

SFB 680

MOLECULAR BASIS OF EVOLUTIONARY INNOVATIONS

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“Stable isotopes in evolutionary invasion ecology - Insight into changing food web structures in freshwater systems”

Invasive species represent an increasing threat for native biodiversity, especially in freshwater systems. The increased use of inland waterways for transportation purposes has destroyed and transformed the natural barriers for species distribution and promotes the introduction, establishment and dispersal of invasive species. Invasive species often influence native communities and can alter the community structure and food web by changing the habitat, providing new food resources or reducing existing ones, and can also alter the flux of energy, biomass and matter to the terrestrial habitat, but this aspect has received little attention. Two of the most successful invaders in European waterways are the amphipod *Dikerogammarus villosus* and the zebra mussel *Dreissena polymorpha* from the Ponto-Caspian region. Both species colonized European waterways rapidly and developed huge densities with adverse effects on the indigenous community. Most benthic macroinvertebrates increased in density by appearance of *D. polymorpha*. Zebra mussels provide shelter by their mussel shells and depose pelagic organic matter, which is a food source for benthic invertebrates as revealed by stable isotope analyses. The invasion of the amphipod *D. villosus* resulted in a decrease in density of many benthic invertebrates. This fact was often ascribed to the potential predacious ability of the invader, but new results using stable isotope analyses indicate that this fact is not as important under natural conditions, and might be more ascribed to the competitive strength of the invasive amphipod. Overall, such invasion processes have strong impact on population scale for many taxa, potentially also on the evolutionary scale.

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Biocenter, Lecture Hall Ground Floor

Host: Eric von Elert

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