

## **Why lice are nice**

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The order of lice (Phthiraptera) is the largest taxon of truly parasitic exopterygotes. They originated from free-living Psocoptera, though their monophyly has been seriously challenged recently. They complete their whole life-cycle on the body surface of their bird or mammal hosts, and mostly transmit through direct body-to-body contacts. Most of their >3000 described species live an unexplored way of life, while the few ones that inhabit humans and domestic animals are intensively studied. The 3 species exploiting humans may carry information about the origin of humankind and they have also influenced human history and culture by means of pathogenic microbes they transmit. They are widespread across kindergartens, homeless shelters etc. in all modern societies. Unlike other contagious pathogens, lice are accessible by the methods of natural history; their species can be identified, their behaviours observed, their numbers counted by traditional ways. This makes them ideal subjects of basic research in pathogen evolution and ecology studies. Indeed, new bio-statistical methodologies for quantifying host-parasite cospeciation rates, or those for quantifying and comparing levels of infestation were firstly developed and tested to study animal lice. Not only are they of interest for the theoretical biologists, but they also cause considerable economic loss in the animal breeding industry and pose human health risk and nuisance to several hundred millions of people. Not surprisingly, a powerful pharmacology industry works to save us from lice, while lice evolve drug-resistance to minimise its effects. At the same time, some conservation biologists already have raised questions about the extinct and endangered species of lice.