

# Ewen lab hihi research update

April 2014



## ACCEPTED PAPERS, MEDIA & OUTREACH

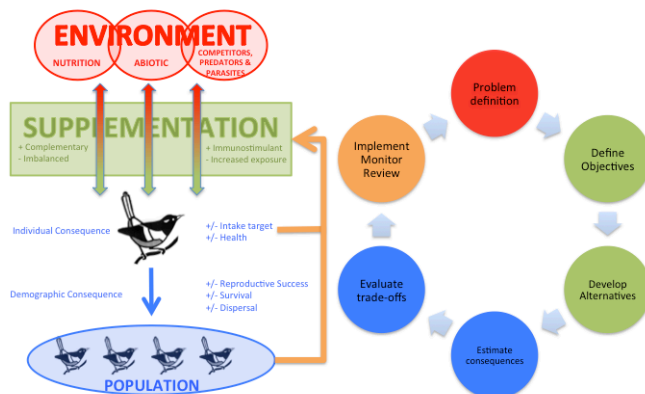
- **ANOTHER new paper accepted from Leila's PHD thesis – well done Leila and this completes publishing all chapters!!**  
Walker, L., Ewen, J.G., Brekke, P. & Kilner, R.M. (2014) Sexually selected dichromatism in the hihi *Notiomystis cincta*: multiple colours for multiple receivers. *Journal of Evolutionary Biology* (in press)

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

- **Congratulations to Ali** on a new job. Ali is heading to the Possingham group at the University of Queensland in Australia where she will be looking at addressing big questions in optimal decision making for conservation.
- **Congratulations to Patricia** on being awarded a Royal Society grant of £14,801 for her project “Can a species evolutionary history inform its recovery? Immune and neutral genetic diversity in historical and extant populations threatened by disease”.
- **John** was back down in New Zealand to chair the annual Hihi Recovery Group meeting.
- **Donal** is busy populating our hihi database with re-sighting records and other long term data.
- **Doug, Patricia and John** have submitted a Marsden Research Grant application hoping to use hihi data to test and refine small population ecological theory.
- **Anna Santure, John and Patricia** have submitted a Marsden Research Grant application hoping to use genomic sequencing tools to predict that adaptive potential of hihi.

## FEATURE STORY: Abstract from John and colleagues submitted manuscript titled: A recipe for success: improving supplementary feeding in species conservation.

Supplementary feeding is often used in species conservation. The decision to supplementary feed is based on the belief this will aid population recovery, although this is rarely critically assessed. Supplementary feeding is often a knee-jerk reaction to population declines and has led to polarised views from managers on its usefulness. Here, we advocate a more strategic approach to supplementary feeding. We propose combining a novel set of specialist disciplines that will allow critical evaluation of the need, benefit and risks of food supplementation. We explain how, by using nutritional ecology, population ecology and structured decision making, conservation managers will reap rewards and better avoid negative outcomes. We conclude by providing a worked example of a supplementary feeding management problem faced by the New Zealand hihi, *Notiomystis cincta*, recovery group, showing how to make transparent and defensible management decisions using structured decision making.



**Conceptual representation of a strategic approach to supplementary feeding.** Choice of supplementation is determined by a need to alter the interaction between the current environment and the animal. The environment is partitioned into three key areas of interest for supplementary feeding; available nutrition, presence of competitors, predators and parasites and abiotic factors. Supplementation is therefore able to influence each of these environmental categories in either a positive or negative way as indicated by examples in the green text. This interaction between environment and supplementation may have effects on the individual animal, which may (or may not) then translate into emergent effects on the population, and conversely supplementation may affect the environment. There is a learning phase, depicted by the orange arrows, where affects are used to evaluate and perhaps modify the type of supplement or how it is provided. On the right is the six-step circular structured decision making (SDM) process. The entire figure is colour coded to reveal how information from nutritional, individual and population ecology can feed into the scientific components of an organised, inclusive and transparent SDM approach.

## FUNDING *our major funders and new funding news*

- Congratulations to Patricia who was awarded £14,801 from the Royal Society.

## 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.

## STAFF AND STUDENT CONTACTS

### Permanent Staff

- Professor Doug Armstrong (Massey University, New Zealand [D.P.Armstrong@massey.ac.nz](mailto:D.P.Armstrong@massey.ac.nz))
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### Research Fellows

- Dr Patricia Brekke (Institute of Zoology, United Kingdom [patricia.brekke@ioz.ac.uk](mailto:patricia.brekke@ioz.ac.uk))
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