

Appendix I

Phrynoporus barthlenae: Peru: Departamento Huánuco: about 15km southeast of Maraypata near Laguna Gwengway ($10^{\circ}11'08''S$, $76^{\circ}05'60''W$, 3680m elevation): MHNSM 20603–06, MHNSM 20608–11, MTD 44341–42, MTD 44345–47, SMF 81720–21.

Phrynoporus dagmarae: Peru: Departamento Huánuco: Provincia Pachitea: Palma Pampa ($09^{\circ}53'12''S$, $75^{\circ}53'22''W$, 3020m elevation): MHNSM 20448–51, SMF 80467–79.

Phrynoporus horstpauli: Peru: Departamento Huánuco: Provincia Ambo: surroundings of Yauri: MHNSM 20422–39, MTD 41754–57.

Phrynoporus montium: Peru: Huánuco, 10.8km. W. Huancapallac 2950m elevation, UF 103967–73.

On the nomenclature and vernacular names of recent *Aspideretes* species (Reptilia, Testudines, Trionychidae)

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Abstract. Taxonomic and nomenclatural aspects in the four species of the trionychid turtle genus *Aspideretes* are discussed. It is shown that Gray depicted *A. nigricans* already in 1831, however, did not recognise it as a taxon of its own but as a specimen of *A. hurum* described earlier. Commented synonymies of the four recent species of the genus *Aspideretes* are presented.

Kurzfassung. Taxonomie und Nomenklatur der vier Arten der WeichschildkrötenGattung *Aspideretes* werden erörtert. Es wird gezeigt, dass Gray *A. nigricans* bereits 1831 in einer Tafel abbildet, das abgebildete Taxon jedoch zur bereits beschriebenen Art *A. hurum* stellt und nicht als eigenständig ansieht. Zu den vier rezenten *Aspideretes*-Arten werden kommentierte Synonymielisten präsentiert.

Key words. Reptilia, Testudines, Trionychidae, *Aspideretes*, taxonomy, nomenclature.

Introduction

PRASCHAG & GEMEL (2002) pointed out that our knowledge of the large-sized soft-shelled turtles is still fragmentary last but not least because of technical problems of preservation and transportation. The most recent descriptions of new taxa of the Chitriini (MCCORD & PRITCHARD 2002, WEBB 2002) are clearly speaking in favour of the above statement and MCCORD & PRITCHARD (2002) address similar problems under "material".

PRASCHAG & GEMEL (2002) were the first to report on the presence of *A. nigricans* in Assam, India - outside of the Mosque water tank of Chittagong. The reason for this late discovery is the species' similarity to other trionychid species especially *A. hurum* and the pronounced changes which *A. nigricans* undergoes during ontogeny. Four ontogenetic colour phases can be distinguished in *A. nigricans* and keys for their determination were presented in that paper. In analysing the literature regarding diagnostic features that could make *Aspideretes* species distinguishable from each other, it became obvious that various species had been confused with each other during their exploration history. Confusion was not only observed within the genus *Aspideretes* but also among genera (*Amyda*, *Nilssonia*).

According to GRAY (1872a), the fundamentals for the description of various Indian soft-shelled turtles were as well as new material from a small third collection by General Hardwicke. These drawings were not available to the scientific community before GRAY (1830–1835) published them in two folio-sized volumes of his "Illustrations of Indian Zoology". In these volumes Gray presented some of the drawings of Hardwicke together with the drawings of Buchanan-Hamilton and introduced new names to science, which are of nomenclatorial relevance (comp. ICZN 1999). "Illustrations of Indian Zoology" was published in form of 16 issues delivered in 20 parts, hence the various dates of publication have to be taken into account if nomenclatorial priorities are identified. Historical backgrounds of the paintings and the folio volumes are given by DAWSON (1946), ARCHER (1962) and WHEELER (1998), while WEBB (1980), FARKAS (1994) and MCCORD & PRITCHARD (2002) clarified the taxonomic and nomenclatorial consequences for soft-shelled turtles specified herein.

We found that *A. nigricans*, although described by Anderson not until 1875, was already depicted in 1831 (GRAY 1831b), however, not understood as a taxon of its own (GRAY 1831a, b) and, thus, assigned to similar species, mainly *A. hurum*, until 1875. Moreover, two out of four *Aspideretes*-species accepted as valid today – *A. gangeticus* and *A. leithii* – were not distinguished and collectively arranged in the south-east Asian taxon *Trionyx javanicus* GEOFFROY SAINT HILLAIRE, 1809 mainly by GRAY (1831a, b, 1844, 1855, 1864, 1872a) and subsequent authors who followed him. These circumstances caused considerable confusion in the past and required an analysis of the taxonomic and nomenclatorial situation of the four species of this genus. For this purpose, synonymies of the recent *Aspideretes* species together with remarks on historical notes are provided. In the synonymies only publications dealing with taxonomy, nomenclature and distribution were included. Interestingly vernacular names, originating from the natives, are much more consistently used and do refer mostly to a special species of softshell turtle.

1. Scientific names

Aspideretes nigricans (ANDERSON, 1875)

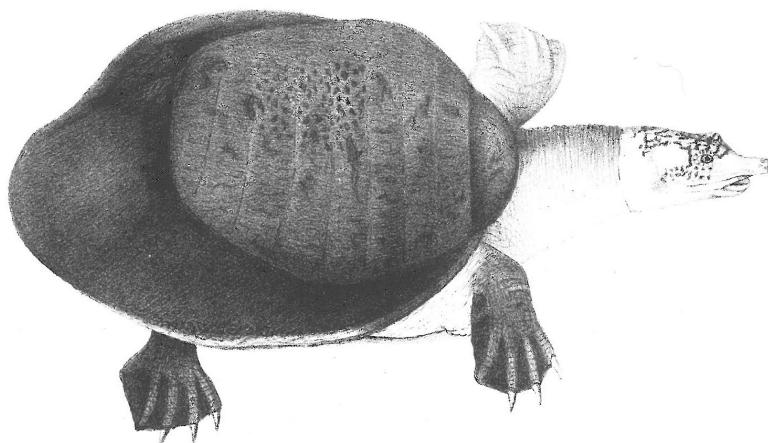


Fig. 1: *A. nigricans*, PLATE X., without captions, from GRAY (1831) (= GRAY 1831b) "Synopsis Reptilium", bound between p. 46 and p. 47 in the copy in the library of the Herpetological Collection of the Museum of Natural History in Vienna.

- 1831? *Trionyx hurum* GRAY (= GRAY 1831a): A synopsis of the species of the Class Reptilia: 18–19. In: GRIFFITH,E. (ed.). The animal kingdom arranged in conformity with its organization, by Baron CUVIER. London
- 1831 *Trionyx hurum* GRAY (= GRAY 1831b), partim: Synopsis Reptilium or short descriptions of the species of reptiles. Part I.-Cataphracta. Tortoises, crocodiles, and enaliosaurians. London: 47, 48
- 1831 *Trionyx hurum* GRAY (= GRAY 1831b): Synopsis Reptilium or short descriptions of the species of reptiles. Part I.-Cataphracta. Tortoises, crocodiles, and enaliosaurians. London Pl. X (46/47); List of plates (unpag.) (viz. Fig. 1)
- 1835 *Gymnopus duvaucelii* DUMÉRIL & BIBRON partim: Erpétologie générale ou Histoire naturelle complète des reptiles. Paris 2: 487

- 1835[1836]: *Trionyx hurum* (Sectio *Aspidonectes*) FITZINGER, partim: Entwurf einer systematischen Anordnung der Schildkröten nach den Grundsätzen der natürlichen Methode. – Annalen des Wiener Museums der Naturgeschichte 1(1): 127
- 1844 *Tyrsse gangetica* GRAY partim: Catalogue of the tortoises, crocodiles and amphibaenians, in the collection of the British Museum. London: 47
- 1855 *Trionyx gangeticus* GRAY, partim: Catalogue of shield reptiles in the collection of the British Museum. London: 66
- 1872 *Trionyx hurum* GRAY (= GRAY 1872a), partim: Ann. Mag. Nat. Hist., London 9(4): 475
- 1872 *Trionyx hurum* GRAY (= GRAY 1872b), partim: Ann. Mag. Nat. Hist., London 10(4): 335, 336
- 1873 *Trionyx hurum* GRAY (= GRAY 1873a), partim: Proc. Zool. Soc. London: 49
- 1875 *Trionyx nigricans* ANDERSON: Ann. Mag. Nat. Hist., London, 16(4): 284 (first description)
- 1889 *Trionyx hurum* BOULENGER, partim: Catalogue of the Chelonians, Rhynchocephalians and Crocodiles in the British Museum (Natural History). London: 249
- 1912 *Trionyx nigricans* ANNANDALE (=ANNANDALE 1912a): Rec. Ind. Mus. 7: 152
- 1912 *Trionyx hurum* BOULENGER, partim: A vertebrate fauna of the Malay Peninsula from the Isthmus of Kra to Singapore including adjacent islands. Reptilia and Batrachia. London: 9–10
- 1931 *Trionyx nigricans* SMITH: The fauna of British India, including Ceylon and Burma. Amphibia and Reptilia. Vol. 1 Loricata, Testudines. London: 168
- 1961 *Trionyx nigricans* WERMUTH & MERTENS: Schildkröten Krokodile Brückenechsen. Jena: 275
- 1977 *Trionyx nigricans* WERMUTH & MERTENS: Liste der rezenten Amphibien und Reptilien. Testudines Crocodylia, Rhynchocephalia. Das Tierreich Lieferung 100: 110
- 1979 *Trionyx nigricans* Pritchard: Encyclopedia of turtles, Neptune, N. J.: 644
- 1987 *Aspideretes nigricans* MEYLAN: Bull. Am. Mus. Nat. Hist. 186 (1): 77
- 1989 *Aspideretes nigricans* WEBB: 109. In KING & BURKE (ed.): Crocodilian, Tuatara, and turtle species of the world. A taxonomic and geographic reference. Washington
- 1989 *Aspideretes nigricans* ERNST & BARBOUR: Turtles of the world. Washington: 108
- 1991 *Aspideretes nigricans* DAS: Colour guide to the turtles and tortoises of Indian Subcontinent. Portishead: 62
- 1991 *Aspideretes hurum* DAS, partim: Colour guide to the turtles and tortoises of the Indian Subcontinent. Portishead: 60
- 1992 *Aspideretes nigricans* IVERSON: A revised checklist with distribution maps of the turtles of the world. Richmond, Indiana: 309
- 1994 *Aspideretes hurum* FRAZIER & DAS, partim: Hamadryad 19: 59
- 1994 *Aspideretes nigricans* DAVID: Liste des reptiles actuels du monde. I. Chelonii. – Dumerilia 1: 34
- 1995 *Aspideretes hurum* DAS, partim: Turtles and tortoises of India. Bombay: 76
- 1995 *Aspideretes nigricans* DAS: Turtles and tortoises of India. Bombay: 79
- 1998 *Aspideretes hurum* DATTA: J. Bomb. Nat. Hist. Soc. 95 (1): 121
- 2001 *Aspideretes nigricans* DAS: Die Schildkröten des Indischen Subkontinents. Frankfurt/M.: 85

GRAY (1830–1835) used by then unpublished colour plates by two artists, HARDWICKE and BUCHANAN-HAMILTON, for his descriptions. He published part of these colour plates between 1830 and 1835 in his "Illustrations of Indian Zoology". An additional black and white drawing by HARDWICKE is found in "Synopsis Reptilium" (1831b) (Plate X) (Fig. 1), and two more drawings by the same artist are printed in black and white as Pl. VIII (1873a) (Fig. 2). The duplicated plates are of importance for systematics. Plate X (1831b) corresponds to HARDWICKE's drawing no. 35 (WEBB, 1980). The drawing is bound between pages 46 and 47. In the copy of "Synopsis Reptilium" in the library of the Herpetological Collection of the Natural History Museum in Vienna, an unpaginated „List of Plates“ is found between p. 78, after a figure plate, and preceding the Index on p. 79. The last row contains the reference: "Tab.X. Trionyx Hurum, young". On page 47, under "5. Trionyx Hurum (Hurum Trionyx)", a Latin description is found, which is a noteworthy addition to the English text from 1831a, because, whereas the description of the plastron is retained, the head markings are given a more detailed coverage, which notes correspond well with the drawing on Plate X: "Testa supra obscure fusca, capite viridi nigro reticulato, fronte macula unica temporibusque duobus luteis ornatis; ...". HARDWICKE supplied his drawing originally with the following remark: "Kaavez-Country Name Found in the Ganges-grows to 120 lbs. Futtelghur May 17". Only the weight announcement, approximately 54 kg on conversion, is indicative of a remarkably

large turtle. On the contrary, *A. hurum* is the smallest species in the genus *Aspideretes* and is not capable of attaining the said weight (DAS 1991, 1995; ERNST & BARBOUR 1989, PRASCHAG & GEMEL 2002).

In addition to the obvious importance of size and great weight, characters pertaining to markings and colouration, as depicted on Plate X, argue further for *A. nigricans*: The carapace features completely faded ocelli, and it has already taken a uniform grey colouration ("Testa supra obscure fusca"). The structure of the bony disc is clearly visible. It might be that a dry preparation was used as a model. The head shows the typical coloration of phase 3 (sensu PRASCHAG & GEMEL 2002): The still relatively narrow skull and long proboscis correspond with the legend to Plate X, „young“, and make it clear that the animal in question is certainly not fully grown. The pale-dark-striped (zebra-patterned) eye borders are a typical character of *A. nigricans* (PRASCHAG & GEMEL 2002). Additionally, the upper jaw and sides of mouth feature sprenkles, and the white temporal fleck is already clearly fading. Behind it, in the intermediate zone between head and neck, a large unpigmented white fleck is already to be seen. This will get more defined with age, in the 4th colour phase ("...temporibusque duobus luteis ornatis"). The reticulated pattern of darker lines between the eyes ("...capite viridi nigro reticulato") diffuses into sprenkles beneath the bright temporal fleck. The coloration of soft parts inclusive of the neck is dorsally uniformly dark-grey, and changes gradually into a pale-brown in ventral direction ("...sterno luteo").

The written remark that the animal originates from the Ganges remains problematic, because until today there is no supporting evidence from the area under the river's influence. The addition "Futteghur May 17" could as well relate to the place and date of the making of the drawing. WEBB (1980) classifies the depicted individual as *A. hurum*, but acknowledges the differences with respect to Pl. 66 in "Illustrations of Indian Zoology" (GRAY 1830–1835).

In this way, the above mentioned outtakes from GRAY (1831b) in combination with Plate X in the same work represents the description of *A. nigricans*. GRAY's knowledge on the variability of the species was insufficient for a clear separation of the three species of eyed soft-shell turtles *A. nigricans*, *A. hurum* and *A. gangeticus* as presently recognised. But there was never given a name of its own to this "nigricans fraction" of GRAY's "*T. hurum*" until 1875 when ANDERSON published the description of *T. nigricans*.

In the same year GRAY (1831a) had also given an expanded description of his collective taxon *T. hurum* by inclusion of some diagnostic characters of *A. nigricans* and the description is too broadley to attach it unambiguously to either one of the two species: "...head green with two yellow spots on each side over the eyes..." could as well match *A. nigricans*. Because GRAY points in this context to the Illustrations of Indian Zoology, it is presumable that he thereby described *A. hurum* in its current meaning, although Pl. 66 depicts a problematic specimen. Anyway, the original description of *A. hurum* under the name *Trionyx ocellatus* was published on 4.–6. October 1830 and, therefore *A. hurum* was doubtlessly described prior to *A. nigricans* (see remarks below under *A. hurum*). The Holotypes of *A. nigricans* are in the British Museum (Natural History): BMNH 1929.12.23.1 (adult, skeleton), BMNH 1929.12.23.2 (skull) (see PRASCHAG & GEMEL 2002).

Aspideretes hurum (GRAY, 1830)

- 1830 *Trionyx ocellatus* GRAY: Illustrations of Indian Zoology; chiefly selected from the collection of Major-General HARDWICKE, London. Vol. I, Pl. 78 (first description)
- 1830 *Trionyx ocellatus* GRAY: Illustrations of Indian Zoology; chiefly selected from the collection of Major-General HARDWICKE, London. Vol. I, unpag. Legend to Pl. 78
- 1831 ?*Trionyx hurum* GRAY (= GRAY 1831a), partim: A synopsis of the species of the Class Reptilia: 18–19. In: GRIFFITH, E. (ed.). The animal kingdom arranged in conformity with its organization, by Baron CUVIER. London
- 1831 *Trionyx gangeticus* GRAY (= GRAY 1831a): A synopsis of the species of the Class Reptilia: 18, Fig. 4. In: GRIFFITH, E. (ed.). The animal kingdom arranged in conformity with its organization, by Baron CUVIER. London
- 1831 *Trionyx hurum* GRAY (= GRAY 1831b), partim: Synopsis Reptilium or short descriptions of the species of reptiles. Part I-Cataphracta. Tortoises, crocodiles, and enaliosaurians. London: 47

- 1835 *Gymnopus duvaucelii* DUMÉRIL & BIBRON, partim: Erpétologie générale ou Histoire naturelle complète des reptiles. Paris Vol. 2: 487
- 1835 *Gymnopus ocellatus* DUMÉRIL & BIBRON, partim: Erpétologie générale ou Histoire naturelle complète des reptiles. Paris Vol. 2: 489
- 1835 ?*Trionyx hurum* GRAY: Illustrations of Indian Zoology; chiefly selected from the collection of Major-General HARDWICKE, London. Vol. II, Pl. 66
- 1835 *Trionyx hurum* GRAY: Illustrations of Indian Zoology; chiefly selected from the collection of Major-General HARDWICKE, London. Vol. II, unpag. Legend to Pl. 66
- 1835 [1836] *Trionyx hurum* (Sectio *Aspidonectes*) FITZINGER, partim: Entwurf einer systematischen Anordnung der Schildkröten nach den Grundsätzen der natürlichen Methode. – Annalen des Wiener Museums der Naturgeschichte 1(1): 127
- 1844 *Tyrse gangetica* GRAY, partim: Catalogue of the tortoises, crocodiles and amphibaenians, in the collection of the British Museum. London: 47
- 1851 *Gymnopus ocellatus* DUMÉRIL & DUMÉRIL: Catalogue méthodique de la collection des Reptiles. Paris: 22
- 1855 *Trionyx gangeticus* GRAY, partim: Catalogue of shield reptiles in the collection of the British Museum. London: 66
- 1864 *Trionyx gangeticus* GUENTHER, partim: The reptiles of British India. London: 47
- 1872 *Trionyx hurum* GRAY (= GRAY 1872a), partim: Ann. Mag. Nat. Hist., London 9(4): 475
- 1872 *Trionyx ocellatus* GRAY (= GRAY 1872b): Ann. Mag. Nat. Hist., London 10(4): 329, 330
- 1872 ?*Trionyx sewaare* GRAY (= GRAY 1872b): Ann. Mag. Nat. Hist., London 10(4): 336, 337
- 1872 *Trionyx hurum* GRAY (= GRAY 1872b), partim: Ann. Mag. Nat. Hist., London 10(4): 335, 336
- 1872 *Trionyx hurum* ANDERSON: Ann. Mag. Nat. Hist., London 9(4) 40: 382, 383
- 1872 *Trionyx gangeticus* SOWERBY & LEAR: Tortoises Terrapins and Turtles: Pl. 51
- 1872 *Trionyx bellii* GRAY, (= GRAY 1872b) partim: Ann. Mag. Nat. Hist., London 10(4): 337, 338
- 1873 *Trionyx hurum* GRAY (= GRAY 1873b): Handlist of the specimens of shield reptiles in the Brit. Mus.: 79
- 1873 *Trionyx ocellatus* GRAY (= GRAY 1873b): Handlist of the specimens of shield reptiles in the Brit. Mus.: 80
- 1874 *Trionyx buchanani* THEOBALD: Proc. As. Soc., Bengal, March 1874: 78
- 1876 *Trionyx gangeticus* THEOBALD, partim: Descriptive catalogue of the reptiles of British India. Calcutta: 28
- 1876 *Trionyx ocellatus* THEOBALD: Descriptive catalogue of the reptiles of British India. Calcutta: 29
- 1876 ?*Trionyx sewaare* THEOBALD: Descriptive catalogue of the reptiles of British India. Calcutta: 29
- 1889 *Trionyx hurum* BOULENGER: Catalogue of the Chelonians, Rhynchocephalians and Crocodiles in the British Museum (Natural History). London: 249
- 1890 *Trionyx hurum* BOULENGER: The fauna of British India, including Ceylon and Burma. Reptilia and Batrachia. London: 13, fig. 5
- 1902 *Trionyx hurum* SIEBENROCK: Zur Systematik der Schildkrötenfamilie *Trionychidae* Bell, nebst der Beschreibung einer neuen *Cylanorbis*-Art. – Akad. Wiss. Wien 91: 6.
- 1909 *Trionyx hurum* SIEBENROCK: Synopsis der rezenten Schildkröten mit Berücksichtigung der in historischer Zeit ausgestorbenen Arten. – Zoologische Jahrbücher Jena Suppl. 10(3): 597
- 1912 *Trionyx hurum* ANNANDALE (=ANNANDALE 1912a): Rec. Ind. Mus. 7: 152
- 1912 *Trionyx hurum* BOULENGER, partim: A vertebrate fauna of the Malay Peninsula from the Isthmus of Kra to Singapore including adjacent islands. Reptilia and Batrachia. London: 9–10
- 1915 *Trionyx hurum* DE ROU, partim: The reptiles of Indo-Australian archipelago 1 Lacertilia, Chelonia, Emydosauria: 328
- 1931 *Trionyx hurum* SMITH: The fauna of British India, including Ceylon and Burma. Amphibia and Reptilia. Vol. 1 Loricata, Testudines. London: 171
- 1961 *Trionyx hurum* WERMUTH & MERTENS: Schildkröten Krokodile Brückenechsen. Jena: 270
- 1977 *Trionyx hurum* WERMUTH & MERTENS: Liste der rezenten Amphibien und Reptilien. Testudines Crocodylia, Rhynchocephalia. Das Tierreich Lieferung 100: 109
- 1979 *Trionyx hurum* PRITCHARD Encyclopedia of turtles, Neptun, N. J. 7: 643.
- 1985 *Trionyx hurum* TIKADER & SHARMA: Handbook Indian Testudines: 132
- 1987 *Aspideretes hurum* MEYLAN: Bull. Am. Mus. Nat. Hist. 186(1): 77
- 1989 *Aspideretes hurum* WEBB: 108. In KING & BURKE (ed.): Crocodilian, Tuatara, and turtle species of the world. A taxonomic and geographic reference. Washington
- 1989 *Aspideretes hurum* ERNST & BARBOUR: Turtles of the world. Washington: 107
- 1991 *Aspideretes hurum* DAS: Colour guide to the turtles and tortoises of the Indian Subcontinent. Portishead: 59

- 1992 *Aspideretes hurum* IVERSON: A revised checklist with distribution maps of the turtles of the world. Richmond, Indiana: 307
- 1994 *Aspideretes hurum* DAVID: Liste des reptiles actuels du monde. I. Chelonii. - Dumerilia 1: 34
- 1994 *Aspideretes hurum* (partim) FRAZIER & DAS: Hamadryad 19: 59
- 1995 *Aspideretes hurum* DAS: Turtles and tortoises of India. Bombay: 74
- 2001 *Aspideretes hurum* DAS: Die Schildkröten des Indischen Subkontinents. Frankfurt/M.: 81
- 2002 *Aspideretes hurum* SCHLEICH: 554, 560. In: SCHLEICH & KÄSTLE (ed.): Amphibians and reptiles of Nepal. Ruggell

Plate 78 in Vol. I of the "Illustrations of Indian Zoology" (GRAY 1830) is titled "Eyed Trionyx". This *Trionyx ocellatus* GRAY, and it is the same picture as BUCHANAN HAMILTON no. 528. This colour plate was issued in October 1830, and it shows the dorsal and ventral view of a juvenile with classic characteristics. *Testudo ocellatus* depicts the type of *Trionyx ocellatus* (WEBB, 1980). GRAY (1831b) introduces *T. ocellatus* as synonym of *Trionyx hurum*. Though *Trionyx ocellatus* was erected already in 1830, the name is a primary homonym of *Trionyx ocellata* LESUEUR, 1827 (= *Apalone spinifera* [LESUEUR, 1827]) and thus not available (cf. WEBB 1980), the reason for the validation of *T. hurum*. The colour plate Pl. 66 is depicted in Vol. II, and it was published 20 February 1835 (WEBB, 1980). It is one of three colour plates which GRAY used from BUCHANAN-HAMILTON (as illustration no. 525 of *Testudo hurum*) for the "Super-royal Folio", and which he supplied with the caption "TRIONYX HURUM. n. HURUM TRIONYX. From Dr. BUCHANAN HAMILTONS drawings". The commentary by WEBB (1980), that it pertains to *A. hurum*, can only be agreed upon with caution because the depicted specimen features no typical colour characteristics, especially with respect to the long proboscis and the missing yellow band at its base. The ocelli which dissolve into meandering lines are reminiscent of *N. formosa*. THEOBALD (1876) considered this illustrated specimen as an Indian softshell turtle, and puts it into synonymy with *A. gangeticus*. BOULENGER (1912) and DE ROOIJ (1915) relate in conjunction with *Trionyx hurum* also to Plate X in GRAY 1831a, to cover thus partly *A. nigricans*. Both announce this species in error from the Malayan region, DE ROOIJ even from Borneo and Indochina, which accounts rely probably on mix-ups with *A. cartilaginea*.

Trionyx sewaare remains an indistinct taxon (PRASCHAG & GEMEL 2002).

Aspideretes leithii (GRAY, 1872)

- 1831 *Trionyx javanicus* GRAY (= GRAY 1931a), partim: A synopsis of the species of the Class Reptilia: 19. In: GRIFFITH, E. (ed.): The animal kingdom arranged in conformity with its organization, by Baron CUVIER. London
- 1831 *Trionyx javanicus* GRAY (= GRAY 1931b), partim: Synopsis Reptilium or short descriptions of the species of reptiles. Part I-Cataphracta. Tortcises, crocodiles, and enaliosaurs. London: 48
- 1835 *Trionyx javanicus* GRAY: Illustrations of Indian Zoology; chiefly selected from the collection of Major-General HARDWICKE, London Vol. II, unpag. Legend to Pl. 65
- 1835 *Trionyx javanicus* GRAY: Illustrations of Indian Zoology; chiefly selected from the collection of Major-General HARDWICKE, London Vol. II, Pl. 65
- 1835 *Gymnopus javanicus* DUMÉRIL & BIBRON, partim: Erpétologie générale ou Histoire naturelle complète des reptiles Vol. 2: 493
- 1835 [1836] *Trionyx javanicus* (Sectio *Aspidonectes*) FITZINGER, partim: Entwurf einer systematischen Anordnung der Schildkröten nach den Grundsätzen der natürlichen Methode. - Annalen des Wiener Museums der Naturgeschichte 1(1): 127
- 1844 *Tyrse javanica* GRAY, partim: Catalogue of the tortoises, crocodiles and amphibiaenians, in the collection of the British Museum. London: 47
- 1855 *Trionyx javanicus* GRAY, partim: Catalogue of shield reptiles in the collection of the British Museum. London: 67

- 1864 *Trionyx javanicus* GÜNTHER, partim: The reptiles of British India. London: 48
- 1864 *Potamochelys stellatus* GRAY, partim: Proc. Zool. Soc. London: 85; fig. 7, 8: 86
- 1870 *Potamochelys stellata* GRAY, partim: Supplement to the Catalogue of shield reptiles in the collection of the British Museum. Part 1 Testudinata (Tortoises) with figures of the skulls of 36 Genera. London: 104; fig. 34: 105
- 1870 *Aspilus cariniferus* GRAY ex errore (according GRAY 1872b): Supplement to the Catalogue of shield reptiles in the collection of the British Museum. Part 1 Testudinata (Tortoises) with figures of the skulls of 36 Genera. London: 101; fig. 33: 102
- 1872 *Trionyx javanicus* GRAY, partim (= GRAY 1872 a): Ann. Mag. Nat. Hist.; 9(4): 475
- 1872 *Trionyx leithii* GRAY (= GRAY 1872 b): Ann. Mag. Nat. Hist.; 10(4): 334, 335 (first description)
- 1872 *Aspilus gatagholt* GRAY (= GRAY 1872b): Ann. Mag. Nat. Hist.; 10(4): 330
- 1872 *Trionyx gangeticus* ANDERSON, partim: Ann. Mag. Nat. Hist.; 9(4) 40: 382
- 1873 *Trionyx gangeticus* GRAY (= GRAY 1873a), partim: Proc. Zool. Soc. London: 47
- 1873 *Aspilus gatagholt* GRAY (= GRAY 1873a): Proc. Zool. Soc. London: 67
- 1873 *Trionyx gangetiga* (sic!) GRAY (= GRAY 1873a), partim: Proc. Zool. Soc. London Pl. VIII (juvenile) (viz. Fig. 2)
- 1873 *Trionyx leithii* GRAY (= GRAY 1873b) Hand-list of the specimens of shield reptiles in the British Museum. London: 79
- 1876 *Trionyx gangeticus* THEOBALD, partim: Descriptive catalogue of the reptiles of British India. Calcutta: 28
- 1889 *Trionyx leithii* BOULENGER: Catalogue of the Cheloniens, Rhynchocephalians and Crocodiles in the British Museum (Natural History). London: 249
- 1890 *Trionyx leithii* BOULENGER: The fauna of British India, including Ceylon and Burma. Reptilia and Batrachia. London: 12
- 1902 *Trionyx leithii* SIEBENROCK: Zur Systematik der Schildkrötenfamilie *Trionychidae* Bell, nebst der Beschreibung einer neuen *Cylanorbis*-Art. - Akad. Wiss. Wien; 91: 6.
- 1909 *Trionyx leithii* SIEBENROCK: Synopsis der rezenten Schildkröten mit Berücksichtigung der in historischer Zeit ausgestorbenen Arten. - Zoologische Jahrbücher Jena Suppl. 10(3): 597
- 1912 *Trionyx leithii* ANNANDALE (= ANNANDALE 1912a): Rec. Ind. Mus., Calcutta 7: 152
- 1912 *Trionyx leithii* ANNANDALE (= ANNANDALE 1912b): Rec. Ind. Mus., Calcutta 7: 262
- 1915 ?*Trionyx sulcifrons* ANNANDALE: Rec. Ind. Mus., Calcutta 11: 341, Taf. 33: fig. 1, 2
- 1931 *Trionyx leithi* SMITH: The fauna of British India, including Ceylon and Burma. Amphibia and Reptilia. Vol. 1 Loricata, Testudines. London: 170
- 1961 *Trionyx leithii* WERMUTH & MERTENS: Schildkröten Krokodile Brückenechsen. Jena: 273
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- 1979 *Trionyx leithi* PRITCHARD Encyclopedia of turtles, Neptun, N. J.: 643
- 1985 *Trionyx leithi* TIKADER & SHARMA: Handbook Indian Testudines: 130
- 1987 *Aspideretes leithii* MEYLAN: Bull. Am. Mus. Nat. Hist. 186(1): 77
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- 1994 *Aspideretes leithii* DAVID: Liste des reptiles actuels du monde. I. Chelonii. - Dumerilia 1: 34
- 1994 *Aspideretes leithii* FRAZIER & DAS: Hamadryad 19: 59
- 1995 *Aspideretes leithii* DAS: Turtles and tortoises of India. Bombay: 76
- 2001 *Aspideretes leithii* DAS: Die Schildkröten des Indischen Subkontinents. Frankfurt/M.: 83

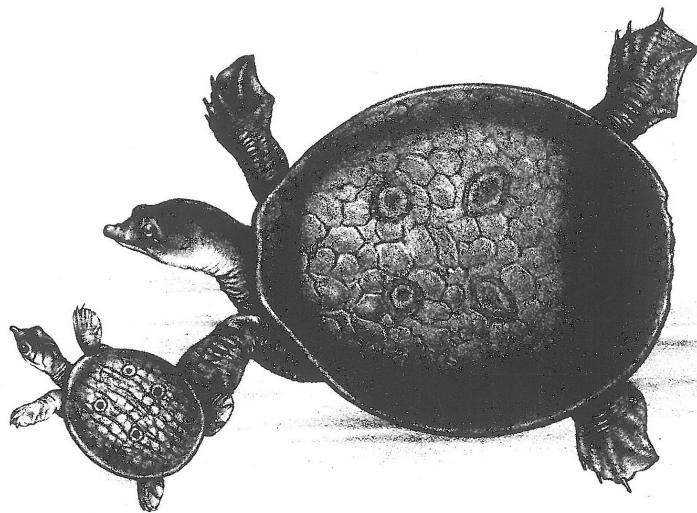


Fig. 2: Pl. VIII from GRAY (1873) (= GRAY 1873a): "*Trionyx gangeticus*, The "Dekoolee". In agreement with WEBB (1980), the juvenile is classified as *A. leithii* and the large animal as *A. gangeticus*.

GRAY (1830–1835, 1831a, 1831b) studied softshell turtles from Deccan. These specimens featured a black head stripe and, at least as juveniles, carapacial ocelli. GRAY believed initially that these turtles are conspecific with *Trionyx javanicus* GEOFFROY SAINT HILLAIRE, 1809. Subsequently this caused misidentifications and confusion.

Already in 1831a, GRAY described a softshell turtle with the name *Trionyx javanicus* ("...Head green, with five or six diverging black lines, and a streak between the eyes. ...When young, back black ocellated"), which description relates as little to *A. cartilaginea* as his description of "*Trionyx Javanicus*" (1831b). Above all, the remark "...capite obscure viridi lineis nigris radiantibus notato" is based on a species with dark head-stripes. Because GRAY refers additionally to the illustration of "Testudo Gotaghol" by HAMILTON, Icon. Ined., and because we agree with WEBB (1980) that HAMILTON's colour picture depicts *A. leithii*, this account represents a description of *A. leithii*. The illustration in question is no. 527 of HAMILTON, which appeared as Pl. 65 in Ill. Ind. Zool., a work published in February 1835 (WEBB, 1980). ANDERSON (1872) notes that GRAY's *Trionyx javanicus* could not represent *Trionyx javanicus* GEOFFROY SAINT HILLAIRE 1809, but that it is *T. gangeticus* instead, and he describes the differences between *T. gangeticus* and *T. hurum*.

As GRAY (1864) later admitted, he had never seen a specimen from Java, the reason he changed the name to *Potamochelys stellatus* with reference to broad black stripes on the head. The specimens which GRAY had for his work in 1864 originate from Deccan. This enables their classification to *A. leithii*. The next available name for *A. leithii* would therefore be *Potamochelys stellata* GRAY, 1864, which taxon GRAY also regards to include *Trionyx javanicus* GRAY, 1844. The name *Potamochelys stellata* is based on *Trionyx stellatus* GEOFROY, 1809, and it is a nomen substitutum pro *Testudo cartilaginea* BODDAERT, 1770 (WERMUTH & MERTENS 1977: 107), and thus not available either.

Trionyx javanicus GEOFFROY SAINT HILLAIRE, 1809 is a subjective synonym of *Amyda cartilaginea* (BODDAERT, 1770) (BOUR et al., 1995). As a result, the name "*Trionyx javanicus*" GRAY 1831 is a primary homonym of *Trionyx javanicus* GEOFFROY SAINT HILLAIRE, 1809.

Aspideretes gangeticus (CUVIER, 1824)

- 1824 *Trionyx gangeticus* CUVIER: Rech. Oss. foss., erches sur les ossemens fossiles, où l'on rétablit les caractères de plusieurs animaux dont les révolutions du lobe ont détruit les espèces. 2. Ed. 5(2), Paris: 186, 203, Taf.11 (first description)
- 1831 *Trionyx hurum* GRAY (= GRAY 1831a), partim: A synopsis of the species of the Class Reptilia: 18. In: GRIFFITH,E. (ed.): The animal kingdom arranged in conformity with its organization, by Baron CUVIER. London
- 1831 ?*Trionyx javanicus* GRAY (= GRAY 1831a), partim: A synopsis of the species of the Class Reptilia: 19. In: GRIFFITH,E. (ed.). The animal kingdom arranged in conformity with its organization, by Baron CUVIER. London
- 1831 *Trionyx hurum* GRAY (= GRAY 1831b), partim: GRAY, J. E. (1831b): Synopsis Reptilium or short descriptions of the species of reptiles. Part I.-Cataphracta. Tortoises, crocodiles, and enaliosaurs. London: 47, 48
- 1835 *Gymnopus duvaucelii* DUMÉRIL & BIBRON, partim: Erpétologie générale ou Histoire naturelle complète des reptiles. Vol. 2: 487
- 1835[1836] *Trionyx indicus* (Sectio *Aspidonectes*) FITZINGER, partim: Entwurf einer systematischen Anordnung der Schildkröten nach den Grundsätzen der natürlichen Methode. – Annalen des Wiener Museums der Naturgeschichte 1(1): 127
- 1844 *Tyrsus gangetica* GRAY, partim: Catalogue of the tortoises, crocodiles and amphibaenians, in the collection of the British Museum. London: 47
- 1844 *Tyrsus javanica* GRAY, partim: Catalogue of the tortoises, crocodiles and amphibaenians, in the collection of the British Museum. London: 47
- 1851 *Gymnopus duvaucelii* DUMÉRIL & DUMÉRIL: Catalogue méthodique de la collection des Reptiles. Paris: 22
- 1855 *Trionyx gangeticus* GRAY, partim: Catalogue of shield reptiles in the collection of the British Museum. London: 66; Pl. 42, 1a–1d
- 1864 *Trionyx gangeticus* GUENTHER, partim: The reptiles of British India. London: 47
- 1866 *Trionyx gangeticus* THEOBALD: Catalogue of reptiles in the Museum of Asiatic Society of Bengal. – Journ. As. Soc. 35/2: 15
- 1870 *Trionyx gangeticus* GRAY, partim: Supplement to the Catalogue of shield reptiles in the collection of the British Museum. Part I Testudinata (Tortoises) with figures of the skulls of 36 Genera. London: 97
- 1872 *Trionyx gangeticus* ANDERSON, partim: Ann. Mag. Nat. Hist.; 9(4) 40: 382
- 1872 *Trionyx gangeticus* GRAY (= GRAY 1972b): Ann. Mag. Nat. Hist.; 10(4): 333, 334
- 1872 *Aspilus tagahol* GRAY (= GRAY 1972b): Ann. Mag. Nat. Hist.; 10(4): 339
- 1873 *Trionyx gangeticus* GRAY (= GRAY 1873 a), partim: Proc. Zool. Soc. London: 47
- 1873 *Trionyx gangetiga* (sic!) GRAY (= GRAY 1873 a), partim: Proc. Zool. Soc. London: Pl. VIII (large animal) (viz. Fig. 2)
- 1874 *Trionyx gangeticus* THEOBALD: Proc. As. Soc. Beng.: 77
- 1875 *Trionyx gangeticus* THEOBALD, partim: Proc. As. Soc. Beng.: 171
- 1876 *Trionyx gangeticus* THEOBALD, partim: Descriptive catalogue of the reptiles of British India. Calcutta: 28
- 1889 *Trionyx gangeticus* BOULENGER: Catalogue of the Chelonians, Rhynchocephalians and Crocodiles in the British Museum (Natural History). London: 248
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- 1912 ?*Trionyx gangeticus mahanaddicus* ANNANDALE (=ANNANDALE 1912b): Rec. Ind. Mus., Calcutta 7: 262
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- 1985 *Trionyx gangeticus* TIKADER & SHARMA: Handbook Indian Testudines: 127
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 1994 *Aspideretes gangeticus* DAVID: Liste des reptiles actuels du monde. I. Chelonii. – Dumerilia 1: 34
 1994 *Aspideretes gangeticus* FRAZIER & DAS: Hamadryad 19: 56
 1995 *Aspideretes gangeticus* DAS: Turtles and tortoises of India. Bombay: 70
 2001 *Aspideretes gangeticus* DAS: Die Schildkröten des Indischen Subkontinents. Frankfurt/M.: 78
 2002 *Aspideretes gangeticus* SCHLEICH: 554, 556. In: SCHLEICH & KÄSTLE (ed.): Amphibians and reptiles of Nepal. Ruggell.

A mounted dry specimen MNHN 9387 at the Paris Natural History Museum was designated as lectotype of *A. gangeticus*, and three additional paralectotypes exist in the same collection (BOUR *et al.* 1995). These specimens are traceable to A. DUVAUCEL in 1823, and they originate from the Ganges.

2. Vernacular names

In addition to the scientific names, other names were used as well for the softshell turtles treated here. Both artists, HARDWICKE and BUCHANAN-HAMILTON, whose illustrations had formed the basis for GRAY's descriptions, supplied their drawings of softshell turtles with names, in part with native expressions ("Country name"), on the other hand partly with Latin names. Because their colour drawings were not initially duplicated, the names used do not have a meaning with regard to zoological nomenclature. The "Country names" were put into brackets by GRAY and THEOBALD, and sometimes also added to the scientific name, or, these were given in synonymy lists. By taking up the vernacular names, they got more often modified as they were apparently written in correct pronunciation. With only a few exceptions, it is remarkable that each "Country name" was applied one particular species. This indicates that native fishermen were familiar with the different however similar species of soft-shelled turtles. Names for softshell turtles attributable for the genus *Aspideretes* are as follows:

Aspideretes nigricans (ANDERSON, 1875)

"Kaavez" HARDWICKE Icon. ined. Nr. 35, = Pl. X in GRAY (1831b). The "Country name" "Kaavez" given by HARDWICKE is part of the caption of an unpublished plate original and is therefore not available. When published by GRAY it was associated with "Trionyx hurum". "Kaarey" GRAY (1855: 66), country name of *Trionyx gangeticus* comprises not only *A. gangeticus* but as well *A. hurum* (partial), *A. nigricans* (partial) and *Pelodiscus sinensis* (partial).

Aspideretes hurum (GRAY, 1830)

"Testudo ocellata" BUCHANAN-HAMILTON Icon. ined. Nr. 528, = GRAY (1830): Illustrations of Indian Zoology; chiefly selected from the collection of Major-General HARDWICKE, London Vol. I, Pl. 78
 ? "Sewaare" HARDWICKE Icon. ined. Nr. 36 (see Fig. 8: 98 and Fig. 16: 105 in PRASCHAG & GEMEL 2002); maybe a yet undescribed taxon.
 "Testudo chhim" BUCHANAN-HAMILTON Icon. ined. Nr. 521, THEOBALD 1876
 (as "Testudo chin" in the synonymy of *Tyrse gangetica* GRAY 1844: Catalogue of the tortoises, crocodiles and amphibiaenians, in the collection of the British museum. London: 47 and as nomen nudum "Testudo chim" HAMILTON 1831 in WERMUTH & MERTENS 1977:109)
Testudo Chim (GRAY 1831b)
 THEOBALD (1876: 29) mentions the name "Kála kachim" used by the Bengali fishermen

Aspideretes leithii (GRAY, 1872)

"Dekolee" HARDWICKE Icon. ined. Nr. 37 = GRAY (1873a), Pl. VIII small animal (viz. Fig. 2)
 "Testudo Gotaghol" BUCHANAN-HAMILTON Icon. ined. Nr. 527 = GRAY III. Ind. Zool. Pl. 65 (as "Test. Gatagholt" in the synonymy of *Tyrse javanica* GRAY 1844: Cat. Tort.: 48)
 "Catajhal" THEOBALD 1874, 1876 (under *Trionyx gangeticus*)
 "Catajhol" THEOBALD 1875
 „Boulousse“ (and "Keeled Boulose") is used by GRAY (1855: 67) in part for *A. leithii*, including other trionychids like *Pelodiscus sinensis* and *Amyda cartilaginea*.

Aspideretes gangeticus (CUVIER, 1824)

"Dekoolee" HARDWICKE Icon. ined. Nr. 37 = GRAY (1873a), Pl. VIII large animal (viz. Fig. 2)
 "Jaank" or "Dhank" HARDWICKE Icon. ined. Nr. 37.

Current names used by the local inhabitants for various softshell turtles are found in DAS (1991, 1995).

Acknowledgements

Thanks go to JARMO PERÄLÄ (Helsinki) for translation. HEINZ GRILLITSCH (Vienna) improved significantly this paper by his comments.

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Received on July 27, 2003, accepted on August 11, 2003.