

# Ewen lab hihi research update

November 2011



## ACCEPTED PAPERS, MEDIA & OUTREACH

• Perrott, J.K. & Armstrong, D.P. 2011. *Aspergillus fumigatus* densities in relation to forest succession and edge effects: implications for wildlife health in modified environments. EcoHealth DOI: 10.1007/s10393-011-0716-8

• Hihi finished third in race for bird of the year. Not a bad effort with 756 votes. We will develop a good strategy for 2012 to push on to the winners stage!



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

- Patricia gave a talk on the hihi project at the New Networks for Nature meeting held in Stanford, UK.
- Ali travelled to New Zealand and has been working with Doug at Massey University on her PhD data chapters.
- John travelled to New Zealand and has visited Tiri to work with Michelle and also visited the NZCCM at Auckland Zoo to discuss the salmonella emergence on Tiritiri Matangi.
- Michelle has been working with DoC and the NZCCM to follow the salmonella emergence.
- Doug attended the Wildlife Management Conference in Hawaii and contributed to a symposium on adaptive management.

## FEATURE STORY: **Abstract from John Perrott and Doug Armstrong's latest paper (see above).**

The hihi (or stitchbird, *Notiomystis cincta*) is a New Zealand endemic nectivorous forest bird now restricted to one pristine island. Relocation to establish viable hihi populations on other islands has been the main conservation action since the early 1980s. To date, hihi reintroductions to young growth islands have had poor success despite the absence of mammalian predators. It was thought that past failures were due to food limitation, but research suggests that food limitation alone cannot account for their poor survivorship. Postmortems of dead hihi has shown that aspergillosis caused by *Aspergillus fumigatus* is a major mortality factor and there is current concern regarding their susceptibility to this fungal disease. In this paper we develop and assess the hypothesis that *A. fumigatus* limits hihi population viability on modified islands, and suggest that *A. fumigatus* is a potential indicator species for habitat disturbance.



**Aspergillus air sacculitis in hihi.**  
Image from Maurice Alley

We report that the prevalence of *A. fumigatus* spores in the soil is much higher in young growth forests and forest edge habitats. Results suggest that hihi mortality rates between islands are potentially due to differential exposure to *A. fumigatus* spores. We assess relationships between habitat disturbance, *A. fumigatus* contamination and hihi mortality rates by testing the following predictions: (1) that densities of *A. fumigatus* spores will be higher on modified islands, (2) that densities of *A. fumigatus* spores on islands will be correlated with hihi mortality rates and (3) that densities of *A. fumigatus* spores will be higher at the forest edge than in the interior. We test each of these predictions using soil samples, air samples and samples of nectar from plant species fed on by hihi.

## 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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