

A.N.U. Seminar

EVOLUTION, ECOLOGY, & GENETICS

RESEARCH SCHOOL OF BIOLOGY

Thursday 16 June 2011, 1pm

Sunflowers on sand dunes - morphological divergence and genomic adaptation to an extreme environment



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Evolution Ecology and Genetics
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Seed mass is one of the most divergent traits in the well-studied hybrid sunflower, *Helianthus anomalus*, and has been suggested as an important trait for dune adaptation in other systems. However, evidence from interspecific comparisons between dune and non-dune communities are equivocal on the advantages conferred by large seeds. *H. petiolaris*, a common and widespread non-dune species and one of the parents of *H. anomalus*, has colonized the dune field at Great Sand Dunes National Park (Colorado) apparently without hybridization. Among other differences, seed mass is approximately three times greater in the dune ecotype than in the typical non-dune form. This is an exciting population as it represents an intraspecific case of dune adaptation and a striking example of divergence with gene flow.

How sunflowers inhabit such an inhospitable habitat as active sand dunes is the subject of the research I've been doing since a Purple Shins career-ending injury induced me to leave ANU after finishing my PhD at BoZo. This has been a fascinating journey through ecology and landscape genetics to population genomics. Most recently, I've used next-generation sequencing markers (restriction-associated DNA or RAD markers) to identify the genomic regions responsible for adaptation.

For further info please contact:

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**Seminars are held in the Gould Wing Seminar Room, Building 116 Daley Rd, ANU
ALL STAFF AND STUDENTS ARE WELCOME TO ATTEND**