

## **(Talk) The Pliocene arrival of the ‘*Ambostracon pumilum*’ species group in Australasia via the vector of Shearwater (seabird) migration**

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The species *Ambostracon costatum* recorded from Pliocene and Quaternary strata and temperate marine waters of California (USA), appears to be close in carapace morphology to the species *Ambostracon pumilum* recorded from Pliocene and Quaternary strata and temperate marine waters of southeastern Australia. These and similar species from both regions represent two closely related NE Pacific and SW Pacific ‘species groups’, which demonstrate a largely (asymmetrical) anti-tropical temperate marine distribution.

Along the east coast of Australia, the *pumilum* species group occurs in shallow temperate marine waters south of the Tasman Front, this oceanographic feature separating the tropical Coral Sea to the north from the temperate Tasman Sea to the south. The first common appearance of *Ambostracon ex gr. pumilum* in the southeast Australian stratigraphical record is in the late Pliocene.

Recent DNA studies have indicated that Australasian Shearwater (Muttonbird) species (*Ardenna* spp.) first evolved during the Pliocene. Australian and New Zealand Shearwater species have long migration flyways between the Northern and Southern hemispheres, including a route from the temperate west coasts of North America to the temperate (southern) coasts of Australasia. Thus, one possible dispersal mechanism, which led to the anti-tropical distribution of *Ambostracon* species, is via Shearwater (seabird) migration.

Keywords: Ostracod, Marine, Anti-tropical, Dispersal, Australasia

## **(Talk) Large-scale geographic size variability of *Cyprideis torosa* (Ostracoda) and its taxonomic and ecologic implications**

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Body-size variability results from a variety of extrinsic and intrinsic factors (environmental and biological influences) underpinned by phylogeny. In ostracods it is assumed that body size is predominantly controlled by ecological conditions, but investigations have mostly focused on local or regional study areas. We therefore investigated the geographical size (length, height and width) variability of Holocene and Recent valves of *Cyprideis torosa* within a large geographical area (31-51° N, and 12-96° E). Our results show that distant local size clusters of *C. torosa* are framed within two large-scale geographical patterns. The first pattern describes the separation of two different size classes (i.e., morphotypes) at around ~42° N. The almost disjunct distribution of the morphotypes and probable ecological differentiation indicates the existence of at least two different species. The second large-scale pattern represents a continuous increase in valve size of *C. torosa* with latitude, according to the macroecological pattern referred as Bergmann trend. This is assumed to originate from interspecific size differentiation. Our results imply that the size of *Cyprideis* is predominantly controlled by phylogeny, rather than environmental factors (i.e., salinity).

Keywords: *Cyprideis torosa*, Valve size, Latitude, Salinity