

SPATIAL RELATIONSHIP BETWEEN THREE DOMINANT SPIDER SPECIES AND  
COLLEMBOLA PREY IN AN ENVIRONMENTALLY HETEROGENEOUS FOREST FLOOR  
HABITAT

Elvira Melnichnova,<sup>1</sup> Theo Blick,<sup>2</sup> W H.O. Dorow,<sup>2</sup> V. Wolters,<sup>1</sup> Klaus Birkhofer<sup>3</sup>

<sup>1</sup>Department of Animal Ecology, Justus Liebig University, Heinrich-Buff-Ring 26-32, 35392 Giessen, Germany; <sup>2</sup>Senckenberg Research Institute and Natural History Museum Frankfurt, Senckenberganlage 25, 60325 Frankfurt am Main, Germany; <sup>3</sup>Department of Ecology, Biodiversity and Conservation Science, Lund University, Sölvegatan 37, 223 62 Lund, Sweden

Disentangling the biotic and abiotic processes that are responsible for pattern formation between predators and their prey is crucial for improving our knowledge about food-web interactions. We studied the spatial patterns and relationships between three abundant spider species and Collembola prey in a forest floor food-web while accounting for environmental heterogeneity at the local scale. Spiders and epedaphic Collembola were sampled throughout the year in a spatially explicit design based on a regular grid of pitfall traps. Environmental heterogeneity at the forest floor was determined based on moss and litter cover and the number of dead wood items at each trap location. Techniques for point pattern analysis (L-function) were used to describe spatial relationships between individuals of the three most abundant spider species and Collembola under homogeneous and heterogeneous null models. Assuming habitat homogeneity two spider species *Inermocoelotes inermis* and *Walckenaeria cuspidata* were aggregated, whereas *Tapinocyba insecta* showed a random distribution. After accounting for habitat heterogeneity the L-function indicated that individuals of *I. inermis* were aggregated in areas with denser moss coverage. In contrast, *W. cuspidata* and *T. insecta* preferred litter and dead wood rich microhabitats. The analysis of predator-predator relationships suggested an independent spatial relationship between spider species if habitat heterogeneity was ignored, but association between species if models accounted for environmental heterogeneity. The distribution of Collembola was not related to environmental parameters and spider species and Collembola were independently distributed. Our study suggests weak competitive interactions between the analyzed spider species at the scale of 100 m and demonstrates the importance to account for environmental heterogeneity to avoid erroneous descriptions of patterns.

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**PROGRAM & ABSTRACTS**

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