



Scan my voice  
*Palawan Sparrow*



Scan my voice  
*Amboi Bird*

# AMPHIBIANS OF WESTERN SARAWAK (BORNEO)



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#### Front Cover

*Kurixalus appendiculatus* (top)  
*Rhacophorus nigropalmatus* (centre, left)  
*Gastrophryonoides borneensis* (centre, right)  
*Megophrys nasuta* (bottom, left)  
*Philautus macroscelis* (bottom, right)  
All photos: Pui Yong Min

#### Back Cover

QR codes of calls of *Pulchrana baramica*  
(top: Indraneil Das) and *Ansonia latidisca*  
(bottom: Ong Jia Jet).

#### Concept and Design

Pui Yong Min & Indraneil Das

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# Amphibians of Western Sarawak (Borneo)

by

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# Introduction

**Western Sarawak** is situated on north-western Borneo, that includes the drainages of Sungei Sarawak, Sg. Sadong and Sg. Lupar, and their respective headwaters. The primary natural vegetation type represented is the mixed dipterocarp forest, although a number of other vegetation can be seen, from coastal forests and mangroves to *Kerangas* (Bornean heath forest) to montane forests, many at different stages of regeneration. The geology of the region is as varied, from sandstone to limestone regions, besides some areas of granite.



We enumerated amphibian diversity at Tanjung Datu National Park (1), Gunung Gading National Park (2), Kubah National Park (3), Gunung Santubong National Park (4), Bako National Park (5), Maludam National Park (6), Sama Jaya Nature Reserve, Deded Krian National Park, the Wind and Fairy Caves National Parks, Semenggoh Wildlife Centre and Gunung Pueh National Park. Unprotected areas where we conducted amphibian inventories include Kota Samarahan, the Kuching region, Gunung Gumbang and Gunung Penrissen.

This field guide to the amphibians of western Sarawak is based on our inventories, and the published works of others. The cut-off date for the checklist was 29 March 2019. A total of 95 species are described in this work, representing over half the described amphibian fauna of Borneo.

For all species, we provide a common (English) name, the current scientific name and authority, size information (maximum snout-vent length, SVL, recorded), brief description of external morphology and colouration of the adult stages relevant to its identification, reproduction (in terms of where breeding takes place and the nature of its larval stages), conservation status, according to the most recent version of the IUCN Red List (version 2019–1, accessed 29 March 2019), and finally, additional remarks if needed. For each species, we present an image of an adult, and when available, that of a larva, that is not reproduced to scale, in order to fit the format of the work. Further information can be obtained from the references listed at the end of this field guide. A Quick Response (QR) code for each species is provided, that links it to “Frogs of Borneo” species page. SVL = snout-vent length.

**Family**

**DICROGLOSSIDAE**

Grass Frog      Size: SVL to 60 mm  
*Fijeraya limocharta* (Gravenhorst, 1829)

**Morphology**— Body moderately slender; snout narrow; back with broken longitudinal ridges; outer mitral tubercle absent; toes with pointed tips, less than half webbed.

**Colour**— Back brown to brownish-grey, some with a pale yellow vertebral line; sides with a black, M-shaped band across throat; belly cream-coloured.

**Reproduction**— Egg are laid in pools and drains; larvae feeding and free-swimming.

**E= Endemic to Borneo**

**Conservation Status**

NE= Not Evaluated  
 DD= Data Deficient  
 LC= Least Concern  
 NT= Near Threatened  
 VU= Vulnerable  
 EN= Endangered  
 CE= Critically Endangered

**Colour Codes for Habitats**

Urban areas  
 Peat and freshwater swamps  
 Lowland dipterocarp forests  
 Submontane and montane forests  
 Mangrove swamps

**Larva**

**QR Code**

Amphibians of Western Sarawak (Borneo)

## Bufoidea

E

**White-lipped Slender Toad**

Size– SVL to 34 mm

*Ansonia albomaculata* Inger, 1960

<NE>

**Morphology**– Body slender; back with small warts; snout projecting obliquely; finger tips rounded; tip of first finger failing to reach disk of second finger; toes nearly fully webbed; tarsal ridge present.



**Colour**– Back reddish-brown; dark X-shaped mark on shoulder; white spot below eye; light band from eye to forelimb; belly greyish-brown.

**Reproduction**– Eggs laid in forest streams; larvae feeding and free-swimming.



## Bufonidae

**Bornean Rainbow Toad**  
*Ansonia latidisca* Inger, 1966

**Size**– SVL to 55 mm

**Morphology**– Body somewhat robust; back and sides with medium to large warts; snout truncate; tympanum 1/3 eye diameter; fingers slender, dilated and subtriangular; toes three-fourths webbed; tarsal ridge absent.

**Colour**– Back olive-green, with scattered reddish-orange warts over brown areas; throat dusky; belly greyish-brown.

**Reproduction**– Unknown. A metamorph was discovered near a mountain stream.



# Bufoidea

**Brown Slender Toad**

**Size**– SVL to 64 mm

*Ansonia leptopus* (Günther, 1872)



**Morphology**– Body slender; back with small warts; sides with large, flat warts; snout projecting obliquely; tympanum  $\frac{1}{4}$  eye diameter; fingers slender; tips of outer fingers rounded; toes three-fourths webbed in males, slightly less in females; tarsal ridge absent.

**Colour**– Back uniformly brown; throat and chest dusky; belly greyish-brownish.





## Bufoidea

**Long-fingered Slender Toad**  
*Ansonia longidigita* Inger, 1960

**Size**– SVL to 65 mm

**Morphology**– Body slender; tympanum visible; fingers slender; finger tips rounded; first finger reaching disk of second; males with 2–4 rows of black spines under lower jaw; tarsal ridge absent.

**Colour**– Back brown to blackish-brown, with lighter spots; limbs with dark cross-bars; belly cream with darker mottling.

**Reproduction**– Eggs laid in forest streams; larvae feeding and free-swimming.



# Bufoidea

E

**Minute Slender Toad**  
*Ansonia minuta* Inger, 1960

Size—SVL to 28 mm

<NT>

**Morphology**— Body slender; tip of finger I not reaching disk of finger II; toes III and V with two phalanges free of web; tarsal ridge sharp.



**Colour**— Back brown, tubercles yellow; limbs with darker bands; belly yellow.



**Reproduction**— Eggs laid in forest streams; larvae feeding and free-swimming.



## Bufoidea

**Spiny Slender Toad**

**Size**– SVL to 45 mm

*Ansonia spinulifer* (Mocquard, 1890)

**Morphology**– Body slender; limbs long and thin; tips of fingers rounded; toes nearly free of web; tympanum visible; large, spinose tubercles on back.

**Colour**– Back black, with grey to yellowish-cream oval patch between shoulders; belly dark with pale spots and streaks.

**Reproduction**– Eggs laid in forest streams; larvae feeding and free-swimming.



# Bufonidae

**Common Asian Toad**

**Size**– SVL to 115 mm

*Duttaphrynus melanostictus* (Schneider, 1799)



**Morphology**– Body stocky with warty skin; snout obtusely pointed; tympanum distinct, about half eye diameter; elongated parotoid gland; toes half webbed; black bony ridges from snout to eye and around upper orbit and tympanum.

**Colour**– Back greyish-brown, with orange and yellow markings during the breeding season; belly cream-coloured.

**Reproduction**– Eggs laid in pools and drains; larvae feeding and free-swimming.



## Bufoidea

Crested Toad

Size– SVL to 55 mm

*Ingerophrynus divergens* (Peters, 1871)

**Morphology**– 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.

**Colour**– Back orange or yellow-brown, sometimes with yellow vertebral stripe; belly cream-coloured.

**Reproduction**– Eggs laid in forest pools; larvae feeding and free-swimming.



## Bufonidae

Four-ridged Toad

Size– SVL to 60 mm

*Ingerophrynus quadriporcatus* (Boulenger, 1887)



**Morphology**– Body stocky; a pair of ridges between eyes; parotoid gland over three times as long as wide, followed by rows of warts; toes not fully webbed.

**Colour**– Back orange or yellow-brown; belly cream-coloured.

**Reproduction**– Eggs laid in pools; larvae feeding and free-swimming.



## Bufoidea

**Hourglass Toad**

Size– SVL to 47 mm

*Leptophryne borbonica* (Tschudi, 1838)

**Morphology**– Body slender in males, slightly more robust in females; snout tapering but short; tympanum 1/3 eye diameter; limbs rather long; parotoid gland absent; toes weakly webbed.

**Colour**– Back light to medium brown with a darker X-shaped marking; throat and chest grey; bellow grey or yellow.

**Reproduction**– Eggs laid in forest streams; larvae feeding and free-swimming.



## Bufoidea

Günther's Dwarf Toad

Size– SVL to 30 mm

*Pelophryne guentheri* (Boulenger, 1882)

E

<VU>



**Morphology**– Body slender; limbs slender; webbing on hand thick, reaching tip of first finger but leaving half of outer fingers free; fifth toe webbed to disks.

**Colour**– Back greenish-grey, with reddish-brown tubercles; belly cream-coloured with dark mottling.

**Reproduction**– Unknown.





## Bufoidea

**Penrissen Dwarf Toad**

**Size**– SVL to 31 mm

*Pelophryne penrissenensis* Matsui, Nishikawa, Eto & Hossman, 2017

**Morphology**– Body relatively stout; webbing on hand thick, reaching tip of first finger; most of outer fingers free; webbing reach disks of all toes except the fourth; disks on fingers expanded; parotoid gland absent; hind limbs long.

**Colour**– Back pale brown, with a darker hour-glass like pattern; belly cream-coloured, with indistinct dark spots.

**Reproduction**– Unknown; like its relatives, eggs likely laid in tree holes or inside pitcher plants; larvae possibly non-feeding and free-swimming.



## Bufoidea

**Short-legged Dwarf Toad**

Size– SVL to 17.6 mm

*Pelophryne signata* (Boulenger, 1894)



**Morphology**– Body slender; webbing on hand thick, reaching tip of first finger; half of outer fingers free; webbing reach disks of first toe only; disks on fingers expanded; parotoid gland absent; hind limbs relatively short.

**Colour**– Back pale to dark brown, small black spots, sometimes with a pale lateral stripe along flanks; belly yellow, spotted with brown or black.

**Reproduction**– Eggs are laid in tree holes; larvae non-feeding and free-swimming.



## Bufoidea

**River Toad**

**Size**– SVL to 170 mm

*Phrynoidis asper* (Gravenhorst, 1829)

**Morphology**– Body stocky; parotoid small, rounded; bony ridges on forehead absent; tympanum small, indistinct; all toes (except fourth) webbed to tips.

**Colour**– Back grey to dark brown; throat, chest and sides and undersides of limbs with small red and black spots; belly cream-coloured.

**Reproduction**– Eggs laid in side pools of forest streams; larvae feeding and free-swimming.



## Bufonidae

Giant River Toad

Size– SVL to 215 mm

*Phrynoidis juxtasper* (Inger, 1964)



**Morphology**– Body stocky; head broad; bony crests on forehead absent; tympanum visible; parotoid gland 2–4 times as long as wide; toes (except fourth) webbed to tips.

**Colour**– Back dark grey-brown to black, sometimes with indistinct darker spots; belly cream-coloured, with dark mottling.

**Reproduction**– Eggs laid in side pools of forest streams; larvae feeding and free-swimming.



## Bufoidea

**Kinabalu Tree Toad**

**Size**– SVL to 87 mm

*Rentapia everetti* (Boulenger, 1896)

**Morphology**– Body stocky; bony ridge connects eyes to parotoid gland; tympanum visible; all toes (except fourth) fully webbed; fingers basally webbed, finger tips expanded into pads; tarsal ridge absent.

**Colour**– Back green, with reddish-brown, pale-edged blotches; belly cream-coloured.

**Reproduction**– Unknown, but probably similar to its relatives, which lay eggs in forest streams and their larvae feeding and free-swimming.

**Remarks**– Taxonomic studies on this complex are ongoing.



## Bufoinae

E

**Brown Tree Toad**

Size– SVL to 105 mm

*Rentapia hosii* (Boulenger, 1892)

<LC>



**Morphology**– Body stocky; bony ridge connects eyes to parotoid gland; tympanum visible; all toes (except fourth) fully webbed; fingers basally webbed, finger tips expanded into pads; tarsal ridge present.

**Colour**– Back variable, ranging from unpatterned brown, to black, purple or greenish-olive, with or without bright yellow spots; belly cream-coloured or yellow.

**Reproduction**– Eggs laid in side pools of forest streams; larvae feeding and free-swimming.



## CERATOBATRACHIDAE

**Saribau Frog**

*Alcalus sariba* (Shelford, 1905)

**Size**– SVL to 40 mm

**Morphology**– Body squat; short head; fingers short, broadened at tip; toes half webbed, with widened tips; hind limbs short; skin with pebbly texture.

**Colour**– Back brown to brownish-grey, with scattered dark spots or dark longitudinal band; chest and belly pale grey or cream-coloured and throat heavily pigmented with brown.

**Reproduction**– Unknown.



## DICROGLOSSIDAE

**Mangrove Frog**

Size– SVL to 82 mm

*Fejervarya cancrivora* (Gravenhorst, 1829)



**Morphology**– Body robust; snout long; hind limbs powerful; toes over half webbed; back and sides with short ridges and rounded tubercles.

**Colour**– Back pale to medium brown, with darker markings; dark bar across eyes; belly cream-coloured.

**Reproduction**– Eggs laid in standing bodies of water, including close to coastal areas and in the lowlands, sometimes under saline conditions; larvae feeding and free-swimming.

