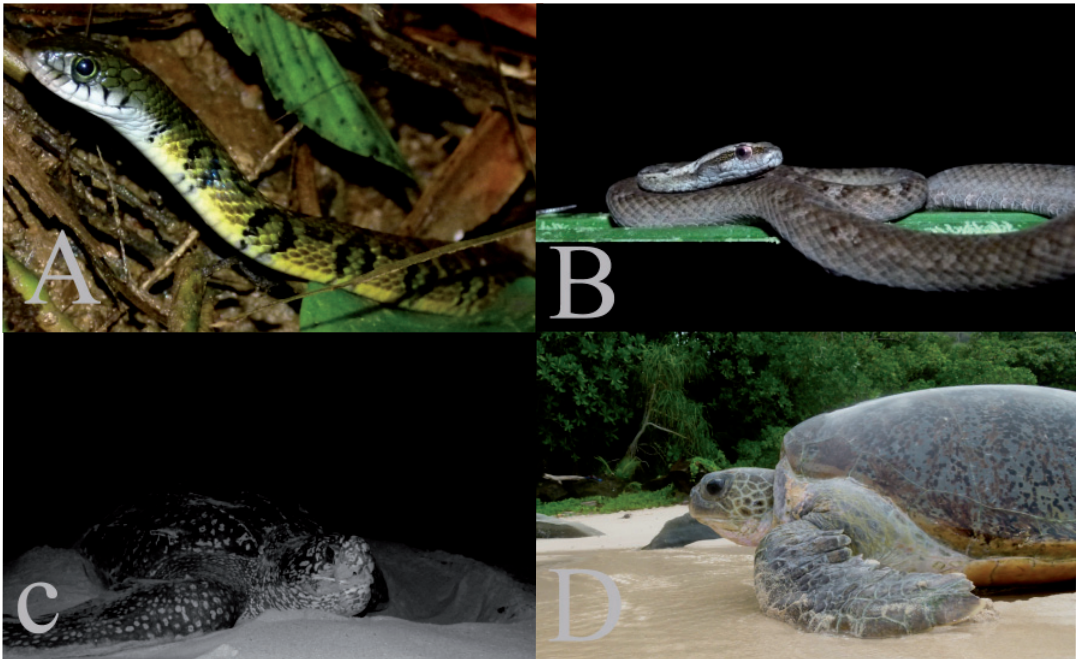


Figure 3. A: *Xenochrophis trianguligerus*; B: *Psammodynastes pictus*; C: *Dermochelys coriacea*; D: *Chelonia mydas*. All specimens from Pulau Bangkaru.

Squamata

Gekkonidae

Cnemaspis species

One specimen was observed in a hollow tree in the forest area. Specimen had a round pupil like other *Cnemaspis* geckos. This gecko evaded capture and so we were unable to identify it to the species level.

Cyrtodactylus species 1 Figure 2:C

Remarks. These small *Cyrtodactylus* geckos were frequently encountered in forest areas at night, usually less than 1m from the ground. They were found on buttress roots and low shrubs. Due to its small size and four broken longitudinal lines on the dorsum this species could be *C. quadrivirgatus*. *C. quadrivirgatus* has been reported from other islands off the Sumatran west coast (Teynié et al. 2010).

Cyrtodactylus species 2

Remarks: One specimen was observed on a low shrub at approximately 20:00hrs in a forest area, it evaded capture. It was at least double the size of *Cyrtodactylus* species 1 and lacked the four longitudinal lines. Teynié et al. (2010) have reported *C. marmoratus* and *C.*

lateralis from the islands off west Sumatra. Without examining the specimen closely a species identity could not be ascertained.

Hemidactylus frenatus (Duméril & Bibron, 1836)

Remarks. Many individuals were observed around the accommodation area, this species was not observed anywhere else on the island.

Agamidae

Aphaniotis acutirostris (Modigliani, 1889) Figure 2:D.

Remarks. These lizards were frequently encountered in forested areas on tree boles, branches and rotten logs. By night they were observed sleeping on leaves at the end of branches 1-1.5m from the ground.

Bronchocela cristatella (Kuhl, 1820)

Remarks. Only one individual was encountered during this survey. It was found 3m from the ground in a lemon tree by the accommodation area.

Draco melanopogon (Boulenger, 1887)

Remarks. Two *Draco* were observed between the 20th 26th of November. They evaded capture. We were told by the staff on the island that they were more frequently encountered in the islands interior.

Gonocephalus chameleontinus (Laurenti, 1768)

Figure 2:E.

Remarks. We observed just two individuals in this study. Both individuals were found sleeping on shrubs at the end of low branches 30cm from the ground in forested areas.

Scincidae

Eutropis multifasciata (Kuhl, 1820)

Remarks. Several specimens were observed around the cleared area of the accommodation area.

Varanidae

Varanus salvator (Laurenti, 1768) Figure 2:F.

Remarks. These diurnal lizards were frequently encountered on the turtle nesting beaches and were often observed feeding on turtle eggs. One individual was encountered at approximately 20:00hrs sleeping, nearly fully submerged in a slow flowing stream.

Colubridae

Subfamily Colubrinae

Chrysopelea paradisi (Boie, 1827)

Remarks: One specimen was observed basking 6m from the ground on a *Pandanus* trunk at 16:30hrs.

Dendrelaphis caudolineatus (Gray, 1834)

Remarks. Seen sleeping on shrubs 1.5-2m from the ground at night. Often observed by day on the ground in low coastal scrubby vegetation.

Dryocalamus subannulatus (Dumeril, Bibron & Dumeril, 1854).

Remarks. One extremely active individual was found in the thatch of a shelter at approximately 21:30hrs.

Natricidae

Xenochrophis trianguligerus (Boie, 1827) Figure 3:A.

Remarks. Active by day, associated with streams and standing water.

Lamprophiidae

Psammodynastes pictus (Günther, 1858) Figure 3:B.

We observed many individuals of the species on Pulau Bangkaru, activity was restricted to the day time and by night these snakes would sleep in the same location on *Pandanus* fronds over hanging water.

Crocodylidae

Crocodylus porosus (Lesson, 1831)

Remarks. We observed eye shine from a lagoon several times. We never saw *C. porosus* by day and never saw more than one individual by night. We encountered tracks on the turtle nesting beach, leading from a lagoon near the base camp out to sea. From the tracks we estimated the crocodile to be approximately 2m long. We could not determine whether or not *Crocodylus porosus* are breeding on the island. Much of the lagoon system runs relatively deep into the island and is inaccessible.

Dermochelyidae

Dermochelys coriacea (Vandelli, 1761)

Figure 3:C.

Remarks. Pulau Bangkaru is a nesting site for *D. coriacea*. We witnessed three female turtles laying eggs in November and saw evidence of two more nests on the main turtle nesting beach and outside the camp.

Cheloniidae

Chelonia mydas (Linnaeus, 1758) Figure 3:D.

Remarks. These turtles nest all year round on Pulau Bangkaru.

Eretmochelys imbricata (Linnaeus, 1766).

Remarks. Not known to nest on Pulau Bangkaru. Tracks attributed to this species have been found on the turtle nesting beaches on other islands in the archipelago. It is also known to forage around the waters of Pulau Banyak.

Trionychidae

Dogania subplana (Geoffroy, 1809)

Remarks. One individual photographed by staff working on the island in August 2011.

Discussion

This checklist for the herpetofauna of Pulau Bangkaru should be considered as preliminary. Comparing these results with those collected on Siberut by Sidik (2008), only 10 of the 23 species (43.5%) found on Pulau Bangkaru were observed on the island of Siberut. The study conducted by Sidik was for a similar duration, 22 days, but was carried out in April. Pulau Bangkaru lacks obvious endemic species and caecilians, this could be due to the islands location with few close large land masses. Certain families of frogs (Megophryidae,

Microhylidae), lizards (Leiolepididae, Lacertidae, Anguillidae and Dibamidae), snakes (Typhlopidae, Anomochilidae, Cyliodactylidae, Xenopeltidae, Pythonidae, Acrochordidae, Homalopsidae, Pareatidae, Pseudoxenodontidae, Xenodermatidae, Elapidae and Viperidae) and chelonians (Trionychidae, Bataguridae and Testudinidae) found on mainland Sumatra were not encountered on Pulau Bangkaru.

Staff on the island reported seeing large pythons. *Broghammerus reticulatus* is known to occur on other west coast Sumatran islands (Sidik 2008). The presence of *B. reticulatus* was not verified by this study. It was beyond the scope of this study to survey the entirety of the island, it is therefore likely that not all habitats present on Pulau Bangkaru will have been surveyed. The island's forests are pristine and well protected and accessing the interior of the island is challenging. Proximity to the sea may have an impact on herpetofaunal species assemblages documented in the study. It was not ethical to use pit fall traps on Pulau Bangkaru due to the number of crabs on the island; therefore fossorial and leaf litter specialists will have been underrepresented in the surveys. The survey was limited to one month, and species with short activity periods such as explosive breeding amphibians may not have been identified, as the survey was of a limited time period we may not have observed other species of reptiles and amphibians that may be seasonal in their activity.

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