Abstract:

Major histocompatibility complex (MHC) genes play a vital role in determining pathogen resistance in Vertebrates. Pathogen-mediated selection (PMS) is believed to generate the extraordinary levels of MHC diversity observed, however, establishing the relative importance of the three proposed mechanisms of PMS (heterozygote advantage, rare-allele advantage and fluctuating selection) has proved extremely difficult. Sexual selection may also play a key role. Indeed MHC genes may be the link between mate choice and the genetic inheritance of vigour in offspring that could support the contentious concept of indirect genetic benefits to mate choice.
Using a variety of different avian species to provide suitable models at the individual and population level I have been investigating the causes and consequences of MHC variation.