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Myriapods from a Central European River Floodplain

by

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Along the river Morava (March) in Eastern Austria the meadows and forests in the floodplain are typically inundated in spring and after rainy periods. The myriapod fauna of three flooded and two non-flooded sites was investigated. During the dry period the animals were collected by means of pitfall traps, quadrat samples and hand catches. During the wet phase, soil samples were taken with a long pipe, submerged wood was examined, and cardboard traps were fixed on tree trunks above the waterline.

The two non-flooded sites, a dry forest and a damp alder forest, showed a rather similar species composition with widespread species like *Julus scandinavius* LATZEL, *Leptoiulus proximus* (NEMEC), *Craspedosoma transsilvanicum* (VERHOEFF), *Mastigona bosniensis* (VERHOEFF), *Lithobius forficatus* (L.). Compared to these sites the fauna of the two flooded forests was impoverished in abundance and diversity and completely different. The main species were *Lamyctes fulvicornis* MEINERT, *Lithobius curtipes* C.L. KOCH, *Leptoiulus minutus* (PORAT) and *Polydesmus denticulatus* C.L. KOCH. In the inundated meadow no myriapods were found at all. It is concluded that the distribution of the myriapods is determined more by flooding than by other ecological factors as microclimate.

Two different strategies to survive the inundations can be distinguished:

1. *Lamyctes fulvicornis*, a parthenogenetic species, spends unfavourable seasons in the egg stage. After the water level subsides the species develops very quickly and reaches the adult stage within a few weeks. It is thus able to repopulate the areas rapidly. Adults of this species were found only from June to October and never during inundation.

2. The other myriapods in the flooded areas are able to survive immersion if the water contains enough oxygen, which is the case in winter and spring and in the proximity of the river bed. They were found beneath the bark of wood or on grass blades in the current. If the oxygen supply is insufficient, e.g. in stagnant water or at high temperatures, the animals leave the water and climb onto the tree trunks. Under laboratory conditions *Polydesmus denticulatus* reaches a maximal survival time of 75 days when submerged in aerated water at 4° C; specimens from the river bank withstand significantly longer periods than specimens from the non-inundated forest (U-test, $p = 3{,}86$, $< 5\ \%$).