

The Decapoda described by the Austrian carcinologist Camill Heller (1823–1917): checklist, dates of publication and bibliography

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Abstract

In the present contribution, all of Heller's new decapod genus- and species-group names are listed with their current identities. In total, Heller described 149 species-group taxa, of which 75 are currently still in use, as well as 16 genus-group taxa, eight of which are still in use today. A complete list of the Decapoda publications of Heller with accurate dates of publication is also provided. The identities of two crab species are elucidated, with one herein considered to be a nomen oblitum. The accurate publication dates of two papers in which the same species of shrimp was described under two different names also leads to one considered to be a nomen oblitum to retain stability. Finally, the type localities of three species of freshwater shrimp of the genus *Macrobrachium* from Brazil are clarified, based on contemporary pre-1900 museum labels.

Key words: Heller, Novara, publication dates, Decapoda.

Zusammenfassung

Die vorliegende Arbeit listet die Namen aller zehnfüßigen Krabben, die von Heller als neue Namen in Gattung- und Artgruppen beschrieben wurden, samt ihrer derzeitigen Identität auf. Insgesamt veröffentlichte Heller 149 Namen in der Artgruppe, von denen 75 noch heute in Gebrauch sind, und 16 Namen in der Gattungsgruppe, von denen acht heute noch gültig sind. Eine vollständige Liste der Publikationen Hellers zu Dekapoden mit Deutungen zum genauen Erscheinungsdatum wird ebenfalls vorgelegt. Die Identität zweier Krabbenarten wird näher behandelt, der Name einer davon wird als nomen oblitum betrachtet. Die Ermittlung der genauen Publikationsdaten zweier Arbeiten, in denen dieselbe Art unter zwei verschiedenen Namen beschrieben wurde, hat zur Folge, dass das ältere Synonym als nomen oblitum betrachtet wird um Stabilität zu gewährleisten. Zudem werden die Typuslokalitäten zweier Süßwassergarnelen der Gattung *Macrobrachium* aus Brasilien anhand unveröffentlichter Daten auf alten Museumsetiketten geklärt.

Introduction

Camill Heller (26 Sept. 1823–25 Febr. 1917) was a prominent early carcinologist, who worked in Poland and Austria (HEIDER 1917). Although he published extensively on a variety of marine animals, and in later life on the alpine fauna, his greatest taxonomic contributions were on Decapoda, describing a total of 16 genus-group names (eight of

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which are in current use) and 149 species-level names (75 of which remain in current use). He worked on collections not only amassed by himself in the Adriatic Sea, but also on material in the then “Naturalienkabinet” (now incorporated in the Naturhistorisches Museum, Vienna (NHMW)) by early 18th century explorers of the Red Sea, the Arabian Gulf, Brazil and other locales (e. g. G. Frauenfeld, J. Natterer and I. Pfeiffer) and the important material from the circumnavigation of the Austrian research vessel Novara (1857–1859), as well as the Austrian-Hungarian “Nordpol-Expedition” (McLAUGHLIN & DWORSCHAK 2001). Biographical details, as well as a full publication list can be found in HEIDER (1917).

In his series of works on the Red Sea collections, HELLER (1860, 1861a, 1861b) on occasion indicated the same species more than once as “new” in two of the three papers dealing with this material (e. g. *Alpheus charon*, *Atergatis anaglyptus*). Additionally, several species were also described de novo under different names, but he was clearly referring to the same taxon (e. g. *Hippolyte trisetacea* vs. *Lysmata pusilla*). Up to now, the accurate dates of publication of these works have not been fully clarified, and this has led to some confusion in the taxonomic literature, particularly, as to exactly which publication needs to be considered the type description for these taxa.

HELLER (1862b) described a large number of Decapoda species from the Novara Expedition on a preliminary basis. In some cases, he indicated those again as “new” in the fully illustrated final report (HELLER 1865). In other cases, he placed the species in different genera (e. g. *Pelias notatus* vs. *Anchistia notata*), changed species names (e. g. *Heterograpsus barbigerus* vs. *H. barbimanus*) or described species de novo under different names (e. g. *Metasearma granularis* vs. *M. rugulosa*) and in one case even a genus (*Epigrapsus* vs. *Nectograpsus*). More confusing was that in some cases, in the intervening years, he clearly arrived at the conclusion that some of his earlier new species had already been described by others prior to 1862 and proceeded to report the same material under those names but without any discussion of what was determined earlier (see McLAUGHLIN & DWORSCHAK 2001 for a fuller discussion). In fact, as early as 1880, KINGSLEY (1880: 192) already commented on this and noted: “All this shuffling in names is made without the slightest hint to aid one in correlating the two papers, and is a proceeding which cannot be too strongly condemned” and when dealing with *Metasesarma granularis* HELLER, 1862b vs. *M. rugulosa* HELLER, 1865 remarked further: “I have here as in other places employed the earlier name; what reason Dr. Heller had for the change I cannot imagine” (KINGSLEY 1880: 212). All material from the Novara expedition incorporated in the collection of NHMW in 1866 was already labelled by Heller with the 1865 names, which has inevitably led to type material of some taxa described in HELLER (1862b) not being located and considered nomina dubia. In fact, it seems very probable that Heller also did this to his other collections (see entry under *Arete diolectiana* below).

The type material for a certain portion of Decapoda described by Heller, has not been located at NHMW, despite extensive searches by one of us (PCD) over many years. As early as 1899, the then curator, O. Pesta, already was unable to find the syntype(s) of *Atergatis semigranosus* and *Etisus maculatus*. Over the intervening years, several types which had been considered to be lost, have been rediscovered (e. g. *Pterocaris typica*, see ANKER & DWORSCHAK 2001). It also seems evident that type material for some of the Adriatic Sea species described by Heller was not deposited at NHMW (but see entry

on *Arete diolectiana*). Several type lots remain currently unaccounted for, perhaps misshelved, labelled under a different name (see above), given to/exchanged with other institutions, or never returned from loan. We herein, simply annotate this as “not located at NHMW”, referring to the current (anno 2021) situation. They, however, should not be treated as lost for the time being. It is also noted that type material exists for two of his crab species in the Muséum national d’Histoire naturelle, Paris, France (MNHN) (see entries for *Cryptochirus coralliodytes* and *Thelphusa wüllerstorfi*), and it may well be that type material of Heller’s decapod species is more widely distributed than previously believed.

In the present contribution, all of Heller’s new decapod genus- and species-group names are listed with their current identities. A complete list of the Decapoda publications of Heller with accurate dates of publication is also provided. In accordance with Recommendation 73F of the International Code of Zoological Nomenclature (hereafter referred to as the Code, ICZN 1999) assumption of holotype is avoided for the majority of species and lots are listed as syntype(s) unless the original description clearly refers to a single specimen (e. g. *Polycheles typhlops*). The identities of two crab species are elucidated, with one herein considered to be a nomen oblitum. The accurate publication dates of two papers in which the same species of shrimp was described under two different names also leads to one considered to be a nomen oblitum to retain stability. Finally, the type localities of three species of freshwater shrimp of the genus *Macrobrachium* from Brazil are clarified, based on contemporary pre-1900 museum labels.

Notes on adopted publication dates

Heller presented the majority of his carcinological contributions initially at the monthly meetings of the Vienna Zoological and Botanical Society (Zoologisch-botanischer Verein in Wien), and later at various meetings of the Imperial Scientific Academy (Kaiserliche Akademie der Wissenschaften). Proceedings of these monthly meeting were published in the various Sitzungsberichte, detailing which presentations took place, books and separata presented, as well as general announcements relating to Society business. A careful examination of these volumes, allows an “on or before date” of publication to be determined for the majority of Heller’s publications, as it is often clear that a physical copy was presented at the meeting (e. g. HELLER 1862a, b, c).

There remain, however, three publications which could not be accurately dated in this manner. HELLER’s (1856a, b) contributions were verbally presented during the meetings of 1 Oct. 1856 and 3 Dec. 1856 respectively, with neither the Sitzungsberichte for 1856 nor 1857 providing any further information regarding potential publication dates of either contribution. In accordance with Article 21.3.2 (ICZN 1999), the publication date of both contributions is herein adopted as 31 Dec. 1856. HELLER’s (1861b) contribution on Red Sea crustaceans was recorded as presented to the Society during the monthly meeting of 5 Dec. 1860, but with the stipulation that the contribution would appear in the next volume, i. e. for 1861 (see ANON. 1860). The Sitzungberichte in vol. 11 of the Verhandlungen der kaiserlich-königlichen zoologisch-botanischen Gesellschaft in Wien for the year 1861, does not provide any further clarity. Based on the statement in ANON. (1860) and in accordance with Article 21.3.2 (ICZN 1999), the publication date of 31 Dec. 1861 is herein adopted for this contribution.

**Annotated list of new genus- and species-group names established by HELLER
(1856–1876)**

Taxon names in bold are currently considered to be valid names.

- adriatica*, *Calliaxis*. HELLER (1862c: 440; Pl. III, figs. 22–30). Type locality: “nördlicher Theil des adriatischen Meeres” [= northern part of Adriatic Sea]. Syntype(s): NHMW 296. Currently considered a junior synonym of *Jaxea nocturna* NARDO, 1847 [Gebiidea: Laomediidae].
- amazonicus***, *Palaemon* (*Palaemon*). HELLER (1862a: 418; Pl. II, fig. 45). Stated type locality: “Amazonenstromen” [= Amazon River]; corrected herein to “Rio Amazone Gurupa” [= Gurupá, Pará, Brazil] based on contemporary pre-1900 label kept with NHMW types, see also PESTA (1931). Syntype(s): NHMW 562. Currently valid as *Macrobrachium amazonicum* (HELLER, 1862a) [Caridea: Palaemonidae].
- anaglyptus***, *Atergatis*. HELLER (1860: 312; Pl. I, figs. 11, 12). Type locality: “rothes Meer” [= Red Sea]. Syntypes: NHMW 11594, 12083. Also indicated as new in HELLER (1861b: 6). Currently valid as *Lophozozymus anaglyptus* (HELLER, 1860) [Brachyura: Xanthidae].
- arcuatus*, *Xantho*. HELLER (1865: 11; Pl. II, fig. 1). Type locality: “Taiti” [= Tahiti]. Syntype(s): NHMW 11468. Currently considered a junior synonym of *Lachnopodus bidentatus* (A. MILNE-EDWARDS, 1867) [Brachyura: Xanthidae].
- areolatus*, *Heloeccius*. HELLER (1862b: 521). Type locality: Sydney. Syntypes: NHMW 1681, 9771. Currently considered a junior synonym of *Heloeccius cordiformis* (H. MILNE EDWARDS, 1837) [Brachyura: Heloeciidae].
- aspera***, *Sesarma*. HELLER (1865: 63; Pl. VI, fig. 1). Type locality: “Ceylon, Nicobaren, Madras” [= Sri Lanka; Nicobar Is.; Chennai, India]. Syntypes: NHMW 1637, 10406–10408. Currently valid as *Parasesarma asperum* (HELLER, 1865) [Brachyura: Sesarmidae].
- Audouini***, *Palaemon*. HELLER (1861a: 286). Also indicated as new in HELLER (1861b: 28). Type locality: “rothes Meer” [= Red Sea]. Types: NHMW 26582 (lectotype), 26583–26587, 584, 1520 (paralectotypes) (designated by DE GRAVE & ASHELBY 2020). Currently valid as *Palaemon audouini* HELLER, 1861a [Caridea: Palaemonidae].
- avarus***, *Diogenes*. HELLER (1865: 83; Pl. VII, fig. 2). Type locality: “Nicobaren” [= Nicobar Is.]. Types: NHMW 19393 (lectotype), paralectotypes under same number, but separated (designated by McLAUGHLIN & DWORSCHAK 2001). Currently valid as *Diogenes avarus* HELLER, 1865. [Anomura: Diogenidae].
- barbata*, *Porcellana*. HELLER (1862b: 523). Type locality: “Nicobaren” [= Nicobar Is.]. Syntype(s): NHMW 24170. Currently considered a junior synonym of *Petrolisthes coccineus* (OWEN, 1839) [Anomura: Porcellanidae].
- barbatus***, *Clibanarius*. HELLER (1862b: 524). Also indicated as new in HELLER (1865: 90; Pl. VII, fig. 5). Type locality: “Aukland” [= Auckland, New Zealand]. Syntype: NHMW 19390 (see McLAUGHLIN & DWORSCHAK 2001). Currently valid as *Paguristes barbatus* (HELLER, 1862b) [Anomura: Paguridae].

barbigerus, *Heterograpsus*. HELLER (1862b: 522). Also indicated as new, with identical Latin diagnosis in HELLER (1865: 53; Pl. IV, fig. 5) as *Heterograpsus barbimanus*. Type locality: “Aukland” [= Auckland, New Zealand]. Syntype(s): NHMW 10324. Currently considered a junior synonym of *Hemigrapsus crenulatus* (H. MILNE EDWARDS, 1837) [Brachyura: Varunidae].

barbimanus, *Heterograpsus*. See *Heterograpsus barbigerus*.

bellis, *Porcellana*. HELLER (1865: 76; Pl. VI, fig. 4). Type locality: “Nicobaren” [= Nicobar Isls.]. Syntype(s): NHMW 24184. Currently considered a junior synonym of *Petrolisthes lamarckii* (LEACH, 1820) [Anomura: Porcellanidae].

bicarinatus, *Macrophthalmus*. HELLER (1862b: 521). Also indicated as new in HELLER (1865: 36; Pl. IV, fig. 2). Type locality: “Nicobaren” [= Nicobar Isls.]. Syntypes: NHMW 3826. Currently considered a junior synonym of *Macrophthalmus (Mareotis) pacificus* DANA, 1851 [Brachyura: Macrophthalmidae].

brasiliensis, *Libidoclaea*. HELLER (1865: 1; Pl. I, figs. 1, 2). Type locality: Rio de Janeiro. Syntypes: NHMW 18725, 18726. Currently considered a junior synonym of *Libinia spinosa* GUÉRIN, 1832 [Brachyura: Epialtidae].

brasiliensis, *Palaemon (Palaemon)*. HELLER (1862a: 419; Pl. II, fig. 46). Stated type locality: “in einem Bache zu Camaroes in Brasilien” [ORTMANN (1891) believes this to refer to the native name for shrimps in Brazil (camarões) and not an actual location in Brazil]; herein corrected to “aus einem Bach vom Fuß der Serra di Jeronimo bei Cujaba” [= stream in the foothills of Serra de São Jerônimo, near Cuiabá, Mato Grosso, Brazil] based on contemporary pre-1900 label kept with NHMW types. Syntype(s): NHMW 565. Currently valid as *Macrobrachium brasiliense* (HELLER, 1862a) [Caridea: Palaemonidae].

brevirostris, *Menaethius*. HELLER (1862b: 519). Type locality: “Madras” [= Chennai, India]. Syntype(s): Not located at NHMW. Here considered to be a junior synonym of *Menaethius monoceros* (LATREILLE, 1825) (see discussion) [Brachyura: Epialtidae].

Calliaxis. HELLER (1862c: 357). Type species: *Calliaxis adriatica* (HELLER, 1862c). Currently considered a junior synonym of *Jaxea* NARDO (1847) [Anomura: Laomedidae].

Camptonyx. HELLER (1860: 357). Type species: *Camptonyx politus* HELLER, 1860. Currently considered a junior synonym of *Caphyra* GUÉRIN, 1832 [Brachyura: Portunidae].

carinipes, *Porcellana*. HELLER (1861b: 24). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 18801. Currently valid as *Petrolisthes carinipes* (HELLER, 1861b) [Anomura: Porcellanidae].

carinipes, *Zozymodes*. HELLER (1860: 328; Pl. I, figs. 16–18). Also indicated as new in HELLER (1861b: 8). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 11405. Currently considered a junior synonym of *Zozymodes xanthoides* (KRAUSS, 1843) [Brachyura: Xanthidae]. Placed on Official List of Specific Names in Zoology in Direction 36 (ICZN 1956) with publication date stated as 1861.

- carnifex*, *Clibanarius*.** HELLER (1861a: 250). Also indicated as new in HELLER (1861b: 23). Type locality: “rothes Meer” [= Red Sea]. Syntype: NHMW 19391 (see McLAUGHLIN & DWORSCHAK 2001). Currently valid as *Clibanarius carnifex* HELLER, 1861a [Anomura: Diogenidae].
- cavimana*, *Tetralia*.** HELLER (1860: 353; Pl. II, figs. 24, 25). Also indicated as new in HELLER (1861b: 14). Type locality: “rothes Meer” [= Red Sea]. Syntypes: NHMW 12, 37. Currently valid as *Tetralia cavimana* HELLER, 1860 [Brachyura: Tetraliidae].
- charon*, *Alpheus*.** HELLER (1861a: 272; Pl. III, figs. 21, 22). Also indicated as new in HELLER (1861b: 27). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 858. Currently valid as *Synalpheus charon* (HELLER, 1861a) [Caridea: Alpheidae].
- chilensis*, *Geothelphusa*.** See *Thelphusa chilensis*.
- chilensis*, *Thelphusa*.** HELLER (1862b: 520). Also indicated as new, with identical Latin diagnosis in HELLER (1865: 33; Pl. III, fig. 1) as *Geothelphusa chilensis*. Type locality: “Chili” [= Chile]. ORTMANN (1897) highlights this to be incorrect, with PRETZMANN (1964) considering Java to be the likeliest type locality and BOTT (1970) disagreeing. Types: NHMW 18210 (lectotype designated by PRETZMANN 1964); paralectotypes not located at NHMW. Currently valid as *Sundathelphusa chilensis* (HELLER, 1862b) [Brachyura: Gecarcinucidae]; see discussion.
- ciliatus*, *Paguristes*.** HELLER (1862b: 525). Also indicated as new in HELLER (1865: 91; Pl. VII, fig. 6). Type locality: “Nicobaren” [= Nicobar Isls.]. Syntype: NHMW 19389. Currently valid as *Paguristes ciliatus* HELLER, 1862b [Anomura: Diogenidae].
- coralliodytes*, *Cryptochirus*.** HELLER (1860: 370; Pl. IV, figs. 33–35). Also indicated as new in HELLER (1861b: 19). Type locality: “Tor” [= El Tor, Egypt, Red Sea]. Types: NHMW 10052 (lectotype); paralectotype in MNHN (designated by KROPP 1988). Currently valid as *Cryptochirus coralliodytes* HELLER, 1860 [Brachyura: Cryptochiridae].
- corrugata*, *Thelphusa*.** HELLER (1865: 32; Pl. IV, fig. 1). Type locality: “Madras [and] Java” [considered to be in error by RATHBUN (1905) and PRETZMANN (1964)]. Syntypes: NHMW 13342, 13380, 24943. Currently considered a junior synonym of *Potamonautes perlatus* (H. Milne Edwards, 1837) [Brachyura: Potamonautidae].
- Costae*, *Ebalia*.** HELLER (1862c: 435; Pl. III, fig. 21). Type locality: “Pirano in Istrien” [= Piran, Slovenia]. Syntype(s): not located at NHMW. Currently considered a junior synonym of *Ebalia granulosa* H. MILNE EDWARDS, 1837 [Brachyura: Leucosiidae].
- crassimanus*, *Alpheus*.** HELLER (1862b: 526). Also indicated as new in HELLER (1865: 107; Pl. X, fig. 2). Type locality: “Nicobaren” [= Nicobar Isls.]. Syntype(s): not located at NHMW. Currently considered a junior synonym of *Alpheus lobidens* DE HAAN, 1849 [Caridea: Alpheidae].
- Cryptochirus*.** HELLER (1860: 366). Also indicated as new in HELLER (1861b: 19) Type species: *Cryptochirus coralliodytes* HELLER (1860), by monotypy. Currently valid [Brachyura: Cryptochiridae].
- curvirostris*, *Caridina*.** HELLER (1862b: 525). Also indicated as new in HELLER (1865: 105). Type locality: Auckland. Syntype(s): not located at NHMW. Currently valid as *Paratya curvirostris* (HELLER, 1862b) [Caridea: Atyidae].

- danae*, *Palaemon*. HELLER (1865: 120; Pl. IX, fig. 3). Type locality: “Sidney” [= Sydney, Australia]; considered to be in error by SHORT (2004). Syntype(s): NHMW 433. Currently considered a junior synonym of *Macrobrachium australe* (GUÉRIN-MÉNEVILLE, 1838) [Caridea: Palaemonidae].
- declivifrons*, *Grapsus*. HELLER (1862b: 521). Type locality: “Rio-Janeiro” [= Rio de Janeiro, Brazil]. Syntype(s): not located at NHMW. Currently considered a junior synonym of *Pachygrapsus transversus* (GIBBES, 1850) [Brachyura: Grapsidae]; name probably based on the single specimen from Rio de Janeiro (NHMW 10254) referred to in HELLER (1865: 46) as *Pachygrapsus maurus* (LUCAS, 1846).
- dentipes*, *Helice*. HELLER (1865: 62; Pl. V, fig. 5). Type locality: “Ceylon” [= Sri Lanka]. Syntype(s): NHMW 10388. Currently valid as *Metaplex dentipes* (HELLER, 1865) [Brachyura: Varunidae].
- dentipes*, *Parathelphusa*. HELLER (1862b: 521). Type locality: Java. Types: NHMW 27294 (lectotype, herein designated), NHMW 27295 (paralectotypes). Herein considered a nomen oblitum (see discussion).
- depressus*, *Chlorodius*. HELLER (1860: 338). Also indicated as new in HELLER (1861b: 11). Type locality: “rothes Meer” [= Red Sea]. Syntypes: NHMW 11917, 11918. Currently considered a junior synonym of *Chlorodiella nigra* (FORSKÅL, 1775) [Brachyura: Xanthidae].
- depressus*, *Grapsus*. HELLER (1862b: 521). Type locality: “Taiti” [= Tahiti]. Syntype(s): not located at NHMW. Currently considered a junior synonym of *Geograpsus crinipes* (DANA, 1851) [Brachyura: Grapsidae]; see Kingsley (1880); name probably based on the single specimen from Tahiti (NHMW 10114) referred to in HELLER (1865: 48) as *G. crinipes* (LUCAS, 1846).
- depressus*, *Pagurus*. HELLER (1861a: 248). Also indicated as new in HELLER (1861b: 22). Type locality: “rothes Meer” [= Red Sea]. Syntypes: NHMW 19396 (see McLAUGHLIN & DWORSCHAK 2001). Currently considered a junior synonym of *Dardanus lagopodes* (FORSKÅL, 1775) [Anomura: Diogenidae].
- Desausuri*, *Palaemon* (*Palaemon*). HELLER (1862a: 420; Pl. II, fig. 47). Type locality: “Neu-Granada” [= Viceroyalty of New Granada, i.e. northern South America]. Syntype(s): NHMW 7703. Currently considered a junior synonym of *Macrobrachium olfersii* (WIEGMANN, 1836) [Caridea: Palaemonidae].
- digitalis*, *Porcellana*. HELLER (1862b: 524). Also indicated as new in HELLER (1865: 77; Pl. VI, fig. 6). Type locality: Gibraltar [considered to be in error by LEWINSOHN, 1976]. Lectotype: NHMW 24185 (designated by LEWINSOHN 1976 under Art. 74.5). Currently considered a junior synonym of *Petrolisthes armatus* (GIBBES, 1850) [Anomura: Porcellanidae].
- Diolectiana*, *Arete*. HELLER (1862a: 404; Pl. I, figs. 28–33). Type locality: “Pirano” [= Piran, Slovenia]. Syntype(s): not located at NHMW. Currently considered a junior synonym of *Athanas nitescens* (LEACH, 1813) [Caridea: Alpheidae]; one lot (two spec.) from Piran, coll. Heller registered as *A. nitescens* is present at NHMW (NHMW 940) which could be syntypes, as HELLER (1863) already placed his own species in synonymy by then, potentially replacing any older labels.

- distans*, *Leander*. HELLER (1862b: 526). Also indicated as new in HELLER (1865: 109; Pl. X, fig. 4). Type locality: “Nicobaren” [= Nicobar Isls.]. Syntype(s): NHMW 1186. Considered to be a nomen dubium by HOLTHUIS (1950) [Caridea: Palaemonidae].
- Edwardsii*, *Chlorodius*. HELLER (1860: 336). Also indicated as new in HELLER (1861b: 10). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 11730. Currently considered a junior synonym of *Leptodius sanguineus* (H. MILNE EDWARDS, 1834) [Brachyura: Xanthidae].
- Edwardsii*, *Palaemon*. HELLER (1863: 265). Unnecessary replacement name for *Palaemon longirostris* H. MILNE EDWARDS, 1837 [Caridea: Palaemonidae].
- Ehrenbergi*, *Palinurus*. HELLER (1861a: 260; Pl. II, fig. 8). Also indicated as new in HELLER (1861b: 25). Type locality: “Coseir” [= El Qoseir, Egypt, Red Sea]. Syntype(s): NHMW 9267. Currently considered a junior synonym of *Panulirus penicillatus* (OLIVIER, 1791) [Achelata: Palinuridae].
- elatus*, *Plagusetes*. HELLER (1862b: 522). Type locality: “Chili” [= Chile]. Syntype(s): NHMW 2340. Currently considered a junior synonym of *Acanthocyclus gayi* LUCAS, 1844 [Brachyura: Belliidae].
- elegans*, *Atergatis*. HELLER (1862b: 519). Also indicated as new in HELLER (1865: 7; Pl. I, fig. 3). Type locality: “Taiti” [= Tahiti]. Syntype(s): NHMW 2098. Currently considered a junior synonym of *Lophozozymus dodone* (HERBST, 1801) [Brachyura: Xanthidae].
- elegans*, *Hymenocera*. HELLER (1861a: 264; Pl. III, figs. 9–14). Also indicated as new in HELLER (1861b: 25). Type locality: “Tor” [= El Tor, Egypt, Red Sea]. Syntype(s): NHMW 7865. Currently considered a junior synonym of *Hymenocera picta* DANA, 1852 [Caridea: Palaemonidae].
- Epigrapsus***. HELLER (1862b: 522). Type species: *Epigrapsus politus* HELLER, 1862b, by monotypy. Currently valid [Brachyura: Gecarcinidae]. Also see entry for *Nectograpsus* HELLER, 1865 that has the same type species and is a junior objective synonym.
- Epixanthus***. HELLER (1860: 323). Type species: *Epixanthus kotschii* HELLER, 1860; by monotypy (junior synonym of *Epixanthus frontalis* (H. MILNE EDWARDS, 1834)). Currently valid [Brachyura: Oziidae]. Placed on the *Official List of Generic Names in Zoology* (ICZN 1925; 1956).
- excelsus*, *Perigrapsus*. HELLER (1862b: 522). Also indicated as new in HELLER (1865: 50; Pl. V, fig. 1). Type locality: “Taiti” [= Tahiti]. Syntype(s): NHMW 10536. Currently considered a junior synonym of *Cardisoma carnifex* (HERBST, 1796) [Brachyura: Gecarcinidae]. Placed on *Official List of Specific Names in Zoology* in Direction 36 (ICZN 1956) with publication date stated as 1862.
- flavomaculata***, *Pontonia*. HELLER (1864: 51). Type locality: “Adriatisches Meer” [= Adriatic Sea]. Syntype(s): not located at NHMW. Currently valid as *Ascidonia flavomaculata* (HELLER, 1864) [Caridea: Palaemonidae].
- fossarum***, *Caridina*. HELLER (1862a: 411). Type locality: “Schiraz” [= Shiraz, Iran]. Syntypes: (36 spec.): NHMW 469 (see KLOTZ et al., 2019). Currently valid as *Caridina fossarum* HELLER, 1862a [Caridea: Atyidae].

- Frauenfeldi*, *Atergatis*. HELLER (1860: 311). Also indicated as new in HELLER (1861b: 5). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 12084. Currently considered a junior synonym of *Atergatopsis signata* (ADAMS & WHITE, 1849) [Brachyura: Xanthidae].
- frontalis*, *Porcellana*. HELLER (1862b: 523). Also indicated as new in HELLER (1865: 81; Pl. VI, fig. 9) Type locality: “Rio-Janeiro” [= Rio de Janeiro, Brazil]. Syntype(s): not located at NHMW (noted as missing in HAIG 1966). HAIG (1966) considered this to be a junior synonym of *Porcellana sayana* (Leach, 1820) [Anomura: Porcellanidae].
- glabra*, *Pontonella*. HELLER (1856a: 634: Pl. 9, figs. 1–15). Type locality: “Zara” [= Zadar, Croatia]. Syntype(s): NHMW 7858. Currently considered a junior synonym of *Typton spongicola* O.G. COSTA, 1844 [Caridea: Palaemonidae].
- globulus**, *Actumnus*. HELLER (1860: 341; Pl. II, fig. 23). Also indicated as new in HELLER (1861b: 12). Type locality: “Tor” [= El Tor, Egypt, Red Sea]. Syntype(s): not located at NHMW. Currently valid as *Actumnus globulus* HELLER, 1860 [Brachyura: Pilumnidae].
- gracilis**, *Alpheus*. HELLER (1861a: 271; Pl. II, figs. 19, 20). Also indicated as new in HELLER (1861b: 27). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 860. Currently valid as *Alpheus gracilis* HELLER, 1861a [Caridea: Alpheidae].
- gracilis*, *Virbius*. HELLER (1862a: 399; Pl. I, figs. 19, 20). Type locality: not designated. Syntypes: NHMW 1030 (specimen illustrated in fig. 19 designated as lectotype by D’UDEKEM D’ACQZ 1996). Designated as a junior secondary homonym of *Hippolyte gracilis* LILLJEBORG, 1851 [= *Eualus gaimardii* (H. MILNE EDWARDS, 1837)] by HOLTHUIS (1947) and replaced by *Hippolyte longirostris* (CZERNIAVSKY, 1868). Name permanently invalid (Art. 59.3, ICZN 1999), considered a synonym of *Hippolyte leptocerus* HELLER, 1863 [Caridea: Hippolytidae].
- granularis*, *Metasesarma*. HELLER (1862b: 522). Type locality: “Taiti” [= Tahiti]. Syntype(s): NHMW 13223. Also indicated as new in Heller (1865: 65) based on the same type specimen under the name *Metasesarma rugulosa* (see KINGSLEY 1880; FOREST & GUINOT 1961). Currently considered a junior synonym of *Metasesarma obesum* (DANA, 1851) [Brachyura: Sesarmidae].
- granulatus*, *Carpilodes*. HELLER (1862b: 520). Type locality: “Nicobaren, Taiti” [= Nicobar Isl., Tahiti]. Syntype(s): NHMW 11697. Currently considered a junior synonym of *Liomera tristis* (DANA, 1852) [Brachyura: Xanthidae].
- Grapsodes*. HELLER (1865: 58). Type species: *Grapsodes notatus* HELLER, 1865; by monotypy. Currently a junior synonym of *Epigrapsus* HELLER, 1862b [Brachyura: Gecarcinidae].
- Hemiplax**. HELLER (1865: 40). Type species: *Hemiplax hirtipes* HELLER, 1865; by monotypy. Currently valid [Brachyura: Macrophthalmidae].
- Hemprichii*, *Hippolyte*. HELLER (1861a: 275; Pl. III, fig. 23). Also indicated as new in HELLER (1861b: 29). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 1029. Currently considered a junior synonym of *Saron marmoratus* (OLIVIER, 1811) [Caridea: Hippolytidae].

- heterodactyla*, *Tetralia*.** HELLER (1860: 354). Also indicated as new in HELLER (1861b: 14). Type locality: “rothes Meer” [= Red Sea]. Lectotype and paralectotype (not separated): NHMW 11 (designation by GALIL 1986). Currently valid as *Tetraloides heterodactylus* (HELLER, 1860) [Brachyura: Tetraliidae].
- hirsuta*, *Lupa*.** HELLER (1862b: 520). Type locality: “Manila, Aukland”. Syntype(s): not located at NHMW. Currently considered a nomen dubium [Brachyura: Portunidae].
- hirtipes*, *Hemiplax*.** See *Metaplax hirtipes*.
- hirtipes*, *Metaplax*.** HELLER (1862b: 521). Also described as new in HELLER (1865: 40; Pl. IV, fig. 3) with identical Latin diagnosis as *Hemiplax hirtipes*. Type locality: “Aukland” [= Auckland, New Zealand]. Types: NHMW 3830 (lectotype designation by inference of holotype by PRETZMANN 1974). Currently considered a junior synonym of *Hemiplax hirtipes* (HOMBRON & JACQUINOT, 1846) [Brachyura: Macrophthalmidae].
- hirtipes*, *Pinnaxodes*.** HELLER (1865: 68; Pl. VI, fig. 2). Type locality: Ecuador. Syntype(s): NHMW 10068. Currently considered a junior synonym of *Pinnaxodes chilensis* (H. MILNE EDWARDS, 1837) [Brachyura: Pinnotheridae]. Placed on *Official List of Specific Names in Zoology* in Direction 36 (ICZN 1956) with publication date stated as 1865.
- Hügelii*, *Palinurus*.** HELLER (1862a: 393). Type locality: “indischer Ocean” [= Indian Ocean]. Syntype(s): NHMW 27453. Currently considered as a junior synonym of *Sagmariasus verreauxi* (H. MILNE EDWARDS, 1851) [Achelata: Palinuridae].
- Hypocoelus*.** HELLER (1860: 319). Also indicated as new in HELLER (1861b: 7). Type species: *Cancer sculptus* H. MILNE EDWARDS, 1834 (see NG et al. 2008 for discussion). Name pre-occupied by *Hypocoelus* Latreille, 1834 [Coleoptera]; replaced by *Hypocolpus* RATHBUN, 1897 [Brachyura: Xanthidae].
- Idae*, *Palaemon* (*Palaemon*).** HELLER (1862a: 416; Pl. II, figs. 40, 41). Type locality: Borneo. Lectotype and paralectotype (not separated): NHMW 7696 (designated by CAI & NG 2001). Currently valid as *Macrobrachium idae* (HELLER, 1862a) [Caridea: Palaemonidae].
- inaequalis*, *Porcellana*.** HELLER (1861a: 259; Pl. II, fig. 7). Also indicated as new in HELLER (1861b: 24). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 24097. Currently valid as *Pisidia inaequalis* (HELLER, 1861a) [Anomura: Porcellanidae].
- inaequimana*, *Anchistia*.** HELLER (1861a: 283). Also indicated as new in HELLER (1861b: 28). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 7837. Currently considered a junior synonym of *Periclimenella pettithouarsii* (AUDOUIN, 1826) [Caridea: Palaemonidae].
- indicus*, *Palaemon* (*Leander*).** HELLER (1862a: 413). Type locality: Java, Borneo. Syntypes: NHMW 7682, 7683. Considered to be a nomen dubium by HOLTHUIS (1950).
- inermis*, *Porcellana*.** HELLER (1862b: 524). Also indicated as new in HELLER (1865: 76; Pl. VI, fig. 5). Type locality: “Nicobaren” [= Nicobar Isls.]. Types: NHMW 24237

- (lectotype), NHMW 24238, 25651 (paralectotypes) (designated by WERDING & HILLER 2015). Currently valid as *Petrolisthes inermis* (HELLER, 1862b) [Anomura: Porcellanidae].
- inermis*, *Stenorhynchus*. HELLER (1856b: 719). Type locality: “Dalmatien” [= Dalmatia, Croatia]. Syntypes: NHMW 18846, 18899, 18900. Currently considered a junior synonym of *Macropodia rostrata* (LINNAEUS, 1761) [Brachyura: Inachidae].
- insignis*, *Alpheus*. HELLER (1861a: 269; Pl. III, figs. 17, 18). Also indicated as new in HELLER (1861b: 26). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): not located at NHMW. Currently considered a junior synonym of *Alpheus diadema* DANA, 1852 [Caridea: Alpheidae].
- intermedius*, *Pachygrapsus*. HELLER (1862b: 521). Also indicated as new in HELLER (1865: 44). Type locality: “Rio-Janeiro” [= Rio de Janeiro, Brazil]. Syntype(s): NHMW 10219. Currently considered a junior synonym of *Pachygrapsus transversus* (GIBBES, 1850) [Brachyura: Grapsidae].
- javanicus*, *Palaemon* (*Palaemon*). HELLER (1862a: 421). Type locality: Java (likely in error, see WOWOR & NG, 2010). Types: NHMW 7689a (lectotype), NHMW 7689b (paralectotypes) (designated by WOWOR & NG 2010). Currently considered a junior synonym of *Macrobrachium sundaicum* (HELLER, 1862a) under First Reviser Principle (Art. 24.2.1, ICZN, 1999) by WOWOR & NG (2010) [Caridea: Palaemonidae].
- Kotschii*, *Epixanthus*. HELLER (1860: 325; Pl. I, fig. 14). Type locality: “insel Karak im persischen Meerbusen” [= Kharg Island, Iran]. Syntype(s): NHMW 11388. Currently considered a junior synonym of *Epixanthus frontalis* (H. MILNE EDWARDS, 1834) [Brachyura: Oziidae].
- Kraussi***, *Actaea*. HELLER (1860: 316). Also indicated as new in HELLER (1861b: 7). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 13419. Currently valid as *Banareia kraussi* (HELLER, 1860) [Brachyura: Xanthidae].
- Kroyeri***, *Penaeus*. HELLER (1862a: 425; Pl. II, fig. 51). Type locality: “Rio Janeiro” [= Rio de Janeiro, Brazil]. Syntype: NHMW 342. Currently valid as *Xiphopenaeus kroyeri* (HELLER, 1862a) [Dendrobranchiata: Penaeidae].
- laevimanus*, *Alpheus*. HELLER (1862a: 401). Type locality: “Sicilien; Pirano aus dem adriatischen Meere” [= Sicily; Piran, Slovenia]. Syntype(s): NHMW 958. Currently considered a junior synonym of *Synalpheus gambarelloides* (NARDO, 1847) [Caridea: Alpheidae].
- laevis***, *Caridina*. HELLER (1862a: 411). Type locality: Java. Syntype(s): NHMW 471. Currently valid as *Caridina laevis* HELLER, 1862a [Caridea: Atyidae].
- laeviscula*, *Carupa*. HELLER (1862b: 520). Also indicated as new in HELLER (1865: 27; Pl. III, fig. 2). Type locality: “Tarti” [lapsus for Tahiti, see HELLER 1865]. Syntype(s): NHMW 2431. Currently considered a junior synonym of *Carupa tenuipes* DANA, 1852 [Brachyura: Portunidae].
- Lar*, *Pagurus*. HELLER (1862b: 524). Type locality: “Nicobaren” [= Nicobar Isls.]. Considered to be a nomen dubium by McLAUGHLIN & DWORSCHAK (2001) [Anomura: ?Paguridae].

- leporina*, *Porcellana*. HELLER (1862b: 523). Also indicated as new in HELLER (1865: 78; Pl. VI, fig. 7). Type locality: “Rio-Janiero” [= Rio de Janeiro, Brazil]. Syntype(s): NHMW 24200. Currently considered a junior synonym of *Petrolisthes armatus* (GIBBES, 1850) [Anomura: Porcellanidae].
- leptocerus*, *Virbius*. HELLER (1863: 289; Pl. X, figs. 5, 6). Type locality: “Hafen von Genua” [= Genoa Harbour, Italy]. Types: NHMW 6752 (lectotype designated by D’UDEKEM D’ACUZ 1996; specimen not separated). Currently valid as *Hippolyte leptocerus* (HELLER, 1863) [Caridea: Hippolytidae].
- leptocheles*, *Porcellana*. HELLER (1861a: 258; Pl. II, fig. 6). Also indicated as new in HELLER (1861b: 24). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 24205. Currently valid as *Petrolisthes leptocheles* (HELLER, 1861a) [Anomura: Porcellanidae].
- lobatus*, *Ozius*. HELLER (1865: 21; Pl. II, fig. 4). Type locality: “Schanghai, Sydney, Taiti” [= Shanghai, Sydney, Tahiti]. Syntypes: 1462, 10931, 10932, 10935. Currently valid as *Ozius lobatus* HELLER, 1865 [Brachyura: Oziidae].
- Lucasi*, *Eupagurus*. HELLER (1863: 163; Pl. V, fig. 10). Unnecessary replacement name for *Pagurus spinimanus* LUCAS, 1846. Currently considered a junior synonym of *Pagurus cuanensis* BELL, 1845 [Anomura: Paguridae].
- maculatus*, *Etisus*. HELLER (1860: 332). Also indicated as new in HELLER (1861b: 9). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): not located at NHMW. Currently considered a junior synonym of *Etisus laevimanus* RANDALL, 1840 [Brachyura: Xanthidae].
- migratorius*, *Pelias*. HELLER (1862a: 409; Pl. II, fig. 35). Type locality: “Ägypten” [= Egypt]. Types: NHMW 25559 (lectotype), 7733, 7724, 7731 (paralectotypes) (designated by TZOMOS & KOUKOURAS 2015). See TZOMOS & KOUKOURAS (2015) for a discussion of material from Lake Garda and the Adriatic Sea, originally included by HELLER (1862a) in the type series and now paralectotypes (NHMW 7724, 7731). Currently valid as *Palaemon migratorius* (HELLER, 1862a) [Caridea: Palaemonidae].
- militaris*, *Porcellana*. HELLER (1862b: 523). Also indicated as new in HELLER (1865: 75). Type locality: “Nicobaren” [= Nicobar Isls.]. Syntype(s): not located at NHMW. Currently valid as *Petrolisthes militaris* (HELLER, 1862b) [Anomura: Porcellanidae].
- modestus*, *Leander*. HELLER (1862b: 527). Also indicated as new in HELLER (1865: 111; Pl. X, fig. 6). Type locality: “Schanghai” [= Shanghai]. Syntype(s): NHMW 1194. Currently valid as *Palaemon modestus* (HELLER, 1862b) [Caridea: Palaemonidae].
- monoceros*, *Alpheus*. HELLER (1861a: 274). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 950. Currently considered a junior synonym of *Athanas dimorphus* ORTMANN, 1894 [Caridea: Alpheidae].
- Nattereri*, *Palaemon* (*Palaemon*). HELLER (1862a: 414; Pl. II, figs. 36, 37). Stated type locality: “Brasilien in Rio Negro” [= Rio Negro, Brazil]; herein corrected to “Cidade da Barra do Rio Negro” [= Barra do Rio Negro, near Manaus] based on contemporary pre-1900 label kept with NHMW types. Syntypes; NHMW 566, 7714. Currently valid as *Macrobrachium nattereri* (HELLER, 1862a) [Caridea: Palaemonidae].

- Nectograpsus*. HELLER (1865: 56). Type species: *Nectograpsus politus* HELLER, 1865; by monotypy. Junior objective synonym of *Epigrapsus* (HELLER, 1862b), as both genus-group names have the same type species.
- nitidus***, *Calcinus*. HELLER (1865: 89; Pl. VII, fig. 4). Type locality: “Taiti” [= Tahiti]. Syntype: NHMW 19397 (see McLAUGHLIN & DWORSCHAK 2001). Currently valid as *Calcinus nitidus* HELLER (1865) [Anomura: Diogenidae].
- nodipes*, *Actaeodes*. HELLER (1860: 329; Pl. I, fig. 19). Also indicated as new in HELLER (1861b: 9). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 12049. Currently considered a junior synonym of *Pseudoliomera speciosa* (DANA, 1852) [Brachyura: Xanthidae].
- nodosa***, *Pseudomicippe*. HELLER (1860: 303; Pl. I, fig. 3). Also indicated as new in HELLER (1861b: 4). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 18396. Currently valid as *Pseudomicippe nodosa* HELLER, 1860 [Brachyura: Majidae].
- notatus***, *Grapsodes*. HELLER (1865: 58; Pl. V, fig. 2). Type locality: “Nicobaren” [= Nicobar Isls.]. Type: NHMW 10554 (lectotype designation by inference of holotype in TÜRKAY 1974). Currently valid as *Epigrapsus notatus* (HELLER, 1865) [Brachyura: Gecarcinidae].
- notata*, *Anchistia*. See *Pelias notatus*.
- notatus*, *Pelias*. HELLER (1862b: 526). Also indicated as new, with identical Latin diagnosis in HELLER (1865: 109; Pl. X, fig. 3) as *Anchistia notata*. Type locality: “Nicobaren” [= Nicobar Isls.]. Syntype(s): NHMW 247. Currently considered a junior synonym of *Harpiliopsis depressa* (STIMPSON, 1860) [Caridea: Palaemonidae].
- nudirostris***, *Oedipus*. HELLER (1861a: 279; Pl. III, fig. 25). Also indicated as new in HELLER (1861b: 27). Type locality: “rothes Meer” [= Red Sea]. Lectotype: NHMW 7790 (designated by MITSUHASHI & TAKEDA 2008). Currently valid as *Coralliocaris nudirostris* (HELLER, 1861a) [Caridea: Palaemonidae].
- orientalis***, *Hippolyte*. HELLER (1861a: 277). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 1048. Currently valid as *Hippolyte orientalis* HELLER, 1861a [Caridea: Hippolytidae].
- Palaemonetes*. HELLER (1869: 161). Type species: *Palaemon varians* Leach, 1814; by monotypy. Currently considered a junior synonym of *Palaemon* WEBER, 1795 [Caridea: Palaemonidae].
- paschalis***, *Hippolyte*. HELLER (1861a: 276; Pl. III, fig. 24). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): not located at NHMW. Currently valid as *Thor paschalis* (HELLER, 1861a) [Caridea: Thoridae].
- Paulensis***, *Palinurus*. HELLER (1862b: 525). Type locality “St. Paul” [Île Saint-Paul, southwestern Indian Ocean]. Syntypes: NHMW 9228, 9229. Currently valid as *Jasus paulensis* (HELLER, 1862b) [Achelata: Palinuridae].
- Payeri***, *Hippolyte*. HELLER (1875b: 609). Also indicated as new in HELLER (1876: 26; Pl. I, figs. 1–4) and listed as a nomen nudum in HELLER (1875a). Type locality: Nordpol; corrected to south of Franz Josef Land, 79°0.4'N 62°29.7'E, by FRANSEN (1993). Syntype: NHMW 1018 (see FRANSEN, 1993). Currently valid as *Bythocaris payeri* (HELLER, 1875b) [Caridea: Bythocarididae].

- penicillata*, *Porcellana*. HELLER (1862b: 523). Also indicated as new in HELLER (1865: 79). Type locality: “Nicobaren” [= Nicobar Isls.]. Syntype(s): NHMW 24216. Currently considered a junior synonym of *Petrolisthes tomentosus* (DANA, 1852) [Anomura: Porcellanidae].
- Perigrapsus*. HELLER (1862b: 48). Also indicated as new in HELLER (1865: 48). Type species: *Perigrapsus excelsus* HELLER, 1862b; by monotypy. Currently considered a junior synonym of *Cardisoma* LATREILLE IN LATREILLE, LE PELETIER, SERVILLE & GUÉRIN, 1828 [Brachyura: Gecarcinidae]. Placed on the *Official List of Generic Names in Zoology* (ICZN 1925; 1956).
- pictus*, *Remipes*. HELLER (1861a: 243). Also indicated as new in HELLER (1861b: 21). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 18396. Currently valid as *Hippa picta* (HELLER, 1861a) [Anomura: Hippidae].
- Pinnaxodes*. HELLER (1865: 67). Type species: *Pinnaxodes hirtipes* HELLER, 1865; by monotypy. Currently valid [Brachyura: Pinnotheridae]. Placed on the *Official List of Generic Names in Zoology* (ICZN 1925; 1956).
- pisoides*, *Porcellana*. HELLER (1865: 73; Pl. VI, fig. 3). Type locality: “Nicobaren” [= Nicobar Isls.]. Syntype(s): NHMW 24155. Currently valid as *Pachycheles pisoides* (HELLER, 1865) [Anomura: Porcellanidae].
- Plagusetes*. HELLER (1862b: 522). Type species: *Plagusetes elatus* HELLER, 1862b; by monotypy. Currently considered a junior synonym of *Acanthocylus* LUCAS, 1844 [Brachyura: Belliidae].
- platyrhynchus*, *Alpheus*. HELLER (1862a: 400; Pl. I, figs. 21–24). Type locality: “adriatisches Meer” [= Adriatic Sea]. Syntype(s): NHMW 747. Currently considered a junior synonym of *Alpheus macrocheles* (HAILSTONE, 1835) [Caridea: Alpheidae].
- politus*, *Camptonyx*. HELLER (1860: 359; Pl. II, fig. 26). Also indicated as new in HELLER (1861b: 16). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 2551. Currently valid as *Caphyra polita* (HELLER, 1860) [Brachyura: Portunidae].
- politus*, *Epigrapsus*. HELLER (1862b: 522). Also described as new in HELLER (1865: 57; Pl. V, fig. 3) as *Nectograpsus politus*. Type locality: “Taiti” [= Tahiti]; type locality of *N. politus* in HELLER (1865) stated as “Nicobaren, Taiti” [= Nicobar Isls., Tahiti], but restricted to Tahiti by lectotypification in TÜRKAY (1974). Types: NHMW 1825 (lectotype of *Epigrapsus politus* HELLER, 1862b, designation by TÜRKAY (1974); not separated from paralectotypes); NHMW 1826 (lectotype of *Nectograpsus politus* HELLER, 1865, by inference of holotype in TÜRKAY (1974)). Currently valid as *Epigrapsus politus* HELLER, 1862b [Brachyura: Gecarcinidae].
- politus*, *Nectograpsus*. See *Epigrapsus politus*.
- polyacanthus*, *Chlorodius*. HELLER (1860: 339; Pl. II, fig. 21). Also indicated as new in HELLER (1861b: 11). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 12050. Currently valid as *Actaea polyacantha* (HELLER, 1860) [Brachyura: Xanthidae].
- Polycheles*. HELLER (1862a: 389). Type species: *Polycheles typhlops* HELLER, 1862a; by monotypy. Currently valid. [Polychelida: Polychelidae].

- Pontonella*. HELLER (1856a: 629). Type species: *Pontonella glabra* HELLER, 1856a; by monotypy. Currently considered a junior synonym of *Typton* O.G. COSTA, 1844 [Caridea: Palaemonidae].
- Pseudomicippe*. HELLER (1860: 301). Also indicated as new in HELLER (1861b: 4). Type species: *Pseudomicippe nodosa* HELLER, 1860; by monotypy. Currently valid [Brachyura: Majidae].
- Pterocaris*. HELLER (1862a: 395; Pl. I, figs. 7–18). Type species: *Pterocaris typica* HELLER, 1862a; by monotypy. Currently valid [Caridea: Alpheidae].
- pubescens*, *Pachygrapsus*. HELLER (1865: 45; Pl. IV, fig. 4). Type locality: “Chili” [= Chile]. Syntype(s): 10263. Currently considered a junior synonym of *Pachygrapsus marmoratus* (FABRICIUS, 1787) [Brachyura: Grapsidae].
- pusilla*, *Lysmata*. HELLER (1861a: 287; Pl. III, fig. 26). Also described as new in HELLER (1861b: 29) as *Hippolyte trisetacea*. Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 1088. Herein considered to be a nomen oblitum (see discussion).
- pusillus*, *Ptychognathus*. HELLER 1865: 60). Type locality: “Nicobaren” [= Nicobar Isls.]. Syntype(s): NHMW 10338. Currently valid as *Ptychognathus pusillus* HELLER, 1865 [Brachyura: Varunidae].
- pyramidata*, *Huena*. HELLER (1860: 307; Pl. I, fig. 9). Also indicated as new in HELLER (1861b: 5). Type locality: “Tor” [= El Tor, Egypt, Red Sea], specified in HELLER (1861b). Syntype: NHMW 18534. Currently valid as *Simocarcinus pyramidatus* (HELLER, 1860) [Brachyura: Epialtidae].
- Rathkii*, *Pandalus*. HELLER (1862c: 441; Pl. III, fig. 31). Type locality: “Lissa und Lesina” [= Vis, Croatia; Lesina, Italy]. Syntype(s): NHMW 636. Currently considered a junior synonym of *Pandalina brevirostris* (RATHKE, 1843) [Caridea: Pandalidae].
- rosaceus*, *Calcinus*. HELLER (1861a: 253). Also indicated as new in HELLER (1861b: 23). Type locality: “rothes Meer” [= Red Sea]. Syntype: NHMW 19400, see McLAUGHLIN & DWORSCHAK 2001. Currently valid as *Calcinus rosaceus* HELLER, 1861a [Anomura: Diogenidae].
- Rouxi*, *Clibanarius*. HELLER (1863: 179). Type locality: Gibraltar. Syntype(s): NHMW 19394. Currently considered a junior synonym of *Calcinus tubularis* (LINNAEUS, 1767) [Anomura: Diogenidae].
- rudis*, *Palaemon*. HELLER (1862b: 5270). Also indicated as new in HELLER (1865: 114). Type locality: “Ceylon” [= Sri Lanka]. Syntype(s): NHMW 7708. Currently valid as *Macrobrachium rude* (HELLER, 1862b) [Caridea: Palaemonidae].
- rufescens*, *Porcellana*. HELLER (1861a: 255; Pl. II, fig. 4). Also indicated as new in HELLER (1861b: 24). Type locality: “rothes Meer” [= Red Sea]. Types: NHMW 24220 (lectotype), 24219 (paralectotypes) (designated by HAIG 1964). Currently valid as *Petrolisthes rufescens* (HELLER, 1861a) [Anomura: Porcellanidae].
- rugipes*, *Actaeodes*. HELLER (1860: 330; Pl. I, fig. 20). Also indicated as new in HELLER (1861b: 9). Type locality: “rothes Meer” [= Red Sea]. Syntypes: NHMW 11678, 11679. Currently valid as *Liomera rugipes* (HELLER, 1860) [Brachyura: Xanthidae].

rugulosa, *Metasesarma*. HELLER (1865: 65). See *Metasesarma granularis*.

rugulosus, *Euxanthus*. HELLER (1865: 12; Pl. II, fig. 2). Type locality: “Cap” [= Cape of Good Hope, South Africa]; Mauritius. Syntypes: NHMW 10968, 11393. Currently considered a junior synonym of *Lydia annulipes* (H. MILNE EDWARDS, 1834) [Brachyura: Oziidae].

Savignyi, *Pilumnus*. HELLER (1860: 345). Also indicated as new in HELLER (1861b: 12). Type locality: Egypt. The 1860 description solely refers to the unnamed pilumnid specimen illustrated on Plate 5, fig. 4 in SAVIGNY (1817–1826); the 1861b description additionally refers to a specimen collected by Frauenfeld, presumably from the Red Sea (not located at NHMW)]. Currently valid as *Pilumnus savignyi* HELLER, 1860 [Brachyura: Pilumnidae].

scabriculus, *Palaemon*. HELLER (1862b: 527). Also indicated as new in HELLER (1865: 117; Pl. X, fig. 9). Type locality: “Ceylon” [= Sri Lanka]. Syntype(s): NHMW 7705. Currently valid as *Macrobrachium scabriculum* (HELLER, 1862b) [Caridea: Palaemonidae].

Schmardae, *Actaea*. HELLER (1860: 318; Pl. I, fig. 13). Also indicated as new in HELLER (1861b: 6). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 11977. Currently considered a junior synonym of *Psaumis cavipes* (DANA, 1852) [Brachyura: Xanthidae].

scrobiculatus, *Atergatis*. HELLER (1860: 310). Also indicated as new in HELLER (1861b: 5). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 12103. Currently considered a junior synonym of *Atergatis roseus* (RÜPPEL, 1830) [Brachyura: Xanthidae].

sculptilis, *Etisodes*. HELLER (1860: 333). Also indicated as new in HELLER (1861b: 10). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 11795. Currently considered a junior synonym of *Etisus electra* (HERBST, 1801) [Brachyura: Xanthidae].

sculptilis, *Penaeus*. HELLER (1862b: 528). Also indicated as new in HELLER (1865: 122, Pl. XI, fig. 1). Type locality: Java. Syntype(s): NHMW 347. Currently valid as *Mierspenaeopsis sculptilis* (HELLER, 1862b) [Dendrobranchiata: Penaeidae].

semigranosus, *Atergatis*. HELLER (1860: 313). Also indicated as new in HELLER (1861b: 6). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): not located at NHMW. Currently valid as *Platypodia semigranosa* (HELLER, 1860) [Brachyura: Xanthidae].

semistriatus, *Clibanarius*. HELLER (1862b: 525). Type locality: “Taiti” [= Tahiti]. Syntype(s): not located at NHMW (see McLAUGHLIN & DWORSCHAK 2001). Considered a likely junior synonym of *Clibanarius signatus* HELLER, 1861a by McLAUGHLIN & DWORSCHAK (2001).

senex, *Diogenes*. HELLER (1865: 85; Pl. VII, fig. 3). Type locality: Sydney. Syntype: NHMW 19395 (see McLAUGHLIN & DWORSCHAK 2001); neotype selection by McLAUGHLIN & HAIG (1996) invalid. Currently valid as *Diogenes senex* HELLER, 1865 [Anomura: Diogenidae].

serenus, *Leander*. HELLER (1862b: 527). Also indicated as new in HELLER (1865: 110; Pl. X, fig. 5). Type locality: “Sidney” [= Sydney]. Syntype(s): NHMW 1195. Currently valid as *Palaemon serenus* (HELLER, 1862b) [Caridea: Palaemonidae].

- signatus**, *Clibanarius*. HELLER (1861a: 252). Also indicated as new in HELLER (1861b: 23). Type locality: “rothes Meer” [= Red Sea]. Syntypes: NHMW 19392 (see McLAUGHLIN & DWORSCHAK 2001). Currently valid as *Clibanarius signatus* HELLER, 1861a [Anomura: Diogenidae].
- sinensis**, *Palaemon*. HELLER (1862b: 528). Also indicated as new in HELLER (1865: 119; Pl. X, fig. 11). Type locality: “Schanghai” [= Shanghai]. Syntype(s): NHMW 7701. Currently considered a junior synonym of *Macrobrachium nipponense* (DE HAAN, 1849) [Caridea: Palaemonidae].
- socialis**, *Alpheus*. HELLER (1862b: 526). Also indicated as new in HELLER (1865: 106; Pl. X, fig. 1). Type locality: “Auckland” [= Auckland]. Syntype(s): NHMW 857. Currently valid as *Alpheus socialis* HELLER, 1862b [Caridea: Alpheidae].
- spectabilis**, *Palaemon*. HELLER (1862b: 527). Also indicated as new in HELLER (1865: 113; Pl. X, fig. 8). Type locality: “Taiti” [= Tahiti]. Syntype(s): NHMW 7700. Currently considered a junior synonym of *Macrobrachium lar* (FABRICIUS, 1798) [Caridea: Palaemonidae].
- spinicinctus**, *Cyclax*. HELLER (1860: 304; Pl. I, figs. 7, 8). Also indicated as new in HELLER (1861b: 4). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 18499. Currently valid as *Cyclax spinicinctus* HELLER (1860) [Brachyura: Majidae].
- spinifer**, *Astacoides*. HELLER (1865: 102; Pl. IX). Type locality: “Neuholland” [= Australia]. Syntypes: NHMW 1266, 17020 (additional unnumbered specimen on public display at NHMW). Currently valid as *Euastacus spinifer* (HELLER, 1865) [Astacidea: Parastacidae].
- spinipes**, *Pilodius*. HELLER (1860: 340; Pl. II, fig. 22). Also indicated as new in HELLER (1861b: 11). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 10818. Currently valid as *Luniella spinipes* (HELLER, 1860) [Brachyura: Xanthidae].
- sundaicus**, *Palaemon* (*Palaemon*). HELLER (1862a: 415; Pl. II, figs. 38, 39). Type locality: Java (likely incorrect, see WOWOR & NG 2010). Types: NHMW 1525a (lectotype; designated by WOWOR & NG (2010), see discussion in WOWOR & NG (2010) for other specimens that were part of original type series). Currently valid as *Macrobrachium sundaicum* (HELLER, 1862a) [Caridea: Palaemonidae].
- superbus**, *Palaemon*. HELLER (1862b: 528). Also indicated as new in HELLER (1865: 118; Pl. X, fig. 10). Type locality: “Schanghai” [= Shanghai]. Syntypes: NHMW 1008, 7706. Currently valid as *Macrobrachium superbum* (HELLER, 1862b) [Caridea: Palaemonidae].
- tahitensis**, *Penaeus*. HELLER (1862b: 528). Also indicated as new in HELLER (1865: 121; Pl. XI, fig. 2). Type locality: “Taiti” [= Tahiti]. Syntypes: NHMW 147, 105. See CHAN et al. (2021) for a discussion of the identity of the two type specimens. Herein considered a nomen dubium, in view of the mixed identity of the two syntypes, neither of which can be identified fully to species level [Dendrobranchiata: Penaeidae].
- tetraodon**, *Eudora*. See *Xantho tetraodon*.
- tetraodon**, *Xantho*. HELLER (1862b: 519). Also indicated as new, with identical Latin diagnosis in HELLER (1865: 14; Pl. II, fig. 3) as *Eudora tetraodon*. Type locality: “Auckland” [= Auckland]. Syntype(s): NHMW 1823. Currently valid as *Juxtaxanthias tetraodon* (HELLER, 1862b) [Brachyura: Xanthidae].

- tomentosa*, *Dromia*. HELLER (1861a: 24). Also indicated as new in HELLER (1861b: 21). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 19284. Currently considered a junior synonym of *Alcockdromia fallax* (LATREILLE IN MILBERT, 1812) [Brachyura: Dromiidae].
- tricuspidatus*, *Alpheus*. HELLER (1861a: 267; Pl. III, fig. 15). Also indicated as new in HELLER (1861b: 26). Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 859. Currently valid as *Synalpheus tricuspidatus* (HELLER, 1861a) [Caridea: Alpheidae].
- trisetacea*, *Hippolyte*. HELLER (1861b: 29) Type locality: “rothes Meer” [= Red Sea]. Syntype(s): NHMW 1088. Herein considered to be a nomen protectum (see discussion); currently valid as *Lysmata trisetacea* (HELLER, 1861a) [Caridea: Lysmatidae].
- typhlops*, *Polycheles*. HELLER (1862a: 392; Pl. I, figs. 1–6). Type locality: “Sicilien” [= Sicily]. Holotype: NHMW 9217. Currently valid as *Polycheles typhlops* HELLER, 1862a [Polychelida: Polychelidae].
- typica*, *Pterocaris*. HELLER (1862a: 398; Pl. I, figs. 7–18). Type locality: “Amboina” [= Ambon, Indonesia]. Holotype: NHMW 7982 (see ANKER & DWORSCHAK 2001). Currently valid as *Pterocaris typica* HELLER, 1862a [Caridea: Alpheidae].
- vagus*, *Palaemon (Palaemon)*. HELLER (1862a: 417; Pl. II, figs. 42–43). Type locality: “Amboina” [= Ambon, Indonesia]. Syntypes: NHMW 550, 7709. Currently considered a junior synonym of *Macrobrachium lar* (FABRICIUS, 1798) [Caridea: Palaemonidae].
- variegatus*, *Gelasimus*. HELLER (1862b: 521). Type locality: “Madras” [= Chennai, India]. Types: NHMW 25656 (lectotype), 12980, 12974 (paralectotypes) (designated by SHIH et al. 2019). Currently valid as *Austruca variegata* (HELLER, 1862b) [Brachyura: Ocypodidae].
- varipes*, *Pagurus*. HELLER (1861a: 244; Pl. I, fig. 1; Pl. II, figs. 2, 3). Also indicated as new in HELLER (1861b: 22). Type locality: “rothes Meer” [= Red Sea]. Syntypes: NHMW 19398, 19399 (see MCLAUGHLIN & DWORSCHAK 2001). Currently considered a junior synonym of *Dardanus tinctor* (FORSKÅL, 1775) [Anomura: Diogenidae].
- verrucosa*, *Tiarinia*. HELLER (1865: 4; Pl. I, fig. 3). Type locality: “Nicobaren” [Nicobar Isls.]. Syntype(s): NHMW 18382. Currently valid as *Tiarinia verrucosa* HELLER, 1865 [Brachyura: Epialtidae].
- violascens*, *Cenobita*. HELLER (1862b: 524). Also indicated as new in HELLER (1865: 82; Pl. VII, fig. 1). Type locality: “Nicobaren” [= Nicobar Isls.]. Syntypes: NHMW 19422 (see MCLAUGHLIN & DWORSCHAK 2001). Currently valid as *Coenobita violascens* HELLER, 1862b [Anomura: Coenobitidae].
- Wüllerstorffi*, *Thelphusa*. HELLER (1862b: 520). Type locality: “Ceylon, Nicobaren, Madras, Taiti” [= Sri Lanka, Nicobar Isls., Chennai, Tahiti], restricted to Nicobar Isls. by lectotypification in BOTT (1970). Syntypes: NHMW 1613, 24936–24942, 27063, 27064. Additional paralectotype(s) exist in MNHN (Paris), see NG & TAY (2001). [NG & TAY (2001) consider the lectotype based type locality to be incorrect and suspect it to be in southern India]. BOTT (1970: 98) listed 5 male and 5 female type specimens from the Nicobar Isls. in the NHMW and identified one male as the lectotype. He did not, however, indicate what its size was or its catalogue number,

so we have no idea which of the five males he selected. He figured one male (BOTT, 1970: pl 18 figs. 12–14, pl. 29 fig. 68) but stated that it was a Senckenberg Museum (Frankfurt) specimen which was from Nicobar Isls. and not a type. The type series in the NHMW will have to re-examined and a new lectotype selected. Currently valid as *Spiralothelphusa wuellerstorfi* (HELLER, 1862b) [Brachyura: Gecarcinucidae].

Zozymodes. HELLER (1860: 327). Type species: *Zozymodes carinipes* HELLER, 1860, by monotypy. Currently valid [Brachyura: Xanthidae]. Placed on the *Official List of Generic Names in Zoology* (ICZN, 1925, 1956).

A note on *Menaethius brevirostris* HELLER, 1861b

The identity of *Menaethius brevirostris* has never been established and it has been missed in most treatments of the Majoidea. NG et al. (2008: 102) treated the species as a nomen dubium. The description by HELLER (1862b: 519) was brief:

“1 *Menaethius brevirostris* nov. — Carapax paulo convexus, fronte triangulata, lateraliter truncata. Margo antero-lateralis acutus, crenulatus, dente epibranchiali plano, obtuso; margines postero-laterales paralleli, denticulis duobus ornati. Chelipedes incrassati, brachio ad marginem exteriorum et inferiorem tuberculato, carpo cristato, digitis parce hiantibus. Long. 6^{'''}. Madras.”

The species has never been figured and while there are no types, the description is nevertheless, sufficiently informative for us to ascertain it is a member of *Menaethius* H. MILNE EDWARDS, 1834 (sensu GRIFFIN & TRANTER 1986: 89), and almost certainly what is today called *M. monoceros* (LATREILLE, 1825). This epialtid species has a widespread Indo-Pacific distribution and is known from southern and eastern India (cf. TRIVEDI et al. 2018: 38).

A note on *Thelphusa chilensis* HELLER, 1862b

The identity of *Thelphusa chilensis* HELLER, 1862 has always been vexing. HELLER (1862b: 520) described the species briefly:

“7. *Thelphusa chilensis* nov. — Carapax convexus, antice declivis. Superficies nitida, punctata; crista postfrontali fere nulla, in regione bronchiali et ad latera oblique corrugata, sulco cervicali sat distincto. Margo antero lateralis limbatus, dente epibranchiali exiguo. Chelipedes inaequi, carpo intus bidentato, digitis palma longioribus, non hiantibus, in superficie uti palma minute granulosis, brachio et carpo corrugatis. Longit. 9,4^{'''}; latit. 12^{'''}. Chili.”

HELLER (1865: 33, pl. 3 fig. 4) then listed the species again with a schematic figure. MILNE-EDWARDS (1869: 174) and DE MAN (1898: 436) listed the species without comment. ORTMANN (1897: 312) did not have specimens but commented that he had serious doubts on the provenance, noting that the species was “Soll von Chile stammen: das widerspricht aber allen bekannten Thatsachen der Verbreitung, so dass diese Angabe wohl einfach zu streichen ist.” In her synopsis of the world freshwater crab fauna, RATHBUN (1904: 237) first commented that “Le Chili est la localité typique de *Geothelphusa chilensis* HELLER;

mais il ne sera pas inutile de vérifier cette assertion.” but later listed the species as “Manque de confirmation” (RATHBUN 1905: 217).

PRETZMANN (1964) was the first to look into the identity and provenance of *Thelphusa chilensis* when he re-examined the type specimens of the species in NHMW. He made the argument that it was a senior subjective synonym of *Geothelphusa modesta* DE MAN, 1892, that the actual provenance was Java, and placed it in “*Parathelphusa (Liothelphusa)*”. BOTT (1970: 66) refuted his interpretation and believed that PRETZMANN (1964) actually had material of two species. BOTT (1970: 66) argued that while the non-type Javan specimen PRETZMANN (1964: pl. 1 figs. 3, 4; pl. 2 fig. 6) figured did belong to *Perbrinckia modesta*, HELLER’s (1862b) types were actually from the Philippines, and probably belonged to *Thelphusa grapsoides* H. MILNE-EDWARDS, 1853, *T. philippina* VON MARTENS, 1868, or *T. picta* VON MARTENS, 1868, instead. BOTT (1970: 71–72) listed *T. chilensis* as a junior synonym of *Archipelothelphusa grapsoides* (H. MILNE EDWARDS, 1853) with doubt, remarking that carapace features, frontal median triangle, male pleon and G1 of Heller’s species agreed with the material he had of the species but there was too much variation for him to be sure. BOTT (1970b: 80) later noted that *T. chilensis* may also be close to *Sundathelphusa picta* (VON MARTENS, 1868). NG (1989) discussed the matter when he revised *Geothelphusa modesta* and referred it to a new genus *Terrathelphusa*. NG (1989: 122) commented that the fingers of the cheliped of one of the male specimens figured by PRETZMANN (1964: pl. 1 figs. 1, 2) was far too gaping to be a *Terrathelphusa* species and suggested it may be closer to *Holthuisana subconvexa* (J. ROUX, 1927) from Papua New Guinea. In lieu of further data, NG (1989: 125) left the status of *T. chilensis* undetermined. NG et al. (2008), however, followed PRETZMANN (1964) in treating *Thelphusa chilensis* as a junior synonym of *Terrathelphusa modesta* without comment, and this was followed by GRINANG & NG (2015) in their revision of the Sarawak fauna.

One of the present authors (PKL Ng) has been restudying the *Terrathelphusa* species from Java together with Daisy Wowor as part of a local species revision. In addition to *T. kuhlii* (DE MAN, 1883) and *T. modesta*, there are also additional new species from the island. For this, photographs of the lectotype of *Thelphusa chilensis* as designated by PRETZMANN (1964) were examined. In redescribing the species, PRETZMANN (1964: 492) identified one specimen measuring 34.5 mm (carapace width, cw) and 25.0 mm (carapace length, cl) as the “lectotype” but did not provide any catalogue number or other data other than stating it was from “vermutlich Java”. He listed another six specimens: 1 male (20 mm cl) and 1 female (20 mm cl) from “Chili” but “vermutlich Java” (Novara Exp.) which he labelled as “cotypen”; 1 male (21 mm cl) and 1 female (25 mm cl) from an unknown location (Novara Exp. with doubt); 1 male (25.5 mm cl) from “Shanghai (?)” (Novara Exp.); and 1 male (29 mm cl) from Batavia, Java collected by “Moscovics 1882”. PRETZMANN (1964: 492) therefore only recognised three specimens as types: the lectotype (25 mm cl), and two paralectotypes (male 20 mm cl, female 20 mm cl). Although he did not provide their catalogue numbers, he indicated all have been labelled as being supposedly from “Chili”. In NHMW’s book of acquisitions, only three specimens (in spirit) are listed under the number “1866.I.61b” for *Geothelphusa chilensis*; with a penciled amendment stating that one remained in spirit with two dried. As such, it is reasonable to just treat only these three specimens as the extant syntypes for *Thelphusa chilensis* HELLER, 1862b. In any case, HELLER (1862b) only listed “Chili”

as the location for his specimens. The other three specimens supposedly obtained by the Novara Expedition from unspecified sites or “Shanghai” should not be treated as types.

The figures and captions clearly show that it was the lectotype that was figured. As noted above, PRETZMANN (1964: pl. 1 figs. 1, 2, pl. 2 fig. 6) also figured the carapace, chelipeds and G1 of the non-type Batavian male collected by Moscovics. PRETZMANN (1964: 492) commented later that “Zur Abbildung, die HELLER 1868 gibt, ist zu sagen, daß sie nicht nur undeutlich ist, sondern daß das der Beschreibung zu Grunde liegende Exemplar (25: 35 mm) im Original keine Scheren hat. Die in der Zeichnung aufscheinenden Scheren sind anscheinend nach der Vorlage einer Schere, die sich abtrennt bei den Exemplaren befand und dem kleineren Männchen angehört, ergänzt worden. Die Scheren des großen Exemplares müßten wohl schon eine stärkere Differenz aufweisen.” There is now a specimen in NHMW that carries a lectotype label and now has the catalogue number of NHMW 18210. This specimen exactly matches the lectotype PRETZMANN (1964: pl. 1 fig. 3, 4; pl. 2 fig. 5, 7) figured and we are certain it is the same one. This is the specimen that was examined and figured here (Fig. 1).

The photographs of the lectotype of *Thelphusa chilensis* (Fig. 1) tell us that BOTT (1970) was correct in suggesting that the actual provenance of *Thelphusa chilensis* should be the Philippines. It cannot be a species of *Holthuisana* as NG (1989) suggested because the terminal and subterminal segments are clearly demarcated. The original figure of the lectotype G1 by PRETZMANN (1964: pl. 2 fig. 5) was too over-exposed to ascertain this character and his description was uninformative, only saying “Die Pl. 1. sind von dreieckigem Umriß, kurz, die Spitze ist etwas abgesetzt. Die Pl. 2 überragen die Pl. 1 etwas.” The new photographs of the G1 show the two segments clearly (Fig. 1E, F). The G1 figure provided of the supposed Batavia male in PRETZMANN (1964: Pl. 2 fig. 6) appears to show two segments so despite its gaping cheliped fingers, it is also unlikely to be a species of *Holthuisana*. The G1 of *Thelphusa chilensis* (Fig. 1E, F) also cannot be *Terrathelphusa modesta* as the latter’s G1 terminal segment is distally dilated (NG, 1989: fig. 2B–E) and does not taper to a sharp point like in *Thelphusa chilensis*. In addition, the anterolateral margin is entire or almost so in real *T. modesta* (and indeed all known and undescribed *Terrathelphusa* species) (cf. NG 1989; 1997; GRINANG & NG 2015; NG & TAN 2015), in contrast to the low but distinct epibranchial tooth in *Thelphusa chilensis* (Fig. 1A, C).

The carapace features in general are generally not useful to help ascertain generic assignments. While the carapace of the lectotype male of *Thelphusa chilensis* is relatively wide and inflated (Fig. 1A, C), it is clearly not *Sundathelphusa philippina* or *Archipelothelphusa grapsoides* (now under *Sundathelphusa*) or their allies which have a more well-developed frontal median triangle (cf. HUSANA & NG 2019; PKL Ng unpubl. data). The G1 of the lectotype male of *Thelphusa chilensis* (Fig. 1E, F) actually closely resemble those of *Sundathelphusa picta* (see NG & MENDOZA 2020) and its allies, with the distal half tapering to form a distinctly slender structure. The anterolateral tooth and frontal median triangle of *Thelphusa chilensis* also agree with the condition of *S. picta* and allies. As *Sundathelphusa picta* and its allies are known from just outside Manila in Luzon, Philippines, it also fits into the travel itinerary of the Novara Expedition which visited Manila after Java (see McLAUGHLIN & DWORSCHAK 2001). There is no known species of *Sundathelphusa*, however, in Luzon that has a carapace as wide and as smooth

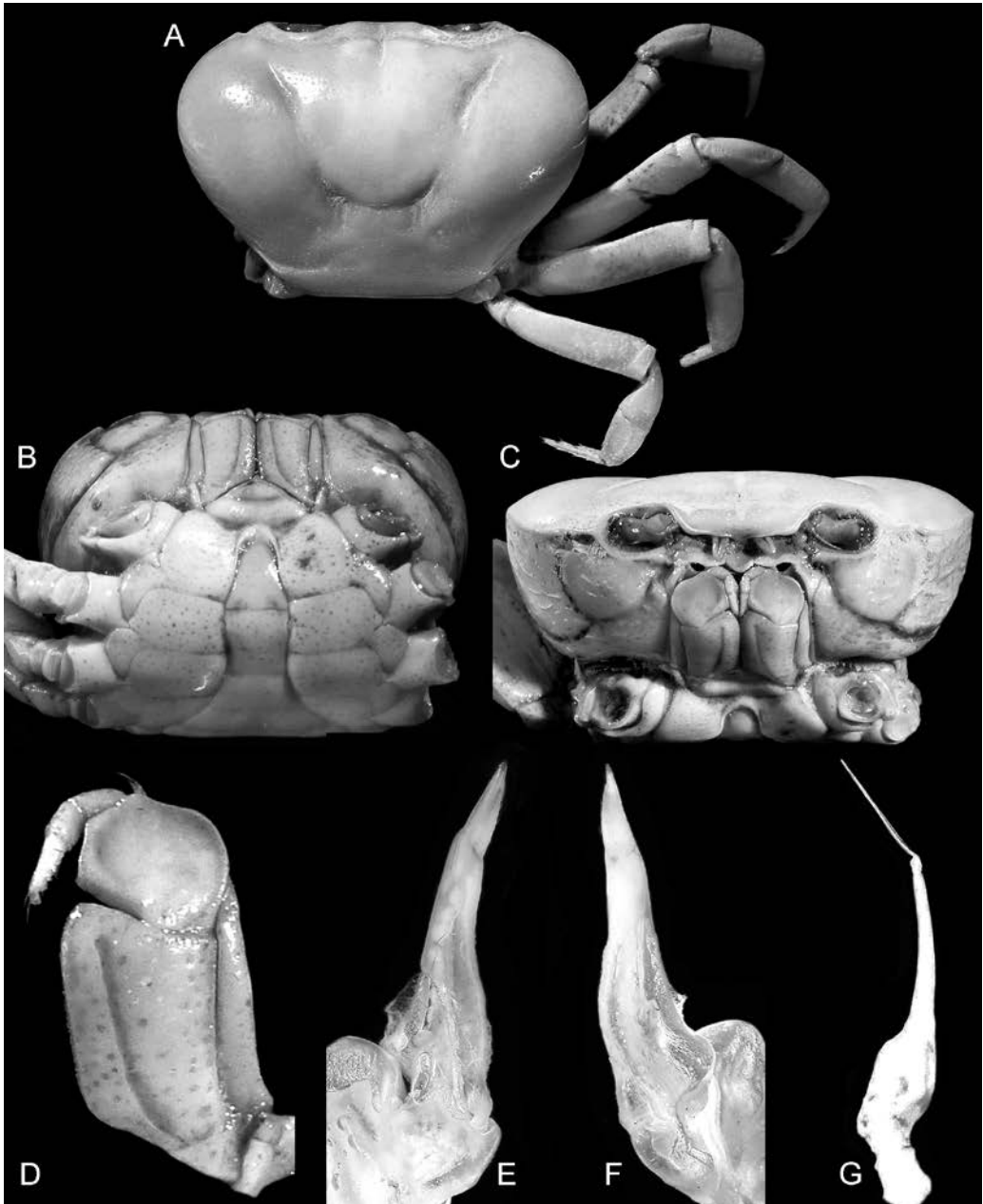


Fig. 1: *Thelphusa chilensis* HELLER, 1862b, lectotype male, 34.5 mm (cw), 25.0 mm (cl), NHMW 18210. (A) overall dorsal view; (B) ventral view of cephalothorax; (C) frontal view of cephalothorax; (D) left third maxilliped; (E) left G1 (ventral view); (F) left G1 (dorsal view); (G) left G2.

as *Thelphusa chilensis* that also has the same kind of frontal median triangle and G1 structure. That being said, there are still several new or poorly characterised species of *Sundathelphusa* known from Luzon, with the broad synonymies of BOTT (1970) of

previously described species generally not accepted (see NG & SKET 1996; NG et al. 2008; NG 2010; HUSANA et al. 2015; HUSANA & NG 2019). As such, *Thelphusa chilensis* HELLER, 1862, is here considered a valid species in *Sundathelphusa* for the time being.

The whereabouts of the two paralectotypes of *T. chilensis* listed by PRETZMANN (1964), presumably dried, cannot be located in NHMW. Also missing are the non-type male (21 mm cl) and female (25 mm cl) which may have been collected by the Novara Expedition. The non-type male (25.5 mm cl) questionably collected from “Shanghai” has both chelipeds present and is now recatalogued as NHMW 27308. The non-type male from Java collected by Moscovics is now recatalogued as NHMW 27307. In any case, these specimens do not affect the taxonomy or nomenclature of the species.

Designation of *Parathelphusa dentipes* HELLER, 1862b as nomen oblitum and its junior synonym *Parathelphusa convexa* DE MAN, 1879 as a nomen protectum

HELLER (1862b: 521) described “*Parathelphusa dentipes* nov. *P. tridentatae* admodum affinis, sed ad apicem brachii et femorum dente acuto armatus. Longit. 12””; latit. 17””. Java.” He later (1865: 34) did not recognise the new name and treated the taxon just as *Parathelphusa tridentata*. RATHBUN (1906: 74) treated the name as a nomen nudum saying that no description was provided. However, HELLER’s (1862b) short comment on the presence of a sharp spine on the meri of the cheliped and ambulatory legs, is enough to validate the name.

There are four specimens labelled as *Parathelphusa tridentata* in NHMW: 2 males (36.9 mm cw, 27.0 mm cl; 34.0 mm cw, 24.9 mm cl), 2 juveniles males (13.2 mm cw, 10.9 mm cl; 11.6 mm cw, 9.4 mm cl); all are considered to be syntypes of *P. dentipes*. The largest male specimen (36.9 x 27.0 mm, NHMW 27294, Fig. 2A), is here designated as the lectotype of the species, with the other three specimens becoming paralectotypes; their new catalogue number being NHMW 27295. This is necessary as this species is here synonymised under *P. convexa* DE MAN, 1879 (see below), a common and widespread species in Java, and there is a need to stabilise its taxonomy.

The main island of Java only has two species of *Parathelphusa*, *P. convexa* DE MAN, 1879, and *P. bogorensis* BOTT, 1970. The latter species was described as a subspecies of *Parathelphusa tridentata* H. MILNE EDWARDS, 1853, and separated by subtle carapace differences and biogeography: *P. tridentata* s. str. is known only from Sumatra, while *P. bogorensis* is known from western Java. Both species are easily distinguished from *P. convexa* and congeners by their unarmed and smooth pereopodal meri. In *P. convexa*, young and smaller specimens all have a distinct sharp spine or tooth on the dorsal distal margin of the merus. When they get very large, the carapace gets more inflated and these may be eroded on some legs. While both *P. convexa* and *P. bogorensis* are common in western Java, the more commonly encountered species is *P. convexa* as it is semiterrestrial and occurs in ricefields, ditches and swampy areas near households and urban areas. *Parathelphusa bogorensis* is wholly aquatic and prefers clean rivers and is less frequently seen.

From the above, it is evident that *Parathelphusa dentipes* HELLER, 1862b and *Parathelphusa convexa* DE MAN, 1879 refer to the same taxon and Heller’s name should

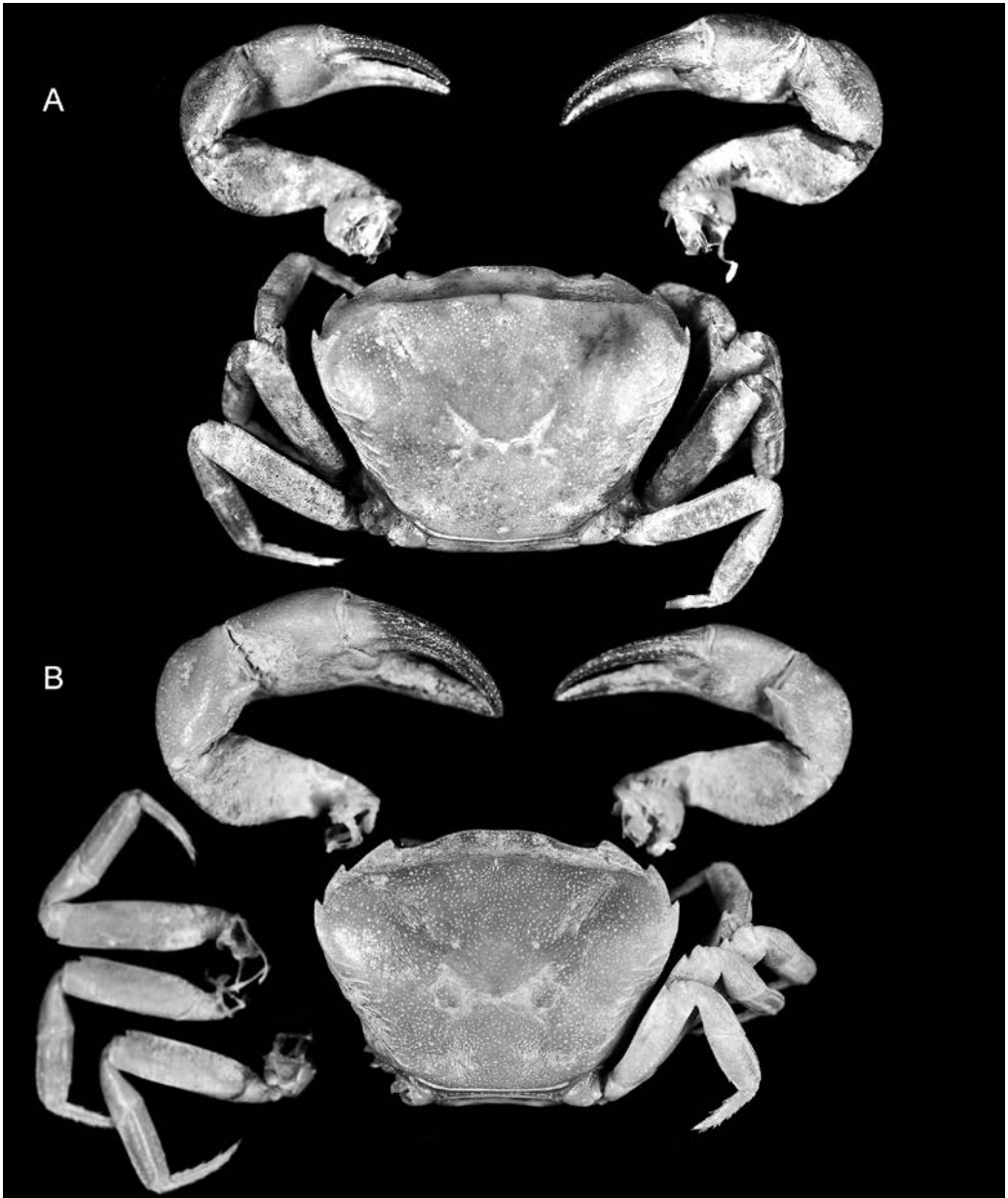


Fig. 2: *Parathelphusa dentipes* HELLER, 1862b; overall dorsal view. (A) lectotype male, 36.9 mm cw, 27.0 mm cl, NHMW 27294; (B) paralectotype male, 34.0 mm cw, 24.9 mm cl, NHMW 27295.

take priority. However, *P. convexa* is a well-known species name, which has been used in numerous ecological studies and its synonymy would be confusing to many. Article 23.9.1 of the Code (ICZN 1999) allows for a reversal of precedence of a junior synonym (or homonym) when the senior synonym or (homonym) has not been used as a valid name after 1899 (Art. 23.9.1.1) and the junior synonym (or homonym) “has been used

for a particular taxon, as its presumed valid name, in at least 25 works, published by at least 10 authors in the immediately preceding 50 years and encompassing a span of not less than 10 years” (Art. 23.9.1.2). Besides from its original description (HELLER 1862b), the name *Parathelphusa dentipes* has only appeared in literature 5 times. KINGSLEY (1880: 192) lists it as a synonym of *Parathelphusa tridentata* H. MILNE EDWARDS, 1853; RATHBUN (1906: 74) considers it to be a nomen nudum; whilst NG (2014: 32), NG et al. (2008: 71) and CHIA & NG (2009: 386) list it as a synonym (sic) of *Parathelphusa convexa*. As none of these studies consider *P. dentipes* to be a valid name, Art. 23.9.1.1 is fulfilled.

Appendix 1 lists 31 publications by 74 authors over the past 44 years, which have used the name *Parathelphusa convexa* DE MAN, 1879, as the valid name for the taxon it denotes, to wit (in chronological order) SMITH 1978: 201; HOLTHUIS 1984: 142; NG & GOH 1987: 314, 322; NG 1990: 244–246; 1991: 39; 1997: 120; 2014: 32, 39, 41; NG & GRINANG 2004: 319; CHIA & NG 2006: 386; NG et al. 2008: 71; 2016: 495, 503, 505; KLAUS et al. 2009a: 513, 519, 520, 525; 2009b: 177–179, 185, 187; 2013: 70, 71; TUDGE 2009: 104; RAHMADI 2011: 244; AHMAD & REZANI 2012: 5, 7, 9; EPRILURAHMAN et al. 2015: 101–104, 107; INNOCENTI & MANZONI 2017: 30; MUHTADI et al. 2017: 94; PUTRI et al. 2017: 70, 71; NG & WOWOR 2018: 347; PUTRA et al. 2018: 1436–1438; ULFA et al. 2018: 183, 184; HERNAWATI 2019: 97, 101, 103, 105, 107, 108; ZAHIDAH et al. 2019: 51, 54; ARIANA et al. 2020: 32–34, 36; SASTRANEGARA et al. 2020: 5325, 5326, 5328; SOMBO et al. 2020: 409, 411, 412, 414; SUSILO et al. 2020: 3, 4, 6; HARAHAP et al. 2021: 251, 253), thus fulfilling Art. 23.9.1.2. As such we herein designate *Parathelphusa dentipes* HELLER, 1862b to be a nomen oblitum and *Parathelphusa convexa* DE MAN, 1879 a nomen protectum.

Designation of *Hippolyte pusilla* HELLER, 1861a as nomen oblitum and its junior synonym *Lysmata trisetacea* HELLER, 1861b as a nomen protectum

It has long been known that the shrimp taxa described by Heller as *Lysmata pusilla* and *Hippolyte trisetacea* are the same species. In fact, Heller (1861a) in the description of *L. pusilla* himself states that „Diese Art, welche in den Verhandlungen der k.k. zoologischen botanischen Gesellschaft in Wien (Jahrgang 1861) pag. 29 von mir irrthümlich als *Hippolyte trisetacea* aufgeführt ist...“. As such, this taxon has always been referred to as *Lysmata trisetacea* (Heller) on the assumption that this name took priority, with *L. pusilla* being published afterwards. However, the current investigation into publication dates has been unable to fully resolve the publication date of HELLER (1861b), which is therefore herein set to 31 December 1861 in accordance with Art. 21.3.2. (ICZN 1999) (see above). In contrast, a publication date of 11 July 1861 was obtained for HELLER (1861a). As such, *Hippolyte pusilla* HELLER, 1861a becomes the senior objective synonym for the taxon, currently widely known as *Lysmata trisetacea* (HELLER, 1861b). Both names share the same type series.

Article 23.9.1 of the Code (ICZN 1999) allows for a reversal of precedence of a junior synonym (or homonym) when the senior synonym or (homonym) has not been used as a valid name after 1899 (Art. 23.9.1.1) and the junior synonym (or homonym) “has been used for a particular taxon, as its presumed valid name, in at least 25 works, published by at least 10 authors in the immediately preceding 50 years and encompassing a span of

not less than 10 years” (Art. 23.9.1.2). To the author’s collective knowledge, the name *Hippolyte pusilla* HELLER, 1861a has not been used to denote a valid species since the original description, likely caused by Heller’s own statement on the matter, although it does appear in some synonymy lists (e. g. HOLTHUIS 1947). Thus, Art. 23.9.1.1 is fulfilled.

Appendix 2 lists 27 publications by 82 authors over the past 49 years, which have used the name *Lysmata trisetacea* HELLER, 1861b, as the valid name for the taxon it denotes, to wit (in chronological order) HOLTHUIS 1972: 33; ABELE 1975: 81; MÉNDEZ 1981: 114; BURUKOVSKY 1983: 115; WICKSTEN 1983: 27; BRUCE 1987: 307; WICKSTEN 1990: 596; HERNÁNDEZ AGUILERA & MARTÍNEZ GUZMÁN 1992: 4; WICKSTEN & HENDRICKX 1992: 7; CHACE 1997: 77; WICKSTEN 2000: 18; POUPIN 2003: 22; WICKSTEN & HENDRICKX 2003: 67; McLAUGHLIN et al. 2005: 223; BAEZA et al. 2009: 417; POUPIN ET AL. 2009: 175; ROMÁN-CONTRERAS & MARTÍNEZ-MAYÉN 2009: 126; FIELDER et al. 2010: 4; OKUNO & FIELDER 2010: 608; RETAMAL & MOYANO 2010: 308; ANKER & COX 2011: 202; ANKER et al. 2011: 683; DE GRAVE & FRANSEN 2011: 429; YALDWYN & WEBBER 2011: 194; MARIN et al 2012: 359; DE LOS RÍOS ESCALANTE & IBÁÑEZ ARANCIBIA 2016: 68; RETAMAL & ARANA 2016: 21), thus fulfilling Art. 23.9.1.2. As such we herein designate *Lysmata pusilla* HELLER, 1861a to be a nomen oblitum and *Hippolyte trisetacea* HELLER, 1861b a nomen protectum.

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Appendix 1. Thirty-one works using *Parathelphusa convexa* DE MAN, 1879, as a valid name by 74 different authors in the past 44 years, to fulfil the requirements of Art. 23.9.1.2 of the Code (ICZN 1999)

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Appendix 2. Twenty-seven works using *Lysmata trisetacea* (HELLER, 1861b), as a valid name by 82 different authors in the past 49 years, to fulfil the requirements of Art. 23.9.1.2 of the Code (ICZN 1999).

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