

Research visit to the University of Minnesota - Jon Richardson

For my Professional Internship Placement (PIP) I visited the University of Minnesota, Twin Cities where I worked in the lab of Professor Marlene Zuk in the Department of Ecology, Evolution and Behaviour. My visit to the University of Minnesota was made possible thanks to funding from the E³ DTP Overseas Research Visit and Conference Fund (ORVCF).

Professor Zuk's lab examines emerging questions in behavioural ecology and evolutionary biology. In particular, research is focused on the consequences of sexual signal loss in the Pacific field cricket (*Teleogryllus oceanicus*). This is a unique system to explore evolution in action as a mutation that makes males unable to sing has rapidly spread through the population, because it protects against a deadly parasitoid fly.

During my three month visit I worked on two projects. The first was an experiment looking at how alternative mating tactics influenced life history strategies in the Pacific field cricket. Given that silent males must use alternative tactics to find females this may have important consequences for how they develop and invest resources into reproduction and survival. My project involving rearing crickets that did and did not possess the mutant gene and quantifying their growth rate, development time and investment to reproductive tissues. This will provide a better understanding of the costs and benefits of signal loss in the wild.



A male Pacific field cricket

My second project was a literature based project examining a broader problem in evolutionary biology. I questioned whether the overuse of virgin females in studies of animal behaviour may bias our understanding of the evolution of mate choice. Researchers often use only virgin females as test subjects. However, theory would predict virgin females should be much less choosy when it comes to mating. By focusing too heavily on virgin females we may over- or underestimated the importance of various behaviours and it may be timely to update our experimental approach.



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My research visit to the University of Minnesota has benefited me in many ways. Firstly it gave me the opportunity to meet and work with one of the leading figures in the fields of animal behaviour, behavioural ecology and evolutionary biology. Second, I was able to develop new skills in an exciting and challenging system and draw upon the expertise of other researchers. Finally, I was able to experience academic life in a different country which will be useful for continuing to pursue a career in academia.

I am incredibly grateful to E³ DTP for allowing me to take advantage of this rewarding opportunity.