

Summary

The relationships between hosts and parasites represent an important component of ecosystem functioning and the evolution of organisms. Parasites affect host condition and are subject to strong selective pressures that may lead to coevolutionary “arms race”. The dissertation describes the genetic and ecological determinants of parasitism in louse fly species (Hippoboscidae) that parasitize birds.

The thesis consists of three main parts:

Chapter I presents the development of a new set of 20 microsatellite markers dedicated to louse flies of the genus *Ornithomya*. This tool fills a gap in the genetic research of this poorly studied group and enables analyses of population variability and gene flow in these parasites.

Chapter II examines the genetic differentiation of *Ornithomya avicularia*, a polyxenous louse fly species parasitizing various bird hosts (the study focused on individuals collected from common snipes *Gallinago gallinago*, long-eared owls *Asio otus*, blackbirds *Turdus merula*, reed warblers *Acrocephalus scirpaceus* and great reed warblers *Acrocephalus arundinaceus*). Despite ecological and phylogenetic differences among hosts, a low level of genetic differentiation was found, indicating extensive gene flow among parasite populations inhabiting different bird species.

Chapter III identifies biological and ecological factors influencing the prevalence of louse flies in 157 bird species migrating through Poland during autumn. The analyses showed that important predictors of louse fly occurrence include host body mass, breeding-ground climate (particularly mean precipitation), habitat type, trophic niche and migration distance. The two dominant species, *Ornithomya fringillina* and *O. avicularia*, differed in their host preferences: the former occurred more frequently on small passerines that are short-distance migrants, whereas the latter preferred larger-bodied species and showed no clear pattern related to migration distance.

Overall, this work provides new tools and data relevant to the molecular ecology of louse flies and deepens our understanding of the mechanisms shaping host–parasite interactions in birds.

