

Amphibians and Reptiles of Phu Quoc

A herpetological survey from May 22, 2008- June 7, 2008



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Amphibians

Amphibians checklist

1. *Duttaphrynus melanostictus* – Black spined toad
2. *Limnonectes kuhlii* – Kuhl's creek frog
3. *Hoplobatrachus rugulosus* - Common lowland frog
4. *Occidozyga laevis* – Green puddle frog
5. *Hylarana macrodactyla* – Long-toed frog
6. *Hylarana taipehensis* - Striped slender frog
7. *Rana nigrovittata* - Stream frog
8. *Kalophrynus interlineatus* – Spotted narrow-mouth frog
9. *Kaloula pulchra* – Banded bullfrog
10. *Microhyla heymonsi* – Taiwan rice frog
11. *Micryletta inornata* – Deli paddy frog
12. *Chirixalus nongkhorensis* – Nong khor bush frog
13. *Polypedates leucomystax* – Common tree frog
14. *Theloderma stellatum* – Taylor tree frog
15. *Ichthyophis bananicus* - Caecilian

Turtle checklist

1. *Cyclemys* cf. *tcheponensis* – Asian leaf turtle
2. *Amyda cartilaginea* – Southeast asian solfshell turtle

Lizard checklist

1. *Acanthosaura capra* – Horned tree lizard
2. *Calotes versicolor* - Changebale lizard
3. *Draco indochinensis* –Indochinese gliding lizard
4. *Draco maculatus* – Spotted gliding lizard
5. *Leiolepis reevesii* - Peter's butterfly lizard
6. *Physignathus cocincinus* – Indo-chinese water dragon
7. *Takydromus sexlineatus* – Long-tailed lizard
8. *Cyrtodactylus* cf. *intermedius* – Bent-toed lizard
9. *Hemidactylus frenatus* – Spiny-tailed house gecko
10. *Gehyra mutilata* – Four-clawed gecko
11. *Gekko gekko* – Tokay gecko
12. *Dixonius siamensis* – Siamensis leaf-toed gecko
13. *Ptychozoon lionotum* – Smooth-backed gliding gecko
14. *Dasia olivacea* – Olive tree skink
15. *Lipinia vittigera* – Striped tree skink
16. *Lygosoma bowringii* –Bowring's supple skink
17. *Eutropis macularia* – Speckled forest skink
18. *Eutropis multifasciata* – Many lined forest skink
19. *Varanus bengalensis* – Monitor lizard

Snake checklist

1. *Python reticulatus* – Reticulated python
2. *Cylindrophis ruffus* – Red-tailed pipe snake
3. *Ahaetulla prasina* – Oriental whip snake
4. *Boiga cyanea* – Green cat snake
5. *Enhydrys bocourti* - Bocourt's water snake
6. *Enhydrys enhydrys* – Rainbow water snake
7. *Enhydrys plumbea* – Plumbeous water snake
8. *Homalopsis buccata* – Puff-faced water snake
9. *Oligodon ocellatus* – Kukri snake
10. *Pareas carinatus* – Keeled slug snake
11. *Psammodynastes pulverulentus* – Common mock viper
12. *Ptyas korros* – Indochinese rat snake
13. *Xenochrophis piscator* - Checkered keelback
14. *Bungarus candidus* – Malayan or blue krait
15. *Calliophis maculiceps* – Small spotted coral snake
16. *Naja siamensis* – Indochinese spitting cobra
17. *Cryptelytrops albolabris* – White-lipped pit viper
18. *Cryptelytrops macrops* – Macrop's pit viper (?)



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Bay**



This is a checklist of 54 species of amphibians, lizards, snakes and turtles recorded on Phu Quoc island in 2008 by WAR experts. They are all species directly observed in the wild. And this checklist was completed in during an survey on may 2008. The full checklist of the island's amphibians and reptiles expected to be longer if there is more surveys in the future. The checklist does not included sea turtles and sea snakes due to limited of resources for the survey.

Authors of the surveys would like to express a sincere to Dominic Scriven, OBE – Trustee of WAR and The Mango Bay Ltd which has funded some cost for this field survey.

Amphibian Families Observed on Phu Quoc Island by the 2008 Survey Team

Frog Families

- Bufonidae
- Ranidae
- Microhylidae
- Rhacophoridae

Caecilian Family

- Ichthyophiidae

Occidozyga laevis



The Bufonidae of Phu Quoc Island

- The bufonids are stout frogs with warty bodies.
- The skin produces toxic alkaloid poisons.
- The head often has bony ridges and enlarged poison glands.
- We have seen only *Duttaphrynus melanostictus* on Phu Quoc Island.



Duttaphrynus melanostictus

Duttaphrynus melanostictus

Black Spined Toad

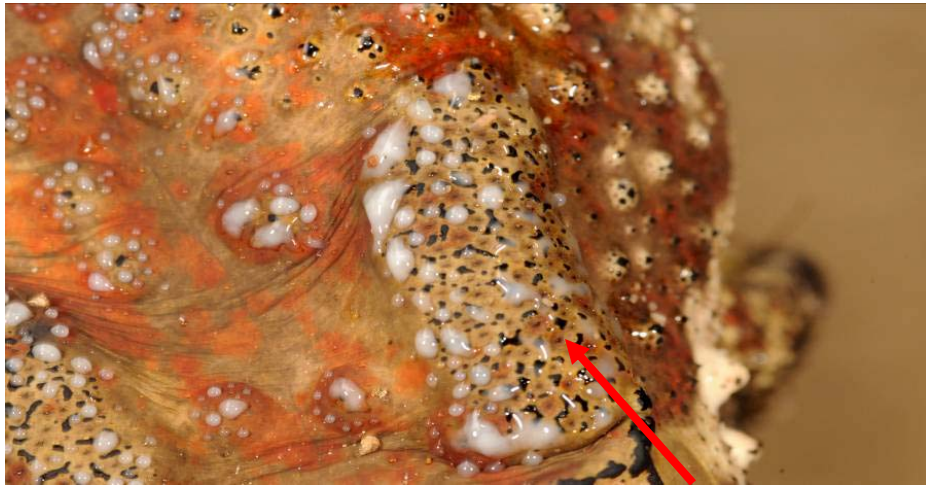


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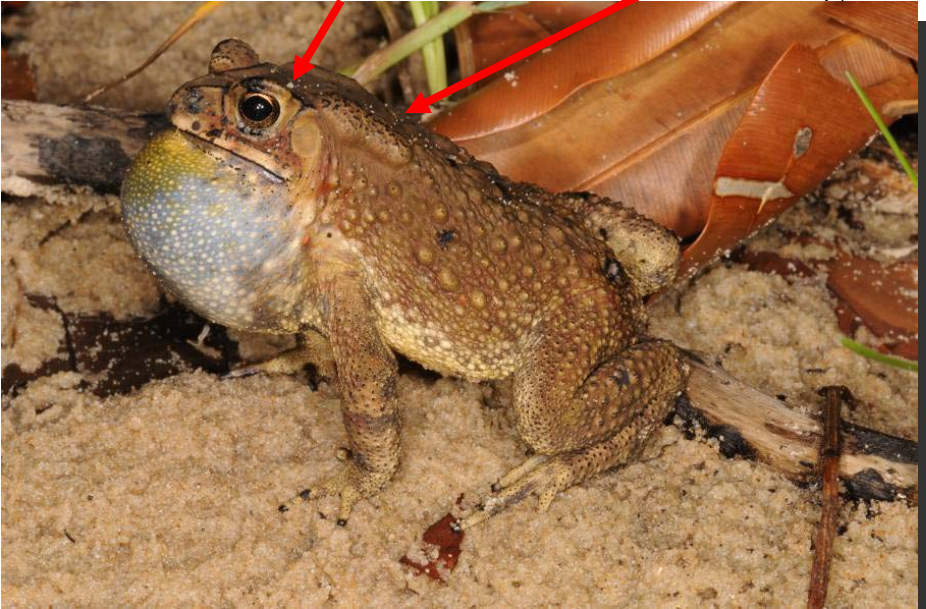
Duttaphrynus melanostictus

Black Spined Toad



Cranial crest

Poison gland



- Females 66-116mm; males 57-84mm.
- The robust body is variable in color, usually brownish or brownish gray, with dark dots.
- The very large, oval paratoid gland is at least twice as long as broad.
- Cranial crests display branching, sharp edged ridges.
- This toad was formerly placed in the genus *Bufo*.

The Ranidae of Phu Quoc Island

- This family includes a diverse array of small to large species.
- Metatarsals are not fused.
- Intercalary cartilages are absent.
- Toe pads are sometimes present
- Former members of the genus *Rana* have been placed into several genera.
- Phu Quoc ranids include:
 - *Limnonectes kuhlii*
 - *Hoplobatrachus rugulosus*
 - *Occidozyga laevis*
 - *Hylarana macrodactyla*
 - *Hylarana taipehensis*
 - *Sylvirana nigrovittata*



Hylarana macrodactyla

Limnonectes kuhlii
Kuhl's Creek Frog



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Limnonectes kuhlii

Kuhl's Creek Frog



- To 85mm
- This frog has a prominent arch over the tympanum
- We encountered this species along flowing streams where it often called from beneath rocks or other cover



Hoplobatrachus rugulosus

Common Lowland Frog



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Hoplobatrachus rugulosus

Common Lowland Frog



- Females 70 -160mm; males 70-110mm.
- The snout is rounded.
- Toes and fingers are stout and cylindrical.
- The color is variable. Some frogs are mottled dark olive-green with approximately equal portions of lighter greenish-yellows; others are predominantly brown and tan.

Occidozyga laevis

Green Puddle Frog



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Occidozyga laevis

Green Puddle Frog



- Females to 33mm and males to 26mm.
- Color varies, and Phu Quoc specimens seldom appear to merit the common name listed above. The ventral coloration is usually white.
- The head may be rust-red or plain.
- The back is sometimes mottled, sometimes plain.
- A mid-dorsal stripe may or may not be present.
- The first finger is approximately equal in length to the second finger.

Hylarana macrodactyla

Long-toed Frog



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Hylarana macrodactyla

Long-toed Frog



- Females 32-44mm; males 27-32mm.
- The legs and toes are long and slender.
- The snout is sharply pointed.
- Webbing extends halfway to tips of toes.
- The sides are studded with a few flat warts.
- A dorsolateral fold is present and extends from the tympanum to the base of the legs.
- Tympanum is about equal in diameter to eye in males, but females have small tympana.
- Basic color varies from brown to green.
- To distinguish this frog from *Hylarana taipehensis* see following slide.

Distinguishing Between *Hylarana taipehensis* (left) and *Hylarana macrodactyla* (right)



- In *H. taipehensis* first toe of hind foot extends to subterminal phalanx of longest toe.

- In *H. macrodactyla* first toe of hind foot does not extend to subterminal phalanx of longest toe.

Hylarana taipehensis

Striped Slender Frog



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Hylarana taipehensis

Striped Slender Frog



- Size similar to that of *Hylarana macrodactyla*?
- This frog is distinguished from *Hylarana macrodactyla* by toe-length; see above.

Sylvirana nigrovittata

Stream Frog



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Rana nigrovittata

Stream Frog



- Females to 60mm; males 38-55mm.
- This frog has a robust body and prominent but broken dorsolateral folds.
- The first finger is at least as long as the second.
- The legs are muscular; fingers and toes are slightly broadened.
- The tympanum diameter is equal to or somewhat smaller than that of the eye.
- Most individuals have a dark-brown lateral stripe extending from the snout to the base of the legs.
- The lips are often white.

The Microhylidae of Phu Quoc Island

- Microhylids are frogs of small to modest size.
- Most species spend their days in leaf litter or soil.
- Color patterns often vary from day to night and among individuals.
- Webbing between the toes is reduced or absent.
- Phu Quoc microhylids include:
 - *Kalophrynus interlineatus*
 - *Kaloula pulchra*
 - *Microhyla heymonsi*
 - *Micryletta inornata*



Micryletta inornata

Kalophrynus interlineatus

Spotted Narrow-mouth Frog

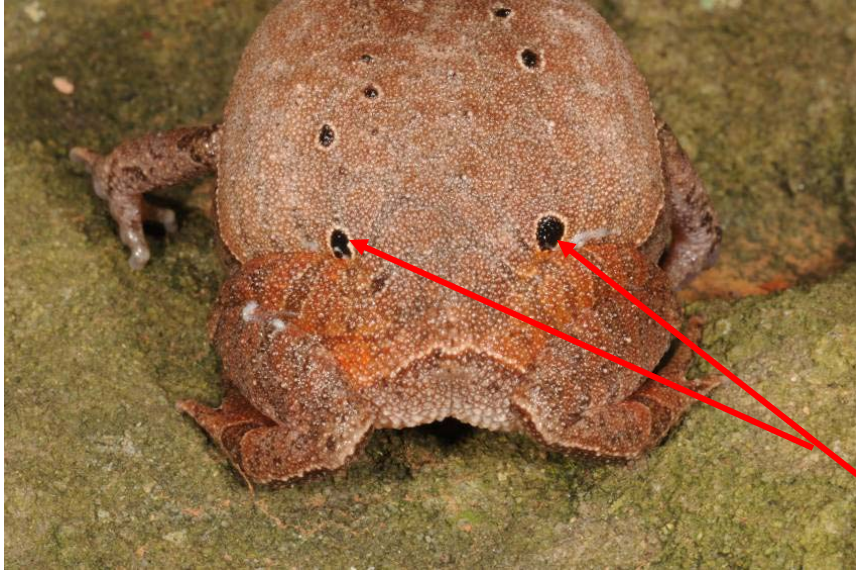


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Kalophrynus interlineatus

Spotted Narrow-mouth Frog



- This microhylid is of moderate size.
- It has a distinctive lateral stripe and a pair of large dark spots that are usually hidden by the hind legs.
- When the animal is threatened, the body inflates to reveal the two “eyespot.”
- This species has a series of white bumps on the venter.



Ventral bumps

Kaloula pulchra

Banded Bullfrog



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Kaloula pulchra

Banded Bullfrog



- Females 57-75mm; males 54-70mm.
- The plump body is often inflated at capture.
- The back is dark gray or grayish-brown; the sides are light brown or reddish brown.
- The nose is short, rounded, and wide.

Microhyla heymonsi

Taiwan Rice Frog



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Microhyla heymonsi

Taiwan Rice Frog



- Females 22-26mm; males 16-21mm.
- This is a small microhylid with lateral dark stripe separated from lighter dorsum by a crisp line.
- The body is triangular and the snout is pointed.
- The back is smooth and bears a leaf-like pattern.
- A dark lateral stripe extends from the nose to the rear legs.

Micryletta inornata

Deli Paddy Frog



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Micryletta inornata

Deli Paddy Frog



- Females 25-39mm; males 21-25.5mm.
- The pattern is variable, but the back often displays an array of dark spots.
- Gold, orange, or red patches may be observed on the dorsal surfaces of the arms and legs.

The Rhacophoridae of Phu Quoc Island

- Rhacophorids are small to medium sized frogs.
- Most rhacophorids have large toe pads.
- These frogs are largely arboreal, often building foam nests or depositing eggs in tree holes.
- Phu Quoc rhacophorids include:
 - *Chirixalus nongkhorensis*
 - *Polypedates leucomystax*
 - *Theloderma stellatum*



Chirixalus nongkhorensis

Chirixalus nongkhorensis

Nong Khor Bush Frog



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Chirixalus nongkhorensis

Nong Khor Bush Frog



- To 38 mm.
- This small, brownish-yellow rhacophorid has widely separated fingers with toe pads.
- The animals are much paler in daytime.
- Eggs are laid in a foam nest attached to a leaf above water.

Polypedates leucomystax

Common Treefrog



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Polypedates leucomystax

Common Treefrog



- Females 57-75mm; males 37-50mm
- This is the largest species of treefrog on Phu Quoc.
- They build foam nests in the water or near its edge.
- *P. leucomystax* has large legs and prominent toepads.

Theloderma stellatum

Taylor's bug-eyed frog



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Theloderma stellatum

Taylor's bug-eyed frog



- To 30mm.
- This is a warty and variably colored rhacophorid with small white patches.
- Eggs are laid in tree holes and other inaccessible sites where tadpoles can develop in a relatively predator-free environment.
- Rare species.
- NT (IUCN red list)

The Ichthyophiidae of Phu Quoc Island

- Phu Quoc caecilians have very short tails and no legs.
- The largest individual we saw was 436mm total length.
- Larvae are aquatic and carnivorous.
- On Phu Quoc Island we have seen only *Ichthyophis bananicus*.
- VU Vietnam Redlist (2007)



Ichthyophis bananicus

(English “common” name?)



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Ichthyophis bananicus

(English “common” name?)



- Caecilians are legless amphibians with many annuli or rings.
- The tail is very short, and eyes are covered by both skin and bones.
- There is a tentacle between nostril and eye.

Lizards

Order Squamata – Suborder Sauria

Lizards are a diverse group of animals, but with the extirpation of crocodiles, lizards on Phu Quoc Island are instantly recognizable as scaly reptiles with four legs and no shell.



Lipinia vittigera

Lizard Families Observed on Phu Quoc Island by 2008 Survey Team

- Agamidae
- Lacertidae
- Gekkonidae
- Scincidae



Gekko gecko

The Agamidae of Phu Quoc Island

- Agamids have acrodont teeth in box-like skulls.
- These lizards have four legs, each with five toes.
- Osteoderms are absent.
- Phu Quoc agamids include:

Acanthosaura capra

Calotes versicolor

Draco indochinensis

Draco maculatus

Leiolepis reevesii

Physignathus cocincinus

Draco sp.



Distinguishing between *Acanthosaura* and *Calotes*

- *Acanthosaura*

- Tail length / SVL < 1.7.
- Dorsal scales are smaller than ventral scales.



- *Calotes*

- Tail length / SVL > 2.4.
- Ventral scales are smaller than dorsal scales.



In both of these genera, sexual dichromatism is present. In addition, animals of both genera change coloration when harassed or excited.

Acanthosaura capra

Horned Tree Lizard



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Acanthosaura capra

Horned Tree Lizard



- To 290 mm (SVL 120mm)
- This species is easily identified by the distinct “horn” above the rear of the eyes.
- The dorsal row of spines is broken at neck.



Juvenile

Calotes versicolor

Changeable Lizard



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Calotes versicolor

Changeable Lizard



- Females to 341mm (SVL 86mm); males to 385mm (SVL 95mm).
- This animal lacks eyebrow spines and the shoulder fold that distinguishes other *Calotes* found in Vietnam.
- During the breeding season, males display a small dewlap.
- A dark throat patch is typical in males.
- The nuchal spines are relatively small.
- Two spines are observed over each tympanum.
- The color of this lizard may change with temperature or “emotional” state.

Draco indochinensis

Indochinese Gliding Lizard

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Cryptic coloration
Yellow gular flap
Larger body size (90 mm in female)
Flight membrane with 6 light bands dorsally
Underside of flight membranes yellow with lateral dark blotches



Draco indochinensis

Indochinese Gliding Lizard



- About 85mm S/V length.
- In males the dewlap is long, narrow and yellow in color. Undersides of lappets and base of dewlap are maroon/red in color.
- Patagium yellow in color with 5 transverse dark bands dorsally.
- “Wings” are supported by five ribs.
- Basic coloration is green and cryptic.

Draco maculatus

Spotted Gliding Lizard



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Draco maculatus

Flying Dragon



- To 220mm (SVL 80mm).
- Overall coloration is cryptic.
- The upper surface of the patagium is yellow-orange with dark spots.
- The lower patagium is not heavily marked but bears a few distal black spots.
- The gular flap is yellow at its base.
- This lizard is a diurnal inhabitant of disturbed forest.

Leiolepis reevesii

Peter's Butterfly Lizard



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Leiolepis reevesii

Peter's Butterfly Lizard



- To 500 mm (SVL 150 mm).
- This lizard inhabits sandy coastal areas, where it shelters in burrows that it digs.
- VU – Vietnam redlist (2007)



Physignathus cocincinus

Indo-Chinese Water Dragon



Large size and robust body
Enlarged scales at back of jaw
Flaps of skin along each toe
Semi-aquatic habits

Physignathus cocincinus

Indo-Chinese Water Dragon



- To 900mm (SVL 250mm).
- This large lizard is mostly green, though the body often shows indistinct, broad, light-blue, lateral stripes.
- The tail is laterally compressed and usually bears dark bands.
- A row of mid-dorsal spines typically extends from the head to beyond the rear legs.
- Scales at back of jaw are enlarged.
- Flaps of skin along each toe reflect the species semi-aquatic habits.
- VU – Vietnam Redlist (2007)

The Lacertidae of Phu Quoc Island

- Lacertids have osteoderms only on the head.
- Teeth are pleurodont; skull is flattened; the tongue is forked and relatively long.
- Four legs each bear five toes.
- Tail vertebrae have fracture-planes and tail autonomy is common.
- Diurnal and heliothermic (sun-loving).
- Widespread family in Africa, Asia, and Europe.
- Phu Quoc lacertids include:

Takydromus sexlineatus



Takydromus sexlineatus

Takydromus sexlineatus

Long-tailed Lizard



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Takydromus sexlineatus

Long-tailed Lizard



- To 360mm (SVL 65mm).
- The tail is very long (if complete, exceeding 80% of total length).
- The body has bright yellow longitudinal stripes.
- The lizard is frequently observed “swimming” through grass.

The Gekkonidae of Phu Quoc Island

- Phu Quoc gekkonids have large eyes without eyelids.
- Most species have adhesive toepads; all lack osteoderms.
- Phu Quoc gekkonids include:

Cyrtodactylus cf.
intermedius

Hemidactylus frenatus

Gehyra mutilata

Gekko gecko

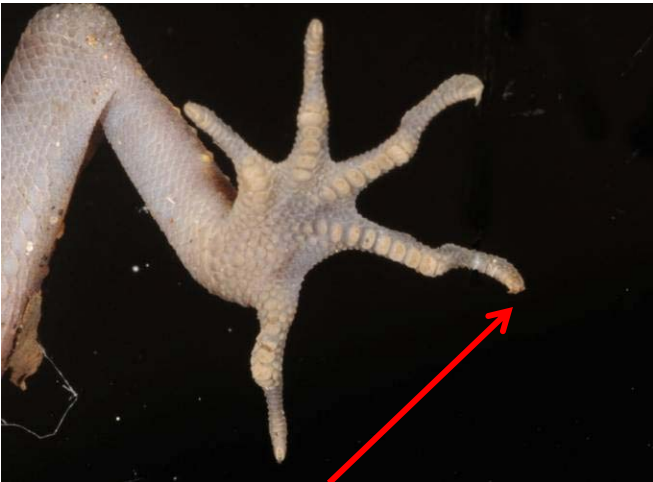
Dixonius siamensis



Gekko gecko

Comparison of Phu Quoc Gecko Phalanges

Dixonius siamensis:
Single scansor at tip of toe



Toes without scansors on tips
Cyrtodactylus sp.

Gekko gecko



A more typical scansor arrangement for gecko species



Hemidactylus frenatus

Cyrtodactylus cf. intermedius

Bent-toed Gecko



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Cyrtodactylus cf. intermedius

Bent-toed Gecko



- To 190mm (SVL 85mm).
- This animal has prominent tubercles along its back and long, thin toes that are typically bent, with their joints elevated.
- Colors differ by day/night, but a dark band is usually seen on the neck, and the tail often appears banded.
- Bent-toed geckos usually shelter in hollow logs or under rocks or other debris by day; at night they are active upon vegetation.



Juvenile

Hemidactylus frenatus

Spiny-tailed House Gecko



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Hemidactylus frenatus

Spiny-tailed House Gecko



- To 38mm (SVL 67mm).
- Color ranges from off-white to various shades of gray and grayish-brown.
- The tail, if entire, is banded by whorls of tiny spines.
- Two pair of large submaxillary scales are present; these are not separated from infralabials by lines of small scales.



Gehyra mutilata

Four-clawed Gecko



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Gehyra mutilata

Four-clawed Gecko



- To 120mm (SVL 60mm).
- The inner fingers and toes typically lack a claw.
- The skin is velvety.
- This specimen was collected along a mountain trail on a large boulder with crevices.

Gekko gekko

Tokay Gecko



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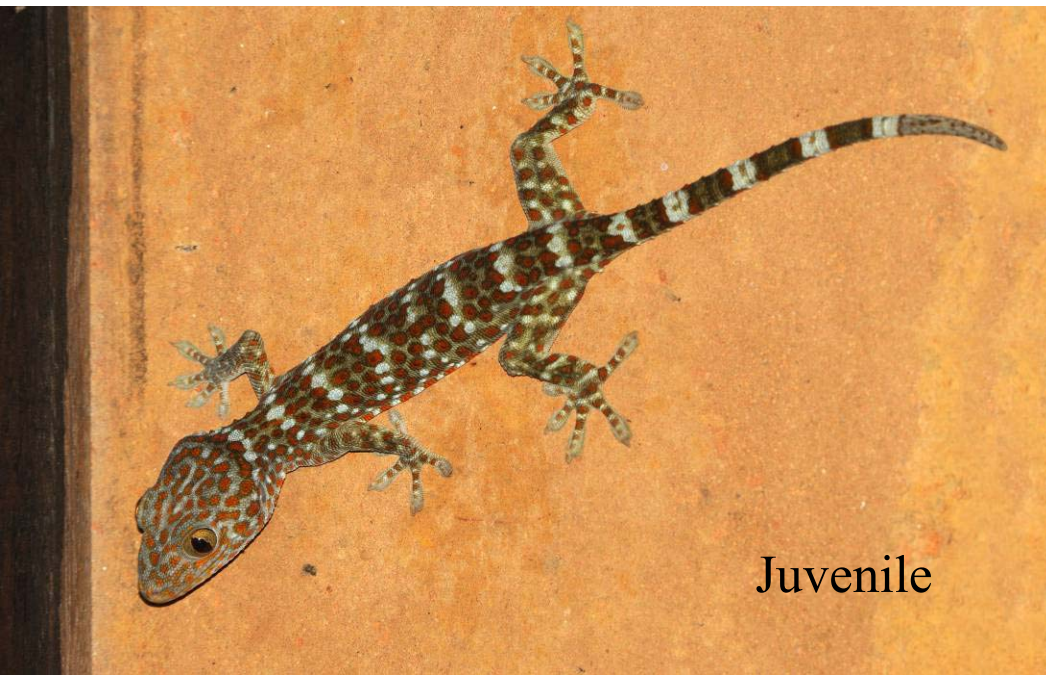
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Gekko gecko

Tokay Gecko

- To 365mm (SVL 185mm).
- Large size and beaded blue skin with orange spots render this species unmistakable.
- Vertical pupils are distinctly scalloped along the edges; the iris is yellow.
- During tropical summers, males offer a distinctive call— a few monosyllabic grunts followed by 4-6 repetitions of a two-syllable cry that has given the lizard the common name “tokay.”
- VU - Vietnam redlist (2007)



Juvenile

Dixonius siamensis

Siamese Leaf-toed Gecko



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Dixonius siamensis

Siamese Leaf-toed Gecko



- To 110mm (SVL 50 mm).
- The terminal phalanx of each toe bears a single scansor.
- Tubercles on back and sides are arranged in longitudinal rows.
- Juveniles are nearly black with two rows of light spots.
- This gecko was found on sandy beaches and inland under rocks.



Tuberculate dorsum

Ptychozoon lionotum

Burmese flying gecko



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The species recorded on Ham rong mountain of
Phu Quoc island date 20th December 2008.

Photo: le Khac Quyet

The Scincidae of Phu Quoc Island

- Limbs and eyelids may be reduced.
- Osteoderms underlie every scale.
- Phu Quoc scincids include:

Dasia olivacea

Lipinia vittigera

Lygosoma bowringii

Eutropis macularia

Eutropis multifasciata



Eutropis macularia

Dasia olivacea

Olive Tree Skink



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Dasia olivacea

Olive Tree Skink



- To 270mm (SVL 110mm).
- Apparently this is a canopy dwelling species that is seldom seen.
- Phu Quoc is only the second locality recorded for this skink in Vietnam.

Lipinia vittigera

Striped Tree Skink



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Lipinia vittigera

Striped Tree Skink



- To 100mm (SVL 42mm).
- The body and flattened head feature bold black and cream lines.
- The tail is a distinctive orange to reddish.
- This small skink is highly arboreal and a very competent climber.

Lygosoma bowringii

Bowring's Supple Skink



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Lygosoma bowringii

Bowring's Supple Skink



- To 110mm (SVL 50mm).
- This is a small lizard with small limbs and an elongate body.
- The scales are extremely smooth and hard, and the animal is hard to hold securely.
- The breeding male shows yellow and orange on flanks and tail.
- These skinks seem to prefer sandy areas, where they may be found beneath surface debris.
- This species is sometimes placed in the genus *Riopa*.

Eutropis macularia

Speckled Forest Skink



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Eutropis macularia

Speckled Forest Skink



- To 167mm (SVL 65mm).
- The body is flattened and the scales are keeled.
- Juveniles are blue-gray with bronze heads and white necklines.
- Adults are brown with a speckled flank and orange throat.
- This species was formerly placed in genus *Mabuya*.

Eutropis multifasciata

Many-lined Forest Skink



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Eutropis multifasciata

Many-lined Forest Skink

- To 370mm (SVL 137mm).
- The dorsum is bronze with five to seven dark lines.
- The flanks are marked with black-edged white spots, but sometimes a large orange patch is present instead.
- The tail is less than twice as long as the body.
- Dorsal scales have several well-developed keels.
- This species was formerly placed in genus *Mabuya*.



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Vanidae of Phu Quoc

- Recorded one species of the Vanidae in 2006, 2007 & 2008 on Quoc phong road (Ky da stream) and bridge No. 1 of the road from Cau Trang Forest protection Department office to bai thom commune.
- *Varanus bengalensis*
- EN – Vietnam redlist (2007)

Photo from Saigon Zoo



Monitor lizard

Snakes



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Snake Families Observed on Phu Quoc Island by 2008 Survey Team

- Cyndrophiiidae
- Pythonidae
- Colubridae
- Viperidae
- Elapidae



Bungarus candidus

The Pythonidae of Phu Quoc Island

- Pythons are often considered to comprise a subfamily of the Boidae
- These snakes are medium to large constrictors.
- They have some “primitive” traits, such as:
 - Vestigial hind limbs tipped with small external spurs
 - Two lungs
- Premaxillary teeth are present.
- Most pythons have infrared-sensitive labial pits.
- Phu Quoc pythonids include:
Python reticulatus

Python reticulatus



Python reticulatus

Reticulated Python

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Python reticulatus - Reticulated Python

- Reportedly to 10 meters.
- The head can be brown, tan, or yellow.
- A network of thin, black lines extend along the body, defining light gray or white spots against a background of brown or gold.
- This species reaches enormous size, though it may not be as heavy-bodied (proportional to its length) as the Burmese Python. Very large specimens of either species are rare today.



- CR – Vietnam's redlist (2007)

The Cyndrophiiidae of Phu Quoc Island

- This small family has several “primitive” traits, such as:
 - Ventral scales that are only slightly enlarged.
 - Two lungs
 - Vestigial hind limbs tipped with small external spurs
- Premaxillary teeth are present
- Phu Quoc cyndrophiiids include only:

Cylindrophis ruffus



Cylindrophis ruffus
Photo from Cat Tien

Cylindrophis ruffus Red-tailed Pipe Snake



Photo from
Cat Tien

Cylindrophis ruffus

Red-tailed Pipe Snake

- This specimen was purchased in a Phu Quoc restaurant; it was reportedly caught on the island.

Ventral “plates” are scarcely wider than dorsal scales.



The Colubridae of Phu Quoc Island

- Colubrids are modern snakes with only one lung.
- All lack premaxillary teeth and limb vestiges.
- No fangs are found at front of maxillae.
- Ecologically, colubrids are very diverse.
- The Colubridae (“generalized, usually harmless snakes”) includes almost 2/3 of the world’s snake species.
- The family has no unique, identifying characteristics.
- Colubridae observed on Phu Quoc:

Ahaetulla prasina

Boiga cyanea

Enhydris bocourti

Enhydris enhydris

Enhydris plumbea

Homalopsis buccata

Oligodon ocellatus

Pareas carinatus

Psammodynastes pulverulentus

Ptyas korros

Xenochrophis piscator



Psammodynastes pulverulentus

Ahaetulla prasina

Oriental Whip Snake



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Ahaetulla prasina

Oriental Whip Snake

- To 1970 mm
- This long, slender snake occurs in a variety of colors.
- The pupils are horizontal slits, and the eyes are directed forward, looking along grooves in the long, pointed snout.
- This arboreal animal is a diurnal lizard predator.



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Boiga cyanea Green Cat Snake



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Boiga cyanea

Green Cat Snake

- To 1870 mm.
- The throat is typically blue-green, and the dorsal coloration may have a bluish cast.
- The underside is bluish- or yellowish-white.
- Juveniles may be brownish or reddish and may show dark brown crossbars.
- The green cat snake is largely arboreal.
- *B. cyanea* somewhat resembles the white-lipped pit viper, but this harmless colubrid is usually much longer.

Enhydris bocourti

Bocourt's Water Snake



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Enhydris bocourti

Bocourt's Water Snake



- To 1150 mm.
- The body is stout and almost cylindrical.
- The dark brown dorsal color is broken by irregular yellow or yellow-gray crossbars. (Occasionally the dark color extends across the belly.)
- Scales are smooth.
- The vertically elliptical pupils suggest that this snake is largely nocturnal.
- This specimen was purchased in a Phu Quoc restaurant; it was reportedly caught on the island.
- VU – Vietnam's redlist (2007)

Enhydris enhydris
Rainbow Water Snake



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Enhydris enhydris

Rainbow Water Snake



- To 860 mm.
- This snake is characterized by smooth scales on a heavy body; the head is small and indistinct from the neck.
- A brown to olive mid-dorsal stripe is bordered on either side by lighter stripes.
- The light-colored venter displays a series of faint, dark flecks that unite subcaudally to form a black line.
- This specimen was purchased in a Phu Quoc restaurant; it was reportedly caught on the island.

Enhydris plumbea

Plumbeous or Yellowbelly Water Snake



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Enhydris plumbea

Plumbeous or Yellowbelly Water Snake



- To 560 mm TL.
- This stout snake has a blunt, rounded head that is indistinct from the neck.
- The eyes are located far forward.
- Dorsal color ranges from gray or brown to yellow; the light-colored venter is marked like *Enhydris enhydris*.
- This specimen was purchased in a Phu Quoc restaurant; it was reportedly caught on the island.

Homalopsis buccata

Puff-faced Water Snake



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Homalopsis buccata

Puff-faced Water Snake



- To 1370 mm.
- The puff-faced water snake may be identified by its stout body, broad head, keeled scales, and the dark, mask-like markings on its face.
- This specimen was purchased in a Phu Quoc restaurant; it was reportedly caught on the island.

Oligodon ocellatus Kukri Snake



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Oligodon ocellatus

Kukri Snake



- To 1000 mm
- Kukri snakes possess large, flattened, blade-like teeth thought to be used for opening reptile eggs.
- These teeth allow the animals occasionally to saw into prey such as toads. (This feeding technique is not otherwise reported among snakes.)
- *Oligodon* can deliver a painful, slicing bite.

Pareas carinatus
Keeled Slug Snake



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Pareas carinatus

Keeled Slug Snake

- To 600 mm.
- This snake has the short snout and blunt head characteristic of many snail and slug eaters.
- Unlike most other snakes, *Pareas* lacks a mental groove.
- The body is light brown with dark markings; a dark stripe extends dorsally and rearward from each eye.
- This small, nocturnal colubrid can be found in trees or foraging for gastropods on the ground.



Psammodynastes pulverulentus

Common Mock Viper



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Psammodynastes pulverulentus

Common Mock Viper

- To 440 mm.
- The pattern is variable.
- Pupils are vertical.
- A ridge extends from the eye to the snout.
- Although harmless, this small terrestrial snake is sometimes called a mock viper, perhaps because of its flattened, triangular head and its tendency to strike vigorously.



Ptyas korros Indo-Chinese Rat Snake



Photo
from
Cat Tien

Ptyas korros

Indo-Chinese Rat Snake



Photo from Cat Tien

- To 2560 mm.
- This diurnal whip snake has an elongate, gray-brown head that is distinct from the body.
- The eyes are large.
- The anterior half of this snake is plain olive-brown or grayish.
- The posterior scales are dark-edged.
- The presence of this species on Phu Quoc was confirmed by a sighting near Mango Bay and a shed skin.
- EN – Vietnam's redlist (2007)

Xenochrophis piscator

Checkered Keelback



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Xenochrophis piscator

Checkered Keelback

- To 1100 mm.
- The scales are keeled and the head is distinct.
- The body is olive brown.
- Paired dark stripes typically extend down and rearward from the large eyes.
- Dark spots on the anterior body present a checkered appearance, a pattern more distinct near the head than near the tail.
- This animal is commonly found on the ground; when molested it strikes and bites vigorously.



Unidentified Snake from K7 Mountain
Photographed but not Captured



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The Elapidae of Phu Quoc Island

- Elapids are modern snakes with one lung.
- They lack premaxillary teeth and limb vestiges.
- The loreal scale absent.
- These snakes have an elaborate venom-delivery apparatus that consists of short, non-erectile fangs on long, non-rotating maxillae.
- Phu Quoc elapids include:
 - Bungarus candidus*
 - Calliophis maculiceps*
 - Naja siamensis*



Calliophis maculiceps

Bungarus candidus

Malayan or Blue Krait



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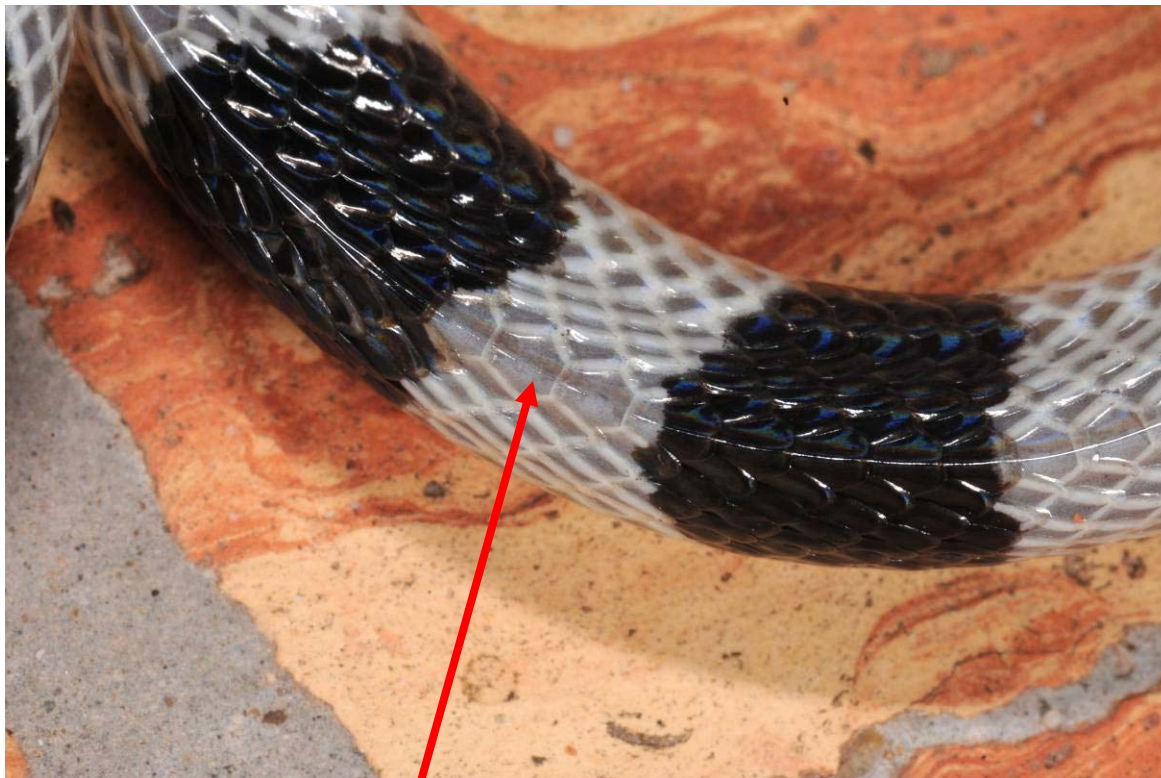


Juvenile

Bungarus candidus

Malayan or Blue Krait

- To 1600 mm.
- The body is triangular in cross-section, and the vertebral (mid-dorsal) scale row is enlarged.
- Black bands do not cross the belly.
- This is a largely nocturnal snake that probably eats mostly other snakes.
- Its bite is potentially fatal.
- Some harmless species are similarly patterned.



Enlarged vertebral scales

Calliophis maculiceps

Small-spotted Coral Snake



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Calliophis maculiceps

Small-spotted Coral Snake



Tail display

- To 470 mm.
- This small elapid may be recognized by its dark head, dark bands on the tail, and red venter.
- Unlike other Southeast Asian elapids, *Calliophis* has a divided anal scale.
- The body is reddish, with narrow dark crossbands.
- The head is dark, with light collar behind the eyes.
- Dorsal coloration is variable.
- When encountered, this snake may display the red scales under its tail and attempt to hide its head.
- Its bite may be dangerous.

Naja siamensis - Indochinese Spitting Cobra

Naja siamensis - Ảnh Minh Hòa chụp tại Tây Ninh



- To 2000 mm.
- An Indochinese spitting cobra was observed crossing a trail at Mango Bay. It hooded when briefly restrained, but it escaped before it could be photographed. Another cobra observed acrossing road to Cua Can commune (area near Khu Tuong T-junction on December 2008)

The Viperidae of Phu Quoc

- Viperids are modern snakes with one lung.
- They lack premaxillary teeth and limb vestiges.
- These snakes have an elaborate venom-delivery apparatus that consists of long, erectile fangs on short, movable maxillae.
- The subfamily Crotalinae is characterized by a heat sensitive pit between eye and nose.
- Identification of *Cryptelytrops* (= *Trimeresurus*) is ambiguous
- Phu Quoc Viperidae may include:
 - Cryptelytrops albolabris*
 - Cryptelytrops macrops*
- We are tentatively listing all specimens we observed as the former.



Cryptelytrops albolabris

Cryptelytrops albolabris

White-lipped Pit-viper



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Cryptelytrops albolabris

White-lipped Pit-viper



- Females to 1040 mm, males to 750 mm.
- Head and body are green dorsally with a yellow wash to ventral areas.
- Tail is brick red.

T u r t l e s



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Order Testudines - Turtles

- Shell composed of upper and lower parts:
 - Carapace = upper shell
 - Plastron = lower shell
- Carapace includes backbone and ribs.
- Legs, tail, and head can be pulled into shell.
- All turtles reproduce by laying eggs.



Plastron of *Cyclemys* cf. *tcheponensis*

Turtle Families Observed on Phu Quoc Island by 2008 Survey Team

- Bataguridae
- Trionychidae



The Bataguridae of Phu Quoc Island

- The tail is relatively short.
- Toe-bones are not reduced.
- The family includes aquatic, terrestrial, and amphibious forms.
- Most species are now threatened.
- Phu Quoc batagurids include:

Cyclemys cf. tcheponensis



Cyclemys cf. tcheponensis

Asian Leaf Turtle



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Cyclemys cf. tcheponensis

Asian Leaf Turtle



- To 220 mm carapace length.
- A low medial keel is present in adults.
- The posterior of the plastron is notched.
- Plastron shows dark radial bursts in juveniles but is often plain in adults.
- This turtle may occur on land or in permanent water. At Cat Tien we often found it in ephemeral pools at the beginning of the rainy season. On Phu Quoc Island we found several individuals in a temple pond.

The Trionychidae of Phu Quoc Island

- Trionychids, or softshells, are hidden-neck turtles without scales on the shell, head, or neck. (The legs do bear a few scales.)
- Necks are characteristically long; heads often bear snorkel-snouts.
- The feet are large and fully webbed.
- These turtles are aquatic, and some can reach immense sizes.
- Many species now threatened.
- Phu Quoc trionychids include:

Amyda cartilaginea



Amyda cartilaginea

Amyda cartilaginea

Southeast Asian Softshell Turtle



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Amyda cartilaginea

Southeast Asian Softshell Turtle



- To 830 mm carapace length.
- Softshell turtles are characterized by their leathery shells, which are flexible at the edges.
- In *A. cartilaginea* the anterior margin of the carapace is studded with a line of rounded tubercles.
- VU – Vietnam's redlist (2007)



Hatchling and egg

Photo of a captive turtle reportedly caught near Mango Bay

- **All listed species in the document are directly observed on the island, specimen collection for photograph and released back to the wild at the end of the survey (may 2008).**
- **Some doubt specimens collected and sent to museum of IEBR and/or the University of Nature Science in Hanoi.**
- **BUT the document does not include information of previous observation and surveys of other authors, therefore the real number of species in the wild may be more than the list.**
- **Please contact WAR at: info@wildlifeatrisk.org , if any.**

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