

# The African and Madagascan freshwater crabs in the Museum of Natural History, Vienna (Crustacea: Decapoda: Brachyura: Potamoidea)

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## Abstract

The entire collection of African and Madagascan freshwater crabs in the Museum of Natural History, Vienna has been re-evaluated. A great deal of incorrectly determined and unidentified material has now been identified, and the nomenclature of correctly identified specimens has been updated to conform to modern usage. The collection has been shown to include 16 species of *Potamonautes*, 6 species of *Sudanonautes*, 2 species each of *Platythelphusa*, *Hydrothelphusa*, and *Deckenia*, and 1 species each of *Potamonemus*, *Louisea*, *Liberonautes*, *Gecarcinautes* and *Potamon*. Notable additions brought to light include the little known species *Louisea edeaensis*, *Potamonemus sachsii*, *Platythelphusa conculata*, *Potamonautes pilosus*, *P. neumanni*, *P. triangulus* and *P. walderi*.

**Key words:** Crustacea, Brachyura, Potamonautidae, taxonomy, freshwater crab, Africa, Madagascar, Vienna.

## Zusammenfassung

Der Bestand der Süßwasserkrabben aus Afrika und Madagaskar in der Sammlung des Naturhistorischen Museums in Wien wurde untersucht. Unbestimmtes Material wurde determiniert; die meisten Bestimmungen waren zu korrigieren bzw. die Namen dem jetzigen Stand der Taxonomie dieser Gruppe anzupassen. In der Sammlung befinden sich 16 Arten der Gattung *Potamonautes*, 6 Arten der Gattung *Sudanonautes*, je zwei Arten der Gattungen *Platythelphusa*, *Deckenia* und *Hydrothelphusa*, sowie je eine Art der Gattungen *Potamonemus*, *Louisea*, *Liberonautes*, *Gecarcinautes*, und *Potamon*. Bemerkenswert ist das Vorhandensein einiger nur von wenigen Exemplaren bekannte Arten, wie *Louisea edeaensis*, *Potamonemus sachsii*, *Platythelphusa conculata*, *Potamonautes pilosus*, *P. neumanni*, *P. triangulus* und *P. walderi*.

## Introduction

The Naturhistorisches Museum, Wien (NHMW) holds important collections of freshwater crabs from Europe, Asia, Central and South America, Africa and Madagascar. The Potamidae in the NHMW from Europe and Asia have been described in a number of publications by Gerhard Pretzmann spanning more than two decades beginning in the 1960s, as have the Pseudothelphusidae and Trichodactylidae from Central and South America (PRETZMANN 1972, 1983a, b, c). However, the freshwater crabs from Africa and Madagascar in the collection of the NHMW are not well documented, and only a few species have been the subject of studies (PRETZMANN 1961, 1962, 1977; NG & al. 1995).

The present work represents an attempt to identify and catalogue all of the African and Madagascan freshwater crab material in the NHMW according to the most recent taxo-

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nomic conventions for the group. The nomenclature of specimens found to have been identified correctly to species has been updated to conform to modern usage. Other material in the collection which had formerly been incorrectly determined, or which had never been identified, has now been identified to species. Much of the material dealt with here was either completely uncatalogued, or had only the museum's acquisition number. All of the specimens included in this work have now been assigned an inventory number, so that this resource will be readily available to future workers.

The collection in the NHMW includes freshwater crabs from West and Central Africa collected by Haberer in the early 1900s, and several lots from the Republic of the Congo (Brazzaville and the surrounding region), collected by Dr. Alain Crosnier of ORSTOM in the early 1960s. The NHMW also houses material from East Africa collected by Rudolf Grauer in the early 1900s, and material from Somalia donated by Dr. Marco Vannini, of the Università di Firenze, who carried out research in Africa in the early 1970s. There are also a few freshwater crabs from Madagascar collected by the Österreichische Madagaskar Expedition of 1958 led by Dr. Ferdinand Starmühlner of the Institut für Zoologie der Universität Wien.

Data on the material examined are listed in the following order: region of Africa - country, exact location (if available), number of males, number of females, state of maturity, name of collector/and or donator, date immediately followed by the acquisition number (in square parentheses) when available, and NHMW inventory number. Wherever possible, collection localities have been confirmed by reference to "Stielers Hand Atlas" (Justus Perthes' Geographischer Anstalt in Gotha, 1906).

### Abbreviations

|       |  |
|-------|--|
| NHM   | Natural History Museum, London   |
| ZMB   | Museum für Naturkunde der Humboldt-Universität, Berlin, Germany  |
| CW    | carapace width at widest point   |
| CL    | carapace length measured along median line, the distance from the midpoint of the frontal margin to the midpoint of the posterior margin |
| CH    | carapace height, maximum height of cephalothorax   |
| FW    | front width, width of front measured along its anterior margin   |
| coll. | collected by   |
| don.  | donated by   |
| juv.  | juvenile.  |

All measurements are given in mm.

### Taxonomy

All freshwater crabs from Africa were initially referred to a single family, the "Potamonidae". Over the years, the view of the group has changed, and today African freshwater crabs are assigned to 4 families - the Potamidae ORTMANN, 1896, the Deckeniidae ORTMANN, 1897, the Gecarcinucidae RATHBUN, 1904, and the Potamonautidae BOTT, 1970a. Three of these families, the Potamidae, the Deckeniidae, and the Potamonautidae, are represented in the collection of the NHMW.

The taxonomy followed in the present work for the freshwater crabs from continental Africa is that of CUMBERLIDGE (1991, 1993a,b,c, 1994a,b, 1995a,b,c,d), CUMBERLIDGE & SACHS (1989a,b), and CUMBERLIDGE & CLARK (1992). These works include a sub-

stantial number of changes to the taxonomy suggested by BOTT (1955, 1959, 1964, 1970b). Notably, all of Bott's subgeneric and most of his subspecific categories are not used, and many of his synonymies are not accepted.

The collection of the NHMW includes one species of *Potamon* SAVIGNY, 1816 (Potamidae) from Africa and two species of *Deckenia* HILGENDORF, 1869 (Deckeniiidae). The majority of specimens in the collection of the NHMW come from continental Africa and belong to the Potamonautidae. They are referred here to 6 genera: *Potamonautes* MACLEAY, 1838, *Platythelphusa* A. MILNE-EDWARDS, 1887, *Sudanonautes* BOTT, 1955, *Liberonautes* BOTT, 1955, *Potamonemus* CUMBERLIDGE & CLARK, 1992 and *Louisea* CUMBERLIDGE, 1994. In addition, the collection of the NHMW includes three species of freshwater crabs from Madagascar which are included here in two genera, *Hydrothelphusa* A. MILNE-EDWARDS, 1872 and *Gecarcinautes* BOTT, 1960. However, the taxonomy of the freshwater crabs from Madagascar is not stable, and was last reviewed by BOTT (1965). To avoid confusion, BOTT's (1965) genera have been used here, despite doubts as to their validity, but BOTT's (1965) assignments of taxa to families and subfamilies have been omitted.

### Family Potamidae ORTMANN, 1896

This family is represented in continental Africa by a single species, *Potamon fluviatilis algeriense* (BOTT, 1967). This taxon occurs only in the northwest region of Africa in the Mediterranean contries of Algeria, Tunisia, and Morocco. The NHMW collection includes specimens from the first two of these countries.

### Genus *Potamon* SAVIGNY, 1816

This genus was most recently reviewed by BOTT (1970b), whose taxonomy is followed here.

### *Potamon fluviatilis algeriense* (BOTT, 1967)

Material: **North Africa - Algeria:** Biskra, 4 specimens, A. Handlirsch coll. 1891 [1891.I.78], NHMW No. 3106; Ued el Biskra, 3 specimens, W. v. Brunner coll. 1890 [1891.I.67]; NHMW No. 3107; Fizi Ouzon, Haute Kabylie, 180m, 1 ♂, F. Werner coll. [1916.I], NHMW No. 3111; Djurdjura Gebirge, 2 ♂♂, F. Werner coll. August 1910 [1915.III], NHMW No. 3113; Djurdjura Gebirge, 3 ♂♂, F. Werner coll. August 1910 [1915.III], NHMW No. 3114. - **Tunisia:** Tunis, Oued Tirra 5 km E Ain Sobah, 4 specimens, A. Malicky coll. 1982, NHWM No. 4775; zwischen Grafea und Metlacui, 230m, 34.20N, 08.49E, Oued Magroun, 2 ♂♂, E. Hüttinger coll. 23.V.1982 [1990.XI.1], NHWM No. 13388; 15 km N Beja, Oued Sersar, 170m, 36.45N 09.13E, E. Hüttinger coll. 3.VI.1982 [1990.XI.1], 1 ♂, 1 ♀, NHWM No. 13414; W Ain Seban, 36.55N 08.50E, E. Hüttinger coll. 19.V.1982 [1990.XI.1], 1 ♀, NHWM No. 13415; 11 km W Neftza, 90m, 36.55N 08.55E, E. Hüttinger coll. 3.VI.1982 [1990.XI.1], 1 ♂, NHWM No. 13416.

Remarks: The synonymy is provided by BOTT (1970b). The mandibular palp of these specimens consists of three distinct segments, which warrants their inclusion in the Potamidae, rather than in the Potamonautidae. With the exception of *Platythelphusa* from Lake Tanganyika, all other freshwater crabs from continental Africa and from Madagascar have a mandibular palp with only two distinct segments.

### Family Deckeniidae ORTMANN, 1897

This East African family comprises 1 genus with 2 species. Both species are represented in the collection of the NHMW.

#### Genus *Deckenia* HILGENDORF, 1869

This genus was recently reviewed by NG & al. (1995) who provided detailed comparisons between the two species.

#### *Deckenia imitatrix* HILGENDORF, 1869

*Deckenia imitatrix* HILGENDORF 1869: 24, fig. 8; ORTMANN 1902: 306; BOTT 1955: 219, fig. 6, pl. 1 fig. 1a-d; PRETZMANN 1977: figs 17-20; NG & al., 1995: 583, tables 1,2.

Material: **East Africa - Somalia:** Giohar, 1 adult ♂, B. Lanza coll. July 1968, NHMW No. 4369.

Remarks: PRETZMANN (1977) provided photographs of the carapace and gonopod 1 of NHMW No. 4369 from Somalia, and supplied the exact geographical coordinates for the locality.

#### *Deckenia mitis* HILGENDORF, 1869

*Deckenia mitis* HILGENDORF 1898: 24, fig. 8; ORTMANN 1902: 306; BOTT 1955: 221, fig. 5, pl. 1 fig. 2a-d; NG & al. 1995: 583-585, figs 1B,2,3, tables 1,2.

Material: **East Africa:** Ukambasin, Sumpf, 4000m über dem Meer, 3 adult ♂♂, 6 ♀♀ (2 adults), F. Thomas coll. 17.V.1903, NHMW No. 2866 (these specimens are listed by NG & al. (1995) as NHMW No. 2886). - **Tanzania:** between Muhalala and Tabora, 1 adult ♀, L. Fischer coll. [1892.I.83], NHMW No. 2865.

Remarks: NG & al. (1995) provided illustrations of the gonopods, the mandibles and the unusual mouthparts of this East African species.

### Family Potamonautidae Bott, 1970

#### Genus *Sudanonautes* BOTT, 1955

The genus *Sudanonautes* occurs in West and Central Africa and includes 9 species (CUMBERLIDGE 1991, 1993a,b, 1994b, 1995a,b,c,d). Six species of this genus are represented in the collection, 4 from Cameroon, 1 from Nigeria, and 1 from the Republic of the Congo.

#### *Sudanonautes aubryi* (H. MILNE EDWARDS, 1853)

Material: **Central Africa - Cameroon:** Nyong, 7 juv. specimens, Haberer coll. 1907, NHMW No. 1430; 20-30 specimens, Haberer coll. [1907.XVI], NHMW No. 1878; 20-30 specimens, Haberer coll. [1907.XVI], NHMW No. 1879; 40-50 specimens, Haberer coll. [1907.XVI], NHMW No. 1880; 2 adult ♀♀ CWs 50.5, 50.1, both ovigerous, 3 juv. ♂♂, Haberer coll. 20.IX.1901, NHMW No. 13266; Bach der Lobe Syrt bei Kribi, 2 juv. ♂♂, A. Radda coll. 17.I.1971, NHMW No. 13267; west Cameroon, Kumba, 1 juv. ♀, E. Sochurek coll. March 1972, NHMW No. 13268.

Remarks: This large species is widespread and common in West and Central Africa, but for a long time had been confused with other superficially similar species found in the region. Details of the complete synonymy, identification, distribution and ecology of this species are provided in the redescription by CUMBERLIDGE (1994b). Haberer provided very little information on his specimens, other than the country and year of collection. This means that most of this material does not contribute much to knowledge of the distribution and ecology of this species.

### *Sudanonautes africanus* (A. MILNE-EDWARDS, 1869)

Material: **Central Africa - Cameroon:** 4 large specimens, Haberer coll., NHMW No. 1881; Nyong, 4 large specimens, Haberer coll., NHMW No. 1882; 5 large specimens, Haberer coll., NHMW No. 1883; Nyong, 2 large specimens, Haberer coll. [1907.XIV], NHMW No. 1884; 2 juv., Zwilling coll. 1952, NHMW No. 1886; 1 juv., Haberer coll. 20.IX.1901, NHMW No. 13269; Gebirgsbach von Bakokoje: 15 specimens, Haberer coll. [1907.XIV], NHMW No. 13270; aus dem Nyong, 8 juv., Haberer coll. [1907.XII], NHMW No. 13272; Nyong, 8 juv. CWs 13.4 - 22.5, Haberer coll. [1907.XIV], NHMW 13273; Mambanda bei Kumba, 2 juv. (CWs 12, 13), A. Radda coll. 22.I.1970, NHMW No. 13274; Kake river, Kumba: 2 juv. CWs 22, 12, A. Radda coll. 22.1.1971, NHMW No. 13275; Ekombe Bouji, 3 juv., 1 large subadult ♂ CW 58, A. Radda coll. 25.I.1971, NHMW No. 13276; Maka district, 3 specimens, all dried, Haberer coll. (with *Potamonemus sachsi*) [1907.X], NHMW No. 13417. - **Republic of the Congo:** (Brazzaville), NE de Pointe Noire (les Saras km 102), 3 juv. CWs 25 - 35, A. Crosnier coll. June 1963, NHMW No. 13277; route de Sounda, village de Tombo, 1 juv. ♀ CW 65, A. Crosnier coll. 28.VII.1963, NHMW No. 13278; (Brazzaville), NE de Pointe Noire, (les Saras km 102), 1 juv. ♀ CW 40, soft-shelled, A. Crosnier coll. 18.XI.1962, NHMW No. 13279; (Brazzaville), NE de Pointe Noire, Region de Sounda, 1 juv. CW 25, A. Crosnier coll. 28.VII.1962, NHMW No. 13280; (Brazzaville), NE de Pointe Noire (les Saras km 102), 5 juv. CWs 10 - 30, A. Crosnier coll. 14.VII.1963, NHMW No. 13281; chutes de la Bouenza, 1 large adult ♀ (CW 100) with eggs, A. Crosnier coll. December 1963, NHMW No. 13282; (Brazzaville) Meya (Kindamba), Riviere souterraine, 2 juv. ♀♀ CWs 50, 60, 1 juv. ♂, CW 45, A. Crosnier coll. 21.IV.1961, NHMW No. 13283.

**West Africa - Nigeria:** Cross River State, Yakurr local government area, 1 subadult ♂ CW 44, Idem S. Ibang don. [1996.IX.1], NHMW No. 13411.

Remarks: This large species is abundant in Central Africa and in the rain forest regions of southeast Nigeria. Like *S. aubryi*, the identification of *S. africanus* has often proved difficult due to its confusion in the literature with other similar-looking species found in the same region. Details of the complete synonymy, identification, distribution and ecology of this species are provided in the redescription by CUMBERLIDGE (1995a). The material from the Republic of the Congo collected by A. Crosnier is clearly documented, and adds a few new localities to the known distribution of this species.

### *Sudanonautes chavanesii* (A. MILNE-EDWARDS, 1886)

Material: **Central Africa - Cameroon:** 1 adult ♀ CW 66.7, 1 juv. ♂ CW 30.6, Haberer coll., NHMW No. 1887; Nyong, 1 adult ♂ CW 56, Haberer coll. 6.XI.1907, NHMW No. 1888.

Remarks: *Sudanonautes chavanesii* was recently redescribed by CUMBERLIDGE (1995b), who provided details of the complete synonymy, identification, distribution and ecology of this species. Only 14 specimens of this large Central African species were previously known, so these 3 specimens from Cameroon raise the number in museum collections to 17.

***Sudanonautes floweri* (DE MAN, 1901)**

Synonymy provided by Cumberlidge (1995d).

**Material: Central Africa - Republic of the Congo:** (Brazzaville) NE de Pointe Noire (les Saras km 102), 1 juv. ♀, A. Crosnier coll. June 1963, NHMW No. 13284; (Brazzaville) NE de Pointe Noire, Route Sounda, 1 juv. CW 25, A. Crosnier coll. 18.VI.1964, NHMW No. 13285; (Brazzaville) region de Pointe Noire, 1 adult ♀, NHMW No. 13286.

**West Africa - Nigeria:** Cross River State, Yakurr local government area, 1 adult ♀ CW 50, Idem S. Ibanga don. [1996.VIII.2], NHMW No. 13412.

**Southern Africa - Angola:** Cabinda, freshwater, 1 adult ♀, 1 juv. ♀, A. Crosnier coll. November 1962, NHMW No. 13287.

**Remarks:** *Sudanonautes floweri* is a widespread species found in savanna regions from Nigeria to Sudan, and in rain forest regions from Nigeria to Zaire. This species was recently redescribed by CUMBERLIDGE (1995d), who provided details of the complete synonymy, identification, distribution and ecology of this species. The material in the NHMW from the republic of the Congo and from Cabinda is from the southern part of the range of this species.

***Sudanonautes monodi* (BALSS, 1929)**

*Potamonautes aubryi monodi* BALSS 1929: 123, fig. 4 (Laro).

*Potamon monodi* CHACE, 1942: 217; CAPART 1954, 823, figs 9, 29.

*Sudanonautes (Convexonautes) aubryi monodi* BOTT 1955: 306, fig. 101; MONOD 1977: 1281, figs 108-109; MONOD 1980: 385.

**Material: Central Africa - Cameroon:** Poli bei Garoua, 2 adult ♂ CWs 46.6, 42.4, 2 adult ♀♀ CWs 44.2, 43.9, A. Weidholz coll. 1936 [1937.IV.1], NHMW No. 1429; Poli bei Garoua, 1 adult ♀, A. Weidholz coll. 1936, [1937.IV.1], NHMW No. 13288.

**Remarks:** *Sudanonautes monodi* is restricted to the drier parts of the savanna from Togo to Chad. These specimens from Garoua in northern Cameroon are close to the type locality (Maroua near Garoua). This species was considered by BOTT (1955) and MONOD (1977, 1980) to be a subspecies of *S. aubryi*. CUMBERLIDGE (1994b, 1995d) recently redescribed *S. aubryi* and recognised *S. monodi* as a valid species.

***Sudanonautes granulatus* (BALSS, 1929)**

**Material: Central Africa - Nigeria:** Cross River State, Yakurr local government area, 2 adult ♀♀ CWs 33, 30, 1 adult ♂ CW 36.5, Idem S. Ibanga don. [1996.VIII.3], NHMW No. 13413.

**Remarks:** *Sudanonautes granulatus* has a disjunct distribution in West Africa, and is found in the rain forest zones of Cameroon, Nigeria and Côte d'Ivoire. This species was recently redescribed by CUMBERLIDGE (1993c).

**Genus *Louisea* CUMBERLIDGE, 1994**

*Globonautes* BOTT 1959: 995, pl. 1, figs 1-6; 1969: 359; 1970b: 23.

This is a monotypic genus.

***Louisea edeaensis* (BOTT, 1969)**

*Globonautes macropus edeaensis* BOTT 1969: 360; BOTT 1970b: 24, pl. 1, figs 3-5, pl. 26, fig. 8; CUMBERLIDGE 1987: table 1.

Material: **Central Africa - Cameroon:** Yaounde, 1 adult ♂ CW 19.3, 2 adult ♀♀ CWs 19.4, 17.5, Haberer coll. 1907, NHMW No. 1877.

Remarks: This species was described by BOTT (1969, 1970b) as *Globonautes macropus edeaensis* and was assigned to the Gecarcinucidae. CUMBERLIDGE (1994a) redescribed this taxon as *Louisea edeaensis*, and reassigned it to the Potamonautidae. Until the present study, only 3 specimens of *L. edeaensis* were known. The three specimens discovered in the NHMW double the known material for this monotypic genus. All 6 specimens of *L. edeaensis* were collected before 1910, and it is of some concern that this unusual species has not been seen for over 90 years.

**Genus *Potamonemus* CUMBERLIDGE & CLARK, 1992**

There are 3 species in this genus (CUMBERLIDGE & CLARK 1992; CUMBERLIDGE 1993b) one of which is represented in the collection of the NHMW.

***Potamonemus sachsi* CUMBERLIDGE, 1993**

Material: **Central Africa - Cameroon:** 3 adult ♂♂, 7 ♀♀ (2 adults), NHMW No. 13289; Maka District, 10 specimens, all dried, Haberer coll. 24.V.1907 (with *Sudanonautes africanus*) [1907.X], NHMW No. 13290.

**Genus *Liberonautes* BOTT, 1955**

Synonymy provided by BOTT (1955).

***Liberonautes latidactylus* (DE MAN, 1903)**

*Potamon (Potamonautes) latidactylum* DE MAN 1903: 41-47, pl. 9, fig. 1-6

*Liberonautes latidactylus* BOTT 1955: 306-308, pl. XXIX, fig. 102, 103.

*Liberonautes latidactylus latidactylus* CUMBERLIDGE & SACHS 1989a: 221-230: figs 1, 2;

CUMBERLIDGE & SACHS 1989b: 425-439: fig. 1, table 1.

Material: **West Africa - Sierra Leone:** Freetown, 1 adult, 1 juv. ♂, 1 juv. ♀ Zechmeister coll. 15.X.1903 [1903.VIII.1], NHMW No. 13381. - **Guinea:** Futa Djallon, 1 juv. ♂ CW 35, A. Klapotocz coll. [1915.XIV], NHMW No. 2128.

Remarks: *Liberonautes latidactylus* is the commonest freshwater crab in the West African region west of Ghana. These localities fall within the known range of this species.

**Genus *Potamonautes* MACLEAY, 1838**

Sixteen species of *Potamonautes* are represented in the collection of the NHMW. A number of these species had been previously identified under a different name, and the collection was found to include many more species than previously thought. The species

are arranged chronologically and by geographical regions. None of the subgenera of *Potamonautes* erected by BOTT (1955) are recognised here.

### ***Potamonautes paecilei* (A. MILNE-EDWARDS, 1886)**

*Potamon paecilei* CAPART, 1954: 841-842, figs 34, 37.

*Potamonautes (Longipotamonautes) paecilei* BOTT 1955: 242-243, figs 21, 71, pl. VI, figs 2a-d.

Material: **West Africa - Nigeria**: Cross River State, Yakurr local government area, 2 adult ♀♀ CWs 33, 30, 1 adult ♂ CW 36.5, Idem S. Ibanga don., [1996.VIII.4], NHMW No. 13410.

Remarks: The complete synonymy is provided by BOTT (1955). *Potamonautes paecilei* is found in the rain forest zone from Nigeria to lower Zaire. These specimens show a number of differences from the type of *P. paecilei* from Gabon, and further studies may lead to the recognition of two distinct species.

### ***Potamonautes ecorseii* (MARCHAND, 1902)**

*Potamon nigrensis* CAPART, 1954: 833, figs 8, 20.

*Potamonautes (Platypotamonautes) ecorseii* BOTT 1955: 236-237, figs 13, 67, pl. IV, figs 2a-d; BOTT 1959: 1001-1002, fig. 9a-c; MONOD 1969: 78-79, fig. 4-7; MONOD 1977: 1212-1213, figs 71-82, 86-92; MONOD 1980: 382-383, pl. VI, fig. 32.

Material: **West Africa**: "Africa", 1 adult ♂ CW 28.7, A. Weidholz coll. 1930, NHMW No. 2129; ?Niger, 1 adult ♂ CW 34.4, Weidholz coll. 1927 (1927.XI), NHMW No. 13291; Dienundialla, 10 km S, 13 juv. (8 ♂♂ CWs 16.7 - 21.6, 5 ♀♀ CWs 16.7 - 23.1), A. Weidholz coll. March 1930 [1930.XII], NHMW No. 13292.

Remarks: The complete synonymy is provided by BOTT (1955). *Potamonautes ecorseii* is found only in the rivers of West Africa, notably the Niger and the Volta. No exact localities could be established for this material, but Alfred Weidholz was known to have travelled in West Africa, and this region is the most likely origin of this material.

### ***Potamonautes walderi* (COLOSI, 1924)**

*Potamon walderi* CAPART 1954: figs 16, 35.

*Potamonautes (Tripotamonautes) walderi* BOTT 1955: 264, fig. 32, 33, pl. XIII fig. 2a-d.

Material: **Central Africa - Republic of the Congo**: (Brazzaville) NE de Pointe Noire, Route de Sounda, 5 ♀♀ (CW 29 adult, CW 25 subadult), A. Crosnier coll. 18.VI.1964, NHMW No. 13293; NE de Pointe Noire, region de Sounda, 1 juv. ♂ CW 18.5, A. Crosnier coll. 26.VIII.1964, NHMW No. 13294; (Brazzaville) NE de Pointe Noire, 1 juv. ♀ CW 23, 2 juv. ♂♂ CWs 15.5, 17.5, A. Crosnier coll., NHMW No. 13295; Brazzaville, 2 juv. ♀♀, CWs 20, 25.5, A. Crosnier coll., NHMW No. 13296.

Remarks: The complete synonymy is provided by BOTT (1955). This species is recognised by a distinct gonopod 1 whose terminal segment has a large medial fold, about twice as high as the lateral fold. *Potamonautes walderi* is found in the rivers of the lower Zaire river basin.

### ***Potamonautes triangulus* BOTT, 1959**

*Potamonautes (Platypotamonautes) triangulus* BOTT 1959: 1002-1004, fig. 10a-b; MONOD 1977: 1212-1213, fig. 83-85; MONOD 1980: 382-383, pl. VI, fig. 35.

Material: **West Africa - Ghana**: Ashante, 1 adult ♂, 1 juv. ♀, E. Reitter coll. [1885.V.1], NHMW No. 13297.



Remarks: *Potamonautes triangulus* is recognised by a distinct triangular flap on the terminal segment of gonopod 1. This rare species is known only from the rivers of Ghana.

### *Potamonautes berardi* (AUDOUIN, 1826)

*Potamon berardi* CAPART 1954: 827, figs 4, 31.

*Potamonautes (Rotundopotamonautes) berardi berardi* BOTT 1955: 288-289, fig. 53a-b, pl. XXIII fig. 1a-d; MONOD 1980: 382-383, pl. V, fig. 28.

Material: **North Africa - Egypt:** Assuan, 2 juv. ♂♂ CWs 15, 16, 2 juv. ♀♀ CWs 12.5, 15, Th. Kotschy coll., NHMW No. 13298; Assuan, 2 sub-adult ♂♂ CWs 15, 17, Th. Kotschy coll., NHMW No. 13299; Suez, 2 sub-adult ♀♀ CWs 18.4, 22.6, 1 juv. ♂ CW 18, coll. Konsul Mayer, 5.1.1905, NHMW No. 13300; Nile, 1 adult ♂ CW 24.3, 1 sub-adult ♂ CW 21, 1 sub-adult ♀ CW 20, don. Zool. Inst. Uni Wien [1929.XXI], NHMW No. 13301; Assuan, 4 juv. ♀♀ CWs 12 - 17, 1 juv. ♂ CW 14.6, Th. Kotschy coll., NHMW No. 13221; 10 adults, Th. Heuglin coll. [1856.II], NHMW No. 13375; 2 adult ♂♂, 1 adult ♀ (ovigerous), Th. Heuglin coll. [1856.II], NHMW No. 13376.

Remarks: The complete synonymy is provided by BOTT (1955). *Potamonautes berardi* can be recognised by a deep and complete sulcus between sternites 2 and 3, by a faint almost absent postfrontal crest, by the lack of an epibranchial tooth, and by the lack of a vertical sulcus on the ischium of the third maxilliped. This is a small species found in the river Nile which reaches maturity at CW 23.

### *Potamonautes niloticus* (H. MILNE EDWARDS, 1837)

*Potamon niloticus* CAPART 1954: 841: figs 35, 16.

*Potamonautes (Acanthothelphusa) niloticus* BOTT 1955: 260, pl. XIII fig. 1a-c, fig. 30a-b; PRETZMANN 1962: 305-306; MONOD 1980: 382-383, pl. IV, fig. 22.

Material: **North Africa - Egypt:** Assuan, 7 specimens, NHMW No. 13383; Cairo, Nilufer, 1 adult ♀ CW 42.5, H. Sattmann coll. 6.VIII.1982 (1990.XIII.2), NHMW No. 13341; 1 juv. ♂ CW 14, Kotschy coll., NHMW No. 13222; Assuan, 1 adult ♀, NHMW No. 13303; Insel Sehayl an den 1. Nilcataracten, 2 juv. ♂♂, Wedl coll., NHMW No. 13304; Insel Sehayl an den 1. Nilcataracten, 2 juv. ♂♂ CWs 16.8, 14.6, Wedl coll. NHMW No. 13306; Assuan, 2 juv. ♂♂ CWs 16, 14, 1 juv. ♀ NHMW No. 13307; Assuan, 1 adult ♀, NHMW No. 13335; Cairo, 6 juv., CWs 9.0 - 19.5, Wedl coll. NHMW No. 13336; Assuan, 1 adult ♂ (dried), NHMW No. 13382. - **Sudan:** Wadi Halfa, 1 sub-adult ♀, Lesona coll. 1899 [1900.VI.2], don. Mus. Turin, NHMW No. 13337; Sennar, Blue Nile, 1 adult ♀, CW 40, 3 sub adult ♀♀, CWs 33 - 34, F. Werner coll. February 1914 [III.1915], NHMW No. 1876; 6 km S Wadi Halfa, kleine Lacke am Ostufer des Nil, 1 adult ♀ CW 39.5, J. Eiselt coll. 8.II.1962, NHMW No. 3240.

**East Africa:** Lake Victoria, 1 sub-adult ♀ CW 39, Rolle coll. March 1907 [1936.XXI], NHMW No. 13339; wahrscheinlich Viktoria Nianzza, 3 adult ♀♀ CWs 46, 48, 61, 1 sub-adult ♀ CW 35, Rolle coll. 28.III.1907 (1920.XXV), NHMW No. 13340.

Remarks: The complete synonymy is provided by BOTT (1955). This species is easily recognised by the series of sharp spines on the anterolateral margins of the carapace. *Potamonautes niloticus* is found throughout the entire length of the Nile, from Cairo to Lake Victoria and its tributaries.

### *Potamonautes perlatus* (H. MILNE EDWARDS, 1837)

*Potamon perlatus* CAPART 1954: 842, figs 38, 18.

*Potamonautes (Potamonautes) perlatus perlatus* BOTT 1955: 254, pl. XI, fig. 2a-c, 3, fig. 26.

Material: **Southern Africa - South Africa:** Cape of Good Hope, 1 ♀, G. v. Frauenfeld coll., "Novara", [1866.I.61], NHMW No. 1448; vermutlich nicht Madras, 3 ♀♀ (1 subadult, 2 juv.), 2 juv. ♂ (syntypes of

*Thelphusa corrugata* HELLER, 1865), "Novara" [1866.I.61], NHMW No. 13342; Cape of Good Hope, 3 adults, "Novara", [1866.I.61], NHMW No. 13344; Olifant River bei Rhyusdorp, N Kapland in schwach brackigem Wasser ca 100 m landwärts, 1 adult ♂, 1 adult ♀, R. F. Wettstein don. [1930.IV], NHMW No. 13345; Cape of Good Hope, 1 subadult ♀, coll. G. v. Frauenfeld, "Novara", [1866.I.61], NHMW No. 13379; 2 juv. (syntypes of *Thelphusa corrugata* HELLER, 1865), "Novara", NHMW No. 13380.

Remarks: The complete synonymy is provided by BOTT (1955). NHMW Nos. 13342, 13379, 13380 are syntypes of *Thelphusa corrugata* HELLER, 1865; this name is a junior synonym of *Potamonautes perlatus*. The label gives the collection locality of *T. corrugata* as Madras, but this must be an error: this species is only found in southern Africa.

### ***Potamonautes bayonianus* (CAPELLO, 1864)**

*Potamonautes* (*Potamonautes*) *bayonianus bayonianus* BOTT 1955: 251-252, pl. X, fig. 2a-d, fig. 28.

Material: **Southern Africa - South Africa**: 1 adult ♂ CW 59.85 (tag #143 tied to leg), Pösch coll. 1909, NHMW No. 13346; 1 adult ♂ CW 51.86, Pösch coll. 26.IV.1909, NHMW No. 13347. - **Angola**: Kubamgo (=Okavango) 2 sub-adult ♀♀ CWs 42.3, 45.2, A. Monard coll. [1932.III.1], NHMW No. 13348. - **Zimbabwe**: Victoria Falls, Zambezi, 1 sub-adult ♀ CW 43, 1 juv. ♂ CW 31, A. Penther coll. October 1895, NHMW No. 13377. - **Namibia**: NO, Okavango, Poppa Fälle, 1 juv. ♂ CW 23, H. Sattmann coll. 26.VII.1991 (1992.IX.1), NHMW No. 13324. - **Botswana**: Tswapong Hills, 1 ♀, Hans & Jocka Sachs coll. 6.VIII.1994 [1996.VIII.1], NHMW No. 13350.

Remarks: This is a large species distributed over a wide area of southern Africa from Zimbabwe to Namibia to South Africa.

### ***Potamonautes obesus* (A. MILNE-EDWARDS, 1868)**

*Potamon obesus* CAPART, 1954: 841, figs 36, 17

*Potamonautes* (*Rotundopotamonautes*) *obesus obesus* BOTT 1955: 257, pl. XXII fig. 2a-d, fig. 19, 80; PRETZMANN 1977: 238, figs 7-12.

Material: **East Africa - Somalia**: Bur Akaba, 1 sub-adult ♀, CW 37, ♂, M. Vannini coll. October 1971, NHMW No. 4371; Baidoa, 1 sub-adult ♀, CW 34, A. M. Simonetta coll. 1959, NHMW No. 4373; Baidoa, 1 adult ♂, CW 54, major cheliped length 58, (>CW), M. Vannini coll. October 1971, NHMW No. 4374. - **Kenya**: SE, Silver Beach, 5 km N Mombasa (ausgetrocknete Wasserstelle), 1 juv. ♀ CW 14.5, M. Lödl coll. 31.VI.1987, NHMW No. 13351.

Remarks: The carapace and gonopod 1 of the adult male specimen from Baidoa (NHMW No. 4374) were described and photographed in PRETZMANN (1977) who provided the exact coordinates for all of the geographical localities. BOTT (1955) considered *Potamonautes obesus* to be a synonym of *Potamon* (*Potamonautes*) *bottegoi* DE MAN, 1898; this view is not accepted here. *Potamonautes obesus* is indeed close to *Potamon* (*Potamonautes*) *bottegoi* DE MAN, 1898, but the two species can be recognised by a number of differences. The sidewalls of *P. obesus* are completely smooth and are divided into 2 parts by the epimeral sulcus, while those of *P. bottegoi* are heavily granular and are divided into 4 parts by two vertical sulci; the subterminal segment of gonopod 1 of *P. obesus* is broader than that of *P. bottegoi*, and the sternum of *P. obesus* lacks all 4 episternal sulci (from 4 through to 7), which are all present in *P. bottegoi*.

### ***Potamonautes johnstoni* (MIERS, 1885)**

*Potamonautes* (*Lirrangopotamonautes*) *johnstoni johnstoni* BOTT 1955: 265-266, figs 36a,b, pl. XV, fig. 2a-d.

Material: **East Africa - Tanzania:** Ugano in Matengo, Hochwald W von Ssongea, 1400 - 1600m, in Rinnsalen u. deren Umgebung, 12 ♂ CWs 24.2 - 30.5, all juv., 2 adult ♀ CWs 42, 44, 2 sub-adult ♀ CWs 36, 37, Zerny coll. 31.XII.1935, [1936.XX.1], NHMW No. 13352. - **Zaire:** Tanganjika Terrasse, Uatonga Hochland, Urwald Ukaika, Mawambi-Irumu, 4 ♂♂, Grauer coll. 31.I.1901, NHMW No. 13354.

Remarks: BOTT (1955) synonymized this species with 7 published taxa. However, examination of the type material of some (but not all) of the synonymized taxa here raises doubts about the validity of BOTT's (1955) synonymy which is not accepted. The specimens in the NHMW correspond well to MIERS' (1885) male type specimen of *Thelphusa depressa* var. *johnstoni* from Kilimanjaro (Tanzania) held in the NHM. The specimens in the NHMW from Tanzania and Zaire are not similar to the male type of *Potamon* (*Potamonautes*) *johnstoni* from Ruwenzori, Uganda (NHM # 1906.6.11.6-7). *Potamonautes johnstoni* can be recognised by the following characters: the suborbital margins and the anterolateral margins of the carapace have small low teeth, the epibranchial tooth is small but distinct, the exorbital angle tooth is pointed, the vertical sulcus on the side-walls in the subhepatic region is distinct and granular, episternal sulci 4-7 are all clearly marked, there is a distinct vertical sulcus on the ischium of the third maxilliped, and there is no raised longitudinal crest running along the centre of the terminal segment of gonopod 1.

### *Potamonautes emini* (HILGENDORF, 1892)

*Potamon emini* CAPART 1954: 832, figs 19, 32.

*Potamonautes* (*Rotundopotamonautes*) *emini emini* BOTT 1955: 290-291, pl. XXIV fig. 1a-d, fig. 54.

Material: "Africa": Eldana Ravine, 1 juv. ♀ CW 17, pleopods small, abdomen slim like a male, very young specimen, Golsch coll. 1906 [1907.1], NHMW No. 13355.

Remarks: The lectotype of *Telphusa emini* is a male (ZMB #8406) from the bay of Bukoba, on the west coast of Lake Victoria in western Tanzania, East Africa. BOTT (1955) synonymized *P. emini* with *Potamon mutandensis* CHACE, 1953 from lake Mutanda, Uganda. However, comparison of the type of *P. mutandensis* with illustrations of the carapace and gonopod 1 of *P. emini* in BOTT (1955) and CAPART (1954) raises doubts about the validity of BOTT's (1955) synonymy, which is not accepted here. *Potamonautes emini* can be recognised by the lack of sternal sulcus 2 between sternites 2 and 3, a weak, faint postfrontal crest, a faint vertical sulcus on the ischium of the third maxilliped, and the lack of an epibranchial tooth on the anterolateral margin of the carapace. This species matures between CW 30 and CW 45.

### *Potamonautes bottegoi* (DE MAN, 1898)

Material: **East Africa - Somalia:** Ola Uager, 2 adult ♂♂, CWs 42, 44, M. Vannini coll. March 1970, NHMW No. 4366; Lac Badana, 1 adult ♂, CW 52, major cheliped length 61.5 (>CW), M. Vannini coll. October 1971, NHMW No. 4367; Afmedu, 1 adult ♂ CW 59.6, major cheliped length 68.6 (>CW), 3 juv. ♂ CWs 39, 41, 42, 1 sub-adult ♀ CW 38, M. Vannini coll. August 1970, NHMW No. 4368; Giohar, 1 juv. ♂ CW 28, 1 juv. ♀ CW 35, M. Vannini coll. August 1971, NHMW No. 4370; Gelib, 1 juv., B. Lanza coll. 1962, NHMW No. 4372.

**Southern Africa - Mozambique:** Macequece, 1 juv. ♂ soft shell, coll. 1929, NHMW No. 4375.

Remarks: The carapace and gonopod 1 of the adult male specimen from Afmedu (NHMW No. 4368) were described and photographed in PRETZMANN (1977 figs 1-6),

who provided the exact coordinates for all of the geographical localities. The juvenile male specimen from Macequece Mozambique (NHMW No. 4375) is included here as *P. bottegoi*; this specimen was considered by PRETZMANN (1977 figs 13-16) to be a possible undescribed subspecies of *P. obesus*.

*Potamonautes bottegoi* is close to *P. obesus*. BOTT (1955) treated *P. bottegoi* as a junior synonym of *Potamonautes (Rotundopotamonautes) obesus obesus*. The two taxa share the following characters: the dorsal surface of the carapace is smooth and highly vaulted, and the major cheliped of adult males is longer than the carapace width. However, *P. bottegoi* is treated here as a valid species on the basis of the following differences with *P. obesus*: the sidewalls of *P. bottegoi* are divided into four parts by two additional granulated raised lines in the subhepatic and pterygostomial regions, and the sidewalls are heavily granulated, not smooth as in *P. obesus*. Moreover, the episternal sulci 4-7 (between sternites 4-7 and episternites 4-7) are all deep and distinct (these same sulci are absent in *P. obesus*), and the first gonopods of the two taxa (shown in PRETZMANN 1977) are by no means identical.

### *Potamonautes neumanni* (HILGENDORF, 1898)

*Potamon neumanni* CAPART 1954: 839, figs 30, 33.

*Potamonautes (Platypotamonautes) neumanni* BOTT 1955: 238-239, pl. V, fig. 2a-d, fig. 14, 69.

Material: **East Africa - Kenya**: Nairobi, 5000' über dem Meer, in Tümpeln des Nairobi Flußes, 4 ♂♂, (1 adult), 5 ♀♀ (2 adults), F. Thomas coll. 6.IX.1903, NHMW No. 1875. - **Tanzania**: Tanganjika NW, 3 ♀♀ (1 adult CW 18, 2 juv. CWs 16, 17), Grauer coll. 1910, NHMW No. 13356.

Remarks: The lectotype of *Telphusa neumanni* is a male (ZMB #11386) from Ngare Longai, Masailand 36°W 1.5°S, East Africa. BOTT (1955) synonymized this species with *Potamon jeanneli* BOUVIER, 1921. However, comparison of *P. jeanneli* with the lectotype of *P. neumanni* raises doubts about the validity of BOTT's (1955) synonymy, which is not accepted here. *Potamonautes neumanni* can be recognised as follows. There is no visible episternal sulcus between sternite 4 and episternite 4, and the ischium of the third maxilliped lacks a vertical sulcus. The medial and lateral folds on the terminal segment of gonopod 1 are of equal size and there is a large rounded shoulder on the medial margin of the subterminal segment close to the junction between the segments. *Potamonautes neumanni* from East Africa is a small species, reaching maturity at CW 24.

### *Potamonautes pilosus* (HILGENDORF, 1898)

*Potamonautes (Platypotamonautes) pilosus* BOTT 1955: 237-238, figs 16, 68, pl. V, fig. 1a-d.

Material: **East Africa - Zaire**: Urwald hinter den Randbergen des nordwestlichen Ufers des Tanganjika, 2000 m, 3 ♂♂ all juv. CWs 14.8 - 16.5, 3 adult ♀♀ CWs 18.0 - 22.4, Grauer coll. April 1910, NHMW No. 13357.

Remarks: The lectotype of *Telphusa pilosa* is a male from Manuagu, East Africa (ZMB #13387), which was figured by BOTT (1955). BOTT (1955) synonymized *P. pilosus* with *Potamon (Potamonautes) odhneri* COLOSI, 1924. However, comparison of a female syn-type of *Potamon (Potamonautes) odhneri* from near Meru, Kenya (Museum Stockholm #11852) with the type of *P. pilosus* raises doubts about the validity of BOTT's (1955) synonymy, which is not accepted here. The largest male in the NHMW material has

distinct fields of short dense hairs on the sidewalls, but these hairs are lacking in other specimens in the same lot. Episternal sulci 4-7 are all faint, and the medial fold on the terminal segment of gonopod 1 is wider and higher than the lateral fold. The postfrontal crest is incomplete: the epigastric crests do not meet the postorbital crests, and these crests do not meet the anterolateral margins.

### *Potamonautes aloysiisabaudiae* (NOBILI, 1906)

*Potamon (Potamonautes) johnstoni* CALMAN, 1909: 51-56, Abb. 9, 10, 12 [non *Johnsoni* MIERS].

*Potamonautes (Lobopotamonautes) aloysiisabaudiae* BOTT 1955: 281-283, Taf. XVIII, Fig. 2a, 3a, Taf. XX, Fig. 2a-d, Fig. 1, 2, Abb. 48, 50, 87, 88, 89.

Material: **East Africa - Zaire:** Urwald bei Beni, 1 sub-adult ♂, Grauer coll. August 1910 (1922.XX), NHMW No. 1874; Urwald bei Moera, N von Beni, 1 adult ♀ CW 48, Grauer coll. NHMW No. 2127; Urwald Ukaika, Mawambi-Irumu, 2 adult ♂♂, 1 adult ♀, 1 juv. ♀ Grauer coll. February 1911, NHMW No. 13360; Urwald bei Moera, 30 km NE von Beni, 1 juv. ♂ Grauer coll. August 1910, NHMW No. 13361; Urwald Ukaika, Mawambi-Irumu, 1 adult ♂, 1 sub-adult ♀, Grauer coll. 31.I.1910, NHMW No. 13378. - **Tanzania:** Kibwesi, 4000' above sea level, Kibwesi Fluß, klares Wasser, Kieselgrund mit gr. Steinen, 4 ♂♂ (3 adults), 3 adult ♀♀, F. Thomas coll. 1.IX.1903, NHMW No. 13358.

Remarks: BOTT (1955) synonymized this species with a number of published taxa. However, comparisons between the type material of some (but not all) of BOTT's (1955) synonymized taxa raises doubts about the validity of BOTT's (1955) conclusions, which are not accepted here. The specimens in the NHMW correspond well with *Potamon (Potamonautes) johnstoni* from Ruwenzori which was described and illustrated by CALMAN (1909). The specimen of *P. aloysiisabaudiae* from Ruwenzori used by NOBILI (1906) to describe the species is apparently lost, and NOBILI's (1906) original description was brief; CALMAN's (1909) specimens from Ruwenzori are therefore used here as examples of the species. *Potamonautes aloysiisabaudiae* can be recognised by the following characters: the suborbital margins and the anterolateral margins of the carapace are completely smooth, the epibranchial tooth is low or absent, the exorbital angle is low, the vertical sulcus on the sidewalls in the subhepatic region is faint, the 4th episternal sulcus is missing, there is no vertical sulcus on the ischium of the third maxilliped, and there is a small raised longitudinal crest running along the centre of the terminal segment of gonopod 1.

### *Potamonautes loveni* (COLOSI, 1924)

*Potamon (Potamonautes) loveni* COLOSI, 1924: 13-15, Fig. 9, Taf. 1 (4).

*Potamon (Potamonautes) granviki* COLOSI, 1924: 16-19, Fig. 11, Taf. 1 (5).

*Potamonautes (Rotundopotamonautes) granviki* BOTT, 1955: 286-288, Taf. XII, Fig. 2a-d, Abb. 52, 90.

Material: **East Africa - Uganda:** Buhngu (Mount Elgon), 1 adult ♂, 1 adult ♀, R. Kmunke coll. 1912, NHMW No. 13387.

Remarks: BOTT (1955) synonymized this species with 6 published taxa. However, comparison here of the NHMW specimens with the type material of some of the synonymized taxa raises doubts about the validity of all of BOTT's (1955) synonymy, which is not accepted here. It is likely that *Potamon (Potamonautes) granviki* and *Potamon (Potamonautes) loveni* are synonyms. This opinion agrees with that of WILLIAMS (1991), who provides detailed arguments for the recognition of this taxon as *P. loveni*.

**Genus *Platythelphusa* A. MILNE-EDWARDS, 1887***Potamonautes (Platythelphusa)* BOTT 1955: 226.

Remarks: *Platythelphusa* is treated here as a valid genus, and subgenus and subspecies categories are not recognised. There are at least 7 species of *Platythelphusa* in Lake Tanganyika; two of these are represented in the collection of the NHMW.

***Platythelphusa armata* A. MILNE-EDWARDS, 1887***Potamonautes (Platythelphusa) armata armata* BOTT 1955: 226-227, pl. II, fig. 1a-d, fig. 9a-b.

Material: **Central Africa - Zaire:** Lake Tanganyika, NW-Ufer, 1 adult ♂, 1 adult ♀, Grauer coll. 28.II.1910, NHMW No. 13363; NW-Ufer, 1 adult ♂, 1 adult ♀, Grauer coll. 28.II.1910, NHMW No. 13364.

Remarks: BOTT (1955) synonymized *P. armata* with *Limnothelphusa maculata* CUNNINGTON, 1899. However, comparison of the type of *P. armata* with Cunnington's male type of *L. maculata* indicates that these two taxa are each valid species.

***Platythelphusa conculata* CUNNINGTON, 1907***Potamonautes (Platythelphusa) armata conculata* BOTT, 1955: 228-229, fig. 10a-b, pl. II, fig. 2a-d.

Material: **Central Africa:** Lake Tanganyika, NW-Ufer, 1 adult ♀ CW 20, CL 17, Grauer coll. February 1910, NHMW No. 13365.

Remarks: BOTT (1955) considered *P. conculata* to be a subspecies of *P. armata*. *Platythelphusa conculata* is recognised here as a valid species following comparison of the type material of *P. armata* and *P. conculata*.

**Genus *Hydrothelphusa* A. MILNE-EDWARDS, 1872**

Remarks: The complete synonymy is provided by BOTT (1965). BOTT (1965) included 2 species in this genus, *H. agilis* and *H. humbloti*, both of which are represented in the collection of the NHMW.

***Hydrothelphusa agilis* (A. MILNE-EDWARDS, 1872)***Hydrothelphusa agilis agilis* BOTT, 1965: 340-341, fig 4, pl. 2 fig. 8, 9, pl. 4, fig. 18.

Material: **Madagascar:** Sahanofer Fluß (45 km N von Ifanadiana auf der Straße nach Ambositra), 1 ♂ CW 15.5, CL 14.5, Y. Therezien coll. 7.VIII.1958, F. Starmühlner don., (Österreichische Madagaskar Expedition FM141), NHMW No. 2728; Ambatolamy-Bach, Zufluß des Namorona-Flußes, 20 km N Ranomafano, 1 ♂ CW 18, CL 16, F. Starmühlner coll. 7.VIII.1958, (Österreichische Madagaskar Expedition FM136c), NHMW No. 2734; Ambodiriana Bach bei Perinet, 1 ♂ CW 27, CL 23, F. Starmühlner coll. 3.VII.1958, (Österreichische Madagaskar Expedition FM114), NHMW No. 2735; Lac Rouge Bach bei Perinet, 1 juv. CW 5.0, CL 4.8, F. Starmühlner coll. 29.VII.1958, (Österreichische Madagaskar Expedition FM112), NHMW No. 13367; Lily-Bach, Abfluß des Lac Itasy, 1 juv. CW 10, CL 10, soft shell, F. Starmühlner coll. 10.IX.1958, (Österreichische Madagaskar Expedition FM224?), NHMW No. 13368; km 60 au regime d'Ambatolaona (label torn), 1 juv. CW 8.5, CL 8.0, Y. Therezien coll. 16.X.1961, NHMW No. 13369; Lac Vert, Station Perinet, 1 juv. ♂ CW 21,5, CL 18, Y. Therezien coll. 14.XII.1961, NHMW No. 13370; a l'étangeris culturel de la Sisaony, 1 ♂, Y. Therezien coll. December 1958, NHMW No. 13385; a la riviere Beforona km 174, 1 juv. ♂ CW 14, CL 12, Y. Therezien coll. 14.XII.1961, NHMW No. 13386.

Remarks: BOTT (1965) recognised 2 subspecies, *H. a. agilis* and *H. a. madagascariensis*; each of these taxa is considered here to be a valid species.

### ***Hydrothelphusa madagascariensis* (A. MILNE-EDWARDS, 1872)**

*Hydrothelphusa agilis madagascariensis* BOTT 1965: 341-342, pl. 3, figs 10-11.

Material: **Madagascar**: Androkabe Bach, 40 m NW von Fort Dauphin (Straße F. Dauphin-Ranomafan du Sud), 1 ♂ CW 23, CL 17, F. Starmühlner coll. 10.IX.1958, (Österreichische Madagaskar Expedition FM 216), NHMW No. 2731; Androkabe Bach, 40 km NW von Fort Dauphin (Straße F. Dauphin-Ranomafan du Sud), 1 juv. CW 9.5, CL 8, F. Starmühlner coll. 10.IX.1958, (Österreichische Madagaskar Expedition FM216), NHMW No. 2732; 1 adult ♂ CW 72, CL 52, NHMW No. 13371; a la riviere Manankazo km 124 route Tanamarive-Majunga, 2 sub adult ♀♀ CWs 35, 31, CLs 28, 21.5, Y. Therezien coll. 27.XII.1961, NHMW No. 13384.

Remarks: *Hydrothelphusa madagascariensis* is treated here as a valid species due to a number of differences between *H. agilis* and *H. madagascariensis*. NHMW 2731 is the type of *Bottia madagascariensis reticulata* PRETZMANN, 1961 which was reassigned to *Hydrothelphusa agilis madagascariensis* (A. MILNE-EDWARDS, 1872) by BOTT (1965).

### ***Hydrothelphusa humbloti* (RATHBUN, 1904)**

Material: **Madagascar**: Antsampandrano Bach, Ankaratragebirge, 2000 m, 1 ♂ CW 25, CL 18, Starmühlner coll. 25.VII.1958, (Österreichische Madagaskar Expedition FM95), NHMW No. 2730.

Remarks: The complete synonymy is provided by BOTT (1965). Photographs of the carapace, together with illustrations of gonopod 1 and the mandibular palp of *H. humbloti* are given in BOTT (1965 figs 5, 6, pl. 3 figs 12, 13).

## **Genus *Gecarcinautes* BOTT, 1960**

### ***Gecarcinautes goudoti* (A. MILNE-EDWARDS, 1872)**

*Gecarcinautes goudoti* BOTT 1965: 338-339, pl. 2 fig. 6, 7.

Material: **Madagascar**: 2 ♂♂ CWs 43, 44, CLs 31, 34, F. Steindachner don. [1883.IV.4], NHMW No. 2733; 2 ♀♀, 1 adult, 1 juv., NHMW No. 13271; Manjakatempo-Bach, 1 juv. CW 5.0, CL 4.75, F. Starmühlner coll. 13.VII.1958, (Österreichische Madagaskar Expedition FM44), NHMW No. 13372; au russeau Androkabe, col. de Manningotra, 1 ♂ CW 13, CL 11.3, CW 12.5, CL 10, Y. Therezien coll. 10.IX.1958, NHMW No. 13374.

Remarks: The complete synonymy is provided by BOTT (1965). *Gecarcinautes goudoti* is recognised as a valid species on the basis of characters of the carapace and gonopod 1. BOTT (1965) referred *G. goudoti* to the subfamily Gecarcinucinae in the family Potamonidae. BOTT (1969, 1970b) later included the African and Indian species of Gecarcinucinae in the family Gecarcinucidae, but made no mention of the Madagascan fauna. Comparison of the mandibular palp of *G. goudoti* with that of *Hydrothelphusa agilis* and *H. madagascariensis* indicates a close correspondence between all three taxa, and does not appear to warrant the assignment of *G. goudoti* to a different genus, subfamily, and family. A definitive judgement, however, awaits a detailed study of the entire Madagascan freshwater crab fauna.

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### References

- AUDOUIN, V. 1826: Explication de sommaire des planches de Crustacés de l'Égypte et de la Syrie, publiée par Jules-Cesar Savigny, membre de l'Institut; offrant un exposé des caractères naturelles des genres, avec la distinction des espèces. – Description de l'Égypte. Histoire naturelle Mémoire 1(4): 77-98.
- BALSS, H. 1929: Potamonidae au Cameroun. – In: Contribution à l'étude de la faune du Cameroun. – Faune Colonies françaises 3: 115-129.
- BOTT, R. 1955: Die Süßwasserkrabben von Afrika (Crust., Decap.) und ihre Stammesgeschichte. – Annales du Musée Royal du Congo Belge, (Tervuren, Belgique) C. Zoologie 1 (3, 3): 209-352.
- BOTT, R. 1959: Potamoniden aus West-Afrika. – Bulletin de l'Institut Fondamental d'Afrique Noire, Série A 21 (3): 994-1008.
- BOTT, R. 1960: Crustacea (Decapoda): Potamonidae. – South African Animal Life, 7: 13-18.
- BOTT, R. 1964: Decapoden aus Angola unter besonderer Berücksichtigung der Potamoniden (Crust. Decap.) und einem Anhang: Die Typen von *Thelphusa pelii* HERKLOTS 1861. – Publicações Culturais da Companhia de Diamantes de Angola, Lisboa, 69:23-24.
- BOTT, R. 1965: Die Süßwasserkrabben von Madagaskar. – Bulletin du Muséum national d'Histoire naturelle, Paris, 2, 27 (2): 335-350.
- BOTT, R. 1967: Potamidae auf Afghanistan, Westasien und dem Mittelmeerraum. – Videnskabelige Meddelelser fra Dansk Naturhistorisk Forening i Kbenhavn, 130: 7-43.
- BOTT, R. 1969: Die Flusskrabben aus Asien und ihre Klassificaten (Crustacea, Decapoda). – Senckenbergiana biologica, 50: 359-366.
- BOTT, R. 1970a: Betrachtungen über die Entwicklungsgeschichte und Verbreitung der Süßwasser-Krabben nach der Sammlung des Naturhistorischen Museums in Genf/Schweiz. – Revue Suisse de Zoologie, 77(2), 24: 327-344.
- BOTT, R. 1970b: Die Süßwasserkrabben von Europa, Asien, Australien und ihre Stammesgeschichte. – Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft 526: 1-338.
- BOUVIER, E.L. 1921: Decapoda, In: Voyage de Ch. Allaud et R. Jeannel en Afrique orientale (1911-1912). – Résultats scientifiques, Crustacés, 3: 23-62.
- CALMAN, W.T. 1909: Crustacea. In: Zoological results of the Ruwenzori Expedition, 1905-1906. – Transactions of the Zoological Society of London 19(1): 51-56.
- CAPART, A. 1954: Révision des Types des espèces de Potamonidae de l'Afrique Tropicale conservés au Muséum d'Histoire Naturelle de Paris. – Volume Jubilaire Victor Van Strahlen, Directeur de l'Institut Royale des Sciences Naturelles de Belgique, 1925-1934, II: 819-847.
- CAPELLO, F. DE BRITO 1864: Descrição de tres espécies novas de Crustaceos da Africa occidente. Observações acerca do *Penaeus Bocagei* JOHNSON, espécie nova dos mares de Portugal. – Memórias da Academia Real das Ciências de Lisboa 3(2): 1-11.
- CHACE, F. A. 1942: Scientific results of a fourth expedition to forested areas in east Africa. III: Decapod Crustacea. – Bulletin of the Museum of Comparative Zoology, Harvard College 91: 185-233.



- CHACE, F. A. 1953: Zoological results of a fifth expedition to East Africa, IV: Decapod Crustacea. – Bulletin of the Museum of Comparative Zoology, Harvard College 110: 425-443.
- COLOSI, G. 1924: Potamonidés africains du Muséum de Stockholm. – Arkiv för Zoologi 16: 1-22.
- CUMBERLIDGE, N. 1987: Notes on the taxonomy of West African gecarcinucids of the genus *Globonautes* BOTT, 1959 (Decapoda, Brachyura). – Canadian Journal of Zoology 65 (9): 2210-2215.
- CUMBERLIDGE, N. 1991: *Sudanonautes kagoroensis*, a new species of freshwater crab (Decapoda: Potamoidea: Potamonautidae) from Nigeria. – Canadian Journal of Zoology 69: 1938-1944.
- CUMBERLIDGE, N. 1993a: Further remarks on the identification of *Sudanonautes orthostylis* (BOTT, 1955), with comparisons with other species from Nigeria and Cameroon. – Proceedings of the Biological Society of Washington 106(3): 514-522.
- CUMBERLIDGE, N. 1993b: Two new species of *Potamonemus* CUMBERLIDGE and CLARK, 1992, (Brachyura, Potamoidea, Potamonautidae) from the rain forests of West Africa. – Journal of Crustacean Biology 13(3): 571-584.
- CUMBERLIDGE, N. 1993c: Redescription of *Sudanonautes granulatus* (BALSS, 1929) (Potamoidea, Potamonautidae) from West Africa. – Journal of Crustacean Biology 13(4): 805-816.
- CUMBERLIDGE, N. 1994a: *Louisea*, a new genus of freshwater crab (Brachyura, Potamoidea, Potamonautidae) for *Globonautes macropus edeaensis*, BOTT, 1969, from Cameroon. – Proceedings of the Biological Society of Washington 107 (1): 122-131.
- CUMBERLIDGE, N. 1994b: Identification of *Sudanonautes aubryi* (H. MILNE-EDWARDS, 1853) (Brachyura: Potamoidea: Potamonautidae) from West and Central Africa. – Zeitschrift für Angewandte Zoologie 80: 225-241.
- CUMBERLIDGE, N. 1995a: Redescription of the African freshwater crab *Sudanonautes africanus* (A. MILNE-EDWARDS, 1869) (Brachyura: Potamoidea: Potamonautidae). – Journal of Crustacean Biology 15(3): 588-598.
- CUMBERLIDGE, N. 1995b: Remarks on the taxonomy of *Sudanonautes chavanesii* (A. MILNE-EDWARDS, 1886) (Brachyura: Potamoidea: Potamonautidae) from Central Africa. – Proceedings of the Biological Society of Washington 108(2): 238-246.
- CUMBERLIDGE, N. 1995c: Redescription of the Central African freshwater crab *Sudanonautes faradjensis* (RATHBUN, 1921) (Brachyura: Potamoidea: Potamonautidae). – Proceedings of the Biological Society of Washington 108(4): 629-636.
- CUMBERLIDGE, N. 1995d: Redescription of *Sudanonautes floweri* (DE MAN, 1901) (Brachyura: Potamoidea: Potamonautidae) from Nigeria and Central Africa. – Bulletin of the British Museum of Natural History (Zoology), London 61(2): 111-119.
- CUMBERLIDGE, N. & SACHS, R. 1989a: A key to the crabs of Liberian freshwaters. – Zeitschrift für Angewandte Zoologie 76: 221-229.
- CUMBERLIDGE, N. & SACHS, R. 1989b: Three new subspecies of the West African freshwater crab *Liberonautes latidactylus* (DE MAN, 1903) from Liberia, with notes on their ecology. – Zeitschrift für Angewandte Zoologie 76: 425-439.
- CUMBERLIDGE, N. & CLARK, P. 1992: A new genus and species of freshwater crab from Cameroon, West Africa (Crustacea, Brachyura, Potamoidea, Potamonautidae). – Bulletin of the British Museum of Natural History (Zoology), London 58(2): 149-156.
- CUNNINGTON, W.A. 1899: On a new Brachyurous crustacean from Lake Tanganyika. – Zoological Society of London: 697-704
- CUNNINGTON, W.A. 1907: Zoological results of the third Tanganyika expedition, conducted by Dr. W. A. Cunnington, 1904-1905. Report on the Brachyurous crustacea. – Proceedings of the Zoological Society of London 1907(2): 258 - 276.

- HILGENDORF, F. 1869: Ueber eine neue Gattung der kurzschwanzigen Krebse aus den Sammlungen des Baron Carl Claus von der Decken, *Deckenia imitatrix*. – Sitzungs-Bericht der Gesellschaft naturforschender Freunde zu Berlin 1868 (1): 2.
- HILGENDORF, F. 1892: Ueber eine neue ostafrikanische Süßwasserkrabbe (*Telphusa emini*). – Sitzungs-Bericht der Gesellschaft naturforschender Freunde zu Berlin (1): 11-13.
- HILGENDORF, F. 1898: Die Land- und Süßwasser-Dekapoden Ostafrikas. – In: K. MOEBIUS (ed.): Die Thierwelt Deutsch Ost-Afrikas 4(7): 1-37, Berlin.
- MACLEAY, W. S. 1838: Brachyurous Decapod Crustacea. – In: A. SMITH (ed.): Illustrations of the Zoology of South Africa; Consisting Chiefly of Figures and Descriptions of the Objects of Natural History Collected During an Expedition into the Interior of South Africa, in the Years 1834, 1835, and 1836; Fitted Out by "The Cape of Good Hope Association for Exploring Central Africa.", (Invertebrates). 75 pp., London.
- MAN, J. G. DE 1898: Description d'une espece nouvelle du Genre *Potamon* SAV. provenant du pays des Somalis. – Annali del Museo Civico di Storia Naturale di Genova (2) 19(29): 262-270.
- MAN, J.G. DE 1901: Description of a new freshwater Crustacea from the Soudan; followed by some remarks on an allied species. – Proceedings of the Zoological Society of London 1901: 94-104.
- MAN, J.G. DE 1903: On *Potamon (Potamonautes) latidactylum*, a new crab from Upper Guinea. – Proceedings of the Zoological Society of London 1903(1): 41-47.
- MARCHAND, E. 1902: Description de deux Arthropodes nouveaux, provenant du Soudan francais. – Bulletin de la Société des Sciences naturelles d'ouest de la France (2)2: 331-342.
- MIERS, E. J. 1885: Description of a new variety of river crab of the genus *Telphusa* from Kilimandjaro. – Proceedings of the Zoological Society of London 1885: 237-239.
- MILNE-EDWARDS, A. 1868: Description de quelques Crustacés nouveaux provenant des Voyages de M. Alfred Grandidier a Zanzibar et Madagascar. – Nouvelles Archives du Muséum d'Histoire naturelle, Paris 4: 69-92.
- MILNE-EDWARDS, A. 1869: Révision du genre *Telphusa* et description de quelques especes nouvelles faisant partie de la collection du Muséum. – Nouvelles Archives du Muséum d'Histoire naturelle, Paris 5: 161-191.
- MILNE-EDWARDS, A. 1872: Note sur les Crabes d'eau douce de Madagascar. – Bibliothèque de l'École hautes Études (Section des Sciences naturelle) 5(8): 1-3.
- MILNE-EDWARDS, A. 1886: La description de quelques Crustacés du genre *Telphusa* recueillis par M. de Brazza dans les régions du Congo. – Bulletin de la Société Philomathique de Paris, Série 7, 10: 148-151.
- MILNE-EDWARDS, A. 1887: Observations sur les crabes des eaux douces de l'Afrique. – Annales des Sciences Naturelles, Zoologie, Paris, Série 5: 161-191.
- MILNE EDWARDS, H. 1837: Histoire Naturelle des Crustacés comprenant l'anatomie, la physiologie et la classification des ces animaux. 2: 1-532. Paris.
- MILNE EDWARDS, H. 1853: Observations sur les affinités zoologiques et la classification naturelle des Crustacés. – Annales des Sciences Naturelles, Zoologie, Paris, Série 3, 20: 163-28.
- MONOD, T. 1969: Crustacés Décapodes. In: Le Parc Nationale de Nikolo-Koba (Senegal). – Mémoires de l'Institut Français d'Afrique Noire, 84: 77-79.
- MONOD, T. 1977: Sur quelques crustacés Décapodes africaines (Sahel, Soudan). – Bulletin de Muséum National d'Histoire naturelle, Paris 3, 500: 1201-1236.
- MONOD, T. 1980: Décapodes. – In: J-R. DURAND & C. LÉVEQUE (eds): Flore et Faune Aquatiques de l'Afrique Sahelo-Soudanienne. – ORSTOM, Paris, I.D. T. 44 (1): 369-389.

- NOBILI, G. 1906: Spedizione al Ruwenzori di S. A. R. Luigi Amedeo di Savona Duca degli Abruzzi. 9. Crustacea. – Bolletino dei Musei di Zoologia ed Anatomia Comparata della R. Università di Torino 21 (544): 1-2.
- NG, P.K.L., ŠTEVČIĆ, Z. & PRETZMANN, G. 1995: A revision of the family Deckeniidae ORTMANN, 1897 (Crustacea: Decapoda: Brachyura: Potamoidea), with description of a new genus (Gecarcinucidae: Gecarcinucoidea) from the Seychelles, Indian Ocean. – Journal of Natural History 29: 581-600.
- ORTMANN, A. 1896: Das System der Dekapoden-Krebse. – Zoologische Jahrbücher (Systematik) 9: 409-453.
- ORTMANN, A. 1897: Carcinologische Studien. – Zoologische Jahrbücher (Systematik) 10: 256-372.
- ORTMANN, A. 1902: The geographical distribution of freshwater decapods and its bearing upon ancient geography. – Proceedings of the American Philosophical Society 41: 267-400.
- PRETZMANN, G. 1961: Die Reptantia der Oesterreichischen Madagaskar-Expedition 1958. – Memoires de l'Institut Scientifique de Madagascar, serie F IV: 161-165.
- PRETZMANN, G. 1962: Ergebnisse der zoologischen Nubien-Expedition 1962. Teil IV. Crustacea. – Annalen des Naturhistorischen Museums in Wien 65: 305-306.
- PRETZMANN, G. 1972: Die Pseudothelphusidae (Crustacea Brachyura). – Zoologica 120: 1-184
- PRETZMANN, G. 1977: Über einige ostafrikanische Süßwasserkrabben. – Monitore Zoologico Italiano N.S. Supplemento 9 (10): 233-248.
- PRETZMANN, G. 1983a: Die Trichodactylidae von Peru und Ecuador. – Annalen des Naturhistorischen Museums in Wien 84B: 317-330.
- PRETZMANN, G. 1983b: Die Pseudothelphusidae Perus. – Annalen des Naturhistorischen Museums in Wien 84B: 331-345.
- PRETZMANN, G. 1983c: Die Pseudothelphusidae von Ecuador. – Annalen des Naturhistorischen Museums in Wien 84B: 347-368.
- RATHBUN, M. 1904: Les crabes d'eau douce (Potamonidae). – Nouvelles Archives du Muséum d'Histoire naturelle (Paris) (4) 6: 255-312.
- SAVIGNY, J-C. 1816: Mémoires sur les animaux sans vertèbres, 1<sup>re</sup> partie, Paris, 5: 251 pp.
- WILLIAMS, T.R. 1991: Freshwater crabs and *Simulium neavei* in East Africa. III. Morphological variation in *Potamonautes loveni* (Decapoda: Potamidae). – Annals of Tropical Medicine and Parasitology 85, 1: 181-188.

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