

SEP 13 2005

HARVARD
UNIVERSITY

Molluscan types of the Bavarian state collection of Zoology Munich (ZSM) Part 1. Polyplacophora, Scaphopoda, Cephalopoda

Thomas Knebelberger, Enrico Schwabe & Michael Schrödl

Knebelberger, T., E. Schwabe & M. Schrödl (2005): Molluscan types of the Bavarian state collection of Zoology Munich (ZSM). Part 1. Polyplacophora, Scaphopoda, Cephalopoda. – Spixiana 28/2: 97-108

The Molluscan collection of the ZSM houses a roughly estimated 200 000 samples with up to 50000 nominal species covering all major taxa. Groups of special international importance include palaeartic pulmonate gastropods, palaeartic and neotropical Unionacea (Bivalvia), and worldwide Opisthobranchia (Gastropoda) and Polyplacophora. Our wet collection of molluscs from the Southern Ocean is amongst the most relevant ones on a worldwide scale. At the moment, primary types of 324 molluscan species are registered and >1000 paratype series are labelled, several of which may also include primary types. Within the framework of GBIF-Germany, a complete inventory and documentation work on type material is performed, and a series of type catalogues will be published successively. This first part gives information on the type status, collecting data and original literature of type specimens of 13 Polyplacophora, 1 Scaphopoda and 3 (plus some further potential types) Cephalopoda species. Specimens and museum labels are fully illustrated by photographs. The Polyplacophora include types of species described by Dell'Angelo, Kaas, Saito, Schwabe, Strack, and Thiele. The scaphopod syntypes are of *Fissidentalium gaussianum* (Plate, 1908). Cephalopod types refer to 3 *Sepia* species of the Doflein collection from Japan that was studied by Wülker; further potential type material of some sepiolid and loliginid species remains to be revised by specialists.

Thomas Knebelberger, Enrico Schwabe, Michael Schrödl, Zoologische Staatssammlung München, Münchhausenstraße 21, D-81247 München, Germany; e-mail: knebelberger@zi.biologie.uni-muenchen.de; enrico.schwabe@zsm.mwn.de; schroedl@zi.biologie.uni-muenchen.de

Introduction

The Mollusca form the second-largest animal phylum regarding species diversity. Molluscs are biologically important members of virtually all types of aquatic and terrestrial ecosystems. Many species were of considerable cultural and economical importance, and up to now molluscs are relevant as food resources or agricultural pests. Several species play an essential role as hosts for pathogenous organisms. Due to the presence of a shell, the highly diverse bivalves and gastropods always have been major subjects of scientific and amateur collecting. Thus, museum and private collections house a vast record of historical material that provides valuable

information, e.g. on environmental conditions in the past. Many species have special ecological requirements and are used as marker organisms e.g. for conservational purposes. In addition, molluscs play an important role in the understanding of invertebrate evolution, are used as model organisms for neurobiological studies, and are subject to biochemical, molecular and many other kinds of modern scientific study.

The molluscan collection of the ZSM may house over 1 million specimens within more than 200 000 samples, covering all major systematic groups. The number of different species may reach up to 50 000, but all these numbers still are rough estimations. Groups of special international importance include

palaeartic pulmonate gastropods, palaeartic and neotropical Unionacea (Bivalvia), and worldwide Opisthobranchia (Gastropoda) and Polyplacophora. In addition, there is a rapidly growing wet collection of worldwide, mainly marine molluscs with entire animals fixed in formalin or ethanol that are appropriate for anatomical, histological or molecular investigations. With 1796 catalogued samples, our collection of marine molluscs from the Southern Ocean is amongst the most complete and relevant ones on a world wide scale.

According to ZSM museum labels, the number of molluscan primary types is 324 at present. In the course of our global inventory of the collection (at present approx. 25 000 data sets, i.e. 15 % of the historic collection and all entries after January 1996), additional "cryptic" types are being discovered continuously. Furthermore, several of the estimated >1000 paratype series may include syntypes or other primary type specimens.

While the molluscan collection of the ZSM is in a generally excellent preservatory condition, its potential scientific value still suffers from a limited stage of inventory, and a restricted accessibility of material and information. So far, a type catalogue does not exist, and many of the type information on museum labels requires critical revision. Reliable information on type material is largely restricted to historic material collected by Spix (see catalogue by Fechter 1983), and to types deposited after 1996 when our electronic data base was established.

Within the framework of GBIF-Germany (see Haszprunar & Melzer 2003, Glaubrecht et al. 2003), all name-bearing (primary) types of the ZSM molluscan collection are being registered within a complex relational database system (Specify), together with relevant information on current taxonomy, systematic position, object condition, collecting data, and primary literature. Further type material, digital images of the objects, museum labels and literature descriptions are added by our museum staff. This information will be available electronically through the German GBIF portal (<http://www.gbif.de/>) and via SYSTAX (<http://www.biologie.uni-ulm.de/systax/>). Inventory and revisory work on type material is performed according to systematic groups and will be published within a series of type catalogues successively. This first part comprises Polyplacophora, Scaphopoda and Cephalopoda.

Abbreviations

ES	Enrico Schwabe (private collection)
HT	Holotype
MNHN	Muséum National d'Histoire Naturelle, Paris, France
MS	manuscript
NM	Natal Museum, Pietermaritzburg, Republic South Africa
NSMT	National Science Museum Tokyo, Japan
pd	partly disarticulated specimen
PLT	Paralectotype
PT	Paratype
SEM	Scanning electron microscopy
ST	Syntype
ZMH	Zoologisches Institut und Zoologisches Museum der Universität Hamburg, Germany
ZMB	Natural History Museum Berlin (formerly Zoologisches Museum Berlin), Germany
ZSM	Zoologische Staatssammlung München, Germany

Systematic part

Polyplacophora Gray, 1821

Leptochitonidae Dall, 1889

Leptochiton Gray, 1847

denhartogi Strack, 2003
(pl. 1, fig. E)

Strack, H. L. 2003. *Leptochiton denhartogi*, a new species of Polyplacophora (Mollusca) from Angola. – Zool. Verh., Leiden 345: 409-412 (: 409; figs 1-8).

Paratype: ZSM Moll 20040187, 1 dry specimen; **locality:** Angola: off Luanda, 50-60 m; **leg.:** 10.03.1989.

okamurai Saito, 2001
(pl. 1, fig. F, pl. 6, fig. C)

Saito, H. 2001. Chitons (Mollusca: Polyplacophora) collected by the R/V Kotaka-Maru from Tosa Bay, Western Japan, with descriptions of two new species. In: Fujita, T. et al. (eds) Deep-sea Fauna and Pollutants in Tosa Bay. – Nat. Sci. Mus. Monogr. 20: 101-119 (: 107; figs 3-4, pl. 1, figs 2-3).

Paratype: ZSM Moll 20013039, 1 wet specimen (ex coll NSMT Mo 72745 [pro NSMT Mo 72425 on the original label that is considered to be due to misspelling]); **locality:** Japan: Shikoku Island: Tosa Bay (33°10.80 N, 133°38.10 E – 33°10.4 N, 133°36.9 E), 408-413 m; **leg.:** R/V Kotaka-Maru, 29.06.1998.

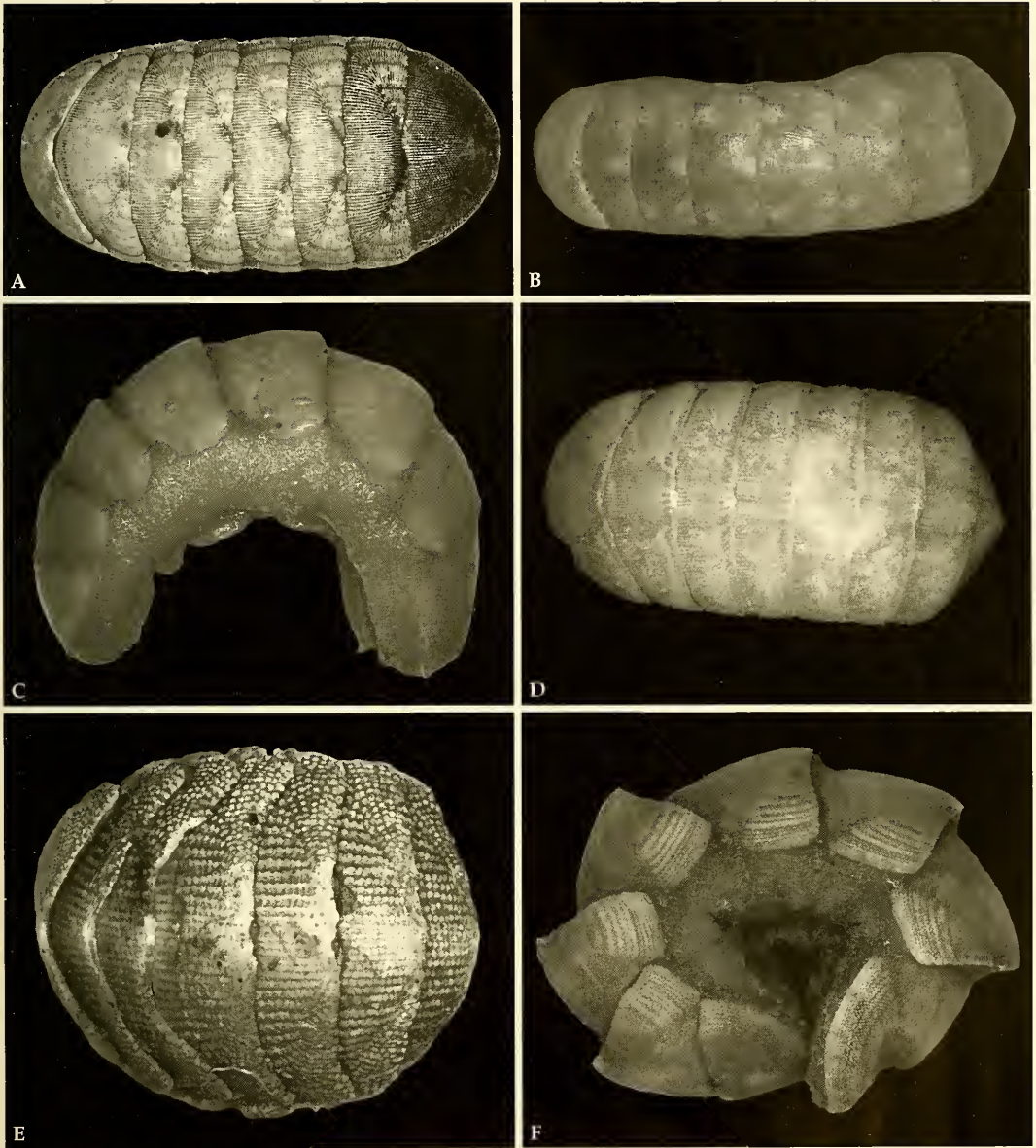


Plate 1. A. *Parachiton hylkiae* (Strack, 1993) ssp. *mauricejayi* Schwabe, 2002, holotype ZSM Moll 20013697 (9.4 × 4.5 mm). B. *Parachiton politus* Saito, 1996, paratype ZSM Moll 20013036 (9.6 × 3.1 mm). C. *Parachiton communis* Saito, 1996, paratype ZSM Moll 20013038 (max. left/right-width 9.8 mm). D. *Parachiton eos* Saito, 1996, paratype ZSM Moll 20013037 (5.4 × 2.6 mm). E. *Leptochiton denhartogi* Strack, 2003, paratype ZSM Moll 20040187 (2.5 × 2.1 mm). F. *Leptochiton okamurai* Saito, 2001, paratype ZSM Moll 20013039 (max. left/right-width 11 mm).

permodestus Kaas, 1985
(pl. 2, fig. A, pl. 6, fig. L)

Kaas, P. 1985. Notes on Loricata (Mollusca) 11-14.
- Zool. Med., Leiden 59(25): 299-320 (: 303; figs 14-25).

Paratype: ZSM Moll 20034118, 1 wet specimen (ex coll NM Moll. C7157/3304); **locality:** Africa: Transkei: off Stony Point (32°37.5 S, 28°45.8 E), 390-400 m, muddy sand, small stones; **leg.:** Meiring Naudé, 12.07.1984.

Parachiton Thiele, 1909

Callochitonidae Plate, 1901

communis Saito, 1996
(pl. 1, fig. C, pl. 6, fig. D)

Saito, H. 1996. Seven new species of the genus *Parachiton* (Polyplacophora: Leptochitonidae) from the northwest Pacific. – *Venus* 55(3): 161-187 (: 168; pl. 1, figs 8-9, pl. 7).

Paratype: ZSM Moll 20013038, 1 wet specimen (ex coll NSMT Mo 70483); **locality:** Japan: Okinawa Islands: Akashima Island: Aka; **leg.:** Tsuchiya, Kotaro, 29.09.1989.

eos Saito, 1996
(pl. 1, fig. D, pl. 6, fig. A)

Saito, H. 1996. Seven new species of the genus *Parachiton* (Polyplacophora: Leptochitonidae) from the northwest Pacific. – *Venus* 55(3): 161-187 (: 164; fig. 2, pl. 1, figs 2-4, pl. 3).

Paratype: ZSM Moll 20013037, 1 wet specimen (ex coll NSMT Mo 70499); **locality:** Japan: Ogasawara Islands: Chichijima Island: Miyanoama, 0.5 m, underside of stone on sand; **leg.:** Saito, Hiroshi, 03.07.1989.

mauricejayi Schwabe, 2002, *hylkiae* (Strack, 1993) ssp. (pl. 1, fig. A, pl. 6, fig. G)

Schwabe, E. 2002. A new subspecies of the genus *Parachiton* Thiele, 1909 from the Indian Ocean. – *Of Sea and Shore* 24(4): 220-223 (: 220; figs 1-12; text fig. B).

Holotype: ZSM Moll 20013697, 1 dry specimen. – **Paratypes:** ZSM Moll 20034093, 5 dry specimens (ex coll ES 111); ZSM Moll 20013698, 3 dry specimens; one additional paratype specimen (pd) (: 222, figs 1-11) on SEM-stub and not yet cataloged; **locality:** Mascarene Islands: Réunion Island: St. Gilles les Bains, lagoon of Grand-Fond, under rocks in shallow water; **leg.:** Jay, Maurice.

politus Saito, 1996
(pl. 1, fig. B, pl. 6, fig. B)

Saito, H. 1996. Seven new species of the genus *Parachiton* (Polyplacophora: Leptochitonidae) from the northwest Pacific. – *Venus* 55(3): 161-187 (: 169; fig. 7, pl. 1, figs 10-11, pl. 8).

Paratype: ZSM Moll 20013036, 1 wet specimen (ex coll NSMT Mo 70491); **locality:** Japan: Ryukyu Islands: Amami-Oshima Island: Yo, on reef; **leg.:** Saito, Hiroshi, 23.03.1988.

Callochiton Gray, 1847

bayeri Schwabe, 1998
(pl. 2, fig. C, pl. 6, fig. N)

Schwabe, E. 1998. Description of a new species of the genus *Callochiton* Gray, 1847 from the south-west Pacific (Mollusca: Polyplacophora). – *Club Conchylia Informationen* 30(4-6): 33-38 (: 33, 1 textfig., figs 1-8).

Holotype: ZSM Moll 19981715, 1 dry specimen; **locality:** Samoa Islands: Savaii Island: Vaisala, Vaisala lagoon (100 m in front of “Vaisala Hotel”), 1.0 m, on reef; **leg.:** Bayer, Helmut, 06.1996.

levatus Kaas & Van Belle, 1998
(pl. 2, fig. B, pl. 6, fig. F)

Kaas, P. & Van Belle, R. A. 1998. Catalogue of living chitons (Mollusca, Polyplacophora), second revised edition. 204 pp, (Backhuyes Publishers, Leiden) (: 109).

Kaas and Van Belle just give a new name for the material they wrongly refer to *Callochiton vaminii* Ferreira, 1983 (see Kaas & Van Belle 1985 [: 44; fig. 18, map 7, partly]). The lectotype designation was made in Schwabe 2003 (: 24).

Paralectotypes: ZSM Moll 20012564, 1 (pd) wet specimen (ex coll MNHN); ZSM Moll 20012563, 2 wet specimens (ex coll MNHN); **locality:** Madagascar: reef of Tuléar; **leg.:** Peyrot-Clausade, M., 1968; ZSM Moll 20012562 (ex coll MNHN); **locality:** Indian Ocean: W. Blanc du Leven (12°32'S, 47°40'02"E); 35-150 m; **leg.:** Benthedi, 1977.

schilfi Schwabe & Ruthensteiner, 2001
(pl. 2, fig. D)

Schwabe, E. & Ruthensteiner, B. 2001. *Callochiton schilfi* (Mollusca: Polyplacophora: Ischnochitonidae) a new species from Indonesian waters. – *Vita Marina* 47(4): 175-184 (: 176, figs 1-5, tab. 1).

Holotype: ZSM Moll 20008012, 1 wet specimen. – **Paratype:** ZSM Moll 20008011, 1 dry specimen (disarticulated); **locality:** Indonesia: Bali Island: Kuta Bay (halfway between Kuta and the Ngurah Rai Airport) (8°44 S, 115°09 E), 2-3 m, on pieces of dead corals encrusted by red algae; **leg.:** Schwabe, Enrico, 07.1999.

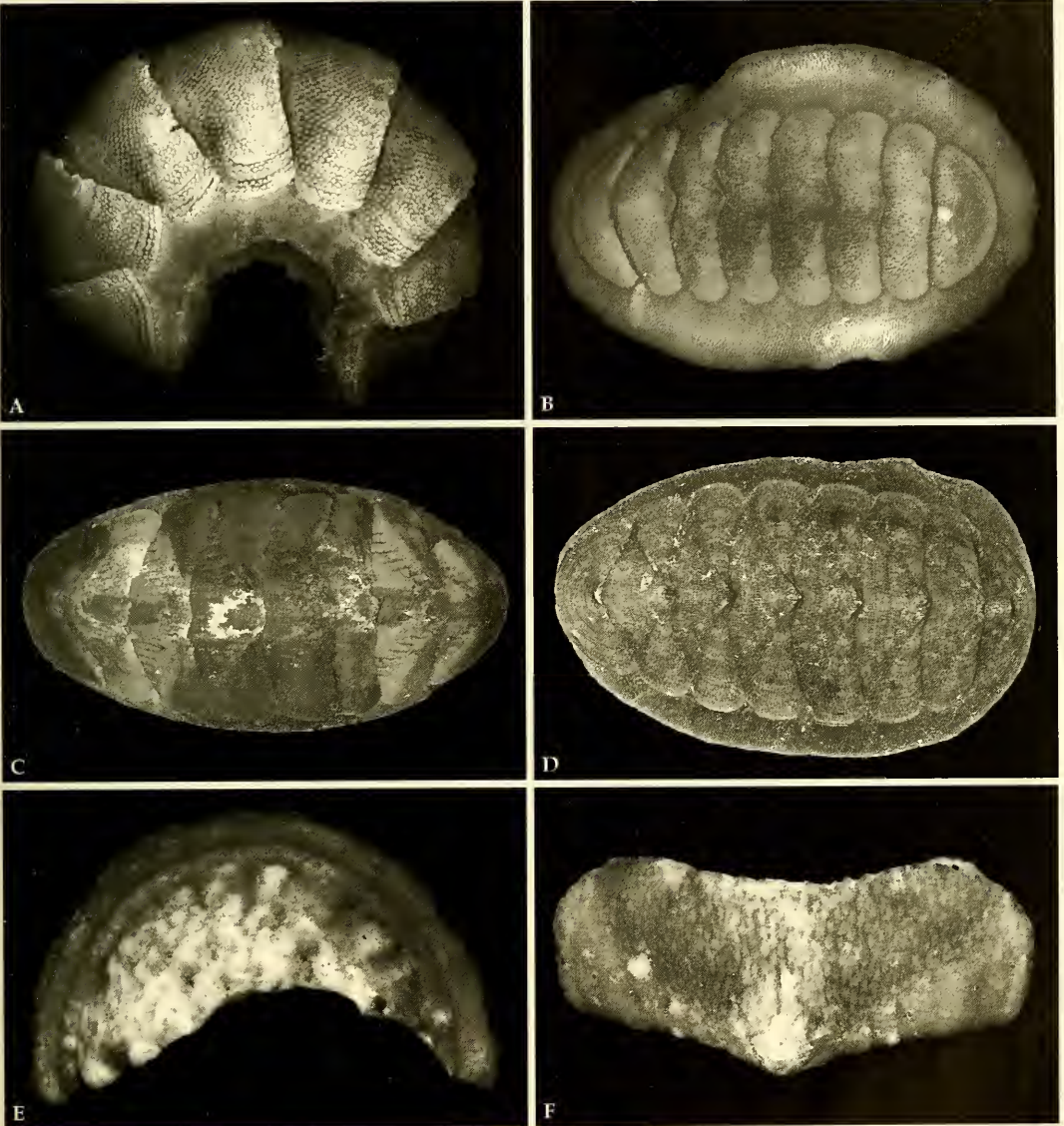


Plate 2. A. *Leptochiton permodestus* Kaas, 1985, paratype ZSM Moll 20034118 (max. left/right-width 5 mm). B. *Callochiton levatus* Kaas & Van Belle, 1998, paralectotype ZSM Moll 20012563 (5.6 × 3.5 mm). C. *Callochiton bayeri* Schwabe, 1998, holotype ZSM Moll 19981715 (13.7 × 7.2 mm). D. *Callochiton schilfi* Schwabe & Ruthensteiner, 2001, holotype ZSM Moll 20008012 (8 × 4.7 mm). E. *Rapanuia disalvoi* Dell'Angelo, Raines & Bonfitto, 2004, paratype ZSM Moll 20021636, head valve in dorsal view (max. width 1.7 mm). F. *Rapanuia disalvoi* Dell'Angelo, Raines & Bonfitto, 2004, paratype ZSM Moll 20021636, intermediate valve in dorsal view (max. width 1.8 mm).

Ischnochitonidae Dall, 1889

***Rapanuia* Dell'Angelo, Raines & Bonfitto, 2004**

disalvoi Dell'Angelo, Raines & Bonfitto, 2004
(pl. 2, figs E-F, pl. 3, fig. A)

Dell'Angelo, B., Raines, B. & Bonfitto, A. 2004. The Polyplacophora of Easter Island. – *The Veliger* 47(2): 130-140 (: 135; figs 4-6).

Paratype: ZSM Moll 20021636, 15 isolated valves; **locality:** Chile: Easter Island: Hanga Nui; **leg.** Raines, Bret, 2000-2001.

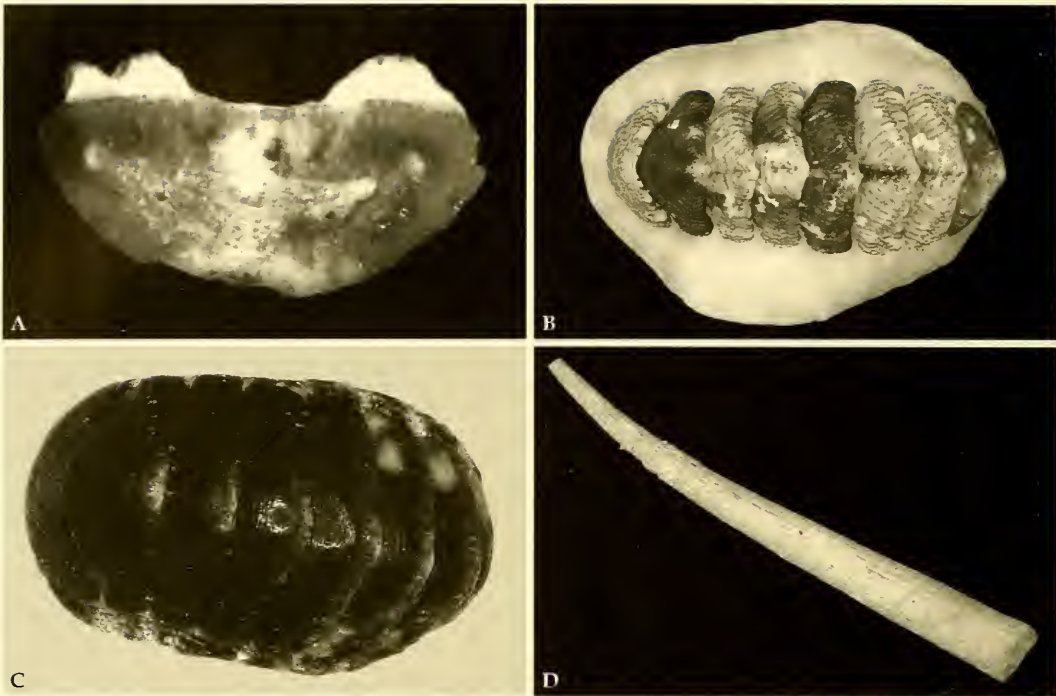


Plate 3. A. *Rapanuia disalvoi* Dell' Angelo, Raines & Bonfitto, 2004, paratype ZSM Moll 20021636, tail valve in dorsal view (max. width 1.2 mm). B. *Lucilina dilecta* Thiele, 1911, syntype ZSM Moll 20030898 (23.7 × 17 mm). C. *Lepidochitona caboverdensis* Kaas & Strack, 1986, paratype ZSM Moll 20040225, dorsal view, anterior at left side (4.4 × 2.8 mm). D. *Fissidentalium majorinum* (Mabille & de Rochebrune, 1889) var. *gaussianum* (Plate, 1908), syntype ZSM Moll 20000748 (27.2 mm).

Chitonidae Rafinesque, 1815

Lucilina Dall, 1882

dilecta Thiele, 1911
(pl. 3, fig. B)

Thiele, J. 1911. *Polyplacophora*. In: Michaelsen, W. & R. Hartmeyer (eds) Die Fauna Südwest-Australiens. Ergebnisse der Hamburger südwest-australischen Forschungsreise 1905. Bd. 3(11) (Gustav Fischer), 397-406, pl. 6 (: 397; pl. 6, figs 1-2).

Syntype: ZSM Moll 20030898 (ex coll ZMB 102.011), 1 wet specimen; **locality:** Australia: Western Australia: Sharks Bay, ca. 3 miles NW of Denham (Station 3), 3 m; **leg.:** 1905.

Tonicelliidae Simroth, 1894

Lepidochitona Gray, 1821

caboverdensis Kaas & Strack, 1986
(*Lepidochitona* [*Lepidochitona*]) (pl. 3, fig. C)

Kaas, P. & H. L. Strack 1986. Two new species of *Lepidochitona* Gray, 1821 (Polyplacophora: Ischnochitonidae) from Senegal and the Cabo Verde Archipelago. – *Basteria* 50: 79-86 (: 79, figs 1-15).

Paratype: ZSM Moll 20040225 (ex. Emilio Rolán CV 14400), 1 dry specimen; **locality:** Cape Verde Archipelago: Santa Luzia: Curral, 4 m; **leg.:** Emilio Rolán, 08.1981.

rolani Kaas & Strack, 1986
(*Lepidochitona* [*Lepidochitona*])

Kaas, P. & H. L. Strack 1986. Two new species of *Lepidochitona* Gray, 1821 (Polyplacophora: Ischnochitonidae) from Senegal and the Cabo Verde Archipelago. – *Basteria* 50: 79-86 (: 83, figs 1, 16-28).

Paratype: ZSM Moll 20040211 (ex. Emilio Rolán), 7 pieces of perinotum, 1 complete radula; **locality:** Cape Verde Archipelago: São Vicente: Praia da Matiota, 0.5-4 m; **leg.:** Emilio Rolán, 1980-1981.

This paratype was figured in Kaas & Strack 1986 (figs 17-18). The isolated valves are transferred to the Hermann Strack collection (according to the lit., loc. cit., p. 84) S 1026.



Plate 4. A. *Sepioteuthis malayana* Wülker, 1913, ♂ syntype ZSM Moll 20034181, dorsal view (mantle length 62.3 mm). B. *Sepioteuthis malayana* Wülker, 1913, ♂ syntype ZSM Moll 20034181, ventral view (mantle length from tail to the siphon bay 55.4 mm). C. *Sepioteuthis malayana* Wülker, 1913, ♀ syntype ZSM Moll 20034182, dorsal view (mantle length 139.6 mm). D. *Sepioteuthis malayana* Wülker, 1913, ♀ syntype ZSM Moll 20034182, lateral view (mantle length from tail to the siphon bay 122.4 mm). E. *Sepioteuthis malayana* Wülker, 1913, ♀ syntype ZSM Moll 20034182, ventral view (mantle length from tail to the siphon bay 122.4 mm). F. *Sepia (Doratosepion) appelloefi* Wülker, 1910, ♀ holotype ZSM Moll 20034183, dorsal view (mantle length 66.3 mm).

Scaphopoda Bronn, 1862

Dentaliidae Gray, 1834

Dentalium Linnaeus, 1758

gaussianum (Plate, 1908) *majorinum* (Mabille & de Rochebrune, 1889) var. (*Dentalium*) (pl. 3, fig. D, pl. 6, fig. E)

Plate, L. 1908. Die Scaphopoden der deutschen Südpolar-Expedition 1901-1903. – Deutsche Südpolar-Expedition 1901-1903 10 (Zoologie II): 1-6 (: 5, figs 1-4).

Paralectotypes: ZSM Moll 20000748, 2 dry specimens ZSM Moll 20041153, 2 wet specimens; **locality:** Antarctica: Gauss-Winterstation, 350-385 m; **leg.:** Gauss Deutsche Südpolar-Expedition 1902; ZSM Moll 20050325, 2 wet specimens; **locality:** Antarctica: Gauss-Winterstation; **leg.:** R/V “Gauss”, Deutsche Südpolar-Expedition 03.01.1903.

The lectotype designation was in Kiliyas 1995 (: 175). According to Steiner & Kabat 2004 (: 593) the species is a junior synonym of *Dentalium majorinum* Mabille & de Rochebrune in De Rochebrune & Mabille, 1889.

Cephalopoda Cuvier, 1797

Sepiidae Leach, 1817

***Sepia* Linnaeus, 1758**

Sepia (Doratosepion) de Rochebrune, 1884

appeloeffi Wülker, 1910 (*Sepia appelöfi*)
(pl. 3, fig. F, pl. 4, fig. A, pl. 6, fig. M)

Wülker, G. 1910. Über Japanische Cephalopoden. Beiträge zur Kenntnis der Systematik und Anatomie der Dibranchiaten. In: Doflein, F. (ed.) Beiträge zur Naturgeschichte Ostasiens. – Abh. math.-physik. Kl. Kön. Bayer. Akad. Wiss. 3, Suppl. Bd. 1. Abh.: 1-71, pls 1-5 (: 14; figs 8, 15-18).

Holotype: ZSM Moll 20034183 (ex Doflein 222), 1♀ wet specimen; **locality:** Japan: near Misaki; **leg.:** Doflein, 01.-12.11.1904.

misakiensis Wülker, 1910 (*Sepia*)

(pl. 4, figs B-D)

Wülker, G. 1910. Über Japanische Cephalopoden. Beiträge zur Kenntnis der Systematik und Anatomie der Dibranchiaten. In: Doflein, F. (ed.) Beiträge zur Naturgeschichte Ostasiens. – Abh. math.-physik. Kl. Kön. Bayer. Akad. Wiss. 3, Suppl. Bd. 1. Abh.: 1-71, pls 1-5 (: 15; figs 5-6, 19-22).

Syntype: ZSM Moll 200401881, 1♂ wet specimen; **locality:** Japan: near Misaki; **leg.:** Doflein, 1904-1905.

Wülker described two specimens of the new species. Two facts led us to regard the specimen illustrated in this catalogue as one of the two syntypes: (1) The specimen is part of the Doflein collection, that was studied by Wülker. (2) Our specimen has the same size as the sepioid illustrated in fig. 19 in the original citation.

According to Khromov et al. 1998 (: 127) the species could be a junior synonym of *S. tokioensis* Ortmann, 1888.

Sepiolidae Leach, 1817

***Rossia* Owen, 1834**

habereri Wülker MS

(pl. 4, figs E-F, pl. 6, figs H-I)

The ZSM collection contains two samples (ZSM Moll 20034184 [2♀ specimens] and ZSM Moll 20034185 [5♀ specimens]), that are labeled as “Typusexemplare” (= type specimens) and “Cotypen” (= cotypes) respectively. Since we failed in finding any literature referring to this species, it appears that it had never been formally described, the true type status of our material remains unclear.

Loliginidae Lesueur, 1821

***Sepioteuthis* de Blainville, 1824**

malayana Wülker, 1913

(pl. 3, figs A-E, pl. 6, figs J-K)

Wülker, G. 1913. Cephalopoden der Aru- und Kei-Inseln. 451-488, pl. 22. In: Merton, H. (ed.) Ergebnisse einer zoologischen Forschungsreise in den südöstlichen Molukken. Bd. 2. – Abh. Senck. Naturf. Ges. 34 (1911-1913) (: 478; textfig. 7a-f).

Syntypes: ZSM Moll 20034182 (ex Museum Bremen), 1♀ wet specimen (pl. 3, figs C-E); **locality:** Indonesia: Sulawesi Island (= Celebes); **leg.:** Schausinsland; ZSM Moll 20034181 (ex ZMH), 1♂ wet specimen (pl. 3, figs A-B); **locality:** Indonesia: Sunda Islands, NW – Sumatra Island: Sabang Island (= Pulau We[h]); **leg.:** Schwinghammer, 1911.

Comments on additional types that were mentioned to be housed at ZSM

Beside the above cited Cephalopoda types described by Wülker (1910), the ZSM should also hold the following types:

Sepiidae Leach, 1817

***Sepia* Linnaeus, 1758**

Sepia (Doratosepion) de Rochebrune, 1884

lorigera Wülker, 1910 (*Sepia*)

Wülker, G. 1910. Über Japanische Cephalopoden. Beiträge zur Kenntnis der Systematik und Anatomie der Dibranchiaten. In: Doflein, F. (ed.) Beiträge zur Naturgeschichte Ostasiens. – Abh. math.-phys. Kl. Kön. Bayer. Akad. Wiss. 3, Suppl. Bd. 1. Abh.: 1-71, pls 1-5 (: 12; figs 3-4, 11-14).

Wülker based his description of *Sepia lorigera* on 3 specimens (without a type designation) obtained from the Doflein collection (1904-1905) with Misaki (Japan) as type locality. Khromov et al. 1998 (: 104) reported that the “holotype” of *Sepia lorigera* is deposited at the ZSM, but we were unable to locate it. Instead, we found two specimens of *S. lorigera* determined by Wülker from the Habereri collection (1 complete ♂ specimen, 1 partly dissected juvenil specimen), from Sagami Bay, Japan. Our specimens do neither correspond to the measurements and illustrations nor to the collecting data provided originally by Wülker.

We conclude that our specimens are not part of the type material. In case that the type material is truly



Plate 5. A. *Sepia (Doratosepion) appelloefi* Wülker, 1910, ♀ holotype ZSM Moll 20034183, ventral view (mantle length from tail to the siphon bay 51.8 mm). B. *Sepia (Doratosepion) misakiensis* Wülker, 1910, ♂ syntype ZSM Moll 20040188, sepion, ventral view (60.1 mm). C. *Sepia (Doratosepion) misakiensis* Wülker, 1910, ♂ syntype ZSM Moll 20040188, dorsal view (mantle length 64.2 mm). D. *Sepia (Doratosepion) misakiensis* Wülker, 1910, ♂ syntype ZSM Moll 20040188, ventral view (mantle length from tail to the siphon bay 58 mm). E. *Rossia habereri* Wülker MS, ♀ ZSM Moll 20034185, dorsal view (mantle length 38.6 mm). F. *Rossia habereri* Wülker MS, ♀ ZSM Moll 20034185, ventral view (mantle length 38.4 mm).

lost, it is worth considering to designate one of the specimens of our lots as neotype within a taxonomic revision of this group.

**Octopodidae d'Orbigny in Férussac
& D'Orbigny, 1840**

***Enteroctopus* de Rochebrune & Mabile, 1889**

***dofleini* (Wülker, 1910) (*Polypus*)**

Wülker, G. 1910. Über Japanische Cephalopoden. Beiträge zur Kenntnis der Systematik und Anatomie der Dibranchiaten. In: Doflein, F. (ed.) Beiträge zur Naturgeschichte Ostasiens. – Abh. math.-phys. Kl.-Kön. Bayer. Akad. Wiss. 3, Suppl. Bd. 1. Abh.: 1-71, pls 1-5 (: 7; figs 1-2, 10).

Gleadall (1993, p. 148) pointed out that the type is no longer extant. Hochberg (1998), who placed this species into the current genus, stated (: 206) that the holotype is deposited at the University of Munich. The collection of the University is now housed at the ZSM, however, the type has not been found.

Alphabetical part: authors

Bonfitto, Antonio

disalvoii, *Rapanuia* (PT) (with Dell' Angelo, Bruno & Raines, Bret)

Dell' Angelo, Bruno

disalvoii, *Rapanuia* (PT) (with Raines, Bret & Bonfitto, Antonio)

Kaas, Piet

caboverdensis, *Lepidochitona* (PT) (with Strack, Hermann L.)

levatus, *Callochiton* (PLT) (with Van Belle, Richard A.)

permodestus, *Leptochiton* (PT)

rolani, *Lepidochitona* (PT) (with Strack, Hermann L.)

Plate, Ludwig H.

gaussianum, *Dentalium majorinum* var Plate, 1908 (PLT)

Raines, Bret

disalvoii, *Rapanuia* (PT) (with Dell' Angelo, Bruno & Bonfitto, Antonio)

Ruthensteiner, Bernhard

schilfi, *Callochiton* (HT, PT) (with Schwabe, Enrico)

Saito, Hiroshi

communis, *Parachiton* (PT)

eos, *Parachiton* (PT)

okamurai, *Leptochiton* (PT)

politus, *Parachiton* (PT)

Schwabe, Enrico

bayeri, *Callochiton* (HT)

mauricejayi, *Parachiton hylkiae* ssp. (HT, PT)

schilfi, *Callochiton* (HT, PT) (with Ruthensteiner, Bernhard)

Strack, Hermann Leberecht

caboverdensis, *Lepidochitona* (PT) (with Kaas, Piet)

denhartogi, *Leptochiton* (PT)

rolani, *Lepidochitona* (PT) (with Kaas, Piet)

Thiele, Johannes

dilecta, *Lucilina* (ST)

Van Belle, Richard André

levatus, *Callochiton* (PLT) (with Kaas, Piet)

Wülker, Gerhard

appelloefi [appellöfi], *Sepia* (HT)

habereri, *Rossia* [? MS name]

malayana, *Sepioteuthis* (ST)

misakiensis, *Sepia* (? ST)

Plate 6. Labels belonging to the samples. **A-D.** Labels in Saito's handwriting. **A.** *Parachiton eos* Saito, 1996, paratype ZSM Moll 20013037. **B.** *Parachiton politus* Saito, 1996, paratype ZSM Moll 20013036. **C.** *Leptochiton okamurai* Saito, 2001, paratype ZSM Moll 20013039. **D.** *Parachiton communis* Saito, 1996, paratype ZSM Moll 20013038. **E.** *Fissidentalium majorinum* (Mabile & de Rochebrune, 1889) var. *gaussianum* (Plate, 1908), syntype ZSM Moll 20000748. Probably the lower right label shows Plate's handwriting. **F.** *Callochiton levatus* Kaas & Van Belle, 1998, paralectotype ZSM Moll 20012562, the lower part of this label shows the handwritten label of Kaas, the upper handwriting is of Hermann L. Strack. **G.** *Parachiton hylkiae* (Strack, 1993) ssp. *mauricejayi* Schwabe, 2002, paratype ZSM Moll 20034093, in Jay's handwriting, showing the former misinterpretation of this species. **H.** *Rossia habereri* Wülker MS, ZSM Moll 20034184. **I.** *Rossia habereri* Wülker MS, ZSM Moll 20034185. **J.** *Sepioteuthis malayana* Wülker, 1913, syntype ZSM Moll 20034181. **K.** *Sepioteuthis malayana* Wülker, 1913, syntype ZSM Moll 20034182. **L.** *Leptochiton permodestus* Kaas, 1985, paratype ZSM Moll 20034118, in Richard Kilburn's handwriting. **M.** *Sepia (Doratosepion) appelloefi* Wülker, 1910, holotype ZSM Moll 20034183. **N.** *Callochiton bayeri* Schwabe, 1998, holotype ZSM Moll 19981715, in Schwabe's handwriting.

ex NSMT- Mo 70499 Paratype
 Sp. *Parachiton eos* Saito, 1996
 Loc. Miyanoama, Chichijima Id.
 Date. 3 July 1989
 Coll. by. H. Saito
 National Science Museum, Tokyo

A

ex NSMT- Mo 70491 Paratype
 Sp. *Parachiton politus* Saito, 1996
 Loc. Yo, Amami-Oshima Id. neeb.
 Date. 23 Mar. 1988
 Coll. by. H. Saito
 National Science Museum, Tokyo

B

ex NSMT- Mo 72425 Paratype
 Sp. *Leptochiton okamurai*
 Loc. Tosa Bay, K98-6-400
 Date. 29 June 1988
 Coll. by. R/V Kotaka-Maru
 National Science Museum, Tokyo

C

ex NSMT- Mo 70483 Paratype
 Sp. *Parachiton communis* Saito, 1996
 Loc. Aka, Akashima Id., Kerama
 Date. Is. 29 Sept. 1989
 Coll. by. Kōtarō Tsuchiya
 National Science Museum, Tokyo

D

Callochiton platessa
 GOULD, 1845
 Dét.: Dr. E. LELOUP, 1980

Callochiton vanniini Ferreira, 19
 W. Banc du Leven, St. 05
 12°32 S, 42°40'2 E, 150-35m.
 Bentho (1971)
 dét. H. Strack, 1989/1985
 MHN-Paris-Malacologie

Callochiton vanniini Ferreira KAAS

F

Leptochiton novoldi
 Kaas et Van Belle,
 1985
 N° 289
 Provenance: La Réunion
 Coll. Dr. Maurice JAY

G

Zool. Staatssammlg. München, Abt. Wirbellose Tiere

Rossia habereri Mülker
 Fikihina, Sagami Bai, Typus exemplar
 Haberer 1.12.1903, ca. 150 m. 2♀

H

Zool. Staatssammlg. München, Abt. Wirbellose Tiere
Rossia habereri Mülker
 Fikihina Sagami Bai, alle 9♀
 leg. Haberer, 1.12.1903 ca. 150 m t.
 'Cotyphen.

I

Zool. Staatssammlg. München, Abt. Wirbellose Tiere

Sepioleuthe malayana Mülker &
 Sabang, Pulo Meh, N. M. Sumatra
 Cotyphen im Mus. Hamburg und
 Bremen, leg. Schwinghammer 1914.

J

Zool. Staatssammlg. München.
Sepioleuthe malayana
 cotyphen. 1♀. witten
 Nro. aus Bremen
 (det. *Percepsis noronae*)

K

ex NATAL MUSEUM MOLL. C7157/T3304
 Paratype

Leptochiton permodestus Kaas, 1985
 Franskei: off Stony Point (32°37.5'S : 28°45.8'E)
 390-400m., muddy sand, small stones.
 Dredged RV. Meiring Naudé (Stn. VII)
 12. VII. 1984

L

Zool. Staatssammlg. München, Abt. Wirbellose Tiere

Sepia appelloffi Mülker
 Bei Misaki, Japan. Typus 1 Ex. ♀
 Sammlg. Töpler 1.12.11.1904 N° 222.

M

Zool. Staatssammlg. München.
Dentalium majorinum
 von *Gaussium* Hal et Roth.
 Cotyphen. Plate det
 Gausstation Nro. 1909
 6487
 1902. 8 Bd. p. 117. 5. 1914-3.

Dentalium majorinum
 Hal et Roth.
 von *Gaussium*
 Gausstation Nro. 1909
 6487
 1902. 8 Bd. p. 117. 5.

Deutsche Südpolar-Expedition 1901-1903
 Gausstation 1902

Zool. Staatssammlg. München
Dentalium majorinum
 von *Gaussium*
 Gausstation Nro. 1909
 6487
 1902. 8 Bd. p. 117. 5.

Dentalium majorinum Hal et Roth.
 von *Gaussium*
 Gausstation Nro. 1909
 6487
 1902. 8 Bd. p. 117. 5.

E

Callochiton bayeri
 Schwabe, 1997

100 metres in front of the
 "Vaisala-Hotel", Vaisala-lagoon,
 Vaisala / Savaii - Western Samoa
 (06.1996), at night, at low
 tide on reef in 1m

13,7mm x 7,2mm

1998/715

N

Alphabetical part: species

- appeloeffi* [appellöfi], *Sepia* Wülker, 1910 (HT)
bayeri, *Callochiton* Schwabe, 1998 (HT)
caboverdensis, *Lepidochitona* Kaas & Strack, 1986 (PT)
commuis, *Parachiton* Saito, 1996 (PT)
denhartogi, *Leptochiton* Strack, 2003 (PT)
dilecta, *Lucilina* Thiele, 1911 (ST)
disalvoi, *Rapanuia* Dell'Angelo, Raines & Bonfitto, 2004 (PT)
eos, *Parachiton* Saito, 1996 (PT)
gaussianum, *Dentalium majorinum* var Plate, 1908 (ST)
habererii, *Rossia* Wülker [? MS name]
levatus, *Callochiton* Kaas & Van Belle, 1998 (PLT)
malayana, *Sepioteuthis* Wülker, 1913 (ST)
mauricejayi, *Parachiton hylkiae* ssp. Schwabe, 2002 (HT, PT)
uisakiensis, *Sepia* Wülker, 1910 (? ST)
okamurai, *Leptochiton* Saito, 2001 (PT)
permodestus, *Leptochiton* Kaas, 1985 (PT)
politus, *Parachiton* Saito, 1996 (PT)
rolani, *Lepidochitona* Kaas & Strack, 1986 (PT)
schilfi, *Callochiton* Schwabe & Ruthensteiner, 2001 (HT, PT)

Acknowledgements

Our warmest thanks go to the recent donators – namely Dr. Philippe Bouchet (MNHN), Dr. Bruno Dell'Angelo (Prato, Italy), Dr. Matthias Glaubrecht (ZMB), Dr. Richard Kilburn (NM), Dr. Emilio Rolán (Vigo, Spain), Dr. Hiroshi Saito (NSMT), Hermann Strack (Dordrecht, The Netherlands) for depositing material in our institution. Dr. Maurice Jay (Saint Gilles les Baines, France) is thanked for offering material for study.

Dr. Michael Sweeney (Las Cruces, New Mexico, United States of America) kindly provided valuable information about the cephalopods, our special thanks to him. Mark Ritzerfeld (Emmering, Germany) kindly helped entering the data.

This study is part of the German GBIF-project "MOTYMHACIS, Evertebrata II" of the BMBF.

References

- Fechter, R. 1983. Das Typenmaterial der von J. B. v. Spix in Brasilien gesammelten Unionacea (Mollusca/Bivalvia). – Spixiana Suppl. 9: 225-255
- Glaubrecht, M., Hausdorf, B., Janssen, R., Knebelberger, T., Köhler, F., Neubert, E., Schrödl, M. & V. Wiese 2003. MOTYGER – Molluscan Types in GERman research collections. Umbrella project: GBIF-Germany, Evertebrata II (Mollusca, Chelicerata, Myriapoda). p. 301 (Abstract). – In: Sustainable use and conservation of biological diversity. A challenge for society. Symposium Report Part A. i-x, 1-464 (International Symposium 1-4 December 2003, Berlin)
- Gleadall, I. G. 1993. Identification of the long-ligula octopuses of Japan: a status report. pp. 145-158 In: Okutani, T., O'Dor, R. K. & T. Kubodera (eds): Recent advances in Fisheries Biology. – Tokai University Press, Tokyo
- Haszprunar, G. & R. Melzer 2003. GBIF-Germany, Evertebrata II (Mollusca, Chelicerata, Myriapoda) – a coordinated type programme. p. 298 (Abstract). – In: Sustainable use and conservation of biological diversity. A challenge for society. Symposium Report Part A. i-x, 1-464 (International Symposium 1-4 December 2003, Berlin)
- Hochberg, F. G. 1998. Class Cephalopoda. pp. 175-236. In: Valentich Scott, P. & Blake, J. A. (eds) Taxonomic atlas of the benthic fauna of the Santa Maria Basin and western Santa Barbara Channel. Volume 8. The Mollusca part 1. The Aplacophora, Polyplacophora, Bivalvia and Cephalopoda. i-viii, 250 pp. – Santa Barbara Mus. Nat. Hist., Santa Barbara
- Kaas, P. & R. A. Van Belle 1985. Monograph of living chitons. (Mollusca: Polyplacophora) 2, Suborder Ischnochitonina, Ischnochitonidae: Schizoplacinae, Callochitoninae & Lepidochitoninae. 198 pp. – E. J. Brill/W. Backhuys, Leiden
- Khromov, D. N., Lu, C. C., Guerra, A. Dong, Zh. & S. v. Boletzky 1998. A synopsis of Sepiidae outside Australian waters (Cephalopoda: Sepioidea). 77-139. In: Voss, N. A., Vecchione, M., Toll, R. B. & M. Sweeney (eds): Systematics and Biogeography of Cephalopods. Vol. I. – Smithsonian. Contr. Zool. 586: 1-x, 276 pp.
- Kilius, R. 1995. Scaphopoda-Typen und -Typoide (Mollusca) im Zoologischen Museum in Berlin. – Mitt. Zool. Mus. Berlin 71(1): 171-177
- Schwabe, E. 2003. Taxonomic notes on chitons. 3. Notes on the genus *Callochiton* Gray, 1847 (Mollusca: Polyplacophora: Callochitonidae) from the Indian ocean. – Malakol. Abh. 21: 19-27
- Steiner, G. & A. R. Kabat 2004. Catalog of species-group names of recent and fossil Scaphopoda (Mollusca). – Zootaxa. 26(4): 549-726

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Spixiana, Zeitschrift für Zoologie](#)

Jahr/Year: 2005

Band/Volume: [028](#)

Autor(en)/Author(s): Knebelsberger Thomas, Schwabe Enrico, Schrödl Michael

Artikel/Article: [Molluscan types of the Bavarian state collection of Zoology Munich \(ZSM\) Part 1. Polyplacophora, Scaphopoda, Cephalopoda 97-108](#)