

Ewen lab hihi research update

May 2011



ACCEPTED PAPERS AND MEDIA *publications in scientific journals, popular science and media coverage*

- No new research papers accepted this month but a bunch in the pipeline.
- John published an In Memoriam to Don Merton who sadly died in April this year. Don was a huge person in conservation and reintroduction biology and will be greatly missed. This will appear in the journal *Animal Conservation*.

PRESENTATIONS, VISITS & NEWS *conference presentations, visits to and from group members etc*

- John, Doug, Kevin and Phil submitted the complete draft of their edited book titled "Reintroduction biology: integrating science and management" to the publishers.
- Patricia (with help from Phill Cassey, John and others) submitted a paper on hihi promiscuity and inbreeding (see below).
- Doug has been assisting Leila with data analysis of chick growth rates in relation to her recent experiments on Tiritiri Matangi.
- Kate has had great success tracking hihi at Maungatautari with most birds being closely followed for the first month post-release.
- John, Doug, Kevin and Phil will organise and participate in a symposium at this years International Conference for Conservation Biology titled "From Reintroduction to Assisted Colonisation" to be held in December.

FEATURE STORY: **Promiscuity as a post-copulatory mechanism to avoiding inbreeding**

Avoiding genetic incompatibility resulting from inbreeding is thought to be one of the main drivers of mate choice, promiscuity and sexual conflict. Inbreeding avoidance has been found across a number of taxa and is predicted to be adaptive when the costs of inbreeding outweigh the benefits. This study tests the inbreeding avoidance hypothesis at the pre and post copulatory stages in a natural population of the promiscuous endemic bird, the hihi (*Notiomystis cinerea*). This species has high costs associated with inbreeding as it depresses offspring survival. We generate four alternative predictions to explain the observed fertilization patterns based on the existence or absence of pre and/or post fertilization mechanisms of inbreeding avoidance. Non-random mating with respect to relatedness is found at pre and post fertilization stages. However, interestingly these patterns are opposed. Females choose more closely related social males than random, but fertilization success is biased towards less related extra-pair males. This opposing strategy suggests that at the pre-fertilization stage females may tolerate potential inbreeding as the costs of developing inbreeding avoidance are too high, especially in light of forced copulations or if they gain inclusive fitness. However, as fertilization is biased towards less related individuals inclusive fitness theory is unlikely. This post-fertilization pattern may arise if there is sperm selection, biased fertility/mortality of offspring by related males or potentially less sperm investment by males during solicited/forced copulations with related females.



Brekke, P., Wang, J., Bennett, P.M., Cassey, P., Dawson, D.A., Horsburgh, G.J. & Ewen, J.G. recently submitted.

FUNDING *our major funders and new funding news*

CURRENT AND PAST FUNDING – thank you!

+ British Research Council + Royal Society + Leverhulme Trust + Department of Conservation + AXA-fund + NERC + SoTM + ASAB + Massey University + Wesfarmers Industrial and Safety NZ Ltd.

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