The *Identification Manual for the Conservation of Turtles in China* is an excellent piece of work, and the photographs are outstanding, enabling all species to be clearly identified. I especially enjoyed the illustration keys, which focused on the identification characteristics. This should be a major help to ensure that invasive alien species of turtles do not become a major problem in China. It would be terrific if we could find a way to reduce the consumption of turtles for at least a few years, to enable them to spring back, and to find a sustainable level of consumption.

—— *Jeff McNeely* [*Chief Scientist, IUCN* (*International Union for Conservation of Nature*)]

Addressing the illegal turtle trade requires accurate identification and knowledge of the species, and this volume does an amazing job of both.

—— *Nicolas Pilcher* [*Co-Chair*, *IUCN Marine Turtle Specialist Group*]

This is a special manual with digital images expounded by principles of taxonomy. Its identification keys provide a fast and user-friendly way for anyone to identify turtle species. It expands our knowledge in the applied science of taxonomy.

—— *Wenqin Zhong* [*Research Fellow of the Chinese Academy of Sciences*]

This manual has many distinctive features which make it very useful for non-professional workers to identify species, so it is guaranteed to be popular.

—— *Ruyong Sun* [*Academician of the Chinese Academy of Sciences*, *Professor of Beijing Normal University*]

The pictures and content of the manual are excellent, with a concise and clear identification key. For law enforcement officials and turtle conservationists, it is a very useful reference book.

—— *Jianfeng Cheng* [*Agriculture*, *Fisheries*, *and Conservation Department of Hong Kong*]

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EDITORIAL COMMITTEE

PREFACE

Chelonian species presence was once great in China, but due to excessive exploitation, especially in the past 30 years, Chinese chelonian populations have been seriously depleted. This has led to the importation of large number of turtles from other countries to satisfy the demand and has affected the chelonian fauna in many countries around the world. This phenomenon has caused serious concerns among international organizations and relevant experts. A number of researchers and conservationists have made comments, offered advice, and even criticism on this issue. Since conservation should not be restricted by national boundaries, we should strive to understand this global problem and work together to rectify it as soon as possible.

In China, there is a shortage of turtle researchers, while conservation and enforcement efforts are inadequate, and public awareness on this issue is minimal. The scientifically unfounded belief that turtles can be used as a medicine to cure a myriad of diseases has been kept in the mainstream by word-of-mouth rumors and commercial promotion. Many people think that eating turtles is normal, which results from the low level of conservation consciousness among the public. Due to the scarcity of basic ecological data, there is no scientific basis for tightening the legislation. Even now, most of the chelonian species in China are not listed as nationally protected animals even though they are endangered. Because of the lack of technical support, effective enforcement of the law becomes impossible. All of these contribute to the widespread illegal turtle trade, and the traders involved remain unpunished. This is the main factor behind the turtle crisis in Asia.

The effective barriers to prevent this illegal turtle trade are the various enforcement measures, including those utilized by the Customs Department. Currently, proper identification of turtle species is the biggest obstacle hindering enforcement. The chief editor of this book, when invited to assist in turtle

identification, or when organizing turtle identification training courses, found that law enforcement offcials always complained about the difficulty in identifying turtle species. They were afraid of making incorrect enforcement decisions and hence tend not to implement the law. This embarrassing situation is due to the lack of a clear and efficient identification manual for distinguishing traded turtle species in China.

Identifying chelonian species requires a great deal of special knowledge. For the officials in Customs, Business Administration, Forestry Administration, and even for some zoologists not trained in chelonian biology, turtle identification is very difficult. Though there are many different turtle identification manuals, most of them do not have an identification key. Many chelonian species are very similar to other species. Without an identification key as a guide, the users are forced to browse through these pictures and as a result, fail to obtain a positive identification. A handful of manuals have identification keys but these tend to be highly technical and utilize internal structures such as the skeletal or buccal characteristics. These features cannot be observed externally, making them difficult for non-professionals to use and therefore impractical for identification purposes.

This turtle identification guide is based on several years of market investigations and literature search, finally settling on THE 126 species and subspecies that are most commonly traded in China. The most unique feature of this book is that only typical and consistent body color and external features are used, and the characteristics in the identification keys are illustrated with color photographs. In order to facilitate the use of this book by law enforcement officials, the distinguishing features are described in detail for every species and subspecies. This allows easy and quick identification by law enforcement officials who are not turtle experts, cross-checking to learn and confirm the identification of the turtle species in question.

In species that show sexual dimorphism, special explanations and photographs are used to describe male and female counterparts. Similar species in which color pattern changes with age, as well as both adult and juvenile turtles are described and supplemented wth photos. To facilitate accurate identification, every species is compared to other similar species. The following features are not included in this book: skeleton and other forms of internal characteristics that require dissection to be visible, traits that are shared by many turtles (such as elliptic carapace, with webs among toes), qualitative features that are difficult to determine (i.e. notch is deep or shallow), and complicated characteristics that are difficult to remember (e.g. the

relative length of different scutes or the difference in length to breadth ratio of the scutes).

This book is designed for quick identification by law enforcement officials, so we have strived to simplify the descriptions as much as possible. The concise descriptions are easy to use, but at the same time it will inevitably result in the omission of some details, causing the over-reliance of a small number of external characteristics. It is possible that mistakes in identification will be made when using this book, but we hope this information enables law enforcement officials to have a basic grasp of identifying most of the traded species, and the knowledge to know when to consult experts for difficult cases. If this goal can be accomplished, it will greatly improve the current situation of law enforcement. For readers who wish to learn more detailed information about chelonian species, we would suggest them to refer to other specialized publications.

This is the first time an identification key that is based only on external morphology and fully illustrated by photos has been compiled. It is a daunting challenge for the authors. Though we have expended significant time and energy, we still feel that this book can be improved in many places. We hope that the publication of this book can attract more dedicated people to join us to save these turtles which are not only important to research, but also have an intrinsic cultural value to the Chinese people to whom they are the symbol of good luck and longevity.

Dr. Shi and the largest living species of tortoise, the Galápagos tortoise (*Chelonoidis nigra*), in the Galápagos lslands, Ecuador.

Hai-Tao Shi
October, 2008

About the Chief Editor

Hai-Tao Shi

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Ph. D, Beijing Normal University, 1995

Research Interest

Dr. Shi works primarily on the ecology, classification, conservation, and captive breeding of tortoises and freshwater turtles. From 1989 to 1992, he studied the ecology of *Agrionemys horsfieldii* in Xinjiang Uygur Autonomous Region, Northwestern China. Since 1995, Dr. Shi has studied the conservation biology of *Sacalia quadriocellata*, *Cuora galbinifrons*, and *Cuora mouhotii* in Hainan Province, (the southernmost province of China) and the classification, conservation, trade, and captive breeding of chelonian species all over China. He has published more than 80 papers about turtles.

Academic Position

Associate Chair of the Society of Chinese Herpetology.
Adjunct Professor and Ph.D Advisor at Chengdu Institute of Biology, Chinese Academy of Sciences.
Associate Chair of Specialist Group of Chinese Herpetology at IUCN/SSC.
Chairman of Key Discipline of Ecology in Hainan Province, China.
Chairman of Masters Program of Ecology and Zoology of Hainan Normal University.
Member of Endangered Species Scientific Commission in P.R. China.
Member of Endangered Species Scientific Commission of Agricultural Administration, People's Republic of China.

Honors and Awards

The Chinese version of this book won the National Award in Excellence for Popular Science.
SOPTOM International Chelonian Conservation Awards.
National Labor "May Day" Medal in China.
State Special Allowance Expert of the People's Republic of China.
National Advanced Teacher of Morality in the People's Republic of China.
National Outstanding Scientific and Technological Researcher.
Hainan Provincial First Prize of Science and Technology Achievement Award (2010).
Hainan Provincial First Prize of Teaching Achievement Award (2009 and 2012).

Teaching

Since 2003, Dr. Shi has advised two Ph. D. and nineteen Master students. In 2005, three of his undergraduate students won second prize at the National "Challenge Cup" Competition for Academic and Scientific Achievements among university students, while four of his undergraduate students won third prize at the same competition. Undergraduate students under his supervision won the 3rd and 4th National Innovation Award of Science and Technology for Youth in 2006 and 2007 respectively.

Social Activity

Dr. Shi established the Hainan Biodiversity Museum and Hainan Ecology and Environmental Education Center. Previously, no such natural history museum existed in Hainan Province, and the establishment of the museum filled the gap in educating students and the public about biodiversity and conservation. The museum has been honored as a National Foundation for Youth Education.

Acknowledgements

We are especially grateful to the Royal Society for the Prevention of Cruelty to Animals, European Association of Zoo & Aquaria (EAZA), Shellshock Campaign, Chester Zoo, World Wide Fund for Nature (WWF), China Wildlife Conservation Association, and Talent Fund of Guangdong Province Academy of Sciences for their funding. We would like to thank the Management Office of Import and Export of Endangered Species of the People's Republic of China, the General Administration of Customs of the People's Republic of China, and Sea Turtles 911 for their support on the project and promotion of this book. We also acknowledge the National Natural Science Foundation of China, the Department of Higher Education of the Ministry of Education of the People's Republic of China, the Department of Wildlife Conservation of the State Forestry Administration of the People's Republic of China, Aquatic Wildlife Conservation Office in Fishery Administration Center of the Ministry of Agriculture of the People's Republic of China, Hainan Science and Technology Department, Hainan Education Department, Hainan Normal University, Kadoorie Farm & Botanic Garden, Jersey Zoo and the International Training Centre of the Durrell Wildlife Conservation Trust, Museum of Vertebrate Zoology-University of California, Berkeley, Chelonian Research Institute, Cleveland Zoo, San Diego Zoo, New York Turtle and Tortoise Society, Turtle Survival Alliance, Turtle Conservation Fund, and the Chelonian Research Foundation for their support on turtle research, academic exchanges, and relevant training for the Chief Editor of this book and his research group. We would also like to give our sincere thanks to academician Er-Mi Zhao, Director Ning Wu, and Research Fellow Yue-Zhao Wang of the Chengdu Institute of Biology of the Chinese Academy of Sciences, Research Fellow Zhi-Gang Jiang of the Institute of Zoology of the Chinese Academy of Sciences, Secretary-General Sheng-Li Zhao and Section Chief Hui-Gang Song of

China Wildlife Conservation Association, Mr. Xiao-Ping Lv of the Management Office of Import and Export of Endangered Species of the People's Republic of China, Mr. Geng-Ping Wu of the General Administration of Customs of the People's Republic of China, for their support in the publication of this book. Finally, we want to thank Richard Hudson, Eric Goode, Maurice Rodrigues, Dennis Uhrig, Douglas Hendrie, Bill McCord, Bryan Stuart, George Zug, Harald Artner, John Chick, Roger Wood, Patrick Baker, Richard Vogt, Robert Murphy, Ross Kiester, William Espenshade, Hugh Quinn, and Chris Clark for their help in editing this book and related academic exchanges. Due to the limited space, we are unable to list all of the contributors and apologize for any omissions.

FOREWORD

- Trade routes of turtles and tortoises summarized during the Workshop on Conservation and Trade of Freshwater Turtles and Tortoises held in Phnom Penh, Cambodia in 1999.
- Turtles and tortoises for sale in the Qingping Market, Guangzhou, Southern China.

"Today, there is no more serious turtle crisis than that which is taking place in Southeast Asia and southern China. Some species are very likely being lost in nature before they can be described. It is unlikely that any of these species can long tolerate accelerated exploitation at a level sufficient to satisfy Chinese markets of the Old and New Worlds. The uncontrolled trade into China is the No. 1 threat to Asian turtles." --- John Behler (Former Chairman of IUCN Specialist Group of Tortoises and Freshwater Turtles)

"While there are substantive issues related to the conservation of terrestrial and freshwater Chelonians, the concerns are none the less so for the related marine turtles. Across the South and East China Seas marine turtles have declined precipitously, driven by a seemingly-insatiable demand for eggs and treasured carapaces-or shells, and shell-made ornaments and jewelry. Turtles are accidentally taken as bycatch in the growing marine finfish and shrimp fisheries, and poachers roam the seas hunting them directly." --- Nicolas Pilcher (Co-Chairman of IUCN Specialist Group of Marine Turtles)

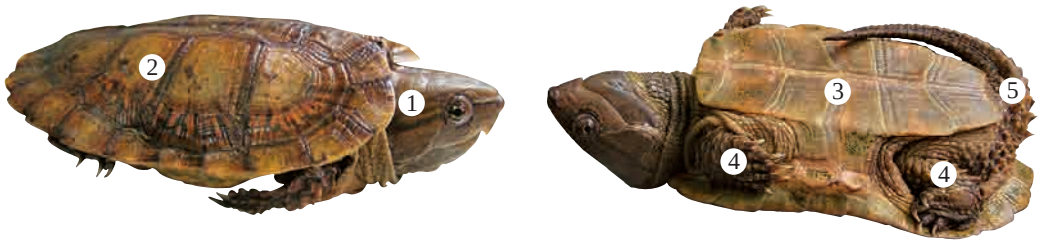
"There are laws to protect these endangered animals in China, but there's no enforcement. It's a cruel world with a lot of wildlife atrocities. If we're aware of a bad situation, we try to turn it around and do something positive with it." --- Richard Hudson (Co-Chairman of the Turtle Survival Alliance)

CONTENTS

Introduction

Hard-shelled Turtles

Major Components of Turtle Morphology



1. Head 2. Carapace (dorsal shell) 3. Plastron (ventral shell) 4. Limbs 5. Tail

Carapace

6. Scutes: The horny surface scales that cover the carapace and plastron.

7. Cervical Scute: The single scute along the anterior midline of the carapace.

8. Vertebral Scutes: The row of scutes along the midline of the carapace, usually 5 in number.

9. Pleural Scutes: The row of scutes on either side of the vertebral scutes, usually 4 on each side.

10: Marginal Scutes: Small scutes bordering the edge of the carapace, usually 12 on each side.

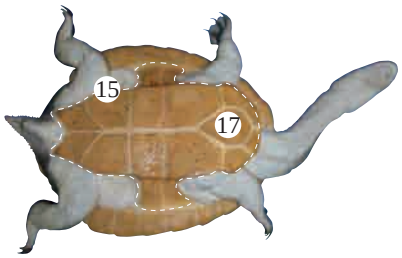
11. Supracaudal Scute(s): A single scute or a pair of scutes at the mid-rear margin of the carapace.

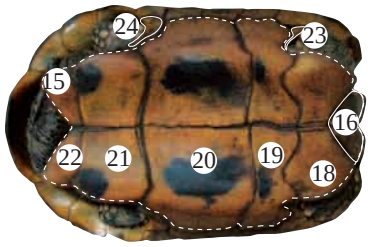
12. Vertebral Keel: The ridge-like process along the length of the vertebral scutes. This ridge is not continuous in some species.

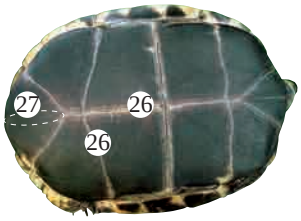
13. Side Keel: The low ridge along the length of pleurals, that can be inconspicuous in some species.

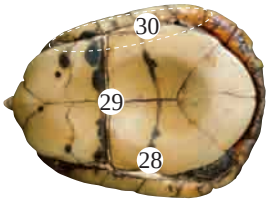
14. Supramarginal: The short series of scutes between the pleural and marginal scutes (e.g. in *Macroclemys temminckii*).

Plastron









15. Mid-plastron : Paired scutes arranged along the midline of the plastron, sometimes with a single intergular scute included.

16. Gular Scutes: The first scute pair of the mid-plastron.

17. Intergular Scute: A single scute located between or behind the two gular scutes, only present in some species.

18. Humeral Scutes: The second scute pair of the mid-plastron.

19. Pectoral Scutes: The third scute pair of mid-plastron.

20. Abdominal Scutes: The fourth scute pair of the mid-plastron.

21. Femoral Scutes: The fifth scute pair of the mid-plastron.

22. Anal Scute(s): The last single or pair scutes of the mid-plastron.

23. Axillary Scute: A small scute behind the forelimb in the axillary region, only present in some species.

24. Inguinal Scute: A small scute in front of the hindlimbs at the front edge of the inguinal notch, only present in some species.

25. Inframarginal Scutes: Several small scutes between the plastron and marginal scutes of the carapace (e.g. in *Platysternon megacephalum* and Cheloniidae).

26. Seam: Line of division between two adjacent scutes, no parenchyma is present.

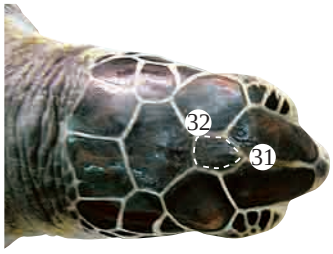
27. Anal Seam: The incomplete line of division along the midline of the single anal scute.

28. Ligament: Unmovable connective tissue between the plastron and carapace or between the plastral scutes, only present in some species.

29. Hinge: Movable connective tissue between plastral and/or carapacial scutes, only present in some species.

30. Bridge: The part of the turtle shell that connects the marginal scutes of the carapace to the mid-plastron.

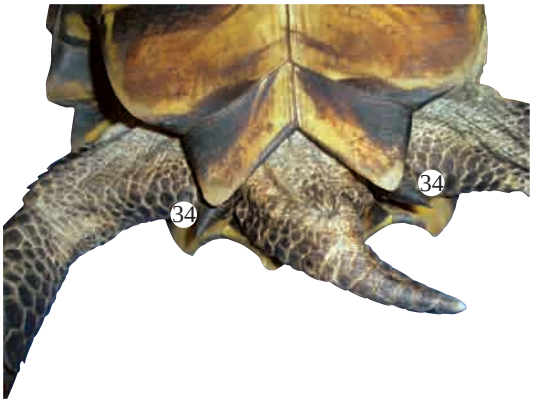
Head and Limbs



31. Prefrontal Scales: One or two pairs of large scales between the nostrils and the frontal scale.

32. Frontal Scale: The single scale found in between the eyes.

33. Tympanum: Visible eardrum seen as a round patch on both sides of the head.



34. Spur-like Scale: The protruding, horny scale that occurs on both sides of the tail or at the base of hindlegs in some tortoises.

35. Paddle-like Limbs: A reduction and fusion of fingers and toes creating a limb that resembles a paddle, as an adaptation for swimming.

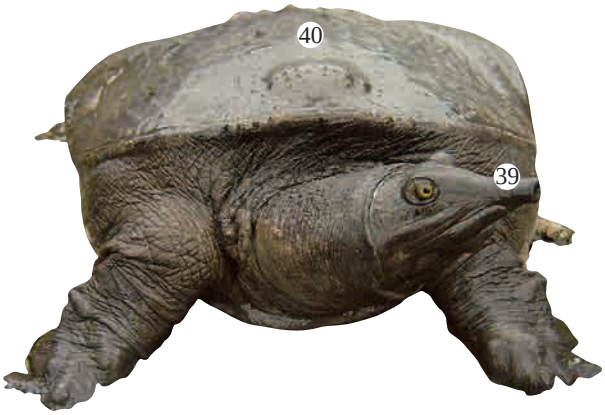
36. Webbing: The skin between the digits, always present in freshwater turtles.

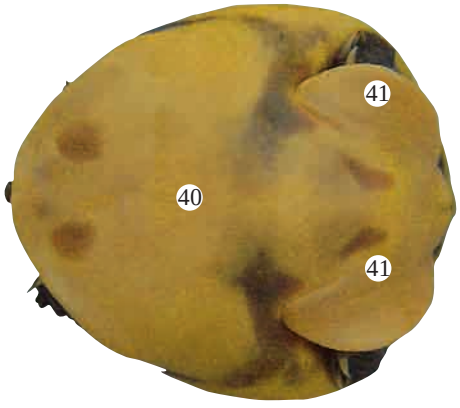
Neck

37. Cryptodira: The group of turtles that retracts its head by pulling the neck straight back into the shell. In most species, the head and neck can be fully retracted into the shell, with the exceptions being species with big heads and low shells. This group includes most extant chelonian species.

38. Pleurodira: The group of turtles that retracts its head by bending the neck laterally into the gap between the carapace and plastron.

Softshell Turtles



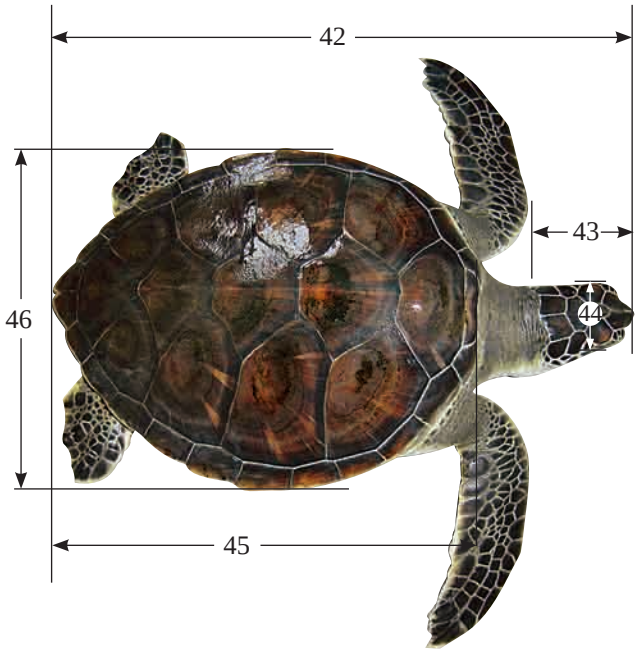


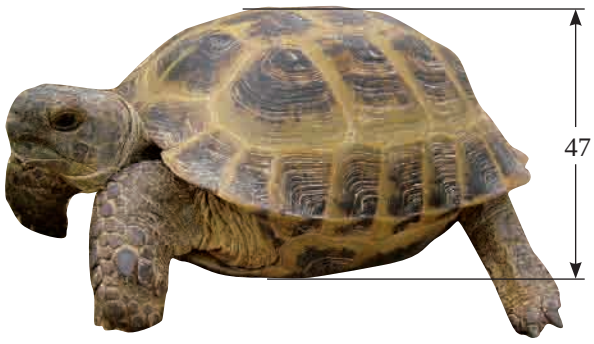
39. Proboscis: Snorkel-like snout.

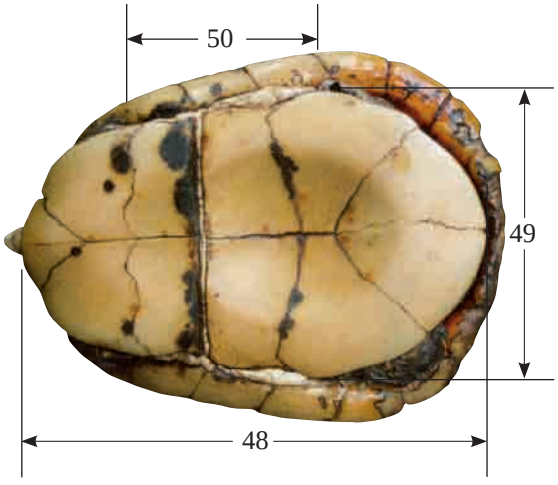
40. Leathery Skin: Skin covering the carapace and plastron of softshell turtles.

41. Flap: The movable, fleshy, cutaneous flaps on the rear portion of the plastron in some softshell turtles.

Standard Measurements of Turtles







Standard Measurements of Turtles

42. Body Length: The distance from the tip of the snout to the cloaca.

43. Head Length: The distance from the tip of the snout to the base of jaw.

44. Head Width: The maximum distance between the two sides of the head.

45. Carapace Length: The maximum, straight-line distance between the front of cervical and the rear of the supracaudal scutes.

46. Carapace Width: The maximum, straight-line distance between the two sides of the carapace.

47. Carapace Height: The maximum height of the shell.

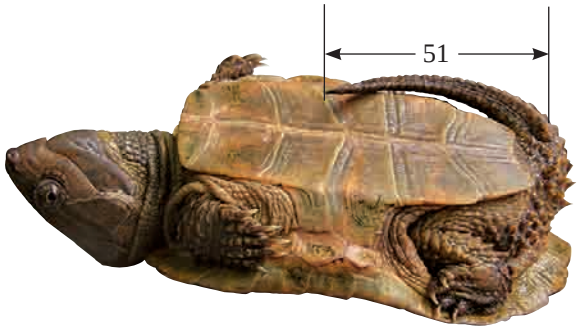
48. Plastron Length: The maximum, straight-line distance between the front and rear edges of the plastron.

49. Plastron Width: The maximum, straight-line distance between the two sides of the plastron.

50. Bridge Length: The maximum, straight-line distance between the front and rear edges of the bridge.

51. Tail Length: The distance from the cloaca to the tip of the tail.

52. Body Weight: The weight of a living individual.



SPECIES IDENTIFICATION KEY

This key is constructed based on the 126 species and subspecies commonly traded in China, so you may need to refer to other references if you cannot find the species you are looking for.

Follow the arrows and choose the box that fits your turtle until you identify the species. Sometimes it may be difficult to select between two boxes as the characteristics are not obvious. In this case, you may need to go to the next series of characteristics to look for distinguishing features. You can even go backward to check if all the characteristics of a particular species fit your turtle and then check the descriptions and photos in the species profile to confirm identity.

Species Identification Key

Shell covered with scutes

Paddle-like limbs

Two pairs of prefrontal scales

One pair of prefrontal scales: *Chelonia mydas* P31

7-8 mid-plastron scutes

Jaw with dark reticulations: *Staurotypus triporcatus* P32

Jaw without reticulations: *Staurotypus salvinii* P33

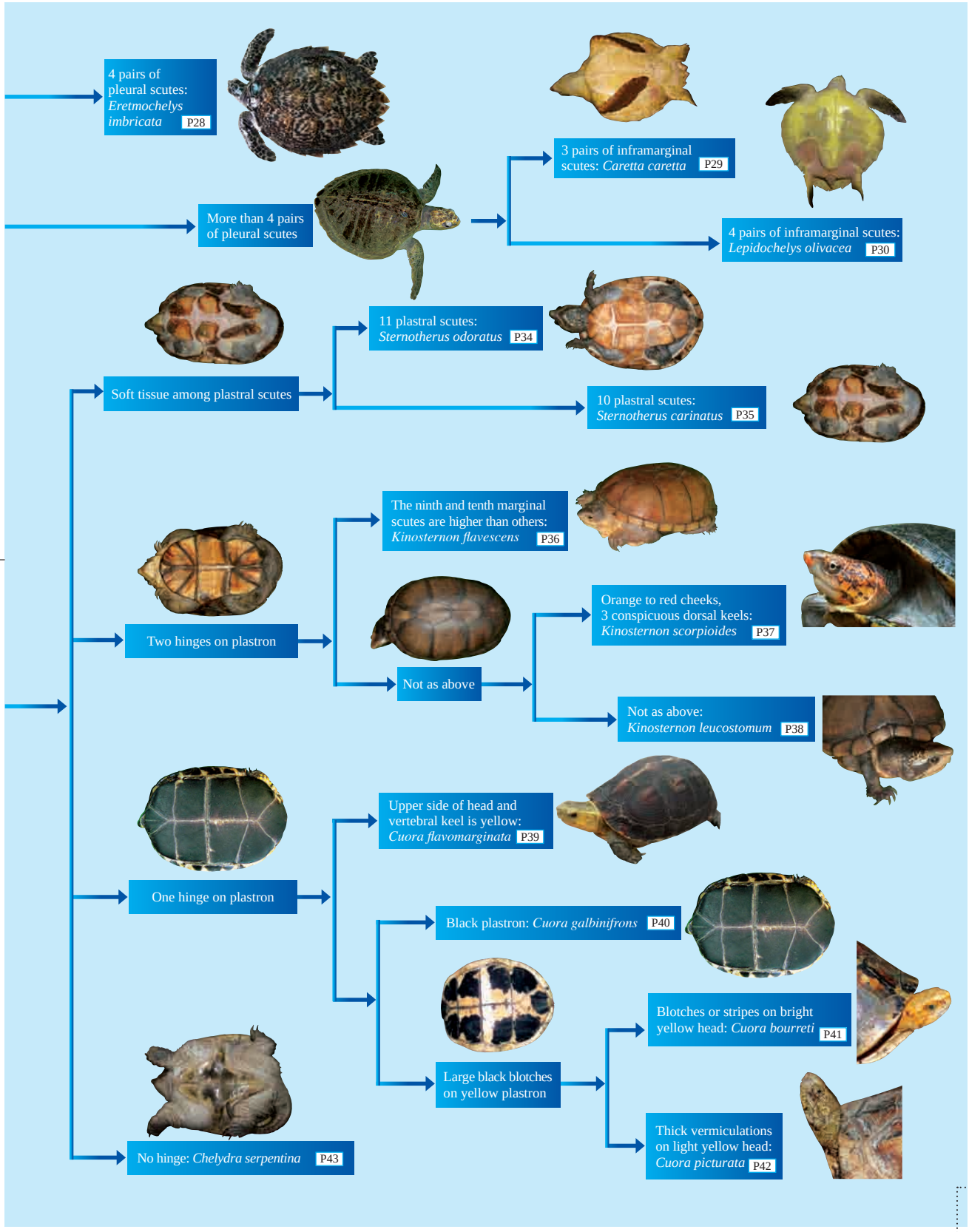
10-11 mid-plastron scutes

12 mid-plastron scutes P12-22

13 mid-plastron scutes P22-23

Not as above

Shell covered by leathery skin P24-25


4 pairs of pleural scutes: *Eretmochelys imbricata* P28
More than 4 pairs of pleural scutes
3 pairs of inframarginal scutes: *Caretta caretta* P29
4 pairs of inframarginal scutes: *Lepidochelys olivacea* P30
Soft tissue among plastral scutes
11 plastral scutes: *Sternotherus odoratus* P34
10 plastral scutes: *Sternotherus carinatus* P35
Two hinges on plastron
The ninth and tenth marginal scutes are higher than others: *Kinosternon flavescens* P36
Not as above
Orange to red cheeks, 3 conspicuous dorsal keels: *Kinosternon scorpioides* P37
Not as above: *Kinosternon leucostomum* P38
One hinge on plastron
Upper side of head and vertebral keel is yellow: *Cuora flavomarginata* P39
Black plastron: *Cuora galbinifrons* P40
Large black blotches on yellow plastron
Blotches or stripes on bright yellow head: *Cuora bourreti* P41
Thick vermiculations on light yellow head: *Cuora picturata* P42
No hinge: *Chelydra serpentina* P43

12 mid-plastron scutes
(Continued from P10)

Anterior lobe of plastron can close completely

Conspicuous anal notch

Hinge on plastron

Some scales on the head: *Pyxis arachnoides* P50

Anal notch is absent

Anterior lobe of plastron cannot close completely

Flat-topped carapace and serrated posterior edge: *Cuora mouhotii* P54

Whitish-yellow plastron without pattern: *Cyclemys atripons* P55

Black radiating lines on the plastron

Anterior lobe of plastron cannot close

More than 6 vertebral scutes: *Notochelys platynota* P59

Yellow spots scattered over the entire body: *Emys orbicularis* P60

No hinge on plastron → P14-22

- Brown carapace with three longitudinal black stripes: *Cuora trifasciata* P44

- Thick black stripes along the seams of plastral scutes: *Cuora pani* P45

- Black plastron with yellow margin: *Cuora mccordi* P46

- Yellow plastron with irregular black markings and lines: *Cuora aurocapitata* P47

- Black plastron with large yellow markings along midline: *Cuora zhoui* P48

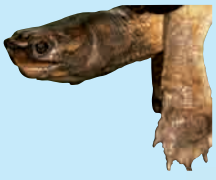
- Three yellow stripes on the sides of head: *Cuora yunnanensis* P49

- Black carapace, three yellow stripes on the sides of head: *Cuora amboinensis* P51

- Radiating streaks on plastral scutes: *Terrapene ornata* P52

- Plastron clear or with light brown blotches: *Terrapene carolina* P53

- No patterns on black-brown head: *Cyclemys oldhamii* P56



- Stripes on the sides of neck seldom spreads to cheeks: *Cyclemys dentata* P57

- Many stripes on the sides of neck spreads to cheeks: *Cyclemys tcheponensis* P58

12 mid-plastron scutes and no hinge on plastron

(Continued from P12)

Large scales on dorsal surface of head

Head covered by one big horny scute: *Platysternon megacephalum* P69

No scales on the dorsal surface of head → P18-22

Carapace with a posterior hinge

Single gular scute extends and exceeds edge of carapace

Elevated knob on each carapace scute: *Macroclemys temminckii* P66

Carapace scutes are concave-shaped

Radiating streaks on carapace → P16-17

Not as above → P16-17

Strong serrations on posterior edge of carapace: *Kinixys homeana* P61

Not as above

Hinge does not extend beyond marginal: *Kinixys natalensis* P62

Hinge nearly reaches vertebral scute: *Kinixys belliana* P63

Plastron reddish: *Chersina angulata* P64

Plastron is not reddish: *Astrochelys yniphora* P65

Several large spur-like scales on each side of tail: *Manouria emys* P67

One large spur-like scale on each side of tail: *Manouria impressa* P68

Radiating streaks on carapace
(Continued from P14)

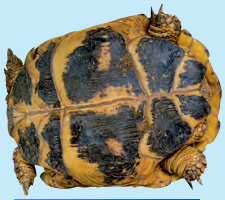
Carapace is only slightly higher than head: *Malacochersus tornieri* P70

Carapace is several times higher than head

Cervical scute absent

With cervical scute

Not as above
(Continued from P14)



Plastron with patterns

Carapace length is similar to width

Two supracaudals: *Testudo hermanni* P75

One supracaudal

Carapace length is more than 1.5 times longer than width

Tail tip without horny sheath

Not as above

Entire body is black: *Dipsochelys dussumieri* P81

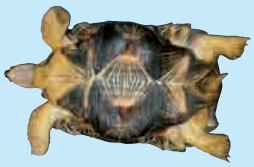
Not as above

Carapace is uniformly yellow or brown: *Geochelone sulcata* P82

- Radiating streaks on plastron: *Geochelone elegans* P71

- Not as above: *Geochelone platynota* P72

- Radiating streaks on plastron: *Astrochelys radiata* P73



- Not as above: *Pyxis planicauda* P74

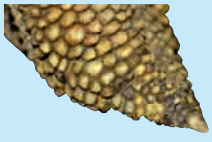
- Tail tip without horny sheath: *Testudo graeca* P76

- Tail tip with horny sheath: *Agrionemys horsfieldii* P77

- Limbs with red scales: *Chelonoidis carbonaria* P78

- Limbs with yellow scales: *Chelonoidis dendiculata* P79

- Tail tip with horny sheath: *Indotestudo elongata* P80



- Carapace is yellow with dark ring-like markings: *Geochelone pardalis* P83

No scales on the dorsal surface of head

(Continued from P14)

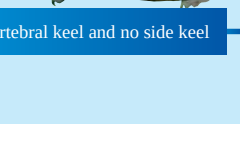
Vertebral scute with protecting spine-like point

Carapace with 3 conspicuous keels

Prominent vertebral keel, 2 non-pronounced side keels → P20

Carapace without keel → P20

Non-pronounced vertebral keel and no side keel → P21-22



Carapace with prominent serrations posteriorly

Without axillary scute: *Geoemyda spengleri* P94

With axillary scute: *Geoemyda japonica* P95

Yellow spots on carapace, head and neck: *Geoclemys hamiltonii* P96

Upper side of head with pale yellow line: *Malayemys subtrijuga* P97

Three bright yellow dorsal keels: *Melanochelys tricarinata* P98

Black plastron with yellow margin: *Melanochelys trijuga* P99

Irregular, short, pale yellow stripes on the side of head and neck: *Mauremys reevesii* P100

Circular rings in the middle of carapace

Carapace seams and vertebral keel are yellow: *Morenia petersi* P84

Not as above: *Morenia ocellata* P85

Three dark, vertical stripes on carapace, a vertical band on the midline of upper head: *Kachuga trivittata* P86

Grey head with reddish-brown patch behind eyes: *Pangshura smithii* P87

Skin with dense black spots or markings: *Malaclemys terrapin* P88

Pronounced knobs on vertebral scutes: *Graptemys nigrinoda* P89

Red patch behind each eye, many yellow stripes on the neck: *Pangshura tecta* P90

L-shaped marking behind each eye: *Graptemys pseudogeographica* P91

Head and neck covered with dense yellow lines

Yellow semi-circular marking behind each eye: *Graptemys kohnii* P92

Rectangular yellow patch behind each eye: *Graptemys ouachitensis* P93

Prominent vertebral keel and non-pronounced side keels

(Continued from P18)

- Thin red stripes on head: *Rhinoclemmys pulcherrima* P101

- More than 10 yellowish-green thin stripes on the sides of head: *Mauremys sinensis* P102

- Less than 8 yellowish-green thin stripes on the sides of head: *Mauremys caspica* P103

- Less than 3 yellow stripes on the sides of head

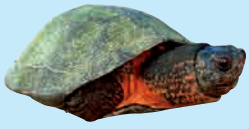
  - One pale line tracing the margin of forehead
    - Head with pale markings on top: *Hardella thurjii* P104

    - Not as above: *Mauremys annamensis* P105

  - No markings on top of head: *Mauremys mutica* P106

- Head with many yellow spots: *Heosemys annandalii* P107

- Irregular, short, red (♂) or white (♀) stripes on the sides of head and neck: *Mauremys nigricans* P108



- Plastron with radiating fine lines

  - Head with many reddish-orange spots: *Heosemys grandis* P109

  - Reddish-brown carapace: *Heosemys spinosa* P110

  - Yellowish-green carapace with scattered black markings: *Heosemys depressa* P111

Carapace without keel

(Continued from P18)

- Yellow spots on body and carapace: *Clemmys guttata* P112

- No markings on black carapace and yellow plastron: *Orlitia borneensis* P113

- Snout upturned, head with large red marking (breeding male) or plain brown (female): *Callagur borneoensis* P114

Non-pronounced vertebral keel and no side keel

(Continued from P19)

'Eye' spots on top of head

Ocelli spots same colored, top of head without black spots: *Sacalia quadriocellata* P115

First and second pair of ocelli spots differ in color, top of head with black spots: *Sacalia bealei* P116

Carapace with colored markings

With red or yellow 'ear' patch

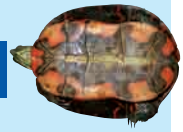
With red ear patch: *Trachemys scripta elegans* P118

With yellow ear patch: *Trachemys scripta scripta* P120

Not as above

Plastron with markings

Red plastron: *Chrysemys picta* P121



Yellow plastron: *Pseudemys concinna* P122

Not as above

Orange plastron: *Pseudemys nelsoni* P123

Yellow plastron: *Pseudemys floridana* P124

Not as above → P22

Not as above

(Continued from P21)

Black carapace

- Posterior edge of carapace is serrated: *Siebenrockiella crassicollis* P125

- Edge of carapace is smooth: *Batagur baska* P126

- Brown carapace, black plastron: *Mauremys japonica* P127

12 mid-plastron scutes

(Continued from P10)

- Gular and intergular scutes are side by side

- Intergular is behind gular: *Chelodina siebenrocki* P138

Hinge on plastron: *Pelusios subniger* P128

Plastron is plain red: *Emydura subglobosa* P129

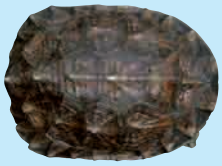
Vertebrals are concave-shaped and top of head is orange or yellow: *Platemys platycephala* P130

Triangular head with long tubular nose: *Chelus fimbriatus* P131

Head with yellow blotches: *Podocnemis unifilis* P132

Head with red blotches: *Podocnemis erythrocephala* P133

Carapacial scutes with conical projection: *Hydromedusa tectifera* P134



Each limb with 5 claws: *Pelomedusa subrufa* P135

Clear, thin, black stripe from snout to neck: *Phrynops hilarii* P136

Head and neck with dark and light stripes: *Phrynops geoffroanus* P137

Shell covered with leathery skin

(Continued from P10)

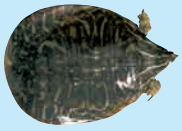
- All limbs are paddle-like: *Dermochelys coriacea* P139

- Only forelimbs are paddle-like: *Carettochelys insculpta* P140

- Two movable skin flaps on the posterior plastron

- Several V-shaped markings from back of head to carapace

  - Not as above



    - Forelimb with 5 to 7 horny plates: *Chitra indica* P144

    - Forelimb with 3 to 4 horny plates: *Chitra vandijki* P146

- Carapace with four black-centred ocelli

- Snout shorter than eye diameter

- One row of spines on the anterior carapacial rim: *Apalone spinifera* P153

- 4-6 rows of warts along the front of carapace: *Apalone ferox* P154

- One row of tubercles on the anterior carapacial rim

- Body small to medium size; thin, black stripes from snout to neck, carapace with rows of tubercles: *Pelodiscus sinensis* P157

Body with yellow markings: *Lissemys punctata* P141

Body without markings: *Lissemys scutata* P142

Carapace with light color margin: *Chitra chitra* P143

Head grayish-green with reticulated pattern: *Aspideretes gangeticus* P147

Orange head with black spots: *Nilssonia formosa* P148

Brown head with yellow or green blotches: *Aspideretes hurum* P150

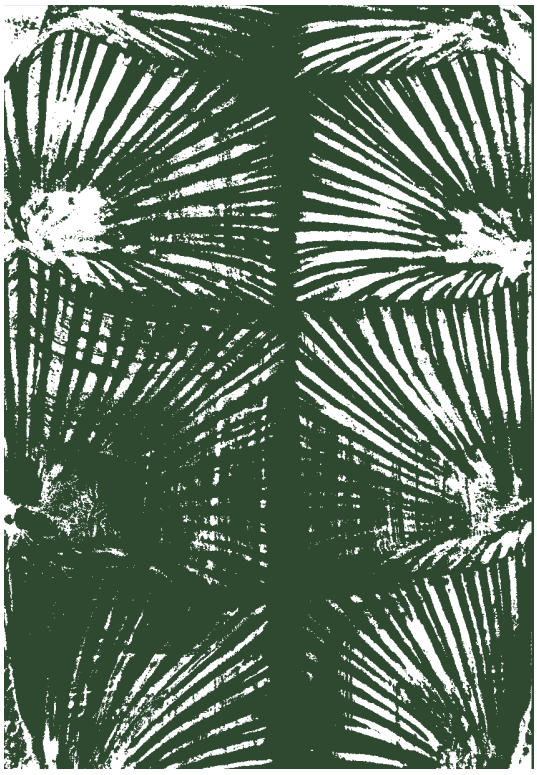
Body with yellow markings (adult) or white spots (juvenile) on the body: *Rafetus swinhoei* P151

Greyish body without markings: *Pelochelys cantorii* P152

Large cluster of tubercles on sides of neck: *Palea steindachneri* P155

Not as above: *Amyda cartilaginea* P156

Species Profiles



Eretmochelys imbricata

Common Name: Hawksbill Sea Turtle

Conservation Status: CITES: Appendix I. Red List: Critically Endangered (2008). China: Class II.

Distinguishing Characteristics

Measurements: Carapace length can reach 100 cm, while body weight can reach 60 kg.

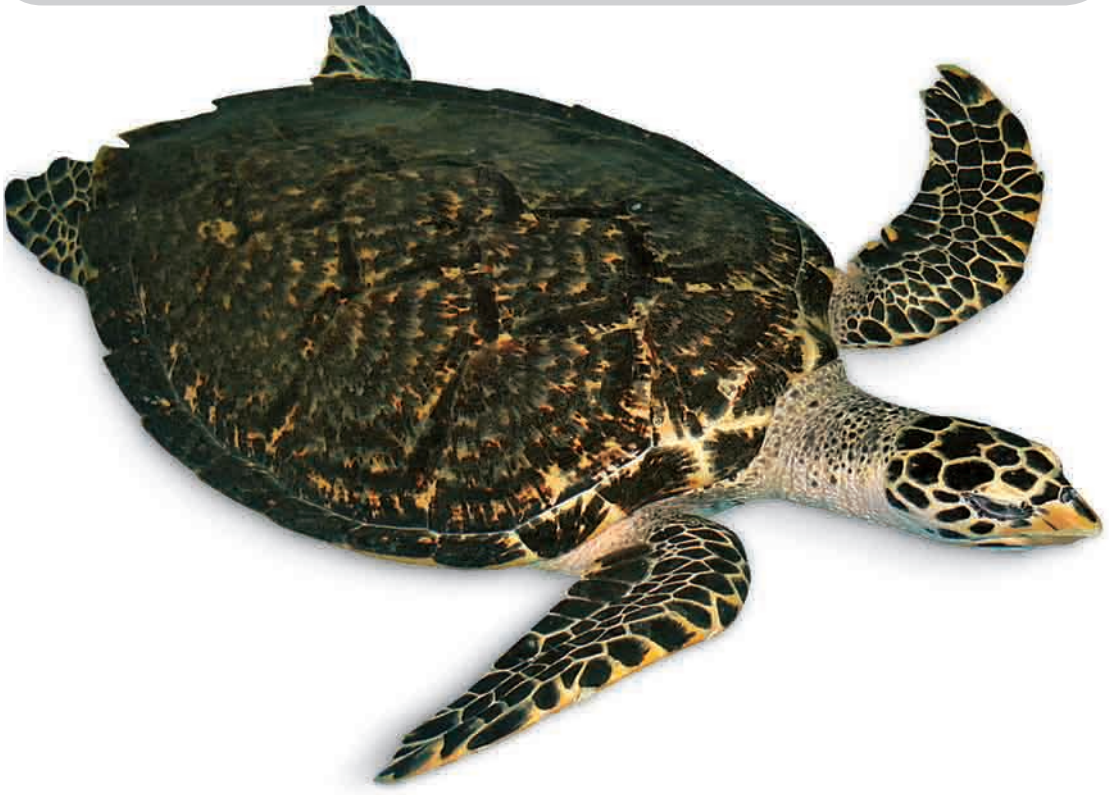
Head and Neck: Two pairs of prefrontal scales on the head, and the upper beak is hooked like an eagle.

Carapace and Plastron: Overlapping carapacial scutes (which will disappear in older individuals) with serrated posterior edges, and the first pleural scute does not touch the cervical scute. Two longitudinal keels on the plastron and four pairs of pore-less inframarginal scutes.

Limbs and Tail: Paddle-like forelimbs with two claws on each limb.

Comparison: Two pairs of prefrontal scales can distinguish *E. imbricata* from *C. mydas*. Thirteen carapacial scutes can distinguish *E. imbricata* from *C. caretta* and *L. olivacea*.

Distribution: Widely distributed in the tropical and subtropical area of the Pacific, Atlantic, and Indian Oceans. In China, occurs in Fujian, Guangdong, Guangxi, Hainan, Jiangsu, Shandong, Taiwan, and Zhejiang Provinces.



Caretta caretta

Common Name: Loggerhead Sea Turtle

Conservation Status: CITES: Appendix I. Red List: Endangered (1996). China: Class II.

Distinguishing Characteristics

Measurements: Carapace length can reach 120 cm, while body weight can reach 250 kg.

Head and Neck: Head is large and brown dorsally and yellow to yellowish-brown ventrally. Two pairs of prefrontal scales are present.

Carapace and Plastron: Carapace is reddish-brown with five pairs of pleural scutes. On the plastron, three pairs of pore-less inframarginal scutes are present.

Limbs and Tail: Paddle-like forelimbs with two claws on each limb.

Comparison: Three pairs of pore-less inframarginal scutes can distinguish *C. caretta* from *L. olivacea.*

Distribution: Widespread in the Pacific, Atlantic, and Indian Oceans. In China, it can be found in seas south of Liaoning Province.

Lepidochelys olivacea

Common Name: Olive Ridley Sea Turtle

Conservation Status: CITES: Appendix I. Red List: Vulnerable (2008). China: Class II.

Distinguishing Characteristics

Measurements: Carapace length does not exceed 80 cm, and body weight can reach 45 kg.

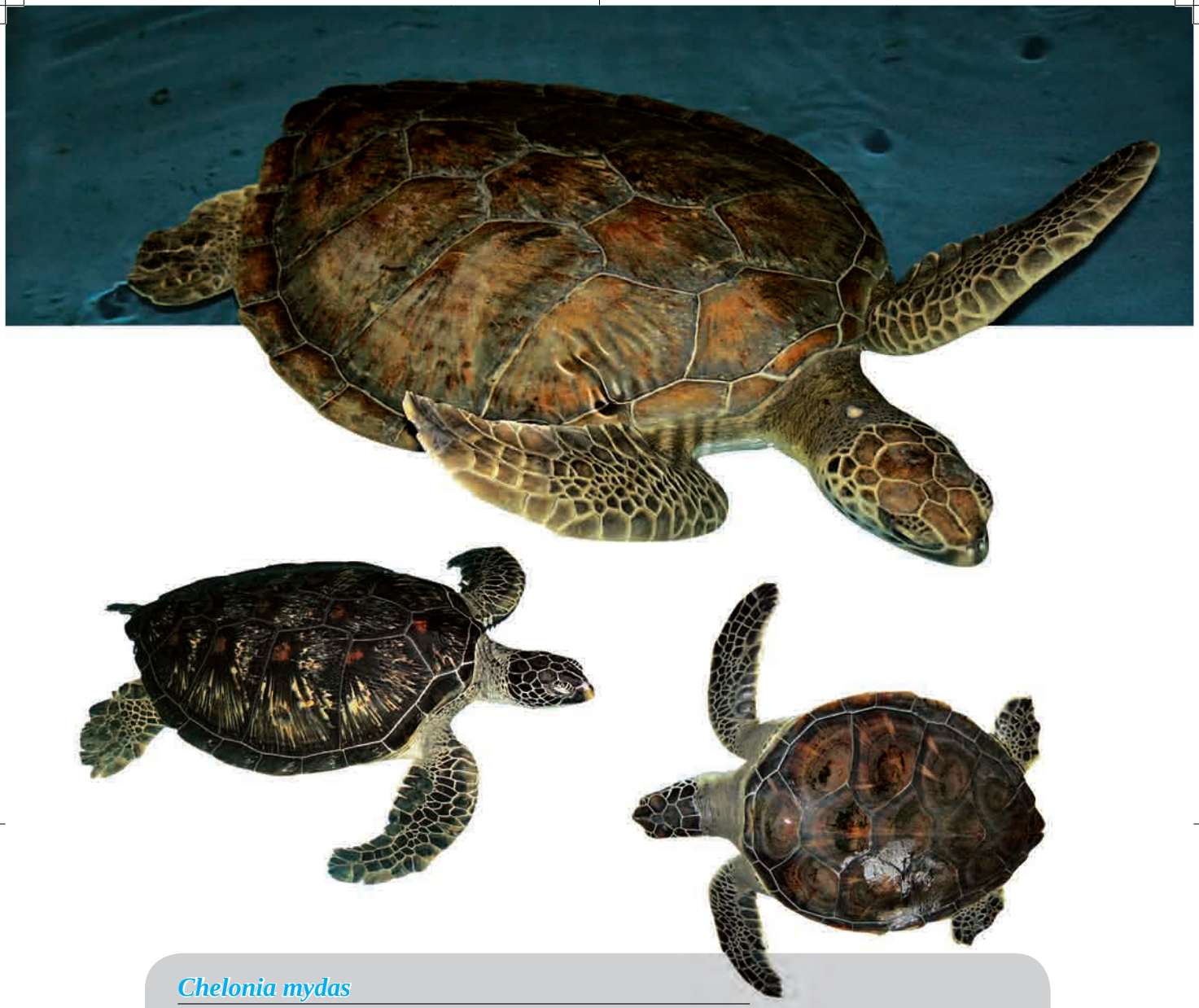
Head and Neck: Head has two pairs of prefrontal scales.

Carapace and Plastron: Carapace is greyish green to olive in color. Posterior edges of the carapace is slightly serrated, with five or more pairs of pleural scutes. Plastron has four pairs of inframarginal scutes, each with one pore.

Limbs and Tail: Paddle-like forelimbs with two claws on each limb.

Comparison: See *E. imbricata, C. caretta, and C. mydas*.

Distribution: Widely distributed in the Pacific, Atlantic, and Indian Oceans. In China, it can be found in seas south of Jiangsu Province.



Chelonia mydas

Common Name: Green Sea Turtle

Conservation Status: CITES: Appendix I. Red List: Endangered (2004). China: Class II.

Distinguishing Characteristics

Measurements: Carapace length can reach 130 cm, while the body weight can reach 160 kg.

Head and Neck: Head has one pair of prefrontal scales.

Carapace and Plastron: Carapace is greyish-green or light brown with radiating streaks in a sunburst pattern (which fades in adults). Plastron is yellowish or cream colored, with two longitudinal keels. All four inframarginal scutes do not have pores.

Limbs and Tail: Forelimbs are paddle-like, with a single claw on each limb.

Comparison: One pair of prefrontal scales and one claw per limb can distinguish *C. mydas* from *E. imbricata*, *C. caretta*, and *L. olivacea*.

Distribution: Widely distributed in the Pacific, Atlantic, and Indian Oceans. In China, found in the seas south of Shandong Province.

Staurotypus triporcatus

Common Name: Mexican Giant Musk Turtle

Conservation Status: CITES: Not Listed. Red List: Lower Risk/Near Threatened (1996).

Distinguishing Characteristics

Measurements: Carapace length reaches 38 cm.

Head and Neck: Head is yellowish with a black worm-like pattern. Jaws have dark reticulations and two chin barbels are present.

Carapace and Plastron: Carapace has three prominent keels. Plastron is dramatically reduced in size with the gular and humeral scutes being absent.

Limbs and Tail: Tail has two rows of conical tubercles.

Comparison: A yellowish head with black worm-like patterns can distinguish this species from *Staurotypus salvinii*.

Distribution: Coastal areas from the eastern coast of Mexico south to Honduras.

Staurotypus salvinii

Common Name: Chiapas Giant Musk Turtle

Conservation Status: CITES: Not Listed. Red List: Lower Risk/ Near Threatened (1996).

Distinguishing Characteristics

Measurements: Carapace length reaches 25 cm.

Head and Neck: Dorsal side of the head is gray with yellow spots, and ventral side of the head is orangish-yellow. A protruding snout with an unmarked yellow beak, and two chin barbels, are present.

Carapace and Plastron: Carapace has three prominent keels. Plastron is dramatically reduced in size with the gular and humeral scutes being absent.

Limbs and Tail: Tail has two rows of conical tubercles.

Comparison: See *Staurotypus triporcatus*.

Distribution: Mexico, Guatemala, and El Salvador.

Sternotherus odoratus

Common Name: Common Musk Turtle

Conservation Status: CITES: Not Listed. Red List: Least Concern (2011).

Distinguishing Characteristics

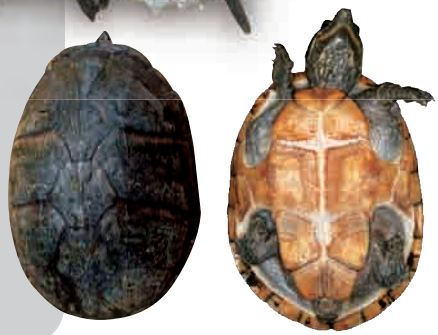
Measurements: Carapace length does not exceed 14 cm.

Head and Neck: Head has two yellowish-white stripes on either side and one or two pairs of barbels on the throat.

Carapace and Plastron: Plastron has eleven total scutes connected by ligaments, including a single gular scute.

Comparison: *S. odoratus* has a gular scute, while *S. carinatus* does not have a gular scute.

Distribution: Canada, USA, and Mexico.



Sternotherus carinatus

Common Name: Razor-Backed Musk Turtle

Conservation Status: CITES: Not Listed. Red List: Least Concern (2011).

Distinguishing Characteristics

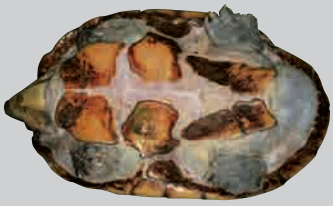
Measurements: Carapace length does not exceed 16 cm.

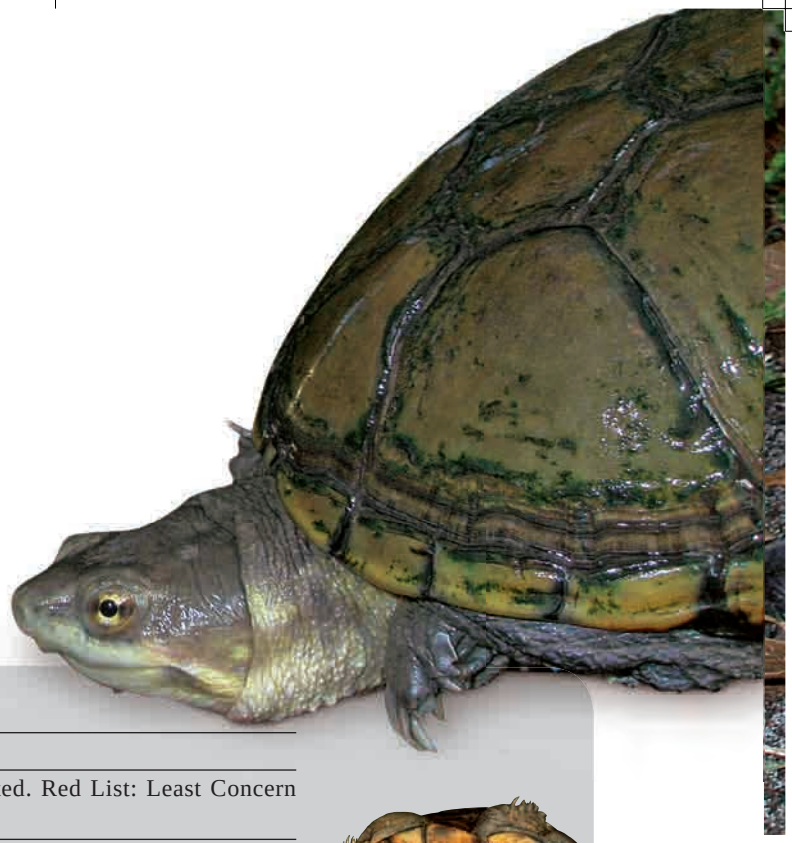
Head and Neck: Head and neck are covered with black spots and a pair of barbels is present on the throat.

Carapace and Plastron: Plastron has ten total scutes (gular scute is absent) connected by ligaments.

Comparison: See *Sternotherus odoratus*.

Distribution: USA.





Kinosternon flavescens

Common Name: Yellow Mud Turtle

Conservation Status: CITES: Not Listed. Red List: Least Concern (2011).

Distinguishing Characteristics

Measurements: Carapace length does not exceed 16.5 cm.

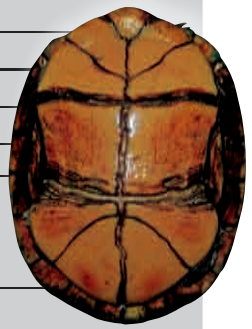
Head and Neck: Head is yellow to grey, with black spots in some individuals. Two pairs of barbels are present on the throat.

Carapace and Plastron: Carapace is yellow to brown in color and smooth, with the ninth and tenth marginal scutes elevated. Plastron has eleven total scutes (gular scute is present) and two hinges.

Comparison: Compared with *Kinosternon leucostomus*, the ninth and tenth marginals are elevated in this species.

Distribution: Central and western USA and Mexico.

Kinosternon scorpioides



Common Name: Scorpion Mud Turtle

Conservation Status: CITES: Not Listed. Red List: Not Listed.

Distinguishing Characteristics

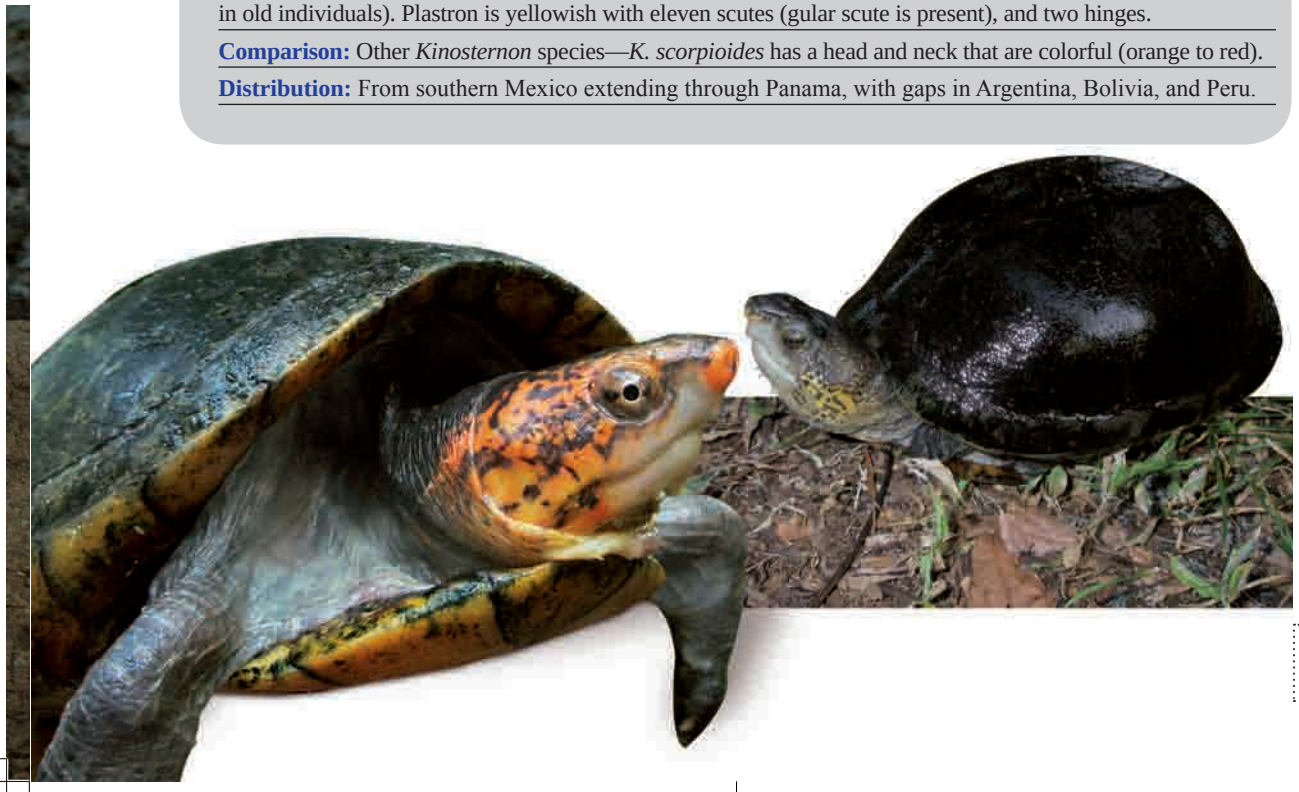
Measurements: Carapace length is usually about 15 cm, but can reach 27 cm.

Head and Neck: Sides of the head and neck are orange to red with black spots. The snout protrudes and the upper jaw is slightly hooked. Three to four pairs of barbels are present on the throat.

Carapace and Plastron: Carapace is brown to black with three keels (not obvious in old individuals). Plastron is yellowish with eleven scutes (gular scute is present), and two hinges.

Comparison: Other *Kinosternon* species—*K. scorpioides* has a head and neck that are colorful (orange to red).

Distribution: From southern Mexico extending through Panama, with gaps in Argentina, Bolivia, and Peru.



Kinosternon leucostomum

Common Name: White-lipped Mud Turtle

Conservation Status: CITES: Not listed. Red List: Not listed.

Distinguishing Characteristics

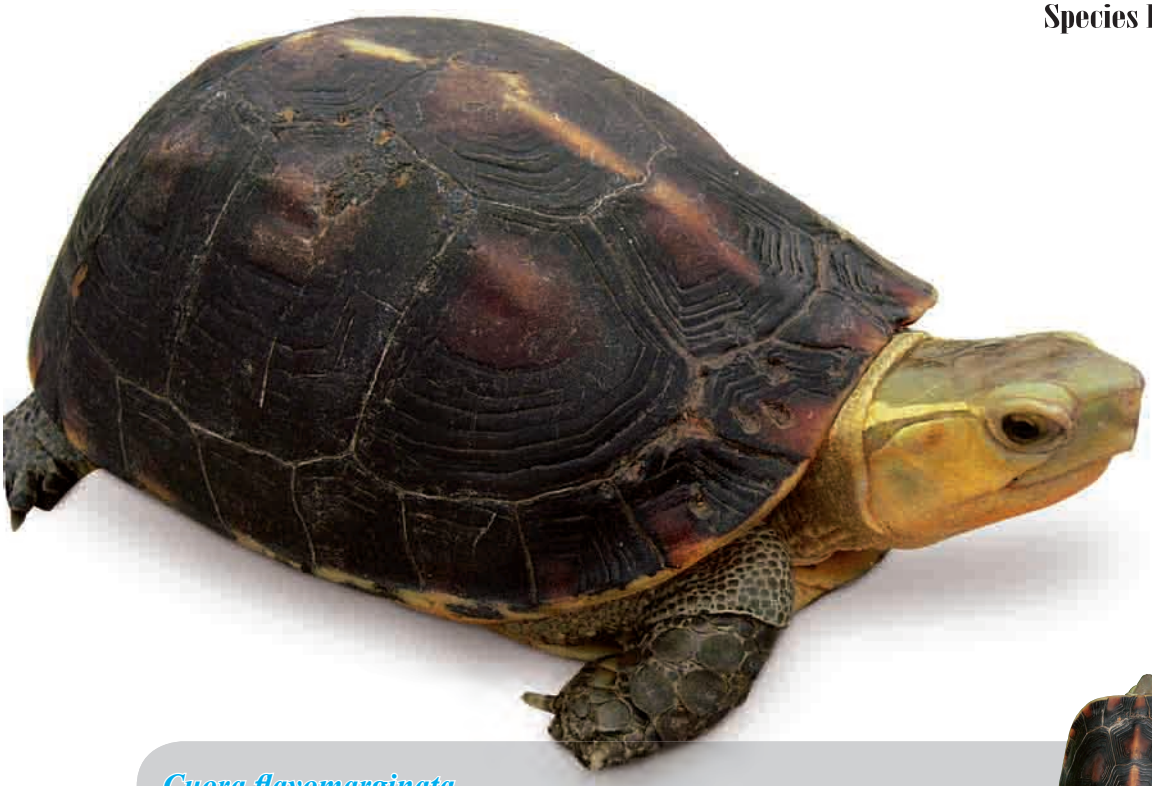
Measurements: The carapace length does not exceed 17.5 cm.

Head and Neck: Dorsal side of head is dark brown, with a cream-colored beak. Two pairs of barbels are present on the throat.

Carapace and Plastron: Carapace is brownish-yellow and smooth. Plastron is yellowish with eleven total scutes (gular scute present), and two hinges.

Comparison: See *Kinosternon flavescens*.

Distribution: Mexico, Nicaragua, Colombia, Costa Rica, Ecuador, and Peru.



Cuora flavomarginata

Common Name: Yellow-margined Box Turtle

Conservation Status: CITES: Appendix II. Red List: Endangered (2000). China: Three Merits.

Distinguishing Characteristics

Measurements: Carapace length reaches 20 cm.

Head and Neck: A bright yellow stripe on each side of the head is present behind the eyes.

Carapace and Plastron: Carapace is brown to black with a yellow vertebral stripe. Plastron is dark purplish-brown with a yellow margin.

Comparison: A yellow stripe behind each eye can distinguish this species from the other *Cuora* species.

Distribution: China (Henan, Jiangsu, Anhui, Hubei, Zhejiang, Hunan, Fujian, Taiwan Provinces) and Japan.

Cuora galbinifrons

Common Name: Indochinese Box Turtle

Conservation Status: CITES: Appendix II. Red List: Critically Endangered (2000). China: Three Merits.

Distinguishing Characteristics

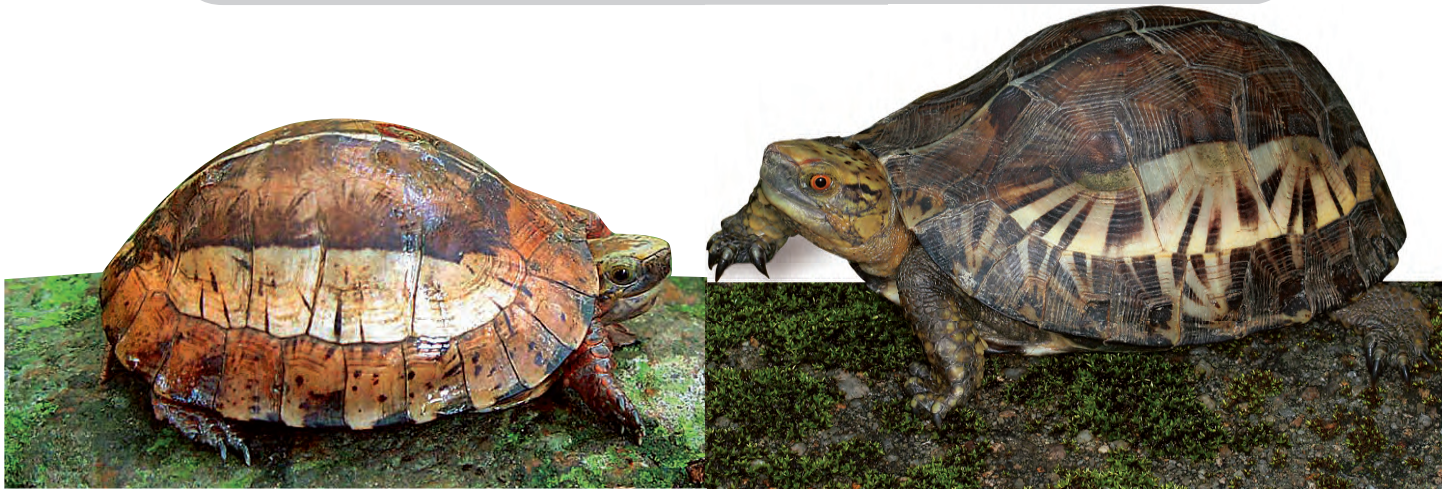
Measurements: Carapace length reaches 20 cm.

Head and Neck: Head is yellow to brown with irregular spots. The upper jaw is dark, contrasting with the light-colored lower jaw.

Carapace and Plastron: On the carapace, the vertebral stripe is yellowish-brown and bordered by two dark longitudinal bands, which in turn are bordered by light-colored regions that become dark at the marginal scutes. The plastron is entirely black or black with a few yellow patches.

Comparison: In contrast with *Cuora bourreti* and *Cuora picturata*, this species has an entirely black plastron or black with a few yellow patches.

Distribution: China (possibly in Hainan, Guangxi, Guangdong, and/or Yunnan Provinces) and Vietnam.



Cuora bourreti

Common Name: Bourret's Box Turtle

Conservation Status: CITES: Appendix II. Red List: Critically Endangered (2000).

Distinguishing Characteristics

Measurements: Carapace length reaches 20 cm.

Head and Neck: Head is yellowish-orange with patches and lines.

Carapace and Plastron: Carapace has a brownish-yellow vertebral stripe, bordered by a dark longitudinal band on either side, which are in turn bordered by light-colored regions that become dark at the marginal scutes. Plastron is yellowish-white with a large black mark on every scute.

Comparison: In contrast with *Cuora picturata*, the carapace is longer and elliptical, and the markings on the head are brighter in this species.

Distribution: Central Vietnam.

Cuora picturata

Common Name: Southern Vietnamese Box Turtle

Conservation Status: CITES: Appendix II. Red List: Critically Endangered (2000).

Distinguishing Characteristics

Measurements: Carapace length is about 15 cm.

Head and Neck: Head is pale yellow with dense irregular spots and light-colored lines.

Carapace and Plastron: Carapace has a brownish-yellow vertebral stripe bordered by dark longitudinal bands on each side, which are in turn bordered by light-colored regions that become dark at the marginal scutes. Plastron is yellowish-white, with a big black blotch on every scute.

Comparison: Compared with *Cuora galbimifront*, the plastron is mainly yellow in this species. Compared with *Cuora bourret*, the carapace is shorter and nearly circular.

Distribution: Southern Vietnam.

Chelydra serpentina

Common Name: Common Snapping Turtle

Conservation Status: CITES: Not Listed. Red List: Least Concern.

Distinguishing Characteristics

Measurements: Carapace length reaches 50 cm.

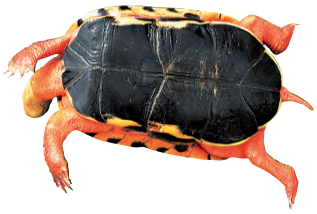
Head and Neck: Head cannot retract into the shell and upper beak is slightly hooked.

Carapace and Plastron: Three knobby keels on the carapace (which become inconspicuous in older individuals). Plastron is small, cross-shaped, and has several large inframarginals.

Limbs and Tail: A series of horny scales at the top of the tail. Many spiny tubercles at the base of the limbs and tail.

Comparison: In contrast with *Macroclemys temminckii*, this species has no axillary scute.

Distribution: Southern Canada, Eastern USA, Southern Mexico to Colombia and Ecuador.



Cuora trifasciata

Common Name: Chinese Three-striped Box Turtle

Conservation Status: CITES: Appendix II. Red List: Critically Endangered (2000). China: Class II.

Distinguishing Characteristics

Measurements: Carapace length is usually about 20 cm, but can reach 30 cm.

Head and Neck: The forehead, throat, cheeks, and beak are all yellow. Two black stripes run backwards on the head from the nostrils through the eyes. A thick black stripe is present on each side of the lower jaw.

Carapace and Plastron: Carapace has three prominent keels with black stripes on them. Plastron is black with a partial border of yellow.

Limbs and Tail: Limbs and tail are orangish-red or pink.

Comparison: Other *Cuora* species—*C. trifasciata* is the only species that has three keels with black stripes on the carapace.

Distribution: China (Fujian, Guangxi, Guangdong, Hong Kong, Macao, and Hainan Provinces).

Old individual

Cuora pani

Common Name: Pan's Box Turtle

Conservation Status: CITES: Appendix II. Red List: Critically Endangered (2000). China: Three Merits.

Distinguishing Characteristics

Measurements: Carapace length is about 18 cm in females and less than 12 cm in males.

Head and Neck: Head is yellowish-green with three dark, thin longitudinal stripes on each side.

Carapace and Plastron: Carapace is brownish-yellow and has a prominent vertebral keel. Plastron is yellow with large connected, black blotches along the seams. In older individuals, plastron is entirely black.

Limbs and Tail: Limbs and tail are olive or yellowish-green dorsally and yellowish-white ventrally.

Comparison: The plastral pattern can distinguish this species from *Cuora aurocapitata*.

Distribution: China (Shanxi, Hubei, and Sichuan Provinces).

Cuora mccordi

Common Name: McCord's Box Turtle

Conservation Status: CITES: Appendix II. Red List: Critically Endangered (2000). China: Three Merits.

Distinguishing Characteristics

Measurements: Carapace length is about 14 cm.

Head and Neck: Head is yellow with two thin longitudinal, brown stripes behind each eye.

Carapace and Plastron: Carapace is reddish-brown and dome-shaped, with a distinct vertebral keel. Plastron is nearly all black with yellowish-white margins.

Limbs and Tail: Limbs and tail are reddish-brown or pink.

Comparison: The plastral markings of *C. mccordi* can distinguish it from other *Cuora* species.

Distribution: China (Guangxi Province).

Cuora aurocapitata

Common Name: Golden-headed Box Turtle

Conservation Status: CITES: Appendix II. Red List: Critically Endangered (2000). China: Three Merits.

Distinguishing Characteristics

Measurements: Carapace length is about 15 cm.

Head and Neck: Head is golden colored with three thin, faint black stripes on each side.

Carapace and Plastron: Carapace is dark brown or reddish-brown with a distinct vertebral keel. Plastron is yellow with large irregular, radiating markings.

Limbs and Tail: Limbs and tail are olive or dark gray on the dorsal side, and yellow on the ventral side.

Comparison: The large irregular, radiating black markings on the plastron can distinguish this species from *Cuora pani*.

Distribution: China (Anhui Province).

Cuora zhoui

Common Name: Zhou's Box Turtle

Conservation Status: CITES: Appendix II. Red List: Critically Endangered (2000). China: Three Merits.

Distinguishing Characteristics

Measurements: The carapace length can reach up to 16.5 cm.

Head and Neck: Head is brownish-grey on the dorsal side, and yellow on the ventral side.

Carapace and Plastron: Carapace is smooth with a non-pronounced vertebral keel. Plastron is black with two or three large yellow blotches in the center.

Comparison: Other *Cuora* species—the two or three large yellow blotches in the center of the plastron of *C. zhoui* can distinguish this species from other *Cuora* species.

Distribution: China (Guangxi Province), exact locality is unknown.

Cuora yunnanensis

Common Name: Yunnan Box Turtle

Conservation Status: CITES: Appendix II. Red List: Critically Endangered (2010). China: Class II.

Distinguishing Characteristics

Measurements: Carapace length reaches about 18 cm.

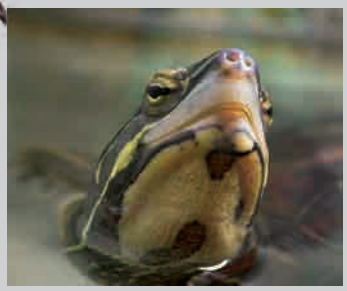
Head and Neck: Head is olive colored and has three bright yellow stripes on each side, running along the snout and behind the eyes. The first and third stripes on the head extend to the base of the neck. Beak is yellowish-white and the throat has bright yellow markings, or predominantly yellow with irregular dark blotches.

Carapace and Plastron: Carapace is brown with a distinct vertebral keel. Plastron is yellowish-white with large faint markings.

Limbs and Tail: Both limbs and tail have bright yellow stripes.

Comparison: Other *Cuora* species—the three bright yellow stripes on the sides of the head and plastral markings, can distinguish *C. yunnanaensis* from other *Cuora* species.

Distribution: China (Yunnan Province).



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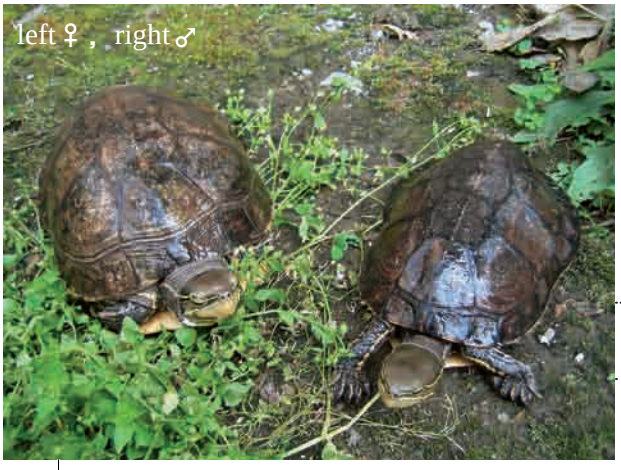


Pyxis arachnoides

Common Name: Malagasy Spider Tortoise

Conservation Status: CITES: Appendix I. Red List: Critically Endangered (2008).

Distinguishing Characteristics

Measurements: Carapace length can reach 15 cm.

Head and Neck: Head has a single frontal scale and jaws have serrated edges.

Carapace and Plastron: Carapace is yellowish-brown or black, with spider-web patterns. A hinge between the humeral and pectoral scutes is present, allowing the front lobe of the plastron to close against the carapace.

Limbs and Tail: Five claws are present on all limbs. Spur-like scales are found on the heels, blunt tubercles on the thighs, and spine-like scales at the base of the tail.

Comparison: *Pyxis planicauda*— *P. arachnoides* has a hinge on the plastron (hinge is not present in the northwestern subspecies *P. a. brygooi*), while *P. planicauda* does not.

Distribution: Southwest Madagascar.

Cuora amboinensis

Common Name: Malayan Box Turtle

Conservation Status: CITES: Appendix II. Red List: Vulnerable (2000). China: Three Merits.

Distinguishing Characteristics

Measurements: Carapace length is about 20 cm.

Head and Neck: Head has three bright yellow stripes along the sides, extending from the snout to the neck.

Carapace and Plastron: Carapace is dome-shaped and dark brown, with a prominent vertebral keel. Plastron is yellowish-white with a large black blotch on each scute.

Comparison: Other *Cuora* species—the stripes on the head and plastron markings, can distinguish *C. amboinensis* from other *Cuora* species.

Distribution: China (possibly in Guangxi and Yunnan Provinces), the coastal area of Bangladesh Bay, and Southeast Asia.

Terrapene ornata

Common Name: Ornate Box Turtle

Conservation Status: CITES: Appendix II. Red List: Near Threatened (2011).

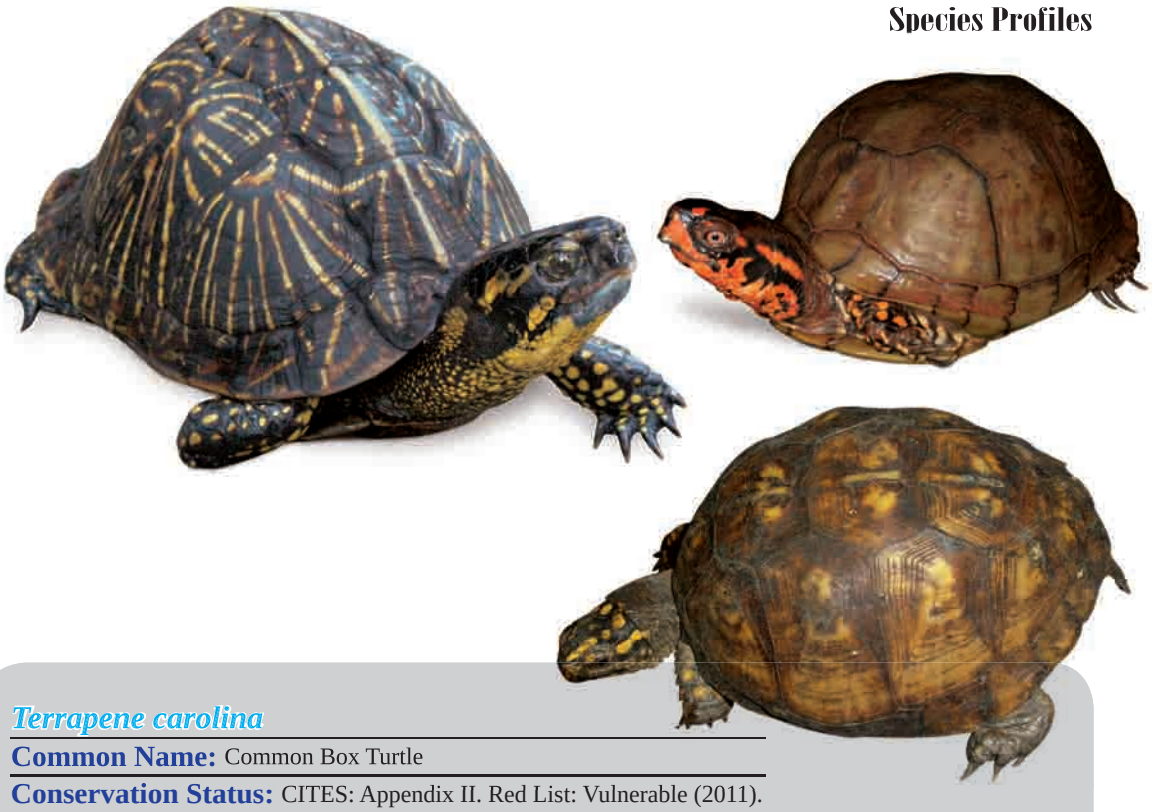
Distinguishing Characteristics

Measurements: Carapace length is about 14 cm.

Carapace and Plastron: Carapace is covered with yellow radiating lines. Plastron is brownish-yellow with thick black radiating lines, and the axillary scutes are absent.

Comparison: See *Terrapene carolina*.

Distribution: Southern and western USA and northern Mexico.



Terrapene carolina

Common Name: Common Box Turtle

Conservation Status: CITES: Appendix II. Red List: Vulnerable (2011).

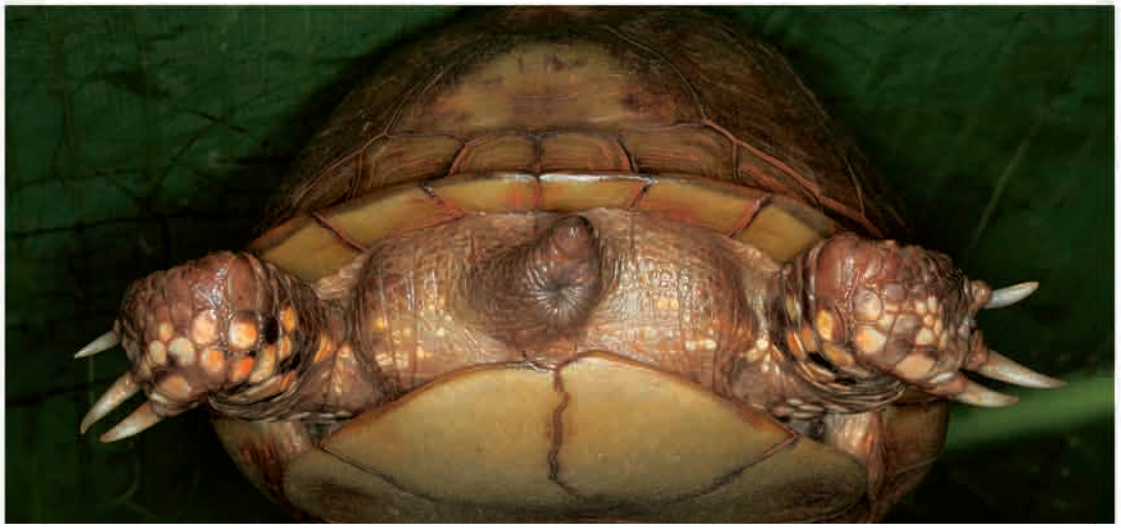
Distinguishing Characteristics

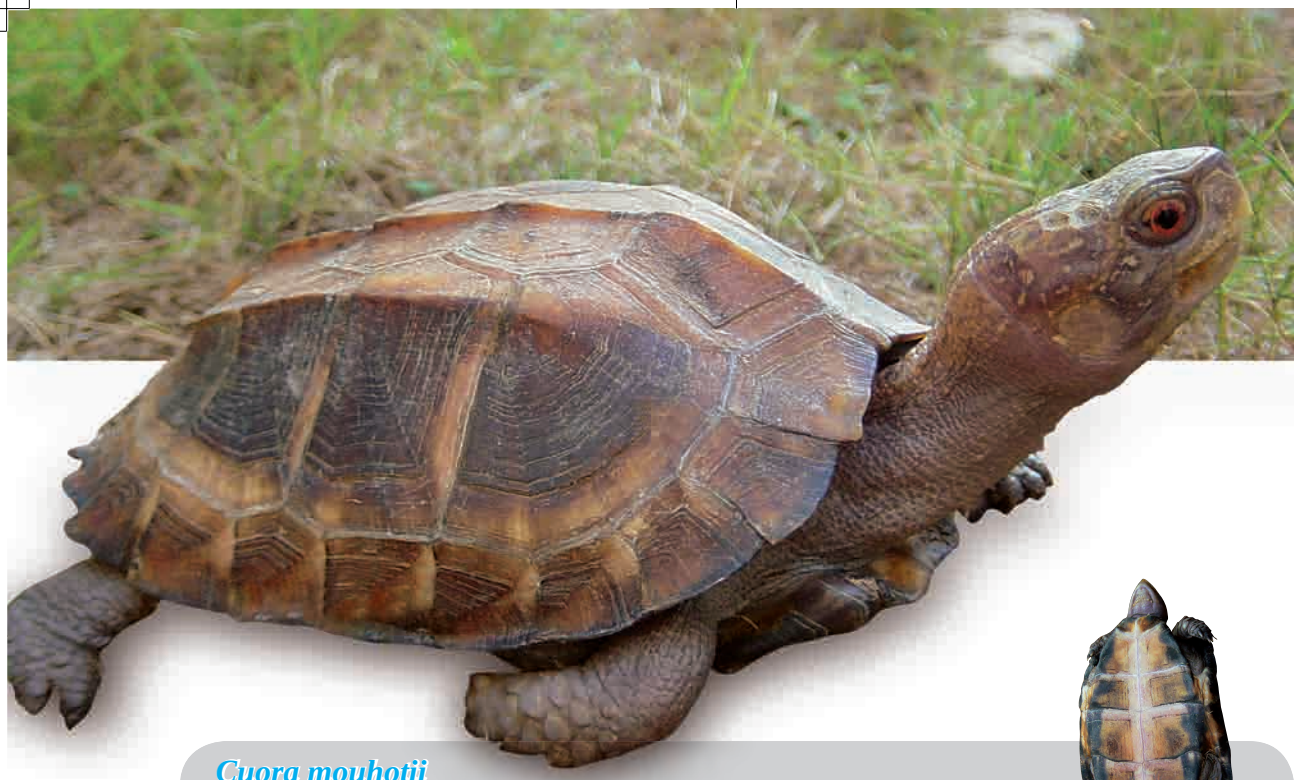
Measurements: Carapace length reaches about 20 cm.

Carapace and Plastron: Carapace has irregular yellow spots and lines in most subspecies (*T. c. triunguis* is usually plain). Plastron is yellowish without markings and has a hinge. Axillary scutes are present and the anal scute is not notched.

Comparison: *Terrapene ornata—T. carolina* has axillary scutes, while *T. ornata* does not.

Distribution: USA and Mexico.





Cuora mouhotii

Common Name: Keeled Box Turtle

Conservation Status: CITES: Appendix II. Red List: Endangered (2000). China: Three Merits.

Distinguishing Characteristics

Measurements: Carapace length reaches 19 cm.

Head and Neck: Head and neck have irregular markings.

Carapace and Plastron: Carapace is relatively flat with serrated posterior edges and three prominent keels. Plastron is hinged, but the shell can only partially close.

Comparison: Other *Cuora* species—the flat carapace and hinged plastron can distinguish *C. mouhotii* from other *Cuora* species.

Distribution: China (Guangxi, Guangdong, and Hainan Provinces), Vietnam, Thailand, Myanmar, and India.

Cyclemys atripons

Common Name: White-bellied Leaf Turtle

Conservation Status: CITES: Not Listed. Red List: Not Listed.

Distinguishing Characteristics

Measurements: Carapace length reaches about 22 cm.

Head and Neck: Top of the head is brown with black spots. Head and neck have two to three stripes on each side.

Carapace and Plastron: Carapace has serrated posterior edges and radiating black lines on each scute. Plastron is yellowish and nearly unmarked.

Comparison: A nearly unmarked plastron can distinguish this species from other *Cyclemys* species.

Distribution: Thailand, Cambodia, and Vietnam.

Cyclemys oldhami

Common Name: Oldham's Leaf Turtle

Conservation Status: CITES: Not Listed. Red List: Not Listed.

Distinguishing Characteristics

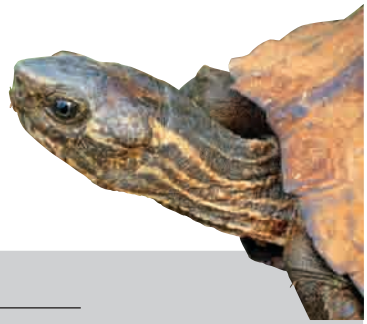
Measurements: Carapace length is about 24 cm.

Head and Neck: Head is brown to black with no markings. Throat is also black.

Carapace and Plastron: Carapace is brown with a distinct vertebral keel and non-pronounced side keels. Plastron is covered with black radiating lines.

Comparison: Other *Cyclemys* species—an unmarked, dark head distinguishes *C. oldhami* from other *Cyclemys* species. The four species of *Cyclemys* covered in this book are very similar, and their classification is still being investigated.

Distribution: India, Nepal, Myanmar, Thailand, Malaysia, and Indonesia.



Cyclemys dentata

Common Name: Asian Leaf Turtle

Conservation Status: CITES: Not Listed. Red List: Lower Risk/Near Threatened (2000).

Distinguishing Characteristics

Measurements: Carapace length is about 13 cm.

Head and Neck: Top of the head is reddish-brown, while the sides of the head and throat are dull brown. Several stripes are present on the sides of the neck, but seldom extends to the cheeks.

Carapace and Plastron: Carapace has a prominent vertebral keel and serrated posterior edges. Plastron is densely covered with black radiating lines (not obvious in older individuals).

Comparison: Stripes on the sides of neck, which seldom extends to the cheeks, can distinguish this species from *Cyclemys tcheponensis.*

Distribution: Thailand, Malaysia, Indonesia, Philippines, and possibly in China.

Juvenile

Juvenile

Cyclemys tcheponensis

Common Name: Stripe-necked Leaf Turtle

Conservation Status: CITES: Not Listed. Red List: Not Listed.

Distinguishing Characteristics

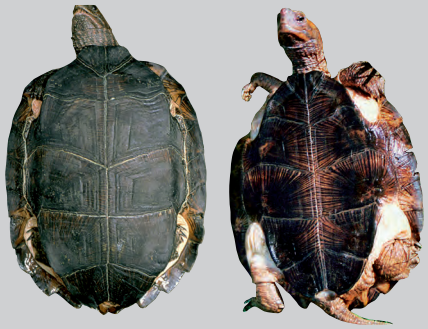
Measurements: Carapace length is about 24 cm.

Head and Neck: Head and neck are brown or reddish-brown with several alternating dark and light colored stripes on the sides.

Carapace and Plastron: Carapace has a prominent vertebral keel, with radiating black lines on scutes. The plastron has dense black lines in a radiating pattern.

Comparison: See *Cyclemys dentata*.

Distribution: Thailand, Vietnam, and Laos.



Notochelys platynota

Common Name: Malayan Flat-shelled Turtle

Conservation Status: CITES: Appendix II. Red List: Vulnerable (2000).

Distinguishing Characteristics

Measurements: Carapace length reaches 32 cm.

Head and Neck: A V-shaped yellow mark on each side of the head, which extends to the base of the neck.

Carapace and Plastron: Carapace has faint spots or faint radiating lines, with six to seven vertebral scutes. Plastron has a weak hinge.

Comparison: Six to seven vertebral scutes can distinguish this species from other similar species.

Distribution: Myanmar, Thailand, Cambodia, Malaysia, Indonesia, Vietnam, and Singapore.

Emys orbicularis

Common Name: European Pond Turtle

Conservation Status: CITES: Not Listed. Red List: Lower Risk/ Near Threatened (1996).

Distinguishing Characteristics

Measurements: Carapace length does not exceed 21 cm.

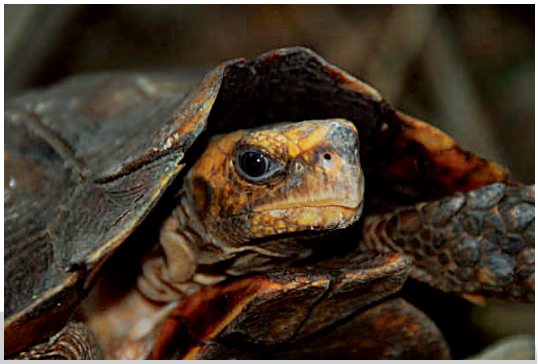
Head and Neck: Head and neck are densely covered with yellow spots.

Carapace and Plastron: Carapace is densely covered with yellow spots and faint radiating lines (juveniles have dark radiating lines only). Plastron has a hinge that becomes immovable in adults.

Limbs and Tail: Limbs and tail are the same color as the head and neck.

Comparison: The combination of dense yellow spots and an immovable plastral hinge distinguishes this species from other species.

Distribution: Europe, western Asia, and northern Africa.



Kinixys homeana

Common Name: Home's Hinge-back Tortoise

Conservation Status: CITES: Appendix II. Red List: Vulnerable (2006).

Distinguishing Characteristics

Measurements: Carapace length reaches 21 cm.

Head and Neck: Head has two prefrontal scales and several frontal scales.

Carapace and Plastron: Anterior and posterior edges of the carapace are serrated, and a hinge is present on either side of the posterior carapace. On the plastron, two to four axillary scutes are present, and a large inguinal scute touches the femoral scutes.

Limbs and Tail: Several rows of large scales are present on the forelimbs, and spur-like scales are present on the heels of the hind limbs. The tip of the tail has a claw-like horny tubercle.

Comparison: *Kinixys natalensis* —*K. homeana* has serrated anterior and posterior edges of the carapace, while *K. natalensis* only has a serrated posterior edge of the carapace.

Distribution: Atlantic coast of Africa from Liberia to Democratic Republic of the Congo (Zaire).

Kinixys natalensis

Common Name: Natal Hinge-back Tortoise

Conservation Status: CITES: Appendix II. Red List: Lower Risk/Near Threatened (1996).

Distinguishing Characteristics

Measurements: Carapace length reaches 15.5 cm.

Head and Neck: Head has two prefrontal scales and one frontal scale.

Carapace and Plastron: Carapace is only serrated on the posterior edge, and hinges are present on either side of the posterior carapace. Two supracaudal scutes are present on the carapace. On the plastron, two to four axillary scutes are present, and a large inguinal scute touches the femoral scutes.

Limbs and Tail: Forelimbs have several rows of large scales, while the tail tip has a cylindrical horny tubercle.

Comparison: Hinges that are not extending beyond the marginals can distinguish this species from *Kinixys belliana*.

Distribution: Mozambique, Swaziland, Democratic Republic of the Congo (Zaire), and South Africa.

Kinixys belliana

Common Name: Bell's Hinge-back Tortoise

Conservation Status: CITES: Appendix II. Red List: Not Listed.

Distinguishing Characteristics

Measurements: Carapace length reaches 22 cm.

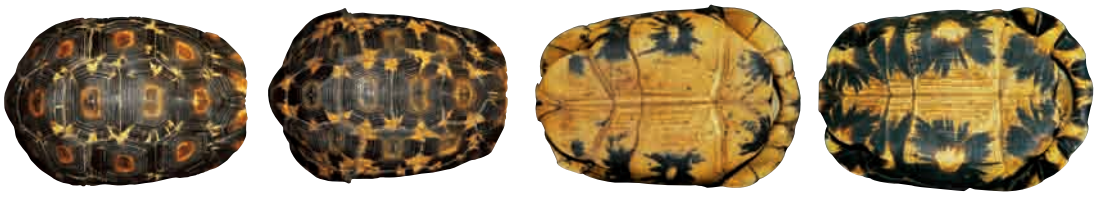
Head and Neck: Head and neck are yellowish-brown to dark brown. Head has prefrontal and frontal scales ranging from one to several.

Carapace and Plastron: Hinges are present on either side of the posterior carapace. On the plastron, two to four axillary scutes are present, and a large inguinal scute touches the femoral scutes.

Limbs and Tail: Forelimbs have several rows of large scales, and the heels of the hindlimbs have spur-like scales. The tip of the tail has a claw-like horny tubercle.

Comparison: See *Kinixys natalensis*.

Distribution: All African countries, except those in the North.



Chersina angulata

Common Name: South African Bowsprit Tortoise

Conservation Status: CITES: Appendix II. Red List: Not Listed.

Distinguishing Characteristics

Measurements: Carapace length reaches about 28 cm.

Carapace and Plastron: The carapace usually has a large orange or yellow blotch on every scute. Plastron is orange with a dark brown center; a few specimens are black, while others have red bellies. A single protruding gular scute extends over the edge of the carapace.

Comparison: The protruding gular scute and orange plastron distinguish this species from other similar species.

Distribution: South Africa and Namibia.

Astrochelys yniphora

Common Name: Madagascar Ploughshare Tortoise

Conservation Status: CITES: Appendix I. Red List: Critically Endangered (2008).

Distinguishing Characteristics

Measurements: Carapace length reaches about 45 cm.

Head and Neck: Head has one large frontal scale and one pair of large prefrontal scales.

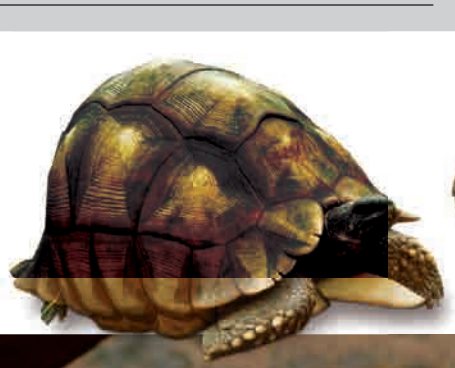
Carapace and Plastron: Carapace is yellowish-brown and highly domed. Juveniles have broad black bands along the seams of the carapace. A single upcurved gular scute on the plastron extends beyond the edge of the carapace.

Limbs and Tail: Forelimbs have several large overlapping yellow scales.

Comparison: *Chersina angulata* –*A. yniphora* has an unmarked yellowish plastron and much larger and more domed carapace, while *C. angulata* has an orange plastron and smaller, less domed carapace.

Distribution: Madagascar.

Juvenile



Macroclemys temminckii

Common Name: Alligator Snapping Turtle

Conservation Status: CITES: Appendix III. Red List: Vulnerable (1996).

Distinguishing Characteristics

Measurements: Carapace length can reach about 70 cm and body weight can reach about 80 kg.

Head and Neck: The head cannot retract into the shell. Beak on upper and lower jaws are strongly hooked.

Carapace and Plastron: Carapace is jagged with three prominent serrated keels, and supramarginal scutes are present. Plastron is small and cross-shaped, with several large inframarginal scutes.

Limbs and Tail: Tail is approximately the same length as carapace, with three rows of spur-like scales on the dorsal surface.

Comparison: See *Chelydra serpentina*.

Distribution: USA.

Juvenile

Manouria emys

Common Name: Asian Brown Tortoise

Conservation Status: CITES: Appendix II. Red List: Endangered (2000).

Distinguishing Characteristics

Measurements: Carapace length reaches 60 cm.

Head and Neck: Head has two prefrontal scales and a single frontal scale.

Carapace and Plastron: Carapace is brown to black and the anterior and posterior edges are serrated. Scutes are concave-shaped and includes two supracaudal scutes.

Limbs and Tail: Hindlimbs have several large protruding scales on heels and several large spurs on thighs.

Comparison: *Manouria impressa—M. emys* is larger in size and has several large spurs on thighs, while *M. impressa* is smaller and only has one spur on thighs.

Distribution: India, Bangladesh, Myanmar, Thailand, Malaysia, and Indonesia.

Manouria impressa

Common Name: Impressed Tortoise

Conservation Status: CITES: Appendix II. Red List: Vulnerable (2000). China: Class II.

Distinguishing Characteristics

Measurements: Carapace length reaches 27 cm.

Head and Neck: Head has two prefrontal scales and a single frontal scale.

Carapace and Plastron: Carapace is olive-brown to yellowish-brown, and serrated along its edge. Scutes are concave-shaped and has two supracaudal scutes.

Comparison: *Manouria emys—M. impressa* is smaller in size and has one large spur on thighs, while *M. emys* is larger and has several spurs on thighs.

Distribution: China (possibly in Yunnan, Guangxi, and Hainan Provinces), Vietnam, Myanmar, Malaysia, Cambodia, and Thailand.

Platysternon megacephalum

Common Name: Big-headed Turtle

Conservation Status: CITES: Appendix II. Red List: Endangered (2000). China: Three Merits.

Distinguishing Characteristics

Measurements: Carapace length reaches about 20 cm.

Head and Neck: Head is wide and cannot retract into the shell. A single large scale covers the entire head. The upper beak is heavily hooked, resembling an eagle's beak.

Carapace and Plastron: Carapace is relatively flat, only slightly higher than the head. Plastron has inframarginal scutes.

Limbs and Tail: Tail is almost as long as the carapace, and is covered with large circular scales and thick spurs near the base.

Comparison: Compared with *Macrooremys temminckii* and *Chelydra serpentina*, this species is small and the entire head is covered with a single large scale.

Distribution: China, Vietnam, Laos, Cambodia, Thailand, and Myanmar.

Malacochersus tornieri

Common Name: African Pancake Tortoise

Conservation Status: CITES: Appendix II. Red List: Vulnerable (1996).

Distinguishing Characteristics

Measurements: Carapace length reaches 17.7 cm.

Head and Neck: Head has one or two prefrontal scale(s), and one to several frontal scales and a serrated beak.

Carapace and Plastron: Flat carapace is yellow or brown in color with radiating marks, and two supracaudal scutes are present. Plastron has two to three axillary scutes and two to four inguinal scutes.

Limbs and Tail: Forelimbs have several rows of overlapping large scales.

Comparison: Other tortoise species—the extremely flat carapace, which is just slightly higher than the head, can distinguish *M.tornieri* from other tortoise species.

Distribution: Kenya and Tanzania.

Geochelone elegans

Common Name: Indian Star Tortoise

Conservation Status: CITES: Appendix II. Red List: Lower Risk/Least Concern (2000).

Distinguishing Characteristics

Measurements: Carapace length reaches 28 cm.

Head and Neck: Head and neck are mottled with yellow and black. On the head, the two prefrontal scales are separated by one narrow frontal scale.

Carapace and Plastron: Carapace is dark brown with light yellow radiating markings. No cervical scute is present on carapace. Plastron is yellow with dark radiating markings, and a single axillary and inguinal scute are present.

Comparison: *Geochelone platynota* — *G.elegans* can be differentiated from *G. platynota* by their plastral markings. *Astrochelys radiata* —*G.elegans* does not have a cervical scute, while *A. radiata* does.

Distribution: Pakistan, India, and Sri Lanka.

Geochelone platynota

Common Name: Burmese Star Tortoise

Conservation Status: CITES: Appendix I. Red List: Critically Endangered (2000).

Distinguishing Characteristics

Measurements: Carapace length reaches 26 cm.

Head and Neck: Head is yellow with two prefrontal scales and one frontal scale.

Carapace and Plastron: Carapace is dark brown with light yellow radiating lines. No cervical scute is present on the carapace. Plastron is yellow with large black markings, and a single axillary and inguinal scute.

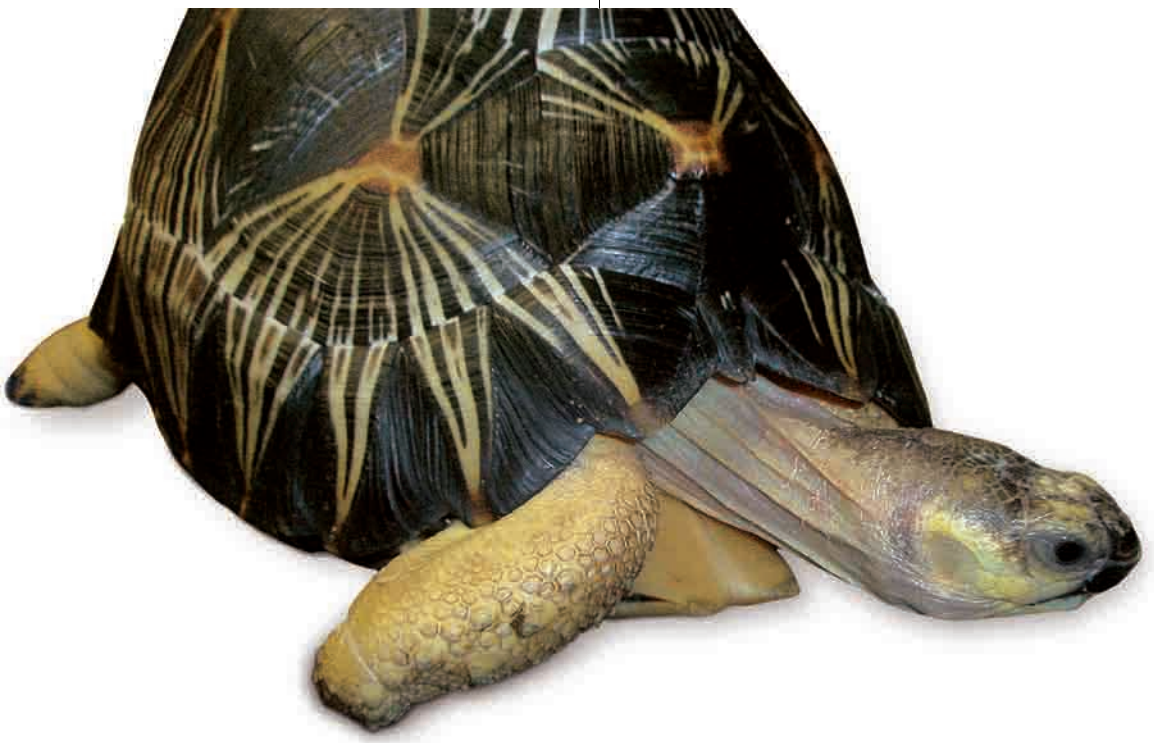
Limbs and Tail: Spurs are present near the base of the tail.

Comparison: See *Geochelone elegans*.

Distribution: Myanmar.

Juvenile

Juvenile



Astrochelys radiata

Common Name: Radiated Tortoise

Conservation Status: CITES: Appendix I. Red List: Critically Endangered (2008).

Distinguishing Characteristics

Measurements: Carapace length reaches 40 cm.

Head and Neck: Head is mottled with yellow and dark grey, and has two prefrontal scales and one frontal scale.

Carapace and Plastron: Carapace is highly domed with yellow radiating markings and a serrated posterior edge. Cervical scute is present on the carapace. Two axillary and two inguinal scutes are present on the plastron.

Limbs and Tail: Limbs and tail are yellow.

Comparison: *A. radiata* has a cervical scute on the carapace, while *G. platynota* and *G. elegans* do not.

Distribution: Southwestern Madagascar.

Pyxis planicauda

Common Name: Madagascar Flat-tailed Spider Tortoise

Conservation Status: CITES: Appendix I. Red List: Critically Endangered (2008).

Distinguishing Characteristics

Measurements: Carapace length is about 16 cm.

Head and Neck: Head is brown to black and neck is covered in a yellow pattern.

Carapace and Plastron: Carapace is dark brown and the scutes have yellow edges and centers with a few lines. In adults, the top of the carapace becomes flat and lighter in coloration. Plastron is yellow with faint markings and no hinge is present.

Limbs and Tail: Tail tip has a horny spur. Tail is flatter in males than females.

Comparison: *Pyxis arachnoides—P. planicauda* does not have a hinged plastron, while *P. arachnoides* does.

Distribution: West coast of central Madagascar.

Testudo hermanni

Common Name: Hermann's Tortoise

Conservation Status: CITES: Appendix II. Red List: Near Threatened (2004).

Distinguishing Characteristics

Measurements: Carapace length reaches 20 cm.

Head and Neck: Head has two or more frontal and prefrontal scales.

Carapace and Plastron: Carapace is yellowish-green to brown with large dark patches along the seams, and two supracaudal scutes. The coloration of the plastron is similar to that of the carapace.

Limbs and Tail: Five claws on all limbs (some individuals have four claws on the forelimbs). Hindlimbs have spur-like scales on the heels, and the tail tip has a horny spur.

Comparison: *T. hermanni* has two supracaudal scutes on the carapace, while *T. graeca* has one supracaudal scute on the carapace.

Distribution: Countries along the northern coast of the Mediterranean Sea from France to Turkey.

Testudo graeca

Common Name: Spur-thighed Tortoise

Conservation Status: CITES: Appendix II. Red List: Vulnerable (1996).

Distinguishing Characteristics

Measurements: Carapace length reaches 30 cm.

Head and Neck: Head has one frontal and two or several prefrontal scales.

Carapace and Plastron: Carapace is yellow to brown, with large dark blotches along the seams, and one supracaudal scute. The coloration of the plastron is similar to that of the carapace.

Limbs and Tail: Five claws on all limbs (some individuals have four claws on forelimbs). There are spur-like scales on the thighs.

Comparison: See *Testudo hermanni* and *Agrionemys horsfieldii.*

Distribution: European, Asian, and African countries bordering the Mediterranean and Black Seas, such as Spain, Egypt, Iran, and Ukraine.

Agrionemys horsfieldii

Common Name: Central Asian Tortoise

Conservation Status: CITES: Appendix II. Red List: Vulnerable (1996). China: Class I.

Distinguishing Characteristics

Measurements: Carapace length reaches 22 cm.

Head and Neck: Head has one frontal and two prefrontal scales.

Carapace and Plastron: Carapace is yellowish-brown, with large dark-brown blotches, and one supracaudal scute. The color pattern of the plastron is similar to that of the carapace.

Limbs and Tail: Four claws on every limb, with spur-like scales on the heels of hindlimbs, and a horny spur on the tip of the tail.

Comparison: Compared with other tortoises, this species has four claws on every limb; the presence of a horny spur on the tip of the tail distinguishes this species from *Testudo gracea*.

Distribution: China (Xinjiang Province) and countries south of Russia, north of Iran and Pakistan, and east of Armenia.

Chelonoidis carbonaria

Common Name: South American Red-footed Tortoise

Conservation Status: CITES: Appendix II. Red List: Not Listed.

Distinguishing Characteristics

Measurements: Carapace length reaches 51 cm.

Head and Neck: Head is yellow to red with one large frontal scale.

Carapace and Plastron: Carapace is black with yellow or orange blotches on vertebral and pleural scutes, and cervical scute is absent. Plastron is yellow with dark seams and a pair of large black patches on abdominal scutes. The gular scutes are surrounded by humeral scutes, and a single inguinal scute touches the femoral scutes.

Limbs and Tail: Color markings are similar to that of the head and neck.

Comparison: Compared with this species, *Chelonoidis denticulata* has several frontals and inguinal scutes that are not touching the femoral scutes.

Distribution: From southeastern Panama to northern Argentina.

Juvenile

Chelonoidis denticulata

Common Name: South American Yellow-footed Tortoise

Conservation Status: CITES: Appendix II. Red List: Vulnerable (1996).

Distinguishing Characteristics

Measurements: Carapace length reaches 82 cm.

Head and Neck: Head has several frontal scales and large yellow or orange scales on the top of the head.

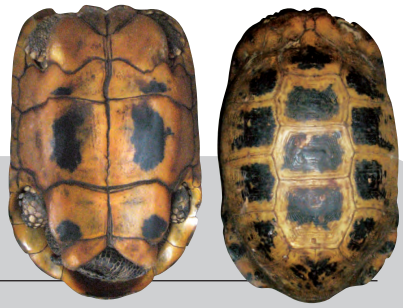
Carapace and Plastron: Carapace is black with large yellow or orange patches, and cervical scute is absent. Plastron is yellowish-brown, with dark bands along seams. A single inguinal scute barely touches the femoral scutes.

Limbs and Tail: Color pattern is similar with the head and neck.

Comparison: See *Chelonoidis carbonaria*.

Distribution: From southeastern Caribbean to northeastern Bolivia.

Juvenile



Indotestudo elongata

Common Name: Elongated Tortoise

Conservation Status: CITES: Appendix II. Red List: Endangered (2000).

Distinguishing Characteristics

Measurements: Carapace length reaches 27.5 cm.

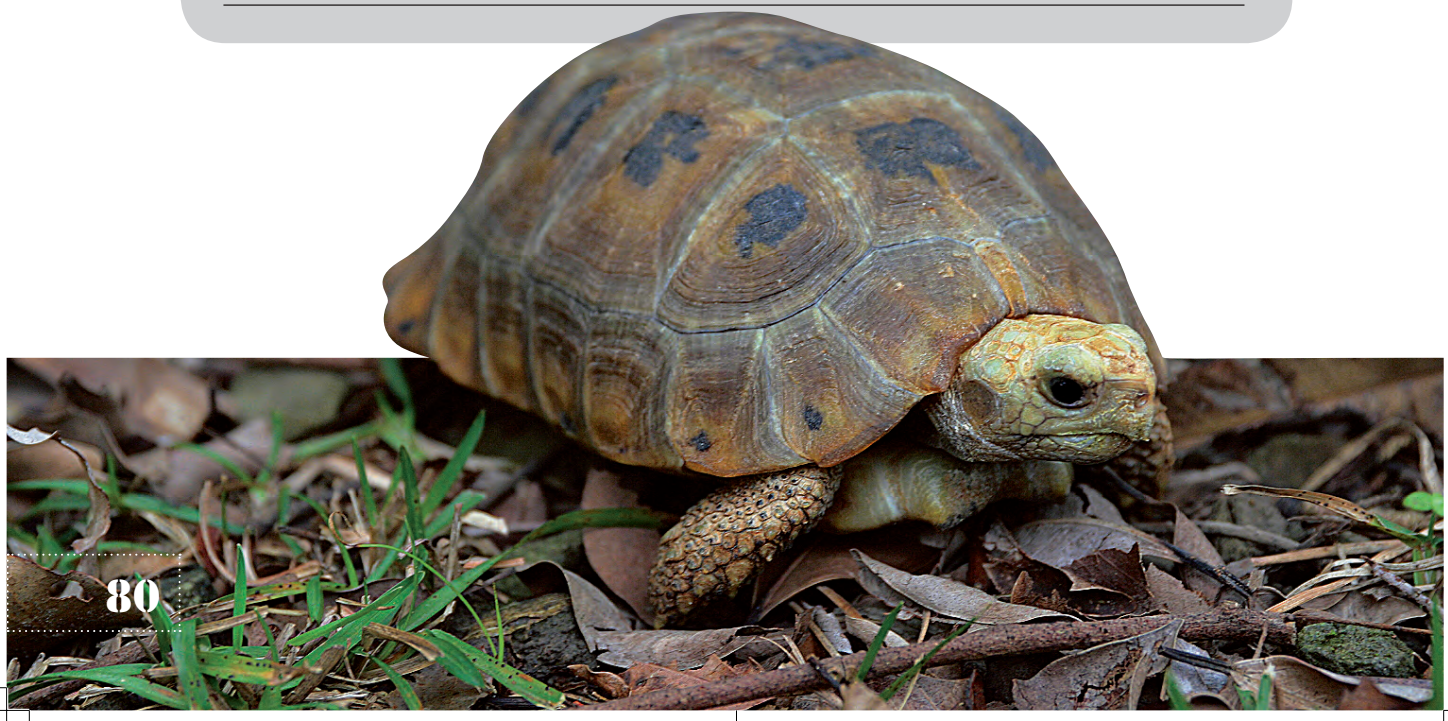
Head and Neck: Top of the head is greenish-grey to yellow, with one pair of large prefrontal scales and several frontal scales.

Carapace and Plastron: Carapace is yellowish to olive-green with large black patches. One axillary and one inguinal scute are present on the plastron.

Limbs and Tail: Forelimbs are covered by overlapping enlarged scales on the outer side and the tip of the tail has a horny spur.

Comparison: *Geochelone species—I. elongata* has the fifth, sixth, and seventh marginal scutes connected to the second pleural scute.

Distribution: China (possibly in Guangxi and Yunnan Provinces), India, Myanmar, Malaysia, and other southeastern and southern Asian countries.



Dipsochelys dussumieri

Common Name: Aldabra Tortoise

Conservation Status: CITES: Appendix II. Red List: Vulnerable (1996).

Distinguishing Characteristics

Measurements: Carapace length can exceed 100 cm and body weight of 310 kg.

Head and Neck: Head is plain grey or black with one pair of large and narrow prefrontal scales.

Carapace and Plastron: Highly domed, unmarked, black carapace with a single supracaudal scute.

Limbs and Tail: Similar color as the head and neck.

Comparison: The black body and very large size can distinguish this species from other tortoise species.

Distribution: The Seychelle Islands.

Geochelone sulcata

Common Name: African Spurred Tortoise

Conservation Status: CITES: Appendix II. Red List: Vulnerable (1996).

Distinguishing Characteristics

Measurements: Carapace length reaches 76 cm.

Head and Neck: Head is yellowish-brown with dark jaws, and two prefrontal scales and one frontal scale.

Carapace and Plastron: Scutes on the carapace are convex, and both anterior and posterior shell margins are serrated. Plastron is yellow with two axillary and two inguinal scutes.

Limbs and Tail: Limbs have large spur-like scales, and two or three spur-like scales on the thighs.

Comparison: The plain yellow or brown carapace can distinguish this species from *Geochelone pardalis*.

Distribution: Central Africa (from western Ethiopia to Senegal).

Geochelone pardalis

Common Name: Leopard Tortoise

Conservation Status: CITES: Appendix II. Red List: Not Listed.

Distinguishing Characteristics

Measurements: Carapace length reaches 68 cm.

Head and Neck: Head is plain yellowish-brown with one or two prefrontal scales and several small frontal scales.

Carapace and Plastron: Carapace has alternating dark and light markings. Plastron has two axillary and one inguinal scute touching the femoral scutes.

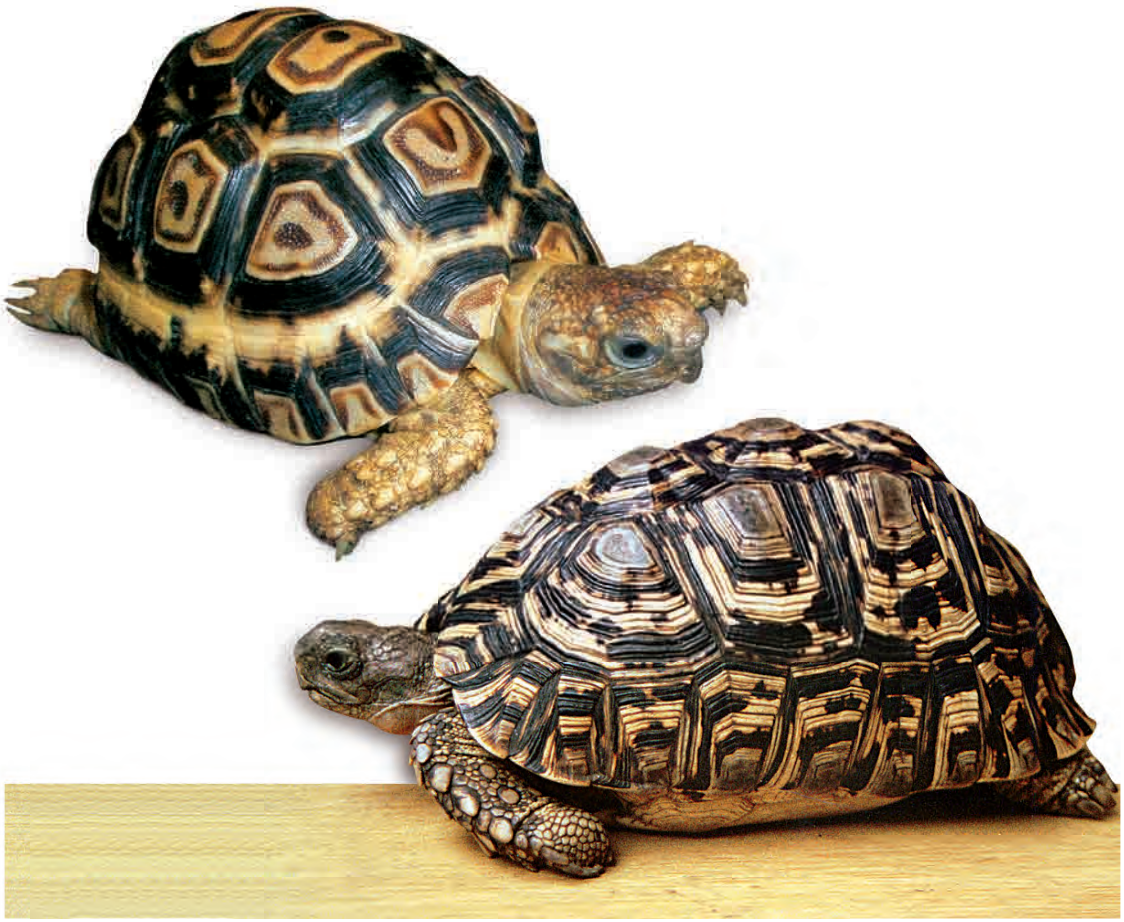
Limbs and Tail: Two or several spur-like scales on thighs.

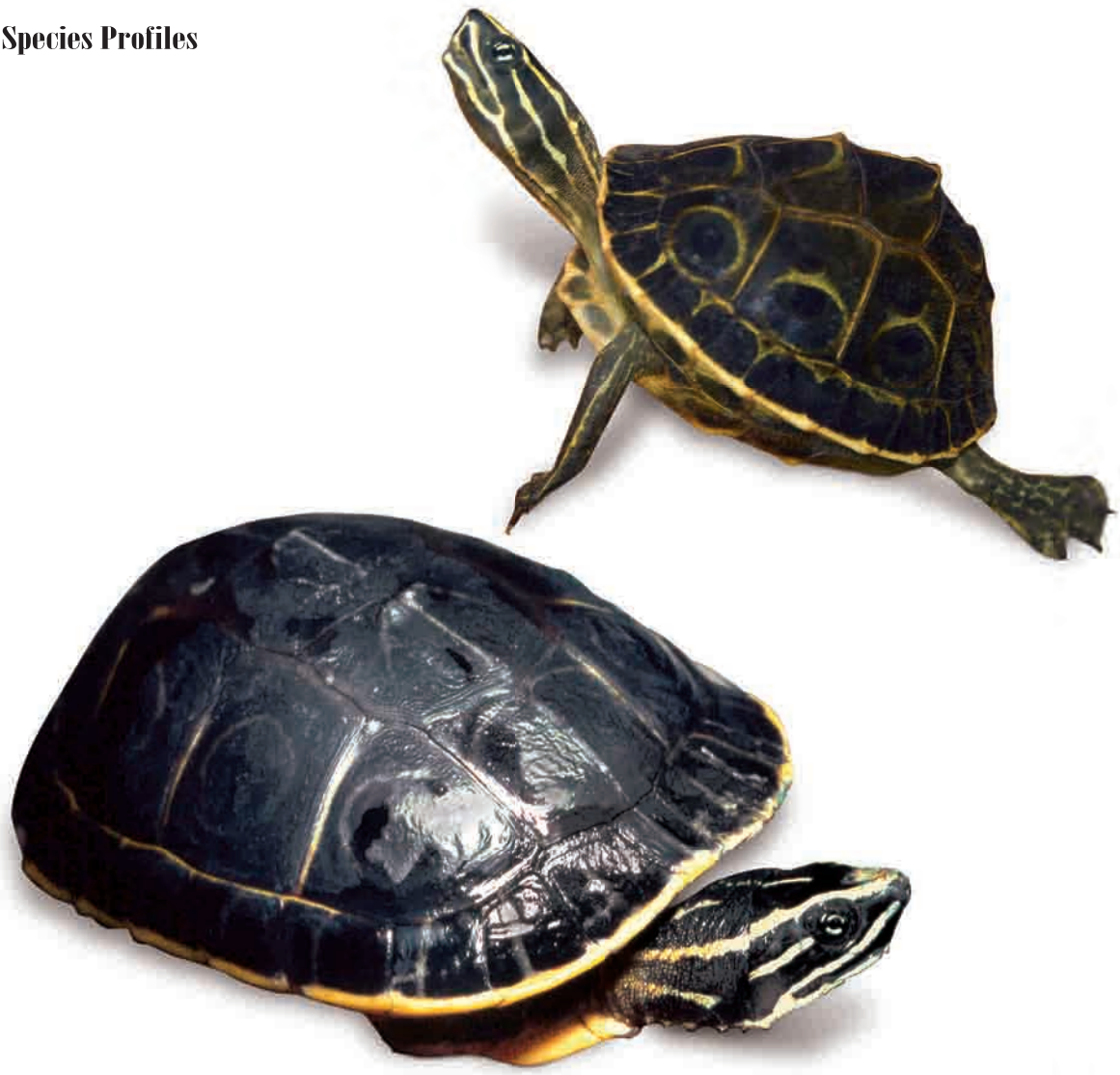
Comparison: The shell pattern can distinguish this species from other tortoise species.

Distribution: Southeastern Ethiopia to Namibia, Botswana, and South Africa.

Juvenile

Juvenile





Morenia petersi

Common Name: Indian Eyed Turtle, Indian Peacock Turtle

Conservation Status: CITES: Not Listed. Red List: Vulnerable (2000).

Distinguishing Characteristics

Measurements: Carapace length reaches about 24 cm.

Head and Neck: Four bright yellow stripes on each side of the head and neck, running from the snout, eyes, upper and lower jaws, respectively, to the base of the neck.

Carapace and Plastron: Carapace is dark with a yellow ring on each scute, and yellow seams and vertebral line. The three anterior vertebral scutes have prominent, protruding keels. Plastron is yellow without any markings.

Limbs and Tail: Color pattern is similar to that of head and neck.

Comparison: *M. petersi* has a yellow seam and vertebral line on the carapace, while *M. ocellata* does not.

Distribution: Northeastern India and Bangladesh.

Morenia ocellata

Common Name: Burmese Eyed Turtle, Burmese Peacock Turtle

Conservation Status: CITES: Appendix I. Red List: Vulnerable (2000).

Distinguishing Characteristics

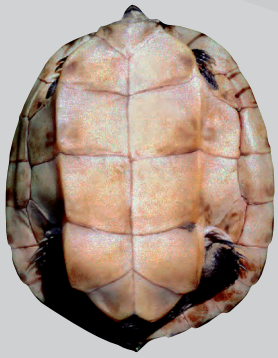
Measurements: Carapace length reaches 22 cm.

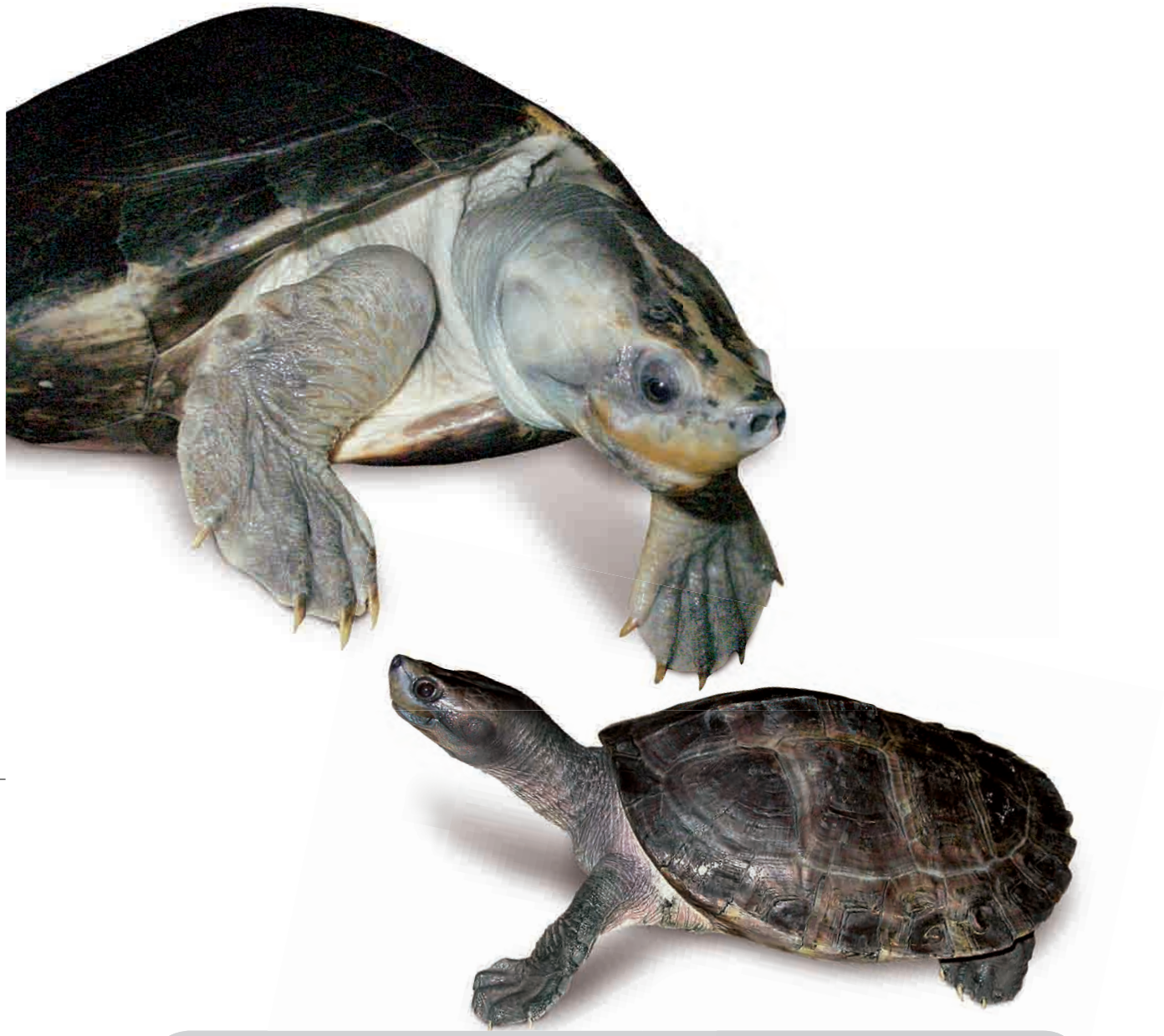
Head and Neck: Two yellow stripes run along each side of the head and neck, from the snout and eyes, respectively, to the base of the neck.

Carapace and Plastron: Scutes on the carapace have a yellowish-brown ring with a dark center, and the three anterior vertebral scutes have a prominent, protruding keel. Plastron is yellowish-white without any markings.

Comparison: See *Morenia petersi*.

Distribution: Myanmar and Malay Peninsula.





Kachuga trivittata

Common Name: Burmese Roofed Turtle

Conservation Status: CITES: Appendix II. Red List: Endangered (2000).

Distinguishing Characteristics

Measurements: Carapace length can reach 58 cm in females and 46 cm in males.

Head and Neck: Head has a greenish-black or yellow stripe on the top. Jaws are slightly serrated.

Carapace and Plastron: On the carapace, the three anterior vertebral scutes have prominent, protruding keels (which become smooth in old individuals). Males have three black vertebral lines.

Comparison: Other *Kachuga* species—*K. trivittata* does not have a head with brightly-colored patterns, while the other species do.

Distribution: Myanmar.

Pangshura smithii

Common Name: Brown Roofed Turtle

Conservation Status: CITES: Appendix II. Red List: Lower Risk/Near Threatened (2000).

Distinguishing Characteristics

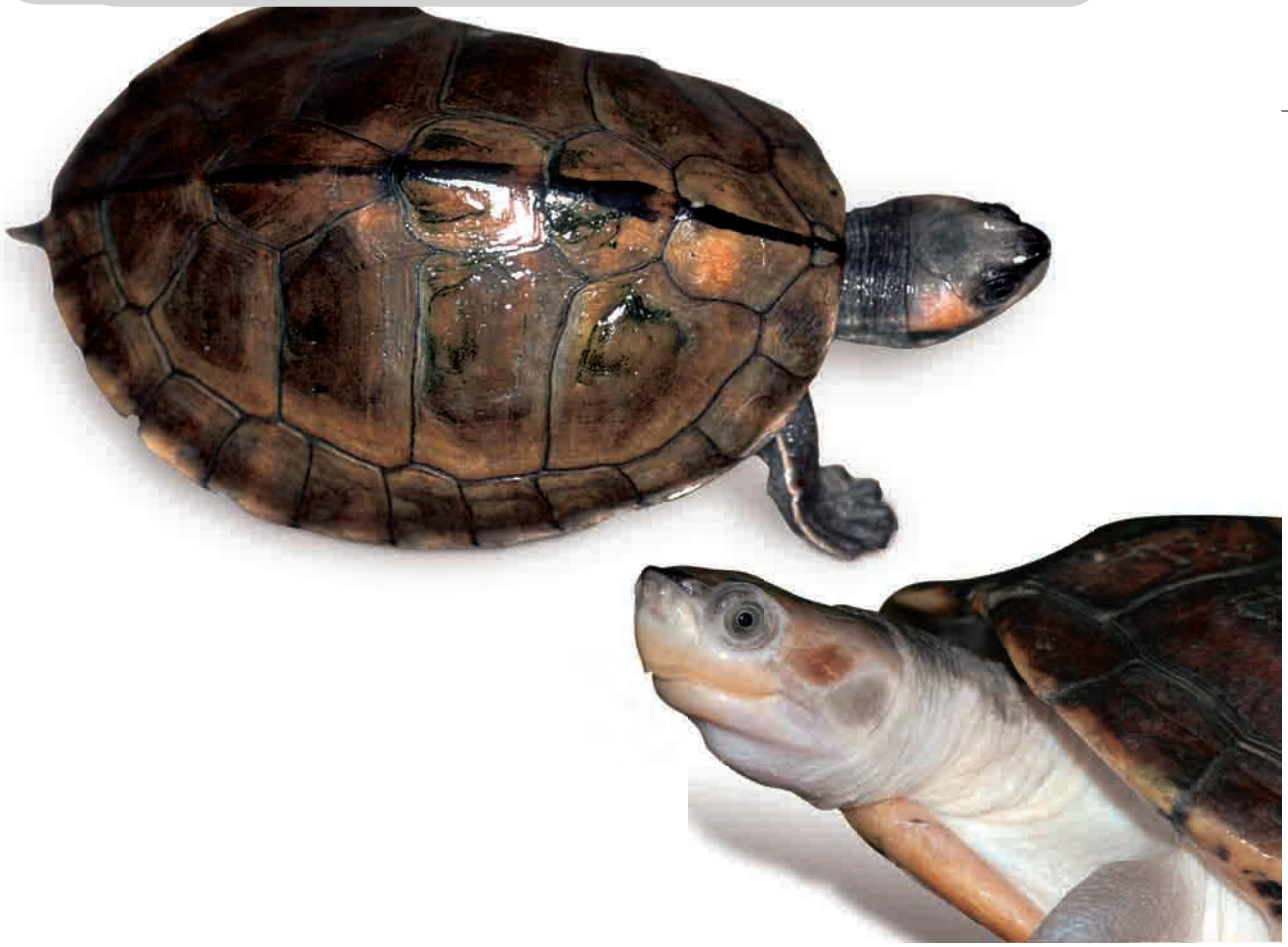
Measurements: Carapace length reaches about 23 cm in females and 11.5 cm in males.

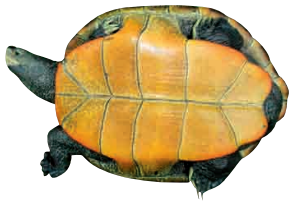
Head and Neck: Head has a reddish-brown patch behind eyes, and light yellow stripes on the neck.

Carapace and Plastron: Adult males have prominent, protruding keels on the three anterior vertebral scutes and a black vertebral line. The seams and margin of the plastron are yellow.

Comparison: See *Pangshura tecta*.

Distribution: Pakistan, India, Bangladesh, and Nepal.





Malaclemys terrapin

Common Name: Diamondback Terrapin

Conservation Status: CITES: Not Listed. Red List: Lower Risk/Near Threatened (1996).

Distinguishing Characteristics

Measurements: Carapace length reaches about 25 cm.

Head and Neck: Head is densely covered with black or white spots and lines. A diamond-shaped patch is present on top of the head.

Carapace and Plastron: Carapace has a prominent vertebral keel and visible growth rings on scutes. Plastron is yellow or yellowish-green.

Limbs and Tail: Color pattern is similar to that of the head and neck.

Comparison: The markings on the head and limbs can distinguish this species from other turtle species. The color pattern varies substantially among the different subspecies.

Distribution: USA and the Bermuda Islands.

Graptemys nigrinoda

Common Name: Black-knobbed Map Turtle

Conservation Status: CITES: Appendix III. Red List: Least Concern (1996).

Distinguishing Characteristics

Measurements: Carapace length reaches about 15 cm in females, with males being smaller.

Head and Neck: Both head and neck have many bright yellow stripes.

Carapace and Plastron: Carapace has many yellow or orange rings, the three anterior vertebral scutes have knob-like vertebral projections, and the posterior margin is prominently serrated. The plastron is yellow with dark branching marks.

Limbs and Tail: Color pattern is similar to that of the head and neck.

Comparison: Other *Graptemys species—G. nigrinoda* can be differentiated through the knob-like vertebral projections being elevated higher and more rounded.

Distribution: USA.

Pangshura tecta

Common Name: Indian Roofed Turtle

Conservation Status: CITES: Appendix I. Red List: Lower Risk/Least Concern (2000).

Distinguishing Characteristics

Measurements: Carapace length reaches about 25 cm in females.

Head and Neck: Head has a reddish-brown patch behind the eyes that extends to the top of the head. Neck has dense yellow stripes.

Carapace and Plastron: Carapace has a yellow margin, brown vertebral line, and projecting keels on the three anterior vertebral scutes. Plastron is yellow with large black markings.

Limbs and Tail: Limbs are densely covered with small yellow spots.

Comparison: Reddish-brown patch on the sides and top of head can distinguish this species from other turtle species.

Distribution: Pakistan, India, Bangladesh, and Nepal.

Graptemys pseudogeographica

Common Name: False Map Turtle

Conservation Status: CITES: Appendix III. Red List: Least Concern (2011).

Distinguishing Characteristics

Measurements: Carapace length reaches 27 cm.

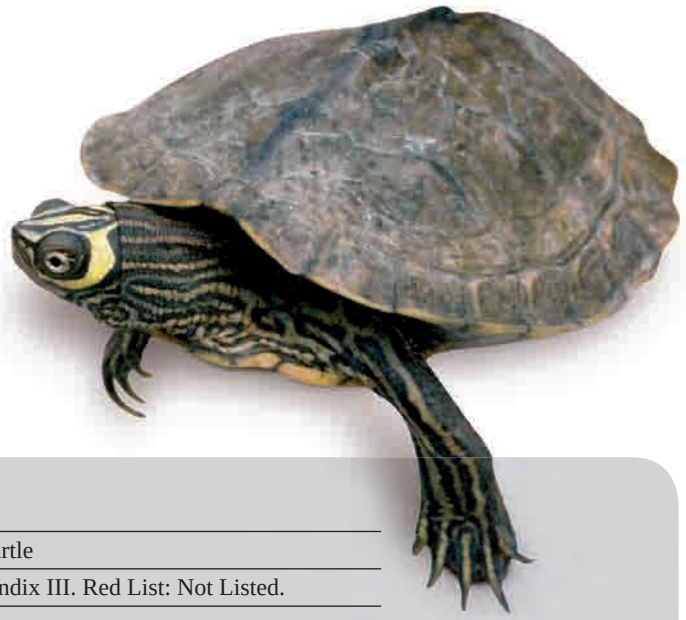
Head and Neck: Both head and neck are densely covered with fine yellow stripes and a L-shaped yellow markings from eyes to neck.

Carapace and Plastron: Vertebral keel is prominent with pointed projections, while pleural and marginal scutes have yellow ring-like markings. Yellow rings on pleural scutes have dark centers.

Limbs and Tail: Color markings are similar to that of the head and neck.

Comparison: Other *Graptemys* species—*G. pseudogeographica* has a narrow pattern behind the eyes, and there are no large spots on the beak.

Distribution: USA.



Graptemys kohnii

Common Name: Mississippi Map Turtle

Conservation Status: CITES: Appendix III. Red List: Not Listed.

Distinguishing Characteristics

Measurements: Carapace length reaches 25 cm in females and 13 cm in males.

Head and Neck: Head and neck are densely covered with fine yellow stripes, with a yellow mark around the eyes.

Carapace and Plastron: Pleural scutes on the carapace have rings with dark centers. Posterior rim of carapace is serrated. Plastron has symmetrical black markings.

Limbs and Tail: Color pattern is similar to that of the head and neck.

Comparison: Other *Graptemys* species—*G. kohnii* has a yellow pattern around the eyes and a white iris.

Distribution: USA.

Juvenile

Graptemys ouachitensis

Common Name: Ouachita Map Turtle

Conservation Status: CITES: Appendix III. Red List: Least Concern (2011).

Distinguishing Characteristics

Measurements: Carapace length reaches 22 cm in females and about 14 cm in males.

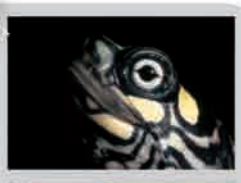
Head and Neck: Head and neck have many yellow stripes and a rectangular yellow mark behind the eyes. Small yellow spots are present on the upper and lower jaws.

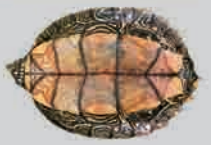
Carapace and Plastron: Carapace has knob-like projections on the second to the fourth vertebral scutes, while plastron is yellow with symmetrical dark patterns.

Limbs and Tail: Color pattern is similar to that of the head and neck.

Comparison: Other *Graptemys* species—*G. ouachitensis* has a rectangular yellow mark behind the eyes.

Distribution: USA.





Geoemyda spengleri

Common Name: Black-breasted Leaf Turtle

Conservation Status: CITES: Appendix III. Red List: Endangered (2000). China: Class II.

Distinguishing Characteristics

Measurements: Maximum carapace length is about 13 cm.

Head and Neck: One to three yellowish-white stripes on the sides of the head and neck. The upper beak is slightly hooked.

Carapace and Plastron: Carapace is yellowish-orange or reddish-orange and flat with three prominent keels, and serrated anterior and posterior edges. Plastron is black with a yellow margin. Axillary scutes are absent.

Limbs and Tail: Limbs and tail are covered with reddish-brown scales.

Comparison: *Geoemyda japonica*—*G. spengleri* does not have axillary scutes on the plastron, while *G. japonica* does.

Distribution: China (Guangxi, Guangdong, Hainan, Yunnan, and possibly Hunan Provinces), Vietnam, and Indonesia.

Geoemyda japonica

Common Name: Japanese Black-breasted Leaf Turtle

Conservation Status: CITES: Not Listed. Red List: Endangered (2000).

Distinguishing Characteristics

Measurements: Carapace length reaches about 16 cm.

Head and Neck: Three or four reddish-brown stripes on the sides of head and neck. Beak has a reddish-brown edge and a slightly-hooked upper beak.

Carapace and Plastron: Carapace is brown with three prominent keels and serrated anterior and posterior edges. Plastron is mainly black with a yellow margin. Axillary scutes are present.

Limbs and Tail: Limbs and tail are covered with black or dark red scales.

Comparison: See *Geoemyda spengleri.*

Distribution: Japan (confined to Okinawa).

Geoclemys hamiltonii

Common Name: Spotted Pond Turtle, Hamilton's Turtle

Conservation Status: CITES: Appendix I. Red List: Vulnerable (2000).

Distinguishing Characteristics

Measurements: Carapace length reaches 35 cm and body weight reaches 7 kg.

Head and Neck: Head and neck are covered with pale yellow spots.

Carapace and Plastron: Carapace is dark brown with three prominent keels and marginal scutes are covered with white blotches. The margin of the plastron has some white blotches.

Limbs and Tail: Color pattern is similar to that of the head and neck.

Comparison: Dense pale markings, which are scattered on the limbs, head, and neck, can distinguish this species from other similar species.

Distribution: Pakistan, India, and Bangladesh.

Malayemys subtrijuga

Common Name: Malayan Snail-eating Turtle

Conservation Status: CITES: Appendix II. Red List: Vulnerable (2000).

Distinguishing Characteristics

Measurements: Carapace length reaches about 28 cm.

Head and Neck: The head is broad and has yellowish-white stripes running along the sides, below the eyes, and along the lower jaw to the neck.

Carapace and Plastron: Carapace has three prominent keels. Plastron is yellow with a large dark patch on every scute.

Limbs and Tail: Limbs and tail have yellow longitudinal stripes.

Comparison: The stripes on the head and prominent keels on the carapace can distinguish this species from other similar species.

Distribution: Vietnam, Cambodia, Thailand, Myanmar, Malaysia, and Indonesia.

Melanochelys tricarinata

Common Name: Tricarinate Hill Turtle

Conservation Status: CITES: Appendix I. Red List: Vulnerable (2000).

Distinguishing Characteristics

Measurements: Carapace length reaches about 16 cm.

Head and Neck: Red or yellow V-shaped markings on the dorsal and ventral surfaces of the head.

Carapace and Plastron: Carapace has three bright yellow keels and plastron is yellow or orange.

Limbs and Tail: Heels of hind limbs have large scales.

Comparison: Three bright yellow keels can distinguish this species from other species.

Distribution: India, Bangladesh, and Nepal.

Melanochelys trijuga

Common Name: Indian Black Turtle

Conservation Status: CITES: Not Listed. Red List: Lower Risk/Near Threatened (2000).

Distinguishing Characteristics

Measurements: Carapace length reaches about 50 cm.

Head and Neck: Head is brown or black and scattered with yellow spots or a light yellow patch on the temple.

Carapace and Plastron: Carapace is brown to black with three light yellow keels, while plastron is brown or black with a yellow margin.

Distribution: India, Bangladesh, Myanmar, Sri Lanka, Maldives, Chagos Archipelago, and Nepal.

Mauremys (Chinemys) reevesii

Common Name: Chinese Three-keeled Pond Turtle

Conservation Status: CITES: Appendix III. Red List: Endangered (2011). China: Three Merits.

Distinguishing Characteristics

Measurements: Carapace length reaches about 20 cm in males and about 30 cm in females.

Head and Neck: Head and neck both have irregular light yellow or white stripes.

Carapace and Plastron: Carapace is brown to dark brown (black in adult males) with three prominent keels.

Comparison: *Mauremys nigricans—M. reevesii* has more prominent side keels on the carapace and lacks red on the head, neck, and limbs.

Distribution: Throughout China except the three northeastern provinces (Xinjiang, Ningxia, and Tibetan Plateau), Japan, and Korea.

Rhinoclemmys pulcherrima

Common Name: Painted Wood Turtle

Conservation Status: CITES: Not Listed. Red List: Not Listed.

Distinguishing Characteristics

Measurements: Carapace length reaches 20 cm.

Head and Neck: Head has a black margin and an orange pattern, while the pattern on the neck is wide and light-colored.

Carapace and Plastron: Carapace has red or yellow concentric markings on every scute, and the plastron is yellow with a black band along the midline.

Limbs and Tail: Color patterns are similar to that of the neck.

Distribution: Mexico, Guatemala, El Salvador, Honduras, Nicaragua, and Costa Rica.

Mauremys (Ocadia) sinensis

Common Name: Chinese Striped-neck Turtle

Conservation Status: CITES: Appendix III. Red List: Endangered (2000). China: Three Merits.

Distinguishing Characteristics

Measurements: Carapace length reaches about 30 cm.

Head and Neck: About twenty yellowish-green stripes extend from the snout to the neck.

Carapace and Plastron: Carapace has a prominent vertebral keel and indistinct side keels. Plastron is yellow with a large black blotch on every scute.

Limbs and Tail: Coloration is similar to that of the head and neck.

Comparison: The dense yellowish-green parallel stripes on the head and neck can distinguish this species from other *Mauremys* species.

Distribution: China (Jiangsu, Shanghai, Zhejiang, Fujian, Guangxi, Taiwan, Guangdong and Hainan Provinces) and Vietnam.

Mauremys caspica

Common Name: Caspian Turtle

Conservation Status: CITES: Not Listed. Red List: Not Listed.

Distinguishing Characteristics

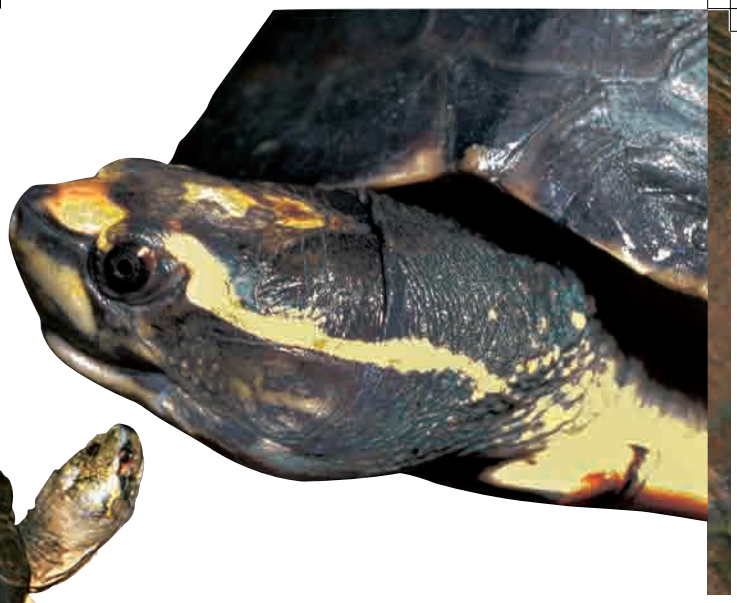
Measurements: Carapace length reaches about 24 cm.

Head and Neck: A maximum of eight yellowish-green stripes on the sides of the head.

Carapace and Plastron: Plastron is dark brown with yellow marks or yellow with dark brown marks.

Comparison: No more than eight yellowish-green stripes on the sides of head can distinguish this species from *Mauremys sinensis.*

Distribution: The region between and near the Caspian Sea, Black Sea, Mediterranean Sea, Red Sea, and Persian Gulf.



Hardella thurjii

Common Name: Crowned River Turtle

Conservation Status: CITES: Not Listed. Red List: Vulnerable (2000).

Distinguishing Characteristics

Measurements: Carapace length reaches 53 cm in females, and males are less than one third this size.

Head and Neck: Several bright yellow stripes run from the sides of the head and mouth to the neck. Yellow markings are present on the top of the head.

Carapace and Plastron: Carapace has a yellow margin and three keels. Some individuals have discontinuous black stripes on the keels. Plastron has a large black blotch on every scute.

Limbs and Tail: Color pattern is similar to that of the head and neck.

Comparison: Color pattern on head and neck can distinguish this species from other similar species.

Distribution: India, Bangladesh, and Pakistan.

Mauremys annamensis

Common Name: Vietnamese Leaf Turtle

Conservation Status: CITES: Appendix II. Red List: Critically Endangered (2000).

Distinguishing Characteristics

Measurements: Carapace length reaches 30 cm.

Head and Neck: Two yellow stripes run from the snout to the neck and a faint short stripe above the eyes, near the forehead.

Carapace and Plastron: Carapace is plain dark brown, while the plastron is dark and has a yellow margin and center.

Comparison: Color pattern on the head and plastron can distinguish this species from similar species.

Distribution: Vietnam.

Mauremys mutica

Common Name: Asian Yellow Pond Turtle

Conservation Status: CITES: Appendix II. Red List: Endangered (2000). China: Three Merits.

Distinguishing Characteristics

Measurements: Carapace length reaches 17 cm.

Head and Neck: Top of the head is brownish and underside is yellowish, and two short yellow stripes are present behind the eyes.

Carapace and Plastron: Plastron is yellow with a large black blotch on every scute.

Limbs and Tail: Outer side of limbs is grey or olive, and inner side is light yellow.

Comparison: Two short yellow stripes behind the eyes can distinguish this species from similar species.

Distribution: China (Central, Eastern, and Southern China), Vietnam, and Japan.

Heosemys annandalii

Common Name: Yellow-headed Temple Turtle

Conservation Status: CITES: Appendix II. Red List: Endangered (2000).

Distinguishing Characteristics

Measurements: Carapace length reaches 60 cm.

Head and Neck: Head is covered with dense light-yellow blurry marks, which are more intense on the sides. A M-shaped notch is present on the upper beak. Juveniles have yellow stripes running from the head to the neck.

Carapace and Plastron: Vertebral keel is prominent on the carapace. Plastron is yellow with a large black patch on every scute. In older individuals, the plastron is nearly black.

Limbs and Tail: Similar color markings as that of the head and neck.

Comparison: Yellowish head without radiating markings on the plastron can distinguish this species from *Heosemys grandis*.

Distribution: Thailand, Cambodia, Vietnam, and Malaysia.

♂

Juvenile

Mauremys (Chinemys) nigricans

Common Name: Chinese Red-necked Pond Turtle

Conservation Status: CITES: Appendix III. Red List: Endangered (2000). China: Three Merits.

Distinguishing Characteristics

Measurements: Carapace length reaches about 27 cm.

Head and Neck: Head is brown to black, with short white stripes (reddish in adult males).

♀

Carapace and Plastron: Carapace is brown to black with a prominent vertebral keel and non-pronounced side keels. Plastron is yellowish-brown with large irregular black patches, which are reddish-brown in adult males.

♀

Limbs and Tail: The limbs and tail are brownish-red in adult males and brown in females.

Comparison: Compared with *Chinemys reevesii*, this species has non-pronounced side keels, and the head, neck, and limbs are infused with red in males.

Distribution: China (Guangxi and Guangdong Provinces) and Vietnam.

Heosemys grandis

Common Name: Giant Asian Pond Turtle

Conservation Status: CITES: Appendix II. Red List: Vulnerable (2000).

Distinguishing Characteristics

Measurements: Carapace length can reach about 48 cm.

Head and Neck: Head is covered with small orange or yellow markings.

Carapace and Plastron: Carapace has a prominent vertebral keel, yellow vertebral line, and serrated posterior rim. Plastron is yellow with black radiating lines.

Comparison: See *Heosemys annandalii.*

Distribution: Myanmar, Thailand, Cambodia, Malaysia, Vietnam, and Laos.

Heosemys spinosa

Common Name: Spiny Turtle

Conservation Status: CITES: Appendix II. Red List: Endangered (2000).

Distinguishing Characteristics

Measurements: Carapace length reaches about 22 cm.

Head and Neck: Both head and neck have orange markings.

Carapace and Plastron: Carapace is yellow or reddish-brown with a strongly serrated margin and a prominent yellowish vertebral keel. Plastron is yellow with a black radiating pattern.

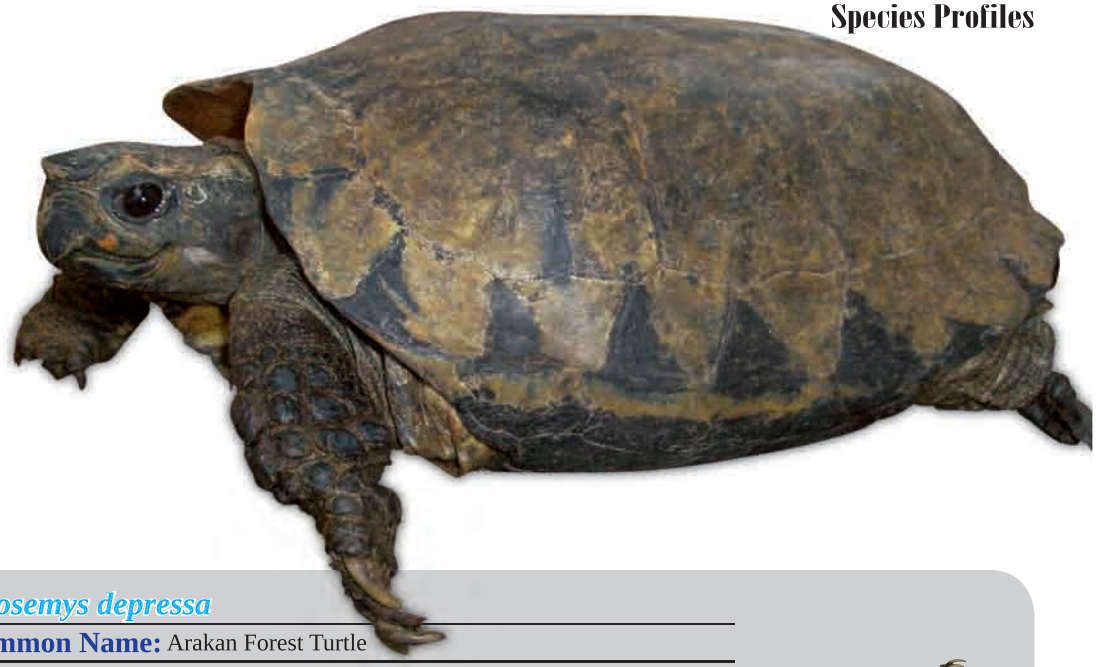
Limbs and Tail: Limbs and tail have several reddish scales.

Comparison: Other *Heosemys* species—serrated margin of the carapace can distinguish *H. spinosa* from other *Heosemys* species.

Distribution: Myanmar, the Philippines, southern Thailand, Malaysia, and Indonesia.

Juvenile

Juvenile



Heosemys depressa

Common Name: Arakan Forest Turtle

Conservation Status: CITES: Appendix II. Red List: Critically Endangered (2000).

Distinguishing Characteristics

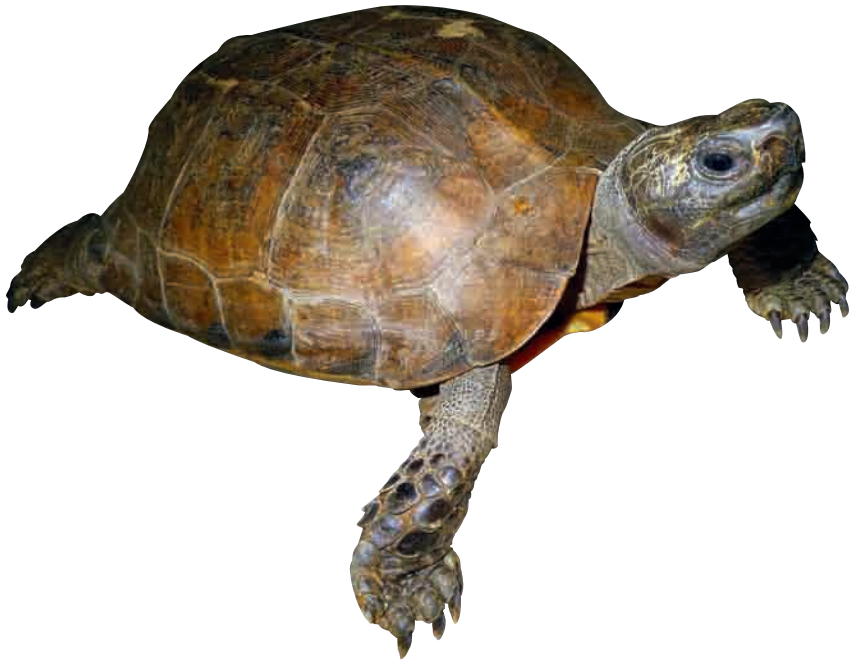
Measurements: Carapace length reaches about 25 cm.

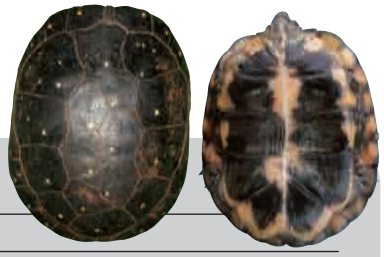
Head and Neck: Head and neck are both mottled with yellowish brown and dark brown.

Carapace and Plastron: Carapace is yellow to olive with black patches. Plastron is yellow with large, connected, black markings that may form a radiating pattern in some individuals.

Comparison: Other *Heosemys* species—the yellow or olive colored carapace with black patches can distinguish this species from other *Heosemys* species.

Distribution: Myanmar.





Clemmys guttata

Common Name: Spotted Turtle

Conservation Status: CITES: Not Listed. Red List: Endangered (2011).

Distinguishing Characteristics

Measurements: Carapace length reaches about 13 cm.

Head and Neck: Head and neck are scattered with yellow dots.

Carapace and Plastron: Carapace is black with scattered yellow dots. Plastron is yellow with a large black patch on every scute.

Limbs and Tail: Color markings are similar to that of the head and neck.

Comparison: The widespread yellow dots can easily distinguish this species from others.

Distribution: Canada and northeastern USA.

Orlitia borneensis

Common Name: Malaysian Giant Turtle

Conservation Status: CITES: Appendix II. Red List: Endangered (2000).

Distinguishing Characteristics

Measurements: Carapace length can reach about 80 cm and body weight can reach about 75 kg.

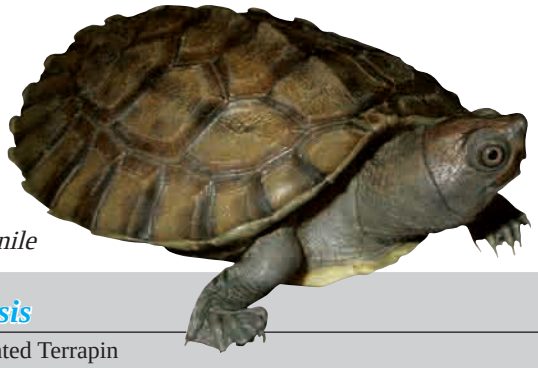
Head and Neck: Dorsal side of head and neck is black, and ventral side is yellow.

Carapace and Plastron: Carapace is brown to black in color and smooth, while plastron is plain yellow.

Limbs and Tail: Color markings are similar to that of the head and neck.

Comparison: The smooth dark carapace and plain yellow plastron can distinguish from other species.

Distribution: Malaysia and Indonesia.



Juvenile

Callagur borneoensis

Common Name: Painted Terrapin

Conservation Status: CITES: Appendix II. Red List: Critically Endangered (2000).

Distinguishing Characteristics

Measurements: Carapace length can reach 60 cm and body weight can reach 25 kg.

Head and Neck: Prominent protruding snout is present. During the breeding season, adult males have a large red patch with black margins on top of the head, which becomes faint during non-breeding season. Top of the head in females is plain brown.

Carapace and Plastron: Adult males have a brown to dark grey carapace with three intermittent black bands, and black blotches on each marginal scute. Plastron is plain yellowish-white in color.

Limbs and Tail: Five claws are present on the forelimbs.

Comparison: *Batagur baska—C. borneoensis* has five claws on the forelimbs and a light carapace with black markings, while *B. baska* has four claws on the forelimbs and a dark grey carapace.

Distribution: Thailand, Malaysia, and Indonesia.

Juvenile

Juvenile

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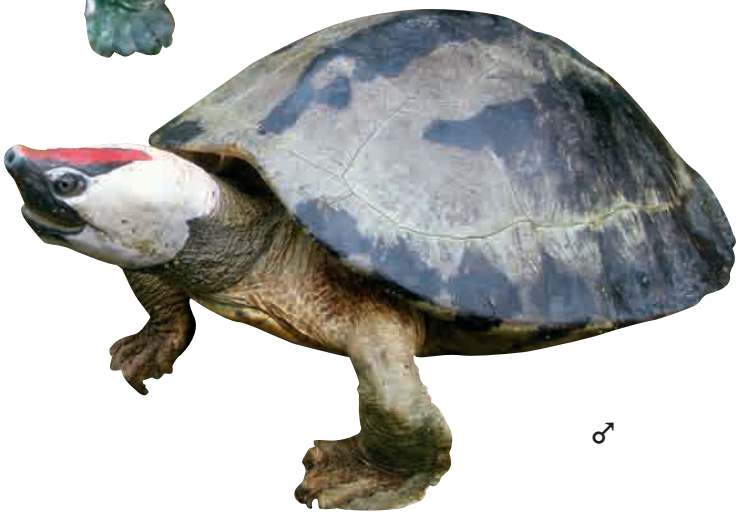
♀



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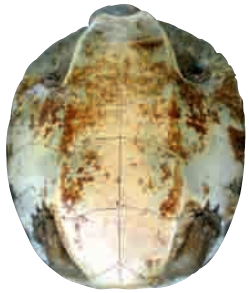

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Sacalia quadriocellata

Common Name: Four Eye-spotted Turtle

Conservation Status: CITES: Appendix III. Red List: Endangered (2000). China: Three Merits.

Distinguishing Characteristics

Measurements: Carapace length reaches about 15 cm.

Head and Neck: Top of head has two pairs of similar-colored (green in males and yellow in females) ocelli with a small black spot in the center. Neck has several yellow (in females) or red (in males) stripes.

Carapace and Plastron: In males, plastron is usually covered with dense black spots, while females have black patches.

Comparison: See *Sacalia bealei.*

Distribution: China (Jiangxi, Fujian, Guangxi, Guangdong, and Hainan Provinces), Vietnam, and Laos.

Sacalia bealei

Common Name: Beal's Eyed Turtle

Conservation Status: CITES: Appendix III. Red List: Endangered (2000). China: Three Merits.

Distinguishing Characteristics

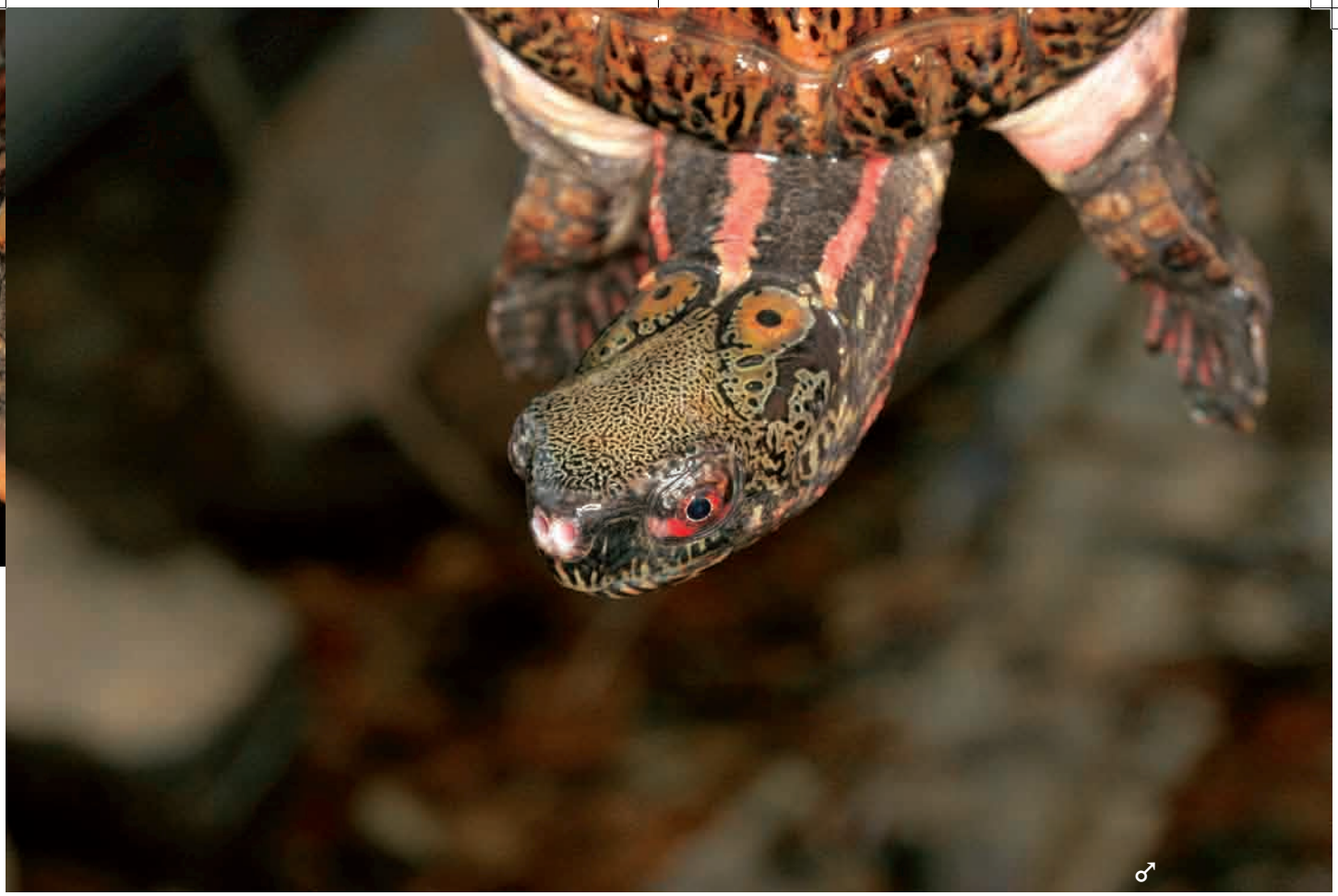
Measurements: Carapace length reaches about 19 cm.

Head and Neck: Top of head has black dots, and two pairs of different-colored (second pair is yellow in females) ocelli that have one to four small black spots in the center. Several yellow (in females) or red (in males) stripes are present on neck.

Carapace and Plastron: Plastron of males is often covered with small black spots, while females have black patches.

Comparison: Compared with *Sacalia quadriocellata*, the ocelli have different colors and are surrounded by black dots.

Distribution: China (Anhui, Jiangxi, Guizhou, Fujian, Guangxi, Guangdong, Hong Kong Provinces) and Vietnam.



Trachemys scripta elegans

Common Name: Red-eared Slider

Conservation Status: CITES: Not Listed. Red List: Least Concern (2011).

Distinguishing Characteristics

Measurements: Carapace length reaches 28 cm.

Head and Neck: Sides of head and neck have many alternating yellow and green stripes. A red horizontal streak is present behind the eyes. In adult males, these markings disappear and the head becomes dark brown.

Carapace and Plastron: Carapace has alternating yellow and brown markings. The plastron is yellowish with large dull markings on every scute.

Limbs and Tail: Similarly patterned as the neck.

Comparison: *Trachemys scripta scripta—T. s. elegans* has a red streak behind the eyes, while *T. s. scripta* has a yellow streak behind the eyes.

Distribution: This species originated from central and southern part of USA, but has been introduced to Asia, Africa, Europe, Oceania, and South America. It is one of the top 100 most dangerous invasive species in the world. They occur mostly in Chinese markets and wild environments.

Adults

Old adult: *Red streaks behind the eyes fade with age.*

Sub-adult

Trachemys scripta scripta

Common Name: Yellow-bellied Slider

Conservation Status: CITES: Not Listed. Red List: Least Concern (2011).

Distinguishing Characteristics

Measurements: Carapace length reaches 28 cm.

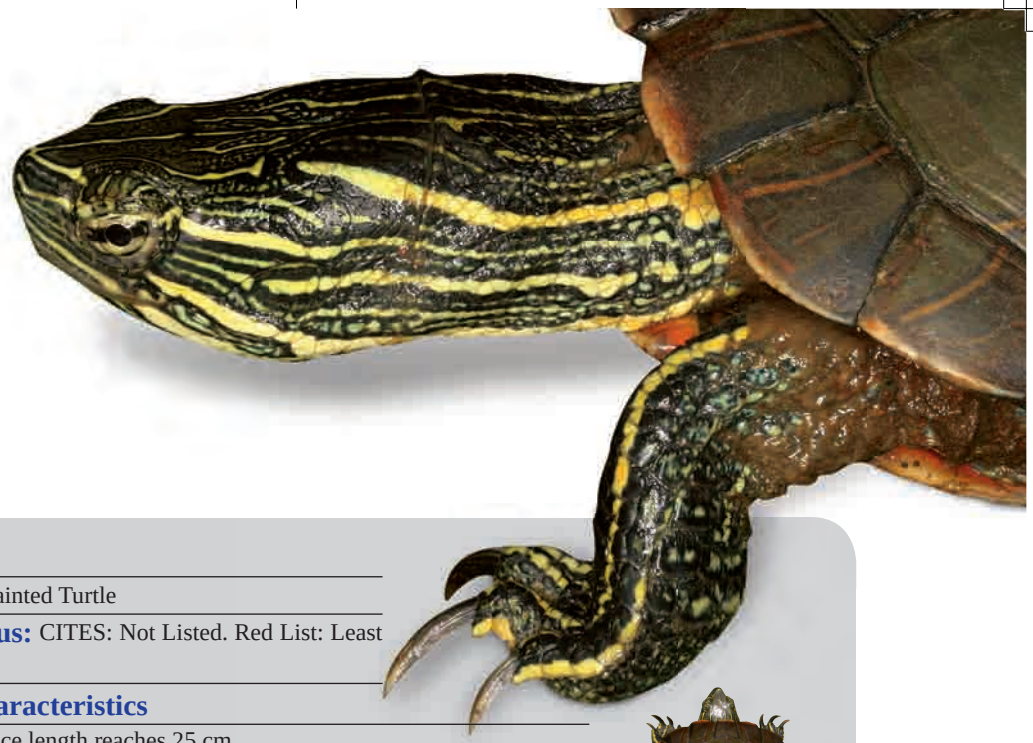
Head and Neck: Head and neck are covered with several thick yellow stripes, and a bright yellow crescent mark is present behind the eyes.

Carapace and Plastron: Carapace is dark brown with a few yellowish-brown lines. Plastron is yellowish and circular black blotches often occur on the gular, humeral, and pectoral scutes.

Limbs and Tail: Similarly patterned as the head and neck.

Comparison: See *Trachemys scripta elegans*.

Distribution: USA.



Chrysemys picta

Common Name: Painted Turtle

Conservation Status: CITES: Not Listed. Red List: Least Concern (2011).

Distinguishing Characteristics

Measurements: Carapace length reaches 25 cm.

Head and Neck: Several intermittent yellow stripes on the sides of head, behind the eyes, and behind the jaw.

Carapace and Plastron: Carapace has yellowish or reddish vertebral stripe and seams, and marginal scutes with yellow to red lines. Two inguinal scutes are present on the plastron.

Comparison: Compared with *Trachemys scripta elegans*, this species does not have red patches behind eyes.

Distribution: Canada, USA, and Mexico.

Juvenile

Pseudemys concinna

Common Name: River Cooter

Conservation Status: CITES: Not Listed. Red List: Least Concern (2011).

Distinguishing Characteristics

Measurements: Carapace length reaches about 32 cm.

Head and Neck: Head and neck have many thick yellow stripes with a yellow V-shaped marking on the throat.

Carapace and Plastron: Carapace has irregular yellow bands and circular markings. Plastron is yellowish with symmetrical black markings.

Limbs and Tail: Color patterns are similar to that of the head and neck.

Comparison: Symmetrical black markings on yellow plastron can distinguish this species from similar ones.

Distribution: Eastern USA and Mexico.

Pseudemys nelsoni

Common Name: Florida Red-bellied Turtle

Conservation Status: CITES: Not Listed. Red List: Least Concern (2011).

Distinguishing Characteristics

Measurements: Carapace length does not exceed 38 cm.

Head and Neck: Head and neck have several thick yellow stripes and a yellow V-shaped marking on the throat.

Carapace and Plastron: Carapace has irregular yellowish-red bands. Plastron is orangish-yellow without markings.

Limbs and Tail: Color markings are similar to that of the head and neck.

Comparison: *P. nelsoni* has an orangish plastron, while *P. floridana* has a yellowish-white plastron.

Distribution: USA.

Pseudemys floridana

Common Name: Common Cooter

Conservation Status: CITES: Not Listed. Red List: Not Listed.

Distinguishing Characteristics

Measurements: Carapace length reaches about 40 cm.

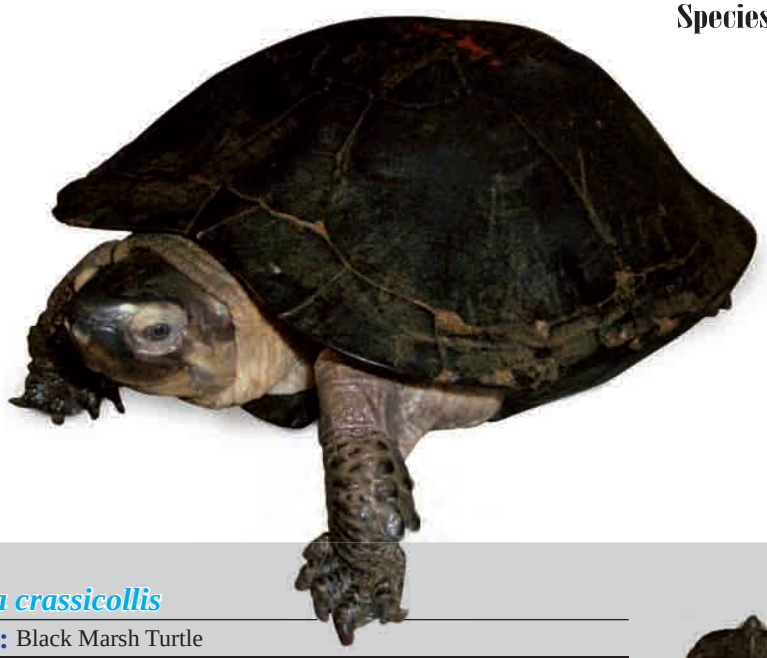
Head and Neck: Many yellow stripes running from the snout to the neck and a pair of Y-shaped markings on the top of the head.

Carapace and Plastron: Carapace is brown with orangish-yellow marks, and plastron is yellowish-white.

Limbs and Tail: Color patterns are similar to that of the head and neck.

Comparison: See *Pseudemys nelsoni*.

Distribution: USA.



Siebenrockiella crassicollis

Common Name: Black Marsh Turtle

Conservation Status: CITES: Appendix II. Red List: Vulnerable (2000).

Distinguishing Characteristics

Measurements: Carapace length reaches 20 cm.

Head and Neck: Head and neck are dark brown. Subadults and females have yellowish-white spots at the base of the jaw, top of the head, and above the eyes.

Carapace and Plastron: Carapace is black with a prominent vertebral keel and serrated posterior rim.

Limbs and Tail: Color patterns are similar to that of the head and neck.

Comparison: The serrated posterior rim on the black carapace can distinguish this species from similar species.

Distribution: Vietnam, Cambodia, Thailand, Myanmar, Malaysia, Indonesia, and Singapore.

Batagur baska

Common Name: River Terrapin

Conservation Status: CITES: Appendix I. Red List: Critically Endangered (2000).

Distinguishing Characteristics

Measurements: Carapace length can reach 60 cm.

Head and Neck: Head and neck are greyish-black dorsally and lighter ventrally. Snout is protruding and curved upwards. Iris is bright yellow or white.

Carapace and Plastron: Carapace is greyish-black and plastron is yellowish-white, both without markings.

Limbs and Tail: Forelimbs have four claws.

Comparison: *Callagur borneoensis*—*B. baska* has four claws on the forelimbs and a greyish-black carapace, while *C. borenoensis* has five claws on the forelimbs and a brown to dark grey carapace with dark markings.

Distribution: Vietnam, Thailand, Malaysia, Indonesia, Myanmar, India, and Bangladesh.

Mauremys japonica

Common Name: Japanese Pond Turtle

Conservation Status: CITES: Not Listed. Red List: Lower Risk/Near Threatened (2000).

Distinguishing Characteristics

Measurements: Carapace length reaches about 20 cm.

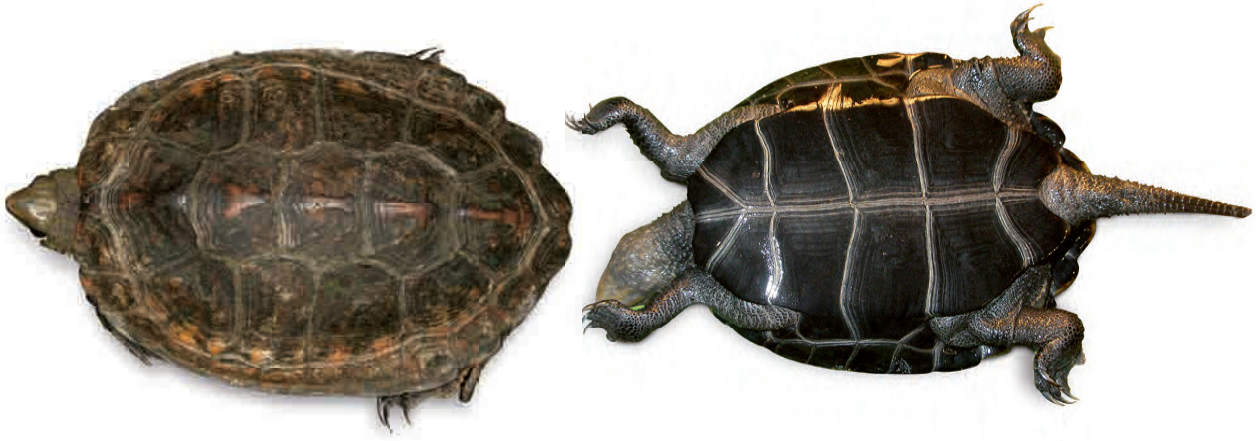
Head and Neck: Head is light brown with black markings, and neck has fine light stripes.

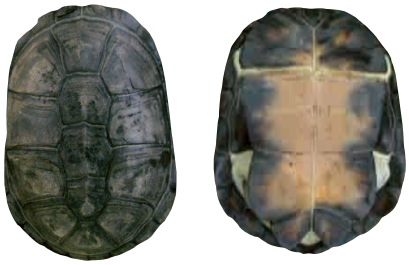
Carapace and Plastron: Carapace is brownish-yellow with prominent growth rings and serrated posterior rim. Plastron is black without markings.

Limbs and Tail: Limbs and tail are dull brown in color with light yellow outer margins.

Comparison: The yellowish-brown carapace and black unmarked plastron can distinguish this species from other species.

Distribution: Japan.





Pelusios subniger

Common Name: East African Black Mud Turtle

Conservation Status: CITES: Not Listed. Red List: Lower Risk/Least Concern (1996).

Distinguishing Characteristics

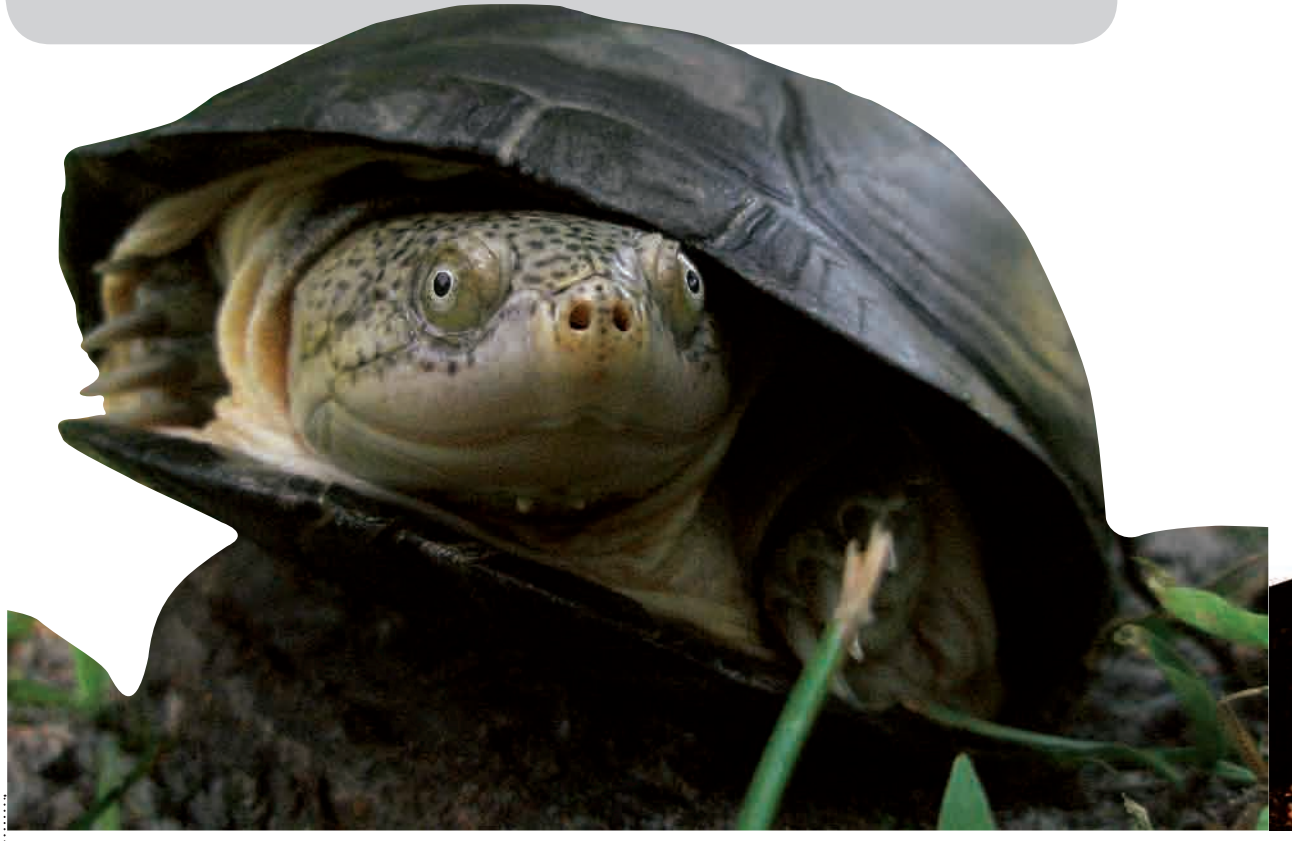
Measurements: Carapace length reaches 20 cm.

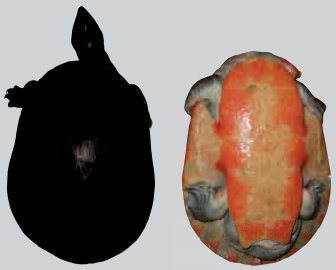
Head and Neck: Head is yellowish-brown with black markings dorsally. One pair of barbels on the throat.

Carapace and Plastron: Carapace does not have a cervical scute. Plastron is hinged with thirteen scutes. Intergular and gular scutes are lying side-by-side.

Comparison: Other *Pleurodira* species—*P. subniger* has a hinge on the plastron that distinguishes it from other *Pleurodira* species.

Distribution: Africa (Tanzania to east of Botswana, also in Madagascar and Seychelles).





Emydura subglobosa

Common Name: Red-bellied Short-necked Turtle

Conservation Status: CITES: Not Listed. Red List: Lower Risk/Least Concern (2000).

Distinguishing Characteristics

Measurements: Carapace length reaches 26 cm.

Head and Neck: A yellow band extends from the snout to the temple. Upper jaw is yellow and lower jaw is red.

Carapace and Plastron: Carapace has an orange margin, while plastron is plain red.

Limbs and Tail: Five claws are present on forelimbs and four on the hindlimbs.

Comparison: *E. subglobosa* has a bright red plastron that distinguishes it from other *Pleurodira* species.

Distribution: Northern Australia and New Guinea Island.

Platemys platycephala

Common Name: Twist-necked Turtle

Conservation Status: CITES: Not Listed. Red List: Not Listed.

Distinguishing Characteristics

Measurements: Carapace length does not exceed 16.5 cm.

Head and Neck: Head is orange dorsally, and one pair of barbels is present on the throat.

Carapace and Plastron: Carapace has depressed vertebral scutes. Plastron is black with a yellow margin with thirteen scutes, in which the intergular and gular scutes are lying side-by-side.

Limbs and Tail: Five claws are present on the forelimbs and four claws are present on the hindlimbs.

Comparison: The depressed vertebral scutes on carapace and orangish-yellow head can distinguish this species from other *Pleurodira* species.

Distribution: Venezuela, Surinam, Guyana, French Guyana, Bolivia, Ecuador, Peru, Colombia, and Brazil.

Chelus fimbriatus

Common Name: Mata Mata

Conservation Status: CITES: Not Listed. Red List: Not Listed.

Distinguishing Characteristics

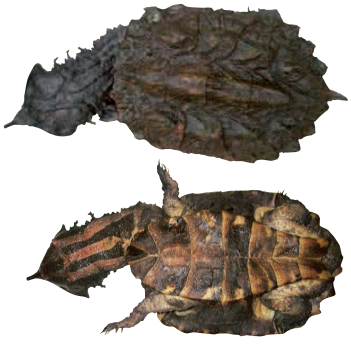
Measurements: Carapace length reaches 50 cm and body weight is up to 15 kg.

Head and Neck: Head is wide, flattened, and triangular in shape with a long tubular snout. Neck is densely covered with small flaps.

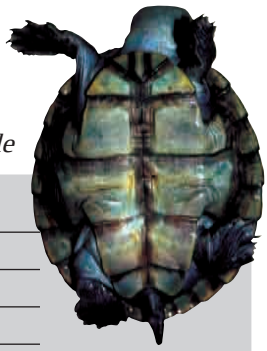
Carapace and Plastron: Carapace has knobby scutes and a serrated margin. Thirteen scutes are present on the plastron.

Comparison: The tubular long nose and triangular head can distinguish this species from similar species.

Distribution: Northern South America, including Brazil, Colombia, Venezuela, Guyana, French Guiana, and Ecuador.



Juvenile



Juvenile

Podocnemis unifilis

Common Name: Yellow-spotted Amazon River Turtle

Conservation Status: CITES: Appendix II. Red List: Vulnerable (1996).

Distinguishing Characteristics

Measurements: Carapace length does not exceed 48 cm.

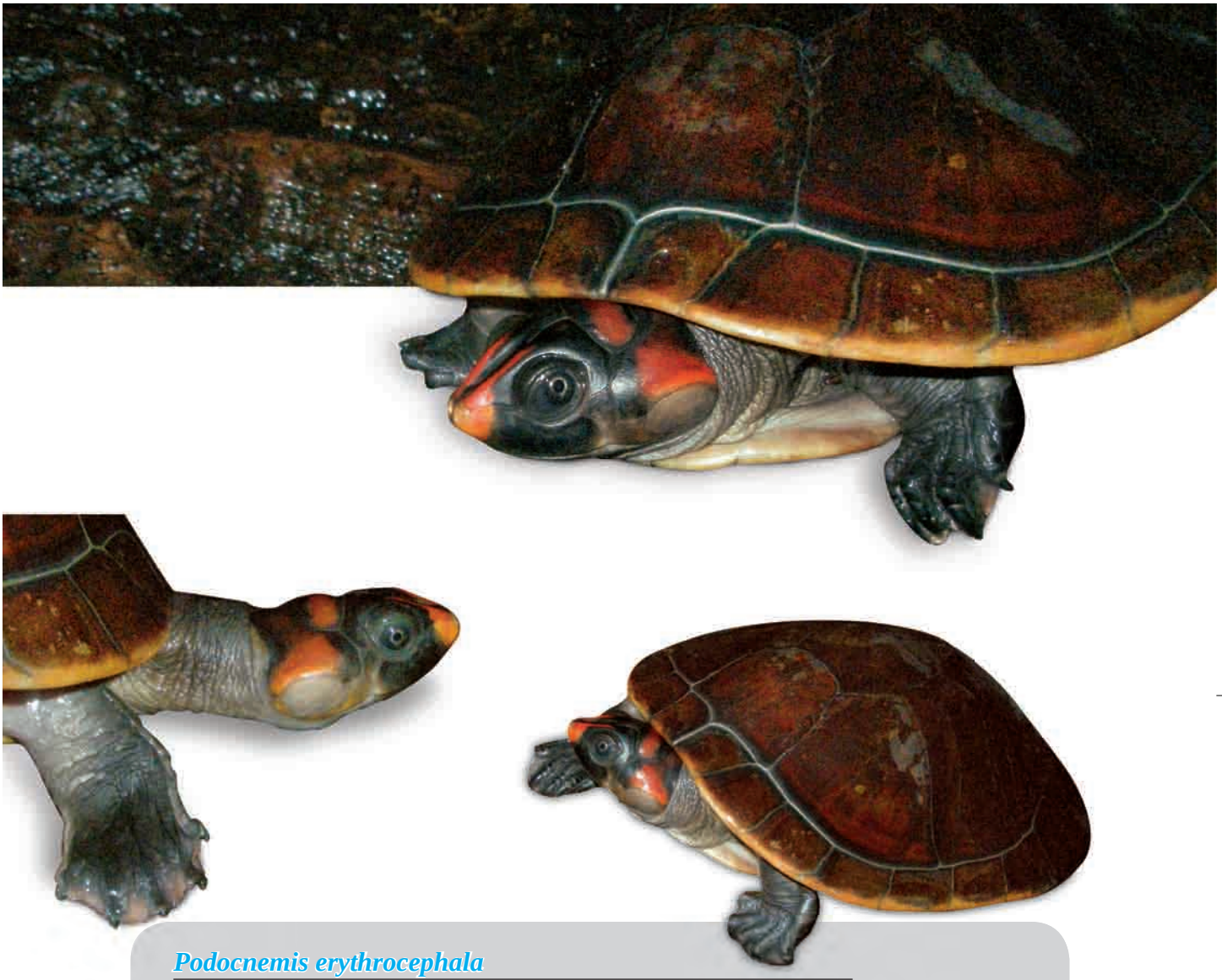
Head and Neck: Head has large yellow patches.

Carapace and Plastron: Carapace has a light yellow margin. Plastron has thirteen scutes, with intergular and gular scutes lying side-by-side.

Limbs and Tail: Hindlimbs usually have three large scales. Tail is covered with nine lightly-colored circular scales.

Comparison: The large and bright yellow spots on the head can distinguish this species from other *Pleurodira* species.

Distribution: Guyana, Venezuela, Colombia, Ecuador, Peru, Bolivia, and Brazil.



Podocnemis erythrocephala

Common Name: Red-headed Amazon River Turtle

Conservation Status: CITES: Appendix II. Red List: Vulnerable (1996).

Distinguishing Characteristics

Measurements: Carapace length is less than 32 cm.

Head and Neck: Head has large red areas that become yellowish-brown in adult females. One pair of barbels is present on the throat.

Carapace and Plastron: Carapace has a yellowish-brown margin. Plastron has thirteen scutes, with the intergular and gular scutes lying side-by-side.

Limbs and Tail: Hindlimbs usually have three large scales on outer side. Tail is covered with nine lightly-colored circular scales.

Comparison: The big red marks on the head in young and adult males can distinguish this species from other *Pleurodira* species.

Distribution: Brazil, Venezuela, and Colombia.

Hydromedusa tectifera

Common Name: South American Snake-necked Turtle

Conservation Status: CITES: Not Listed. Red List: Not Listed.

Distinguishing Characteristics

Measurements: Carapace length reaches 30 cm.

Head and Neck: A yellow stripe extends from the upper jaw to the base of the neck. Neck is nearly as long as the carapace.

Carapace and Plastron: Carapace has knobby scutes and six vertebral scutes. Plastron has thirteen scutes, with the intergular and gular scutes lying side-by-side.

Limbs and Tail: Four claws on all limbs.

Comparison: Six vertebrals and protruding knobby scutes can distinguish this species from other *Pleurodira* species.

Distribution: Brazil, Paraguay, Argentina, and Uruguay.

Pelomedusa subrufa

Common Name: African Helmeted Turtle

Conservation Status: CITES: Not Listed. Red List: Not Listed.

Distinguishing Characteristics

Measurements: Carapace length can reach 33 cm, but usually under 20 cm.

Head and Neck: Head is divided into seven parts by deep grooves, with one large scale covering the top of the head.

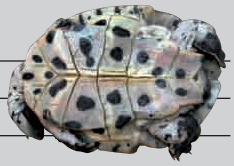
Carapace and Plastron: Carapace is smooth with no keel. Thirteen scutes are present on the plastron.

Limbs and Tail: Each limb has five claws.

Comparison: *P. subrufa* has five claws on each limb and no hinge on plastron, distinguishing it from other *Pleurodira* species.

Distribution: From Senegal eastward to Cameroon and from Sudan southward to Cape Province in Africa, Madagascar, and Yemen.

Phrynops hilarii



Common Name: Spotted-bellied Side-necked Turtle

Conservation Status: CITES: Not Listed. Red List: Not Listed.

Distinguishing Characteristics

Measurements: Carapace length reaches 40 cm.

Head and Neck: Head has a single black stripe on the sides. A pair of long black and white barbels are present on the throat.

Carapace and Plastron: Plastron is yellowish-white with scattered black spots. Thirteen scutes on the plastron, in which the intergular and gular scutes are lying side-by-side.

Limbs and Tail: Four claws on forelimbs and five claws on hindlimbs.

Comparison: Compared with *Phrynops geoffroanus*, only one black stripe on sides of head in this species.

Distribution: Brazil, Uruguay, and Argentina.

Phrynops geoffroanus

Common Name: Geoffroy's Side-necked Turtle

Conservation Satus: CITES: Not Listed. Red List: Not Listed.

Distinguishing Characteristics

Measurements: Carapace length reaches 40 cm.

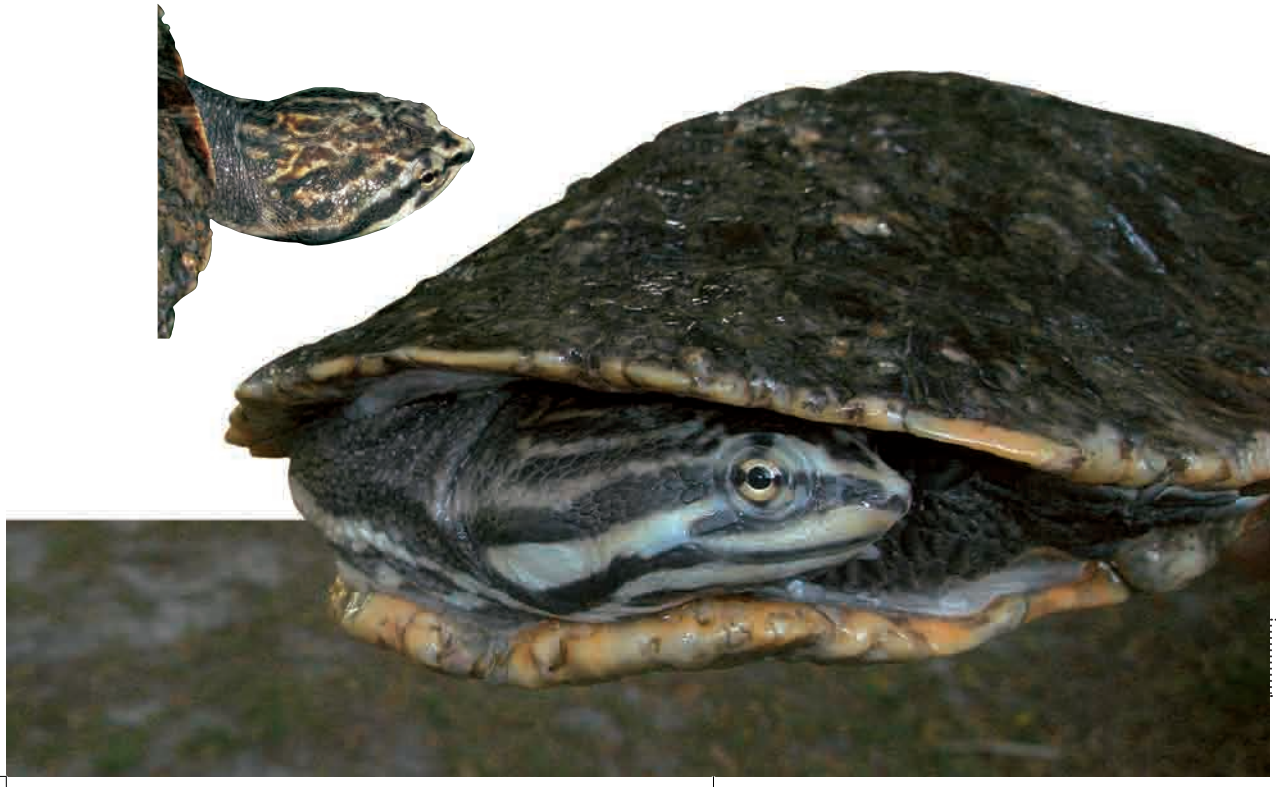
Head and Neck: Head and neck are covered with alternating white and black stripes.

Carapace and Plastron: Plastron is light reddish with black markings and thirteen scutes, in which the intergular and gular scutes are lying side-by-side.

Limbs and Tail: Four claws on forelimbs and five claws on hindlimbs.

Comparison: See *Phrynops hilarii*.

Distribution: Brazil, Argentina, and Uruguay.



Chelodina siebenrocki

Common Name: Siebenrock's Side-necked Turtle

Conservation Status: CITES: Not Listed. Red List: Not Listed.

Distinguishing Characteristics

Measurements: Carapace length reaches 38 cm.

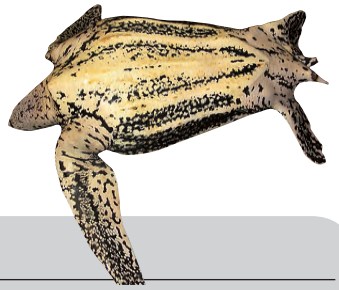
Head and Neck: Neck is extremely long (about three quarters the length of the carapace). Two or more pairs of barbels are present on the throat.

Carapace and Plastron: Plastron has thirteen scutes, with intergular scute behind the gular scutes.

Limbs and Tail: Each limb has four claws.

Comparison: The intergular scute is behind the gular scutes, distinguishing this species from other *Pleurodira* species.

Distribution: Indonesia (Southern Papua New Guinea and Irian Jaya).



Dermochelys coriacea

Common Name: Leatherback Sea Turtle

Conservation Status: CITES: Appendix I. Red List: Critically Endangered (2000). China: Class II.

Distinguishing Characteristics

Measurements: Carapace length can reach 180 cm, while body weight can reach 950 kg.

Head and Neck: Head and neck have dense white spots with no scales.

Carapace and Plastron: Carapace and plastron are both bluish-black with scattered light spots, and covered with smooth and rubbery leather skin. Seven keels are present on the carapace with no scutes.

Limbs and Tail: Paddle-like forelimbs do not have claws.

Comparison: The clawless paddle-like limbs and scattered white spots on the body can distinguish this species from other species.

Distribution: Widespread in the Pacific, Atlantic, and Indian Oceans. In China, it can be found in the seas south of Liaoning Province.

Carettochelys insculpta

Common Name: Pig-nosed Turtle

Conservation Status: CITES: Appendix II. Red List: Vulnerable (2000).

Distinguishing Characteristics

Measurements: Carapace length can reach 70 cm and body weight can reach 30 kg.

Head and Neck: Has a pig-like tubular proboscis.

Carapace and Plastron: Scutes are absent on a greyish-black leathery carapace. A row of white markings is present on each side of the carapace.

Limbs and Tail: Forelimbs are paddle-like with two claws. Tail is covered by ring-like scales.

Comparison: Paddle-like forelimbs and ring-like scales on tail can distinguish this species from similar species.

Distribution: Southern Papua New Guinea and Northern Australia.

Juvenile

Lissemys punctata

Common Name: Indian Flapshell Turtle

Conservation Status: CITES: Appendix II. Red List: Low Risk/Least Concern (2000).

Distinguishing Characteristics

Measurements: Carapace length can reach 27 cm and body weight can reach 7 kg.

Head and Neck: Head and neck both have yellow to brown spots.

Carapace and Plastron: Carapace is soft with yellow or brown blotches. Anterior plastron can be pulled upwards towards carapace, and one pair of movable semi-circular femoral flaps is present.

Comparison: The yellow to brown spots on the body can distinguish this species from *Lissemys scutata*.

Distribution: Bangladesh, India, Nepal, Myanmar, and Pakistan.

Juvenile

Lissemys scutata

Common Name: Burmese Flapshell Turtle

Conservation Status: CITES: Appendix II. Red List: Data Deficient (2000).

Distinguishing Characteristics

Measurements: Carapace length reaches about 27 cm.

Head and Neck: Head is yellowish-green, with a black line running through the eyes to the neck.

Carapace and Plastron: The soft carapace is greenish-grey and does not have any markings (juveniles have black spots). Anterior plastron can be pulled towards carapace, and one pair of movable, semi-circular, cutaneous femoral flaps is present on the posterior plastron.

Comparison: See *Lissemys punctata*.

Distribution: Myanmar.

Chitra chitra

Common Name: Thai Narrow-headed Softshell Turtle

Conservation Status: CITES: Appendix II. Red List: Critically Endangered (2000).

Distinguishing Characteristics

Measurements: Carapace can exceed 120 cm and body weight can reach 152 kg.

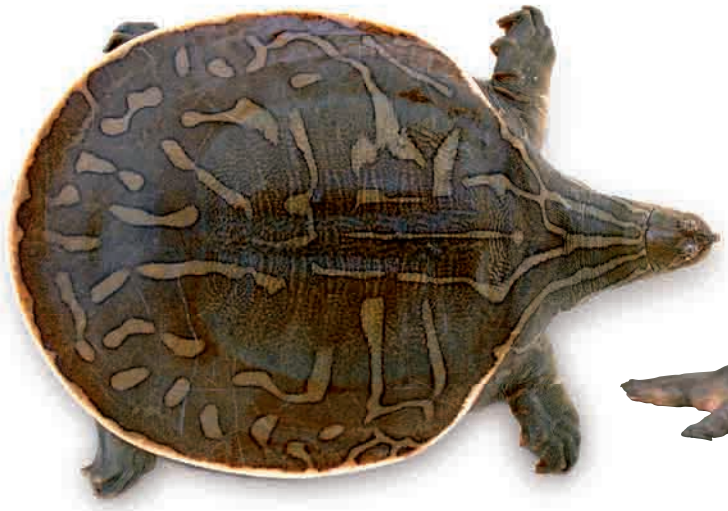
Head and Neck: Head is very small and narrow, with a bell-shaped marking on the top of the head. Markings on the sides of the neck connect with those on the carapace. These markings are free of dark spots in the center.

Carapace and Plastron: The soft carapace is yellowish-green or greyish-green with a yellow margin, vertebral line, and a few radiated markings on the pleural region. Plastron is plain light yellow.

Limbs and Tail: Forelimbs have two horny plates. Dorsal surface has light yellow lines and ventral surface is plain.

Comparison: The light margin on the carapace and two horny plates on the forelimbs can distinguish this species from similar species.

Distribution: Thailand and Malay Peninsula.



Chitra indica

Common Name: Indian Narrow-headed Softshell Turtle

Conservation Status: CITES: Appendix II. Red List: Endangered (2000).

Distinguishing Characteristics

Measurements: Carapace length can exceed 115 cm, while body weight can reach about 120 kg.

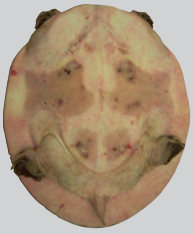
Head and Neck: Head is very small and narrow, and eyes are very small and positioned at the outermost front of head. Markings on the top of the head are not bell-shaped. Lines on the sides of neck are not continuous with those on the carapace. Markings have dark spots in them.

Carapace and Plastron: The soft carapace is greyish-green or brownish-green, with a vertebral line and densely radiated patterns in pleural region. Plastron is plain yellowish-white or pinkish.

Limbs and Tail: Forelimbs are olive or grey with five to seven horny plates.

Comparison: Five to seven horny plates on forelimbs and densely radiated patterns on pleural region can distinguish this species from similar species.

Distribution: Pakistan, India, and Bangladesh.



Chitra vandijki

Common Name: Burmese Narrow-headed Softshell Turtle

Conservation Status: CITES: Appendix II. Red List: Not Listed.

Distinguishing Characteristics

Measurements: Carapace length can exceed 41 cm.

Head and Neck: Head is very small and narrow, and the patterns on top of head are not bell-shaped. Markings on sides of the neck are not continuous with those on carapace. Markings do not have dark spots in them.

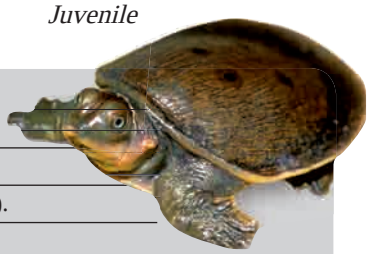
Carapace and Plastron: Soft carapace is brown, without vertebral line, and sparsely radiated markings on pleural region. Plastron is plain yellowish-white.

Limbs and Tail: Forelimbs have three or four horny plates. Ventral surface of limbs are light yellow or pinkish and tail is grey to black.

Comparison: Three or four horny plates on forelimbs and a few radiated markings on pleural region can distinguish this species from similar species.

Distribution: Border area between Myanmar and Thailand.

Juvenile



Aspideretes gangeticus

Common Name: Indian Softshell Turtle

Conservation Status: CITES: Appendix I. Red List: Vulnerable (2000).

Distinguishing Characteristics

Measurements: Carapace length can reach 70 cm.

Head and Neck: Head is greenish-grey with a black reticulated pattern and black stripes behind eyes.

Carapace and Plastron: Soft carapace is yellowish-green. Juveniles have a yellow margin, black ocelli, and longitudinal tubercles (which disappear in adults). Plastron is greyish-white.

Limbs and Tail: Color is similar to that of the head and neck.

Comparison: *A. gangeticus* has a black reticulated pattern on head, while *N. formosa* and *A. hurum* have spots.

Distribution: India, Pakistan, Bangladesh, and Nepal.

Nilssonia formosa

Common Name: Burmese Peacock Softshell Turtle

Conservation Status: CITES: Not Listed. Red List: Endangered (2000).

Distinguishing Characteristics

Measurements: Carapace length is less than 40 cm.

Head and Neck: Head and neck are orange with small black spots, which disappear in older individuals.

Carapace and Plastron: Four large symmetrical ocelli are present on the soft carapace (especially visible in younger individuals) and two rows of large tubercles are present along the anterior margin.

Limbs and Tail: Similar color pattern as that of the head and neck.

Comparison: In contrast with *Aspideretes hurum*, the spots on the head in this species are black.

Distribution: Myanmar.

Aspideretes hurum

Common Name: Indian Peacock Softshell Turtle

Conservation Status: CITES: Appendix I. Red List: Vulnerable (2000).

Distinguishing Characteristics

Measurements: Carapace length can reach 60 cm.

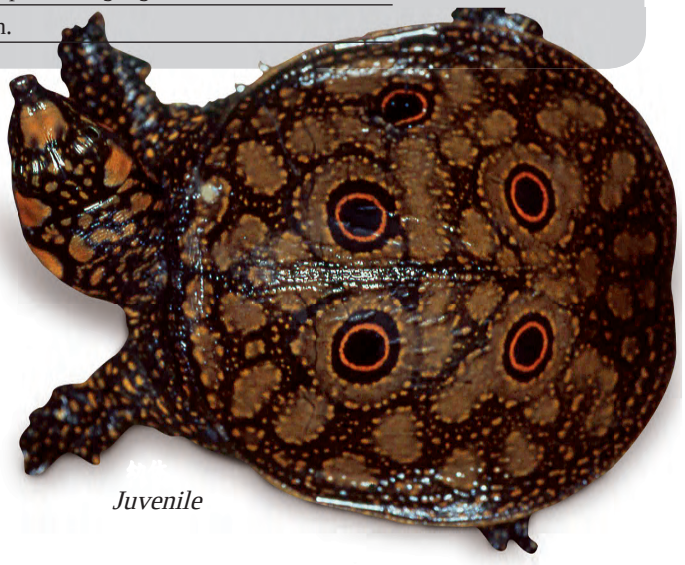
Head and Neck: Head and neck are yellowish-green, and densely covered with yellow spots, and one large yellow patch behind each eye. These color markings fade in older individuals.

Carapace and Plastron: Four to six yellow-margined, black ocelli and several rows of tubercles on the soft carapace, and outer margin is densely covered with yellow stippling. These color patterns are replaced by dull green reticulations in older individuals. Plastron is grey to brown.

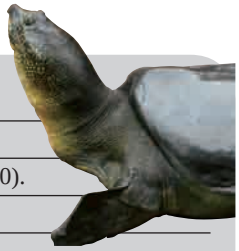
Limbs and Tail: Color patterns are similar to that of the head and neck.

Comparison: See *Nilssonia formosa* and *Aspideretes gangeticus*.

Distribution: Nepal, India, and Bangladesh.



Juvenile



Rafetus swinhoei

Common Name: Swinhoe's Softshell Turtle

Conservation Status: CITES: Appendix III. Red List: Critically Endangered (2000).

Distinguishing Characteristics

Measurements: Carapace length can reach 180 cm and body weight can reach 200 kg.

Head and Neck: Head and neck are both densely covered with yellow (in adults) or white (in juveniles) markings. Proboscis is shorter than the eye diameter.

Carapace and Plastron: Soft carapace is covered with yellow markings.

Limbs and Tail: Color pattern is similar to that of the head and neck.

Comparison: See *Pelochelys cantorii*.

Distribution: China (Shanghai, Yunnan, Zhejiang, and Jiangsu Provinces) and north and central Vietnam.

Pelochelys cantorii

Common Name: Asian Giant Softshell Turtle

Conservation Status: CITES: Appendix II. Red List: Endangered (2000). China: Class I.

Distinguishing Characteristics

Measurements: Carapace length can reach 129 cm, but generally much shorter.

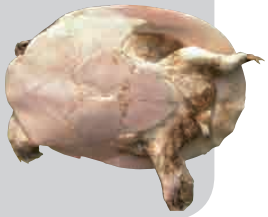
Head and Neck: Tubular proboscis is shorter than the eye diameter.

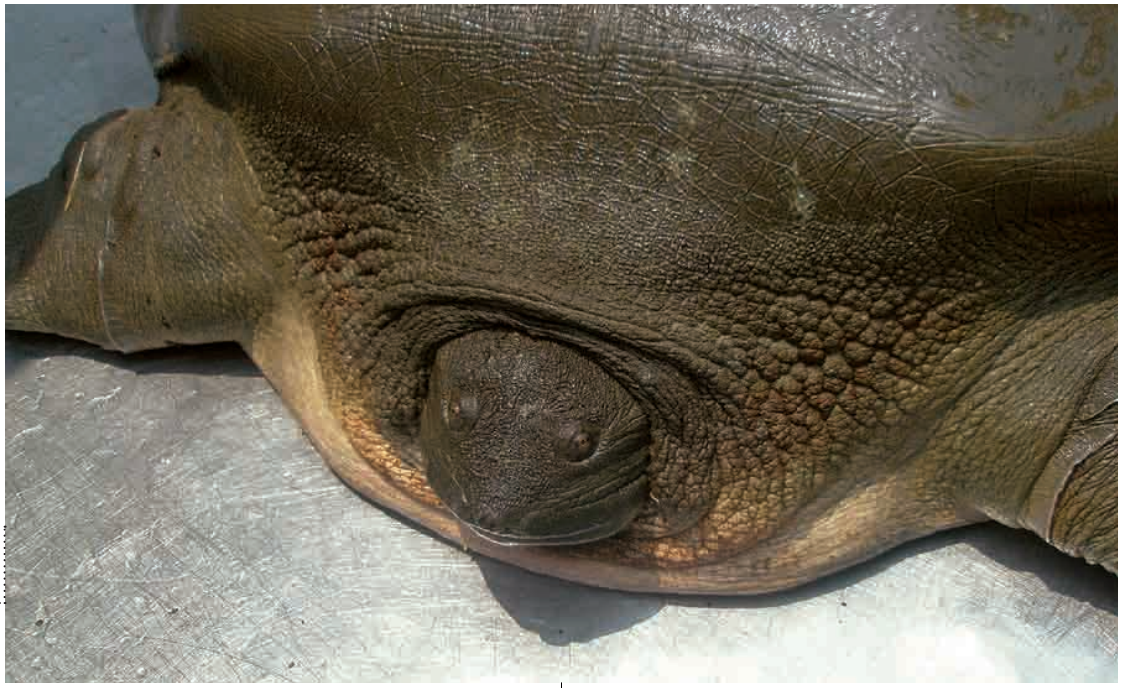
Carapace and Plastron: Soft carapace is greenish-grey to brown and unmarked, while the plastron is pinkish-white.

Limbs and Tail: Color is similar to that of the head and neck.

Comparison: Compared with *Rafetus swinhoei*, this species has an unmarked body and head.

Distribution: China (Zhejiang, Fujian, Yunnan, Guangxi, Guangdong, and Hainan Provinces), and coastal areas of Bay of Bengal.





Apalone spinifera

Common Name: Spiny Softshell Turtle

Conservation Status: CITES: Appendix I (*Apalone spinifera spinifera*). Red List: Least Concern (2011).

Distinguishing Characteristics

Measurements: Carapace length does not exceed 55 cm.

Head and Neck: Two dark-edged yellowish-green stripes on sides of the head.

Carapace and Plastron: Soft carapace surface is spotted with black rings and yellow on the outer margin. The anterior carapace has a row of prominent spur-like tubercles.

Limbs and Tail: Limbs and tail are yellowish-green in color and densely covered with black markings.

Comparison: See *Apalone ferox*.

Distribution: Southern Canada, USA, and Mexico.

Apalone ferox

Common Name: Florida Softshell Turtle

Conservation Status: CITES: Not Listed. Red List: Least Concern (2011).

Distinguishing Characteristics

Measurements: Carapace length does not exceed 60 cm.

Head and Neck: Head and neck are grey to brown in color with yellow markings in juveniles.

Carapace and Plastron: The anterior of the soft carapace has four to six rows of tubercles that extend to the sides. Carapace of juveniles has yellow rings and a yellow margin, which disappear in adults. Plastron is pinkish-white in adults and purplish-black in juveniles.

Limbs and Tail: Color patterns are similar to that of the head and neck.

Comparison: *A. ferox* does not have spur-like tubercles on the anterior carapace, while *A. spinifera* does.

Distribution: USA.

Palea steindachneri

Common Name: Wattle-necked Softshell Turtle

Conservation Status: CITES: Appendix III. Red List: Endangered (2000). China: Class II.

Distinguishing Characteristics

Measurements: Carapace length can reach 43 cm.

Head and Neck: Yellowish-white patch behind the eyes, which disappears in adults. A cluster of large wattles on either side of the base of neck.

Carapace and Plastron: Soft carapace is brownish-green to greyish-black. The anterior margin of the carapace has a row of large tubercles (young individuals have longitudinal lines of tubercles). Plastron is pinkish-white, with large blurry dark marks, and a dark grey outer margin.

Comparison: Compared with *Amyda cartilaginea*, this species has a cluster of large wattles at either side of the base of neck.

Distribution: China (Yunnan, Guangxi, Guangdong, and Hainan Provinces) and Vietnam.

Amyda cartilaginea

Common Name: Asiatic Softshell Turtle

Conservation Status: CITES: Appendix II. Red List: Vulnerable (2000).

Distinguishing Characteristics

Measurements: Carapace length can reach 80 cm and body weight can reach 202 kg.

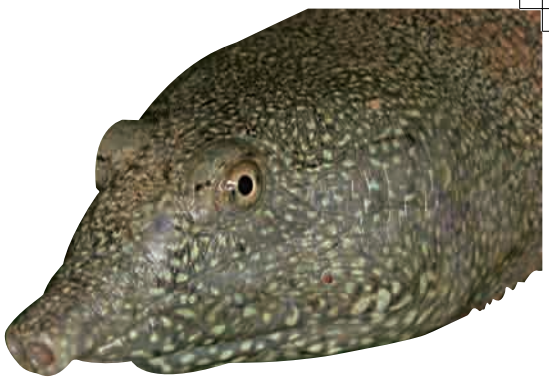
Head and Neck: Head and neck are scattered with yellow spots that disappear in older individuals. Tubular proboscis is longer than the eye diameter.

Carapace and Plastron: Soft carapace has a row of large tubercles along the anterior margin and several longitudinal lines of horny projections. Obscure markings of various colors and shapes are present on the carapace, which are replaced by dark radiating stripes in adults. Plastron is greyish-white.

Limbs and Tail: Similar color pattern as the head and neck.

Comparison: Compared with *Rafetus swinhoei* and *Pelochelys cantorii*, the tubular proboscis is longer than the eye diameter and a row of large tubercles on the anterior margin of the carapace is present in this species.

Distribution: India, Vietnam, and other South and Southeast Asian countries.



Pelodiscus sinensis

Common Name: Chinese Softshell Turtle

Conservation Status: CITES: Appendix III. Red List: Vulnerable (2000). China: Not Listed.

Distinguishing Characteristics

Measurements: Carapace length does not exceed 35 cm, and is often less than 25 cm in individuals from southern areas.

Head and Neck: Head and neck are often densely covered with small light-colored spots and a blurry black stripe running through the eye to the neck. The head and snout are relatively narrow and elevated. Juveniles have dark-margined light spots on ventral side of the head and neck.

Carapace and Plastron: Soft carapace has several keels made up of small tubercles and the margin is curved upward. The plastron of juveniles is orange-red with symmetrical black markings that disappear in adults.

Limbs and Tail: Color patterns are similar to that of the head, neck, and carapace.

Comparison: There is still uncertainty in the taxonomy of *P. sinensis*. The large-scale captive breeding and mixing of different populations has caused a lot of variations.

Distribution: China (except Xinjiang, Tibet, and Qinghai Provinces), Japan, Korea Peninsula, and Vietnam.

References

Altherr S., D. Freyer. 2000. Asian Turtles are Threatened by Extinction. Turtle and Tortoise Newsletter, 1:7-11.

Behler J. 1993. Troubled times for turtles. In Proceedings: Conservation, restoration and management of tortoises and turtles – An International Conference. July 1993: xvii–xxii. Abbema, V. (Ed.). Purchase, NY: Turtle Recovery Program and New York Turtle and Tortoise Society.

Collins D. E. 1998. Turtles in Peril-China's turtle population decreasing drastically in our lifetimes. Riverwatch.16-18.

Ernst, C. H., R. W. Barbour. 1989. Turtles of the World, Washington D.C., Smithsonian Institution Press.

Fong J. J., J. F. Parham, H. T. Shi, B. Stuart, R. Carter. 2007. A genetic survey of heavily exploited, endangered turtles: caveats on the conservation value of trade animals. Animal Conservation, 10: 452-460.

Franck B., B. Devaux, A. Dupre. 2006. Turtles of the world. English translation by Peter Pritchard. Johns Hopkins University Press.

Fu J. Z. 1993. The summary of classification of chelonian species in China. Chinese Journal of Zoology, 28: 58-61. (in Chinese)

Gong S. P., J. C. Wang, H. T. Shi, R. H. Song, R. M. Xu. 2006. Illegal trade and conservation requirements of freshwater turtles in Nanmao, Hainan Province, China. Oryx, 40: 331-336.

Gong S. P., Y. L. Fu, J. C. Wang, H. T. Shi, R. M. Xu. 2005. Freshwater turtle trade in Hainan and suggestions for effective management. Chinese Biodiversity, 13: 239-247. (in Chinese with English abstract)

Hong M. L., H. T. Shi, L. R. Fu, S. P. Gong, J. J. Fong, J. F. Parham. 2008. Scientific refutation of traditional Chinese medicine claims about turtles. Applied Herpetology. 5: 173-187.

Iverson, J. B. 1992. A Revised Checklist with Distribution Maps of the Turtles of the World. Richmond, IN: Privately printed.

Li, Y., D. Li. 1997. The investigation on wildlife trade across Guangxi borders between China and Vietnam. Conserving China's Biodiversity – Reports of the Biodiversity Working group, China Council for International Cooperation on Environment and Development, p. 118-127.

Lau M., H. T. Shi. 2000. Conservation and trade of Terrestrial and Freshwater Turtles and Tortoises in the People's Republic of China. Chelonian Research Monographs, 2: 30-38.

Parham J. F., H. T. Shi. .2001. The discovery of Mauremys iversoni at a turtle farm in Hainan. Asiatic Herpetological Research, 9:71-76.

Parham J. F., W. B. Simison, K. H. Kozak, C. R. Feldman, H. T. Shi. 2001. New Chinese turtle: endangered or invalid? A research of two species using mitochondrial DNA, allozyme electrophoresis and known-locality specimens. Animal Conservation, 4: 357-367.

Shi H. T. 1998. Studies on ecology of Testudo horsfieldii and status of its conservation. Sichuan Journal of Zoology, 17: 65-69. (in Chinese with English abstract)

Shi H. T. 2000. Conservation status of chelonian in Hainan Island. International workshop on the migration, foraging habitats and nesting of marine turtle in Taiwan. 2000, November, 72-74. (in Chinese with English abstract)

Shi H. T. 2002. Results of Turtle Market Surveys in Chengdu and Kunming. Tortoise and Freshwater Turtle Newsletter, 6: 15-16.

Shi H. T. 2004. Observations of Wildlife Trade in Wenchang City, Hainan Island, China. Turtle and Tortoise Newsletter. 4: 12-13.

References

Shi H. T. 2004. Asian turtle: the endangered and longevous species. Life World, 2004: 46-50. (in Chinese)

Shi H. T. 2004. Chinese chelonians. Chinese Bulletin of Biology, 39: 13-16. (in Chinese)

Shi H. T. 2005. Distribution of the Black-Breasted Leaf Turtle (Geoemyda spengleri) on Hainan Island, China. Chelonian Conservation and Biology, 4: 952–954.

Shi H. T. 2006, The Fate of a Wild Caught Golden Coin Turtle (Cuora trifasciata) on Hainan Island, China. Turtle and Tortoise Newsletter, 9: 15-17.

Shi H. T., D. O'Connell, J. F. Parham, K. Buley. 2005. An action plan for turtle conservation in China. Proceedings of the EAZA conference, Kolmarden, Sweden: 47-57.

Shi H. T., J. F. Parham. 2001. Preliminary observation of a large turtle farm in Hainan Province, People's Republic of China. Turtle and tortoise Newsletter, 3: 4-6.

Shi H. T., J. F. Parham, M. Lau, T. H. Chen. 2007. Farming endangered turtles to extinction in China. Conservation Biology, 21: 5-6.

Shi H. T., J. F. Parham, Z. Y. Fan, M. L. Hong, F. Yin. 2008. Evidence for the massive scale of turtle farming in China. Oryx-International Journal for Conservation, 42: 147-150.

Shi H. T., M. Lau, J. F. Parham. 2003. The report about the problems of Chinese chelonian. China Nature, 2003 (1): 37. (in Chinese)

Shi H. T., M. L. Hong, L. R. Fu, J. C. Wang. 2009. The captive breeding and conservation of turtles. Bulletin of Biology, (4): 80-81. (in Chinese)

Shi H. T., S. P. Gong, W. Liang, M. L. Hong, L. R. Fu, J. C. Wang. 2009. Control the diffused tendency of Red-eared Slider (Trachemys scripta elegans) in the natural environment in China. Bulletin of Biology, (4): 80-81. (in Chinese)

Shi H. T., Z. Y. Fan, and Z. G. Yuan. 2004. New data on the trade and captive breeding of turtles in Guangxi Province, South China. Asiatic Herpetological Research, 10: 126-128.

Van Dijk P. P., B. L. Stuart, A. G. J. Rhodin. 2000. Asian Turtle Trade. Chelonian Research Monographs, 2: 1-164.

Wang Z. W., S. P. Gong, H. T. Shi, Y. F. Zhang, J. P. Xu. 2005. Survey on Turtle Trade in Haikou, Hainan Province, China. Sichuan Journal of Zoology, 24: 414-417. (in Chinese with English abstract)

Williams W.1992. Turtle tragedy-Demand in Asia be wiping out turtle populations worldwide. Scientific America, 280:32-33.

Wong M. Craze for freshwater turtles threatens many species Worldwide. 2002 April 02, CNN (Atlanta, Georgia).

Wu P., K. Y. Zhou. 1998. The summary of the systematic research of Chelonia. Chinese Journal of Zoology, 33 (6): 38-45. (in Chinese)

Zhang M. W., Y. Zong, J. P. Ma. 1998. Fauna of China: Reptilia (Volume 1). Beijing, Science in China press. (in Chinese)

Zhao E. M. 1997. Chinese chelonian research. Sichuan Journal of Zoology, supplement: 15. (in Chinese)

Zhao E. M. 1998. China Red Data Book of Endangered Animals (Amphibia and Reptilia). Beijing, Science in China press. (in Chinese)

Zhao E. M., X. W. Zhang, H. Zhao, K. Adler. 2000. The revised catalogue of Chinese amphibian and reptile. Sichuan Journal of Zoology, 19: 196-207. (in Chinese)

Zhou T. 2004. Classification illustration of chelonian. Beijing, China Agriculture Press. (in Chinese)

www.cites.org/eng/app/appendices.shtml.

www.iucnredlist.org.

Index of Scientific Names

Conservation Status

Scientific Name	Common Name	CITES	China	Red List
Agrionemys horsfieldii	Central Asian Tortoise	Appendix II	Class I	VU
Amyda cartilaginea	Asiatic Softshell Turtle	Appendix II		VU
Apalone ferox	Florida Softshell Turtle	NL		NL
Apalone spinifera	Spiny Softshell Turtle	Appendix I		NL
Aspideretes gangeticus	Indian Softshell Turtle	Appendix I		VU
Aspideretes hurum	Indian Peacock Softshell Turtle	Appendix I		VU
Astrochelys radiata	Radiated Tortoise	Appendix I		VU
Astrochelys yniphora	Madagascar Ploughshare Tortoise	Appendix I		CR
Batagur baska	River Terrapin	Appendix I		CR
Callagur borneoensis	Painted Terrapin	Appendix II		CR
Caretta caretta	Loggerhead Sea Turtle	Appendix I	Class II	EN
Carettochelys insculpta	Pig-nosed Turtle	Appendix II		VU
Chelodina siebenrocki	Siebenrock's Side-necked Turtle	NL		NT
Chelonia mydas	Green Sea Turtle	Appendix I	Class II	EN
Chelonoidis carbonaria	South American Red-footed Tortoise	Appendix II		NL
Chelonoidis denticulata	South American Yellow-footed Tortoise	Appendix II		VU
Chelus fimbriata	Mata Mata	NL		NL
Chelydra serpentina	Common Snapping Turtle	NL		NL
Chersina angulata	South Africa Bowsprit Tortoise	Appendix II		NL
Chitra chitra	Narrow-headed Softshell Turtle	Appendix II		CR
Chitra indica	Indian Narrow-headed Softshell Turtle	Appendix II		EN
Chitra vandijki	Burmese Narrow-headed Softshell Turtle	Appendix II		NL
Chrysemys picta	Painted Turtle	NL		NL
Clemmys guttata	Spotted Turtle	NL		VU
Cuora amboinensis	Malayan Box Turtle	Appendix II	Three Merits	VU
Cuora aurocapitata	Golden-headed Box Turtle	Appendix II	Three Merits	CR
Cuora bourreti	Bourret's Box Turtle	Appendix II	Three Merits	CR
Cuora flavomarginata	Yellow-margined Box Turtle	Appendix II	Three Merits	EN
Cuora galbinifrons	Indochinese Box Turtle	Appendix II	Three Merits	CR
Cuora mccordi	McCord's Box Turtle	Appendix II	Three Merits	CR

Scientific Name	Common Name	CITES	China	Red List
Cuora mouhotii	Keeled Box Turtle	Appendix II	Three Merits	EN
Cuora pani	Pan's Box Turtle	Appendix II	Three Merits	CR
Cuora picturata	Southern Vietnamese Box Turtle	Appendix II		CR
Cuora trifasciata	Chinese Three-striped Box Turtle	Appendix II	Class II	CR
Cuora yunnanensis	Yunnan Box Turtle	Appendix II	Class II	EX
Cuora zhoui	Zhou's Box Turtle	Appendix II	Three Merits	CR
Cyclemys atripons	White-bellied Leaf Turtle	NL		NL
Cyclemys dentata	Asian Leaf Turtle	NL		NT
Cyclemys oldhami	Oldham's Leaf Turtle	NL		NL
Cyclemys tcheponensis	Stripe-necked Leaf Turtle	NL		NL
Dermochelys coriacea	Leatherback Sea Turtle	Appendix I	Class II	CR
Dipsochelys dussumieri	Aldabra Tortoise	Appendix II		VU
Emydura subglobosa	Red-bellied Short-necked Turtle	NL		LC
Emys orbicularis	European Pond Turtle	NL		NT
Eretmochelys imbricata	Hawksbill Sea Turtle	Appendix I	Class II	CR
Geochelone elegans	Indian Star Tortoise	Appendix II		NT
Geochelone pardalis	Leopard Tortoise	Appendix II		NL
Geochelone platynota	Burmese Star Tortoise	Appendix II		CR
Geochelone sulcata	African Spurred Tortoise	Appendix II		VU
Geoclemys hamiltonii	Spotted Pond Turtle	Appendix I		VU
Geoemyda japonica	Japanese Black-breasted Leaf Turtle	NL		EN
Geoemyda spengleri	Black-breasted Leaf Turtle	Appendix III	Class II	EN
Graptemys kohnii	Mississippi Map Turtle	Appendix III		NL
Graptemys nigrinoda	Black-knobbed Map Turtle	Appendix III		NT
Graptemys ouachitensis	Ouachita Map Turtle	Appendix III		NL
Graptemys pseudogeographica	False Map Turtle	Appendix III		NL
Hardella thurjii	Crowned River Turtle	NL		VU
Heosemys annandalii	Yellow-headed Temple Turtle	Appendix II		EN
Heosemys depressa	Arakan Forest Turtle	Appendix II		CR
Heosemys grandis	Giant Asian Pond Turtle	Appendix II		VU
Heosemys spinosa	Spiny Turtle	Appendix II		EN

Scientific Name	Common Name	CITES	China	Red List
Hydromedusa tectifera	South American Snake-necked Turtle	NL		NL
Indotestudo elongata	Elongated Tortoise	Appendix II		EN
Kachuga trivittata	Burmese Roofed Turtle	Appendix II		EN
Kinixys belliana	Bell's Hinge-back Tortoise	Appendix II		NL
Kinixys homeana	Home's Hinge-back Tortoise	Appendix II		VU
Kinixys natalensis	Natal Hinge-back Tortoise	Appendix II		NT
Kinosternon flavescens	Yellow Mud Turtle	NL		NL
Kinosternon leucostomum	White-lipped Mud Turtle	NL		NL
Kinosternon scorpioides	Scorpion Mud Turtle	NL		NL
Lepidochelys olivacea	Olive Ridley Sea Turtle	Appendix I	Class II	EN
Lissemys punctata	Indian Flapshell Turtle	Appendix II		LC
Lissemys scutata	Burmese Flapshell Turtle	Appendix II		DD
Macroclemys temminckii	Alligator Snapping Turtle	Appendix III		VU
Malaclemys terrapin	Diamondback Terrapin	NL		NT
Malacochersus tornieri	African Pancake Tortoise	Appendix II		VU
Malayemys subtrijuga	Malayan Snail-eating Turtle	Appendix II		VU
Manouria emys	Asian Brown Tortoise	Appendix II		EN
Manouria impressa	Impressed Tortoise	Appendix II	Class II	VU
Mauremys annamensis	Vietnamese Leaf Tturtle	Appendix II		CR
Mauremys caspica	Caspian Turtle	NL		NL
Mauremys (Chinemys) nigricans	Chinese Red-necked Pond Turtle	Appendix III	Three Merits	EN
Mauremys (Chinemys) reevesii	Chinese Three-keeled Pond Turtle	Appendix III	Three Merits	EN
Mauremys japonica	Japanese Pond Turtle	NL		NT
Mauremys mutica	Asian Yellow Pond Turtle	Appendix II	Three Merits	EN
Mauremys (Ocadia) sinensis	Chinese Striped-neck Turtle	Appendix III	Three Merits	EN
Melanochelys tricarinata	Tricarinate Hill Turtle	Appendix I		VU
Melanochelys trijuga	Indian Black Turtle	NL		NT
Morenia ocellata	Burmese Eyed Turtle	Appendix I		VU
Morenia petersi	Indian Eyed Turtle	NL		VU
Nilssonia formosa	Burmese Peacock Softshell Turtle	NL		EN

Scientific Name	Common Name	CITES	China	Red List
Notochelys platynota	Malayan Flat-shelled Turtle	Appendix II		VU
Orlitia borneensis	Malaysian Giant Turtle	Appendix II		EN
Palea steindachneri	Wattle-necked Softshell Turtle	Appendix III	Class II	EN
Pangshura smithii	Brown Roofed Turtle	Appendix II		NT
Pangshura tecta	Indian Roofed Turtle	Appendix I		LC
Pelochelys cantorii	Asian Giant Softshell Turtle	Appendix II	Class I	EN
Pelodiscus sinensis	Chinese Softshell Turtle	Appendix III		VU
Pelomedusa subrufa	African Helmeted Turtle	NL		NL
Pelusios subniger	East African Black Mud Turtle	NL		LC
Phrynops geoffroanus	Geoffory's Side-necked Turtle	NL		NL
Phrynops hilarii	Spotted-bellied Side-necked Turtle	NL		NL
Platemys platycephala	Twist-necked Turtle	NL		NL
Platysternon megacephalum	Big-headed Turtle	Appendix II	Three Merits	EN
Podocnemis erythrocephala	Red-headed Amazon River Turtle	Appendix II		VU
Podocnemis unifilis	Yellow-spotted Amazon River Turtle	Appendix II		VU
Pseudemys concinna	River Cooter	NL		NL
Pseudemys floridana	Common Cooter	NL		NL
Pseudemys nelsoni	Florida Red-bellied Turtle	NL		NL
Pyxis arachnoides	Malagasy Spider Tortoise	Appendix I		VU
Pyxis planicauda	Madagascar Flat-tailed Spider Tortoise	Appendix I		EN
Rafetus swinhoei	Swinhoe's Softshell Turtle	Appendix III		CR
Rhinoclemmys pulcherrima	Painted Wood Turtle	NL		NL
Sacalia bealei	Beal's Eyed Turtle	Appendix III	Three Merits	EN
Sacalia quadriocellata	Four Eye-spotted Turtle	Appendix III	Three Merits	EN
Siebenrockiella crassicollis	Black Marsh Turtle	Appendix II		VU
Staurotypus salvinii	Chiapas Giant Musk Turtle	NL		NT
Staurotypus triporcatus	Mexican Giant Musk Turtle	NL		NT
Sternotherus carinatus	Razor-backed Musk Turtle	NL		NL
Sternotherus odoratus	Common Musk Turtle	NL		NL

Conservation Status

Scientific Name	Common Name	CITES	China	Red List
Terrapene carolina	Common Box Turtle	Appendix II		NT
Terrapene ornata	Ornate Box Turtle	Appendix II		NT
Testudo graeca	Spur-thighed Tortoise	Appendix II		VU
Testudo hermanni	Hermann's Tortoise	Appendix II		NT
Trachemys scripta elegans	Red-eared Slider	NL		LC
Trachemys scripta scripta	Yellow-eared Slider	NL		LC

Notes: International Union for Conservation of Nature and Natural Resource (IUCN), founded in October 1948, is the most influential organization for the protection of nature.The IUCN Red List of Threatened Species (Red Data List) is the world's most comprehensive inventory of the global conservation status of plant and animal species. It is set upon precise criteria to evaluate the extinction risk of thousands of species and subspecies.

Extinct (EX) - No individuals remaining.

Extinct in the Wild (EW) - Known only to survive in captivity, or as a naturalized population outside its historic range.

Critically Endangered (CR) - Extremely high risk of extinction in the wild.

Endangered (EN) - High risk of extinction in the wild.

Vulnerable (VU) - High risk of endangerment in the wild.

Near Threatened (NT) - Likely to become endangered in the near future.

Least Concern (LC) - Lowest risk. Does not qualify for a more at risk category. Widespread and abundant taxa are included in this category.

Data Deficient (DD) - Not enough data to make an assessment of its risk of extinction.

Not Evaluated (NE) - Has not yet been evaluated against the criteria.

Not Listed (NL) - No record is listed.

Notes: Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) entered the force July 1,1975 with an aim to ensure that that the international trade in specimens of wild animals and plants does not threaten their survival. As of April 21, 2009, 175 countries were Parties to the Convention. CITES works by subjecting international trade in specimens of listed species to certain controls. These require that all import, export, re-export and introduction from the sea of species covered by the Convention has to be authorized through a permitting system. Each protected species or population is included in one of three lists, called Appendices (explained below). The Appendix that lists a species or population reflects the extent of the threat to it and the controls that apply to the trade.

Appendix I: Species that are threatened with extinction and are or may be affected by trade. Trade in wild-caught specimens of these species is illegal (permitted only in exceptional licensed circumstances e.g. research collaboration exchange, breeding research and so on).

Appendix II: Species that are not necessarily threatened with extinction, but may become so unless trade in specimens of such species is subject to strict regulation in order to avoid utilization incompatible with their survival.

Appendix III: Species that are listed after one member country has asked other CITES Parties for assistance in controlling trade in a species.

Chinese State-Protected Species: In order to protect and save rare and endangered wildlife, to rationally utilize wildlife resources and maintain ecological balance, the Law of the People's Republic of China on the Protection of Wildlife classifies Chinese wildlife resources into three categories: Class I, Class II and Three Merits (Wildlife are beneficial or of economic importance or scientific value).

CONSTITUTION OF THE PEOPLE'S REPUBLIC OF CHINA

Chapter 1, Article 9.

The state ensures the rational use of natural resources and protects rare animals and plants. The appropriation or damage of natural resources by any organization or individual by whatever means is prohibited.

CRIMINAL LAW OF THE PEOPLE'S REPUBLIC OF CHINA

Article 151

Whoever smuggles rare species of wildlife as well as the products thereof, the import and export of which are forbidden by the State, shall be sentenced to fixed-term imprisonment of more than five years and shall also be fined; if the circumstances are minor, he shall be sentenced to fixed-term imprisonment of not more than five years and shall also be fined. If the circumstances are especially serious, shall be sentenced to life imprisonment or death and the property should also be confiscated. Where a body commits the crime as mentioned in this Article, it shall be fined, and the persons who are directly in charge and the other persons who are directly responsible for the crime shall be punished in accordance with the provisions of the paragraphs in this Article respectively.

Article 341

A person who illegally catches or kills the wildlife species under special state protection which are rare or near extinction, or illegally purchases, transports or sells the wildlife species under special state protection which are rare or near extinction or their products, shall be sentenced to fixed-term imprisonment of not more than five years or criminal detention and concurrently to a fine; if the circumstance is serious, to fixed-term imprisonment of more than five years and less than ten years and concurrently to a fine; and if the circumstance is especially serious, to fixed-term imprisonment of not less than ten years and concurrently to a fine or confiscation of property.

A person who, in violation of game laws or regulations, hunts in a game reserve, during a period when hunting is prohibited or using gears or methods that are prohibited, thus damaging wildlife resources, shall be sentenced to fixed-term imprisonment of not more than three years, criminal detention, public surveillance or a fine if the circumstance is serious.

The supplement law about punishing the crime of hunting state protected rare and endangered wildlife

Illegal hunting of rare and endangered wildlife which are state key protected should be sentenced to fixed-term imprisonment of no more than seven years or criminal detention and/or fined. Illegal trade and smuggle should be sentenced as crime of illegal speculation and profiteering and crime of smuggling.

LAW OF THE PEOPLE'S REPUBLIC OF CHINA ON THE PROTECTION OF WILDLIFE

Article 16

The hunting, catching or killing of wildlife under special state protection shall be prohibited. Where the catching or fishing of

wildlife under Class I state protection is necessary for scientific research, domestication and breeding, exhibition or other special purposes, the body concerned must apply to the Department of Wildlife Administration under the State Council for a special hunting and catching license; where the catching or hunting of wildlife under Class II state protection is intended, the body concerned must apply to the relevant Department of Wildlife Administration under the government of a province, an autonomous region or a municipality directly under the Central Government for a special hunting and catching license.

Article 17

Anyone who intends to domesticate and breed wildlife under special state protection shall obtain a license.

Article 18

Anyone who intends to hunt or catch wildlife that is not under special state protection must obtain a hunting license and observe the hunting quota assigned. Anyone who intends to hunt with a gun must obtain a gun license from the public security body of the county or municipality concerned.

Article 23

The transportation or carrying of wildlife under special state protection or the products thereof out of any county must be approved by the Department of Wildlife Administration under the government of the relevant province, autonomous region or municipality directly under the Central Government, or by a unit authorized by the same department.

Article 24

The export of wildlife under special state protection or the products thereof, and the import or export of wildlife or the products thereof, whose import or export is restricted by international conventions to which China is a party, must be approved by the Department of Wildlife Administration under the State Council or by the State Council, and an import or export permit must be obtained from the state administrative body in charge of the import and export of the endangered species. The Customs shall clear the imports or exports after examining the import or export permit.

Article 26

Where any foreigner intends, within the territory of China, to survey of or to film or videotape wildlife under special state protection in the field, he must apply for approval by the Department of Wildlife Administration under the State Council or by a unit authorized by the same department.

Article 33

If anyone, in violation of the provisions of this Law, hunts or catches wildlife without a hunting license or in violation of the prescriptions of the hunting license, his catch and unlawful income shall be confiscated and he shall be fined by the Department of Wildlife Administration and, in addition, his hunting gear may be confiscated and his hunting license revoked.

Article 35

If anyone, in violation of the provisions of this Law, sells or purchases wildlife under special state protection or the products thereof, and if the circumstances are serious enough to constitute a crime of speculation or smuggling, he shall be prosecuted for criminal responsibility according to the relevant provisions of the Criminal Law. The wildlife or the products thereof thus confiscated shall, in accordance with the relevant provi-

sions, be disposed of by the relevant Department of Wildlife Administration or by a unit authorized by the same department.

Article 38

Any staff member of a Department of Wildlife Administration who neglects his duty, abuses his power or engages in malpractices for personal gains shall be subject to administrative sanctions by the department to which he belongs or by the supervising authority at a higher level; if the circumstances are serious enough to constitute a crime, he shall be prosecuted for criminal responsibility according to law.

Regulations for the Implementation of the People's Republic of China's Protection of Terrestrial Wildlife

Article 29

An application shall be made to the supervising Department of Wildlife Administration under the People's government at the county level with attaching the special hunting and catching license and the domestication and breeding license, if transportation or carrying of wildlife under special protection by the State or the products thereof is to be made out of a county. The application shall be submitted to and approved by the supervising department of forestry administration under the People's government of the relevant province, autonomous region or municipality directly under the Central Government or by a department authorized thereby. If the transportation of wildlife under special protection by the State is necessary for the breeding of wildlife among different zoos, the application for the transportation shall be approved by the supervising department of construction administration under the People's government of the relevant province, autonomous region or municipality directly under the Central Government authorized by the supervising department of forestry administration at the same level.

Article 30

With respect to the export of wildlife under special protection by the State or the products thereof, and the import or export of wildlife or the products thereof which are restricted by international conventions to which China is a party, an application for examination shall be made to the supervising department of forestry administration under the People's government of the relevant province, autonomous region or municipality directly under the Central Government where the unit or individual concerned is located. Such application shall be submitted to and approved by the supervising department of forestry administration under the State Council or by the State Council. Where the import or export is made for trade purposes, the same must be undertaken by the body which has the right to engage in import and export trade. Where any zoo intends to import or export wildlife described in the preceding paragraph for the purpose of mutual exchanges, the same shall be examined and agreed by the supervising department of construction administration under the State Council, before the application thereof has been approved by the supervising department of forestry administration under the State Council or submitted to the State Council for the approval by the supervising department of forestry administration under the State Council.

Article 33

Illegal catching or killing of wildlife under special protection by the State shall be liable to be prosecuted in accordance with the Supplementary Provisions on the Punishment of Crimes for Catching or Killing Precious or Endangered Species of Wildlife Under Special Protection by the State promulgated by the Standing Committee of the National People's Congress of the People's Republic of China, if the case is obviously not serious and the damage is a minor one or the circumstances of the offence are to

slight to be punished, the Department of Wildlife Administration shall confiscate the capture quarries, hunting and catching gears and the illegal income obtained therefrom, and revoke the special hunting and catching license, besides a fine less than ten times the value of the capture quarries or, in case there is no capture quarry, a fine below 10,000 yuan (RMB) shall be imposed.

Article 34

Anyone, in violation of the provisions of the laws and regulations on wildlife protection, hunting or catching wildlife in non-hunting area or during a season closed to hunting, or using prohibited hunting gear or methods for the hunting and catching of wildlife which are not under special protection by the State, shall be imposed a fine in accordance with the provisions of Article 32 of the Law on the Protection of Wildlife, and the fine shall be imposed according to the following stipulations:

(1) In case there are capture quarries, a fine below eight times the value of the capture quarries shall be imposed;

(2) In case there is no capture quarry, a fine below 2,000 yuan (RMB) shall be imposed.

Article 35

Anyone, in violation of the provisions of the laws and regulations on wildlife protection, hunting or catching wildlife which are not under the special protection by the State without a hunting license or in violation of the stipulations of the hunting license, shall be imposed a fine in accordance with provisions of Article 33 of the Law on the Protection of Wildlife, and the fine shall be imposed according to the following stipulations:

(1) In case there are capture quarries, a fine below five times the value of the capture quarries shall be imposed;

(2) In case there is no capture quarry, a fine below 1,000 yuan (RMB) shall be imposed.

Article 37

Where anyone in violation of the provisions of the laws and regulations on wildlife protection, sells, purchases, transports or carries wildlife under special protection by the State or local authorities or the products thereof, such wildlife and products and his unlawful income obtained therefrom shall be confiscated by the administrative authorities for industry and commerce or by the supervising Department of Wildlife Administration authorized thereby, and a fine below ten times the value thereof shall be imposed.

Article 38

Anyone forging, selling or transferring a hunting license or a domestication or breeding license shall be imposed a fine below 5,000 yuan (RMB) in accordance with the provisions of Article 37 of the Law on the Protection of Wildlife. Anyone forging, selling or transferring special hunting and catching license or an import or export permit shall be imposed a fine below 50,000 yuan (RMB) in accordance with the provisions of Article 37 of the Law of the Protection of Wildlife.

Article 39

Where anyone, in violation of the provisions of the laws and regulations on wildlife protection, domesticates or breeds wildlife under special protection by the State without domestication or breeding license or domesticates or breeds the wildlife under special protection by the State beyond those specified in the domestication or breeding license, his unlawful income shall be confiscated by the competent Department of Wildlife Administration, and a fine below 3,000 yuan (RMB) shall be imposed; in addition, the species of wildlife may be confiscated and the domestication and breeding license may be revoked.

Article 40

Where any foreigner surveys, collects specimens or makes films or videos of wildlife under special protection by the State in the field within the territory of China without being approved, the data of survey and shooting and the specimens collected by him shall be confiscated by the competent Department of Wildlife Administration, and he may be imposed a fine below 50,000 yuan (RMB).

Notification of Endangered Wildlife being approved as State Key-Protected Wildlife

State Forestry Administration decides that non-native wildlife listed in CITES Appendix I and II are equivalent to State Class I and Class II protection animals respectively. The administration of these wildlife and their products is the same as that of the state Class I and Class II protection animals in China.

Photo Credits

Hai-Tao Shi: 582 photos - covers, page 1-4, 5 (except bottom), 6-10, 11 (except *Caretta caretta, Lepidochelys olivacea, Chelydra serpentina, Cuora picturata, Cyclemys atripons* and *Notochelys platynota*), 12 (except *Cyclemys atripons, Notochelys platynota*), 13 (except *Cuora yunnanensis, Cyclemys dentata, Cyclemys tcheponensis*), 14 (except *Astrochelys yniphora*), 15 (except *Kinixys belliana*), 16, 17 (except *Indotestudo elongata* and *Geochelone pardalis*), 18 (except *Malayemys subtrijuga*), 19 (except *Morenia ocellata, Morenia petersi, Pangshura smithii, Graptemys kohnii,* and *Graptemys ouachitensis*), 20 (except *Chinemys nigricans, Hardella thurjii,* and *Callagur borneoensis*), 21 (except *Pseudemys concinna*), 22 (except *Siebenrockiella crassicollis*), 23 (except *Podocnemis unifilis*), 24 (except *Dermochelys coriacea, Chitra indica, Chitra vandijki, Nilssonia formosa, Amyda cartilaginea* , and *Apalone ferox*), 25 (except *Aspideretes gangeticus, Nilssonia formosa, Aspideretes hurum, Rafetus swinhoei,* and *Amyda cartilaginea*), 26-27, 28 (except third and bottom), 30 (first, second), 31 (except top and bottom), 32-40, 41 (top and bottom row: middle), 43 (top), 44-48, 50, 51 (except the second from top), 52-54, 56, 60 (center left, bottom), 61 (bottom left, bottom middle), 64, 66 (bottom left, bottom right), 67-71, 72 (second row: left, center left), 73, 74 (top left, bottom left), 75 (except the third from top), 76 (top left), 77-79, 80 (except both top right and bottom), 81-82, 83 (first row, second row: right, third row), 86 (top), 88, 90-91, 94 (except bottom), 95-96, 98 (bottom left), 99 (except the first row: left), 100 (top left, second row: first four, bottom), 101-103, 105-107, 108 (top right, center top plastron), 109, 110 (top), 111-120, 121 (except bottom left), 123-124, 125 (top, right column: top), 126-131, 132 (top, bottom right), 133-138, 140, 141 (top, center right column: top), 142, 144 (center right plastron), 145 (top), 152-153, 155, 157.

Mian Hou: 45 photos - page 11 (*Chelydra serpentina*), 13 (*Cyclemys tcheponensis*), 17 (*Indotestudo elongata, Geochelone pardalis*), 19 (*Morenia ocellata, Morenia petersi*), 20 (*Callagur borneoensis*), 21 (*Pseudemys concinna*), 22 (*Siebenrockiella crassicollis*), 23 (*Podocnemis unifilis*), 28 (bottom), 29 (top), 31 (top), 43 (center, bottom), 51 (second), 58 (top, center right), 61 (top), 66 (top, center), 72 (second row: right, bottom), 80 (top right), 83 (second row: left, bottom), 84 (top), 85, 92 (second), 94 (bottom), 100 (top right, second row: last two), 104 (third and fourth), 122 (top right, plastron), 125 (third, bottom), 132 (center left, center right).

Bernard Devaux: 26 photos - page 5 (bottom), 13 (*Cyclemys dentata*), 15 (*Kinixys belliana*), 24 (*Chitra indica*), 58 (center left, center right, bottom), 59 (first and second), 62 (bottom), 63 (top, center left), 74 (top right), 76 (bottom), 93 (third), 99 (first row: left), 104 (center right plastron), 122 (bottom), 144 (third, bottom), 145 (center), 147 (center right, bottom), 148 (top right column: top carapace and bottom plastron), 154 (center left), 156 (bottom left, bottom right).

Tian-Xi Chen: 26 photos - page 11 (*Caretta caretta, Lepidochelys olivacea*), 24 (*Dermochelys coriacea, Amyda cartilaginea*), 25 (*Amyda cartilaginea*), 28 (third), 29 (except top), 30 (bottom two), 31 (bottom), 92 (third), 97 (second), 122 (top left), 139, 154 (bottom right column: carapace, bottom right column: plastron), 156 (top three in the right column).

Peter Prischag: 23 photos - page 20 (*Hardella thurjii*), 24 (*Nilssonia formosa*), 25 (*Aspideretes gangeticus, Aspideretes hurum*), 84 (second and third), 87 (first and third), 92 (bottom), 93 (first and second), 104 (top right, bottom left), 122 (*Juvenile*), 143 (center right), 144 (top), 145 (bottom), 147 (top left, top right), 148 (top left), 149 (top), 150 (top, bottom).

Henk Zwartepoorte: 17 photos - page 11 (*Cuora picturata*), 15 (*Kinixys natalensis*), 19 (*Panshura smithii*), 42 (top), 62 (except bottom), 63 (third, bottom left, bottom mid-left, bottom mid-right, bottom right), 76 (top right, left column: bottom plastron), 87 (top right column: bottom plastron, bottom).

Gerald Kuchling:14 photos - page 14 (*Astrochelys yniphora*), 24 (*Chitra vendijki*), 25 (*Nilssonia formosa*), 65 (top, third row: left, third row: right), 143 (bottom left, bottom right), 146 (top, bottom middle, bottom right), 148 (except top left).

Sabine Schoppe: 11 photos - page 57, 110 (except top).

Tim McCormack: 9 photos - page 41 (bottom row except middle), 42 (center right, bottom left, bottom right), 97 (fourth and bottom).

Kwok Shing Lee: 9 photos - Foreword (top right, bottom right), page 65 (second), 72 (top three carapaces, second row: middle), 86 (except top), 108 (top left).

John Iverson: 8 photos - page 12 (*Cyclemys atripons*), 55, 89 (second).

Hans-Dieter Philippen: 7 photos - page 12 (*Notochelys platynota*), 59 (third row of plastrons, bottom), 98 (top right, center right, bottom right), 154 (center right).

Brian Horne: 6 photos - page 61 (bottom right), 97 (top, third from top), 149 (bottom), 156 (top left, center left).

Ting Zhou: 6 photos - page 13 (*Cuora yunnanensis*), 49.

John Tucker: 5 photos - page 19 (*Graptemys kohnii*, *Graptemys ouachitensis*), 92 (top), 93 (center right column: bottom plastron, bottom).

Hui Zhao: 4 photos - page 20 (*Mauremys nigricans*), 108 (center middle plastron, center bottom carapace, bottom).

Shun-Qing Lue: 3 photos - page 151.

Torsten Blanck: 3 photos - page 60 (top, center right), 141 (bottom).

Gerardo Garcia: 3 photos - page 15 (*Astrochelys yniphora*), 74 (two plastrons at center right).

Peter Paul van Dijk: 3 photos - page 141 (center left, center right, and center right column: bottom plastron).

Indraneil Das: 3 photos - page 84 (bottom), 143 (top left, top right).

Peter Pritchard: 2 photos - page 143 (center right), 146 (bottom left).

Kurt Buhlmann: 2 photos - page 89 (top, third from top).

Russell Mittermeier: 2 photos - page 65 (bottom), 74 (bottom right).

John Behler and Anders Rhodin: 1 photo - page 74 (top middle).

Albert Bertolero Badenes: 1 photo - page 75 (right column: third).

Fan Yang: 1 photo - page 89 (bottom).

Zhi-Gang Zhang: 1 photo - page 154 (top).

THE IMPORTANCE OF TURTLES

Turtles have been roaming the Earth's land and waters for more than two hundred million years. Miraculously, they survived the events that caused the extinction of dinosaurs and many other animals. Today, there are seven species of marine turtles and about three hundred and thirty species of freshwater turtles and tortoises. All seven of the marine turtle species and almost half of the terrestrial turtles are facing possible extinction.

The extinction of turtles would have a devastating impact on the environment because of the vital roles that freshwater turtles, tortoises, and marine turtles play within their ecosystems. Freshwater turtles in rivers, streams and lakes control insect and snail populations, and maintain clean water for all animals by scavenging dead animals and preying on weak and sick individuals. For example, the Diamondback Terrapin (*Malaclemys terrapin*) feeds predominately on salt-marsh snails. If the Diamondback Terrapin ceased to exist, the salt-marsh snails would become too numerous and would begin to overgraze the marsh grasses, which would in turn lead to increased erosion to tidal shorelines. Turtles also help disperse seeds, benefiting several plant species. By eating seeds and passing them undamaged in their feces, turtles allow plants to reach specific habitats that are more favorable for survival. For example, the Yellow-footed tortoise (*Chelonoidis denticulata*) is an important seed dispersal agent in southeastern Amazonian forests.

Sea turtles are important members of the ocean community. They help to maintain habitats, balance the food web, and cycle nutrients. For example, sea turtles provide nutrients on land as well as in the oceans. Un-hatched eggs, discarded shells and deceased hatchlings all provide nutrient-poor beaches with valuable energy and nitrogen, allowing certain types of grasses to grow, which in turn helps stop the effects of erosion on the beach.

The Leatherback sea turtle (*Dermochelys coriacea*) has a significant role in the control of jellyfish populations. A single Leatherback feeds heavily on jellyfish, eating up to 200 kilograms per day. This helps keep a steady, healthy balance of jellyfish, and if turtle numbers decreased, jellyfish numbers would increase. Since jellyfish eat eggs and larvae of fish, an overpopulation of jellyfish would decrease fish stock, unbalancing the ecosystem, while increasing seafood prices. The tourism industry will also suffer drastically in many regions throughout the world with more jellyfish in the water, as beaches will no longer be safe for swimming due to the higher risk of stings. In some areas people have been stopped from swimming in the ocean altogether as the declining sea turtle numbers can no longer control the jellyfish population.

The Hawksbill sea turtle (*Eretmochelys imbricata*) feeds primarily on space-aggressive sponges, and by keeping the number of sponges in check, coral reef growth is encouraged. If these space-aggressive sponges were to go unmanaged they would eventually take over the reef, causing it to die and also affecting other marine life that depends on the reef for food. Many species besides sea turtles feed on reefs, and the presence of sea turtles helps maintain the natural order.

Green sea turtles (*Chelonia mydas*) act as what can be described as the oceans' personal lawnmowers. This species of turtle is one of the few animals that feed on sea grass beds, grazing and trimming them so that they remain healthy. Healthy sea grass beds act as natural fish hatcheries, providing a nursery ground and shelter area for fish and shrimps. Also, sea grass roots bind sediments on the substrate and help prevent erosion. Furthermore, healthy sea grasses buffer or filter nutrient and chemical inputs to the environment by removing harmful nutrient and sediment pollution from coastal waters that can lead to algal blooms, impairing water quality.

Humans are the greatest predators of turtles. Turtles are under threat from habitat destruction, pollution, fisheries interactions, and direct harvests. People poach them for meat and products, such as bags and shoes made from their skin, and bracelets and combs from their carapaces. Selling dead turtles or raising turtles on farms can be a source of income for people. Collagen from turtle shells is used as a key ingredient in certain cosmetic products. Turtles are also considered by some to have health benefits, though there is no scientific evidence to support this, and indeed, studies have concluded that Traditional Chinese Medicine claims of medicinal properties from turtles are erroneous. Many people also want to have turtles as pets, and this can generate high profits for the individuals who are selling them, as consumers are often willing to pay more for particularly rare animals. Due to this demand, poachers may begin to farm turtles or illegally collect attractive and rare specimens from the wild, causing greater declines to the turtle populations.

Since humans are the main cause for the severe decline of turtles, by both consumer demand and accidental killing, it should be humanities responsibility to protect these animals and their environment, working together to stop the species from becoming extinct. The full extent of the damage to various ecosystems if turtles were to disappear remains unknown, but we do know the natural interrelationships are complex and real. The removal of one turtle species can have unforeseen 'knock on' effects throughout the ecosystem, possibly causing the extinction of other species. Because of their natural longevity, turtles are also important research subjects (they have even been launched into space) that have contributed greatly to science and medicine, and so their disappearance would be a considerable loss to humanity.