



INDONESIA
HERPETOFAUNA
FOUNDATION



IDENTIFYING THE PROTECTED SPECIES OF
REPTILES AND AMPHIBIANS
IN INDONESIA



NATHAN RUSLI



IDENTIFYING THE PROTECTED SPECIES OF REPTILES AND AMPHIBIANS IN INDONESIA

Author: Nathan Rusli

Editors: Iri Gill, Agnes Indah Pratiwi

Illustrations: Nathan Rusli

Photographs: Nathan Rusli, unless stated otherwise.

Layouting: Nathan Rusli



Front Cover: *Morelia viridis* ©Jungle Diaries

Back Cover: *Varanus indicus* (atas) ©Jungle Diaries,
Simalia boeleni (bawah) ©Nathan Rusli

Cover Page: *Crocodylus porosus* ©Nathan Rusli

CONTENTS

INTRODUCTION	01
CHAPTER 1 - SNAKES AND LIZARDS	03
CHAPTER 2 - TURTLES AND TORTOISES	31
CHAPTER 3 - CROCODILES	59
CHAPTER 4 - AMPHIBIANS	67
REFERENCES	70
ACKNOWLEDGEMENTS	72

INTRODUCTION

Reptiles and amphibians (herpetofauna) are a group of animals which are not too familiar to the public. The management of these animals are very different from mammals and birds, which have been the main focus points of conservation in Indonesia.

This book is an identification guide which aims to assist officials in identifying the protected species of amphibians and reptiles in Indonesia. The list of species in this book is based on the Indonesian Environment Ministry Law No. P.20/MENLHK/SETJEN/KUM.1/6/2018.

This identification guide was made for RAM (*Reptile and Amphibian Management*) Workshop, held in Cikananga Wildlife Centre, 30 July - 02 August 2019. This event is a collaboration between Cikananga Wildlife Centre, Indonesia Herpetofauna Foundation, Chester Zoo, and Indonesian Forestry Department, which aims to increase skill and capacity of personnel involved in the confiscation and/or conflict management of wild animals, especially reptiles and amphibians that are traded illegally.

Because this book is designed for personnel which may or may not have prior knowledge in herpetology, the easiest defining characters of each species have been chosen and displayed using many labelled photographs, making it as easy as possible to use.

Hopefully this book can be useful for conservation practitioners in Indonesia.



Timor Python (*Malayopython timoriensis*)

CHAPTER 1

SNAKES AND LIZARDS

<i>Malayopython timoriensis</i>	04	<i>Varanus melinus</i>	24
<i>Morelia viridis</i>	06	<i>Varanus nebulosus</i>	26
<i>Python bivittatus</i>	08	<i>Varanus similis</i>	28
<i>Simalia boeleni</i>	10	<i>Varanus togianus</i>	29
<i>Chlamydosaurus kingii</i>	12		
<i>Lanthanotus borneensis</i>	13		
<i>Varanus auffenbergi</i>	14		
<i>Varanus timoriensis</i>	15		
<i>Varanus beccarii</i>	16		
<i>Varanus boehmei</i>	17		
<i>Varanus prasinus</i>	18		
<i>Varanus reisingeri</i>	19		
<i>Varanus panoptes</i>	20		
<i>Varanus indicus</i>	21		
<i>Varanus komodoensis</i>	22		

TIMOR PYTHON

Malayopython timoriensis



Indonesian Name: Sanca Timor

English Name: Timor Python

Distribution in Indonesia: Timor, Flores

Identification: This is a rather slender python compared to other species. It is golden-yellow on the first half of its body, and fades to a darker shade of brownish gray on the last half to the tail. This snake has a mottled pattern on the first half of its body, starting from behind the head.





GREEN TREE PYTHON

Morelia viridis



Indonesian Name: Sanca Hijau, Chondro

English Name: Green Tree Python

Distribution in Indonesia: Aru Islands, Papua

Identification: This snake lives in trees, and has a characteristic “U” shaped perching position (opposite page). The head is not triangle shaped, and has a robust, muscular body. Adult snakes usually have a green base colour, with various blotches of white, yellow, and/or blue (varies between populations). Juveniles are red or yellow instead of green, with white and/or brown blotches.





“U”-shaped
perching position



juvenile



juvenile



BURMESE PYTHON

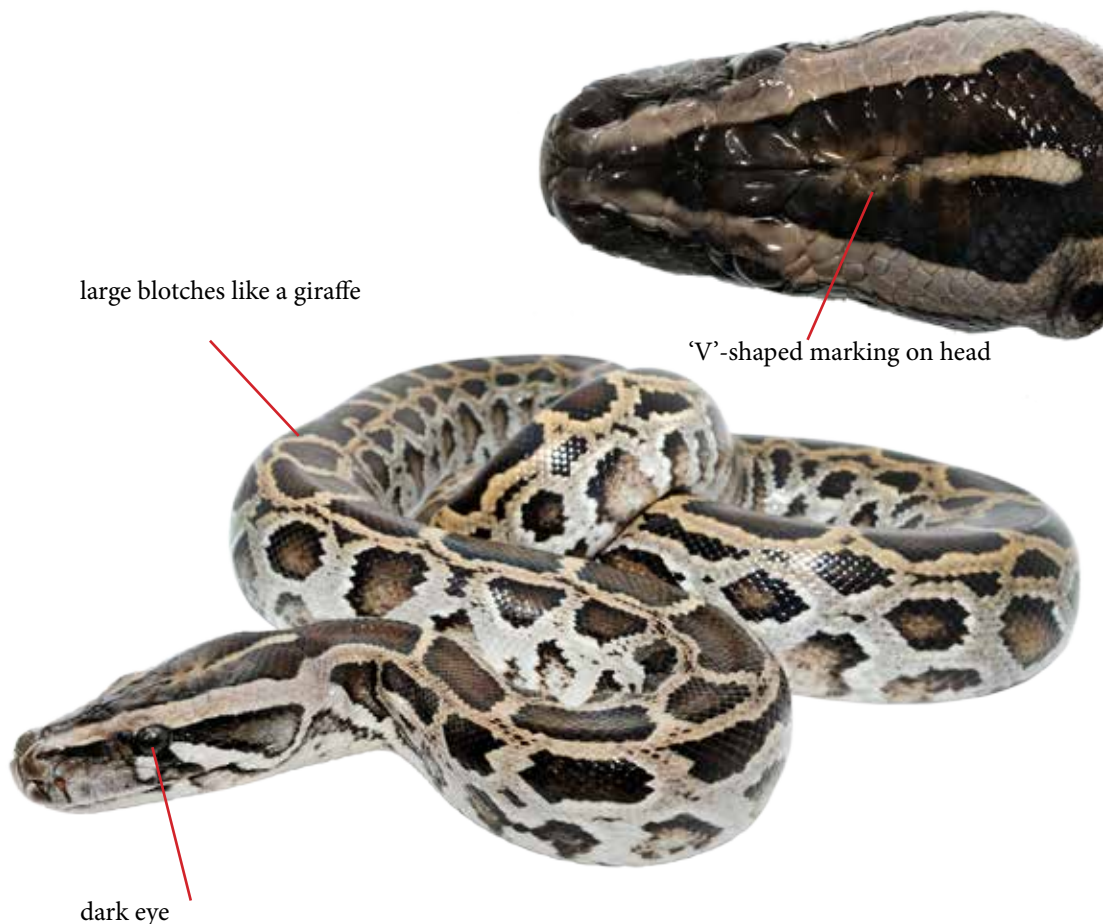
Python bivittatus

Indonesian Name: Sanca Bodo, Molu

English Name: Burmese Python

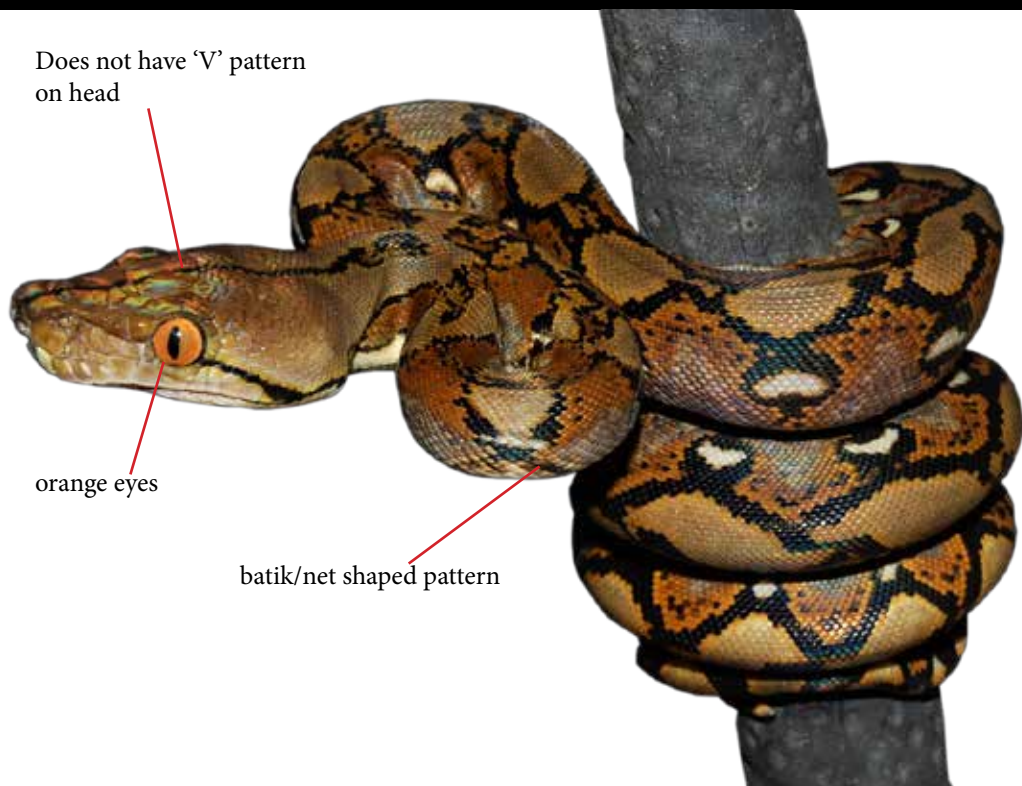
Distribution in Indonesia: Java, Bali, Sulawesi

Identification: Robust, muscular body. Has a “V”-shaped marking on the top of its head. Large brown blotches on body (like a giraffe) bordered with cream or light brown. It has dark coloured eyes, whereas the commonly traded (non protected) reticulated python (*Malayopython reticulatus*) has a reticulated/net shaped pattern with mottling, and orange eyes. The albino variant of this species is commonly traded, which has yellow blotches bordered in white, and red eyes.





Albino variety of the Burmese Python (*Python bivittatus*) which is **PROTECTED**.



Reticulated Python (*Malayopython reticulatus*)
NOT PROTECTED



BOELEN'S PYTHON

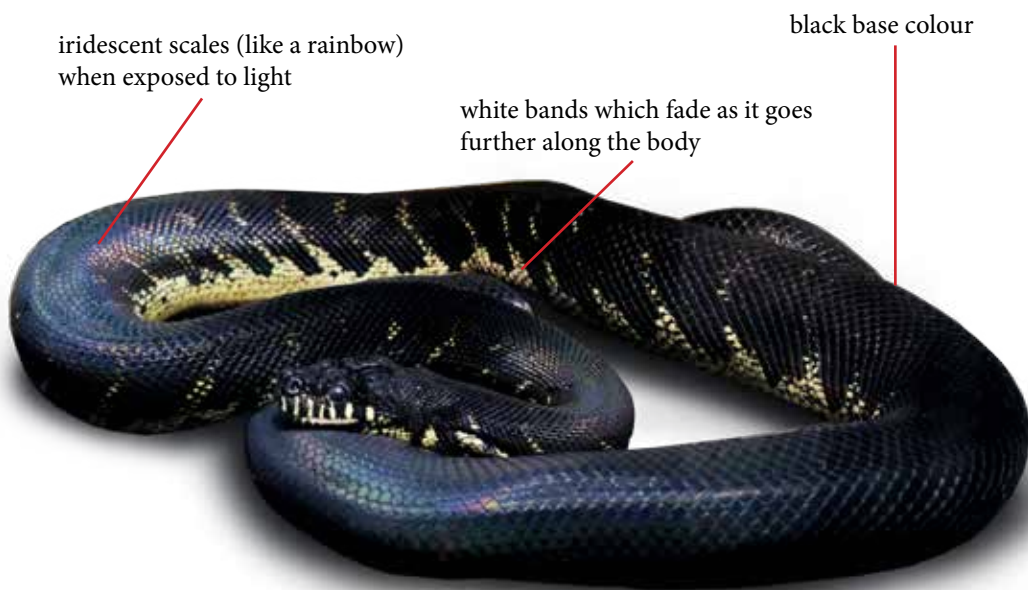
Simalia boeleni

Indonesian Name: Sanca Bulan, Sanca Hitam

English Name: Boelen's Python

Distribution in Indonesia: Papua

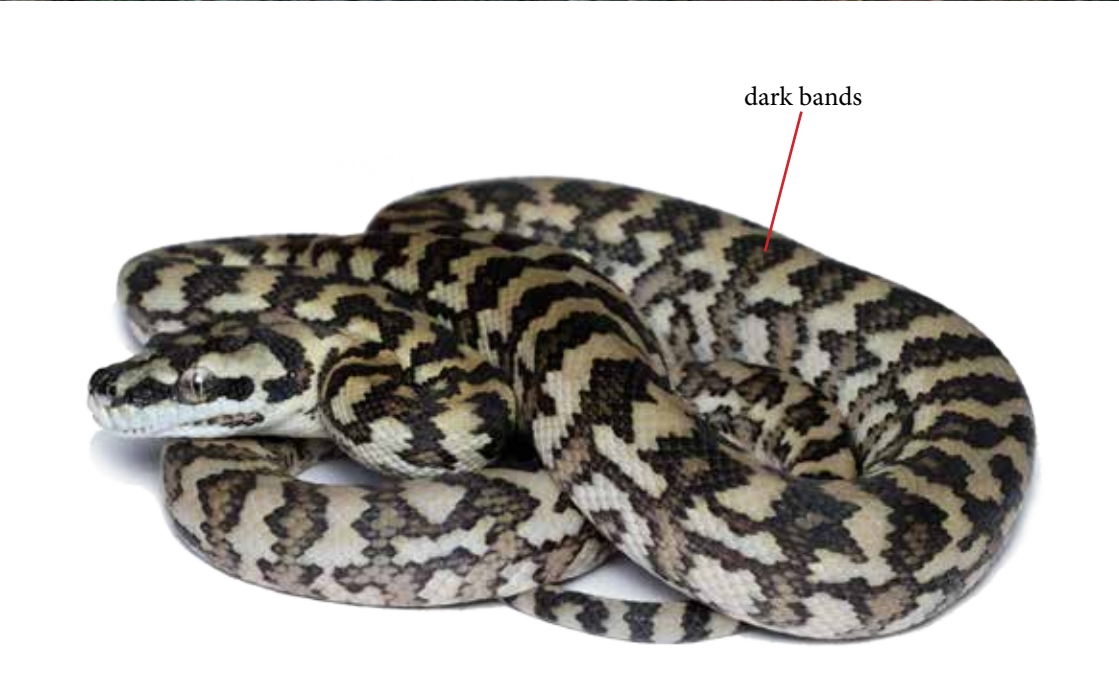
Identification: large head, short snout, robust and muscular body. Adult specimens have a black base colour with white bands until the front half of its body, which fades further along the body. Has white markings on the lips. Iridescent scales (like a rainbow) when exposed to light. Juveniles have reddish-brown bands with a cream base colour.



adult specimen of Boelen's Python



Juvenile Boelen's Python which is **PROTECTED**. ©Riza Marlon



Carpet Python (*Morelia spilota*)
NOT PROTECTED

FRILLED LIZARD

Chlamydosaurus kingii



Indonesian Name: Soa Payung

English Name: Frilled Lizard

Distribution in Indonesia: Papua

Identification: A defining character of this species is the large folds of skin on its neck. When threatened, it can open the folds of skin like an umbrella in order to make it look larger and more threatening. It is usually brown or grayish in colour, with dark mottling/speckling randomly spread on its body.



folds of skin on neck



opens its "frill"
when threatened



BORNEO EARLESS MONITOR

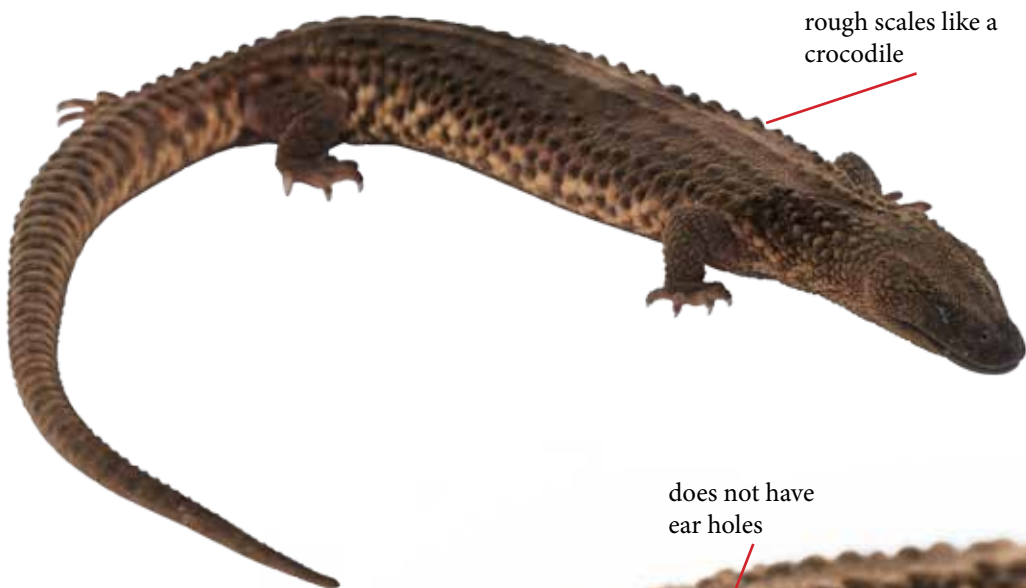
Lanthanotus borneoensis

Indonesian Name: Biawak Kalimantan, Biawak Tuli

English Name: Borneo Earless Monitor

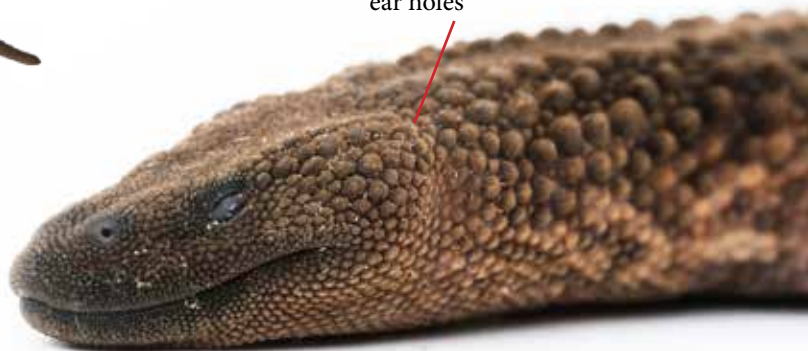
Distribution in Indonesia: Kalimantan

Identification: This strange lizard is not a true monitor (Varanidae) but is classified in its own family (Lanthanotidae). It is very unique and easy to identify, as it has rough scales like a crocodile on its back, but unlike a crocodile does not have a long snout and exposed teeth. It is known as an earless monitor because it lacks ear holes.



rough scales like a crocodile

does not have ear holes





PEACOCK MONITOR

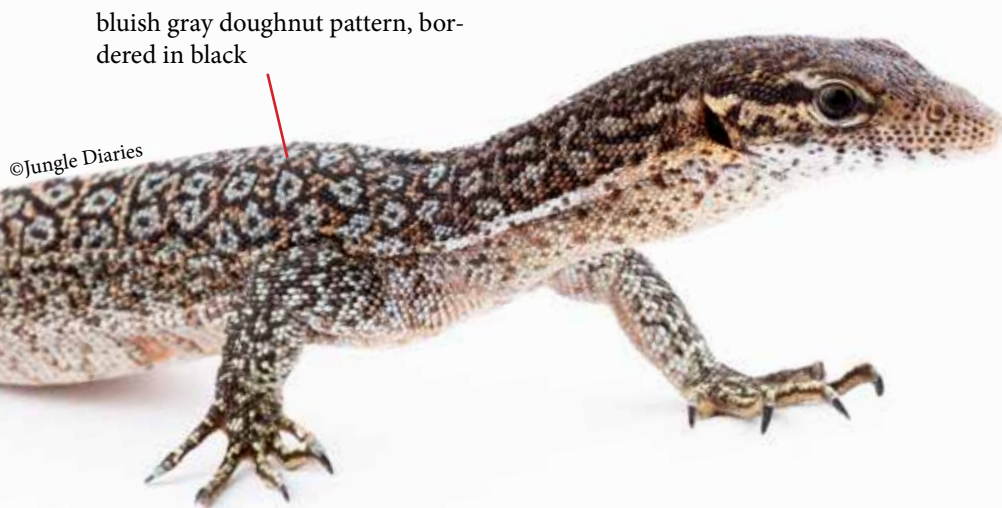
Varanus auffenbergi

Indonesian Name: Biawak Rote

English Name: Peacock Monitor, Auffenberg's Monitor

Distribution in Indonesia: Pulau Rote

Identification: A small monitor, very similar to *V. timoriensis* (page 15). On its back, this species has doughnut shaped patterns which are bluish gray in colour, bordered in black, which form a larger, more symmetrical pattern than a similar marking on *V. timoriensis* which has cream coloured doughnut-shaped patterns, bordered in brown. The belly of this species is plain, whereas *V. timoriensis* has a mottled belly.



BIAWAK TIMOR

Varanus timorensis



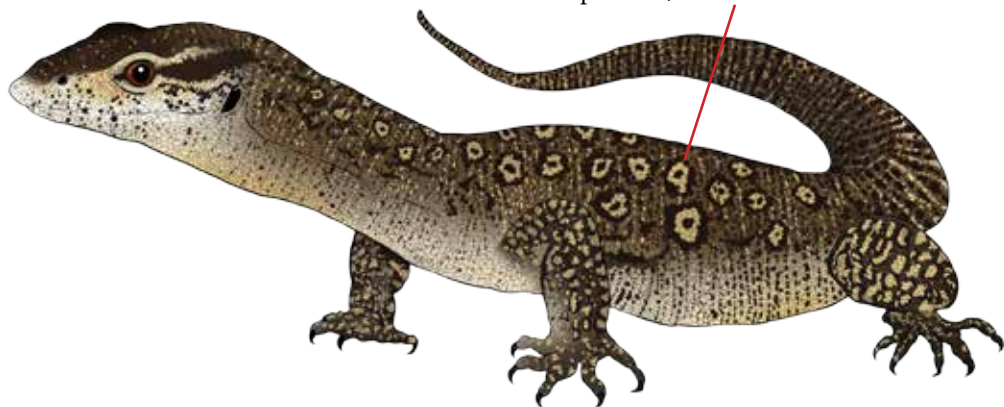
Indonesian Name: Biawak Timor

English Name: Timor Monitor

Distribution in Indonesia: Timor

Identification: A small monitor, very similar to *V. auffmanbergi* (page 14). On its back, this species has cream coloured doughnut-shaped patterns, bordered in brown, whereas *V. auffmanbergi* has doughnut shaped patterns which are bluish gray in colour, bordered in black, which form a larger, more symmetrical pattern than a similar marking on this species. The belly of this species is mottled, whereas *V. auffmanbergi* has a plain belly.

cream coloured doughnut-shaped
patterns, bordered in brown



BLACK TREE MONITOR

Varanus beccarii

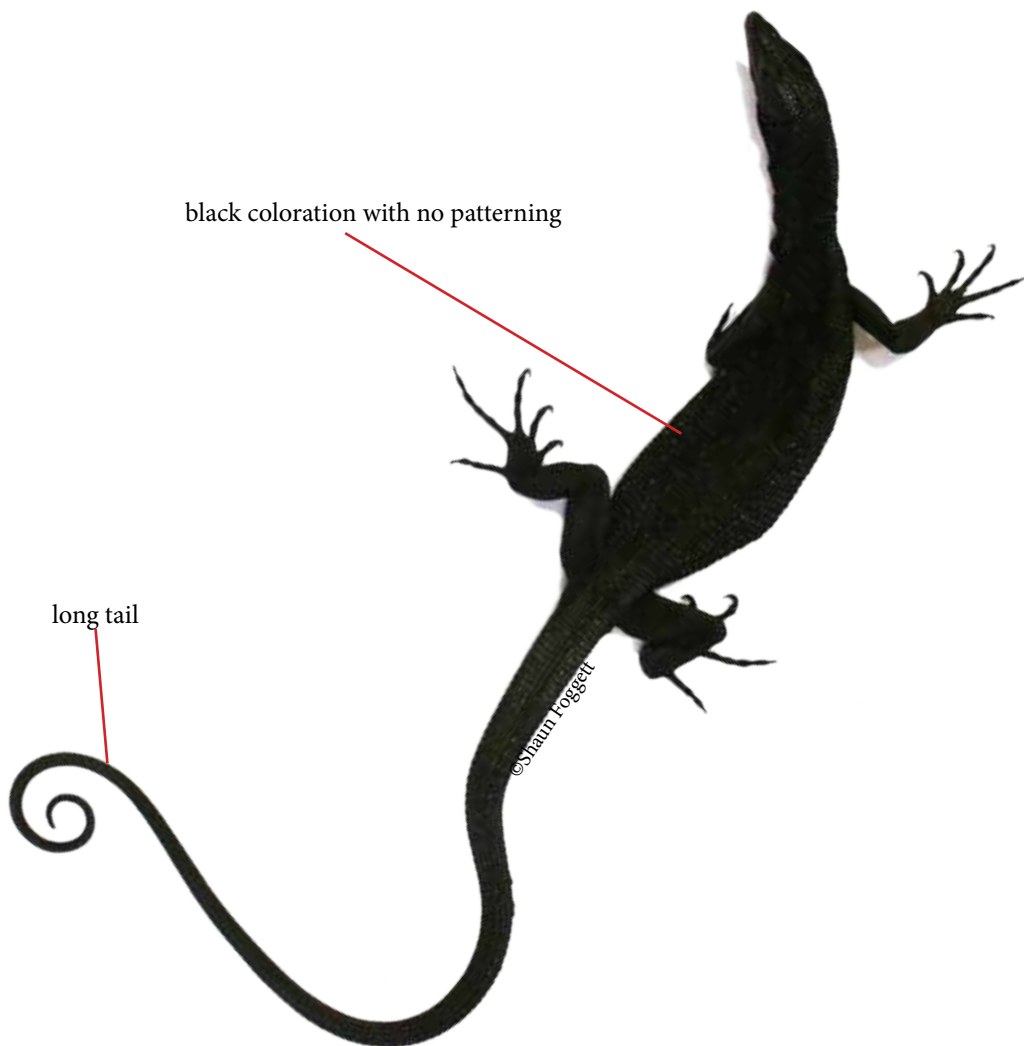


Indonesian Name: Biawak Aru, Biawak Hitam

English Name: Black Tree Monitor

Distribution in Indonesia: Kep. Aru

Identification: Medium sized monitor lizard with a slender body and long tail. Adults are black in colour. Juveniles are dark gray with small yellowish spots on its back, which fade as it grows.



GOLDEN-SPOTTED TREE MONITOR

Varanus boehmei

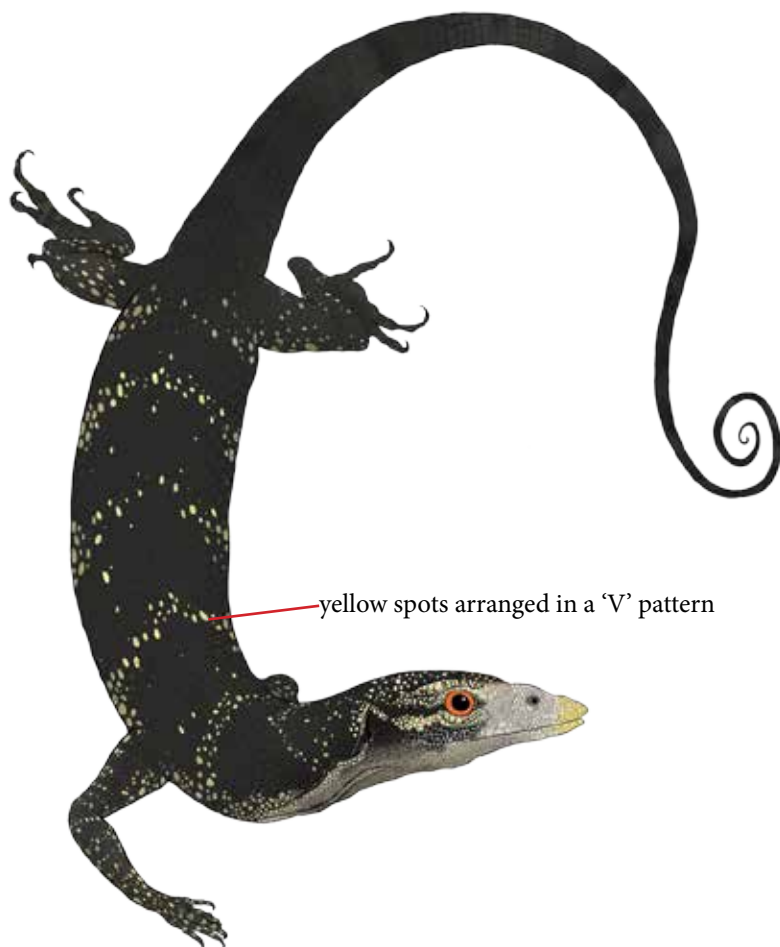


Indonesian Name: Biawak Waigeo

English Name: Golden-Spotted Tree Monitor

Distribution in Indonesia: Kep. Waigeo

Identification: Medium sized monitor lizard with a slender body and long tail. It is dark gray or black in colour, with light yellow/golden spots arranged in a chevron ('V' shaped) pattern. The tip of its snout is pale yellow.



EMERALD TREE MONITOR

Varanus prasinus

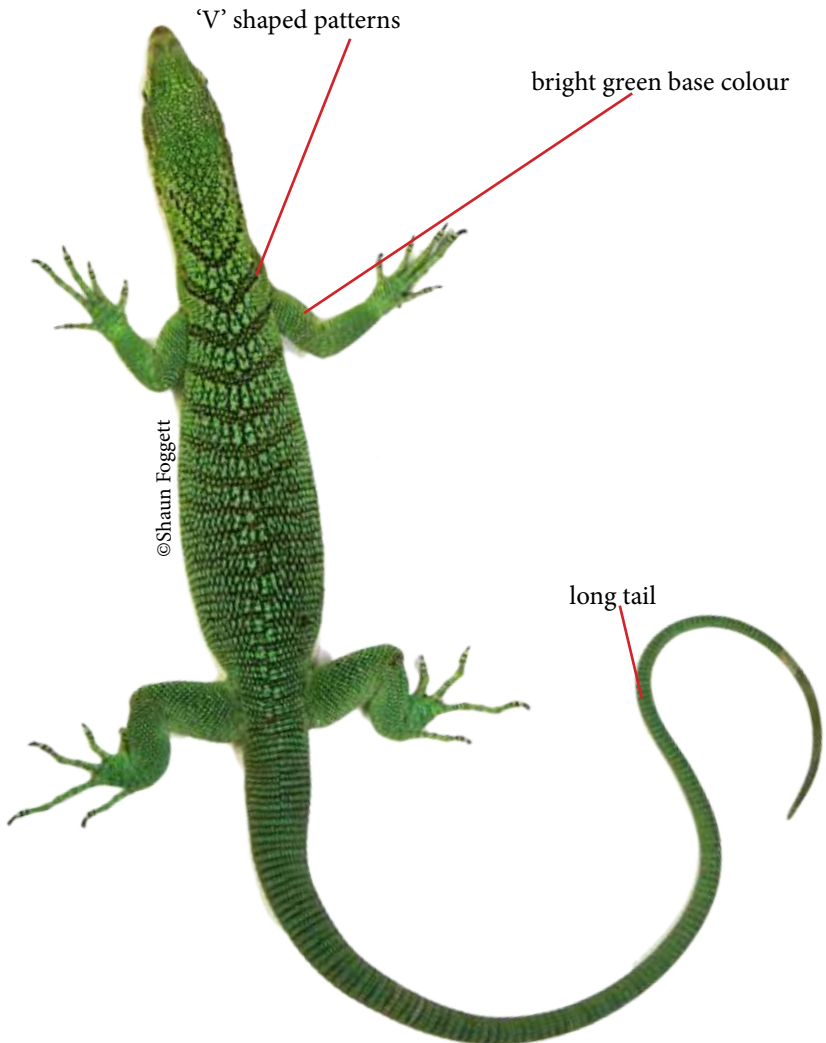


Indonesian Name: Biawak Hijau

English Name: Emerald Tree Monitor

Distribution in Indonesia: Papua

Identification: A slender, medium-sized monitor lizard with a long tail. It is bright green in colour, with black chevron ('V' shaped) patterns on its neck and back.





REISINGER'S TREE MONITOR

Varanus reisingeri

Indonesian Name: Biawak Misool

English Name: Reisinger's Tree Monitor

Distribution in Indonesia: Kep. Misool

Identification: A slender, medium-sized monitor lizard with a long tail. It is yellowish green in colour, with black chevron ('V' shaped) patterns on its neck and back. It is still debated whether this is a subspecies of *V. prasinus* (also protected) or a distinct species, as they look very similar.

yellowish green base colour



ARGUS MONITOR

Varanus panoptes

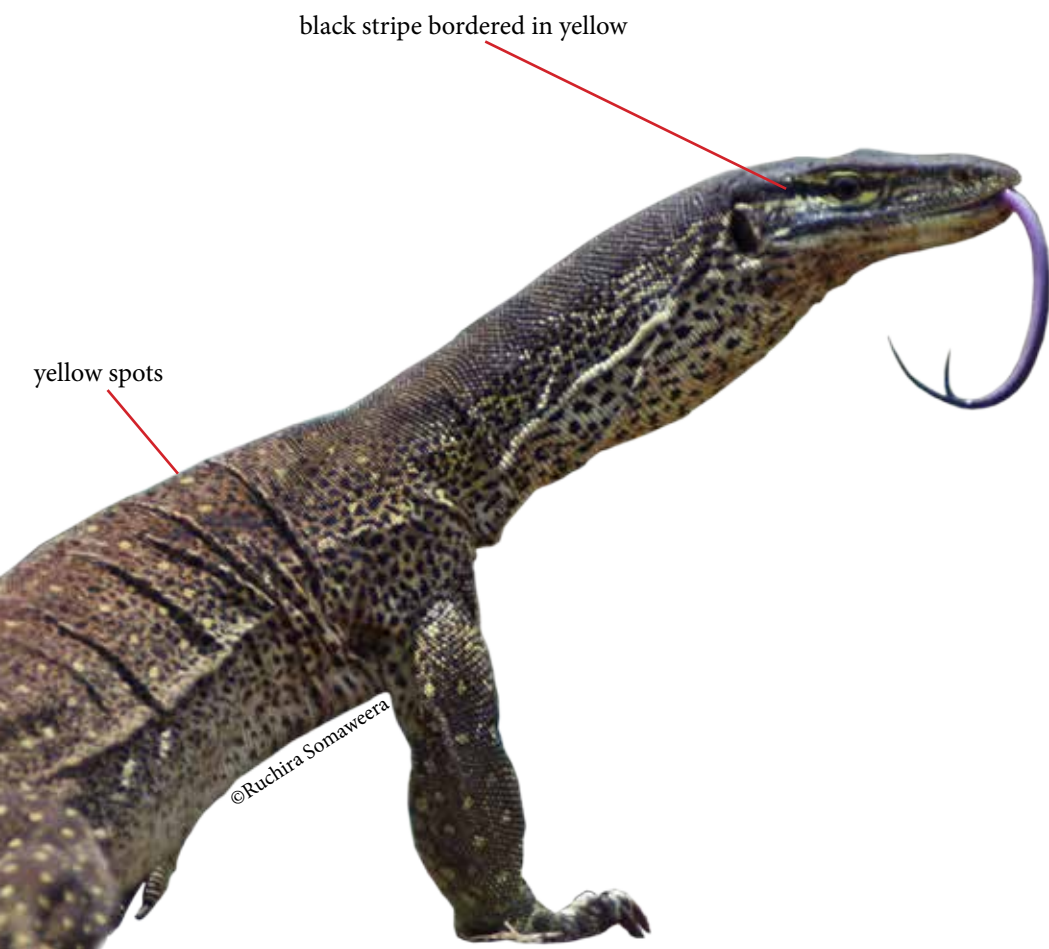


Indonesian Name: Biawak Coklat

English Name: Argus Monitor

Distribution in Indonesia: Papua

Identification: This species can be identified by the black stripe that passes the eye and goes above the ear hole, bordered in yellow. A similar black stripe also passes through the eye and ear hole. It has a brown base colour, with yellow spots on its back.



MANGROVE MONITOR

Varanus indicus

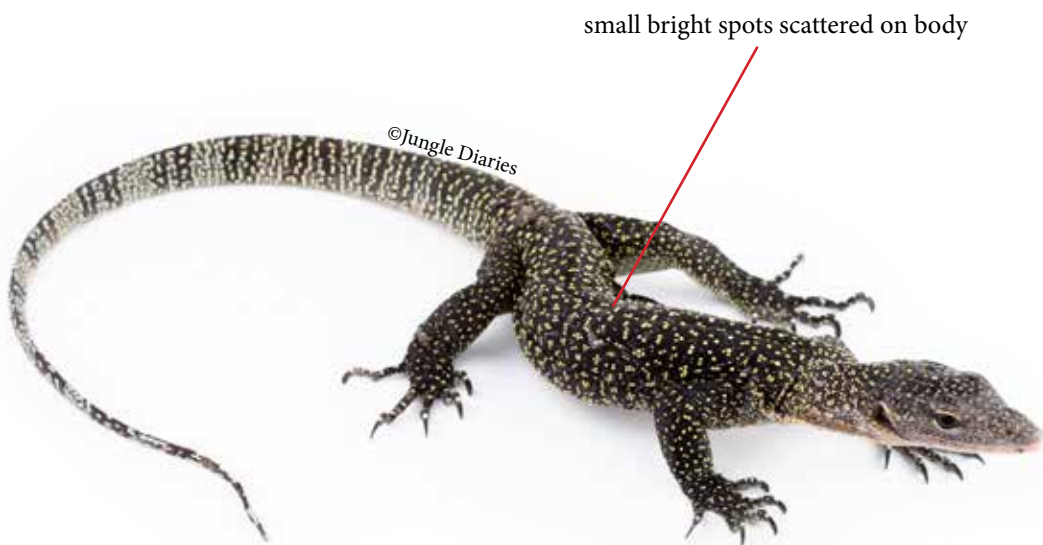


Indonesian Name: Biawak Maluku

English Name: Mangrove Monitor

Distribution in Indonesia: Kep. Maluku, Kep. Aru, Kep. Talaud, Papua, Timor, Halmahera

Identification: This monitor lizard has a dark gray/black base colour, with small light spots (white/yellowish) that are scattered along the whole of its back. It has a black tongue.





KOMODO DRAGON

Varanus komodoensis

Indonesian Name: Komodo, Ora

English Name: Komodo Dragon

Distribution in Indonesia: Komodo, Rinca, Padar, Flores

Identification: The largest lizard on earth, with a large, robust body.

Adults are reddish/grayish brown. The juveniles are usually more slender, with a dark base colour, and a chevron (upside down 'V' shape) on its neck that is pale yellow, followed by large spots on its back which are reddish brown in colour. This pattern will fade as it grows.





Biawak Komodo anakan. ©Delvena Leong



QUINCE MONITOR

Varanus melinus

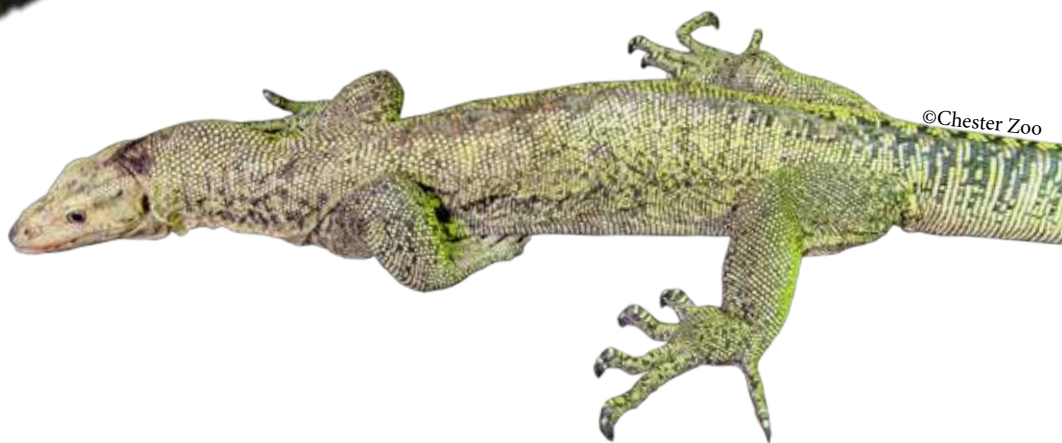


Indonesian Name: Biawak Banggai

English Name: Quince Monitor

Distribution in Indonesia: Kep. Obi, Kep. Sula

Identification: A medium-sized monitor lizard. Adults have a yellowish/pale yellow base colour, with an abstract granite/net pattern, sometimes reduced or no pattern at all. Juveniles are usually darker on the back with large yellow spots, with a dark yellow head and neck. This patterning fades as it grows.



©Chester Zoo

Biawak Banggai anakan



CLOUDED MONITOR

Varanus nebulosus



Indonesian Name: Biawak Abu-Abu

English Name: Clouded Monitor

Distribution in Indonesia: Java

Identification: This monitor lizard looks similar to the water monitor (*V. salvator*), however it differs in the nostril. The nostril of this species is shaped like a slit and is situated in the middle of the eye and snout, whereas on *V. salvator* it is oval and on the tip of snout. Also, this species has a convex snout. It has a grayish brown base colour with small yellowish and white spots scattered all over its back. The head is usually yellowish, with a dark stripe behind the eye. Juveniles have a more contrasting colouration, whereas adults are pale.



juvenile

convex snout

slit-shaped nostril situated between eye and snout



SPOTTED TREE MONITOR

Varanus similis

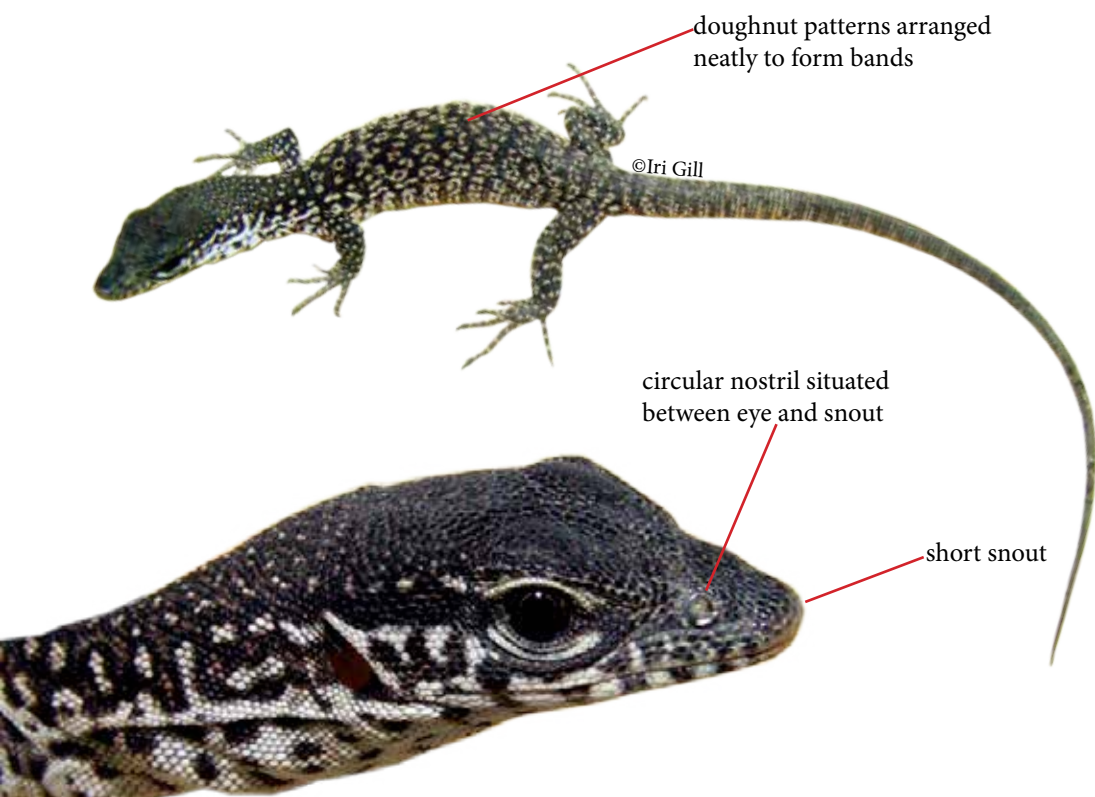


Indonesian Name: Biawak Kerdil

English Name: Spotted Tree Monitor

Distribution in Indonesia: Papua

Identification: A small monitor lizard. The characteristics of this species is its short snout, and a circular nostril, situated between the eye and nostril. It has a black or dark gray base colour, with yellowish/white spots on neck. There are yellowish doughnut-shaped patterns on its back, arranged to form bands. The ventral of neck is white.





TOGIAN MONITOR

Varanus togianus

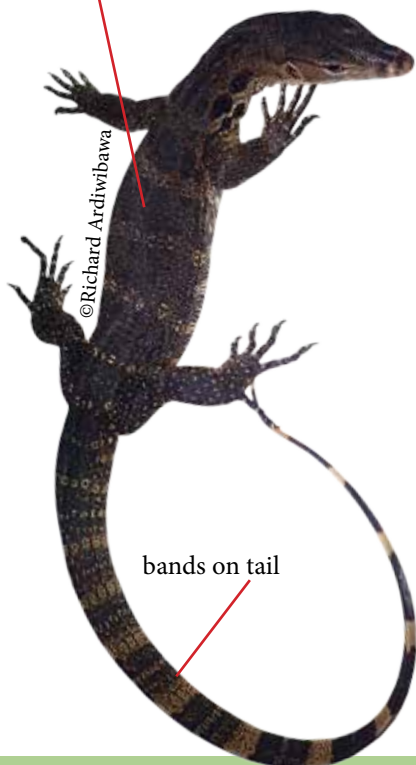
Indonesian Name: Biawak Togian

English Name: Togian Monitor

Distribution in Indonesia: Kep. Togian

Identification: Large, robust species of monitor lizard. Used to be considered a subspecies of *V. salvator*, however can be distinguished from other *V. salvator* subspecies by its dark patternless dorsal coloration. It also lacks light crossbands on the tail, which is present in *V. salvator*.

pattern on back

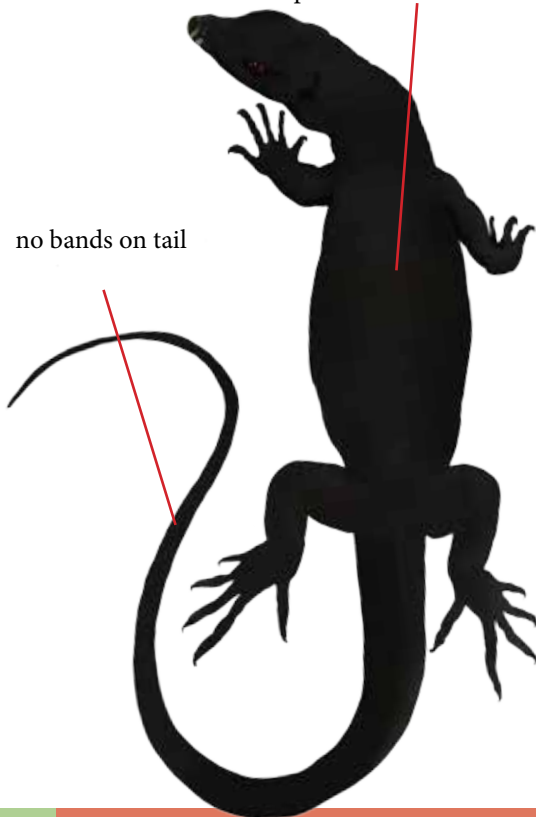


bands on tail

Water Monitor (*Varanus salvator*)
NOT PROTECTED

patternless back

no bands on tail



Togian Monitor (*Varanus togianus*)
PROTECTED



Narrow-Headed Softshell Turtle (*Chitra chitra javanensis*)

CHAPTER 2

TURTLES AND TORTOISES

<i>Carettochelys insculpta</i>	32	<i>Natator depressus</i>	56
<i>Chitra chitra</i>	34	<i>Dermochelys coriacea</i>	57
Chelonian Morphology	36		
<i>Chelodina mccordi</i>	38		
<i>Chelodina novaeguineae</i>	39		
<i>Batagur affinis</i>	40		
<i>Batagur borneoensis</i>	42		
<i>Orlitia borneensis</i>	44		
<i>Manouria emys</i>	46		
Sea Turtle Identification	48		
<i>Caretta caretta</i>	50		
<i>Chelonia mydas</i>	52		
<i>Eretmochelys imbricata</i>	54		
<i>Lepidochelys olivacea</i>	55		

FLY RIVER TURTLE

Carettochelys insculpta

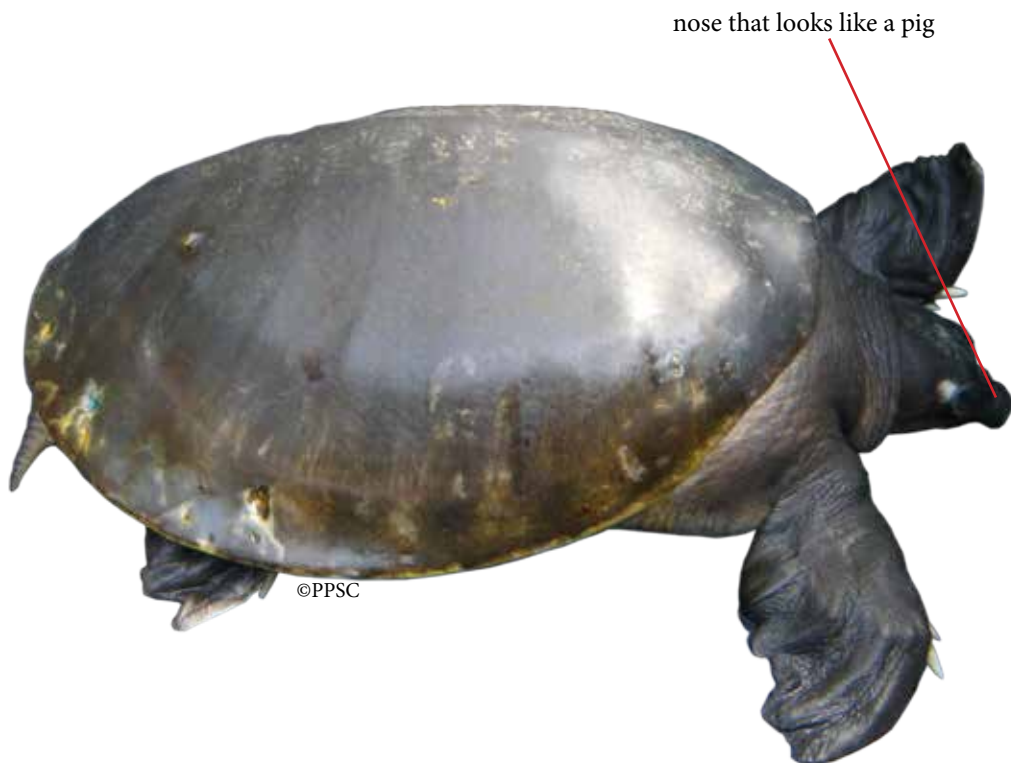


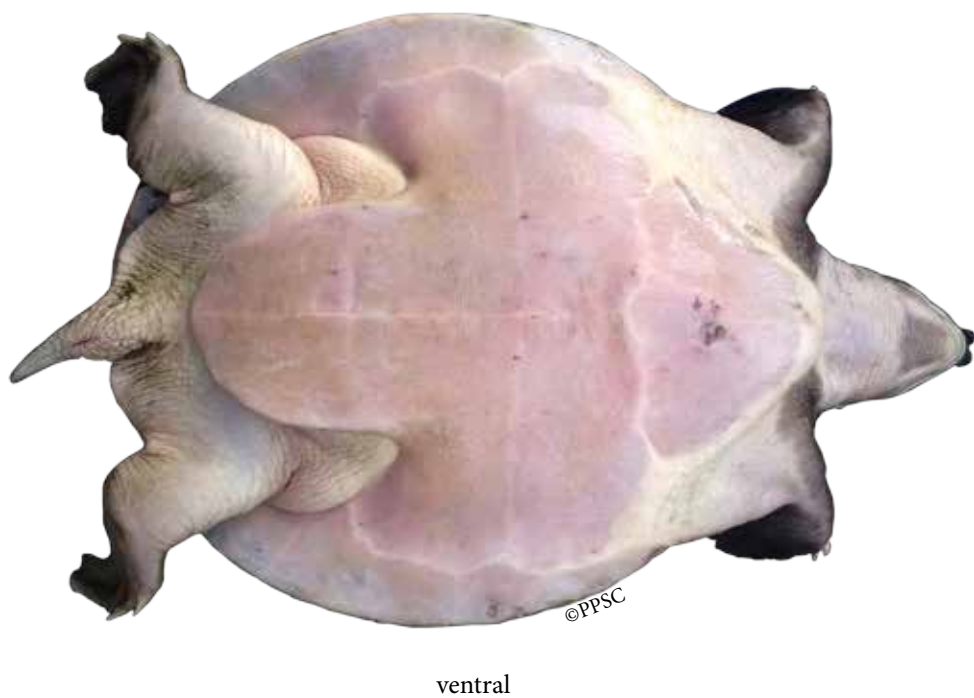
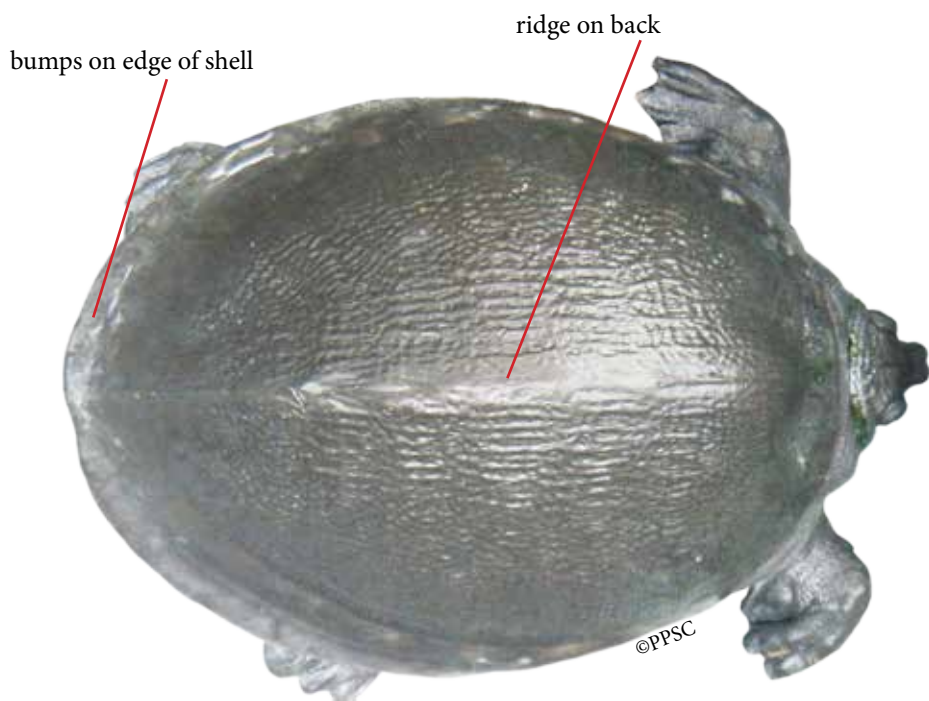
Indonesian Name: Labi-Labi Moncong Babi

English Name: Fly River Turtle

Distribution in Indonesia: Papua

Identification: A soft shelled turtle. There is a ridge running through the middle of its shell on top. The outer part of its shell has bumps. This is one of the characters that distinguishes it from other soft shelled turtles (Trionychidae) which have a smooth border of shell. Round head and a nose like a pig. It is usually gray or brownish gray, with a pale pink or white belly.





ASIAN NARROW-HEADED SOFTSHELL TURTLE

Chitra chitra javanensis



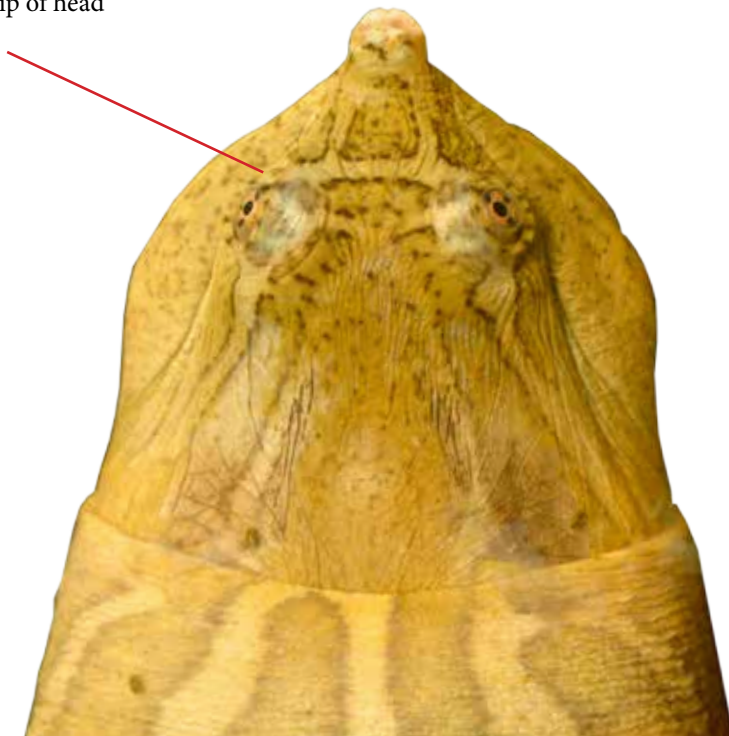
Indonesian Name: Labi-Labi Bintang, Senggawangan

English Name: Asian Narrow-Headed Softshell Turtle

Distribution in Indonesia: Java, Sumatra

Identification: A large softshell turtle. It can be distinguished from other species by its cone-shaped head (narrowing towards nose) and lack of border between neck and shell. It has a greenish brown base colour, with symmetrical yellowish/light brown lines on its neck, which continue to become patterns on its shell. The shell is oval and has a 'lip' on the anterior, which makes the tail and back legs not visible from above. It is very similar to the Irian Softshell (*Pelochelys bibroni*) which it differs by the position of the eye, which is situated on the tip of the head, and also has a longer nose than *P. bibroni*.

eyes on tip of head



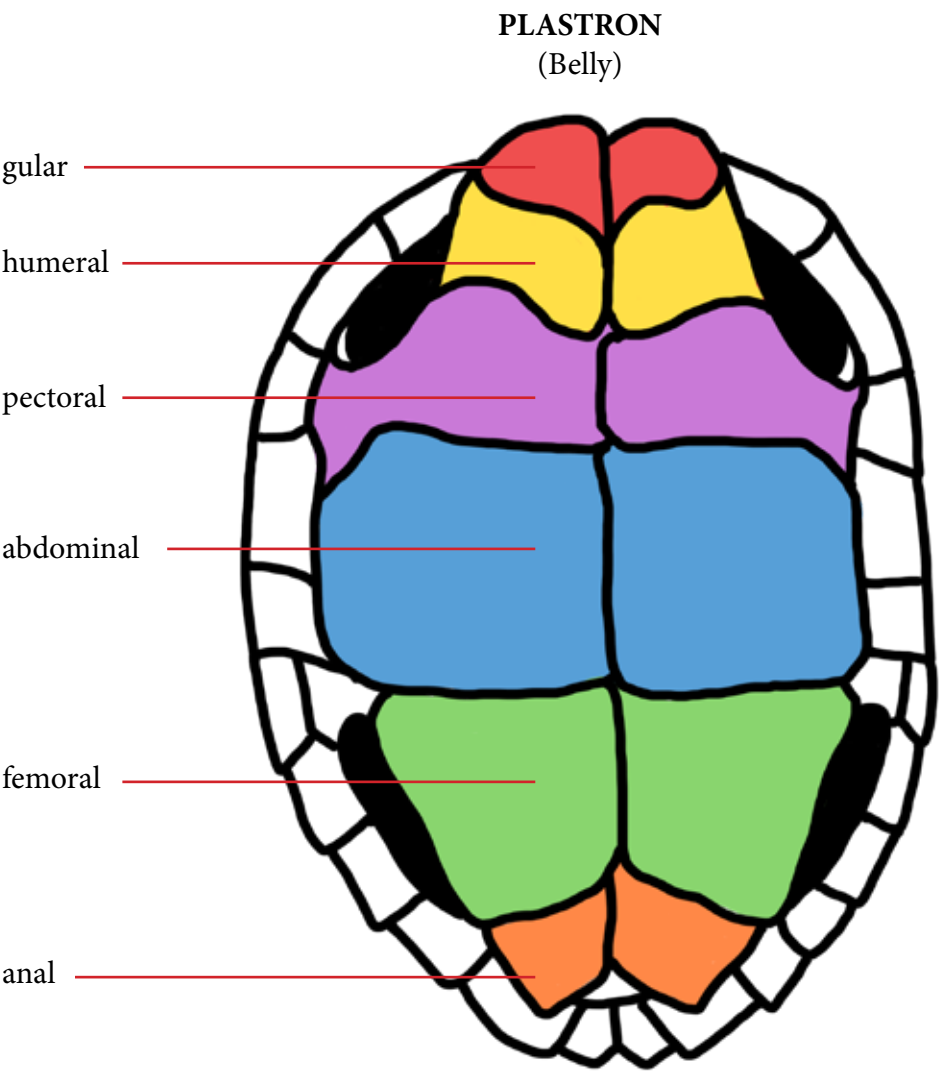
'lip' on anterior part of shell,
concealing tail and back legs

symmetrical lines on neck
which continue to become
patterns on shell

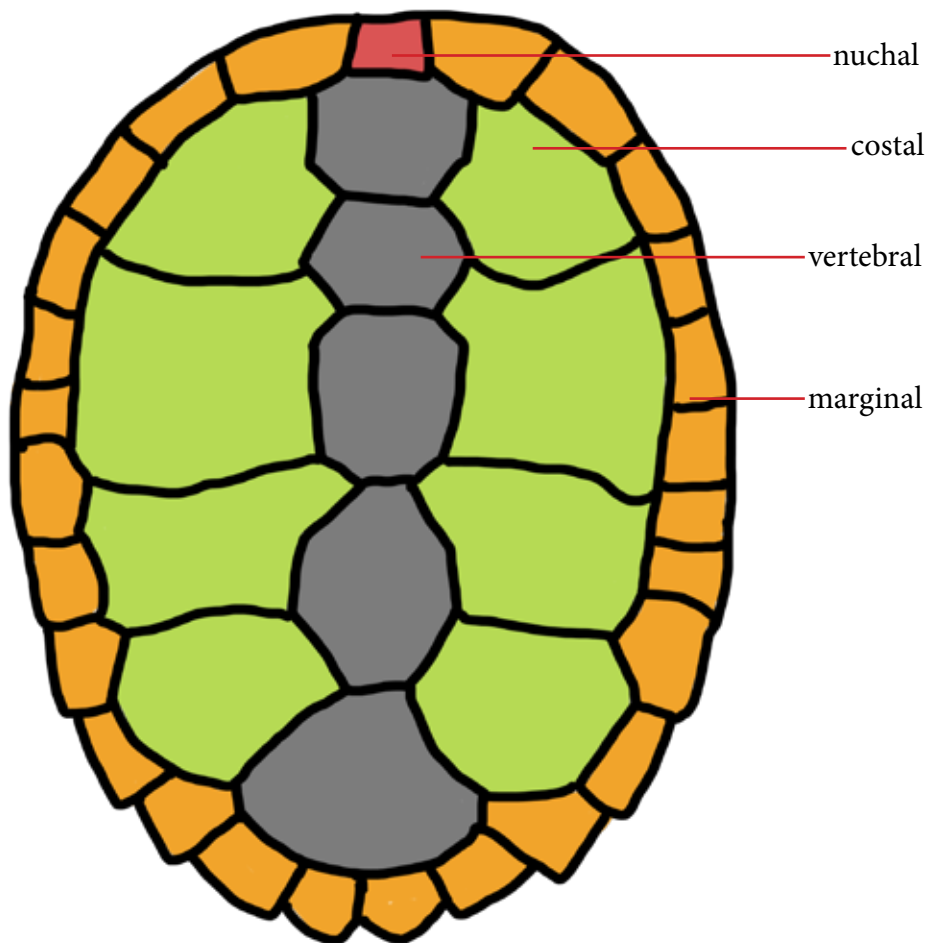
no clear border between neck and shell



CHELONIAN MORPHOLOGY



KARAPAKS
(Top/Back)



ROTI ISLAND SNAKE NECKED TURTLE

Chelodina mccordi



Indonesian Name: Kura-Kura Rote, Kura Leher Ular

English Name: Roti Island Snake Necked Turtle

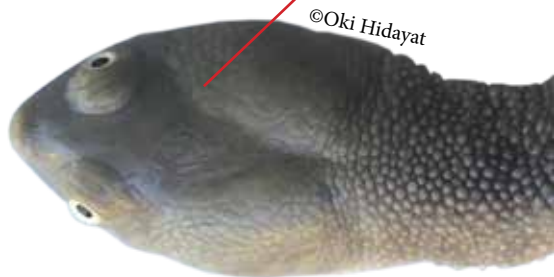
Distribution in Indonesia: P. Rote

Identification: Characteristic of *Chelodina* turtles is the long neck and webbed feet. This species can be distinguished from *C. novaeguineae* because it does not have grooves on head, which is present in *C. novaeguineae*. Also, it has granular scales on neck, which are small and smooth in *C. novaeguineae*. The shell of this species is wide, whereas in *C. novaeguineae* it is long/oval. The arrangements of vertebral scutes from the largest to smallest are 1>2>3>5>4, whereas *C. novaeguineae* has the second and third scutes the same size (2=3). On the plastron, the arrangement from longest to shortest is intergular>anal>abdominal>femoral>pectoral>humeral>gular, sometimes pectoral>abdominal. In this species, the femoral scute is always longer than the humeral, however in *C. novaeguineae* humeral is longer than femoral. It has a dark brown carapace and orange/yellow plastron. Juveniles are lighter in colour.



©Oki Hidayat

no grooves on head



©Oki Hidayat

NEW GUINEA SNAKE NECKED TURTLE

Chelodina novaeguineae

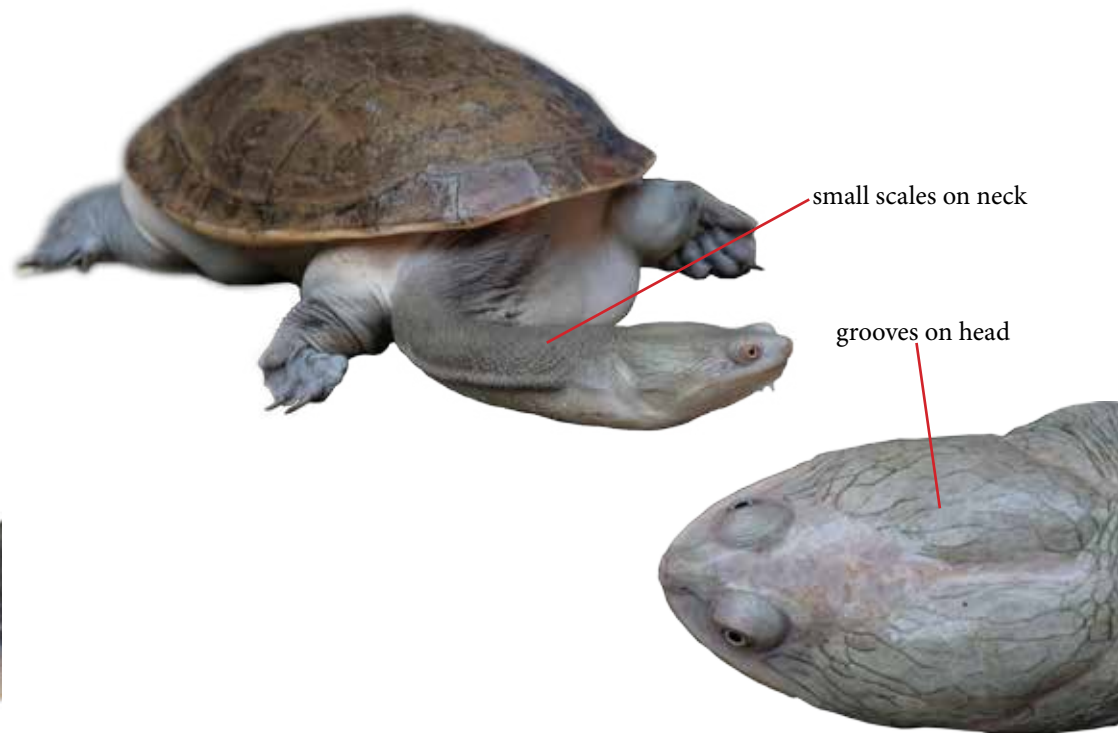


Indonesian Name: Kura-Kura Papua Leher Panjang, Kura Leher Ular

English Name: New Guinea Snake Necked Turtle

Distribution in Indonesia: Papua

Identification: Characteristic of *Chelodina* turtles is the long neck and webbed feet. This species can be distinguished from *C. mccordi* because it has grooves on head, which is absent in *C. mccordi*. The shell is long/oval, whereas on *C. mccordi* it is wide. The arrangements of vertebral scutes from the largest to smallest are $1 > 2 = 3 > 5 > 4$, whereas *C. mccordi* has a larger second vertebral scute than third ($2 > 3$). On the plastron, the arrangement from longest to shortest is intergular > anal > abdominal > pectoral > humeral > femoral > gular. In this species, the femoral scute is always shorter than the humeral, however in *C. mccordi* humeral is shorter than femoral. This species has a dark brown carapace with dark markings, and a light coloured (yellow/white) plastron. Juveniles are lighter in colour.



SOUTHERN RIVER TERRAPIN

Batagur affinis affinis



Indonesian Name: Biuku, Tuntong Sungai

English Name: Southern River Terrapin, Western Malay River Terrapin

Distribution in Indonesia: Sumatra

Identification: Has a tall, dome-shaped shell. Similar to *B. borneoensis* which is also protected, however it has 4 claws on its front feet, whereas *B. borneoensis* has 5. The carapace is olive gray or brown, and plastron is yellowish. Adult males have a black head.



adult male

juvenile



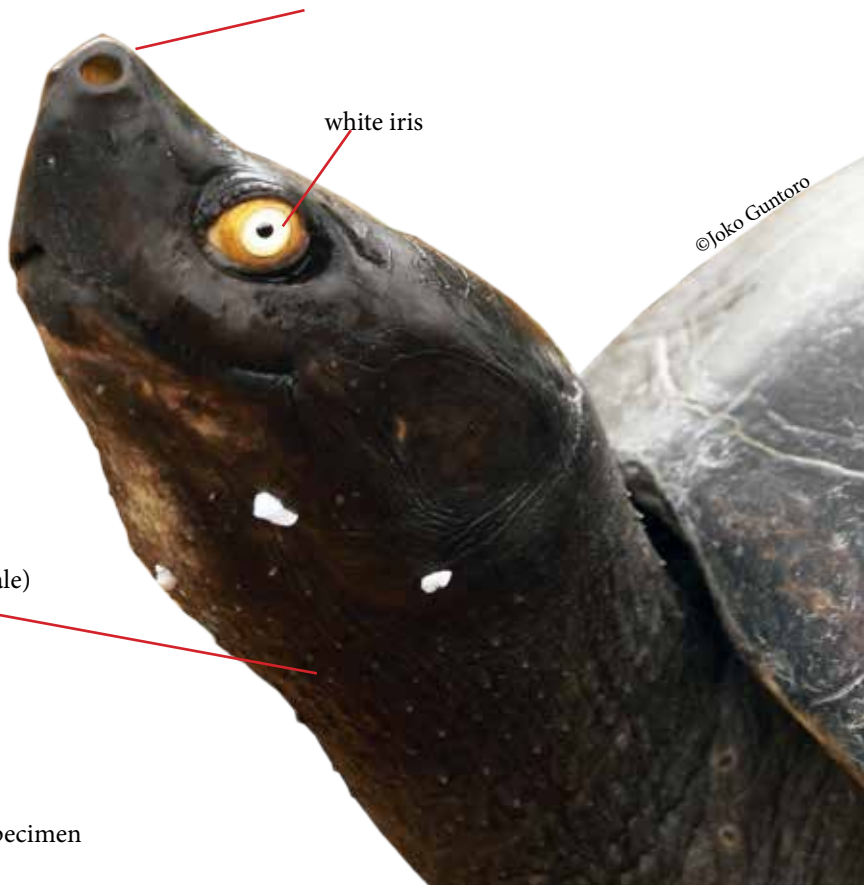
4 claws on front feet

upturned nose

white iris

black head (male)

head of male specimen



PAINTED TERRAPIN

Batagur borneoensis



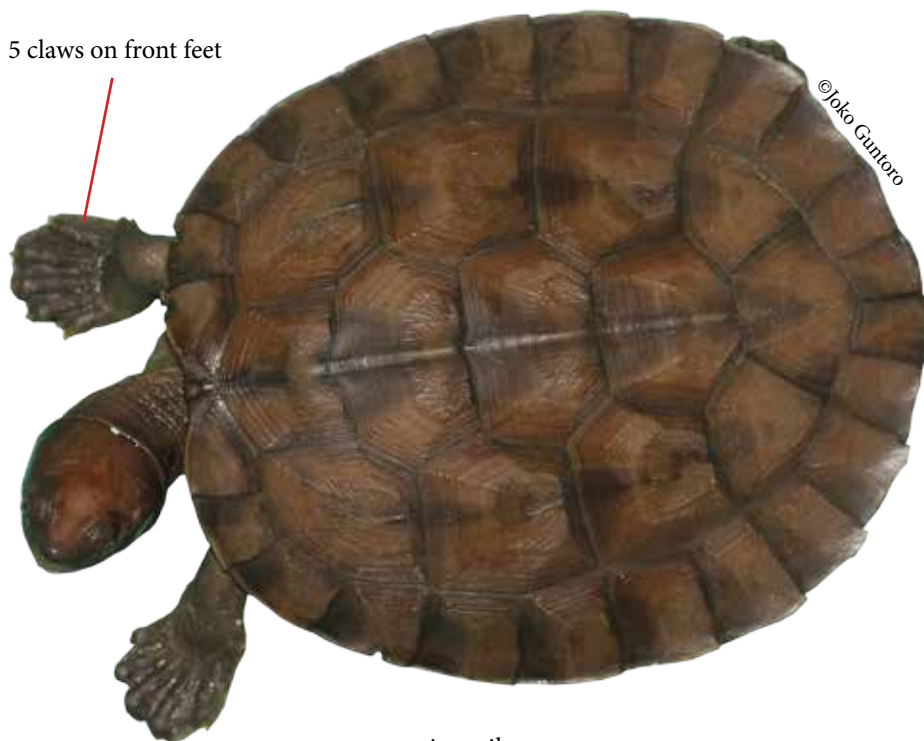
Indonesian Name: Beluku, Tuntong Laut

English Name: Painted Terrapin

Distribution in Indonesia: Sumatra, Kalimantan

Identification: The main distinguishing feature from other *Batagur* species is that it has 5 claws on the front feet, whereas *B. affinis* has 4. The carapace is olive gray or brown, and has three black longitudinal lines. Plastron is yellowish. During mating season, males will have a white head with a red stripe in the middle.

5 claws on front feet



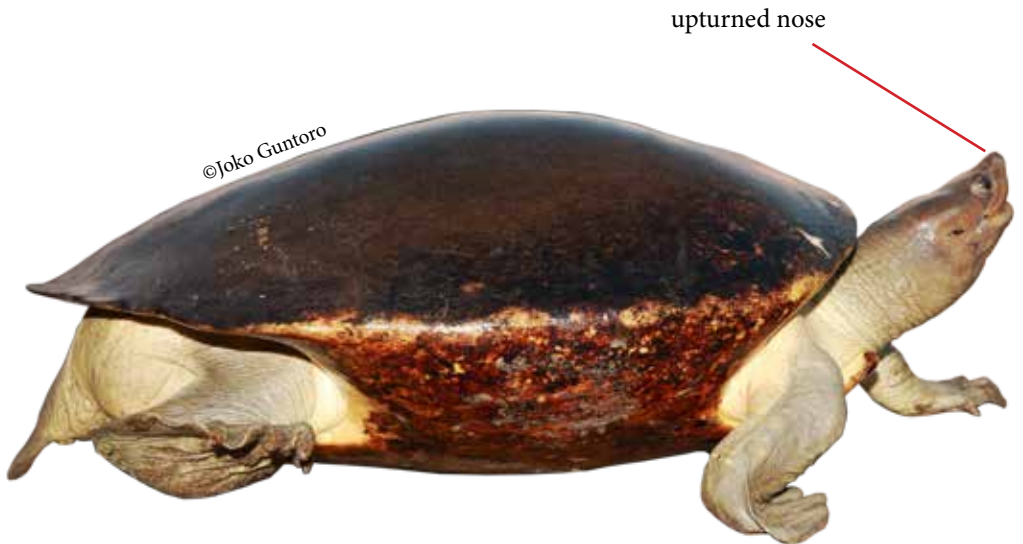
©Joko Gunoro

juvenile



©Ferry F. Hoesam

male in breeding season



©Joko Guntoro

upturned nose

adult female

MALAYAN RIVER TERRAPIN

Orlitia borneensis



Indonesian Name: Bajuku, Kura-Kura Sungai Kalimantan

English Name: Malayan Giant Turtle, Malayan River Terrapin

Distribution in Indonesia: Sumatra, Kalimantan

Identification: The character that distinguishes it from *Batagur* species is that it does not have an upturned snout. This turtle has a long, smooth carapace, however juveniles will have some ridges on the outer edges. The carapace is dark brown/blackish in colour, with a yellow plastron. The body is gray, with light colour on the cheeks and in between legs and neck.

does not have an up-
turned snout





dorsal



ventral

ASIAN GIANT TORTOISE

Manouria emys



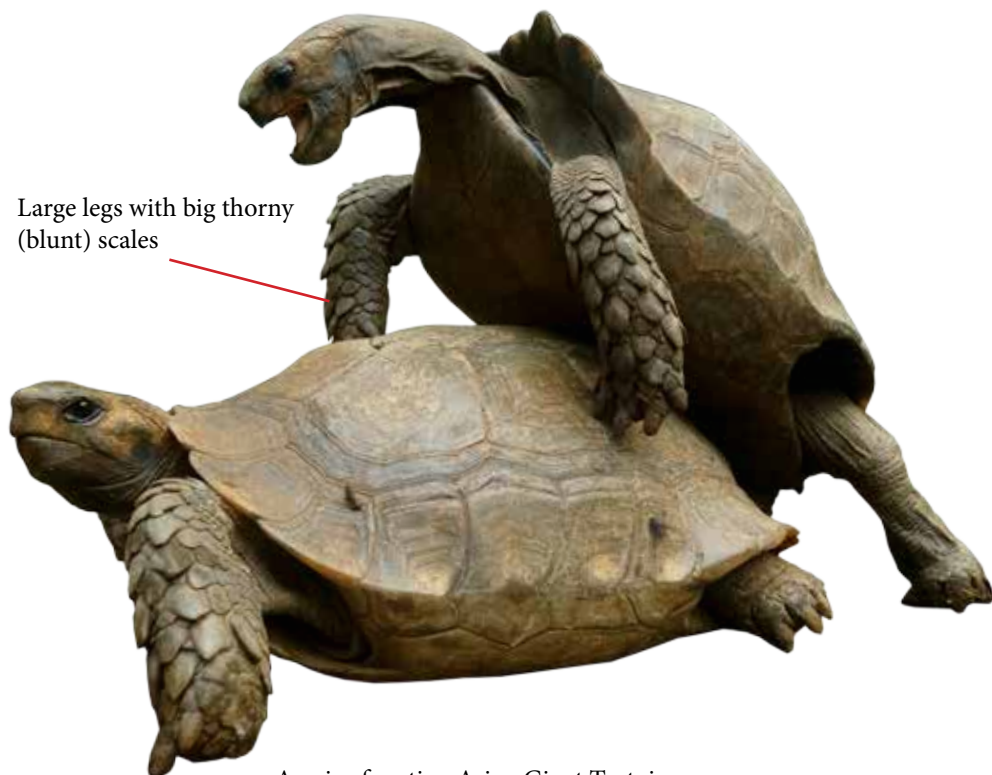
Indonesian Name: Baning Coklat, Kura-Kura Kaki Gajah

English Name: Asian Giant Tortoise

Distribution in Indonesia: Sumatra, Kalimantan

Identification: One of two land tortoises in Indonesia. This species has large legs with big thorny (but blunt) scales, somewhat like an elephant. It is grayish brown in colour, and the plastron is yellowish. It can reach a length of 60cm and weigh around 15-20kg, whereas the other Indonesian tortoise, *Indotestudo forsteni* (not protected), can only reach 30cm. Apart from that, *I. forsteni* is yellow with black spots on each scute of the carapace.

Large legs with big thorny
(blunt) scales



A pair of mating Asian Giant Tortoises

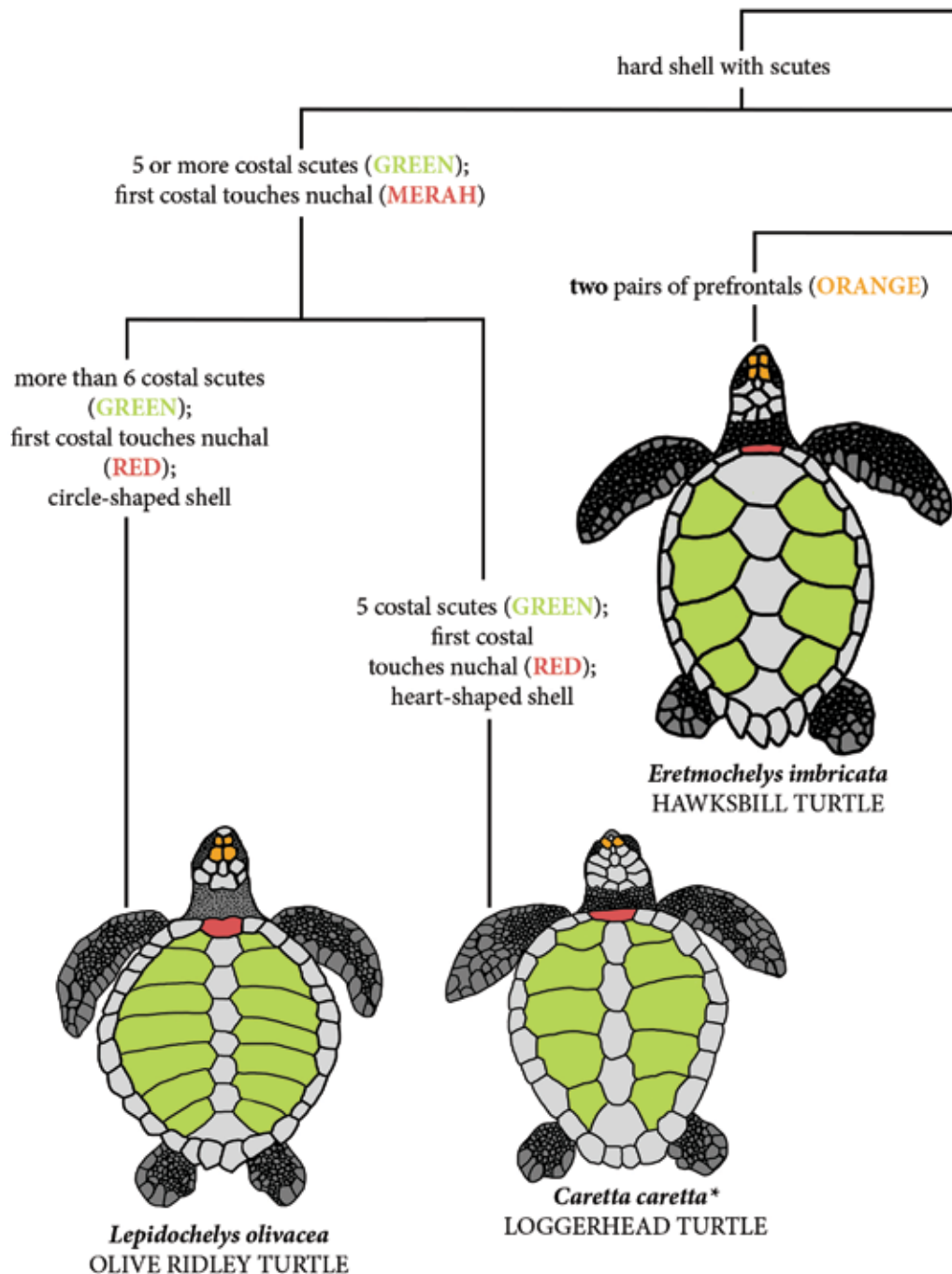


dorsal

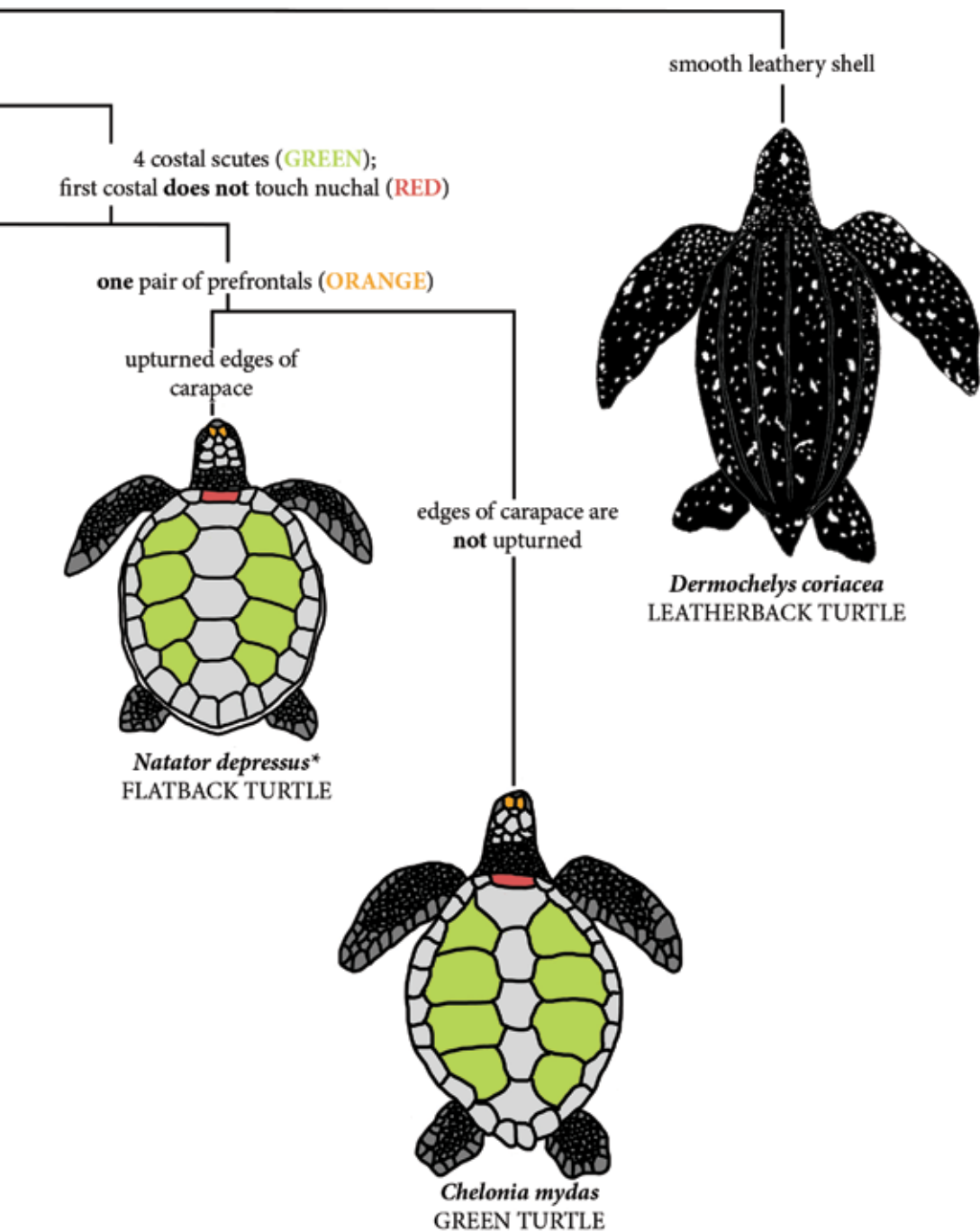


ventral

KUNCI IDENTIFIKASI PENYU



*never recorded in Indonesia (Suprapti 2019, pers. comm.)



LOGGERHEAD SEA TURTLE

Caretta caretta



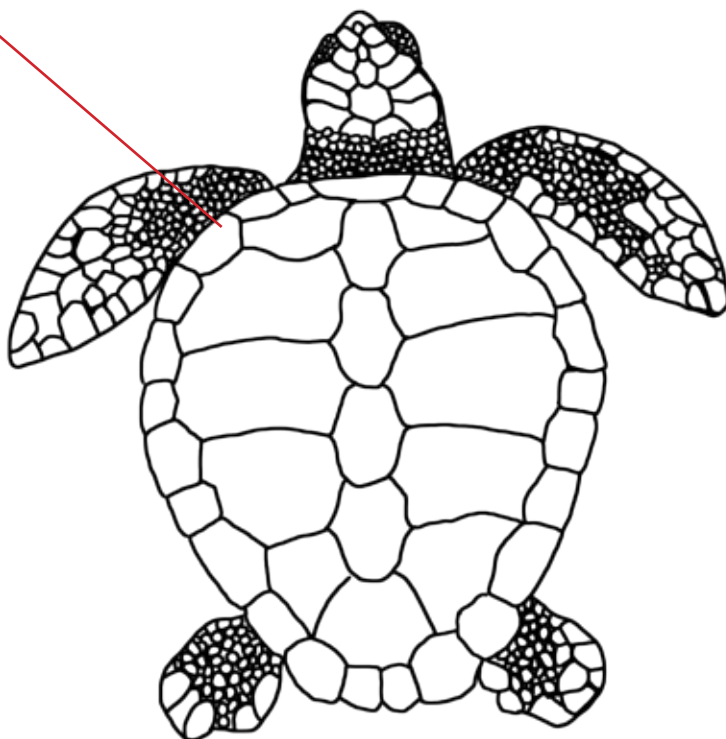
Indonesian Name: Penyu Tempayan, Penyu Bromo

English Name: Loggerhead Sea Turtle

Distribution in Indonesia: Does not occur in Indonesia.

Identification: Heart-shaped carapace, keeled scutes, 5-6 costal scutes. Carapace and head is reddish brown, whereas the body is white/cream, and scales on the flippers are light brown.

heart-shaped shell



keeled scutes



©Ruchira Somaweera



©Ruchira Somaweera

GREEN SEA TURTLE

Chelonia mydas



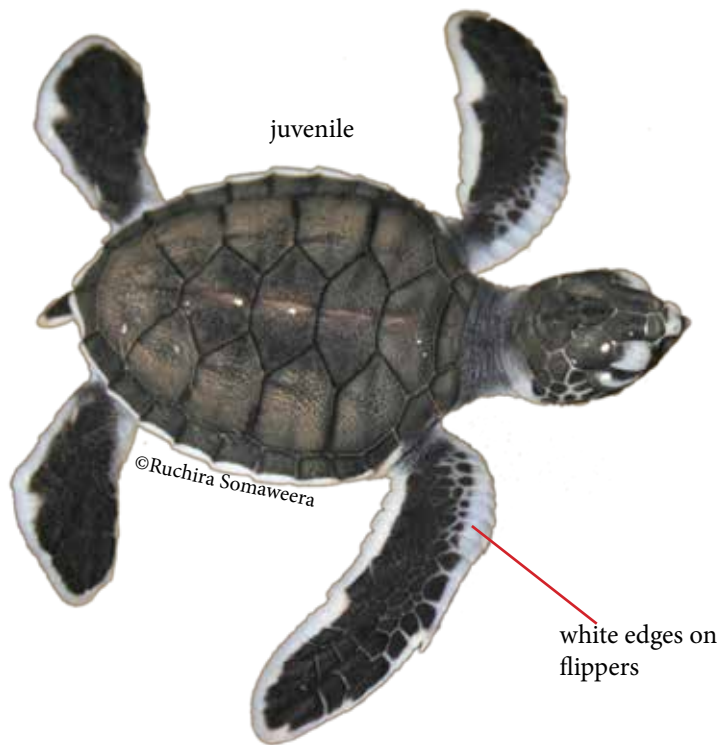
Indonesian Name: Penyu Hijau

English Name: Green Sea Turtle

Distribution Indonesia: Indonesian seas

Identification: Oval-shaped carapace. One pair of prefrontal scales. 4 costal scutes, first costal scute does not touch nuchal scute. Similar to the flatback sea turtle (*Natator depressus*) however does not have upturned edges on outer part of the carapace. The carapace and head scales are reddish brown or olive green/brownish, while the body is light coloured, and the scales on flippers are light brown. Juveniles are gray with white edges on the flippers.





HAWKSBILL SEA TURTLE

Eretmochelys imbricata



Indonesian Name: Penyu Tempayan, Penyu Bromo

English Name: Hawksbill Sea Turtle

Distribution in Indonesia: Indonesian sea

Identification: Oval-shaped carapace, with serrated edges on the anterior. Two pairs of prefrontal scales. 4 costal scutes, first costal scute does not touch nuchal scute. Carapace and head scales are reddish brown, with light markings on scutes, while the body is whitish cream/pale yellow, and the scales on flippers are reddish brown or olive.



OLIVE RIDLEY SEA TURTLE

Lepidochelys olivacea



Indonesian Name: Penyu Lekang

English Name: Olive Ridley Sea Turtle

Distribution in Indonesia: Indonesian sea

Identification: Almost circular carapace. 6 or more costal scutes. Carapace and head scales are grayish brown, body is light cream/white, and the scales on flippers are gray. Juveniles are dark gray in colour.





FLATBACK SEA TURTLE

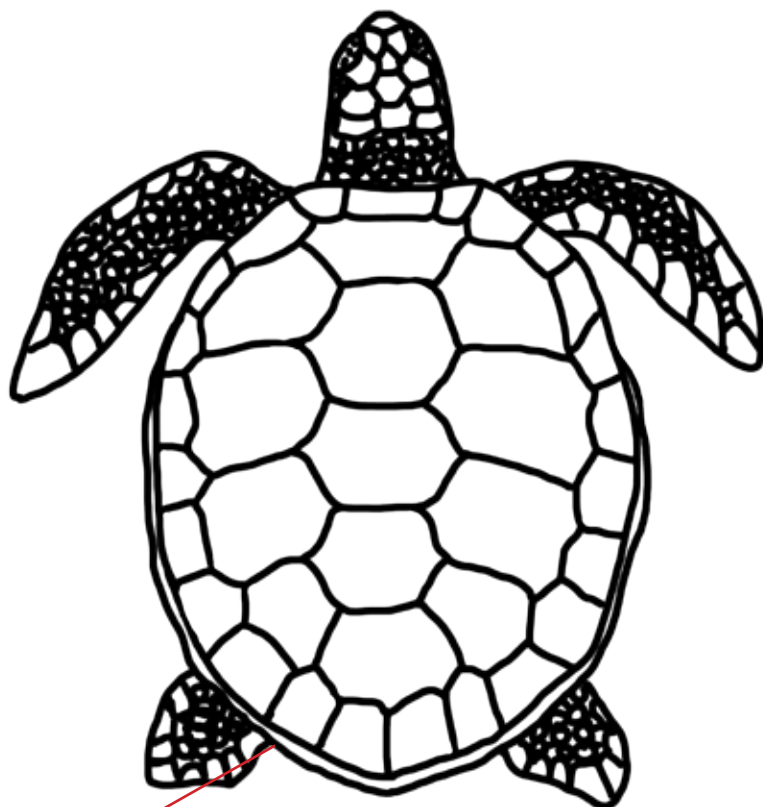
Natator depressus

Indonesian Name: Penyu Pipih

English Name: Flatback Sea Turtle

Distribution in Indonesia: Does not occur in Indonesia.

Identification: Oval-shaped carapace. One pair of prefrontal scales. 4 costal scutes, first costal does not touch nuchal scutes. It has upturned edges of carapace and can be distinguished from the green turtle (*Chelonia mydas*) that does not have upturned edges. Carapace and head scales are gray, while the body is white/cream, and the flipper scales are gray.



upturned edges



LEATHERBACK SEA TURTLE

Dermochelys coriacea

Indonesian Name: Penyu Belimbing

English Name: Leatherback Sea Turtle

Distribution in Indonesia: Indonesian sea

Identification: Starfruit-shaped carapace, with five longitudinal ridges on its leathery shell. It is bluish black/dark gray in colour, with small white speckling scattered on its body. Juveniles have white longitudinal ridges.



5 ridges along its back



New Guinea Crocodile (*Crocodylus novaeguineae*)

CHAPTER 3

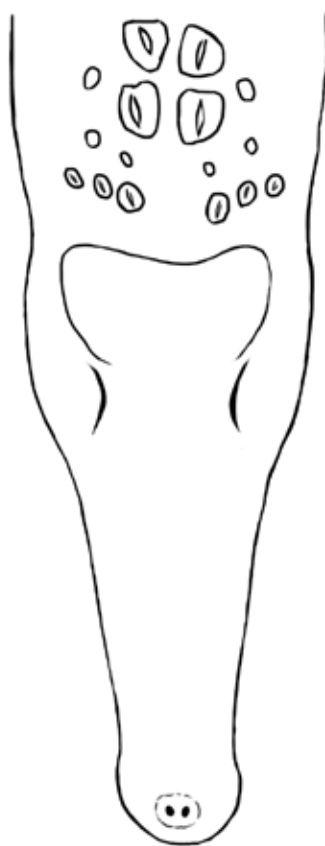
CROCODILES

Crocodile Identification	60
<i>Crocodylus porosus</i>	62
<i>Crocodylus novaeguineae</i>	63
<i>Crocodylus siamensis</i>	64
<i>Tomistoma schlegelii</i>	65

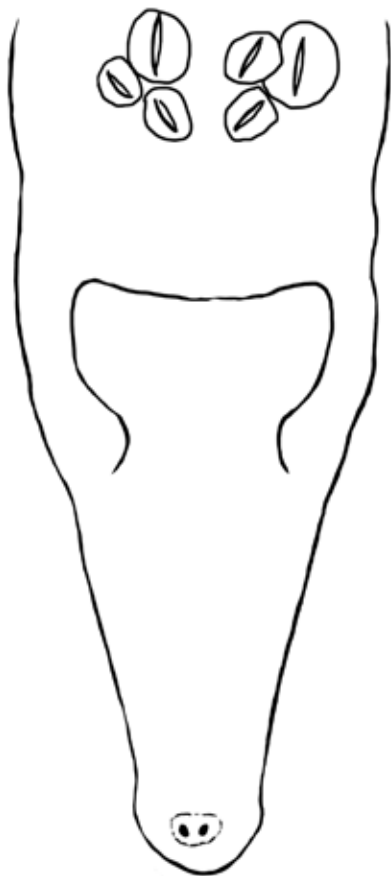
CROCODILE IDENTIFICATION



Tomistoma schlegelii
FALSE GHARIAL
long, slender snout

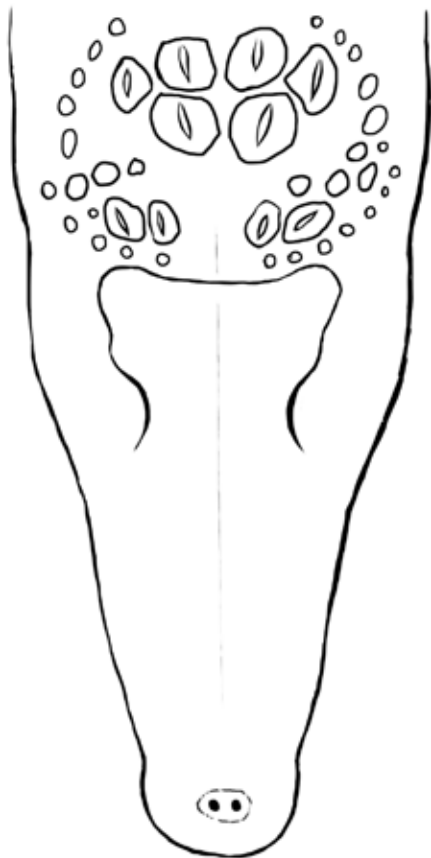


Crocodylus novaeguineae
NEW GUINEA CROCODILE
4-7 scutes behind head



Crocodylus porosus
SALTWATER CROCODILE

no scutes behind head
(if present, they are very small and
only up to 2)



Crocodylus siamensis
SIAMESE CROCODILE

2-4 scutes behind head;
keel between eyes



SALTWATER CROCODILE

Crocodylus porosus

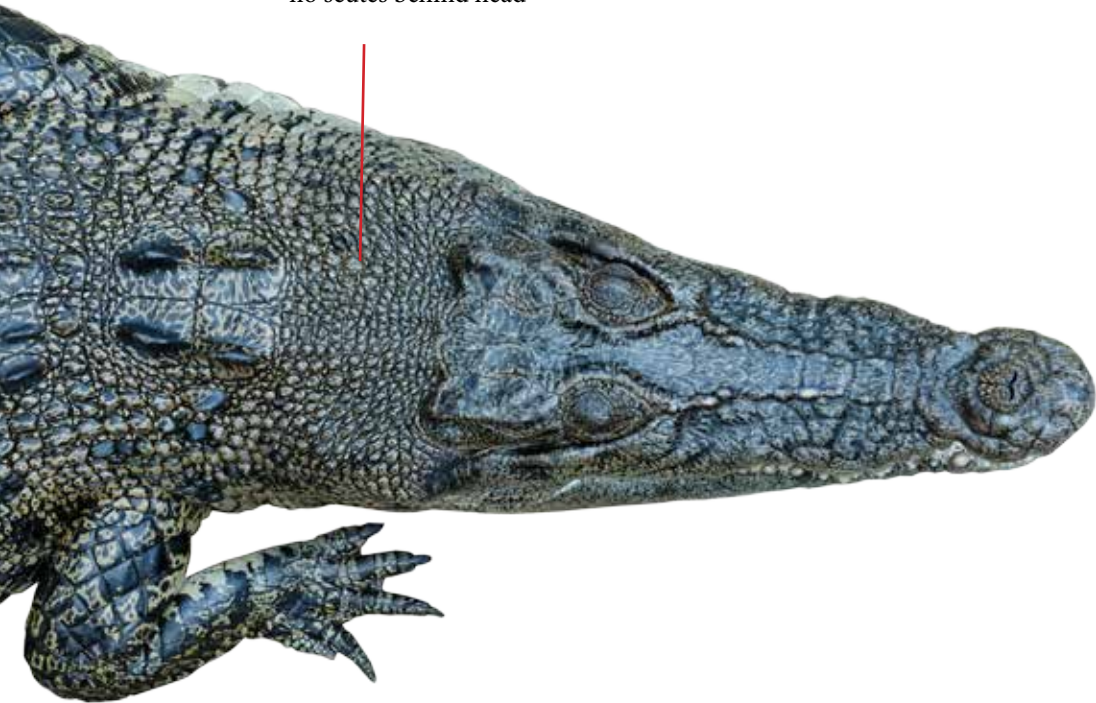
Indonesian Name: Buaya Muara

English Name: Estuarine Crocodile, Saltwater Crocodile

Distribution in Indonesia: Widespread

Identification: Heaviest reptile on earth. A defining feature of this species is the lack of scutes behind head. If any, they will be very small and only up to 2 in number. It is yellowish or gray in colour, with a light yellow/cream/white on the belly. Juveniles are gray/brownish yellow with black blotches that form bands, which fade as they grow.

no scutes behind head





NEW GUINEA CROCODILE

Crocodylus novaeguineae

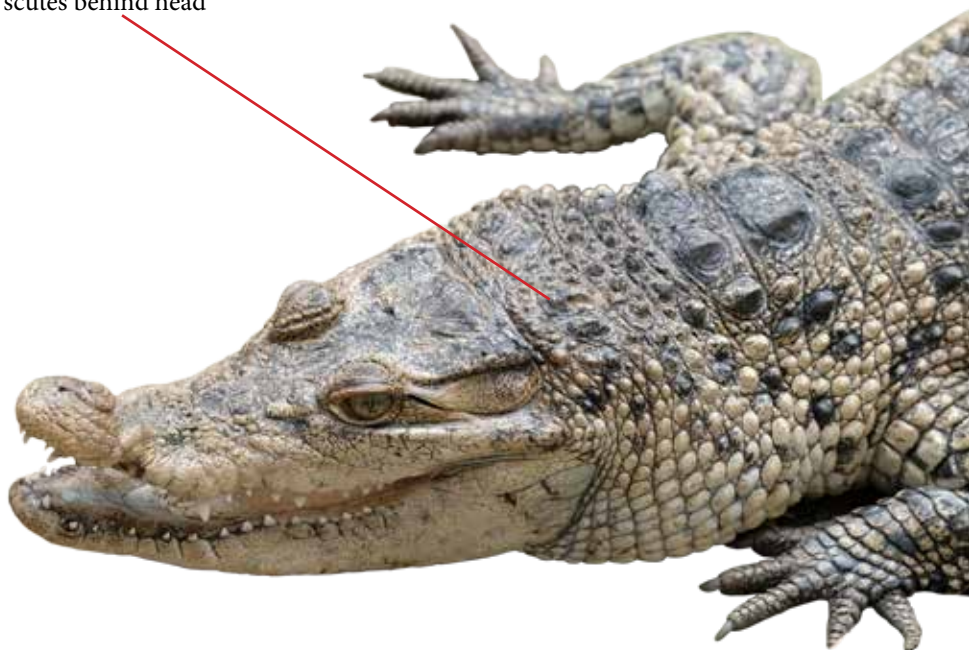
Indonesian Name: Buaya Irian

English Name: New Guinea Crocodile

Distribution in Indonesia: Papua

Identification: Nuchal scales are arranged tightly. Usually 4 scutes behind head (sometimes more, up to 7). Slender snout. Distinguishable from *C. porosus* which does not have scutes behind head, or if any they are very small. Differs from *C. siamensis* because it does not have a keel between the eyes. It is yellowish or olive gray in colour, with a light yellow/cream/white on the belly. Juveniles are gray/brownish yellow with black blotches that form bands, which fade as they grow.

4-7 scutes behind head



SIAMESE CROCODILE

Crocodylus siamensis

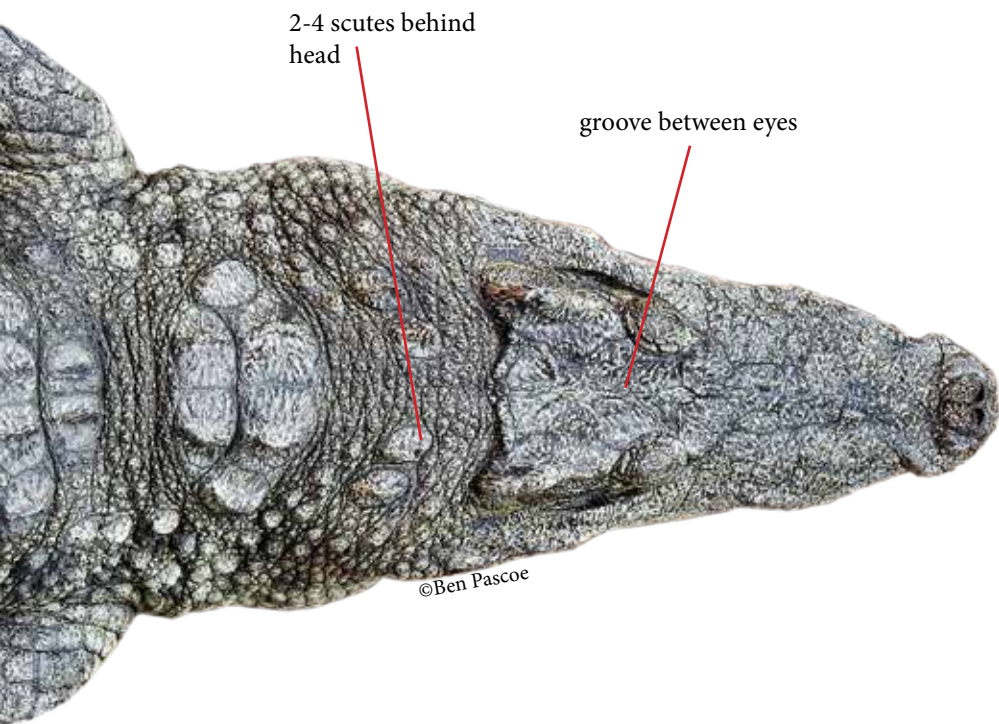


Indonesian Name: Buaya Siam

English Name: Siamese Crocodile

Distribution in Indonesia: Kalimantan

Identification: A defining feature of this species is the keel between the eyes, which is absent in *C. porosus* and *C. novaeguineae*. It has 2-4 scutes behind eye. Scales on the side are large. It is usually yellowish in colour, with a light yellow/cream/white on the belly. Juveniles are gray/brownish yellow with black blotches that form bands, which fade as they grow.



©Ben Pascoe



FALSE GHARIAL

Tomistoma schlegelii

Indonesian Name: Buaya Sinyulong, Buaya Sumpit

English Name: False Gharial

Distribution in Indonesia: Sumatra, Kalimantan

Identification: Very unique species of crocodile which can be identified by its very long, slender snout. Usually reddish or grayish brown in colour, with black blotches on the body, and dark bands on snout and tail, which can be reduced or absent.



long, slender snout



Bleeding Toad (*Leptophryne cruentata*)

CHAPTER 4

AMPHIBIANS

Leptophryne cruentata

68

BLEEDING TOAD

Leptophryne cruentata



Indonesian Name: Kodok Merah

English Name: Bleeding Toad

Distribution in Indonesia: Java

Identification: This is the only protected species of amphibian in Indonesia. It has a slender body, with rough bumpy skin. It has a black base colour, with red blotches all over its body. A newly described species, *L. javanica*, is very similar in appearance however has yellow blotches on its body, which are absent on *L. cruentata*.





Leptophryne cruentata
PROTECTED



Leptophryne javanica
NOT PROTECTED

Above: *Leptophryne cruentata* (left, **PROTECTED**) has no yellow pattern whereas *L. javanica* (right, **NOT PROTECTED**) has yellow blotches on its body. ©Mirza Kusri



Leptophryne javanica (**NOT PROTECTED**) ©Aldio Dwi Putra

REFERENCES

- Auliya, M., 2007. **An identification guide to the tortoises and freshwater turtles of Brunei Darussalam, Indonesia, Malaysia, Papua New Guinea, Philippines, Singapore, and Timor Leste.** TRAFFIC Southeast Asia.
- Barker, D.G., Barker, T.M., Davis, M.A. and Schuett, G.W., 2015. **A review of the systematics and taxonomy of Pythonidae: an ancient serpent lineage.** Zoological Journal of the Linnean Society, 175(1), pp.1-19.
- Das, I., 2015. **A field guide to the reptiles of South-East Asia.** Bloomsbury Publishing.
- De Lang, R., 2017. **The Snakes of Java, Bali and Surrounding Islands.** Edition Chimaira.
- Eckert, K.L., Bjørndal, K.A., Abreu-Grobois, F.A. and Donnelly, M., 1999. **Taxonomy, external morphology, and species identification. Research and management techniques for the conservation of sea turtles,** 21, pp.11-13.
- Eidenmueller, B., Koch, A., Koehler, J. and Wicker, R., 2017. **New findings on the relationships among New Guinea tree monitor lizards of the *Varanus prasinus* (SCHLEGEL, 1839) complex.** HERPETOZOA, 30(1-2), pp.9-20.
- Hamidy, A., Munir, M., Mumpuni, Rahmania, M. and Kholik, A.A., 2018. **Detection of Cryptic taxa in the genus *Leptophryne* (Fitzinger, 1843)(Amphibia; Bufonidae) and the description of a new species from Java, Indonesia.** Zootaxa, 4450(4), pp.427-444.
- Iskandar, D.T., 2000. **Kura-kura dan buaya Indonesia dan Papua Nugini.** PALMedia Citra, Bandung.
- Koch, A., Auliya, M., Schmitz, A., Kuch, U. and Böhme, W., 2007. **Morphological studies on the systematics of South East Asian water monitors (*Varanus salvator* complex): nominotypic populations and taxonomic overview.** Mertensiella, 16(109), p.e80.
- Koch, A., Auliya, M. and Ziegler, T., 2010. **Updated checklist of the living monitor lizards of the world (Squamata: Varanidae).** Bonn Zoological Bulletin, 57(2), pp.127-136.

Koch, A., Ziegler, T., Boehme, W., Arida, E. and Auliya, M., 2013. **Pressing problems: distribution, threats, and conservation status of the monitor lizards (Varanidae: *Varanus spp.*) of Southeast Asia and the Indo-Australian Archipelago.** Herpetological Conservation and Biology, 8(3), pp.1-62.

Kusrini, M.D., 2013. **Panduan Bergambar Identifikasi Amfibi Jawa Barat.** Institut Pertanian Bogor-Jawa Barat.

Marlon, R., 2014. **Panduan Visual dan Identifikasi Lapangan. 107+ Ular Indonesia.** Indonesia Nature and Wildlife Publisng.

Rhodin, A.G.J., Ibarrondo, B.R. and Kuchling, G., 2008. ***Chelodina mccordi* Rhodin 1994—Roti Island snake-necked turtle, McCord's snake-necked turtle, kura-kura rote. Conservation Biology of Freshwater Turtle and Tortoises: A Compilation Project of the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group.** Chelonian Research Monographs, 5(1), pp.008-001.

Sprackland, R.G., 1999. **A new species of monitor (Squamata: Varanidae) from Indonesia.** Reptile Hobbyist, 4(6), pp.20-27.

Yaap, B., Paoli, G.D., Angki, A., Wells, P.L., Wahyudi, D. and Auliya, M., 2012. **First record of the Borneo Earless Monitor *Lanthanotus borneensis* (Steindachner, 1877) (Reptilia: Lanthanotidae) in West Kalimantan (Indonesian Borneo).** Journal of Threatened Taxa, 4, pp.3067-3074.

Ziegler, T., Schmitz, A., Koch, A. and Boehme, W., 2007. **A review of the subgenus *Euprepiosaurus* of *Varanus* (Squamata: Varanidae): morphological and molecular phylogeny, distribution and zoogeography, with an identification key for the members of the *V. indicus* and the *V. prasinus* species groups.** Zootaxa, 1472(1), p.e28.

ACKNOWLEDGEMENTS

Firstly I would like to thank Cikananga Wildlife Center (PPSC), Indonesia Herpetofauna Foundation (IHF), Chester Zoo, and Indonesian Forestry Department (BKSDA) for the support on this project.

This book would not be possible without those who contributed photographs, mentioned alphabetically; Aldio Dwi Putra, Ben Pascoe, Chester Zoo, Delvena Leong, Dwi Suprapti, Ferry F. Hoesain, Iri Gill, Joko Guntoro, Mirza Kusri, Nik D'Aesculap, Oki Hidayat, PPS Cikananga, Richard Ardiwibawa, Riza Marlon, Ron Lilley, Ruchira Somaweera, Shaun Foggett.

I would also like to thank those who have facilitated the photography of animals for this book; Inge Tielen, Rere Faradina, Kang Usup, Kunur Sigarantang (PPS Cikananga), Drh. Slamet Raharjo, Drh. Muhammad Lutfi Akbar, Gembira Loka Zoo (Yogyakarta), Angga Risdiana, Richard Ardiwibawa (West Java), as well as those who have helped as consultants for information regarding certain groups; Drh. Dwi Suprapti (sea turtles), Dr. Mirza D. Kusri (amphibians), Joko Guntoro, Zain Basriansyah Akar (turtles of Sumatra and Kalimantan).

Also thanks to the editors - Iri Gill dan Agnes Indah Pratiwi; as well as Aji Setiawan, M Justu Makmun and Oliver Rasmussen who have assisted with several things regarding digitization and picture editing.

In conclusion, I hope this book can be useful for the readers and can produce a positive impact.



This book is an identification guide made for RAM (*Reptile and Amphibian Management*) Workshop, held in Cikananga Wildlife Centre, 30 July - 02 August 2019. This event is a collaboration between Cikananga Wildlife Centre, Indonesia Herpetofauna Foundation, Chester Zoo, and Indonesian Forestry Department, which aims to increase skill and capacity of personnel involved in the confiscation and/or conflict management of wild animals, especially reptiles and amphibians that are traded illegally.

