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THE STATUS OF THE ISOPOD FAMILIES CORALLANIDAE HANSEN, 1890, AND EXCORALLANIDAE STEBBING, 1904 (FLABELLIFERA)

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ABSTRACT

The family Corallanidae is defined, with the monogeneric family Excorallanidae being placed in synonymy. The family is now regarded as containing the following genera: *Alcirona, Argathona, Austroargathona, Excorallana, Corallana, Lanocira, Tachaea,* and *Tridentella*. The genera *Austroargathona* and *Corilana* are of doubtful status.

In 1890 Hansen proposed two new families of flabelliferan isopods. One of these was the (then) monogeneric Corallanidae, to house *Corallana* Dana, 1852 (the type-genus by definition). Dana had placed *Corallana* in the Cirolanidae (which he then considered a subfamily of the Aegidae). Hansen's second family was Alcironidae, for *Alcirona* Hansen, 1890, and *Lanocira* Hansen, 1890, as well as *Tachaea* Schioedte and Meinert, 1879. Stebbing (1904a, b) pointed out, however, that because of significant morphological differences the type-species of *Corallana, Corallana hirticauda* Dana, 1853, as well as *C. hirsuta* of Schioedte and Meinert (1879) should not be retained in the same genus as the seven species of *Corallana* originally described by Hansen (1890) (or the two species later described by Richardson, 1899, 1901). Stebbing (1904a) thus proposed a new genus and family for these last nine species—*Excorallana*, Excorallanidae. Stebbing (1904b) also stated that the family Corallanidae should apply to those three genera forming the Alcironidae of Hansen (*Alcirona, Lanocira,* and *Tachaea*), as well as the now depleted *Corallana*.

Since that time, considerable taxonomic and nomenclatural activity has taken place within these two families. The genus *Argathona* and family Argathonidae were proposed by Stebbing (1905), but removed to the Corallanidae by Hale (1925). The genera *Brotherus* Budde-Lund, 1908, *Gurida* Budde-Lund, 1908, and *Orcilana* Nierstrasz, 1931, were eventually synonymised with *Argathona* (see Monod, 1975; Bruce, 1982a). Schioedte and Meinert (1879) had placed their new genera *Barybrotes* and *Tachaea* in the family Corallanidae, with Hansen (1890) later establishing the family Barybrotidae for *Barybrotes*. Pillai (1967), however, synonymized Barybrotidae with the Aegidae of Dana, 1853, thus removing *Barybrotes* from the Corallanidae—Excorallanidae complex altogether. *Smicrostoma* Hale, 1925, was synonymised with *Tridentella* Richardson, 1905, by Menzies (1962).

As things now stand, we have two closely related families, the Excorallanidae and the Corallanidae. The former is monogeneric (*Excorallana*); the latter contains six well-defined and three poorly defined genera. The genus *Corilana* Kossmann, 1880, and *Corilana erythraea* Kossmann, 1880, were regarded as *gen. et sp. inquirenda* by Monod (1933). The original figures are inadequate, but the single species seems closest to *Lanocira*. The seven recognised genera are:

Corallana Dana, 1852 (type-genus)
Tachaea Schioedte and Meinert, 1879
Alcirona Hansen, 1890
Lanocira Hansen, 1890

Argathona Stebbing, 1905
Tridentella Richardson, 1905
Austroargathona Riek, 1953

Of the above genera *Austroargathona* appears to be in no way separable from *Tachaea* (personal observation, N.L.B.). Jones (1982) has recently synonymised *Nalicora* Moore, 1902, with *Lanocira*. Stebbing (1904a, b) erected the monogeneric family Excorallanidae, basing it on the presence of three features: a greatly elongated incisor tooth on the mandible; a bilobed second maxilla; an elongate third article on the 5-articled maxillipedal palp (twice as long as wide; Richardson, 1905). Excorallanids have further been characterised by: molar process and lacinia of mandible vestigial or absent; outer lobe of first maxilla modified into single, large, recurved spine; frontal lamina narrow; clypeus and labrum very broad and short; pereopods 1–3 prehensile, with short blunt spines on inner margins; pereopods 4–7 ambulatory.

The validity of the Excorallanidae has long been suspect, as several species exist that possess some of the features of both families. Bruce (1982b) has figured the mouthparts of a *Corallana* species from New Guinea in which the third article of the maxillipedal palp is twice as long as broad. *Excorallana angusta* Castro, 1960, has the third article of the maxillipedal palp only slightly longer than wide, the condition that is normal for the Corallanidae, while in *Excorallana*, new species (Delaney, in preparation), the third maxillipedal article is shorter than in any other *Excorallana* species. In the Corallanidae, the genera *Corallana*, *Lanocira*, and *Argathona* each possess an excorallanid-like first maxilla. In *Alcirona* the first maxilla is basically the same, but possesses two terminal ungues. Finally, there are corallanids which have mandibles of the typical excorallanid form (Bruce, 1982b) (i.e., with a robust tridentate incisor provided with an elongate posterior tooth).

Bruce (1982b) discusses the need for a complete revision of the Corallanidae, noting its similarity with the Excorallanidae and pointing out that the two families are in fact separated only by differences in the structure of the second maxilla. However, even this is now seen to be of questionable validity. While the genera *Corallana*, *Argathona*, *Tachaea*, and *Alcirona* have the second maxilla in the form of a short lobe, in *Tridentella* and *Lanocira* it is composed of two or three articles.

Comparison of these differences to the variation shown between genera within the family Cirolanidae further suggests that the differences between the Corallanidae and Excorallanidae are not of familial significance (even if they did *not* vary among species within genera!). In the Cirolanidae, for example, the second maxilla may lose an article (*Metacirolana rugosa* Bruce, 1980), the lacinia may be reduced [*Neocirolana* Hale (in Bruce, 1981)] or the maxillipedal endite may be vestigial [*Eurydice* Leach (in Holdich *et al.*, 1981)].

In view of the above, it seems apparent that synonymisation of the Excorallanidae with the Corallanidae is long overdue, and will bring the family into line with other flabelliferan families in the weight given to familial characters. A synonymy for the family follows, listing only those references that are directly pertinent to the taxonomic and nomenclatural history of the taxa. To clarify the limits of the Corallanidae, a new diagnosis (with remarks) is also provided.

Corallanidae Hansen

Corallanidae Hansen, 1890: 280, 311, 376. Stebbing, 1893: 345; 1904a: 13; 1904b: 703; 1907: 39; Richardson, 1905: 156; Thielemann, 1910: 19; Hale, 1925: 160; Kussakin, 1979: 222.
Alcironidae Hansen, 1890: 312, 390. Stebbing, 1893: 346; 1900: 637.

Excorallanidae Stebbing, 1904a: 346; 1904b: 703. Thielemann, 1910: 19; Menzies and Glynn, 1968: 41.
Exocorallanidae Richardson, 1905: 138 (*lapsus calami*).
Corallaninae Nierstrasz, 1931: 163. Menzies, 1962: 120.

Diagnosis.—Eyes lateral. Dorsum moderately arched, often with dorsal setae, spines, and/or tubercles; pereonites 2–7 with distinct coxae. Pleon of 5 segments plus pleotelson.

Antenna 1 with 2- or 3-articled peduncle; antenna 2 with 5-articled peduncle; flagella of both distinct, multiarticulate. Frontal lamina present, narrow; clypeus generally wide; labrum often narrower than clypeus. Mandible with narrow, 2- or 3-dentate incisor, lacinia mobilis reduced or absent, molar process rarely present, usually vestigial, represented by small fleshy lobe; palp 3-articled. First maxilla with outer lobe simple or falcate with 1 to several terminal spines; inner lobe small, simple. Second maxilla reduced, 1- or 2-lobed, without stout spines. Maxilliped without endite (except for *Tridentella*); palp slender, composed of 4 or 5 articles, without spines. Pereopods 1–3 usually prehensile (dactyl as long as, or longer than propodus), occasionally ambulatory (dactyl shorter than propodus); pereopods 4–7 always ambulatory. Pleopods biramous, all lamellar; coupling hooks present on medial margin of pleopod peduncles 1–4. Uropods inserted at anterolateral margins of pleotelson, both rami articulate.

Type-genus.—*Corallana* Dana, 1852.

Remarks.—The Corallanidae superficially resemble three other flabelliferan families (Cirolanidae, Aegidae, and Cymothoidae), and for this reason a key is provided below to distinguish these taxa. Useful field characters that help in distinguishing corallanids from the very similar cirolanids include the larger eyes of the former, the distinctly visible coxae (in dorsal view), and the often present heavy setosity or dorsal tuberculation.

Key to the Families Cirolanidae, Corallanidae, Aegidae, and Cymothoidae

1. Pereopods 4–7 prehensile (dactyls longer than propodi); antenna reduced, without clear distinction between peduncle and flagellum; maxillipedal palp of 2 articles ..... Cymothoidae
– Pereopods 4–7 ambulatory (dactyls shorter than propodi); antenna not as above, with clear distinction between peduncle and flagellum; maxillipedal palp of 2 or 5 articles 2
2. Maxilliped, first and second maxillae with stout, recurved, apical spines; mandible without lacinia or molar process; first maxilla reduced to a single slender stylet ..... Aegidae
– Maxilliped and second maxilla without stout, recurved, apical spines; mandible with or without lacinia and molar process; first maxilla not slender stylet 3
3. Mandible with lacinia and molar process generally reduced, vestigial, or absent; mandibular incisor narrow; first maxilla with outer lobe simple or falcate; second maxilla reduced; pereopods 1–3 usually prehensile (occasionally ambulatory) ..... Corallanidae
– Mandible with distinct lacinia, and large bladelike molar process; incisor generally broad, 3-dentate; first maxilla not as above, outer lobe often bearing several (10–14) stout spines; second maxilla with palp and exopod present; pereopods 1–3 always ambulatory ..... Cirolanidae

Literature Cited

Bruce, N. L. 1980. Cirolanidae (Crustacea:Isopoda) of Australia. Heron Island and the Capricorn Group.—Bulletin of Marine Science 30: 108–130.

———. 1981. The Cirolanidae (Crustacea:Isopoda) of Australia: Diagnoses of *Cirolana* Leach, *Metacirolana* Nierstrasz, *Neocirolana* Hale, *Anopsilana* Paulian and Debouttéville, and three new genera—*Natatolana*, *Politolana* and *Cartetolana*.—Australian Journal of Marine and Freshwater Research 32: 945–966.

———. 1982a. Species of *Argathona* Stebbing, 1905 (Crustacea, Isopoda, Corallanidae) new to Australia, with description of two new species.—Crustaceana 42: 12–25.

———. 1982b. On the genus *Corallana* Dana, 1852 (Crustacea, Isopoda, Corallanidae) with description of a new species from Western Australia.—Crustaceana 42: 241–249.

Budde-Lund, G. 1908. Isopoda von Madagaskar und Ostafrika mit Diagnosen verwandter Arten.—*In:* Dr. Alfred Voeltzkow, Reise in Ostafrika in den Jahren 1903–1905.—Wissenschaftliche Ergebnisse 2: 263–308.

Castro, A. L. de. 1960. Quatro especies novas, de *Excorallana* Stebbing, 1904 (Isopoda, Excorallanidae).—Arquivos do Museu Nacional do Rio de Janeiro 50: 61–77.

Dana, J. D. 1852. On the classification of the crustacean Choristopoda or Tetradecapoda.—American Journal of Science and Arts (2) 14: 297–316.

———. 1853. Crustacea. Pt 1.—*In:* United States Exploring Expedition, 1838–1842, 13: 696–805.

Hale, H. M. 1925. Review of Australian isopods of the cymothoid group. Part 1.—Transactions of the Royal Society of South Australia 64: 288–304.

Hansen, H. J. 1890. Cirolanidae et familiae nonullae propinque Musei hauniensis.—Kongelit Videnskabernes Selskab Skrifter, 6, Raekke, Naturvidenskabelig og Mathematisk Afdeling 5: 237–426.

Holdich, D. M., K. Harrison, and N. L. Bruce. 1981. Cirolanid isopod crustaceans from the Townsville region of Queensland, Australia, with description of six new species.—Journal of Natural History 5: 555–605.

Jones, D. A. 1982. New isopods of the genus *Lanocira* (Corallanidae) from the Indian Ocean region.—Crustaceana 42: 65–75.

Kossmann, R. 1880. Reise in die Küstengebeite des Rothen Meeres.—*In:* Zoologische Ergebnisse einer im auftrage der Koniglichen Academie der Wissenschaften zu Berlin, zweite Hälfte, erste Lieferung, pp. 67–140.

Kussakin, O. G. 1979. Marine and brackish water isopod Crustacea. Suborder Flabellifera.—Academy of Science, Leningrad, U.S.S.R., pp. 1–470.

Menzies, R. J. 1962. The zoogeography, ecology and systematics of the Chilean marine isopods.—Reports of the Lund University Expedition 1948–49. Lunds Universitets Årsskrift (n.ser.) (2) 57: 1–162.

———, and P. W. Glynn. 1968. The common marine isopod Crustacea of Puerto Rico. A handbook for marine biologists.—*In:* P. Wagenaar Hummelink, ed., Studies on the fauna of Curaçao and other Caribbean Islands 27—Natuurwetenschappelijke Studiekring voor Suriname en de Nederlandse Antillen 51: 1–133.

Monod, T. 1933. Tanaidacea et Isopoda. Mission Robert Ph. Dollfus, en Egypte.—Memoires de l'Institute d'Egypte 21: 161–264.

———. 1975. Sur un *Argathona* (Crustacea:Isopoda) du Kenya.—Bulletin du Muséum Nationale d'Histoire Naturelle, Paris (3e série) 319, Zoologie 226: 999–1004.

Moore, H. F. 1902. Report on Porto Rican Isopoda.—Bulletin of the United States Commissioner of Fish and Fisheries, 1900, 20: 161–176.

Nierstrasz, H. F. 1931. Die Isopoden der Siboga-Expeditie III. Isopoda Genuina II Flabellifera.—Siboga Expeditie, 32c (Livre 114): 123–233.

Pillai, N. K. 1967. Littoral and parasitic isopods from Kerala. Families Eurydicidae, Corallanidae and Aegidae—2.—Journal of the Bombay Natural History Society 64: 267–283.

Richardson, H. 1899. Key to the isopods of the Pacific coast of North America, with descriptions of twenty-two new species.—Proceedings of the United States National Museum 21: 815–869.

———. 1901. Key to the isopods of the Atlantic coast of North America, with descriptions of new and little known species.—Proceedings of the United States National Museum 23: 493–579.

———. 1905. A monograph on the isopods of North America.—Bulletin of the United States National Museum 54: i–xxiii, 1–727.

Riek, E. F. 1953. A corallanid isopod parasitic on freshwater prawns in Queensland.—Proceedings of the Linnean Society of New South Wales 77: 259–261.

Schioedte, J. C., and F. Meinert. 1879. De Cirolanis aegas simultantibus commentatio brevis.—Naturhistorisk Tidsskrift 12: 279–302.

Stebbing, T. R. R. 1893. A history of Crustacea. Recent Malacostraca.—Kegan Paul, Trench and Trubner, London. pp. i–xvii, 1–466.

———. 1900. On Crustacea brought by Dr. Willey from the South Seas.—*In:* A. Willey, Zoological results based on material from New Britain, New Guinea, Loyalty Islands and elsewhere, collected during the years 1895, 1896 and 1897, 5: 605–690.

———. 1904a. Gregarious Crustacea from Ceylon.—Spolia Zeylanica 2: 1–29.

———. 1904b. Marine Crustaceans. XII. Isopoda, with description of a new genus.—*In:* J. S. Gardiner, Fauna and Geography of the Maldive and Laccadive Archipelagoes 2: 699–721.

———. 1905. Report on the Isopoda collected by Professor Herdman.—Report to the Government of Ceylon on the Pearl Oyster Fisheries of the Gulf of Mannar, Part IV, Supplementary Report, 23: 1–64.

———. 1907. A freshwater isopod from Calcutta.—Linnean Journal of Zoology, London 30: 39–41.
Thielemann, M. 1910. Beiträge zur Kenntnis der Isopodenfauna Ostasiens.—Abhandlungen der mathematisch–physikalischen Klasse der Koeniglich–Bayerische Akademie der Wissenschaften, supplementary volume 2: 1–109.

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ANNOUNCEMENT

An international symposium on "Biology of Terrestrial Isopods," to be sponsored by the Zoological Society of London, is planned for 7 and 8 July 1983 in London. It is also hoped to organize a meeting on "Woodlice in Education" on 9 July. Further details for those interested in attending and/or wishing to have a paper considered can be obtained from:

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