

On two shells of trionychid turtles in the collection of
the “Zoologische Staatssammlung München”
with remarks about morphological differences between
Chitra GRAY, 1844 and *Pelochelys* GRAY, 1864
(Testudines: Trionychidae)

Über zwei Schalen von Weichschildkröten in der Zoologische Staatssammlung München,
mit Bemerkungen zu morphologischen Unterschieden
zwischen *Chitra* GRAY, 1844 und *Pelochelys* GRAY, 1864
(Testudines: Trionychidae)

RICHARD GEMEL & ELISABETH HARING

KURZFASSUNG

Belegmaterial von Riesen-Weichschildkröten der Gattungen *Chitra* und *Pelochelys* ist in Museumssammlungen selten. Zwei Weichschildkrötenschalen aus der Zoologischen Staatssammlung München, die unter dem Namen *Pelochelys cantorii* GRAY, 1864 inventarisiert sind, wurden deshalb und wegen einer bemerkenswerten Fundortangabe mit morphologischen und genetischen Methoden in Hinblick auf ihre Artbestimmung überprüft. Eine der beiden Schalen aus der Sammlung SCHLAGINTWEIT stammt aus Sindh, Pakistan, und wäre ein Erstnachweis von *P. cantorii* für das Indusdal. Die Analyse ergibt, daß beide Schalen von *Chitra indica* (GRAY, 1831) stammen. In einer Tabelle werden überdies morphologische Merkmale des knöchernen Panzers zur Unterscheidung von *Pelochelys* und *Chitra* zusammengestellt.

ABSTRACT

Preserved voucher specimens of giant trionychid turtles of the genera *Chitra* and *Pelochelys* are rare in scientific museum collections. Therefore, and because of the remarkable record locality, two shells in the collection of the “Zoologische Staatssammlung” in Munich, Germany, attributed to *Pelochelys cantorii* GRAY, 1864 were examined by morphological and genetic methods to verify their taxonomic allocation. One of these shells, originating from the SCHLAGINTWEIT collection, was collected in Sindh, Pakistan, and would be the first record of *P. cantorii* from the Indus river system. The analysis shows that both shells are to be assigned to *Chitra indica* (GRAY, 1831). Furthermore, a table of shell characters is provided to distinguish *Chitra* and *Pelochelys*.

KEY WORDS

Reptilia: Testudines: Trionychidae: *Chitra*, *Chitra indica*, *Pelochelys*, *Pelochelys cantorii*, bony carapace, plastron, morphology, DNA sequence analysis, identification, distribution, Indus Valley, Pakistan

INTRODUCTION

The giant trionychid turtles of the genera *Chitra* GRAY, 1844 (narrow-headed soft-shell turtles) and *Pelochelys* GRAY, 1864 (Asian giant softshell turtles), constituting (unluckily together with *Amyda*) the tribe Chitrini sensu MEYLAN (1987), are all little studied, and their systematics and distribution are extremely little known. In 2002, MCCORD & PRITCHARD added considerably to the knowledge of the genus *Chitra* and also provided a review. Until then, two species of each genus, *Chitra* and *Pelochelys*, were recognized: *Chitra indica* (GRAY, 1831), *Chitra*

chitra NUTAPHAND, 1986, *Pelochelys bibroni* (OWEN, 1853) and *Pelochelys cantorii* GRAY, 1864. MCCORD & PRITCHARD (2002) described hereupon two new taxa of *Chitra*, *Chitra chitra javanensis* and *Chitra vandijki*. Moreover, they evaluated all relevant literature sources in their paper, which includes a bibliography. Due to the rarity of *Chitra* in the wild throughout their range, the description of these new forms became possible only by consideration of captive specimens, in addition to preserved material deposited in scientific collections. In the

same issue of the journal *Hamadryad*, WEBB (2002) described a new species of *Pelochelys*, *Pelochelys signifera*, to be distinguished from its congeners by juvenile coloration and pattern. However, the description of a new species based mainly on the coloration of a single juvenile (which represents the type specimen) appears questionable. It is evident that these circumstances reflect the general scarcity of giant trionychid material in museum collections.

Because of the rarity of preserved giant softshell turtles and reliable published records, there is insufficient knowledge about the distribution ranges of the various taxa. Interestingly, a trionychid disk in the collection of the "Zoologische Staatssammlung" in Munich, Germany, which originated from the Indus river, was attributed to *Pelochelys cantorii*, although *P. cantorii* was not recorded previously from the Indus river system. However, this species can reasonably be expected to occur/or have occurred there, at least in historical times. The reason for this assumption is the recently documented occurrence of *Batagur baska* (GRAY,

1830) in the Indus Valley by PRASCHAG et al. (2008). The voucher upon which this record is based, is a stuffed male deposited in the Natural History Museum Vienna (NHMW 1841 - Indus Delta, Sindh, from the Munich museum, without date), which documents the presence of this species in the Indus Valley for the first time. As *Batagur*, *Chitra* and *Pelochelys* share large parts of their distribution (FRITZ & HAVAS 2007), it is plausible to assume that *P. cantorii* could occur in the Indus valley, too. Moreover, the *B. baska* specimen originates from the SCHLAG-INTWEIT Collection, which is the same source from which the alleged *P. cantorii* shell deposited in Munich came. Additionally, GUIX (2001) reported on a huge specimen of a giant softshell turtle assigned to *Pelochelys bibroni* that washed ashore at the beach of Moçâmedes, Angola, southwestern Africa. This specimen is documented by a photograph kept at the Arquivo Fotografico Municipal de Lisboa, Portugal, and further corroborates that the knowledge of the distribution and possible marine migration of *Pelochelys* is most incomplete.

MATERIALS AND METHODS

Morphological analysis

We examined morphological and genetic features of the abovementioned shell [Shell 1] from the collection of the "Zoologische Staatssammlung München" (ZSM) to verify its taxonomic assignment. In addition, we analyzed another specimen from the same collection, also labeled *P. cantorii* [Shell 2]. For the purpose of comparison, we adapted our characterization mainly to the genus description of *Chitra* by MCCORD & PRITCHARD (2002). The shell of *Pelochelys* was detailed in SIEBENROCK (1902), SMITH (1931) and PRITCHARD (1979). In Table 1, we compiled the relevant characters reported in the literature along with those determined in the present investigation.

Materials examined: [Shell 1] ZSM 2514/0 labeled "*Pelochelys cantoris* GRAY, Indus-Delta, Sindh, Westl. Indien", SCHLAG-INTWEIT leg. [without date]. [Shell 2] ZSM 54/0 labeled "*Pelochelys cantorii* GRAY", provenance unknown.

Genetic analysis

For the genetic analysis the following samples were taken for DNA extraction: from Shell 1 (ZSM 2514/0) a piece of bone of the cervical vertebra; from Shell 2 (ZSM 54/0) a piece of cartilage from the inner side of the carapace. DNA was extracted using the All-tissue DNA Kit (GEN-IAL[®], Troisdorf, Germany). After grinding the material in a Mixer Mill MM 400 (Retsch[®], Haan, Germany) extraction was performed according to the manufacturer's protocol for DNA preparation from bones, with a final elution in 100 µl buffer. A control extraction without tissue was done to test for contaminated reagents. PCR primers for partial regions of the *cytochrome b* gene were designed specifically based on sequences of *Chitra* and *Pelochelys* published in GenBank (see below): *cyc-cytb1+* (5'-acctacgaa aatcccacc-3'), *cyc-cytb3-* (5'-gataatccgggtgttcagg-3'), *pelo-cytb5-* (5'-aactgatgagaatgctgttg-3'), *chi-cytb6-* (5'-gattgatgagaatgct-



Fig. 1: *Chitra indica*, ZSM 2514/0, Indus, Sindh, Coll. SCHLAGINTWEIT.
Bony disk, dorsal aspect, fourth discrete neural missing.

Abb. 1: *Chitra indica*, ZSM 2514/0, Indus, Sindh, Coll. SCHLAGINTWEIT.
Knöcherner Diskus von dorsal, das vierte Neurale fehlt.



Fig. 2: *Chitra indica*, ZSM 2514/0, Indus, Sindh, Coll. SCHLAGINTWEIT.
Bony disk, visceral aspect, fourth discrete neural missing.

Abb. 2: *Chitra indica*, ZSM 2514/0, Indus, Sindh, Coll. SCHLAGINTWEIT.
Knöcherner Diskus von visceral, das vierte Neurale fehlt.

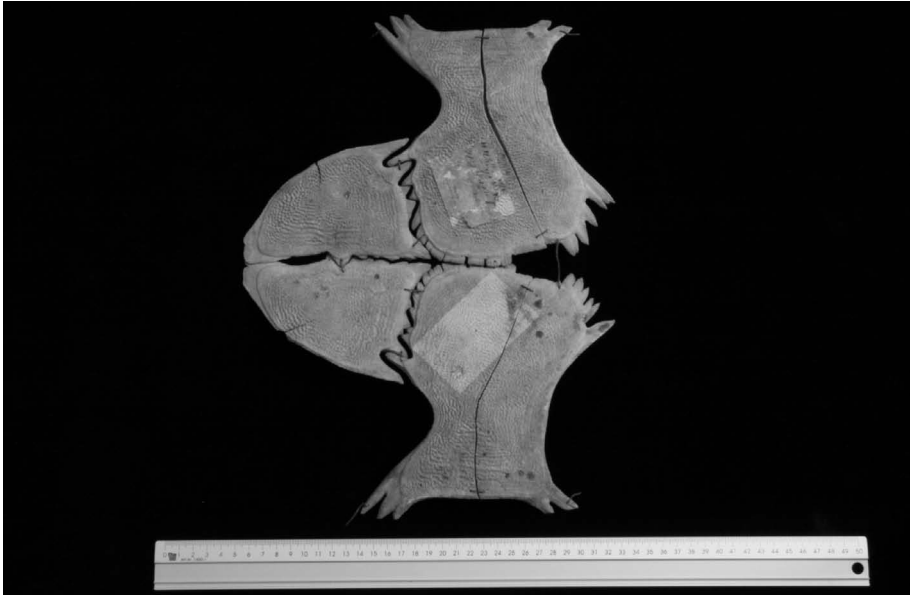


Fig. 3: *Chitra indica*, ZSM 2514/0, Indus, Sindh, Coll. SCHLAGINTWEIT.
Bony plastron in ventral aspect, preplastra and epiplastron missing.

Abb. 3: *Chitra indica*, ZSM 2514/0, Indus, Sindh, Coll. SCHLAGINTWEIT.
Knöcherner Plastron von ventral, Präplasträ und Epiplastron fehlen.

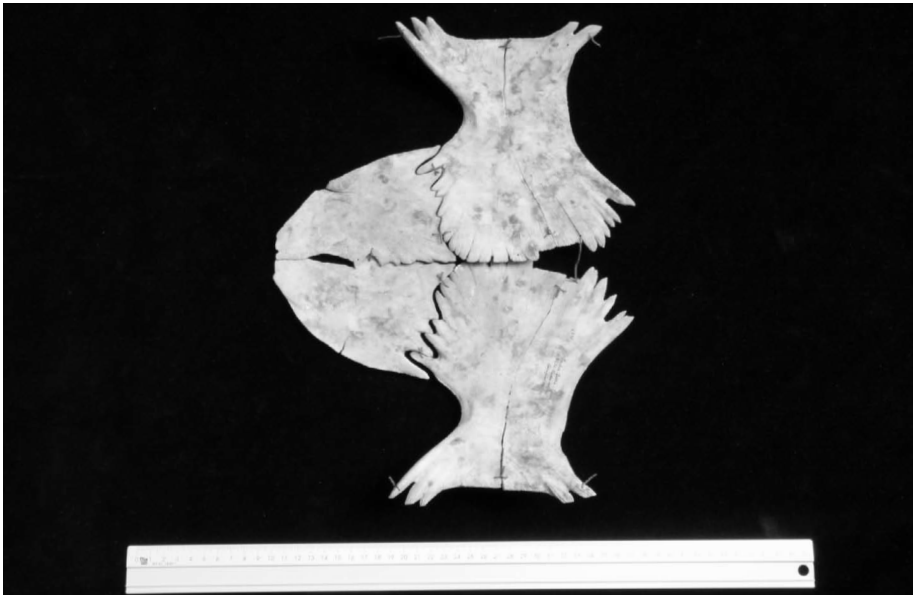


Fig. 4: *Chitra indica*, ZSM 2514/0, Indus, Sindh, Coll. SCHLAGINTWEIT.
Bony plastron in visceral aspect, preplasträ and epiplastron missing.

Abb. 4: *Chitra indica*, ZSM 2514/0, Indus, Sindh, Coll. SCHLAGINTWEIT.
Knöcherner Plastron von visceral, Präplasträ und Epiplastron fehlen.

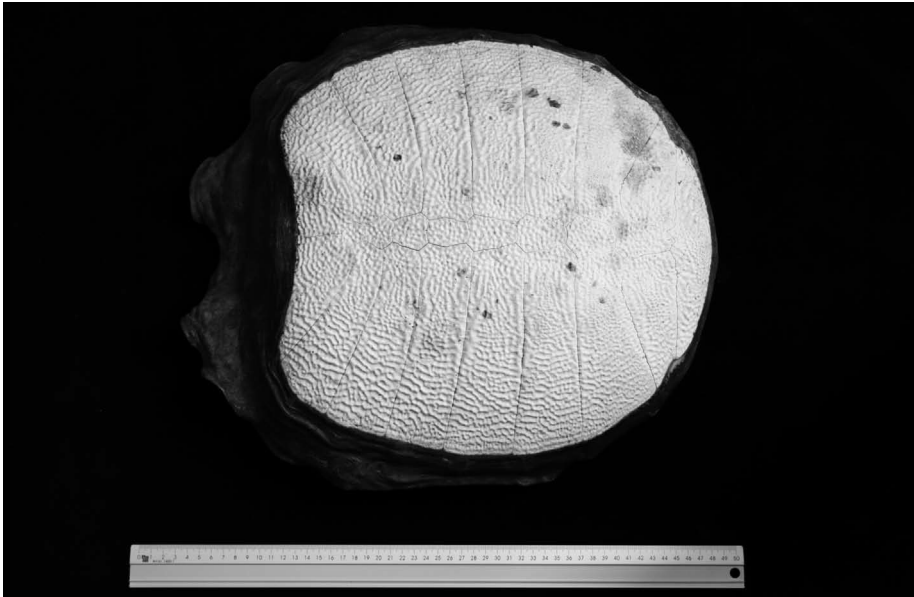


Fig. 5: *Chitra* sp., ZSM 54/0, of unknown origin, carapace, dorsal aspect.

Abb. 5: *Chitra* sp., ZSM 54/0, Herkunft unbekannt, Carapax von dorsal.



Fig. 6: *Chitra* sp., ZSM 54/0, of unknown origin, carapace, visceral aspect.

Abb. 6: *Chitra* sp., ZSM 54/0, Herkunft unbekannt, Carapax von visceral.



Fig. 7: *Chitra* sp., ZSM 54/0, of unknown origin, plastron, ventral aspect.

Abb. 7: *Chitra* sp., ZSM 54/0, Herkunft unbekannt, Plastron von ventral.



Fig. 8: *Chitra* sp., ZSM 54/0, of unknown origin, plastron, visceral aspect.

Abb. 8: *Chitra* sp., ZSM 54/0, Herkunft unbekannt, Plastron von visceral.

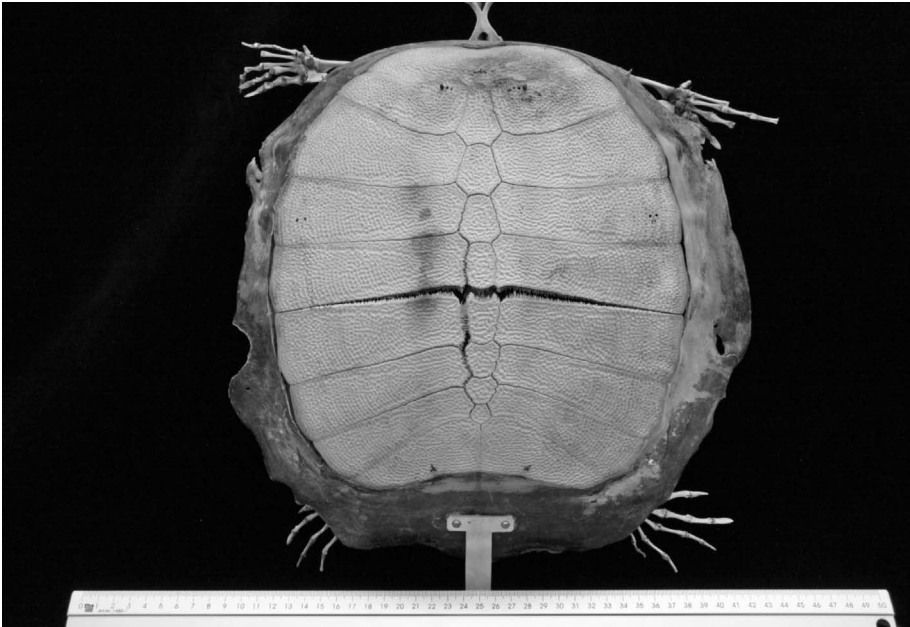


Fig. 9: *Pelochelys cantorii* NHMW 1857, Ganges, don. STEINDACHNER 1896, carapace, dorsal aspect.
Abb. 9: *Pelochelys cantorii* NHMW 1857, Ganges, don. STEINDACHNER 1896, Carapax von dorsal.



Fig. 10: *Pelochelys cantorii* NHMW 1857, Ganges, don. STEINDACHNER 1896, plastron, visceral aspect.
Abb. 10: *Pelochelys cantorii* NHMW 1857, Ganges, don. STEINDACHNER 1896, Plastron von viszeral.

gttg-3'). In the PCR reactions, primer cyc-cytb1+ was combined with one of the other three primers to obtain a 191 bp-fragment (combined with pelo-cytb5- or chi-cytb6-) or a 347 bp-fragment (combined with cyc-cytb3-), respectively. PCR (35 reaction cycles) was performed on a Master gradient thermocycler (Eppendorf) in 25 μ l with 0.2 units TopTaq DNA Polymerase (QIAGEN), 1 μ M of each primer, and 0.2 mM of each dNTP (QIAGEN). Control reactions to detect contaminations were carried out with: (i) control 'extractions' (without sample) instead of the template, and (ii) with dis-

tilled water instead of the template. PCR products were extracted from agarose gels using the QIAquick Gel Extraction Kit (QIAGEN) and cloned (TOPOTA Cloning[®] Kit; Invitrogen). Sequencing of both strands was performed by AGOWA (Berlin, Germany). Editing and alignment of sequences were performed using the BioEdit software package version 5.0.9 (HALL 1999). For sequence comparison we used sequences of *C. indica* (GenBank accession number AY259561), *P. cantorii* (AY259560), and *P. bibroni* (AY259559) published by ENGSTROM et al. (2004).

RESULTS AND DISCUSSION

Morphological analysis

Shell 1 (ZSM 2514/0) - Bony disk (Figs. 1, 2): straight carapace length (CL) 35.5 cm, straight carapace width (CW) 32.0 cm (widest between the 3rd and 4th pleurals). Surface ornamentation vermiform, neurals (N) 1–4 hexagonal with shortest sides directed posteriorly (N4 missing), N5 oval shaped, N6–7 hexagonal with shortest sides directed anteriorly, N8 pentagonal. Pleurals number eight well developed, in full contact along the midline. Plastral elements consisting of the hyo-hypoplastra and xiphiplasta only (epiplastra and entoplastron missing) (Figs. 3, 4). Median portion of hyo-hypoplastral suture deviates anteriorly from a hypothetical straight transversal hyo-hypoplastral line in forming a sharp angle (24°/26° left/right). *Processus medialis anterior* (sensu SIEBENROCK 1902) of hyoplastron with three bi- and trifurcated prongs, the latero-anterior prong separated from the others; hypoplastron with six/five (left/right) broadened processes. Callosities cover almost the entire hyo-hypoplastra and xiphiplastra.

Shell 2 (ZSM 54/0) - Carapace bony elements complete (Figs. 5, 6): surface ornamentation vermiform, CL (including the dried skin) 42.5 cm, CW 34.0 cm (widest between the 3rd and 4th pleurals), same neural configuration as in ZSM 2514/0. Plastron (Figs. 7, 8): bony elements complete, entoplastron large boomerang-shaped and distinctive, anterior free portion

of epiplastra almost as long as posterior part, supporting a front lobe of the plastron. *Processus medialis anterior* of hyoplastron with three bi- and trifurcated prongs, the latero-anterior prong not distinctly separated from the others, hypoplastron with five broadened, stubby processes. Median portion of hyo-hypoplastral suture deviates anteriorly from a hypothetical straight transversal hyo-hypoplastral line in forming a sharp angle (25°/28° left/right).

Comparing these morphological features to the descriptions reported in the literature (Table 1) reveals that the two specimens analyzed clearly match the morphological characterization of *Chitra* rather than that of *Pelochelys*.

Genetic analysis

Using various primer combinations we attempted to amplify *cytochrome b* sequences from the two samples. We obtained clear PCR products in three reactions: From specimen Shell 1 (ZSM 2514/0) the 191 bp fragment (cyc-cytb1+ / chi-cytb6-) and the 347 bp fragment (cyc-cytb1+ / cyc-cytb3-) were obtained. From specimen Shell 2 (ZSM 54/0) only the 191 bp fragment could be amplified (cyc-cytb1+ / pelo-cytb5-).

These sequences (without primer sequences the sections comprise 152 bp and 308 bp, respectively) are registered under the GenBank accession numbers HQ853298 (ZSM 2514/0) and HQ 853297 (ZSM 54/0). The sequences of Shell 1 and Shell 2 differ in

Table 1: Shell characters distinguishing *Chitra* GRAY, 1844 from *Pelochelys* GRAY, 1864. Note that only discrete neurals are counted. The first neural element may be a fused element corresponding with neurals 1 and 2 of other trionychid genera such as Cyclanorbininae and *Aspideretes* sensu MEYLAN (1987). MEYLAN (1987) considered them as separated. Numbers in parentheses are rarely encountered conditions.

Tab. 1: Schalenmerkmale zur Unterscheidung von *Chitra* GRAY, 1844 und *Pelochelys* GRAY, 1864. Es werden nur diskrete Neuralia gezählt. Das kranialste Neuralier-Element kann ein verschmolzenes Element sein, das den Neuraliern 1 und 2 bei anderen Trionychiden-Gattungen wie Cyclanorbininae und *Aspideretes* sensu MEYLAN (1987) entspricht. MEYLAN (1987) betrachtete sie als getrennt. Zahlen in Klammern bezeichnen selten auftretende Zustände.

| | Character (feature) Merkmal | <i>Chitra</i> | <i>Pelochelys</i> |
|---------------------|---|---|---|
| Carapace Carapax | Number of discrete neurals Anzahl diskreter Neuralia | 8 | (6, 7) 8 |
| | Location of reversal in neural orientation Umkehrstelle in der Ausrichtung der Neuralia | 5/6 (5) | (4/5, 5) 5/6 (6) |
| | Position of anterior edge of first body vertebra relative to nuchal bone Lage des Vorderrandes des ersten Rumpfwirbels in bezug zum Nuchale | anterior edge of nuchal Vorderrand des Nuchale | middle of nuchal Mitte des Nuchale |
| | Surface ornamentation Oberflächenskulpturierung | vermiform wurmförmig | pitted grubig |
| Plastron | Inner anterior spurs of hypoplastra (<i>Processus medialis anterior</i>) Innere vordere Hypoplastralsporne (<i>Processus medialis anterior</i>) | only 3 spines (occasionally bi- and trifurcated) nur 3 Dorne (gelegentlich zwei- und dreifach gegabelt) | quite uniformly serrated, with 6 to 8 spines recht gleichmäßig gesägt, mit 6 bis 8 Dornen |
| | Protuberances at posteromesial edge of hypoplastra Vorsprünge auf dem postero- mesialen Rand der Hypoplastra | stubby and spaced out (with 3 to 4 jags) gedrungen, breit, spatel- förmig (mit 3 bis 4 Kerben) | spines, occasionally bifurcated Dorne, gelegentlich gegabelt |
| | Anterior process of epiplastron Vorderer Epiplastralfortsatz | short, but developed, producing a front lobe of plastron kurz, gut entwickelt, einen Plastralvorderlappen bildend | very short, anterior border of plastron rounded without lobe sehr kurz, Plastron-Vorder- rand rund, ohne Lappen |
| | Angle between hypothetical straight transversal hyo-hypoplastral line and median portion of hyo-hypoplasral suture Winkel zwischen einer hypotheti- schen geraden transversalen Hyo- Hypoplastrallinie und dem medi- anen Abschnitt der Hyo-Hypoplastralnaht | distinct, sharp angle, 25°-28° deutlich, Winkel spitz, 25°-28° | suture waved (rolling), angle very sharp, 12°-15° Naht wellig, Winkel sehr spitz, 12°-15° |

one position within the 152 bp section and are almost identical with the sequences of *Ch. indica*. In the 308 bp section (Shell 1) the p distance is 0.3%. As the distances between the GenBank sequences of *Pelochelys* (*P. cantorii*, *P. bibroni*) and *Ch. indica* are 14.0% and 12.0%, respectively, it is quite clear that the specimens analyzed do not represent *Pelochelys* but *Chitra*. The high sequence similarity is in accordance with the assumption that Shell 1 (ZSM

2514/0) and Shell 2 (ZSM 54/0) belong to *Ch. indica*. Sequence divergence between this species and the related species *Chitra vandijki* and *Chitra chitra* (comparing the 308 bp section) are 6.2% and 5.2%, respectively. It remains to be investigated whether intraspecific differentiation within *Ch. indica* reveals a phylogeographic structure. This would require a comprehensive study of samples covering the whole distribution range.

Conclusions

In summary, morphological and genetic data agree that both shells, ZSM 2514/0 and ZSM 54/0, are to be assigned to the genus *Chitra*, and more specifically to *Ch. indica*. The disk from the Province of Sindh (Pakistan) is the first voucher of the species from that region, at least from the 19th Century. The occurrence of narrow-headed softshell turtles in the Indus Valley is current state of knowledge (DAS & SINGH 2009).

Adult turtles of the genera *Chitra* and *Pelochelys* are highly sought after as human food and there is a good chance to find bony disks and plastra in middens where these turtles occur (comp. MOLL 1987; SINGH et al. 2010). Table 1 provides an overview of the bony shell morphological differences between *Chitra* and *Pelochelys* in addition to the description of the two shells studied. This compilation should allow identification of adult specimens' bony shells. It is based on the authors' observations (GEMEL

unpublished) and those of MEYLAN (1987) and MCCORD & PRITCHARD (2002) as well as data by SIEBENROCK (1902), which were not included in MCCORD & PRITCHARD (2002). A mounted skeleton of *Pelochelys cantorii* (NHMW 1857, Ganges, don. STEINDACHNER 1896) was used for comparison (Figs. 9, 10).

The following characteristics distinguish the bony disks of *Chitra* and *Pelochelys* from the disks of other trionychid turtles of the Indian subcontinent such as *Lissemys*, *Nilssonina* sens. lat., *Amyda*, *Pelodiscus*, *Palea* and *Dogania*: Shell large, bony disk reaching about 80 cm in *Chitra* and 60 cm in *Pelochelys* (SMITH 1931), flat, about as long as wide, in old specimens (CL > 30 cm). Broad callosities on hyo-hyoplastra and xiphiplastra, but no callosities on either the entoplastron and the epiplastra. Triangular anterior median spur-like process of xiphiplastra extending between hyoplastra. Permanent mid-plastral fontanelles present, one of them small, oval-shaped, along the midline between xiphiplastra.

ACKNOWLEDGEMENTS

We wish to acknowledge Balazs FARKAS, (Budapest) and Wilhelm PINSKER (Vienna) who helped to improve the manuscript. Furthermore, we thank Barbara DÄUBL (Vienna) for excellent technical assistance and Heinz GRILLITSCH (Vienna) for the photographs. Furthermore, we thank both Frank GLAW, curator,

and Michael FRANZEN, technical assistant of the Herpetological Collection of the "Zoologische Staatssammlung" in Munich, Germany, for their hospitality during our visit there, and the access and loan of the material studied.

REFERENCES

- DAS, I. & SINGH, S. (2009): *Chitra indica* (GRAY, 1830) - Narrow headed softshell turtle; pp. 027.1-027.7. In: RHODIN, A. G. J. & PRITCHARD, P. C. H. & VAN DIJK, P. P. & SAUMURE, R. A. & BUHLMANN, K. A. & IVERSON, J. B. & MITTERMEIER, R. A. (Eds.): Conservation biology of freshwater turtles and tortoises: A compilation project of the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group. Chelonian Research Monographs No. 5, Lunenburg.
- ENGSTROM, T. N. & MCCORD, W. P. (2002): Molecular support for the taxonomic conclusions of MCCORD and PRITCHARD (2002), regarding *Chitra*-Hamadryad, Madras; 27 (1): 57-61.
- ENGSTROM, T. N. & SHAFFER, H. B. & MCCORD, W. P. (2004): Multiple data sets, high homoplasy, and the phylogeny of softshell turtles (Testudines: Trionychidae).- Systematic Biology, Cary, New York; 53 (5): 693-710.
- FRITZ, U. & HAVAŠ, P. (2007): Checklist of chelonians of the world.- Vertebrate Zoology, Dresden; 57 (2): 149-368.
- GUIX, J. C. (2001): Algunas consideraciones sobre el tamaño corporal y la conservación de anfibios y reptiles.- Boletín de la Asociación Herpetológica Española, Barcelona; 12 (2): 95-98.
- HALL, T. A. (1999): BioEdit: a user-friendly biological sequence alignment editor and analysis program for Windows 95/98/NT.- Nucleic Acids Symposium Series, Oxford, London; 41: 95-98.
- MCCORD, W. P. & PRITCHARD, C. H. (2002): A review of the softshell turtles of the genus *Chitra*, with the description of new taxa from Myanmar and Indonesia (Java).- Hamadryad; Madras, 27 (1): 11-56.
- MEYLAN, P. A. (1987): The phylogenetic relationships of soft-shelled turtles (family Trionychidae).- Bulletin of the American Museum of Natural History, Washington, New York; 186 (1): 1-101.
- MOLL, E. O. (1987): Survey of the freshwater turtles of India. Part I. The genus *Kachuga*.- Journal of the Bombay Natural History Society, Bombay/Mumbai; 83: 538-552.

-
- PRASCHAG, P. & SOMMER, R. & MCCARTHY, C. & GEMEL, R. & FRITZ, U. (2008): Naming one of the world's rarest chelonians, the southern Batagur.- *Zootaxa*, Auckland; 1758: 61-68.
- PRITCHARD, P. C. H. (1979): *Encyclopedia of turtles*. Neptune (T. F. H. Publications), 895 pp.
- SIEBENROCK, F. (1902): Zur Systematik der Schildkrötenfamilie Trionychidae BELL, nebst der Beschreibung einer neuen *Cyclanorbis*-Art.- *Sitzungsberichte der kaiserlichen Akademie der Wissenschaften in Wien, Mathematisch-naturwissenschaftliche Klasse*, Wien; 111: 807-846.
- SINGH, S. & HORNE, B. D. & HUDSON, R. (2010): TSA's Indian turtle conservation program: a ray of hope for an imperiled turtle fauna.- *TSA Turtle Survival Alliance*, [Web Magazine < <http://www.turtlesurvival.org/> >]; 2010 (August): 48-56].
- SMITH, M. A. (1931): *The fauna of British India, including Ceylon and Burma. Amphibia and Reptilia*. Vol. 1 Loricata, Testudines. London (Taylor and Francis), xxviii, 185 pp.
- WEBB, R. (2002): Observations on the Giant Softshell Turtle, *Pelochelys cantorii*, with description of a new species.- *Hamadryad, Madras*; 27 (1): 99-107.

DATE OF SUBMISSION: November 15, 2010

Corresponding editor: Heinz Grillitsch

AUTHORS: Richard GEMEL, Erste Zoologische Abteilung, Herpetologische Sammlung, Naturhistorisches Museum, Burgring 7, A-1010 Wien < richard.gemel@nhm-wien.ac.at >, Elisabeth HARING, Labor für Molekulare Systematik, Naturhistorisches Museum, Burgring 7, A-1010 Wien, < elisabeth.haring@nhm-wien.ac.at >