Zoosyst. Evol. 96 (1) 2020, 1–23 | DOI 10.3897/zse.96.47792

PENSOFT

für Natur MUSEUM FÜR NATURKUNDE BERLIN

Illustrated catalogue of types of Ampullariidae Gray, 1824 (Mollusca, Gastropoda) in the National Zoological Collection of the Zoological Survey of India, with lectotype designations

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http://zoobank.org/C5560B3F-B5A0-4623-80EB-FE2C483D4774

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Academic editor: *T. von Rintelen* ♦ **Received** 30 October 2019 ♦ **Accepted** 2 December 2019 ♦ **Published** 14 January 2020

Abstract

Malacological research in India has a long and productive history going back to the early 19th century, initially promoted by the Asiatic Society of Bengal and with significant material, including type material, deposited in the Indian Museum in Kolkata. Following the birth of the Zoological Survey of India (ZSI) in 1916, the Museum's collecting activities and care for the collections themselves became the responsibility of the ZSI. The ZSI holds important collections of freshwater snails in the family Ampullariidae, including type material of taxa collected and described in the late 19th and early 20th centuries. This catalogue brings together information about these types, including for each taxon: bibliographic details of the original description, current taxonomic status, details of the type locality and type material, dimensions and illustrations of type specimens, and additional information as deemed necessary or interesting. The catalogue provides this information for 10 taxa, including four valid species and six junior synonyms. Two published names of subvarieties are listed but these are nomenclaturally unavailable. Lectotypes are designated for three taxa to stabilise the names.

Key Words

apple snail, Caenogastropoda, conservation, fresh water, Indian Museum, nomenclature

Introduction

The early 19th century was an exciting period for malacological research in India, promoted by the then Asiatic Society of Bengal. The first and pioneering work was that of William Henry Benson during the period 1829–1865. Benson is considered the father of Indian malacological research for his significant contributions to the taxonomy and systematics of Mollusca in India. He described nearly 260 species of molluscs from British India and published more than 90 research articles on land snails and freshwater molluscs (Subba Rao 1991; Naggs 1997). From the mid-19th century to the early 20th century, significant and notable contributions, too numerous to cite here, were published during the following years by Theobald (1859–1889), Blanford (1860–1904), Stoliczka (1869–1873), Nevill (1871–1885), Beddome (1875–1906) and Godwin-Austen (1874–1922). By the beginning of the 20th century, molluscan research in India reached a peak as a result of augmentation of facilities and extensive field surveys. Noteworthy was the birth of the Zoological Survey of India (ZSI) in 1916 and the first ever field survey conducted by ZSI scientists to inventory the Mollusca, in Chilika lagoon in the state of Odisha. During this period, collecting and maintenance of the natural history collections in the Indian Museum came under the direct control of the ZSI. The Mollusca volumes of the *Fauna of British India* were published by Blanford and Godwin-Austen (1908), Gude (1914, 1921) and Preston (1915), and significant contributions, again

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too numerous to cite here, were made throughout the first half of the century by Preston (1916–1923), Annandale (1907–1925), Hornell (1910–1951), Prashad (1918–1935), H.S. Rao (1923–1941), Seshaiya (1928–1949), Winckworth (1926–1940) and others, with many publications in the *Records of the Indian Museum* and the *Records of the Zoological Survey of India*, as well as in specifically malacological and other journals.

Among the various groups of Mollusca, the family Ampullariidae (Pilidae is a junior synonym: Cowie 1997; ICZN 1999a) was centre stage during this period in terms of inventory, mostly because of the interest and effort of W.H. Benson, who collected "*Ampullaria*" from the "Gangetic Province" and "Calcutta" and described and illustrated them in his first publication (Benson 1829). Significant work on Indian Ampullariidae was also done by G. Nevill, who prepared the first catalogues of the Mollusca in the Indian Museum collections and described a number of new taxa (Nevill 1877, 1885). From the beginning of the 20th century, further work on Mollusca was conducted. Preston (1915) published the first comprehensive monograph on the freshwater Mollusca, including the Ampullariidae, as a volume in *The Fauna of British India*. Subsequently, Annandale, the first Director of the ZSI, began serious studies on the Ampullariidae. He undertook surveys and described many species (Annandale 1920), with additional publications in collaboration with Prashad (Annandale and Prashad 1921) and by Prashad (1925) alone. Significant more recent work was conducted by Subba Rao (1989) and others, including recently a catalogue of the Ampullariidae of Africa and Asia that brought together much information about the known species and the location of type material, including types in the National Zoological Collection of the ZSI (Cowie 2015).

The present catalogue is a comprehensive up-to-date account of the ampullariid species represented by type material in the National Zoological Collection of the ZSI, with illustrations of type specimens. It is a work of nomenclature and not of taxonomy. No taxonomic changes have been made; this would require more detailed revisionary research for which the present work provides a nomenclatural basis.

Material and methods

Scope of the catalogue

The catalogue lists all the type material of Ampullariidae in the National Zoological Collection of the Zoological Survey of India (formally known as the Indian Museum) with colour illustrations of specimens. It provides bibliographic details of the original descriptions, current taxonomic placements, discussion of the validity of names, details of type localities and type material along with details of the original labels, as well as morphometric measurements and photographs of type specimens.

Arrangement and treatment of taxa

Entries in the catalogue are arranged in alphabetical order of original available species-group names. These entries are followed by two entries for unavailable names that were proposed for infrasubspecific entities, provided simply for completeness, as by definition these entities do not have type material or type localities (*Code* Art. 1.3.4., Art. 10.2, Art. 45.5). Each entry has a heading comprising the name, author and year of publication. Available names are in italic and include the original generic combination; unavailable names are in plain type and only the species-group name is given. For available names, immediately beneath the heading, the following information is provided under a series of subheadings. First, the original name in its original genus-species combination, then the date, author(s) and original bibliographic details are given, these acting as links to the reference list. Next, the current taxonomic status is given, generally following Cowie (2015) for African and Asian taxa, and following Cowie and Thiengo (2003) for the single New World taxon (*Ampullaria erronea* Nevill, 1877), although additional supporting works may be cited if considered useful. The type locality follows within quotation marks, with additional details such as the modern locality name and country if deemed necessary or useful, in square brackets, and the name of the collector (as "leg.") or other source information, if known. The type material is then listed as holotype, paratype(s), lectotype, paralectotype(s) or syntype(s), with the method of fixation as such, as appropriate, followed by NZSI museum registration number(s), and with the date of registration of the specimen(s) in curved brackets. Morphometric measurements of the type material are then listed. Additional information and interpretation regarding the taxon, name, locality, types, etc. is provided in a Remarks section. For unavailable names, information is provided only in a Remarks section and no specimens are illustrated. Photographs of type material and original labels are provided.

All interpretations follow the fourth edition of the *International Code of Zoological Nomenclature* (ICZN 1999b), hereafter the *Code*.

Shell measurements were taken parallel (shell height) and perpendicular (shell width) to the shell axis (Fig. 1). However, measurement error is high in globose snails, which can lead to minor discrepancies among measurements taken at different times and by different people. Such error may be the cause of minor differences between measurements reported herein and those in the original descriptions.

Abbreviations and acronyms

AH aperture height;
Art. Article of the *Code*;
AW aperture width;
Code *International Code of Zoological Nomenclature* (ICZN 1999b);
ex. from;
fig. figure (in cited publications);

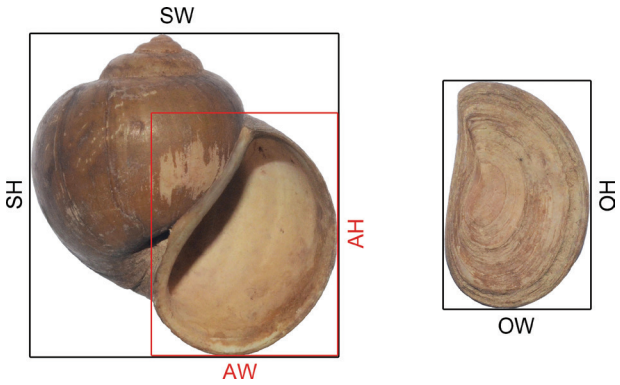

Figure 1. Shell measurements of Ampullariidae: shell height (SH), shell width (SW), aperture height (AH), aperture width (AW), operculum height (OH) and operculum width (OW).

figs figures (in cited publication);
Fig. Figure (in this publication);
Figs Figures (in this publication);
leg. legit (i.e. the collector);
NZSI National Zoological Collection of the Zoological Survey of India;
OH operculum height;
OW operculum width;
p(p). page(s);
pl(s). plate(s);
SH shell height;
sp. species;
spm. specimen;
spms specimens;
subvar. subvariety;
SW shell width;
var. variety.

Results

Systematic catalogue: available names

Family-group and higher level systematics follow Bouchet et al. (2017).

Phylum Mollusca Linnaeus, 1758
Class Gastropoda Cuvier, 1795
Subclass Caenogastropoda Cox, 1960
Grade Architaenioglossa Haller, 1890
Superfamily Ampullarioidea Gray, 1824
Family Ampullariidae Gray, 1824

Pachylabra angelica Annandale, 1920

Figs 2, 12A

Pachylabra angelica Annandale, 1920. *J. Nat. Hist. Soc. Siam* 4: 11, pl. 1, figs 9, 10, pl. 2, figs 5, 6.

Current taxonomic status. *Pila angelica* (Annandale, 1920), valid species.

Type locality. "Bangkok" [Thailand]; Dr. Malcom Smith, leg.

Type material. Syntypes: NZSI M.11649/2 (registered 10 September 1919, 2 spms).

Shell dimensions. Syntypes: SH 72.4, 73.5 mm, SW 69.0, 69.1 mm, AH 55.0, 57.6 mm, AW 41.9, 42.6 mm, OH 49.7, 53.8 mm, OW 29.7, 30.0 mm.

Remarks. Annandale (1920: 11, pl. 1, figs 9, 10) described and illustrated the two type specimens labelled as "type". Cowie (2015: 29) determined that only the two specimens illustrated on pl. 1 were syntypes, despite the fact that Annandale (1920: 13) gave dimensions for three specimens and implied that he had seen several more (*Code*, Art. 72.4.6).

Ampullaria erronea Nevill, 1877

Figs 3, 12B

Ampullaria erronea Nevill, 1877. *Cat. Moll. Ind. Mus.* Fasc. E: 17.

Current taxonomic status. *Pomacea erronea* (Nevill, 1877), valid species.

Type locality. "South America"; collector unknown.

Type material. Holotype (by original designation): NZSI M.2404 (registered 8 January 1894).

Shell dimensions. Holotype: SH 28.4 mm, SW 24.9 mm, AH 19.1 mm, AW 14.8 mm, OH 16.1 mm, OW 10.5 mm.

Remarks. Nevill (1877: 17) suggested the name *erronea* for this South American species, which Reeve had previously misidentified as *aperta* Philippi. Nevill considered it readily distinguishable from *aperta*. He stated that the "Type" of *erronea* was in the Indian Museum. The dimensions of the present specimen closely match those given by Nevill for the "Type" and we consider it to be the holotype.

Ampullaria conica var. *expansa* Nevill, 1877

Figs 4, 12C

Ampullaria conica var. *expansa* Nevill, 1877. *Cat. Moll. Ind. Mus.* Fasc. E: 9.

Current taxonomic status. *Pila scutata* (Mousson, 1848), probable synonym, pending further taxonomic research.

Type locality. "Pegu" [= Bago, Bago Region, Myanmar] (Nevill, 1877: 9); W. Theobald, Esq., leg. (see Remarks).

Type material. Holotype (original designation): NZSI M.2426 (registered 8 January 1894). Paratypes: speci-

Figure 2. Syntype of *Pachylabra angelica* Nevill, 1885; NZSI M.11649/2.

mens listed by Nevill (1877: 9, 1885: 5), not found in the ZSI collections, perhaps misplaced when the collections were moved from the Indian Museum to ZSI (8–10 spms); the shell figured by Hanley and Theobald (1874 in 1870–1876: pl. 114, fig. 5), location unknown.

Shell dimensions. Holotype: SH 56.6 mm, SW 49.7 mm, AH 40.6 mm, AW 33.8 mm.

Remarks. Nevill (1877: 9) listed seven specimens from "Pegu" collected by Theobald, and one from "Tenas-

Figure 3. Holotype of *Ampullaria erronea* Nevill, 1877; NZSI M.2404.

serim?" and one from "Mandalay?" each with "No history". He also noted that the shell illustrated by Hanley and Theobald (1874 in 1870–1876: pl. 114, fig. 5) was referable to this taxon; it is therefore also to be considered a paratype. Subsequently, Nevill (1885: 5) listed the seven Pegu specimens from Theobald (with "type var.") but three (not one) from "Tenasserim (?)" and one from "Mandalay (?)", all four from the collection of Stoliczka.

Thus it is not clear whether there were eight or ten paratypes, as either "one" or "three" from "Tenasserim?" could be in error. Nevill (1877: 10) gave measurements for the holotype and the shell height, at least, matches that of the present specimen (NZSI M.2426); shell width was given as 48 mm, while the present measurement is 45.6 mm, probably within the margin of error. We therefore consider it to be the holotype. None of the paratypes could be found in NZSI and the location of the specimen illustrated by Hanley and Theobald is unknown. The old specimen label associated with the holotype (Fig. 12C) is almost unreadable. However, a newer label (Fig. 12C) indicates Dr F. Stoliczka as the collector, although both this label and the register indicate "Pegu" as the locality, with the collector indicated in the register as unknown, i.e. with a question mark ("?"). Nevertheless, given that Nevill (1877: 9, 1885: 5) was consistent in noting Theobald as the collector of the Pegu specimens, we consider that Theobald was indeed the collector of the holotype and that the label noting Stoliczka as the collector reflects an inadvertent error, perhaps associated with Stoliczka having collected the "Tenasserim" and "Mandalay" specimens. Cowie (2015: 36) treated *expansa* Nevill as a synonym of either *ampullacea* Linnaeus, following Sowerby (1910: 56), or *gracilis* Lea, following Prashad (1925: 81), but refrained from making a definitive decision, pending further research. The holotype of *expansa* (Fig. 4) is clearly not *ampullacea*, based on its shell shape. In fact, it seems more likely that *expansa* is a junior synonym of the widespread *Pila scutata* (Mousson, 1848), which is known from Myanmar (Low et al. 2013: 56; Cowie 2015: 47). Nonetheless, we refrain from formally synonymising *expansa* Nevill with *scutata* Mousson, pending further, taxonomic research.

Ampullaria globosa var. *incrassatula* Nevill, 1877

Figs 5, 13A

Ampullaria globosa var. *incrassatula* Nevill, 1877. *Cat. Moll. Ind. Mus.* Fasc. E: 4.

Current taxonomic status. *Pila globosa* (Swainson, 1822 [in 1821–1822]), junior synonym.

Type locality. "near Calcutta"; Nevill, leg.

Type material. Lectotype, by designation of Prashad (1925: 74): NZSI M.2399 (registered 8 January 1894). Paralectotypes: NZSI M.25083/5 (registered 25 September 2001, 8 spms); 5 additional specimens noted by Nevill (1877: 4), location unknown.

Shell dimensions. Lectotype: SH 32.1 mm, SW 27.5 mm, AH 22.4 mm, AW 16.3 mm. Paralectotypes (8 spms): SH 26.0–30.9 mm, SW 23.3–29.9 mm, AH 18.6–22.5 mm, AW 13.3–16.4 mm, OH 17.4–20.4 mm, OW 10.1–13.3 mm.

Remarks. Nevill (1877: 4) described the variety based on 14 shells collected by himself from Calcutta and by Major L.W. Wilmer from "the village of Koakally, close to Dum-Dum" [= Dumdum, Kolkata, West Bengal, India]. Nevill (1885: 2) subsequently noted that the 14 specimens comprised 10 from Calcutta collected by himself and four from Dum-Dum collected by Wilmer. One of the Calcutta specimens was catalogued in the original ZSI (then the Indian Museum) register as the "type", NZSI M.2399. Prashad (1925: 74) noted this specimen as the "Type-specimen", thereby unambiguously designating it as the lectotype and restricting the type locality to "near Calcutta", as stated by Nevill (1877: 4). Its dimensions and appearance (Fig. 5) closely match the dimensions and description given by Nevill (1877: 4). The remaining 13 specimens are paralectotypes, with only eight, all from Calcutta, found in the NZSI collections (NZSI M.25083/5).

Ampullaria ampullacea var. *javensis* Nevill, 1885

Figs 6, 13B

Ampullaria ampullacea var. *javensis* Nevill, 1885. *Hand List. Moll. Ind. Mus.* p. 6.

Current taxonomic status. *Pila ampullacea* (Linnaeus, 1758), junior synonym.

Type locality. "Java"; Baron F. von Richthofen, leg.

Type material. Lectotype (here designated): NZSI M.27736/6 (registered 17 December 2014 as *Ampullaria* (*Pachylabra*) *ampullacea* var. "subcelebensis"). Paralectotypes – the shell illustrated by Mousson (1849: pl. 9 [as "pl. 1"; error], fig. 1), location unknown; the shell illustrated by Philippi (1852 [in 1851–1852], pl. 19, fig. 3), possibly in the Museo Nacional de Historia Natural, Santiago, Chile.

Shell dimensions. Lectotype: SH 63.1 mm, SW 57.1 mm, AH 48.8 mm, AW 34.2 mm.

Remarks. The labels associated with the specimen in NZSI M.27736/6 identify the specimen as "var. subcelebensis", a name that has never been published; one of the labels was probably written by Nevill (Fig. 13B). However, in his original description of *javensis*, Nevill (1885: 6) said that this was *celebensis* of Mousson and of Philippi (*non* Quoy & Gaimard) and that it had a less produced spire than true *celebensis*. So the name "subcelebensis" makes sense. Therefore, although Nevill (1885: 6) named his variety "*javensis*", it seems logical to consider the specimen labelled "subcelebensis" as a syntype of *javensis*, as also discussed by Cowie (2015: 38). Cowie (2015: 38) also considered as syntypes the shells illustrated by Mousson (1849: pl. 9 [as "pl. 1"; error], fig. 1) and Philippi (1852 [in 1851–1852], pl. 19, fig. 3), which were referred to *javensis* by Nevill (1885: 6). As noted by Nevill (1885: 6), the dimensions of the NZSI specimen closely match the dimensions of the shell illustrat-

Figure 4. Holotype of *Ampullaria conica* var. *expansa* Nevill, 1877; NZSI M.2426.

ed by Philippi (above), as does its overall shape. Cowie (2015: 38) was not completely certain that the specimen in MNHNCL is that of Philippi and could not locate that of Mousson. It seems reasonable, therefore, to designate NZSI M.27736/6 as the lectotype of *javensis* Nevill, 1885 to stabilize the association of the name with the single NZSI specimen that Nevill had to hand when he introduced the name. The specimen illustrated by Mousson (1849: pl. 9 [as "pl. 1"; error], fig. 1) and that illustrated by Philippi (1852, pl. 19, fig. 3) are then paralectotypes.

Figure 5. Lectotype of *Ampullaria globosa* var. *incrassatula* Nevill, 1877; NZSI M.2399.

Pachylabra turbinis **var. *lacustris* Annandale, 1920**

Figs 7, 13C

Pachylabra turbinis Race *lacustris* Annandale, 1920. *J. Nat. Hist. Soc. Siam* 4: 20, pl. 1, fig. 8 [as "var."].

Current taxonomic status. *Pila ampullacea* (Linnaeus, 1758), junior synonym (Brandt 1974; Ng et al. 2014).

Type locality. "edge of the inner or freshwater region of the Tale Sap or Inland Sea of Singgora" (Annandale

Figure 6. Lectotype of *Ampullaria ampullacea* var. *javensis* Nevill, 1885; NZSI M.27736/6.

1920: 20), "Tale Sap, near Lampam, Siam" (Annandale 1920: description of pl. 1, fig. 8) [= Muang Phatthalung District, Phatthalung, Thailand]; Annandale, leg.

Type material. Lectotype (here designated): NZSI M.10511/2 (registered 10 June 1916). Paralectotypes: NZSI M.33448/9 (ex. NZSI M.10511/2, originally registered 10 June 1916, newly registered as NZSI M.33448/9 9 October 2019, 2 spms).

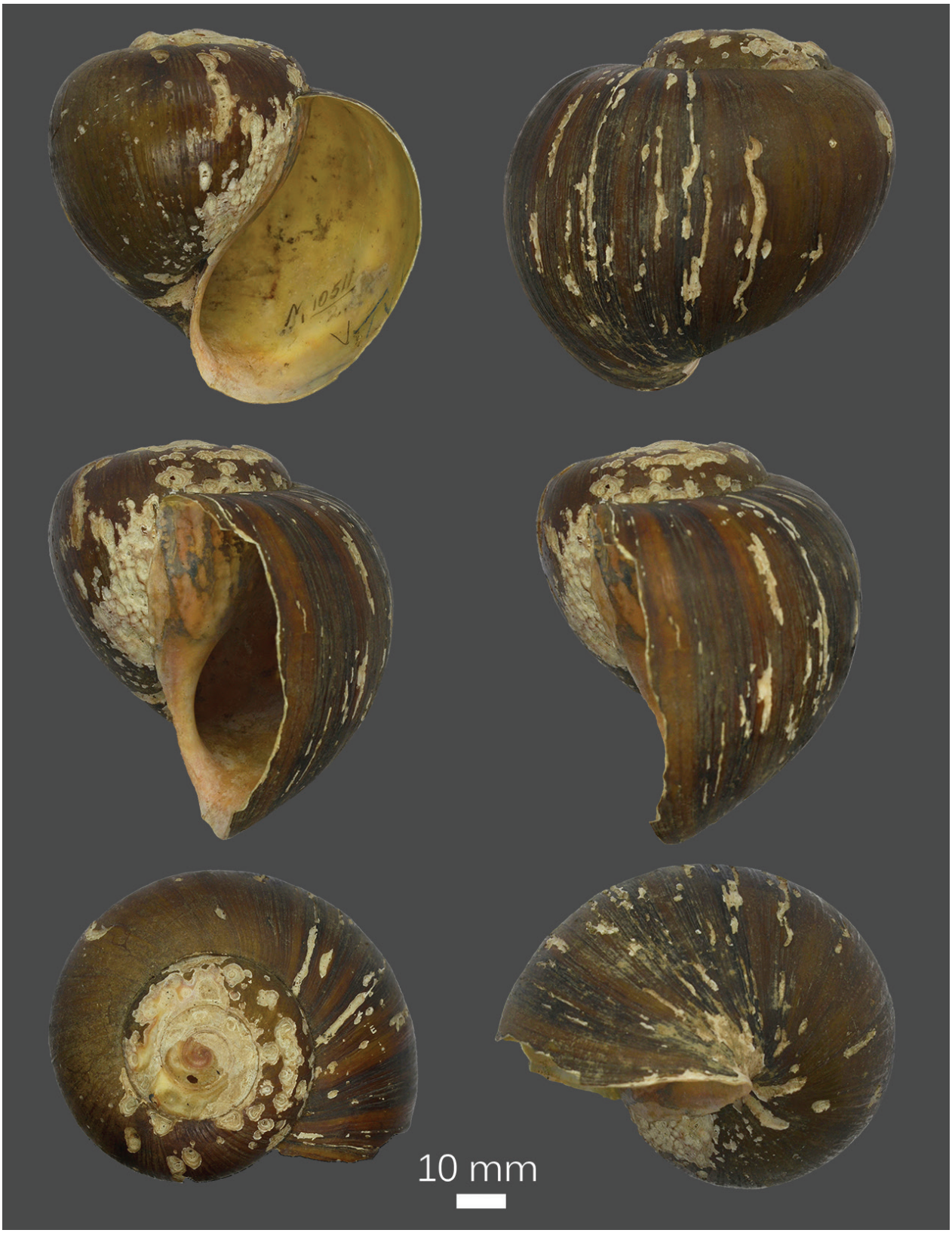

Figure 7. Lectotype of *Pachylabra turbinis* var. *lacustris* Annandale, 1920; NZSI M.10511/2.

Shell dimensions. Lectotype: SH 74.0 mm, SW 73.8 mm, AH 63.2 mm, AW 34.8 mm, OH, OW (operculum not found). Paralectotypes (2 spms): SH 67.2, 75.6 mm, SW 64.0, 72.5 mm, AH 56.7, 63.8 mm, AW 31.2, 33.6 mm, OH 54.2 mm, OW 30.0 mm (1 spm., operculum damaged).

Remarks. In the heading of the description, Annandale (1920: 20) treated *lacustris* as a "Race" of *turbinis* Lea, in his text as a "form" (Annandale 1920: 20) and in the description of pl. 1, fig. 8 and on the label (Fig. 13C) as a "var.". Following the *Code* (Art. 45.6.4), it is therefore considered to have been described as a subspecies and thus *lacustris* is an available name. Annandale (1920: 21) designated the "Type-specimen" (= holotype) as NZSI M.11571/2. However, the shell illustrated in Fig. 7 is unquestionably the shell illustrated in Annandale's (1920: pl. 1, fig. 8) plate, the legend of which says "Type-specimen" (specifically, the wear of the periostracum matches Annandale's illustration exactly). This specimen has the number "10511" written inside the aperture and is in a box with two very similar shells with labels that also have this number. This is not the shell in NZSI M.11571/2, which is more conical-shaped with a more protruding spire and a more crescent-shaped aperture, much smoother and less rugose, and much thinner and less robust, and which appears to be a different species. In these regards, it does not match Annandale's description, whereas the shells in NZSI M.10511/2 do. Thus, two specimens could be considered to have been designated as the holotype by Annandale, the one in NZSI M.11571/2 and the one illustrated in his fig. 8, which is one of the three in NZSI M.10511/2. However, saying "Type-specimen" in the legend of fig. 8 does not designate this specimen as the holotype because it could be construed as simply referring to a type specimen not the type specimen. The description was based on only three specimens, i.e. because there is a table of dimensions of three specimens and no others were mentioned. The measurements of the three shells in the original NZSI M.10511/2 lot match those given in the table within a reasonable margin of error. The shell in NZSI M.11571/2 is smaller and its body whorl is badly broken. The original Indian Museum register gives the locality of NZSI M.10511/2 as "Mouth of the Patalung River at Lampam", which matches the location given by Annandale in the legend of his fig. 8, whereas the register entry for NZSI M.11571/2 gives a different locality, "Koh-Si-Hah", which refers to islands a little further south in the Tale Sap. Although the Indian Museum register indicates two specimens in NZSI M.10511/2, this is corrected to three specimens in the later type register of the ZSI, which does not list NZSI M.11571/2. Cowie (2015: 39) noted the "holotype" [by original designation] as NZSI M.11571/2 and four possible paratypes as NZSI M.10511/2, for a total of five specimens, including the holotype. Detailed study now indicates that only the three (not four) specimens in NZSI M.10511/2 constitute the type series. The only explanation we can think of for Annandale having designated NZSI M.11571/2 as the holotype was that he did this mistakenly, as it is very likely that he would have illustrated the specimen he considered the holotype and it is unlikely that he would have designated a badly damaged specimen (if indeed it were damaged at the time) as the holotype; and in any case, as noted above, this latter specimen does not match the description or measurements given by Annandale. On this basis, we here designate the specimen illustrated by Annandale (1920: pl. 1, fig. 8) as the lectotype in order to fix the concept of *lacustris* Annandale and to preclude further confusion. It retains the catalogue number NZSI M.10511/2. The other two specimens in the original NZSI M.10511/2 lot are re-registered as NZSI M.33448/9 and are paralectotypes. The single specimen in NZSI M.11571/2 is considered to have no type status.

Ampullaria globosa var. *minor* Nevill, 1877

Figs 8, 14

Ampullaria globosa var. *minor* Nevill, 1877. *Cat. Moll. Ind. Mus.* Fasc. E: 4.

Current taxonomic status. *Pila globosa* (Swainson, 1822), junior synonym.

Type locality. "near Dum-Dum, Calcutta" [= Dumdum, Kolkata, West Bengal, India] (Prashad 1925: 74: pl. 13, fig. 8); Major L. W. Wilmer, leg.

Type material. Lectotype, by designation of Prashad (1925: 74: pl. 13, fig. 8): NZSI M.2445 (registered 10 January 1894). Paralectotypes: NZSI M.25082/5 (registered 24 September 2001, 2 spms); 7 additional specimens noted by Nevill (1877: 4), not found in NZSI in 2014 (Cowie 2015: 52).

Shell dimensions. Lectotype: SH 35.6 mm, SW 29.9 mm, AH 25.1 mm, AW 19.6 mm. Paralectotypes: SH 27.0, 33.2 mm, SW 24.4, 27.7 mm, AH 20.3, 23.0 mm, AW 16.3, 18.9 mm.

Remarks. Nevill (1877: 4; 1885: 2) listed eight specimens from "Near Dum-Dum" collected by Major L. W. Wilmer and two specimens from "Siliguri" collected by Colonel G. B. Mainwaring. Prashad (1925: 74, pl. 13, fig. 8) subsequently unambiguously selected one of the syntypes from Dumdum as the "Type-specimen", thereby designating the lectotype and restricting the type locality, as above (Cowie 2015: 42). Only two paralectotypes were found in NZSI in 2014. Nevill (1877: 4) considered the shell to be almost intermediate between *A. globosa* and *A. maura* but Prashad (1925: 74) considered it "as closely allied to *P. conica*". It does not seem appropriate to treat it as a distinct subspecies (*Code*, Art 45.6.4), and therefore, following Cowie (2015: 42), who followed Prashad (1923: 587), we here treat it as a junior synonym of *globosa* Swainson.

Figure 8. Lectotype of *Ampullaria globosa* var. *minor* Nevill, 1877; NZSI M.2445.

Pachylabra nevilliana Annandale & Prashad, 1921

Figs 9, 15A

Pachylabra nevilliana Annandale & Prashad, 1921. *Rec. Ind. Mus.* 22 (1): 11–12.

Current taxonomic status. *Pila nevilliana* (Annandale & Prashad, 1921), valid species.

Type locality. "Tranquebar, which is on the east coast of Southern India" [= Tharangambadi, Nagapattinam dis-

trict, Tamil Nadu, India]; Captain Lewis, leg. (Asiatic Society of Bengal collection).

Type material. Holotype (original designation): NZSI M.11864/2 (registered 8 December 1920). Paratypes: NZSI M.25078/5 (registered 13 September 2001, 5 spms), 2 or 3 additional specimens noted by (Nevill 1877: 5, 1885: 4), location unknown.

Shell dimensions. Holotype: SH 36.1 mm, SW 34.3 mm, AH 27.9 mm, AW 19.6 mm, OH 25.6 mm, OW 16.0 mm. Paratypes: SH 28.5–37.1 mm, SW 26.3–33.5 mm, AH 22.3–28.5 mm, AW 17.3–22.6 mm, OH 20.5–25.5 mm, OW 11.9–15.0 mm

Remarks. Annandale and Prashad (1921: 12) explicitly based their description on only the specimens noted by Nevill (1877: 5) as Var. B of *Ampullaria nux* Reeve, 1856. However, although Nevill (1877: 5) noted eight specimens and Nevill (1885: 4) noted nine, Annandale and Prashad (1921: 12) provided measurements for only three. Nonetheless, they probably saw all Nevill's shells, as they noted that they had "extracted the radula from one of the shells examined by Nevill, which have been in Calcutta for at least 60 years, but still in several instances contain the dried animal"; the expression "several instances" suggests that they saw more than the three for which they provided measurements. The specimen figured by Annandale and Prashad (1921: fig. 2) as the "type-shell" (= holotype) is the specimen in NZSI M.11864/2; this specimen matches the illustrations in all regards, including, the erosion/corrosion of the apex, wear of the periostracum and appearance of the operculum. Its measurements are within the likely margin of error of those given by Annandale and Prashad (1920: 12, middle column). Annandale and Prashad (1920: 11) based their description only on Nevill's shells, either eight (Nevill 1877: 5) or nine (Nevill 1885: 4). They gave only a single catalogue number (11864/2) for the "Type-specimens" (plural). This lot now contains only the holotype. An additional lot, NZSI M.25078/5, labelled as paratypes contains five shells. Cowie (2015: 43) considered these as only "possible paratypes". However, further study indicates that they can indeed be considered part of the type series because 1) the dimensions of at least two of them approximate the additional dimensions given by Annandale and Prashad; 2) "Tranquebar" is written on the shells; and 3) "type" is written in the original register alongside the entry for this lot.

Pila robsoni Prashad, 1925

Figs 10, 15B

Pila robsoni Prashad, 1925. *Mem. Ind. Mus.* 8(2): 85–86, pl. 14, figs 8, 9.

Current taxonomic status. *Pila robsoni* Prashad, 1925, valid species.

Type locality. "near Balapiti, Ceylon" [= Balapitiya, Kegalla district, Sri Lanka]; G. Nevill, leg. (Nevill 1877: 12).

Type material. Holotype (original designation): NZSI M.2414 (registered 8 December 1920). Paratypes: NZSI M.21546/4 (registered 5 July 1982, 3 spms).

Shell dimensions. Holotype: SH 33.9 mm, SW 30.0 mm, AH. 25.8 mm, AW 19.5 mm. Paratypes: SH 17.5–21.7 mm, SW 15.0–19.1 mm, AH 13.4–16.3 mm, AW 8.3–11.3 mm, OH 13.4–13.4 mm, OW 7.6–7.6 mm.

Remarks. Nevill (1877: 12, 1885: 7) referred his four specimens to *Ampullaria moesta* Reeve, 1856, but Prashad (1925: 85–86) considered this a misidentification and described his new species, based on Nevill's four specimens, providing measurements of all four and distinguishing the largest specimen as the "Type" (= holotype). The original catalogue number for the entire type series was 2414. All but the holotype have subsequently been removed from this lot and given the catalogue number NZSI M.21546/4. The photograph of Prashad (1925: pl. 14, fig. 8) is clearly the specimen in NZSI M.2414 (Fig. 10), the holotype, based most notably on the erosion/corrosion of the apex; his other photograph (Prashad 1925: pl. 14, fig. 9) is of one of the paratypes.

Ampullaria stoliczkana Nevill, 1877

Figs 11, 16

Ampullaria stoliczkana Nevill, 1877. *Cat. Moll. Ind. Mus.* Fasc. E: 11.

Current taxonomic status. *Pila scutata* (Mousson, 1848), junior synonym (Ng et al. 2014).

Type locality. "Penang" [Malaysia]; Dr F. Stoliczka, leg.

Type material. Lectotype (here designated): NZSI M.2420. Paralectotypes: NZSI M.25079/5 (registered 14 September 2001, 7 spms [2 full-grown, 5 young]).

Shell dimensions. Lectotype: SH 54.0 mm, SW 42.1 mm, AH 36.1 mm, AW 28.3 mm, OH 32.1 mm, OW 18.7 mm. Paralectotypes: SH 9.0–53.1 mm, SW 8.0–42.1 mm, AH 7.5–34.1 mm, AW 5.5–23.9 mm, OH 20.4–30.2 mm, OW 10.9–19.4 mm (OH and OW data lacking for the four smallest specimen(s).

Remarks. Nevill (1877: 11) indicated that the type series contained seven specimens (three full-grown and four young) but in his subsequent catalogue (Nevill 1885: 7) he noted only six. The original catalogue number for the entire type series was 2420, and in fact it contained eight specimens, a discrepancy noted by Cowie (2015: 49). All but one of these eight specimens have subsequently been removed from this lot and given the catalogue number NZSI M.25079/5, with the remaining specimen

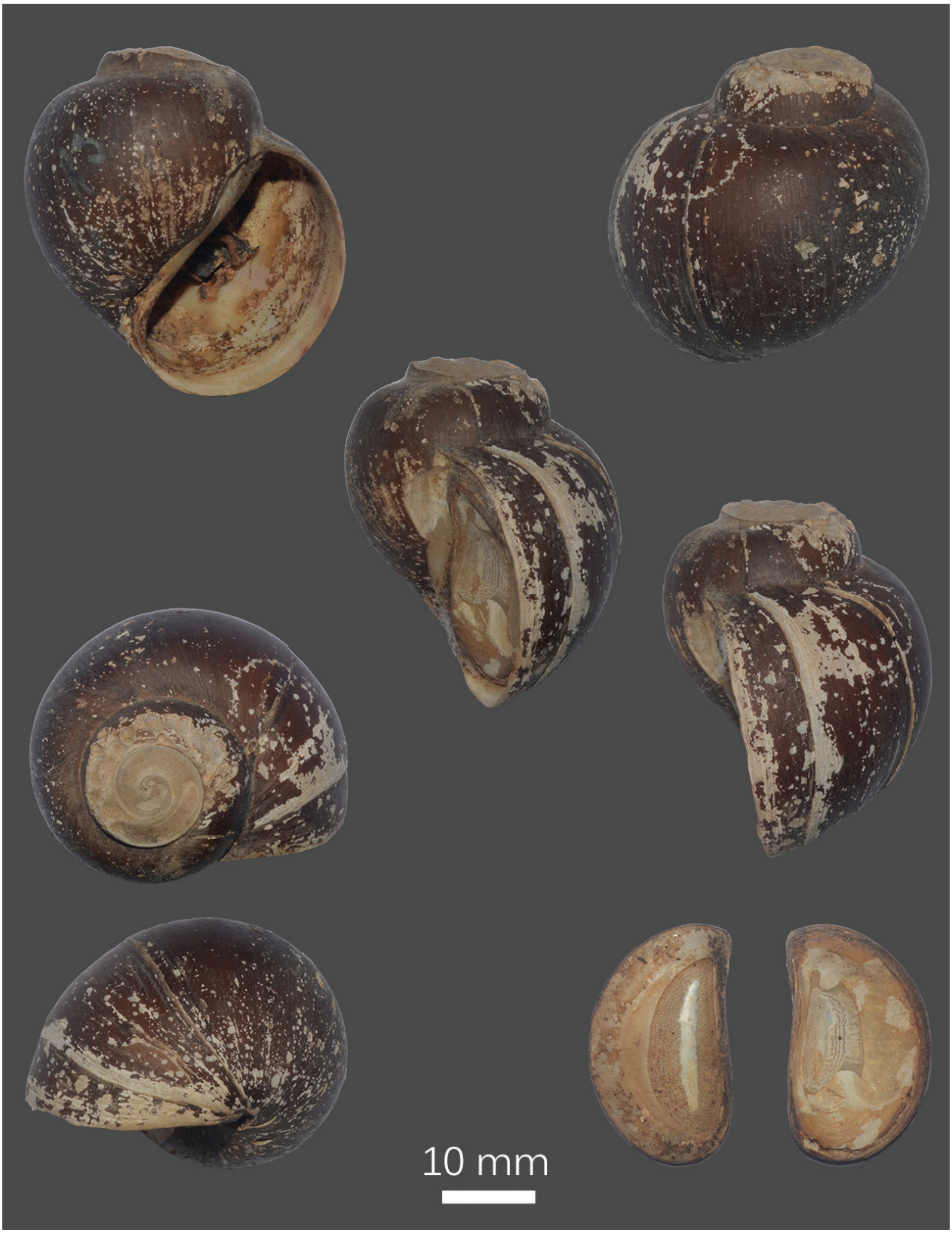

Figure 9. Holotype of *Pachylabra nevilliana* Annandale & Prashad, 1921; NZSI M.11864/2.

Figure 10. Holotype of *Pila robsoni* Prashad, 1925; NZSI M.2414.

Figure 11. Holotype of *Ampullaria stoliczkana* Nevill, 1885; NZSI M.2420.

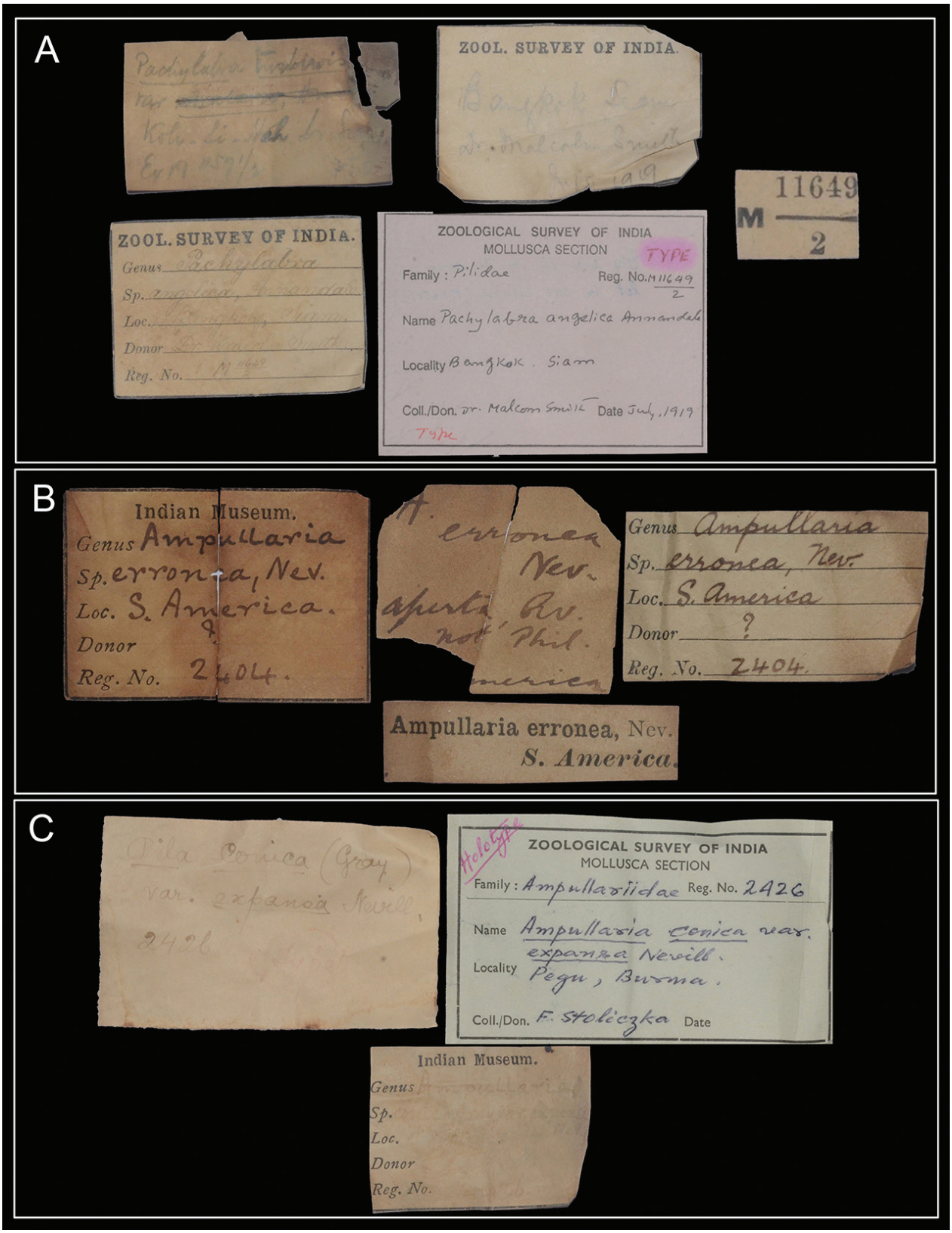

Figure 12. Collection labels. **A.** *Pachylabra angelica* Annandale, 1920; NZSI M.11649/2. **B.** *Ampullaria erronea* Nevill, 1877; NZSI M.2404. **C.** *Ampullaria conica* var. *expansa* Nevill, 1877; NZSI M.2426.

Figure 13. Collection labels. **A.** *Ampullaria globosa* var. *incrassatula* Nevill, 1877; NZSI M.25083/5. **B.** *Ampullaria ampullacea* var. *javensis* Nevill, 1885 (referred to as the unpublished name "subcelebensis"; see text for explanation); NZSI M.27736/6. **C.** *Pachylabra turbinis* Race *lacustris* Annandale, 1920; NZSI M.10511/2 (lectotype).

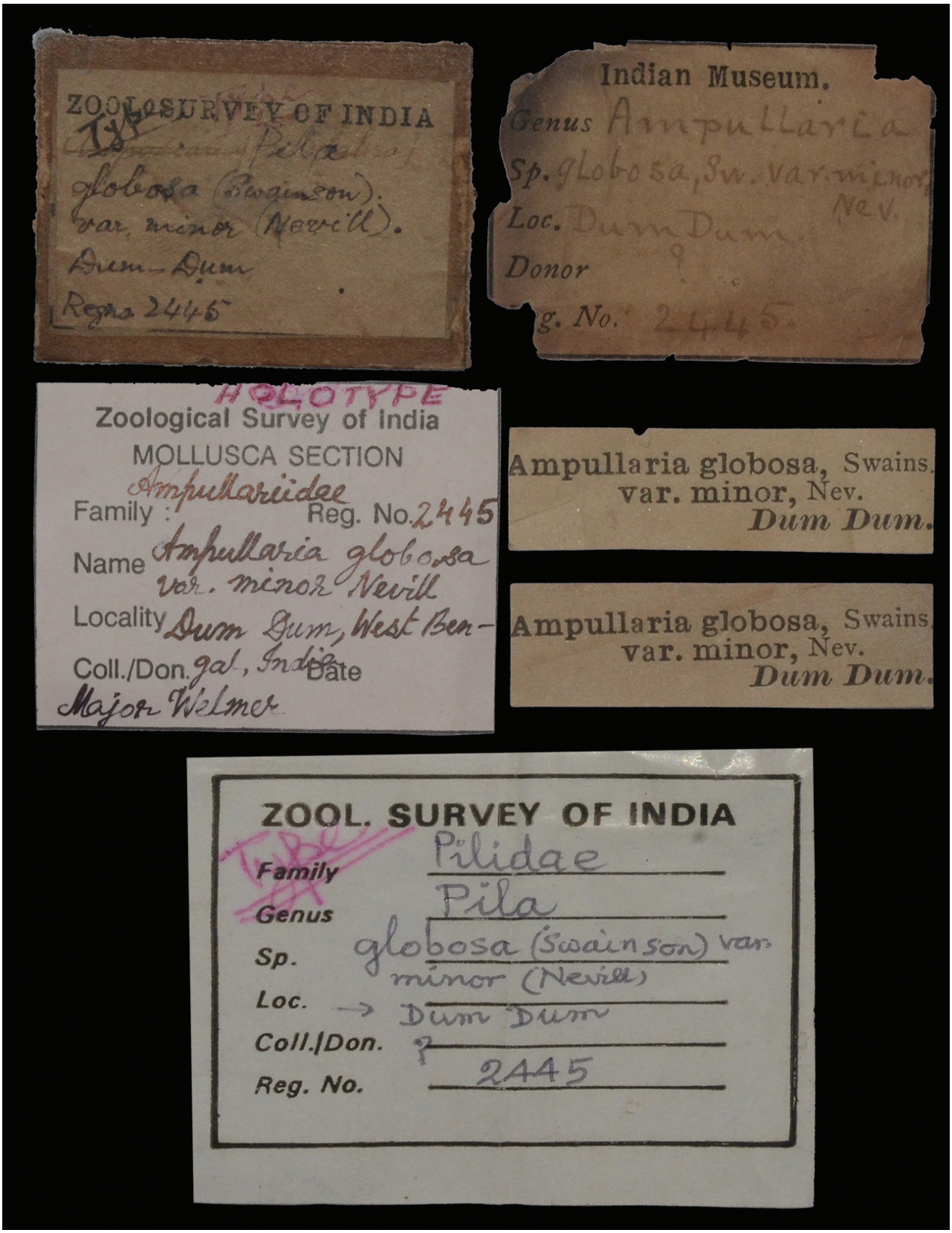

Figure 14. Collection labels. *Ampullaria globosa* var. *minor* Nevill, 1877; NZSI M.2445.

Figure 15. Collection labels. **A.** *Pachylabra nevilliana* Annandale & Prashad, 1921; NZSI M.11864/2. **B.** *Pila robsoni* Prashad, 1925; NZSI M.2414 (holotype), NZSI M.21546/4 (paratypes).

Figure 16. Collection labels. *Ampullaria stoliczkana* Nevill, 1885; NZSI M.2420.

(NZSI M.2420) treated as the "holotype" ("type" on labels; Fig. 16) and the other seven as "paratypes". However, no holotype was designated in the original publication (*Code*, Art. 73.1). We therefore here designate the shell in NZSI M.2420 as the lectotype (Fig. 11) to fix the concept of *stoliczkana* Nevill, with the seven specimens in NZSI M.25079/5 becoming paralectotypes, of which two are full-grown and five are juveniles, including one that is extremely small. Perhaps this smallest specimen was overlooked by Nevill (1877: 11) in noting three full-grown and four young specimens. The dimensions and appearance of the lectotype correspond closely with the description and dimensions given by Nevill (1877: 11–12).

Systematic catalogue: unavailable names

longispira Nevill, 1885

Ampullaria globosa var. *corrugata* subvar. longispira Nevill, 1885. *Cat. Moll. Ind. Mus.* Fasc. E: 2.

Remarks. As the name was proposed for an infrasubspecific entity, it is unavailable (*Code*, Art. 1.3.4, Art 10.2, Art. 45.5). As such, it has no taxonomic status, no type locality and no type material. Nevill (1885: 2) described it from "Benares" [= Varanasi, Utter Pradesh, India] based on a specimen collected by Colonel G. B. Mainwaring (NZSI M.2392, registered 8 January 1894), with dimensions SH 68.6 mm, SW 65.5 mm, AH 47.4 mm, AW 40.7 mm. The name has not been made available subsequently (Cowie 2015: 40). The specimen NZSI M.2392 has no type status.

sinistrorsa Nevill, 1885

Ampullaria globosa subvar. sinistrorsa Nevill, 1885. *Hand List. Moll. Ind. Mus.* p. 2.

Remarks. As the name was proposed for an infrasubspecific entity, it is unavailable (*Code*, Art. 1.3.4, Art. 10.2, Art. 45.5). As such, it has no taxonomic status, no type locality and no type material. Nevill (1885: 2) described it from two specimens, one collected from the "Botanical Gardens, Calcutta" [= Kolkata, West Bengal, India] by Dr J. Anderson (NZSI M.2396, registered 10 January 1894), with dimensions SH 44.6 mm, SW 43.7 mm, AH 35.5 mm, AW 30.0 mm; and one from an unknown locality from the collection of the Asiatic Society of Bengal, labelled "Mauritius" but registered as from "Madras" (NZSI M.2395), with dimensions SH 38.6 mm, SW 34.9 mm, AH 29.5 mm, AW 24.3 mm. Neither of the specimens has any type status.

Acknowledgements

We are grateful to the Director, Zoological Survey of India for providing the necessary facilities for this study. We thank the staff of the Malacology Division for their support during our examination of the material. SS is thankful to the Ministry of Environment, Forest and Climate Change for providing a research fellowship through the National Mission on Himalayan Studies programme (Grant No. NMHS–LG-2016/0011/8509-8). We thank Neal Evenhuis (Bishop Museum, Honolulu) for discussion of *lacustris* Annandale, and Kenneth Hayes and Thomas von Rintelen for reviewing the manuscript. RHC worked on this project in part while at the Muséum national d'Histoire naturelle, Paris, facilitated by Philippe Bouchet and Virginie Héros. Publication number 10868 of the University of Hawaii School of Ocean and Earth Science and Technology. We owe our sincere thanks to the Museum für Naturkunde, Berlin, for covering the publication charge.

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Zeitschrift/Journal: Zoosystematics and Evolution

Jahr/Year: 2020

Band/Volume: 96

Autor(en)/Author(s): Tripathy Basudev, Sajan Sheikh, Cowie Robert H.

Artikel/Article: Illustrated catalogue of types of Ampullariidae Gray, 1824 (Mollusca, Gastropoda) in the National Zoological Collection of the Zoological Survey of India, with lectotype designations 1-23