

A Guide to the **AMPHIBIANS & REPTILES** of SOPB Group of Tinbarap Estates and Adjacent Regions, Sarawak



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Front Cover

Cuora amboinensis (top)
Trimeresurus borneensis (bottom, left)
Pulchrana baramica (bottom, right)
Photos by Indraneil Das

Back Cover

Map showing sonar area mapped and crocodile sightings at Sungei Bakong, including zoomed views of sonar mosaics and depth recordings
Photo by Anthony Pine

Concept and Design

Pui Yong Min & Indraneil Das

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by

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Polypedates colletti (Collett's Tree Frog)

INTRODUCTION

Tinbarap Group of Estates, under the Sarawak Oil Palms Berhad, owns a total of 42 estates, spread along the lowlands of northern and central Sarawak, in East Malaysia.

Among its green achievements is the creation and maintenance of a High Conservation Value (HCV) forest patch, a reservoir of local biodiversity and an area where intensive research and monitoring of plants and animals can take place.

This guide covers the amphibians and reptiles of the site, based on rapid assessments carried out between 2016-2018. The Tinbarap HVC forest and adjacent areas are home to six species of amphibians and 12 species of reptiles, several of which are endemic to Borneo.

This field guide to the amphibians and reptiles of region, and is based on our inventories. The cut-off date for the checklist was 5 September 2019. A total of 18 species are described in this work, representing a generalised lowland, especially, peat swamp, herpetofauna of Borneo. For all species, we provide a common (English) name, the current scientific name and authority, size information (maximum snout-vent length for frogs, lizards and snakes and carapace length for turtle), brief description of external morphology and colouration of the adult stages relevant to its identification. For each species, we present an image of an adult.

Further information can be obtained from the references listed at the end of this field guide.

Also appended to this guide are recommended actions for snake bites and suggestions to reduce human-crocodile conflict at the site.

BUFONIDAE

Ingerophrynus quadriporcatus (Boulenger, 1887) Size 60 mm
Four-ridged Toad

Identification

Body stocky; a pair of ridges between eyes; parotoid gland over three times as long as wide, followed by rows of warts; fingers not fully webbed; back orange or yellow-brown; belly cream coloured.



DICROGLOSSIDAE

Fejervarya limnocharis (Gravenhorst, 1829)

Size 60 mm

Cricket Frog

Identification

Body moderately slender; snout narrow; back with broken longitudinal ridges; outer metatarsal tubercle absent; toes with pointed tips, less than half webbed; back brown to brownish-grey, some with a pale yellow vertebral line; males with a black, M-shaped band across throat; belly cream-coloured.



DICROGLOSSIDAE

Limnonectes paramacrodon (Inger, 1966)

Size 75 mm

Masked Frog

Identification

Body robust; snout rounded; tympanum and supratympanic fold distinct; Back mostly smooth, with a few low tubercles; toe tips widened and webbed to tips, except toe IV, with one phalange free; males lack vocal sacs; back greyish-brown; dark mask covers tympanum and supratympanic fold; belly yellow.



RANIDAE

Pulchrana baramica (Boettger, 1900)
Brown Marsh Frog

Size 71 mm

Identification

Body slender; skin granular to slightly warty; head relatively large; tympanum visible; toes about half webbed; fingers long; upper lip with pale spots; back mid-brown to dark brown, with darker spots on flanks; tympanum dark brown, with a distinct pale centre; belly cream or pale brown.



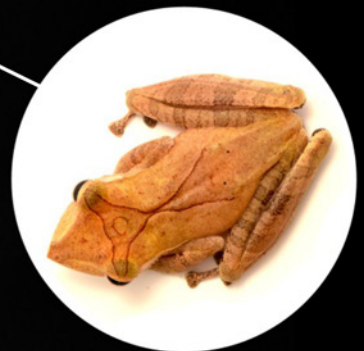
RHACOPHORIDAE

Polypedates colletti (Boulenger, 1890)*
Collett's Tree Frog

Size 78 mm

Identification

Body slender; head triangular; snout pointed; tympanum distinct; most toes extensively webbed; back and belly coarsely granular; a conical appendage on heel; back tan to reddish-brown or brownish-grey; a dark hour-glass shaped pattern; flanks with scattered dark spots; limbs with dark bars.



Hour-glass shaped pattern



RHACOPHORIDAE

Polypedates ottilophus (Boulenger, 1893)*
File-eared Tree Frog

Size 97 mm

Identification

Body robust; a bony ridge over tympanum; head large, triangular; tips of fingers and toes disk-like; toes half webbed; a fleshy projection at heel; back and forehead bright yellow to yellowish brown, with thin dark lines; belly cream-coloured.



CROCODYLIDAE

Crocodylus porosus Schneider, 1801
Saltwater Crocodile

Size 6.7 m

Identification

Head large with a heavy snout; a pair of ridges running from orbit to the centre of snout; scales on back more oval than in most other crocodiles; anterior nuchal scales usually absent; juveniles brightly coloured, being black spotted or blotched on a pale yellow or grey background; adults greyish-olive, bands showing less contrast



GEOEMYDIDAE



Cuora amboinensis (Riche in: Daudin, 1801)
Malayan Box Turtle

Size 216 mm

Identification

Shell high-domed and smooth, with a single keel in adults, juveniles with two additional keels; carapace olive, brown or nearly black; plastron yellow or cream, with a single black blotch; face yellow-striped.

AGAMIDAE

Bronchocela cristatella (Kuhl, 1820)
Crested Green Lizard

Size 130 mm

Identification

Body slender, compressed; head long; nuchal crest short, continuous with dorsal crest; gular sac small; tympanum large; dorsal scales smooth; back green, sometimes with white or light blue spots that may form bars, or with white bars, changeable to brown; pale grey stripe across eyes; belly yellowish-green.



GEKKONIDAE



Cyrtodactylus pubisulcus Inger, 1958*
Grooved Bent-toed Gecko

Size 77 mm

Identification

Body slender; skin fold on flanks present; precloacal groove present; dorsal tubercles in irregular longitudinal rows; dorsum grey or brown, with dark cross-bars or blotches, sometimes arranged in a longitudinal series; belly cream coloured.

GEKKONIDAE



Gekko smithii Gray, 1842
Smith's Giant Gecko

Size 191 mm

Identification

Body robust; head large; dorsum with scattered tubercles; precloacal pores in short angular series; dorsum greyish-brown, with series of white spots forming bands, tail dark-banded; belly cream coloured, with grey patches; eye green.

GEKKONIDAE



Hemidactylus frenatus Duméril & Bibron, 1836 **Size 67 mm**
Asian House Gecko

Identification

Body robust, slightly flattened; head large; tail segmented; dorsal scales smooth; sides of tail with enlarged tubercles; dorsum greyish-brown, with darker markings; light brown streak across sides of head; belly cream coloured.

SCINCIDAE

Eutropis multifasciatus (Kuhl, 1820)

Size 137 mm

Common Ground Skink

Identification

Body robust; head distinct; lower eyelid scaly; paired enlarged nuchals; auricular opening small, with small, pointed lobules; dorsal scales with three (rarely five) keels; dorsum brown with a yellow or red stripe or a series of white spots or streaks along flanks; belly cream coloured.



SCINCIDAE

Sphenomorphus cyanolaemus Inger & Hosmer, 1965* Size 60 mm
Blue-bellied Litter Skink

Identification

Body slender; limbs and tail long; snout obtuse; ear opening lacking lobules; scale smooth; head, throat and chest of males deep blue, in females, light blue; and lower abdomen pale blue in males, yellowish-orange in female; back bronze-brown to olive-brown, with a series of yellowish-brown blotches along flanks.



VARANIDAE

Varanus salvator (Laurenti, 1768)

Size 910 mm

Water Monitor Lizard

Identification

Body robust; snout depressed; nostril rounded or oval; tail strongly compressed with a double-toothed crest above; juveniles dark dorsally, yellow spotted or ocelli in transverse series; snout black barred; belly yellow with narrow, and black vertical V-shaped marks.



CROTALIDAE

Trimeresurus borneensis (Peters, 1872)*

Size 830 mm

Bornean Flat-nosed Pit Viper

Identification

Back mottled brown, with a dark brown saddle-like pattern comprising 20–30 blotches or cross-bars, or even bright yellow with darker mottling; a pale stripe present from eye to neck.



CROTALIDAE

Tropidolaemus subannulatus (Gray, 1842)
Bornean Keeled Green Pit Viper

Size 963 mm

Identification

Body slender in juveniles, relatively thick in adults; head distinct from neck; tail prehensile; scales keeled; back green or greenish-blue, with dark cross-bars blue and white, red and white, blue, blue and red or white in adult females; white spots or white and red spots in males and juveniles; pale stripe from eyes to back of head in adult females, white and red stripe in juveniles and males; belly unpatterned.



PYTHONIDAE

Malayopython reticulatus (Schneider, 1801)

Size > 10 m

Reticulated Python

Identification

Body relatively elongated and slender; head distinct from neck; pupil vertical; anal entire; dorsum yellow or brown, with dark, rhomboidal markings; black median line from snout to nape; belly yellow with small brown spots.



SNAKE-BITE MANAGEMENT

Two venomous snakes were recorded within the Estate, and we provide brief notes on these species, venom and suggestions for treatment for their bites. Additional venomous snakes are expected to occur, especially the Spitting Cobra, *Naja sumatrana*.

Tropidolaemus subannulatus

Bornean Keeled Green Pit Viper

Local names: Bahasa Malaysia *Ular Kapak*; Iban: *Ular Engkaradau*

Where Found: Usually in low vegetation and mid-level of trees.

Venom and Treatment: Venom is a mixture of procoagulants; anticoagulants; additionally, haemorrhagins and necrotoxins are possibly present. Envenoming may be lethal and patients need to be taken immediately to Miri Hospital for observation and if required, antivenom. The appropriate serum is the Green Pit Viper Antivenin (manufactured by the Thai Red Cross Society).





Trimeresurus borneensis

Bornean Palm Pit Viper

Local Name: Unrecorded.

Where Found. Young ones are found on the ground, while adults can climb bushes and low trees.

Venom and Treatment: Venom contains procoagulants and haemorrhagins, and necrotoxins are possibly present. Bites have the potential for serious envenoming and require immediate medical attention at the Miri General Hospital. The Green Pit Viper Antivenin (manufactured by the Thai Red Cross Society) is recommended for its bite, after examination of the patient by a qualified medical practitioner.



AVOIDING CROCODILE CONFLICT

- * From our surveys throughout drainages and water sources within the area, it is unlikely that crocodiles would pose a major threat to safety.
- * Drainages within the Estate are relatively shallow and do not offer resources necessary to support a significant crocodile population. Nonetheless, small crocodiles do make move into plantation areas.
- * For rare occasions when adult crocodiles enter plantation areas, it can pose significant threat to safety of plantation personnel.
- * Workers should be encouraged to report crocodile sightings of subadults or adults to plantation managers. Plantation staff would then be recommended to contact a biologist or surveyor to confirm the sighting using night-time eye-shine surveys.
- * Recommendations could then be made on removal of the animal from the plantation zone.
- * Crocodile safety and awareness should be included in briefings to workers and personnel that operate closer to major water bodies, such as Sungei Karap and Sungei Bakong.
- * The southern area of Tinbarap Estate, adjacent to Miri Timur plantation estates, does have a shared drainage area that has reports of crocodiles by security staff. This area likely has the highest chance of crocodiles entering into the estate area.
- * It is recommended that workers be aware that crocodiles may exist and that to be careful during areas in close proximity to major drainage areas or during night-time (i.e., fishing activities). Any food should also be disposed of properly in this area, as to avoid attracting crocodiles to these drainages.
- * Although crocodile appear to pose an insignificant threat to safety at Tinbarap Estate, it would be recommended to maintain records and reporting procedures for crocodile sightings if they occur.

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▲ *The habitat adjacent to the Sungei Karap bridge during daytime*

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▲ *Trimeresurus borneensis*



