CHILOPODA

Compiled by Alessandro Minelli

Centipedes (Chilopoda) and millipedes (Diplopoda) are terrestrial arthropods, most abundant in forest environments. A few species, however, have a more or less obligate relationship to the shore and are usually found under jetsam. Centipedes are predators, whereas most millipedes feed on litter, dead wood and other decaying plant matter. The sources of the present list were Brölemann (1932), Eason (1964), Foddai *et al.* (1995), Strasser & Minelli (1984).

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Class Chilopoda

Order Geophilomorpha

Family Dignathodontidae

Henia
bicarinata (Meinert, 1870)

Family Schendylidae

Hydroschendyla
submarina (Grube, 1872)

Family Geophilidae

Tuoba
poseidonis (Verhoeff, 1901)
Geophilus
fucorum Brölemann, 1900
algarum Brölemann, 1909

Family Linotaeniidae

Strigamia
maritima (Leach, 1817)

DIPLOPODA

(see Chilopoda above)

Class Diplopoda

Order Julida

Family Nemasomatidae

Thalassisobates
litoralis (Silvestri)

Family Julidae

Dolichoiulus
tongiorgii (Strasser, 1973)

INSECTA

Compiled by Anastasios Legakis and Declan Murray

The list of the marine insects is definitely not complete. There are two reasons for this situation. One is that references to marine insects are scattered in various entomological publications some of which are old and not readily available. Second, the definition of a marine insect is not commonly agreed. Some authors consider them as insects found in marine habitats while others include those that are sporadically associated with the marine environment. The definition proposed by Chang & Frank (1993) considers as marine species an insect which spends at least one of its developmental stages habitually in a marine habitat. Even in this case there are some who consider the supralittoral zone as terrestrial (Bigot *et al.*, 1984). In this list, the supralittoral zone is excluded as a very large number of species would have to be included. The list was compiled using several sources (Riedl, 1970; Chang & Frank, 1993; Hayward & Ryland, 1995).

The majority of juvenile Chironomidae inhabit freshwater but, uncommonly among insects, larvae of some are true halobionts and have been recorded from coasts all over the world (Pinder 1995). The following Chironomidae are known from European coastal waters (Ashe and Cranston, 1990).

References

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Class Insecta

Order Archaeognatha

Family Machilidae

Petrobius
maritimus (Leach, 1809)
brevistylis Carpenter

Order Coleoptera

Family Carabidae

Aepopsis
robinii (Laboulbene, 1894)
Aepus
marinus (Stroem, 1788)
Eurynebria
complanata (L., 1767)
Broscus
cephalotes (L., 1758)

Family Staphylinidae

Micralymma
marinum (Stroem, 1785)
Diglotta

submarina (Fairmaire & Laboulbene, 1856)
Bledius
spectabilis (Kraatz, 1857)

Order Collembola

Family Entomobryldae
Pseudosinella
halophila (Bagnall)

Family Hypogastruridae
Hypogastrura
viatica (Tullberg, 1872)

Family Isotomidae
Axelsonia
littoralis (Moniez, 1890)

Family Neanuridae
Anurida
maritima (Guerin, 1838)
Anuridellla
marina (Willem)

Family Onychiuridae
Onychiurus
debilis (Moniez)
thalassophila (Bagnall)

Order Dermaptera

Family Carcinophoridae
Anisolabis
maritima (Bonelli, 1832)

Order Diptera

Family Chironomldae
Clunio
adriaticus Schiner, 1856
balticus Heimbach, 1978
marinus Haliday, 1855
ponticus Michailova, 1980
Halocladius
braunsi (Goetghebuer, 1942)
fucicola (Edwards, 1926)
mediterraneus Hirvenoja, 1973
millenarius (Santos Abreu, 1918)
variabilis (Staeger, 1839)
varians (Staeger, 1839)
Telmatogeton
japonicus Tokunaga, 1933
pectinata (Deby, 1889)
Thalassomyia
frauenfeldi Schiner, 1856
Thalassosmittia
atlantica (Stora, 1936)
thalassophila (Bequaert & Goetghebuer, 1913)

Family Ephydridae
Ephydra
macellaria Egger, 1862

Order Hemiptera

Family Saldidae
Aepophilus
bonnairei (Signoret)

PHORONIDA

Compiled by C. C. Emig, C. Roldán & J. M. Viéitez

The Phoronida is an exclusively marine group of lophophorate animals: infaunal, suspension-feeders, with a vermiform body enclosed in a slender, chitinous tube in which it moves freely and it is anchored by the ampulla, the end-bulb of the body. The tube is embedded in hard or soft substrata.

Phoronids are found in all oceans and seas and are not uncommon in favourable situations. In some habitats they are very abundant, reaching several tens of thousand individuals per square metre. Phoronids occur at depths ranging from the intertidal zone to about 400 m depth, but mainly between 0 to 70 m. Almost all species occuring in European waters have wide geographical ranges and most are probably cosmopolitan.

Several authors regard Phoronida as constituting a separate phylum; but others, including myself (Emig 1997), consider them as a class within the phylum Lophophorata, which also includes the Bryozoa and Brachiopoda. Recently, Cohen (2000) included the Phoronida in a subphylum named Phoroniformea within the Brachiopoda. The Phoronida are particularly distinguished from the other two lophophorate groups on the basis of its cylindrical body form living in a tube which can be compared to the shell of the Brachiopoda and to the exo-skeleton in the Bryozoa.

Currently only two genera, *Phoronis*, Wright, and *Phoronopsis*, Gilchrist, are recognised, together with respectively seven and three well-defined species (Emig 1982). The name *Phoronis* Wright, 1856 from the genus name, is one of the numerous epithets of the Egyptian goddess Isis. The genus *Phoronopsis* has an epidermal invagination at the base of the lophophore.

The characteristic larva of the Phoronida, named actinotroch or *Actinotrocha* Müller, 1846, has been described near Helgoland (Germany). He considered it as an adult form, and named it *Actinotrocha branchiata.* The transformation of the actinotroch into an adult phoronid was described for the first time by Kowalevsky (1867) who, following the metamorphosis, realised that the *Actinotrocha* was a larval stage of Wright's *Phoronis* species.

Separate names for larval and adult forms are still used in taxonomy. Despite the priority of the larval name *Actinotrocha*, the International Commission of Zoological Nomenclature accepted also as valid the name *Phoronis*. Consequently, the actinotroch keeps a separate "generic" name considered as a technical term under *Actinotrocha* which is sometimes still different from the adult species name.

From data of recent ecological surveys in Europe, mainly in the south of the Iberian Peninsula, the Chafarinas Islands and Canary Islands (Emig *et al.* 1999, 2000), the number of phoronid species occuring in the European waters increased to 9 of 10 species known in the world. The species not recorded in Europe, *Phoronis ijimai*, is presently known from Pacific and N. W. Atlantic waters. The Iberian Peninsula and the surrounding islands represent a privileged area for the Phoronida because all 9 species has been recorded along their coasts.

For more detailed information on Phoronida see the website at http://www.com.univ-mrs.fr/DIMAR/Phoro/.