Jan Hrcek: Caterpillar - parasitoid food webs in New Guinea rainforest

Jan Hrcek's PhD Thesis examines caterpillar – parasitoid relationships in a tropical forest from various angles: taxonomic – describing new species from taxonomically totally unknown fauna, methodological – developing molecular detection of parasitoids in their hosts, ecological – mapping host-parasitoid food web structure, and phylogenetic – quantifying phylogenetic signal in that food web structure. In combination, these diverse approaches, in addition to being a good preparation for Jan's scientific career, also provide a broad and in many aspects novel picture of a complex caterpillar – parasitoid food web from a tropical forest.

The first chapter gives one of the most detailed descriptions of a tropical caterpillar – parasitoid food web. It is also the first tropical comparison of parasitoids between exposed and semi-concealed guilds of their host caterpillars, and reveals a rather unexpected pattern of parasitoid host specificity, as tachinid flies appear more specialized than ichneumonid wasps.

The second chapter is my favourite, using the first quantitative tri-trophic food web comprising plants, caterpillars and parasitoids, available for tropical forest, to pose a general hypothesis that the level of specificity alternates between trophic level so that generalist herbivores tend to have specialized parasitoids and vice versa. This hypothesis needs additional data, particularly on leaf miners, for a rigorous test, but if confirmed, it would be a major contribution to food web research.

The third chapter, exploring molecular methods of parasitoid detection in hosts, reflects the methodological revolution which is gathering pace in ecological community research, where we are moving from being observant naturalists in the field, recording curious behaviours of animals and plants in our notebooks, to just pulverizing entire ecosystems and running them through DNA sequencing machines.

And finally, the fourth chapter describes some species. It is only a small portion of parasitoid species reared in this study, but it is an important demonstration that the species-level identifications in previous analyses are also sound. Last but not least, PhD candidates go to various lengths in order to please their supervisor, but naming a species *Vojtechirogas novotnyi* is hard to beat in this respect: a very sound choice of name indeed.

All papers and manuscripts bar the last one were written and intellectually led by Jan Hrcek, but also with contributions by nine collaborators from different institutions in four countries, testifying thus to the candidate's ability to network and engage in useful collaborations. As a supervisor and one of the co-authors, I cannot claim too much credit myself as Jan proved to be quite an independent student while I was a rather hands-off supervisor – quite literally so, since I had not even shared the same continent with Jan for about half of the time during his studies. He has certainly shown independency, intellectual gravitas, as well as practical and social skills needed for a successful research career.

In summary, in my opinion that Jan Hrcek has clearly demonstrated by this Thesis his capacity for conducting high quality research, and shows a great promise as a scientist.

Vojtech Novotny
PhD supervisor

In Madang, 7 September 2012