



The Mutual Ostracod Temperature Range method: a new palaeoclimate application of nonmarine ostracods

D. J. Horne

Department of Geography, Queen Mary, University of London, UK (d.j.horne@qmul.ac.uk)

The value of nonmarine ostracods in Quaternary palaeoclimate reconstruction has long been recognized, mainly in terms of the use of indicator species and, more recently, analyses of the trace element and stable isotope chemistry of their calcareous valves. The new Mutual Ostracod Temperature Range (MOTR) method for European Quaternary nonmarine Ostracoda (Horne, 2007) uses the NODE (Nonmarine Ostracod Distribution in Europe) database and a modern climate dataset in conjunction with DIVA-GIS software. Testing of the method has yielded good matches with modern temperatures (using living assemblages not already in NODE) and palaeotemperatures inferred by the coleopteran Mutual Climate Range method, but there is a need to expand the geographical range of distributional records in order to improve accuracy by capturing the full climatic range of each species. Certain key taxa have very wide distributions in the northern hemisphere, so a metadata approach is being explored, using the GIS to link NODE with North American and Asian databases. Analyses of the frequency distributions of species' records in NODE do not support the assumption that a species has an equal probability of occurring anywhere in its temperature range, indicating that the method should only be used to estimate the temperature *range* (as opposed to a point value) within which a fossil assemblage could have existed. The possibility of developing a MOTR method based on a modern southern African training set, to aid palaeotemperature reconstructions in support of studies of former niche glaciation in the Drakensberg Escarpment area, is also being investigated.

Horne, D. J. 2007. A Mutual Temperature Range method for Quaternary palaeoclimatic analysis using European nonmarine Ostracoda. *Quaternary Science Reviews*, 26, 1398–1415.