

Research Report (I. 2012)

Book:

2007 Worldwide Door Snails (Clausiliidae), recent and fossil. - Hackenheim (ConchBooks).

Papers (see Publications):

General papers on the system of the Clausiliidae: 1963a, 1969d, 1978a, 1979a, 1982a, 1984b, 2005e, book 2007.

Papers on

recent European Clausiliidae since 1963,
including revisions of

- Serrulininae: 1978b, 1994, 1995;
- Alopiinae:
 - *Albinaria*: 1977a, 1984a, 1999a, 1993c, 2004a;
 - *Alopiia*: 1979b, 1981c, 2008b;
 - *Charpentieria*: 1963b;
 - *Cochlodina*: 1969a, 1969b, 1969c, 2007b;
 - *Cristataria*: 1971c;
 - *Delima*: 1969e;
 - *Delimini*: 2002b;
 - *Herilla*: 1971a;
 - *Leucostigma*: 2011;
 - *Medora*: 1970a, 2009b;
 - *Montenegrina* 2009a;
 - other groups of Alopiinae: 1972a, 1974d, 1977c;
- Mentissoideinae: 1975a, 1977c, 1994, 1995, 2004b, 2005b;
- Clausiliinae:
 - *Clausilia*: 1966a, 1990, 2002e;
 - *Macrogastrea*: 2003c; 2006a;
- Baleinae:
 - *Balea*, *Alinda*, *Laciniaria*: 2007e, 2008a;
 - other groups of Baleinae: 1973b, 1974d, 1975a, 1976a, 1977c;

non-European Clausiliidae:

- Garnieriinae: 2002g, 2005a, 2007c, 2010;
- Neniinae Peru: 1999d, 2005c [Neubert & Nordsieck], 2005d, 2010;
- Phaedusinae Himalaya: 1973a, 1974b; Japan: 1998d; mainland China: 2001c, 2003b, 2005a, 2007c; South East Asia 2002f; Taiwan: 1997b, 2003a, 2005a;

further articles on recent Clausiliidae on the website www.hnords.de

fossil Clausiliidae from western and central Europe: 1972c, 1974a, 1976b, 1978c, 1981a, 1981b, 1985a, 1985c, 2000a, 2002i;

stratigraphy of Neogene deposits with clausiliid faunae: 1982b, 1990;

the systematic position of the Clausiliidae: 1985b, 1986b;

the system of the Helicoidea: 1986a, 1987, 1993b, 2002c;

the system of the Pulmonata: 1993a;

Chondrina: 1962, 1970b.

Research results:

Main result of the research was the revision of the system of the Clausiliidae.

Basic results in this task were the following:

- Species differ by shell and genital characters; the differences in shell and genital morphology are not equally great in different groups (1963a, 1966a, 1969c, 1971c, 1990).
- Characters have different taxonomic value; the essential characters of different groups are not the same. Characters which formerly were regarded as essential often turned out to be convergences (1963a, 1969d, 1973a, 1978a, 1979a, 1998d, 2001c, 2002g, 2004b, Nordsieck & Neubert 2002).
- For the definition of higher taxa genital morphology is more important than shell morphology (1969d, 1978a, 1979a, 1994).
- Three character complexes formerly used as principal characters in classification originated more than once by parallel evolution:
- G-type of clausilial apparatus (1963a, 1966a, 1969d, 1979a, 1982a, 1997c);
- apostrophy (1978a, 1999c, 2002g);
- transformed diverticulum of bursa copulatrix (1978a).

The contributions in the following fields of research go beyond the taxonomic work on Clausiliidae:

- Origin and evolution of the clausilial apparatus (1982a, book 2007).
- Distribution of the European Clausiliidae in time, their stratigraphic importance, faunal changes and successions (1981b, 1982b, 1990, 2000a, book 2007).
- Stratigraphy of the Neogene deposits with fossil Clausiliidae and Triptychiidae = Filholiidae (1982b, 1990).
- Morphology of genital and excretory systems of the Stylommatophora, importance of certain genital organs for phylogeny and systematics (1966b, 1985b).
- Complexity of species subdivision into subspecies and speciation in Clausiliidae and resulting problems for taxonomy (1963b, 1966a, 1969e, 1970a, 1971a, 1973b, 1990, 1993c, 1999a, 2002e, 2002h, 2004a, book 2007).
- Species hybridization in Clausiliidae, its occurrence in different groups and resulting problems for species concept and taxonomy (1969e, 1979b, 1984a, 1997c, 1999a, 2004a, book 2007).
- Left-right-coiling in Alopia, copulation and hybridization of inversely coiled species (1978e, 1979b, 1986c, 2008b).
- Mating biology of Clausiliidae (1969d, 2005f, book 2007).

Further contributions concern the following fields of research:

- Systematics of the Helicoidea (1987, 1993b, 2002c), system of the fossil European Helicoidea and their distribution in time (1986a).
- Origin and distribution of the Stylommatophora in space and time (1986b).
- Phylogeny and system of the Pulmonata (1993a).

Research travels:

- Southern Alps (southern Austria, Italy from Lake of Lugano to Venezia Giulia): IV.1960, VIII.1960, IV.1961, IX.1961, IX.-X.1962, IX.1963, IV.1968, VIII.-IX.1980, IV.2001, V.2003.
- Western Alps (Italy, France): IV.1971 (mainly Piedmont), VII.-VIII.1987 (Piedmont, Provence), VII.-VIII.1988 (Piedmont, Liguria).
- France: VII.-VIII.1982, VIII.-IX.1983 (mainly Languedoc and Provence).
- Italy: VIII.-IX.1972 (Puglia), IV.2001 (northern Italy), VI.-VII.2009, X.2009, III.-IV.2010 (central Italy), X.2010 (central and southern Italy), IV.2011 (southern Italy).
- Yugoslavia: IX.1961 (mainly Slovenia), IX.1963 (mainly Dalmatia), VIII.-IX.1965 (mainly Dalmatia), IV.1966 (Dalmatia), VIII.1966 (Croatia, Dalmatia, Bosnia, Hercegovina), III.-IV.1967 (mainly Dalmatia), VIII.1967 (mainly Croatia with Istria and Dalmatia), IV.1968 (Istria), VII.-VIII.1968 (Dalmatia, Hercegovina), III.-IV.1969 (Croatia, Dalmatia), VII.-VIII.1969 (mainly Crna Gora), III.-IV.1970 (mainly Dalmatia and Hercegovina), VIII.1970 (mainly Serbia and Slavic Macedonia), VIII.-IX.1971 (Serbia, Slavic Macedonia), VII.-VIII.1973 (Serbia), VII.-VIII.1974 (mainly Crna Gora and Slavic Macedonia), VII.-VIII.1975 (mainly Istria), IX.1985 (Slovenia), VIII.1986 (Dalmatia).
- Slovenia, Croatia: IV.2001 (Slovenia, Istria), V.-VI.2004, V.-VI.2005 (Slovenia), V.2006, IX.2006 (Slovenia, Croatia), V.2008, X. 2008, IV.-V.2009 (mainly Dalmatia).
- Greece: VIII.-IX.1971 (Greek Macedonia, Thessalia, Epirus), VIII.-IX.1972 (Epirus, central Greece, Euboea, Thessalia), VII.-VIII.1974 (Greek Macedonia), X.-XI.1997, V.-VI.1998 (eastern Peloponnese).
- Bulgaria: VII.-VIII.1973 (Balkan, Rhodopes).
- Rumania: VII.-VIII.1975 (Banat, southern Carpathians), VII.-VIII.1976, VII.-VIII.1977, VII.1978, VIII.-IX.1979, VIII.-IX.1980 (western, southern and eastern Carpathians).
- Turkey: IV.1992, XII.1992-I.1993, XII.1993-I.1994, VII.-VIII.1994, V.-VI.1995 (southern Anatolia from provinces Denizli to Hatay).
- Collection trips in Germany (western and southern parts), Switzerland (northern part), France (Alsace), Belgium, Luxemburg and Great Britain (southern England).



Research travel Rumania 1975: Bucegi, Cheile Tatarului (1450 m), habitat of *Alopia livida* MENKE (right) and *A. straminicollis* CHARPENTIER (left).



Research travel Slovenia 2006: above Trebušica valley near Most na Soči, habitat of *Cochlodina costata* C. PFEIFFER.