

Posudek školitelky na diplomovou práci

Pavel Payne: The role of genetic variance in speciation

Over the year and half of his research on his MSc. thesis, Pavel has co-written an original research proposal, and familiarized himself with vast literature on speciation, niche evolution, and distribution of epistasis in nature. He has adapted approximate methods to analyse the problem of evolution of genetic variance maintained by disruptive and soft selection. His results based on two and three loci are explained in relation to earlier phenotypic models. The phenotypic study concluded that coexistence is easy once selection is disruptive, and genetic variance is high enough. Pavel's study with explicit genetics highlighted that in fact, the conditions for coexistence (or maintenance of polymorphism) are quite stringent: as the niche proportions start to differ, very low viability in the wrong niche, but weak disruptive selection is required. He explains and quantifies that as the trade-off (and hence disruptive selection) increases, coexistence of specialists gets harder. He has successfully presented his results on an international conference, where he found experimental collaborators to test the model predictions and explain their data. The results are novel and well linked to an earlier literature. He has commenced to re-write the thesis to a shorter version, which should head soon for a publication in an international journal.

I can conclude that Pavel has demonstrated an ample ability to work as a creative and independent scientist, and his thesis has all the necessary requirements.

16.9.2011

J. Polechová

