Diversity and dispersal of Crustacea - Examples from the Australian outback to the deep sea

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Integrative taxonomic approaches, which combine molecular genetic data with morphological or other types of data, have greatly improved our ability to assess species boundaries and thus species diversity and the geographic distribution of species. Many species that were once thought to be common and geographically widespread are in fact an assembly of several cryptic species, and often each species has a much more limited distribution. Unravelling these patterns is important to understand the evolutionary history of these taxa as well as the underlying evolutionary mechanisms.

In this talk I will present results from Branchiopoda living in temporary water bodies in the Australian outback as well as Amphipoda and Isopoda (both Peracarida) from the deep sea. In both taxa, cryptic species are common. While Branchiopoda lack the ability to actively disperse between water bodies many species are distributed over >1000km. Conversely, many deep-sea peracaridan species appear to have highly restricted distributions and are often known from single or few localities. I will discuss some of the underlying processes and present an outlook on future work that might help to better understand the population genetic and genomic consequences.