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On *Potamocypris compressa* (Crustacea, Ostracoda) from temporary rock pools in Utah, USA, with notes on the taxonomic harmonisation of North American and European ostracod faunas

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Abstract

We report the abundant occurrence of a species of the ostracod genus *Potamocypris* in temporary freshwater rock pools in Utah, USA. It is identified as *P. compressa* Furtos, 1933, a species hitherto considered to be only a variety or subspecies of *P. smaragdina* (Vávra, 1891) but here established as a valid species for the first time. The biogeographical implications of this taxonomic revision are considered in the context of a metadatabase of northern hemisphere nonmarine ostracods for palaeoclimate applications.

Key words: taxonomy, Ostracoda, freshwater, morphology, zoogeography, metadatabase

Introduction

Palaeoclimatic applications of nonmarine ostracods, such as transfer functions and the Mutual Ostracod Temperature Range (MOTR) method, rely on modern distributional data to calibrate the environmental ranges (e.g., temperature, conductivity) of living species (e.g., Delorme *et al.* 1977; Curry 2003; Curry & Delorme 2003; Mezquita *et al.* 2005; Viehberg 2006; Horne 2007; Horne & Mezquita 2008). Large geographical databases, such as NODE, (Nonmarine Ostracod Distribution in Europe; Horne *et al.* 1998), NANODe (North American Nonmarine Ostracode Database; Forester *et al*. 2005) and the Delorme Database of Canadian non-marine ostracods (now available for study at the Canadian Museum of Nature in Ottawa) are vital for such work. The global application of these palaeoclimate methods can be realised by establishing a metadatabase of existing regional databases and using a Geographical Information System (GIS) to map species distributions. This approach requires only that the metadatabase includes summary records from each component database, comprising species names and global coordinates for localities. The climatic distribution of ostracod species is the main focus of interest, so gaps in geographical distribution data do not pose problems. Taxonomic harmonisation between databases is an essential prerequisite. Martens *et al.* (2008) retain 702 species for the Palearctic and 298 for the Nearctic, but it is almost certain that these figures include some overlap, i.e. some species are known under different names in the two areas, and some recorded under the same name are actually different. In the case of NODE, NANODe and the Delorme Database there are several species names that appear in all three databases but it is not always certain that they are really the same species. The metadatabase approach was discussed at a special thematic session at the European Ostracodologists' Meeting (EOM) in Frankfurt in September 2007, following which a number of pilot studies, focusing on key northern hemisphere taxa, were initiated. The present contribution was occasioned by our examination of collections of ostracods from temporary rock pools in Utah, USA, which included several populations of a species of *Potamocypris*. This led to a consideration of *Potamocypris smaragdina* (Vávra, 1891), a species that is ostensibly well-represented in Europe (NODE) and North America (NANODe and the Delorme Database) (see Fig. 5), and the elevation to species level of *P. compressa* Furtos, 1933, originally described as a variety of *P. smaragdina*.

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