Reassessment of the genus *Typhiocypris* Vejdovský (Ostracoda, Candoninae), with a brief reflexion on the social role of the “Kempf Database Ostracoda”

Tadeusz NAMIOTKO1, Dan L. DANIELOPOL2, Claude MEISCH3, Martin GROSS4 & Nataša MORI5

1University of Gdańsk, Faculty of Biology, Department of Genetics, Laboratory of Limnozoology, Wita Stwosza 59, 80-308 Gdańsk, Poland. tadeusz.namiotko@biol.ug.edu.pl
2Austrian Academy of Sciences, Commission for the Stratigraphical & Palaeontological Research of Austria, c/o Institute for Earth Sciences (Geology & Palaeontology), University of Graz, Heinrichstrasse 26, 8010 Graz, Austria. ddanielo@oeaw.ac.at
3National Natural History Museum of Luxembourg, 25 rue Muenster, 2160 Luxembourg. claude.meisch@education.lu
4Universalmuseum Joanneum, Department for Geology & Palaeontology, Weinzöttlstrasse 16, 8045 Graz, Austria. martin.gross@museum-joanneum.at
5National Institute of Biology, Večna pot 111, 1000 Ljubljana, Slovenia. nataza.mori@nib.si

Taxonomic names reflect the way specialists understand the position of organisms within a given classificatory scheme. We consider that a taxonomic name should transmit beside information on the organisms it characterises also indications on the origin and evolution of the given entity. Different taxonomic names used for closely resembling ostracod morphologies one finds, especially in the micropalaeontological publications, should not be automatically disclosed as synonyms. Ostracod taxa bearing different names within parallel taxonomic systems should be comparatively studied with geometric-morphometric techniques. This approach allows building a multidimensional semantic space (cf. WEINBERGER, 2012) which ultimately offers ideas for new research within an evolutionary perspective of a given ostracod project. With these epistemological ideas at hand we propose a redefinition of the genus *Typhiocypris* (VEJDÓVSKÝ, 1882).

First we show that until now this genus was either not recognised by various specialists (cf. MÜLLER, 1912) or if reactualised by others (inter alia KARANOVIC, 2005) had practically no semantic content which should convey information on the evolutionary aspects of the group. We document this latter situation pointing out the fact that *Typhiocypris eremita* (VEJDÓVSKÝ, 1880), the type species of the genus, was originally described in a completely unsatisfactory way; it was followed by a first redescription (ŠOSTARIC, 1888) which represents a surprising case of plagiarism (exact documentation of these aspects is offered on request). Additionally, the genus had initially no diagnosis. The apparently reduction of ocular structures mentioned by VEJDÓVSKÝ (1882) and considered a period as the main distinguishing trait of the genus (cf. VAVRA, 1891) is incorrect, as observed by DANIELOPOL (1980). Also no repository material for the type species *Typhiocypris eremita* exists.

We use as the reference material for *T. eremita* valves from Čečelice (north of Prague) already documented by ABSOLON (1978). The diagnostic traits of the valves are fixed for both the adult and the juveniles. Combined with already published information on the limbs we propose a new definition of the genus which includes species which nowadays all colonise groundwater habitats, namely those species which previously were assigned to the *eremita* species group of the genus *Pseudocandona* (cf. MEISCH, 2000; NAMIOTKO & DANIELOPOL, 2004; IEPURE et al., 2007). The new diagnosis we propose (see below) confirms previous taxonomic decisions for assignment of fossil candonids to *Typhiocypris* made inter alia by TRIEBEL (1963), POKORNY (1986) and KRSTIC (2006) and/or assignment to this genus other fossil species e.g. *Caspioeypris schneiderae* (LIVENTAL, in AGALAROVA et al., 1961).

We point out to the homeomorphic triangular shape of Candoninae valves and emphasize that with an in deep morphological analysis it is possible to differentiate them. We use as an example the comparative morphology of *Typhiocypris* and some *Mixtacandona* species. For this latter group we take information on *M. tabicarui* (cf. DANIELOPOL & Cvetkov, 1979). Additional research on this aspect is suggested for other living and fossil species like *Fabaformiscandona aenonea* (KLIE) known from caves and springs in Slovenia as well as for
the Miocene ostracods identified by Grosse (2004) as Candona (Typhlocypris) aff. eremita. New data on these taxa could improve our perception on the origin and evolution of triangular candonids.

Typhlocypris appears nowadays as a bundle of evolutionary lineages with evolutionary trajectories which slightly diverge one from the other. This view is based mainly on the observations we made on T. eremita (Vejdosky) and T. cavica (Klie) and their related species. Our investigations also show that the origin of the stygobitic Typhlocypris has to be sought in limnic ostracods which were spread over the Palaeartic during the Tertiary.

The present view on how we delineate the genus Typhlocypris benefited from the work of Eugen KemPF which stretched over more than three decades, leading to the present Ostracoda Database (KemPF, 2008). With the help of this archive and the generosity of its author it was possible to identify species for which, at the beginning, we had no information, like Caspiocypris schneiderae (Livental, in Agalarova et al., 1961). Additionally, it stimulated scientific communication with other specialists dealing with similar taxonomic problems. Therefore in our case the Database was a lively component for cooperative work.

Acknowledgements:

Eugen KemPF and his useful Database are here greatly acknowledged. This contribution is part of two projects financially supported by the Austrian Science Fund (P. 17738-B03 to D. L. D. and P. 21748-N21 to M. G.). We acknowledge this generous support as well as the offer of ostracod material and information received from many colleagues during the last years.

Annex — Proposed diagnosis for the genus Typhlocypris Vejdosky, 1882, compiled based on Danielopol (1982), Namiotko & Danielopol (2004), Namiotko et al. (2004) and additional information for the type species based on the new reference material.

Type species: Cypris eremita Vejdosky, 1880. New reference material: 5 valves from Cechelice, 23 km north of Prague (photos No 8554-8558), leg. A. Absolon, sample 366 (Sumpfkreide, Late Pleistocene): 2 Ad. LV (No. 8354, 8355), 1 Ad. RV (No. 8356), 2 juv. RV (No. 8357, 8358). The specimens (valves) will be deposited at the Naturhistorisches Museum Wien, Depart. Invertebrate Zoology, Coll. Crustacea.

Carapace of medium length (mostly ≤1.1 mm), approx. triangular in lateral view, with the greatest height at or just behind mid-length (at 50-60% of the length), and height to length ratio >50%. Left valve dorsally with a hump that overlaps the right valve. Valves thin with a fine ornamentation consisting of shallow pits mostly in the central area. Calcified inner lamella narrow, anteriorly usually ≤10% of the valve length and <2x as wide as posteriorly. Inner and outer margins more or less parallel. Valve shape, ornamentation and the relative width of the inner lamella remain almost unchanged throughout the last four stages of the postembryonic development. Sexual dimorphism in size and shape of the carapace weakly expressed; male carapace slightly larger than that of the female. Second antenna in both sexes with long apical claws: in females G1 ≥ 2.2x and GM ≥ 1.8x the length of the penultimate segment, in males G2 ≥ 2.0x and GM ≥ 1.6x the length of the 3rd and 4th endopodial segments combined, whereas male z1 claw relatively short, usually <3/4 of G2. 2nd segment of mandibular palp with 3 setae in the setal group, and with externo-distal (p) seta smooth (not plumose). Fifth limb (L5) with rudimentary exopodial branchial plate bearing 2 setae. Cleaning leg (L7) with protopodite bearing three setae (d1, d2, dp), penultimate segment missing the medial f seta, subterminal segment with long distal g seta, the terminal segment set with two long h2 and h3 setae and one short h1 seta. Female genital lobe with two fine folds separated by a flat depression or weakly developed and evenly rounded. Hemipenis: three lobes (a, b, c) well developed; M-process with a proximal plate broad, central part contracted and distal part weakly sclerotized, variably shaped and often crenulated; bursa copulatrix cornet-shaped. Zenker organ with five wreaths of spines and two terminal cap-like structures.

References


_Hydrobiologia_, 67: 249-266.


