



Turtles of the Kampar Peninsula





COVER:
Heosemys spinosa

Turtles of the Kampar Peninsula



RER Partners:





RESTORASI EKOSISTEM RIAU

Restorasi Ekosistem Riau (RER) programme is an international collaboration that brings together private and public sectors to protect and restore ecologically important peat swamp forest areas on Indonesia's Kampar Peninsula and Padang Island, on the east coast of Sumatra.

Established by APRIL Group in 2013, the RER programme adopts an integrated landscape-level approach to protect, assess, restore and manage 150,693 hectares of previously deforested or degraded peatlands as a unique, biodiverse forest area. The overall objective is to restore the ecologically significant peat swamp forests and generate multiple ecosystem benefits through broad stakeholder and community collaboration.

Supported by long-term resources and expertise from partners Fauna & Flora International (FFI), Bidara, and APRIL Group, RER works with local communities to strengthen ongoing conservation initiatives on the Kampar Peninsula under 60-year ecosystem restoration licenses granted by the Indonesian Ministry of Environment and Forestry.

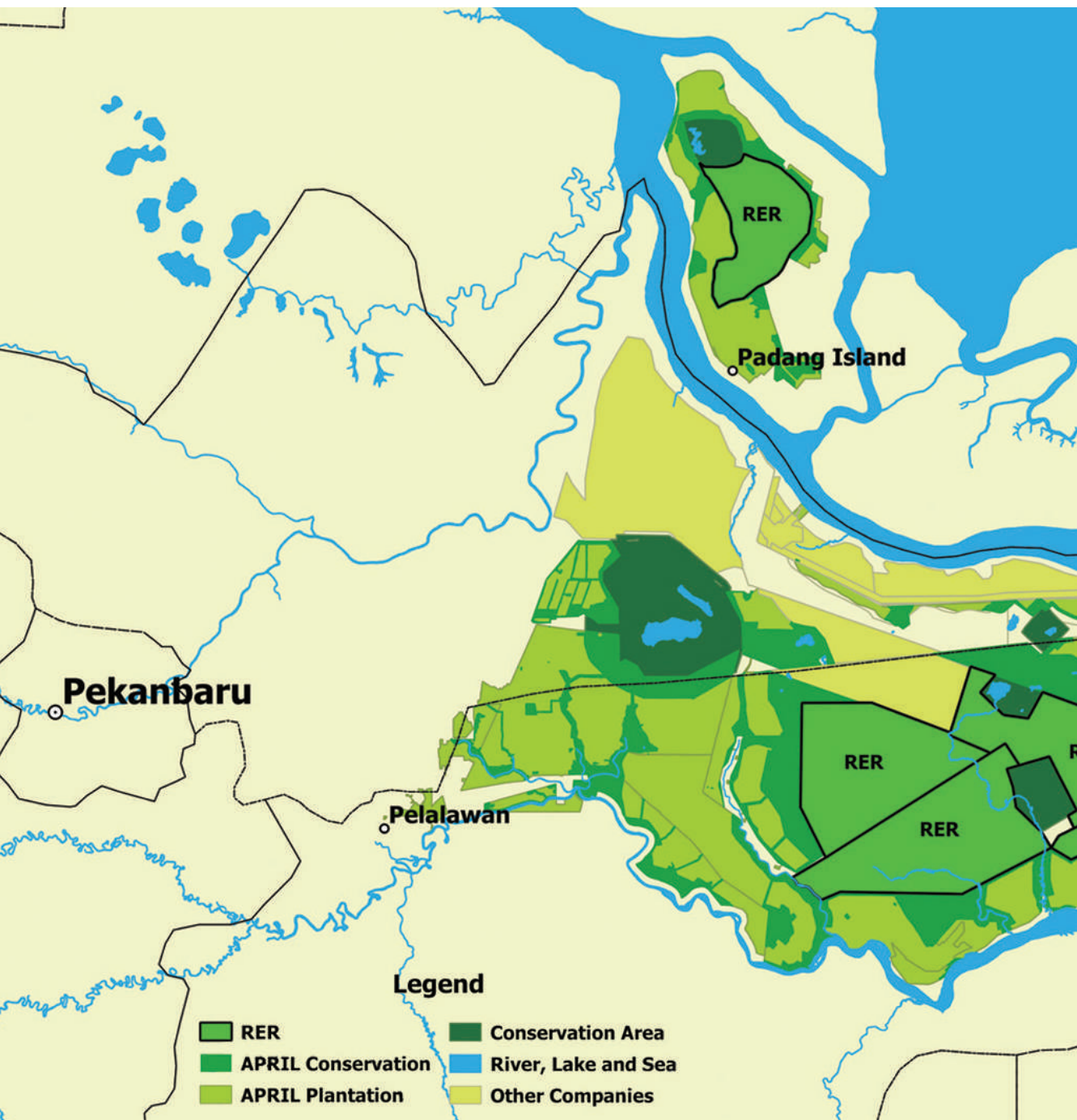
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RER Publication Series

Restorasi Ekosistem Riau programme regularly publishes reports, documents and other publications for the purpose of making information and results from the programme available to the wider public. This checklist is the 6th in the RER Publication Series. All rights are exerted by APRIL Group.

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A map of Sumatra, Indonesia, with Singapore marked to the east. A green shaded area on the western coast represents the RER area. A detailed inset map on the left shows the RER area's boundaries and internal features like rivers and roads. A scale bar and north arrow are in the bottom right.

Singapore

THE RESTORASI EKOSISTEM RIAU (RER) AREA

The RER area refers to the areas delineated as Ecosystem Restoration Concession (ERC) license. Four contiguous ecosystem restoration licenses are issued to the APRIL Group on the Kampar Peninsula. These licenses aim to return deforested and degraded production forest to their 'biological equilibrium'. This government regulation has created a management alternative to the conversion of forests to either timber plantations or agricultural use (oil palm plantation). APRIL received its first ERC license in 2012.

The total RER area on the Kampar Peninsula is 130,095 ha, making it one of the largest intact peat swamp forest under license on Sumatra. The forest concessions within RER have experienced past commercial selective logging that did not adhere to sustainable forest management practices, excavation of drainage canals and human ignited fires and clearing. Much of this disturbance occurred between the 1980's until 2009. After 2013, land use change stabilized across the central peat swamp forested area of the Peninsula through the establishment of RER. This change in land tenure has seen illegal logging in the area halted and degraded forest areas progressively replanted with locally occurring native species. The peat swamp forest of the ERC's are also gradually being re-wetted through the closing of old drainage canals.



IN MEMORY OF DR TONY WHITTEN

This publication is dedicated to Dr Tony Whitten, a British conservationist, zoologist, herpetologist and senior advisor at Fauna & Flora International who inspired and advised RER. His work on discovering and conserving biodiversity across Asia and beyond resulted in co-authoring several books on the ecology of Southeast Asia and publishing over 100 field guides. His passion for nature encouraged others to work their best to save it.

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INTRODUCTION

The Kampar Peninsula is the largest area of peat swamp forest ecosystem remaining on the east coast of Sumatra, located in Siak and Pelalawan Regency of Riau Province. The area is a conservation landscape for Sumatran Tiger (*Panthera tigris sumatrae*), an Important Bird Area (IBA) and important habitat for many other globally threatened animals and plants such as sun bear, arowana, and false gharial, ramin tree and many species of meranti. The area also provides many important ecosystem services including storage of more than 2.1 billion tonnes of carbon, preservation of water resources and flood reducer (Tropenbos International Indonesia Program, 2010). The mixed peat swamp forest of the Kampar Peninsula supports typical and representative plant and animal species, many of which are closely associated or completely confined to this ecosystem.

Restorasi Ekosistem Riau (RER) is a program initiated by APRIL Group to restore peat swamp forest in Sumatra. It has an area of 150,693 ha to be restored, which 130,095 ha in the middle of Kampar Peninsula. In 2014-2015, RER together with its partner Fauna & Flora International conducted biodiversity surveys in this area. The survey recorded 112 plant species, 70 mammals, 220 birds, 14 amphibians and 61 reptiles. At least six turtle species have been recorded in this area and two of them, Spiny Turtle (*Heosemys spinosa*) and Bornean River Turtle (*Orlitia borneensis*) are listed as Endangered (EN) and Critically Endangered (CR) in the IUCN Red List respectively.

This publication provides information about the turtle species that have been recorded from surveys in the RER area during 2014-2015. This publication also provides an identification key and description of some turtle species that have not been recorded specifically within the RER area but are known to occur in Sumatra. The aim of this guide is to make turtle recognition and identification easier for all users, especially in the RER area and the wider Kampar Peninsula. If there are any species of turtle that cannot be found in this field guide, it is possible to add information about the species to the findings sheet on the last page of this guide.



Figure 1. Puddles and ponds in the forest are potential habitat for Amboina Box Turtle (*Cuora amboinensis*) and Asian Leaf Turtle (*Cyclemys dentata*).

ABOUT TURTLES

There are at least 337 species of turtles in the world, including seven species of sea turtle. This number is lower than numbers of lizard or snake species. Indonesia itself has at least 39 species of turtle. Turtles can be most easily recognized by their shells. The upper shell is called the carapace and the lower shell is called the plastron. The shell functions as protection from predators. Most turtles can retract their head, legs and tail into the carapace when threatened, although there is a group of turtles that just retract their head and neck into the carapace. Sea turtles are the only species that are unable to retract any part of their body into the carapace. Other characteristics of turtles include toothless, pointed jaws and four limbs for movement.

Turtles play an important role in the ecosystems they inhabit as they form a connection between aquatic and terrestrial habitat. Sea turtles, for example, play a very important role in maintaining equilibrium between marine and coastal ecosystems. They form part of many food webs and play important roles as consumers, prey, and competitors with other species; as living habitat that can transport invertebrates and microorganisms; and form part of the nutrient cycles of particular habitats. As predators, turtles help to control populations of small organisms such as snails and insects, and so maintain river and lake communities in equilibrium. They prey on dead or sick animals, which in turn helps to maintain good water quality, and they also act as seed dispersers.



THREATS

Most turtle species in Indonesia are categorized in the IUCN Red List of threatened species as Near Threatened or higher, listed in the Appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and/or protected by Indonesian law (based on on Minister of Environment and Forestry of Indonesia Regulation No. P.106/2018 regarding Protected Plant and Animal Species). However, the threats to turtles continue unabated, including hunting and international trade of turtles as pets and for consumption. Export of turtles continues today despite many species being protected by law. Indonesia is ranked among the top three exporting countries in the world for turtle exports (Luiselli, 2016).

Pollution of their habitats and habitat destruction are also serious threats, particularly for isolated and small populations. Unlike industrial forest plantations where natural forest riparian buffer zones are legally required, the expansion of both industrial and small-holder agricultural plantations has contributed to the decline of turtle habitat because development often occurs to the rivers edge. These activities have suppressed the survival of turtles and led to declines in turtle populations. Approximately half of the world's freshwater turtle and sea turtle species are facing extinction.

Turtle populations are perhaps more vulnerable to hunting than other species because of their slow reproduction rates and the high natural mortality rates of eggs and juveniles. Juveniles that do survive take many years to reach maturity and the point at which they are ready to mate. Turtle populations take a long time to recover, as a result recovery can take dozens of years even without human intervention (TRAFFIC Southeast Asia, 2001). Uncontrolled hunting only increases the vulnerability of turtle populations to extinction. On surveys conducted in the RER area, observations were made of turtles entrapped in pengalar (cubical traps) or tajar (hooks) set up to attract fish (Figure 2).



Figure 2. Bornean River Turtle (*O. borneensis*) entrapped in "bubu pengilar".

Local fishermen have sometimes found ten turtles or more caught in a single large trap. Based on interviews with fishermen, trapped turtles, particularly Bornean River Turtle (*Orlitia borneensis*), can be sold for additional income, but sometimes there are fishermen that release the turtles back to the river. Traps fully submerged in the river can also be a serious problem, as turtles caught in these traps cannot reach the surface to breathe and so almost always die.



Figure 3. Finding of Amboina Box Turtle's carapace (*C. amboinensis*) that has been caught and consumed.

Turtles are not the only species affected by these traps, other reptiles such as snakes and monitor lizards face similar threats. In some local communities, Amboina Box Turtle (*Cuora amboinensis*) and Bornean River Turtle (*O. borneensis*) are deliberately caught for their meat (Figure 3).



Figure 4. Finding of Bornean River Turtle (*O. borneensis*) that has also been caught and consumed.

TURTLE CHARACTERISTICS AND IDENTIFICATION

Turtles can be easily recognized by their shells (Figure 4). The shell consists of the carapace (upper shell), which is made from a combination of ribs, vertebrae and dermal bones. The carapace is connected by a bridge to the lower shell, or plastron. These two parts of the shell are covered with hard scales, which protect the turtle's soft body and help to reduce evaporation.

Additional keeled scale structures on the carapace and/or spiny structures along the carapace margin can be found on some species. These structures improve the carapace strength and effectiveness against predators. On the plastron, some species have a movable hinge so that the head, limbs and tail can be retracted into the shell completely.

Some species have a dome-shaped carapace with strong, hard scales, while in some species, the carapace is flatter and the soft shell is covered by skin. Soft-shelled turtles from the Trionychidae family have a flexible and soft carapace that allows them to hide in mud or rock crevices, where they can catch prey and avoid predators. Other typical characteristics of turtles are toothless jaws and a serrated mouth with a pointed beak-like bone structure. The shape and character of the limbs vary, depending on the species and its habitat – they can be paddle-like and webbed, or big with spiky scales and nails or claws.

The size of the carapace is an important factor in identifying a turtle species. Some turtles have almost the same morphological appearance but differ in the size of their carapace. For example, the Malayan Softshell Turtle (*Dogania subplana*) has a smaller carapace compared to the Asiatic Softshell Turtle (*Amyda cartilaginea*) and the Black Marsh Turtle (*Siebenrockiella crassicolis*) has a smaller carapace compared to Bornean River Turtle (*Orlitia borneensis*). Maximum carapace length of *D. subplana* is about 20-40 cm, whereas *A. cartilaginea* is about 60 cm. Likewise *S. crassicolis* has a maximum carapace length of about 20 cm, whereas in *O. borneensis* the maximum length is about 60 cm. There are two ways to measure length and width of the carapace: straight (Figure 5) or curved (Figure 6). The longest and widest parts of the carapace are used to standardize both straight and curved measurements. Carapace height is measured at the point of maximum carapace height and parallel to its plastron (Figure 7).

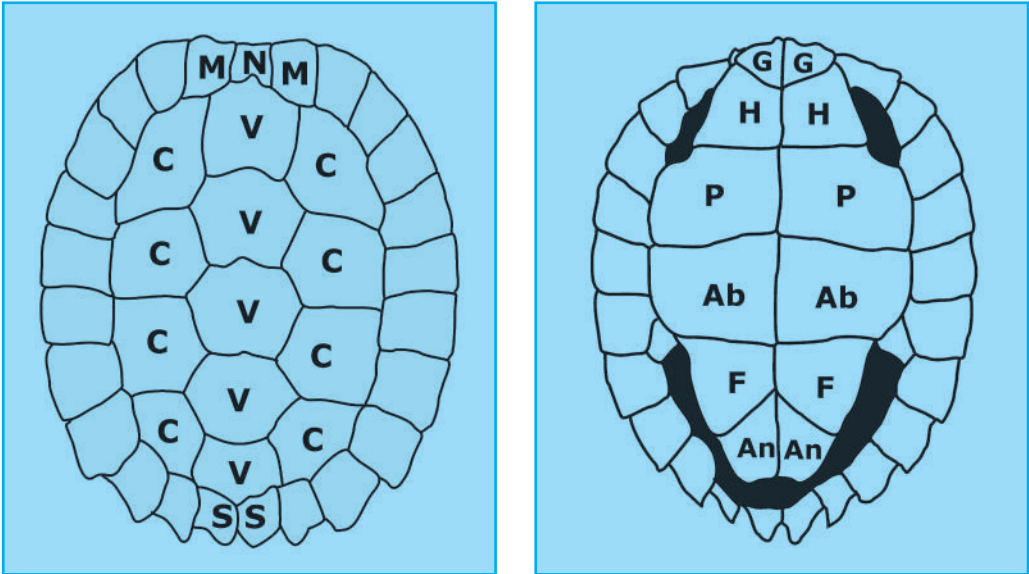


Figure 4. Shell of turtle. Left: upper shell (*carapace*), right: lower shell (*plastron*).

Ab	Abdominal	Pair of scales on the abdomen
An	Anal	Last pair of scales on the abdomen
C	Costal	Scales between vertebral and marginal scales
F	Femoral	Pair of scales in the back of abdominal scales where hindlimbs can retract
G	Gular	Pair of scales in the foremost of plastron
H	Humeral	Pair of scales in the side of forelimbs
M	Marginal	Small scales encircling the carapace edge
N	Nuchal	Scale on nape right behind the head
P	Pectoral	Pair of scales on chest part, behind humeral scales
S	Supra-caudal	One or pair of small scales behind the last vertebral scale or on the top of tail
V	Vertebral	The largest scales along vertebral line

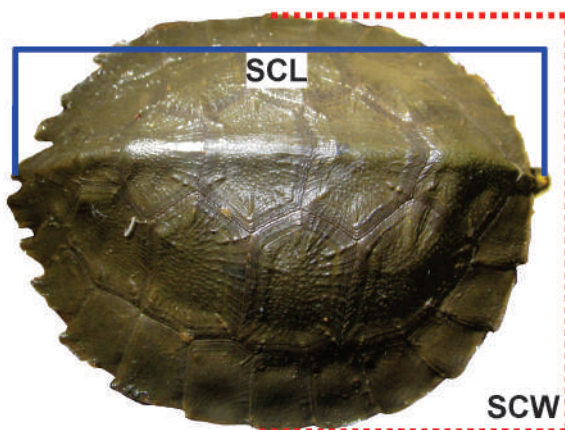


Figure 5. Measurement of straight carapace length and width.

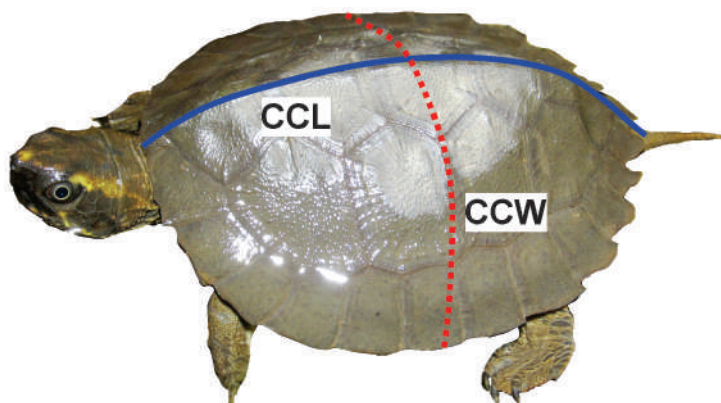


Figure 6. Measurement of carapace curved length, and width.



Figure 7. Measurement of carapace height.

SCL	Straight Carapace Length	Straight Carapace Length
SCW	Straight Carapace Wide	Straight Carapace Width
CCL	Curved Carapace Length	Measured following the carapace curve, started from nuchal scale to the tip of supracaudal scale
CCW	Curved Carapace Width	Measuring the widest part of the carapace in a curved from left to the right of the carapace
CH	Carapace Height	Measuring from the base of carapace to its highest point

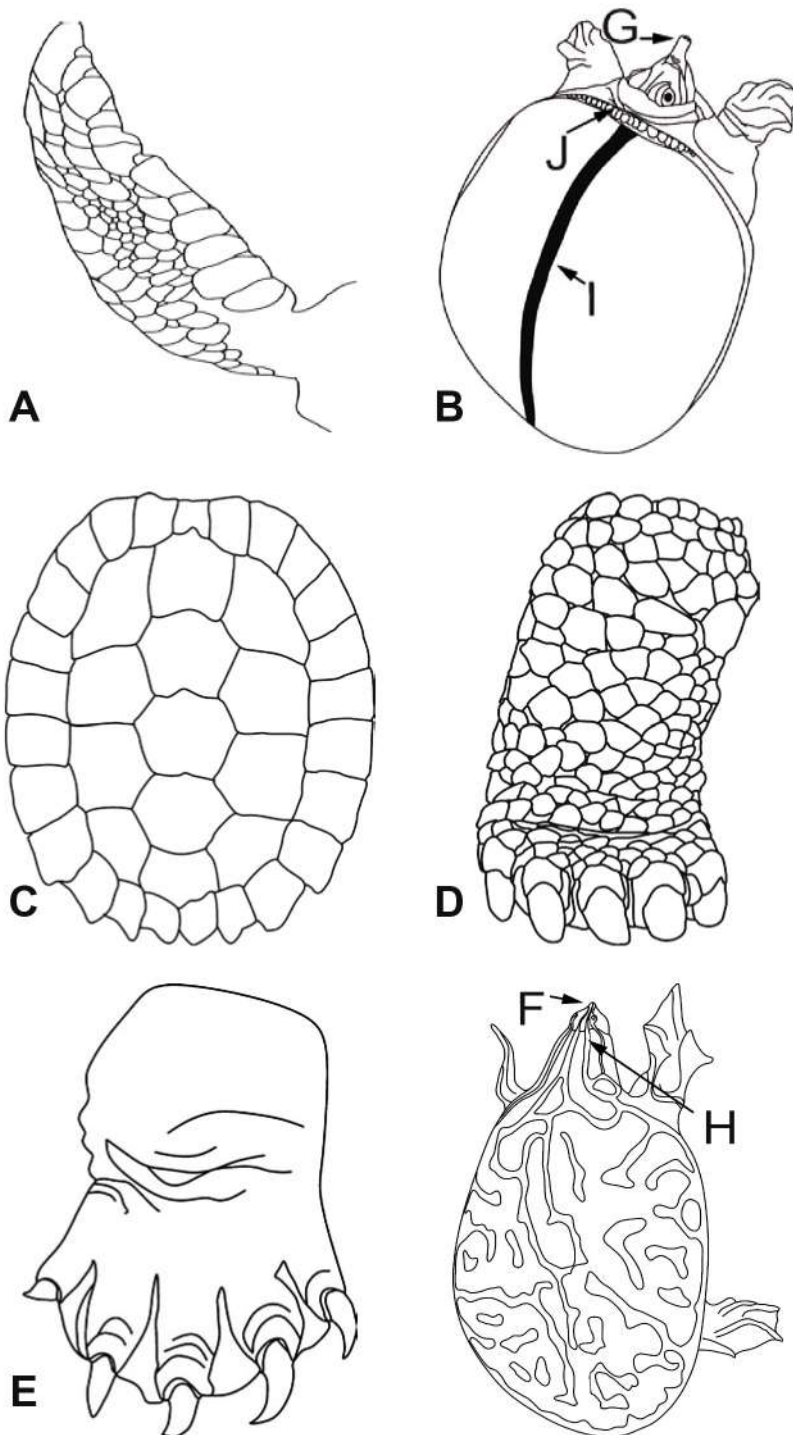


Key to the Turtles of Kampar Peninsula

- 1a Limbs without toe, paddle-like shape (A) Cheloniidae
- 1b Limbs not as above 2
- 2a Carapace flattened, relatively soft, uncovered by scales (B) Trionychidae
- 2b Carapace unflattened, hard, covered with scales (C) 3
- 3a Hindlimbs have elephant-like shape and toes unwebbed (D) Testudinidae
- 3b Hindlimbs not as above, toes are webbed or free of web (E) Geoemydidae

Family Trionychidae

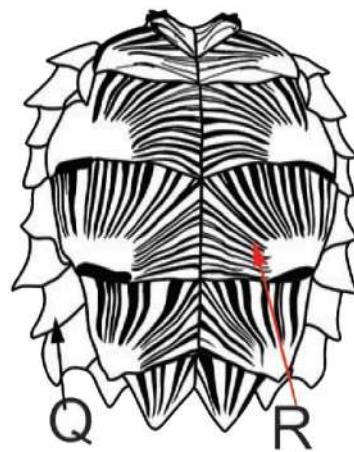
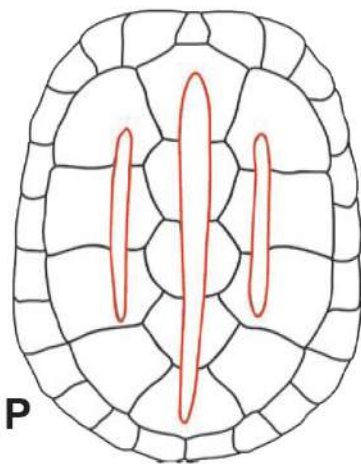
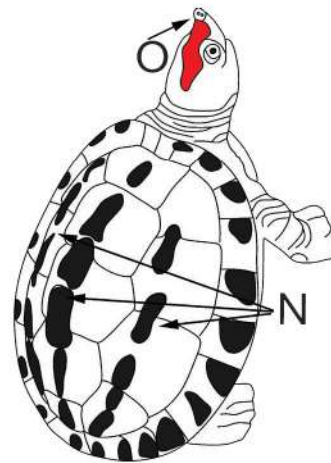
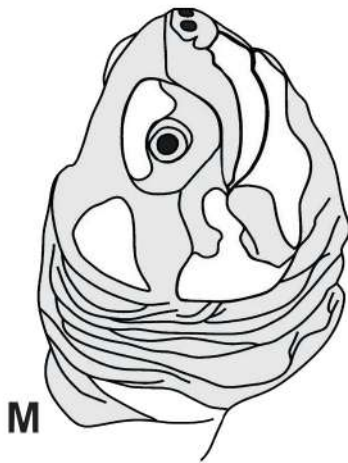
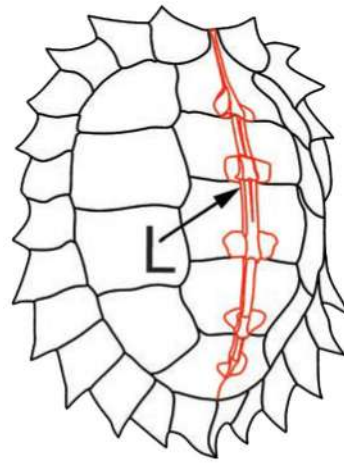
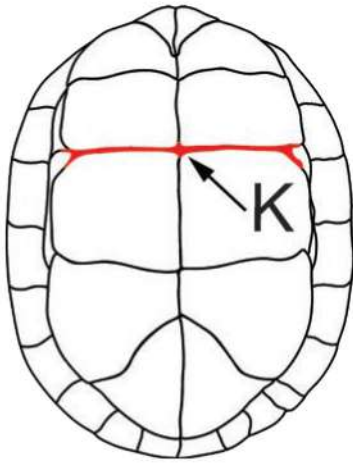
- 1a Snout short, eyes relatively closer to the tip of snout (F) 2
- 1b Snout long, proboscis-like nose, eyes not closer to the tip of snout (G) 3
- 2a Snout rounded, shorter than eye diameter, carapace and neck
without particular pattern *Pelochelys cantorii*
- 2b Snout short, same or longer than eye diameter, carapace and neck
have white or yellow lines with dark green margin (H) *Chitra chitra*
- 3a Carapace with black line along the vertebrae (I), carapace margin
without tubercle on the back of the head, carapace length 30—40 cm *Dogania subplana*
- 3b Carapace without black line, carapace margin with tubercles on
the back of the head (J), carapace length more than 60 cm ***Amyda cartilaginea***



Family Geoemydidae

1a	Six or seven vertebral scales on carapace	..... <i>Notochelys platynota</i>
1b	Five vertebral scales on carapace	..... 2
2a	Plastron with hinge (K), between pectoral and abdominal scales	..... 3
2b	Plastron without hinge	..... 4
3a	Plastron can be closed thus head and limbs sealed completely, yellow lines on the side of the head	..... <i>Cuora amboinensis</i>
3b	Plastron cannot be closed completely, reddish-orange line on the side of the head and neck	..... <i>Cyclemys dentata</i>
4a	Four claws on forelimbs, carapace surface of adult flat, not keeled, interscales margin indistinct	..... <i>Batagur affinis</i>
4b	More than four claws on forelimbs, carapace surface keeled (L) or flat	..... 5
5a	Carapace unpatterned, fully black	..... 6
5b	Carapace not black	..... 7
6a	Head with white blotch above eye, above—posterior of the head and mouth (M). Plastron black, size not more than 20 cm	.. <i>Siebenrockiella crassicollis</i>
6b	Head without blotch, plastron white—cream, size more than 80 cm	..... <i>Orlitia borneensis</i>
7a	Carapace greenish with three black lines (N), vertebrae not keeled Snout pointed upward (O)	..... <i>Batagur borneoensis</i>
7b	Carapace brown or blackish-brown, one or more keels on carapace. Snout not pointed upward	..... 8
8a	Margin of carapace unserrated, one keel along vertebral scales and one keel along each costal scales (P), plastron without radial black lines	..... <i>Malayemys subtijuga</i>
8b	Margin of carapace serrated (Q), one keel along vertebral scales, radial black lines on plastron (R)	..... <i>Heosemys spinosa</i>

*Species names, which were recorded from FFI-RER surveys in 2014-2015 are printed in bold.



CONSERVATION STATUS

Conservation status refers to to Minister of Environment and Forestry of Indonesia Regulation No. P.106/2018 regarding Protected Plant and Animal Species, International Union for Conservation of Nature (IUCN) Red List and Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Minister of Environment and Forestry of Indonesia Regulation No. P.106/2018

[illegible]

TD : Not protected >>>>>>>>>>>>>>>>>>



IUCN Red List

CR : Critically Endangered >>>>>>>>>>>>



EN : Endangered >>>>>>>>>>>>>>



VU : Vulnerable >>>>>>>>>>>>>>



NT : Near Threatened >>>>>>>>>>>>>>



LC : Least Concern >>>>>>>>>>>>>>



CITES

I : Listed in Appendix I CITES >>>>>



II : Listed in Appendix II CITES >>>>>





SPECIES DESCRIPTION



Amyda cartilaginea

Asian Softshell Turtle



Description:

- Adult carapace size is about 75 cm up to 100 cm, relatively soft, roundish and flat with smooth margin.
- Carapace and plastron have no separated scales like hard-shelled turtles.
- Carapace margin with large tubercles on posterior of the head.
- Juvenile has some rows of elongated bulges on carapace that gradually disappear in adulthood. Carapace greyish, greenish to black whereas plastron whitish to greyish.
- Head, neck and limbs greyish-green.
- Juvenile has yellow or pale yellow spots that spread on the neck and face and gradually disappear in adulthood.
- Proboscis-like nose with pair of nostrils on the tip of the snout. Limbs webbed with sharp claws.

Habitat:

- Slow-moving river with muddy substrate, lakes or pools connected to the river.

Distribution:

- Tonkin Peninsula, Vietnam, Laos, Cambodia, Thailand to Malay Peninsula, Sumatra, Java and Kalimantan.
-



Chitra chitra

Star Softshell Turtle



Description:

- Adult has large carapace size measuring approximately 140 cm in length and weighs up to 120 kg.
- Carapace oval, relatively soft, with no separated scales like hard-shelled turtles.
- Carapace black or brown with spearhead-shaped white lines pointing outwards.
- Head greenish with elongated symmetrical line to the neck.
- Yellow line on the neck, bordered with four dark green lines that narrow and merged on the tip of the head to two narrow yellow lines.
- Lower side of the body whitish.
- Eyes near the tip of the snout.
- Nose like small proboscis.

Habitat:

- Lives in big rivers and can be seen in estuarine areas.

Distribution:

- Southern Thailand, Malaysia, eastern Sumatra (Aceh, North Sumatra, Jambi and Riau) and Java.
-



Dogania subplana

Forest Softshell Turtle



Description:

- Adult has carapace size of approximately 35 cm in length, maximum 60 cm, with no separated scales like hard-shelled turtles.
- Carapace elongated oval, very flat with smooth margin.
- Neck long, proboscis-like nose.
- Carapace greyish to brownish-red and black line in the middle.
- The line on the carapace elongated from posterior of the head to back above the tail.
- Plastron yellowish-white, cream or greyish. Head and neck brown, blackish, or greyish with some black lines.
- Sometimes black line on the middle of the carapace connected to the neck and upper part of head to the snout.
- Posterior of the eye, tympanum and the side of the neck reddish-orange in juveniles and gradually disappear in adulthood.

Habitat:

- Commonly seen in small shallow and rocky rivers with slow or medium water current in the forest.

Distribution:

- Southern Myanmar, Thailand to Malaysia, Sumatra, Java and Kalimantan.
-



Pelochelys cantorii

Giant Softshell Turtle



Description:

- Adult has big carapace size of approximately 130 cm in length, relatively soft and with no separated scale like hard-shelled turtle.
- Carapace shape almost rounded, greyish-green without blotch or particular pattern.
- Neck long and full of small granules that sparsely spread with proboscis-like nose.
- Hindlimbs fully webbed.
- Lower part of the body white, reddish or yellowish.

Habitat:

- Estuarine areas of big rivers and coastal areas.

Distribution:

- Southwest Asia from India to southern China (including Hainan), and southeast Asia from Thailand, Vietnam, to Malaysia, Indonesia (Sumatra, Java, Kalimantan), Philippines, and northern Papua.
-



Batagur affinis

River Terrapin



Description:

- Adult has carapace length of approximately 70 cm, convex shaped without keeled scales. Juvenile has vertebral keel.
- Carapace grey, greenish-brown or black.
- Plastron cream without blotch or line.
- Head relatively small or medium with upward pointed snout.
- Posterior of head covered with small scales.
- Upper head greenish-grey, lateral and lower part of the head light grey with light colored jaw.
- Toes fully webbed with only four claws and big horizontal scales on limbs.
- Limbs greenish-grey.
- During mating season, skin on head, neck, and limbs of adult male becomes to black and yellowish-cream eyes become to white.

Habitat:

- Estuarine areas of big rivers or coastal areas associated with mangroves and far to upper course of the same river during mating season.

Distribution:

- *Batagur affinis affinis*: southernmost Thailand on west-coast Malay Peninsula, along western coast of Malay Peninsula and eastern coast of Sumatra.
 - *Batagur affinis edwardmoll*i: Songkhla region on southernmost Thailand, eastern coast of Malay Peninsula and Cambodia.
-



Batagur borneoensis

Painted Terrapin



Description:

- Adult has carapace length of between 50 cm up to 100 cm, oval-shaped with three keels in juvenile that gradually disappear and only one vertebral keel left on adult carapace.
- Upper part of carapace flat in adult and smoother than juvenile.
- Juvenile has serrated carapace.
- Carapace cream or brownish with black blotch that creates three lines, one on vertebral scales, and one each on costal scales.
- Plastron cream without blotch or line.
- Head relatively small with upward pointed snout.
- Posterior of head covered with small scales.
- Head of adult male dark grey and turned to white with red on upper head during mating season whereas adult female has greenish head.
- Toes fully webbed.
- Forelimbs and hindlimbs have five and four claws respectively with big horizontal scales.
- Limbs and other soft parts of the body greenish or gray.

Habitat:

- Adult turtles live in estuarine areas of big rivers to coastal areas. Hatchlings migrate from coastal areas to freshwater areas of the same river at least 3 km from nest.

Distribution:

- Southern Thailand, Malaysia, Sumatra, Kalimantan.
-



Cuora amboinensis

Amboina Box Turtle



Description:

- Adult has carapace length of approximately 25 cm, convex-shaped, smooth without keel and blackish in color.
- Plastron without groove on anterior and posterior part.
- Plastron with hinge so the shell can be closed and the body can be sealed completely.
- Head black with clear yellow lines.
- Cheek and lips also have yellow line.
- Eyes with black and yellow iris similar to the color of the head side.
- Plastron pale yellow or white with black blotches.

Habitat:

- Slow-moving rivers, swamps, can also be found also in man-made habitat like paddy fields. Sometimes found on land far away from water bodies.

Distribution:

- Nicobar Island, Bangladesh and Assam to the south through Myanmar, Thailand, Cambodia, Vietnam, Malaysia, all over western Indonesia (Sumatra, Java, Kalimantan), Sulawesi, Maluku, Sumbawa and Timor.
-



Cyclemys dentata

Asian Leaf Turtle



Description:

- Adult has carapace length of between 21 cm and 24 cm.
- Carapace blackish-brown like leaf litter and has vertebral keel that gradually disappears in adulthood.
- Plastron yellow with blackish lines.
- Adult has hinge in the middle of plastron but cannot be closed completely so the head, limbs and tail are unable to be fully sealed.
- Head brownish with brown or reddish line on the right side of neck, but sometimes disappear in adult.

Habitat:

- Shallow parts of slow-moving rivers in highland or lowland forest.

Distribution:

- India, Myanmar, Thailand, Malay Peninsula, Sumatra, Java, Kalimantan, and Philippines.
-



Heosemys spinosa

Spiny Turtle



Description:

- Adult has carapace length of approximately 22 cm, convex-shaped and brownish in color.
- Head brownish with reddish blotch on snout and posterior of the eye.
- Carapace of juvenile flat and spiny on marginal side, gradually disappears and becomes smooth in adulthood.
- Carapace with keel that is horizontally upraised on the middle part and has lighter color.
- Upper jaw beak-like.
- Plastron brown with black, brownish-yellow or white radial lines.
- Head greyish-brown with yellow or orange spot near tympanum (ear) area. Limbs greyish with yellow dots.

Habitat:

- Shallow rivers, moist forest floor below canopy, sometimes found hiding in leaf litter and herbaceous bushes.

Distribution:

- Myanmar to southern Thailand, Malay Peninsula, Sumatra and Kalimantan, and recorded in some surrounding small islands.
-



Malayemys subtrijuga

Malayan Snail-eating Turtle



Description:

- Adult has maximum carapace length of approximately 21 cm, oval-shaped, unserrated on marginal side.
- Carapace with three keels on vertebral scales and one each on costal scale.
- Carapace brownish-red with yellowish on marginal side, black blotch on every scale of carapace.
- Plastron flat in male and female, without hinge and narrower than carapace.
- Plastron yellow with big black blotch on each scale.
- Head relatively big with pointed snout.
- Upper part of head covered with one scale while the posterior part covered with small scales.
- Head black with white line elongated between eyes to the neck, snout circled with white line. Neck has many white or yellowish lines, elongated posteriorly, chin black with white blotch near mouth.
- Limbs black with some white or yellowish lines on the edge.

Habitat:

- Slow-moving water bodies with soft substrate and extensive bank vegetation. This turtle can be found in small rivers, canals, swamps, rice fields and pools.

Distribution:

- Thailand, northern Malaysia, Cambodia, Laos, southern Vietnam. Possibly introduced to Sumatra and Java.
-



Notochelys platynota

Malayan Flat-shelled Turtle



Description:

- Adult has carapace length of approximately 36 cm, wide and flat-shaped on upper part.
- There are six or seven keeled vertebral scales on the carapace.
- Carapace in juvenile more serrated.
- Carapace dark brown, greenish-brown, yellowish-brown or reddish-brown.
- Every scale on carapace has dark blotch or line.
- Carapace in juvenile greenish with two black blotches on every vertebral scale and one blotch on every costal scales.
- Plastron in male more concave than female.
- Plastron orange or brownish-yellow with black blotch transversely cross to posteriorly on the middle and marginal part of the plastron.
- Posterior of the head covered with small scales, snout slightly pointed.
- Upper part of head brownish-yellow, chin and neck pale in adult. In juvenile, some yellow lines near eyes or from the corner of the mouth elongated to the neck.
- In mating season, nose of male reddish.
- All of toes webbed and have big horizontal scales.
- Limbs greenish to dark grey.

Habitat:

- Slow-moving water bodies with soft substrate and extensive bank vegetation. This turtle can also be found in clear river water, swamps, and small pools in the forest.

Distribution:

- From peninsular Thailand to Malaysia, Sumatra, Java and Kalimantan.
-



Orlitia borneensis

Bornean River Turtle



Description:

- Adult has carapace length of between 80 cm and 120 cm, oval, smooth without keel.
- Juvenile has more convex and edge-serrated carapace, vertebral scales keeled.
- Plastron without hinge.
- Carapace blackish without blotch, plastron pale yellow or white.
- Head relatively big and wide with slightly pointed snout.
- Granular scales between eyes and tympanum, posterior of the head covered with small scales.
- Head gray or black without blotch or line.
- In juvenile, head with dark irregular blotches, light line from the corner of the mouth elongated posteriorly.
- All of toes webbed, big horizontal scales on anterior part of forelimbs.
- Limbs, neck and tail grey, brown or black.

Habitat:

- Open water such as lakes or rivers, can be found when floating or swimming.

Distribution:

- Restricted to Malaysia, Sumatra and Kalimantan.
-



Siebenrockiella crassicollis

Black Marsh Turtle



Description:

- Adult has carapace length of approximately 20 cm, convex and serrated on posterior.
- Vertebral scales distinctly keeled.
- Each of costal scales keeled and gradually disappear in adulthood.
- Plastron without hinge, more concave and thicker in male.
- Plastron flatter in female.
- Carapace black without blotch.
- Plastron blackish, dark brown, or pale yellow with white-bordered scales.
- Head big, slightly wide with slightly pointed snout.
- Posterior of the head covered with small scales and a line of granular scales between eyes and tympanum. Head black or dark grey.
- There are white blotches above the eye, near cheek, lower jaw and on the side of the head in juvenile and female individuals. Jaw line shape upraised like as if smiling.
- Neck thick thus the head looks shorter.
- Neck black or dark grey.
- Toes webbed and anterior part of limbs covered with big horizontal scales.
- Limbs and tail black or dark gray.

Habitat:

- Slow-moving water bodies with soft substrate and extensive bank vegetation. This turtle can be found in rivers, lakes, swamps, and small pools in the forest.

Distribution:

- Southern Vietnam, Thailand, Myanmar, Malaysia, Sumatra, Java and Kalimantan.
-



Manouria emys

Brown Giant Tortoise



Description:

- Adult has carapace length of approximately 60 cm and weighs up to 40 kg, dome-shaped, high and thick with flattened part on the second and third vertebral scale.
- Carapace grey or greenish, brown in juvenile.
- Plastron without hinge, dirty white, dark grey, black or brownish without blotch or line, yellow with blackish lines in juvenile.
- Head relatively medium to big with blunt snout.
- Head black with copper or brownish blotch.
- Limbs elephant-like with four or five nail on forelimbs and hindlimbs respectively.
- Forelimbs covered with large and spiky scales.
- Limbs brown, blackish brown or black.

Habitat:

- Moist forest floor, feeding in small river in mountains. Most of its time is spent inside a burrow or under leaf litter.

Distribution:

- India, Bangladesh, Myanmar, Thailand, Malaysia, Indonesia (Sumatra, and Kalimantan).
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TURTLE FINDING SHEET

OBSERVER

DATE :

Name :

Phone :

Address :

Occupation :

Email :

LOCATION

Village :

District :

Province :

Time :

Coordinates

Altitude :

Habitat (forest, plantation, stream, etc.):

Photos : Yes/ No

DESCRIPTION

Shell

Size: Width: mm; Length: mm

Having scales : Yes / No

Scute number :

Color :

Scales number on carapace

Vertebral :

Costal :

Marginal :

Hinge on plastron : Yes / No

Head pattern and coloration

Snout shape :

Limbs shape :

Other characters :

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



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