

Pelochelys cantorii Gray 1864 – Asian Giant Softshell Turtle

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SUMMARY. – The Asian giant softshell turtle, *Pelochelys cantorii* (Family Trionychidae), is a large freshwater species which can reach 60–100 cm in total carapace length. It occurs in a variety of habitats, including lakes, rivers, estuaries, seacoasts, and occasionally in coastal marine waters. The species is widespread, occurring from peninsular India to China and Southeast Asia. The taxonomy of the genus *Pelochelys* has recently been revised, and *P. bibroni* is now considered to be restricted to southern New Guinea, *P. signifera* in northern New Guinea, and *P. cantorii* is now the valid name for the species known from the rest of the range of the genus. However, further study may identify other species within this enormous territory, especially from the Philippines. Aquatic organisms are consumed, including fish, crustaceans and molluscs, in addition to plant matter. Clutch size is 24 to 70 eggs. Nesting sites include riverbanks as well as seacoasts. Exploitation of its flesh for food, suspected killing by anglers and fishermen after getting entangled in fishing gear, and destruction of riverine and coastal habitats are factors in its depletion.

DISTRIBUTION. – Bangladesh, Cambodia, China, India, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam. Distributed along the coasts of southern and eastern Asia from southwestern India to southeastern China, and including the Philippines and Indonesia to Sumatra and Borneo.

SYNONYMY. – *Pelochelys cantorii* Gray 1864, *Pelochelys cantoris*, *Pelochelys cumingii* Gray 1864, *Pelochelys poljakowii* Strauch 1890.

SUBSPECIES. – None recognized. Animals from the Philippines may be distinct.

STATUS. – IUCN 2007 Red List: Endangered (EN Alcd+2cd) (assessed 2000); CITES: Appendix II.



Figure 1. Adult *Pelochelys cantorii* on a sandbar on the Mekong River near Kratie, Cambodia. Photo by Annette Olsson.



Figure 2. Two-year old *Pelochelys cantorii* from Johor, Malaysia. Photo by Indraneil Das.

Taxonomy. — *Pelochelys bibroni* was the first species of this softshell turtle genus to be described, by Owen (1853), who used the combination *Trionyx (Gymnopus) bibroni*. The type specimen was allegedly from Australia, and is no longer in existence. A neotype of *P. bibroni* was described by Webb (1995) from the Laloki River, Central District, Papua New Guinea.

Subsequently, Gray (1864) described *Pelochelys cantorii* from “Malacca, marine”, which was synonymized with *P. bibroni* by Günther (1864). However, Gray’s name, *P. cantorii*, appeared in several subsequent publications, including Boulenger’s (1912) monograph on the amphibians and reptiles of the Malay Peninsula (as *Pelochelys cantoris*) and de Rooij’s (1915) work on the reptile fauna of the Indo-Australian archipelago (i.e., the Sundas to New Guinea).

Smith (1931) recognized the priority of the name of Owen’s species, and subsequent works (e.g., King and Burke 1989; Iverson 1992) continued to refer to the entire complex as *Pelochelys bibroni*. Webb (in Iverson 1992) considered the northern and southern populations on New Guinea to be taxonomically distinguishable. Rhodin et al. (1993) described the morphological differences between southern and northern New Guinean *P. bibroni*, and confirmed that the southern New Guinea turtles were quite distinct from Asian specimens, and indeed from those throughout the islands of Indonesia as far as northern New Guinea. Webb (1995) clarified that the southern New Guinea turtles should be restricted to the name *P. bibroni*, and those throughout the rest of the range were referable to *P. cantorii*.

Zhang (1984) described *Pelochelys taihuensis*, a Neolithic fossil specimen, which has been placed in synonymy with *Rafetus swinhoei* (Gray 1873) (*vide* David 1994). Webb (2003) described *Pelochelys signifera* from northern New Guinea, confirming the previously noted differentiation of northern and southern New Guinean softshells (Rhodin et al. 1993).

Description. — Shell very flat and rigid, but with flexible posterior margins, lacking scutes, the carapace of juveniles with numerous tubercles and a low vertebral keel that disappears during growth. Neural bones number seven or eight, costal bones comprise eight pairs. Only the first pair of neurals separate the first pair of costals. The plastron has four large callosities, one on each xiphiplastron and one on each hyo-hyoplastron. The snout is short, flat and rounded, the proboscis extremely short or occasionally absent; interorbital space wider than the orbit diameter. Small skin flaps are present on the gular region. The carapace is olive or brown, sometimes with fine dark spots, its margins lighter. Günther’s (1864) illustration of a *Pelochelys* with a strikingly patterned carapace similar to that of *Chitra chi-*



Figure 3. Two-year old *Pelochelys cantorii* from Johor, Malaysia. Photo by Indraneil Das.

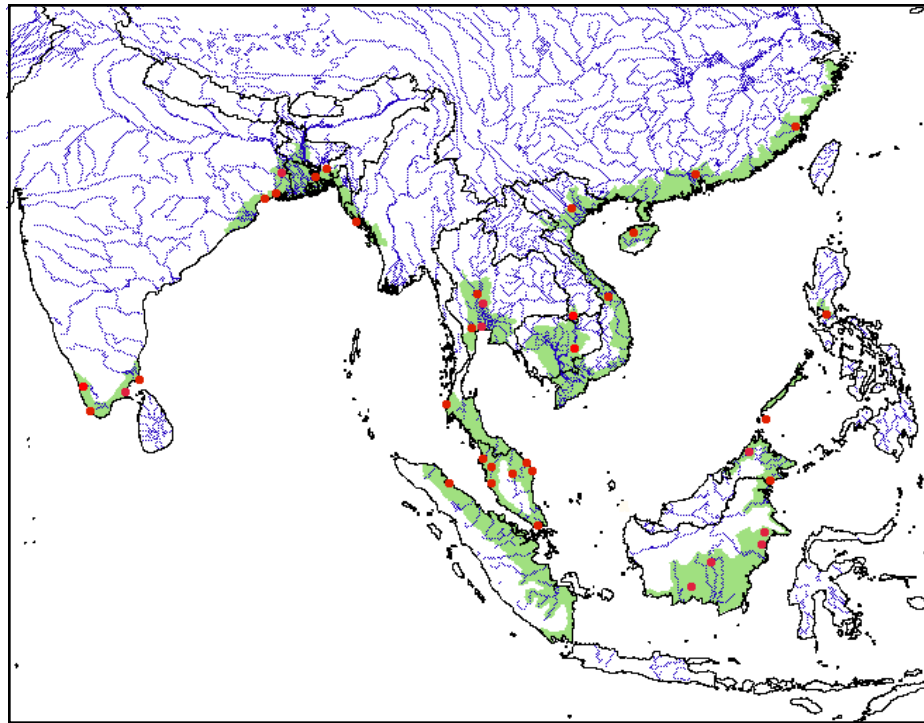


Figure 5. Distribution of *Pelochelys cantorii* in southeastern Asia. Red points = museum and literature occurrence records based on published records plus more recent and author's data; green shading = projected distribution based on GIS-defined hydrologic unit compartments (HUCs) constructed around verified localities and then adding HUCs that connect known point localities in the same watershed or physiographic region, and similar habitats and elevations as verified HUCs (Buhlmann et al., unpubl. data), and adjusted based on author's data.

tra, thought by some (e.g., Smith 1931) to be some kind of composite or artist's error, may be based upon a specimen of true *P. bibroni* from southern New Guinea (also illustrated by Whitaker et al. 1982; and Rhodin et al. 1993). Confusingly, Gray (1864) commented that traces of such patterns may be present in *P. cantorii*: "Dr. Günther, who soaked Dr. Cantor's specimen, says he observed some black lines on the head and throat, and some dark marbling on the edge of the dorsal disk as in *Chitra indica*". One juvenile in the collection of the first author is brownish-gray, with pale yellow flecks on the dorsum.

The head is olive, the jaws with darker markings. Young animals have lips and throats speckled with white. The outer surfaces of the limbs are olive, the inner surfaces cream. The plastron is cream or white. Documented differences between the southern and northern New Guinea species are primarily related to color pattern. *Pelochelys bibroni* (southern) has a strikingly patterned dorsal disc with bold radiating streaks; whereas *P. signifera* (northern) has a dull gray-brown shell with very fine black speckling (see Rhodin et al. 1993, for photos of both taxa).

The largest carapace length recorded for the species, 129 cm, cited by de Rooij (1915), is suspect (see Pritchard 2001). This record has been extensively quoted ever since, but individuals of this size are not present in collections. Constable's (1982) record of a specimen that measured 165 cm, presumably in overall body length, and that weighed approximately 250 kg, was based on a misidentified *Rafetus swinhoei*, according to Pritchard (2001). Adults of *Pelochelys*

cantorii are typically between 70–100 cm in total carapace length. A specimen with bony disc of only 40.5 cm dissected by P. Pritchard (pers. comm.) contained a single shelled egg and thus presumably represents the minimum size of mature females. Females are the larger sex, and adults possess relatively shorter tails than adult males.

The karyotype is unknown and no genetic work has been done on the species.

Distribution. — The Asian giant softshell turtle has arguably the widest distribution of all non-marine turtles, occurring in apparently isolated localities, and extending from the west coast of India, including the Valapattanam River (Palot and Radhakrishnan 2001) and Bharathapuzha River (Biju Kumar 2004), eastwards through Bangladesh, Myanmar, Peninsular Thailand, central and southern China (including Hainan island), Cambodia, Laos, Vietnam, Peninsular Malaysia, Indonesia (Sumatra and Borneo), and the Philippines (Vijaya 1982; Moll and Vijaya 1986; Das 1987; Zhao and Adler 1993; Nguyen and Ho 1996; Zhang et al. 1998; Iskandar 2000; van Dijk and Palasuwan 2000; Sharma and Tisen 2000; Webb 2003; Hussain 2003; Stuart and Platt 2004; Das and Lakim 2006). The record from Java by Ouwens (1914), purported to be this species, was based on *Chitra chitra javanensis*, according to Iskandar (2004). It has not been recorded from any of the smaller Indonesian Archipelago islands, including Sulawesi, the Lesser Sundas, Halmahera, or Maluku.

Taylor (1970) expressed the opinion that the wide distribution of *Pelochelys* was in part due to introduction

by man, in that the species is widely used as food and often carried from place to place. However, large softshells are not easily transported from one country or island to another, and indeed the usual techniques of capture can be quite traumatic. These considerations, coupled with the unlikelihood of such valuable and edible animals being released rather than eaten after they had been transported considerable distances, make it far more probable that the documented range is natural. Additionally, specimens of *P. cantorii* are not infrequently encountered in coastal marine waters, and it is clear that they could probably reach islands in the Philippines and Indonesia fairly easily.

Habitat and Ecology. — The species is known from a variety of habitats, including lakes, rivers, and sea coasts. The tolerance for saltwater is probably greatly responsible for the wide geographic distribution of the turtle. In the Gahirmatha area of Orissa, on the east coast of India, the species migrates from the freshwaters of the Brahmini and Baitarini rivers to nest on the ocean beach (Kar and Rao 1985). At this site, female turtles may approach nesting beaches from the river or from the sea, although the former is more usual (Vijaya 1982). On the east coast of peninsular Malaysia, females lay 24–28 eggs, about 30 mm in diameter (Moll 1985). In the Oujian River drainage of China, copulation occurs between May and June, and eggs are laid between June and September (Gu et al. 2000; Huang et al. 2003). Clutch size is 40–70; mean egg size 30 mm. Nests at this site have the following characteristics (presumably mean dimensions, following Gu et al. 2000): diameter of top of nest, 40 cm; diameter of nest bottom, 16 cm; nest depth, 50 cm. The softshelled, rounded eggs were deposited in six layers (sample size not specified), numbering 11, 11, 9, 9, 7, and 6. In the Cambodian Mekong River, nesting occurs on sandbars alongside deep pools in December and January; the eggs hatch approximately 2 months later. Clutch sizes vary from 34–42 eggs and the hatchlings average 42 mm in carapace length (D. Emmett, pers. comm.).

The flattened head and widely-spaced eyes suggest that this species is an ambush feeder, dependent upon rapid outward thrusts of the head and neck and simultaneous gaping and swallowing to catch live, agile prey, especially fish. This is indeed the behavior of captive specimens, whose predatory strikes could only be described as explosive. Nutaphand (1979) mentioned that fish, shrimps, crabs, and molluscs are consumed, in addition to plant matter. Of its behavior, Boulenger (1912) wrote that the species is “very powerful, and of ferocious habits”, although Pope (1957) mentioned that turtles of this species may deliver a non-biting “punch” with the head.

Population Status. — Little quantitative information on population trends is available. This turtle does not appear to be abundant anywhere, although in the northern parts of the east coast of India (Gahirmatha and Udaipur, Orissa State), it may be more plentiful than elsewhere. Rashid and Khan (2000) reported encountering at least 30 specimens in Bangladesh markets, during a two-week period in 1989. Sharma and Tisen (2000) reported the species from both

coasts of Peninsular Malaysia, and added that it was “still found in fair numbers”, and individuals caught on hook were often released. Smith (1930) mentioned that it was common in the Chao Phraya and Ratburi rivers of Thailand in the early part of this century, but today it appears to be virtually extinct in at least the Chao Phraya and Mae Klong systems of Thailand (van Dijk and Palasuwan 2000).

Taylor (1920) wrote that the species appeared to be rare in Luzon in the Philippines, and knew of a record from San Miguel, Bulacan, in southwest Luzon. Curiously, the live specimen from this locality illustrated by Taylor (1970) does not appear to be a *Pelochelys*; a photo of the turtle shows it to have a longer proboscis, more posteriorly-located eyes, a deeper head, and more convex bony carapace than is normal for a *Pelochelys*, and the specimen may in fact be an *Amyda cartilaginea*. Nevertheless, it does appear that a species of *Pelochelys* occurs in the Philippines. Gray (1864) reported a large softshell specimen and several small ones collected in the Philippines by Hugh Cuming (1791–1865), English amateur conchologist and an important collector of botanical and zoological specimens, naming them as a new species, *Pelochelys cumingii*. This form was characterized as having “the head olive, minutely black-dotted; the throat olive, minutely white-speckled.” Das (1996) described this as one of the “mystery species” of the Philippines. Webb (2003) reviewed the recent evidence for this species in the Philippines and could find no additional records, thereby suggesting the earlier reports of the species from the archipelago may have been based on waifs, escapees, market purchases, or on populations now extirpated. However, A.C. Diesmos (pers. comm.) has indicated that populations of *Pelochelys* have recently been rediscovered in the Philippines.

Chinese populations have been described as “extinct in the wild” (Zhao 1998) or “close to extinction” (Huang et al. 1990). Gu et al. (2000) mentioned heavy exploitation in the Oujiang River in Zhejiang Province, using hooks, and the collection of 500 individuals within 10 years along a 80 km stretch of river. The size range of turtles was 1–43 kg. Touch et al. (2000) indicated that Vietnamese populations of the species were probably extinct, Laos and Thailand had some populations nearing extinction, and only Cambodia was suspected of having an important population regionally. Recent work on a population of *P. cantorii* in the mid-reaches of the Mekong River, Cambodia (D. Emmett, pers. comm.), indicates that the species still persists there. At that site, large adult specimens (up to 36 kg in weight) are captured frequently by local fishermen using fishing hooks.

Threats to Survival. — Capture of *Pelochelys cantorii* for human consumption occurs almost everywhere throughout the range of the species. Ahmad (1955) noted its presence in food markets in Bangladesh. The flesh of *Pelochelys* is highly appreciated in Bangladesh (Khan 1987), and Smith (1930) wrote that in Thailand, the flesh was preferred to that of *Amyda cartilaginea*. The species was eagerly eaten by the Chinese during the last century, being frequently taken in fishing stakes at Penang Island, off the west coast of peninsular Malaysia (Cantor 1847). Sharma

(1999) reported seeing numerous carcasses washed on the Setiu beach in Terengganu, Malaysia, between 1993–94, the turtles presumably killed by local anglers or fishermen after retrieving them from fishing hooks. Alteration and destruction of its aquatic habitats are also factors suspected to threaten *P. cantorii*. Commercial export of this species from Terengganu, Malaysia, to Singapore was reported by K. Ibrahim (pers. comm. to D. Sharma), and this species occasionally appears in the pet trade in Peninsular Malaysia. In 2004, a wild-harvested hatchling would sell for Malaysian Ringgit 450–500 (approximately US\$ 118–130) in the pet trade in Kuala Lumpur. In China, the species is threatened by overcollection for food and habitat destruction, as a result of urbanization, water pollution, and over-fishing (Lau and Shi 2000).

Conservation Measures Taken. — *Pelochelys cantorii* is listed under Schedule I of the Indian Wildlife (Protection) Act of 1972, and occurs in the Bhitarkanika Wildlife Sanctuary (Orissa State, India), and probably also the Sunderbans Tiger Reserve (West Bengal State, India) and the adjacent Bangladesh Sunderbans. This species (listed as *Pelochelys bibroni*) has been designated as a First Grade Protected Animal in China (Zhou and Zhou 1991; Gu et al. 2000) and has been confirmed to occur in the Qingtian Reserve, designated for *Rafetus swinhoei*, in Zhejiang Province (Pritchard 2005), and may occur in other wetlands protected in China. In Myanmar, it is protected under the Myanmar Wildlife Law (1994) as well as under Myanmar Fisheries Law (1993) (see Maung and Ko Ko 2002). In Vietnam, this species is listed as ‘Endangered’ in the Vietnam Red Data Book (Tran et al. 2007).

Conservation Measures Proposed. — Public education is needed in areas of consumption and/or other forms of utilization, in addition to inclusion in wildlife legislation in countries where the species occurs but is unprotected. Ensuring adequate populations in protected areas throughout its range will also be critical to this species’ survival.

Captive Husbandry. — A turtle at the Bureau of Science Aquarium, Manila, Philippines, ate small dead fish. Live fish in the same aquarium, including *Cyprinus carpio* and *Megalops cyprinoides*, were not attacked. However, live *Channa striatus* (snake-head fish) were frequently killed (Taylor 1970). Another captive in southern India preferred shade to sunlight, burying itself in the sand except for its head (Nair and Badrudeen 1975). In New York, W.P. McCord (pers. comm.) has maintained both subadults and adults of this species in captivity, the best success being when the turtles were provided with a sufficiently deep substrate of clean sand for them to be able to bury themselves completely. A juvenile of this species from Johor, southern Peninsular Malaysia, in the possession of the author for over a year was maintained in a 0.5 x 0.3 m glass tank, with a shallow (ca. 3 cm) sandy substrate and 3 cm water depth. It stayed buried in sand, only rarely emerging to the surface. The specimen was fed *ad libitum* on small freshwater fishes (typically *Esomus metallicus*). Fish were caught in ambush, and up to six fish were consumed per week.

Current Research. — Robert G. Webb continues to be interested in the taxonomy of the *Pelochelys* complex. A study of the biology of the species, in association with the sea turtle program at Gahirmatha, eastern India, is being discussed.

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LITERATURE CITED

- AHMAD, N. 1955. On the Edible Turtles and Tortoises of East Pakistan. Directorate of Fisheries, Dacca, 18 pp.
- BIJU KUMAR, A. 2004. Records of Leith’s softshell turtle, *Aspideretes leithi* (Gray, 1872) and Asian giant soft shell turtle, *Pelochelys cantorii* (Gray, 1864) in Bharathapuzha River, Kerala. *Zoos’ Print Journal* 19(4):1445.
- BOULENGER, G.A. 1912. A Vertebrate Fauna of the Malay Peninsula from the Isthmus of Kra to Singapore, including the Adjacent Islands. Reptilia and Batrachia. Taylor and Francis, London, 294 pp.
- CANTOR, T.E. 1847. Catalogue of reptiles inhabiting the Malayan Peninsula and islands. *Journal of the Asiatic Society of Bengal* 16:607–656, 897–952, 1026–1078.
- CONSTABLE, J.D. 1982. Visit to Vietnam. *Oryx* 16:249–254.
- DAS, I. 1987. Status and distribution of estuarine turtles in India. *Marine Fisheries Information Service* (72):21–22.
- DAS, I. 1996. Status of knowledge of the biology and conservation of non-marine turtles of the Philippines. In: International Congress of Chelonian Conservation. Proceedings. SOPTOM (Ed.). Editions Soptom, Gonfaron, pp. 81–83.
- DAS, I. AND LAKIM, M. 2006. On the distribution of *Pelochelys cantorii* on Borneo. *Chelonian Conservation and Biology* 5(2):323–325.
- DAVID, P. 1994. Liste des reptiles actuels du monde. I. Chelonii. *Dumerilia* 1:7–127.
- DEROOIJ, N. 1915. The Reptiles of the Indo-Australian Archipelago. Vol. I. Lacertilia, Chelonia, Emydosauria. E. J. Brill, Leiden, 384 pp.
- GRAY, J.E. 1864. Revision of the species of Trionychidae found in Asia and Africa, with the descriptions of some new species. *Proceedings of the Zoological Society of London* 1864(1):76–98.
- GÜNTHER, A.C.L.G. 1864. The Reptiles of British India. Ray Society, London, 452 pp.
- GU, H., MA, X., GE, Y., AND HONG, L. 2000. Studies on the distribution and reproduction of *Pelochelys cantorii* Gray, 1864 in the Oujiang River, Zhejiang Province. [In Chinese with English abstract]. *Sichuan Journal of Zoology* 19(3):151–153.
- HUANG, M.-H., CAI, C., JIN, Y., GU, H., ZHANG, S., GUO, H., AND WEI, J. 1990. Fauna of Zhejiang. Amphibia Reptilia. Zhejiang Science and Technology Publishing House, Hangzhou, 306 pp.
- HUANG, W.-H., ZHOU, S.-Y., WANG, K.W., AND LIAN, X.-M. 2003. An investigation of naturally reproductive ecology of *Pelochelys bibroni*. [In Chinese with English abstract]. *Journal of Anhui University Natural Science Edition* 27(1):103–107.
- HUSSAIN, I.S. 2003. Olive ridley sea turtles in Porto-Novo, Tamil Nadu, India, with an observation of an Asian giant softshell turtle. *Marine Turtle Newsletter* 101:25.
- ISKANDAR, D.T. 2000. Turtles and Crocodiles of Insular Southeast Asia and New Guinea. Institute of Technology, Bandung, 191 pp.
- ISKANDAR, D.T. 2004. On the giant Javanese softshelled turtles (Trionychidae). *Hamadryad* 28(1/2):128–130.

- IVERSON, J.B. 1992. A Revised Checklist with Distribution Maps of the Turtles of the World. Privately published, Richmond, Indiana, 363 pp.
- KAR, C.S. AND RAO, R.J. 1985. A gharial (*Gavialis gangeticus*) at the Gahirmatha coast, Orissa, India. *Journal of the Bombay Natural History Society* 82:671–674.
- KHAN, M.A.R. 1987. Bangladesher Bonnyoprani. Vol. I. Urochro o Shorishrip. Bangla Academy, Dhaka, 169 pp.
- KING, F.W. AND BURKE, R.L. 1989. Crocodilian, Tuatara, and Turtle Species of the World: A Taxonomic and Geographic Reference. Association of Systematics Collections, Washington, D.C., 216 pp.
- LAU, M. AND SHI, H. 2000. Conservation and trade of terrestrial and freshwater turtles and tortoises in the People's Republic of China. In: van Dijk, P.P., Stuart, B.L., and Rhodin, A.G.J. (Eds.). *Asian Turtle Trade: Proceedings of a Workshop on Conservation and Trade of Freshwater Turtles and Tortoises in Asia*. *Chelonian Research Monographs No. 2*, pp. 30–38.
- MAUNG, W. AND KO KO, W. 2002. Turtles and Tortoises of Myanmar. *Wildlife Conservation Society (Myanmar Program)*, Yangon, 94 pp.
- MOLL, E.O. 1985. Estuarine turtles of tropical Asia: Status and management. In: *Proceedings of the Symposium on Endangered Animals and National Parks*. Marine Biological Association of India, Cochin, Vol. 1, pp. 214–226.
- MOLL, E.O. AND VIJAYA, J. 1986. Distributional records for some Indian turtles. *Journal of the Bombay Natural History Society* 83(1):57–62.
- NAIR, P.N.R. AND BADRUDEEN, M. 1975. On the occurrence of the soft-shell turtle *Pelochelys bibroni* (Owen) in marine environment. *Indian Journal of Fisheries* 22:270–274.
- NGUYEN, V.S. AND HO, T.C. 1996. Danh Luc Bo Sat Va Ech Nhai Viet Nam. Nha Xuat Ban Khoa Hoc Va Ky Thuat, Hanoi, 262 pp.
- NUTAPHAND, W. 1979. The Turtles of Thailand. Siam Farm Zoological Gardens, Bangkok, 222 pp.
- Ouwens, P.A. 1914. List of Dutch East Indian chelonians in the Buitenzorg Zoological Museum. *Contributions à la Faune des Indes Néerlandaises* 1:31–38.
- OWEN, R. 1853. Descriptive Catalogue of the Osteological Series Contained in the Museum of the Royal College of Surgeons of England. Vol. 1. Pisces, Reptilia, Aves, Marsupialia. Taylor and Francis, London, 350 pp.
- PALOT, M.J. AND RADHAKRISHNAN, C. 2001. Occurrence of Asian giant softshell turtle, *Pelochelys cantorii* (Gray, 1864), in northern Kerala. *Zoos' Print Journal* 17(4):770.
- POPE, C.H. 1957. *Reptiles Round the World. A Simplified Natural History of the Snakes, Lizards, Turtles, and Crocodilians*. Alfred A. Knopf, New York, 194 pp.
- PRITCHARD, P.C.H. 2001. Observations on body size, sympatry, and niche divergence in softshell turtles (Trionychidae). *Chelonian Conservation and Biology* 4(1):5–27.
- PRITCHARD, P.C.H. 2005. Survival status and prospects for *Rafetus swinhoei* (Chelonia: Trionychidae). In: *Programme and Abstracts of the Turtle Survival Alliance 2005 Annual Conference*, pp. 19–22.
- RASHID, S.M.A. AND KHAN, S.M.M.H. 2000. Trade and conservation status of turtles and tortoises in Bangladesh. In: van Dijk, P.P., Stuart, B.L., and Rhodin, A.G.J. (Eds.). *Asian Turtle Trade: Proceedings of a Workshop on Conservation and Trade of Freshwater Turtles and Tortoises in Asia*. *Chelonian Research Monographs No. 2*, pp. 77–85.
- RHODIN, A.G.J., MITTERMEIER, R.A., AND HALL, P.M. 1993. Distribution, osteology, and natural history of the Asian giant softshell turtle, *Pelochelys bibroni*, in Papua New Guinea. *Chelonian Conservation and Biology* 1:19–30.
- SHARMA, D.S.K. 1999. Tortoise and Freshwater Turtle Trade and Utilisation in Peninsular Malaysia. *TRAFFIC Southeast Asia, Petaling Jaya*, 39 pp.
- SHARMA, D.S.K. AND TISEN, O.B. 2000. Freshwater turtle and tortoise utilization and conservation status in Malaysia. In: van Dijk, P.P., Stuart, B.L., and Rhodin, A.G.J. (Eds.). *Asian Turtle Trade: Proceedings of a Workshop on Conservation and Trade of Freshwater Turtles and Tortoises in Asia*. *Chelonian Research Monographs No. 2*, pp. 120–128.
- SMITH, M.A. 1930. The Reptilia and Amphibia of the Malay Peninsula from the Isthmus of Kra to Singapore including the adjacent islands. *Bulletin of the Raffles Museum* 3(2):1–149.
- SMITH, M.A. 1931. The Fauna of British India, including Ceylon and Burma. Vol. I. Loricata, Testudines. Taylor and Francis, London, 185 pp.
- STUART, B.L. AND PLATT, S.G. 2004. Recent records of turtles and tortoises from Laos, Cambodia, and Vietnam. *Asiatic Herpetological Research* 10:129–150.
- STUART, B.L., VAN DIJK, P.P., AND HENDRIE, D.B. 2001. *Photographic Guide to the Turtles of Thailand, Laos, Vietnam and Cambodia*. Wildlife Conservation Society, Phnom Penh, 84 pp.
- TAYLOR, E.H. 1920. Philippine turtles. *Philippines Journal of Science* 16:111–144.
- TAYLOR, E.H. 1970. The turtles and crocodiles of Thailand and adjacent waters with synoptic herpetological bibliography. *University of Kansas Science Bulletin* 49:87–179.
- TOUCH, S.T., PRAK, L.H., CHUL, T., LIENG, S., CHUN, S., HOUT, P., AND HENG, K. 2000. Overview of turtle trade in Cambodia. In: van Dijk, P.P., Stuart, B.L., and Rhodin, A.G.J. (Eds.). *Asian Turtle Trade: Proceedings of a Workshop on Conservation and Trade of Freshwater Turtles and Tortoises in Asia*. *Chelonian Research Monographs No. 2*, pp. 55–57.
- TRAN, K., HO, C.T., NGUYEN, S.V., AND PHAM, T. 2007. Reptiles and amphibians. In: Dang, N.T., Tran, K., Dang, H.H., Nguyen, C., Nguyen, T.N., Nguyen, Y.N., and Dang, D.T. (Eds.). *Vietnam Red Data Book. Part 1. Animals*. Forestry Department, Hanoi, pp. 219–276.
- VAN DIJK, P.P. AND PALASUWAN, T. 2000. Conservation status, trade, and management of tortoises and freshwater turtles in Thailand. In: van Dijk, P.P., Stuart, B.L., and Rhodin, A.G.J. (Eds.). *Asian Turtle Trade: Proceedings of a Workshop on Conservation and Trade of Freshwater Turtles and Tortoises in Asia*. *Chelonian Research Monographs No. 2*, pp. 137–144.
- VIJAYA, J. 1982. *Pelochelys bibroni* from the Gahirmatha coast, Orissa. *Hamadryad* 7(3):17.
- WEBB, R.G. 1995. Redescription and neotype designation of *Pelochelys bibroni* from southern New Guinea (Testudines: Trionychidae). *Chelonian Conservation and Biology* 1(4):301–310.
- WEBB, R.G. 2003. Observations on the giant softshell turtle, *Pelochelys cantorii*, with description of a new species. *Hamadryad* 27(1):99–107.
- WHITAKER, R., WHITAKER, Z., AND MILLS, D. 1982. Reptiles of Papua New Guinea. *Wildlife in New Guinea*. Division of Wildlife, Department of Lands and Environment, Konedobu, 53 pp.
- ZHANG, M.-W. 1984. A new species of *Pelochelys* from Zhejiang, with subfossil description. *Acta Herpetologica Sinica* 3(4):71–76.
- ZHANG, M.-W., ZONG, Y., AND MA, J.-F. 1998. *Fauna Sinica. Reptilia. Vol. 1. General accounts of Reptilia. Testudiformes and Crocodyliformes*. Science Press, Beijing, 213 pp.
- ZHAO, E.-M. 1998. *China Red Data Book of Endangered Animals. Amphibia and Reptilia*. Science Press, Beijing.
- ZHAO, E.-M. AND ADLER, K. 1993. *Herpetology of China. Society for the Study of Amphibians and Reptiles, Contributions to Herpetology, No. 10*, Oxford, Ohio, 522 pp.
- ZHOU, J. AND ZHOU, T. 1991. *Chinese Chelonians Illustrated*. Jiangsu Science and Technology Publishing House, Nanjing, 89 pp.

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