

Helen Taylor Curriculum Vitae

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Nationality: British

Research Interests

Measuring and preventing inbreeding in captive and wild populations • Inbreeding depression • Genetic rescue • Wildlife management, including translocations • Male reproductive physiology • Avian biology and ecology • Effective integration of genetics into conservation practice • Genome sequencing

Research Career Highlights

8 papers published in international journals • 154 citations in 5 years • 1 book chapter • \$558,478 in grants/awards secured in past 5 years • 7 awards for science communication

Scientific employment history

Postdoctoral researcher/Research fellow, University of Otago, Dunedin, NZ September 2014-Present
Investigating the relationship between sperm quality and inbreeding in a variety of New Zealand bird species.

Research assistant, Victoria University of Wellington, Wellington, NZ April 2014-August 2014
Managing and conducting lab work and population genetic analysis to aid management of great spotted kiwi (*Apteryx haastii*)

Education

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| Aug 2014 | Victoria University of Wellington, NZ | PhD, Ecology and Biodiversity |
| Jan 2011 | Manchester Metropolitan University, UK | MSc Conservation (Distinction) |
| Jun 2003 | Clare College, Cambridge University, UK | BA (Hons) Natural Sciences, MA (Cantab) |

Publications

Peer-reviewed

- 2017 **Taylor HR**, Colbourne RM, Robertson HA, Nelson NN, Allendorf FW and Ramstad KM, *Cryptic inbreeding depression in a recovering long-lived species, the little spotted kiwi (Apteryx owenii)* Molecular Ecology 26: 799-813
- 2016 Kardos M, **Taylor HR**, Ellegren H, Luikart G and Allendorf FW, *Genomics advances the study of inbreeding depression in the wild*. Evolutionary Applications 9: 1205-1218
- 2016 **Taylor HR*** and Soanes K*, *Breaking out of the echo chamber: missed opportunities for genetics at conservation conferences*. Biodiversity and Conservation 25:1987–1993 (*joint first authors)
- 2016 **Taylor HR** and Gemmell NJ, *Emerging Technologies to Conserve Biodiversity: Further Opportunities via Genomics*. Trends in Ecology and Evolution 31 171-172
- 2015 **Taylor HR**, *The use and abuse of genetic marker based estimates of relatedness and inbreeding* Ecology and Evolution 5 3140-3150
- 2015 **Taylor HR**, Allendorf FW, Ramstad KM and Kardos MK, *Valid estimates of individual inbreeding coefficients from marker-based pedigrees are not feasible in wild populations with low allelic diversity*. Conservation Genetics 16 901-913
- 2014 **Taylor HR**, Nelson NJ and Ramstad KM, *Chick Timer™ software proves an accurate, disturbance-minimizing tool for monitoring hatching success in little spotted kiwi (Apteryx owenii)*, New Zealand Journal of Zoology 41 139-146

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2012 **Taylor HR** and Harris WE, *An emergent science on the brink of irrelevance: a review of the past 8 years of DNA barcoding* Molecular Ecology Resources 12 377-388

Taylor HR*, Dussex N*, and Van Heezik Y, *Bridging the conservation genetics gap by identifying barriers to uptake for conservation practitioners*. **In review** at Biological Conservation (*joint first authors)

Book Chapters

2015 Weeks AR, Moro D, Thavornkanlapachai R, **Taylor HR**, White NE, Weiser EL and Heinze D, Conserving and enhancing genetic diversity in translocation programmes, in *Advances in Reintroduction Biology of Australian and New Zealand Fauna*, Editors: Armstrong DP, Hayward MW, Moro D, Seddon PJ, CSIRO Publishing: Collingwood, VIC, Australia. p. 127-139.

Popular articles

2012 **Taylor HR** and Ramstad KM, *5 Kiwi that saved a species* Forest and Bird Magazine November 2012 16-20

Grants

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| 2016 | Royal Society of New Zealand Marsden FastStart Funding | \$300,000NZ |
| 2016 | Department of Anatomy Strategic Research Funding | \$23,635NZ |
| 2016 | Future Leader Award 180 Seconds of Science | \$3,500NZ |
| 2016 | People's Choice Award 180 Seconds of Science | \$3,500NZ |
| 2015 | Department of Anatomy Strategic Research Funding | \$10,000NZ |
| 2015 | Birds NZ research grant | \$3,622NZ |
| 2015 | University of Otago Research Grant (AI on grant, primary author) | \$58,633NZ |
| 2015 | Allan Wilson Centre legacy funding – kiwi (AI on grant, primary author) | \$11,000NZ |
| 2015 | Allan Wilson Centre legacy funding – tuatara (AI on grant, primary author) | \$11,000NZ |
| 2014 | Allan Wilson Centre internship grant | \$2,888NZ |
| 2014 | Birdlife International research grant | \$8,000NZ |
| 2014 | Victoria University PhD submission scholarship | \$6,000NZ |
| 2013 | Kathleen Stewart grant | \$2,100NZ |
| 2012 | Centre for Biodiversity and Restoration Ecology (CBRE) grant | \$1,500NZ |
| 2012 | Victoria University of Wellington Faculty Strategic Research Grant | \$3,000NZ |
| 2011 | SCB Travel Grant | \$200NZ |
| 2011 | Kaitiaki o Kapiti Trust donation | \$1,000NZ |
| 2011 | Allan Wilson Centre Scholarship | \$108,900NZ |
| 2010 | Chester Zoo Studentship | £1,000 |
| 2009 | North West Development Agency Bursary | £1,250 |

Awards and Distinctions

2016 Young investigator award runner up, Mapnet, Queenstown Research Week, Nelson, New Zealand
2016 Future Leader Award, 180 Seconds of Science video competition
2016 People's Choice Award, 180 Seconds of Science competition
2013 Best presentation on a conservation topic, Australasian Wildlife Management Society conference
2013 Outstanding student presentation, Biodiversity Genomics meeting, Canberra, Australia
2012 Best presentation, New Zealand Molecular Ecology Conference
2012 Best student presentation (three minute thesis), Allan Wilson Centre annual meeting
2011 SCB Student Spotlight award

Committee Roles and Services to Scientific Community

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| ICUN Conservation Genetics Specialist Group (Oceania section convener) | 2016 - Present |
| Birds New Zealand (previously OSNZ) board member | 2016 - Present |
| University of Otago Anatomy Department Research Day Organizing Committee | 2016 - Present |
| University of Otago Anatomy Department Research Funding Committee | 2016 - Present |
| Society for Conservation Biology Conservation Genetics Working Group | 2015 - Present |
| Reviewer for Trends in Ecology and Evolution, Heredity, Methods in Ecology and Evolution, Ecography, Biological Conservation, Molecular Ecology, and Auk | 2013 - Present |
| Symposium convener and chair: Ratite ecology and genetics symposium, Australasian Ornithological Conference, Auckland, NZ | 2013 |
| Guest lecturer across a variety of conservation, genetics, science communication, and behavioural ecology courses at both Victoria University (during PhD) and currently at the University of Otago in both the Anatomy and Zoology departments | 2012 - Present |

Outreach and Stakeholder Engagement

- Secured extensive media coverage for my research by TV, radio, online, and print media. For a full list, please see my website (<http://helentaylorscience.weebly.com/press.html>).
 - Presented my research at 12 international and 13 regional scientific conferences over the past five years. For a full list, please see my website (<http://helentaylorscience.weebly.com/online-cv.html>).
 - Recorded three minute video about my research which won me two prizes in the 180 seconds of Science Australasian competition; to date the video has been viewed by 5,730 people (https://www.thinkable.org/submission_entries/QxaMM3xg).
 - Regularly present at the Lab in a Box project, travelling to rural New Zealand schools to demonstrate and explain my research to students in years 5-9 (<https://labinabox.nz/>).
 - Work in partnership with the kiwi and hihi recovery groups. Have presented at five kiwi recovery group meetings to advise on genetic management of kiwi and have contributed to the new kiwi recovery plan (<http://www.doc.govt.nz/kiwirecoveryplan>).
 - Undertake extensive consultation with various indigenous Māori iwi (tribes) regarding my research.
 - Formed corporate partnerships with Interislander Ferries and Cougar Line water taxis; secured free travel to field sites in exchange for presentations on kiwi to tourists and design of educational materials.
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Teaching Experience

2016 Lecturer and examiner for ANAT 458 - Presentation skills; media relations for scientists, Department of Anatomy, University of Otago, NZ
Lecturer and examiner for GENE 411 - Conservation genomics, Department of Anatomy, University of Otago, NZ
Lecturer for WILM 402 - Genetics of translocations; genetic rescue, Department of Zoology, University of Otago, NZ
Lecturer for WILM 401 - The conservation genetics gap, Department of Zoology, University of Otago, NZ
Lecturer for ZOOL 315 - Behavioural ecology and conservation, Department of Zoology, University of Otago, NZ
Give regular talks on presentation skills, scientific poster design, and media relations for the zoology and anatomy emerging researchers groups at University of Otago, NZ
Co-advisor to PhD and masters students in the Gemmell lab, University of Otago

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- 2013 Guest lecturer for BIOL 328 - How many people does it take to study a species? Victoria University of Wellington NZ
Guest lecturer for BIOL 327 - How to get noticed for your presentations (in a good way), Victoria University of Wellington NZ
Teaching assistant for BIOL 228 - Animal diversity, Victoria University of Wellington NZ
Teaching assistant for two third year undergraduate courses: BIOL 328 - Behaviour and Conservation Ecology; BIOL 327 - Population and Community Ecology, Victoria University of Wellington NZ
- 2012 Teaching assistant for third year undergraduate course: BIOL 327, Population and Community Ecology, Victoria University of Wellington NZ
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Research Experience

Postdoctoral research, Allan Wilson Centre, University of Otago **September 2014-Present**

Sperm quality in New Zealand birds

- Using GBS to generate large SNP panels for population genetic analyses
- Genome sequencing and assembly
- Sampling sperm from passerines using cloacal massage
- Analysis of sperm motility using the SCA CASA system
- Assessment of sperm morphology and DNA fragmentation using semen smear slides
- Managing field work across seven field sites for NZ robins (*Petroica australis*), hihi (*Notiomystis cincta*), dunnocks (*Prunella modularis*), and blackbirds (*Turdus merula*)
- Assessing relationship between sperm health, heterozygosity and inbreeding

Research project, Allan Wilson Centre, Victoria University of Wellington **April 2014-August 2014**

Population genetics of great spotted kiwi (*Apteryx haastii*)

- Testing cross-amplification of microsatellite markers from other kiwi species in *A. haastii*
- Genotyping 300+ individuals from the three remaining populations of *A. haastii* at 12 loci
- Analysis of population differentiation
- Management of project budget

Doctoral research, Allan Wilson Centre, Victoria University of Wellington **Feb 2011-March 2014**

Ecology and genetics of little spotted kiwi (*Apteryx owenii*)

- Radio telemetry-based field work to assess nesting success in two populations of *A. owenii*
 - Autopsies of abandoned kiwi eggs
 - Managing field work across two sites and coordinating a team of six volunteers
 - Analysing camera trap footage from nests
 - Using microsatellite markers to investigate inbreeding in two populations of *A. owenii*
 - Assessing methods to detect inbreeding depression in *A. owenii* and other species that have experienced severe bottleneck events
 - Modelling the validity of pedigrees based purely on genetic markers for calculating inbreeding co-efficients
 - Assessing the power of genetic markers to measure the relatedness of individuals
 - Verifying the accuracy and efficacy of specially designed software for use in *A. owenii* radio telemetry tags
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Other field experience

June-July 2010 **MMU Tanzania Field Trip**, Tanzania

August-November 2008 **Tambopata Macaw Project**, Tambopata Reserve, Peru

May 2008 **Birdlife Malta**, Malta

May 2004 **Ocean Safaris**, Plettenberg Bay, South Africa

Other employment history

Dec 2006-June 2010 **Citypress PR, Manchester**, Account Manager (including a five month sabbatical in 2008 and part time work from Oct 2009-Jun 2010)
Jun 2006-Dec 2006 **Mason Williams PR, Manchester**, Senior Account Executive
Dec 2004-Jun 2006 **Weber Shandwick PR Manchester**, Account Executive

Professional affiliations

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| Allan Wilson Centre | 2011-2015 (centre closed) |
| Society for Conservation Biology | 2011-Present |
| Australasian Society for Wildlife Management | 2013-Present |
| Birds New Zealand | 2013-Present |
| American Genetics Association | 2015-Present |
| Society for Molecular Biology and Evolution | 2016-Present |
| Genetics Society of AustralAsia | 2017-Present |
