

When a good parasite goes bad: Coevolutionary dynamics of birds and feather lice

Dale Clayton, 257 South 1400 East, Department of Biology, University of Utah, Salt Lake City, Utah 84112-0840, USA

Virtually all species of birds and many species of mammals are host to one or more species of lice. Some of these lice are among the most host specific parasites known. Several studies have now documented that some groups of lice and their hosts undergo cospeciation, which is a coevolutionary process that yields congruent parasite and host phylogenies. In contrast, the extent to which lice and their hosts undergo coadaptation has received much less attention. Coadaptation is a shorter term coevolutionary process that can yield a parasite-host "arms race" between host defense and parasite escape. Coadaptive evolution results from reciprocal selective forces that parasites and hosts exert on one another. Without reciprocal selection, coadaptation will not take place. Although it is certainly the case that hosts exert selection on lice, the extent to which lice exert selection on their hosts is less clear. Indeed, many lice are considered to be examples of "good" parasites that have little if any impact on the Darwinian fitness of their hosts. In this talk I review a decade of research demonstrating that birds and lice do, in fact, exert reciprocal selective forces on one another, making them excellent candidates for coadaptive evolution.