Jumping Plant-lice Species Associated with Willow trees on the Floodplains of the Rhine River (Homoptera: Psylloidea) *

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The jumping plant-lice fauna of seven different willow species growing adjacent to the Rhine River and nearby was investigated in a two-year study. In four of five distinct sites all the seven plant-lice species were found, which feed on willows in central Europe. Number and density of species per host varied tremendously depending on the year, host plant species and site. There was no plant-lice species which characterised a distinct host or a distinct site. Cacopsylla pulchra (Zetterstedt 1838) was the most common psyllid species: it dominated at four of the five sites studied, and preferred either Salix viminalis, S purpurea or S alba at each site, even when the other host plants were also present. The canonical correspondence analysis (CCA), which takes the year of study, the site and the host plant species including secondary plant chemistry into account, resulted in 45% of the variance in psyllid diversity, leaving up to 55% to unexplained variance which could potentially be accounted for by a stochastic dispersion pattern and the low ability to find host plants.

The number of species and individuals of the Salix-feeding psyllids usually surpassed that one of the tourist species. However, several examples of this study exhibited higher tourist guild inputs than of psyllid species associated with their hosts. This was found not only for single host trees but also for total groups of single willow species growing at a site.

The study clearly demonstrates that plant-lice assemblages and herbivory are dynamic processes that reflect influences of variable environmental conditions and erratic colonization.

Keywords: Cacopsylla pulchra (Zetterstedt 1838) - Salix spp - colonization - disturbance - diversity - insect-plant interaction

* Dedicated to Professor Dr Wolfgang Tischler on the occasion of his 90th birthday.