

# Biodiversitätskolloquium

## Molecular Ecology of Tropical Eastern Pacific Corals

David Combosch (Marine Science Center; Northeastern University)

Coral reefs in the Tropical Eastern Pacific (TEP) are among the most isolated and unique in the world. Their isolation has resulted in relatively low species diversity but comparatively high endemism. The dominant reef-building corals of the TEP are the Pocillopora corals, a ubiquitous Indo-Pacific coral genus commonly regarded as inferior reef-builder. In the Tropical Eastern Pacific, however, these species dominate vast areas with mono-specific carpets. To understand how these corals can play such an important ecological role in this location, I use molecular biological techniques to analyse the genetic characteristics of these genus.

In my Diploma thesis, I could show with genetic data that the main TEP reef builder *P. damicornis* receives alleles from one or both of its TEP congeners - *P. eydouxi* and *P. elegans* via interspecific hybridization. This hybridization patterns is most likely limited to the Eastern Pacific and thus presumably in parts responsible for the local success of *P. damicornis*. My data also provides preliminary evidence for a restricted trans-Pacific gene flow in *P. damicornis* between the Central and Eastern Pacific. In combination, these results suggest that Eastern Pacific corals exist in relative isolation from their Central Pacific counterparts and interact with each other differently via hybridization. In a subsequent project, I'm now using hypervariable microsatellite markers to analyze the population structure of these conspicuous single-specific *P. damicornis* carpets. This study revealed that these presumably uniform, clonal carpets are genetically surprisingly diverse and have a strong spatial genetic structure, i.e. a nonrandom spatial distribution of genotypes and thus genetic relatedness. Significant heterozygote deficits were however also found in almost all analyzed populations and there was a significant population structure among populations and regions, i.e. gene flow among populations is likely to be severely restricted - among and within populations.

Mittwoch, 01. Juli 2009  
16.15 Uhr Hörsaal ND 03/99

