

**Moisture and plant species composition as drivers of hopper community structure on small wetland and peatland sites in the city forest of Freiberg (Saxony, Germany) (Hemiptera: Auchenorrhyncha) [Poster]**

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In this poster results of a study (FUNKE 2018, unpubl.) on hopper communities (Auchenorrhyncha) of small wetland and peatland sites (windthrow sites, windbreak sites, intermediate bog sites) in the city forest of Freiberg (Saxony, Germany) were presented. Within different vegetation types (see Funke & Achtziger 2018) the hopper species composition in a gradient of habitat moisture and plant species composition was analyzed. The following hopper community parameters were studied:

- Distribution of dominant hopper species along a wetness and vegetation gradient
- Moisture preference index of hopper species (MIH), a newly developed index describing the degree of moisture preference of a single hopper species
- Degree of specialization
- Degree of endangerment.

Based on the distribution of dominant hopper species, transitions between different vegetation types could be shown. On moderately moist sites eurypic and stenotopic hopper species were found in high proportions (e. g. *Diplocolenus bohemani*, *Elymana kozhevnikovi*, *Arthaldeus pascuellus*, *Anoscopus flavostriatus*). With an increase of wetness and according plant species the occurrence of eurypic and stenotopic hopper species decreased and the proportion of species with preferences to moisture and/or to specific host plants (specialists) increased (e. g. *Kelisia vittipennis*, *Cicadula saturata*, *C. quadrinotata*, *Stenocranus fuscovittatus*, *Megamelus notula*, *Notus flavipennis*). This was also true for the proportion of endangered species. This pattern was also reflected by the results of statistical analyses and a NMS ordination (FUNKE & ACHTZIGER 2018). For example, with increasing wetness and within the resulting vegetation gradient, both the degree of specialization and the degree of endangerment of hopper species increased. Furthermore, based on the moisture preference index of hoppers (MIH), a clear increase of hoppers with a high moisture preference could be shown along this gradient. In addition to the occurrence of adequate host plant species, this increase was basically driven by the predominant moisture conditions. For example, the mean moisture preference index of the hopper communities and the mean Ellenberg indicator value for moisture per site were significantly correlated (Spearman rank correlation:  $r_s = 0,69$ ;  $p < 0,01$ ;  $n = 17$ ).

In summary, it could be shown that moisture conditions and the resulting plant composition were the main driving forces for the structure of hopper communities on small wetland and peatland sites in the city forest of Freiberg.

## References

- FUNKE, L. (2018): Zikaden- und Wanzengemeinschaften (Hemiptera: Auchenorrhyncha und Heteroptera) auf unterschiedlich vernässten Feucht- und Moorflächen im Stadtwald Freiberg (Sachsen). – Master thesis, TU Bergakademie Freiberg, unpublished.
- FUNKE, L. & ACHTZIGER, R. (2018): Hopper communities of small wetland and peatland sites in the city forest of Freiberg (Saxony, Germany) [▶](#)