Andrew Digby, Ph.D

Skills and experience

Bioacoustics: avian communication theory, advanced spectrographic techniques, development of microphone arrays and localization methods. Advising conservation organizations on acoustic monitoring.

Signal processing and data analysis: acoustic and optical signal analysis and instrumentation design in bioacoustics and astrophysics. Extensive experience in quantitative analysis of large datasets, and with advanced statistical methods, including generalized, additive, mixed and Bayesian models.

Conservation biology and behavioral ecology: considerable field work experience, often in remote locations, monitoring behaviour and undertaking surveys and translocations of passerines, kiwi, parrots and frogs. Proficient at capture, handling and banding of several bird species (NZ Level 2 qualified for kiwi). Guide and volunteer at Zealandia wildlife reserve, Wellington, leading tours and conducting conservation monitoring; "Outstanding Volunteer" award, 2009. A+ grades in ecology courses at Victoria University, 2008–9.

Computing: experience programming in all major operating systems and in many languages and software packages, including R, GIS, Python, Fortran, Perl, Labview, Latex, scripts and databases.

Current workplace first aid certificate. Clean UK and New Zealand driving licenses.

Education and Employment

Victoria University of Wellington, New Zealand **Sep 2009 – Jun 2013**

Ph.D. in Conservation Biology: An Acoustic Study of Little Spotted Kiwi

- Supervisors: Dr Ben Bell and Dr Paul Teal
- Investigating kiwi behavioral ecology and developing conservation tools using calls
  Created research program and designed and conducted field experiments. Advanced bioacoustic, signal and statistical analyses, including mixed and Bayesian modeling and testing microphone array localization algorithms. Extensive field work, often in remote locations. Established new collaborations among university departments and external organizations, and obtained external and internal funding. Invited to referee journal articles and present at international conferences.

MetService, Wellington, New Zealand **Jan 2006 – Aug 2009**

Research Scientist, Forecasting Research group

- Research, development and programming of numerical weather prediction models. Statistical analysis and interpretation of forecast data. Created software products for forecasters and customers.

American Museum of Natural History, New York, USA **Sep 2003 – Dec 2005**

NASA Michelson Postdoctoral Fellow

- The Lyot Project: design, construction, development and observing with the world's first diffraction-limited coronagraph to image planets and disks around nearby stars.
  Signal processing, optical and electrical instrumentation. Developed instrument control and data reduction software. Planned and conducted observations, and analyzed astronomical data.
- Searching for white dwarfs in the halo of the Galaxy.
  Analyzed large astronomical datasets and fitted observations to theoretical models.

University of Edinburgh, United Kingdom **Oct 1999 – Feb 2003**

Ph.D. in Astronomy: Galactic Spheroid Structure from Subluminous Stars

- Supervisors: Dr John Cooke and Dr Nigel Hambly
- Probing the structure and evolution of the Galaxy with cool stars
  Secured time and planned and conducted observations at international telescope facilities. Designed simulations and analyzed very large observational and simulated datasets.

Magdalene College, Cambridge University, United Kingdom **Oct 1996 - Jun 1999**

B.A. (Hons.) Natural Sciences & M.A. (Cantab.)

- Upper second class honors. Mathematics Tripos Parts 1a & 1b; Astrophysics Part II

Teaching and public outreach

Sep 2009 – present	Supervising and lecturing of undergraduate ecology, Victoria University.
Sep 2009 – present	Public talks and media appearances on kiwi acoustic research, New Zealand.
Dec 2006 – present	Public tour guide at Zealandia wildlife reserve, Wellington.
Sep 2003 – Dec 2005	Presenting Lyot Project science and supervision of students at AMNH.
Apr 2000 – Dec 2005	Presentations at international astronomy conferences.
Oct 1999 – Jul 2002	Astronomy Information Officer and tutor at the Royal Observatory Edinburgh.

Recent grants awarded

Victoria University Submission Scholarship, 2012
Victoria University Doctoral Assistantship, 2009–2012
Victoria University Faculty Strategic Research grant, 2011
Bank of New Zealand Save the Kiwi Trust grant, 2010
Victoria University Centre for Biodiversity and Restoration Ecology grant, 2010

Selected Publications

Digby, A., Bell, B. D., Teal, P. D., 2013, *Vocal cooperation in little spotted kiwi*, Ibis, 155, 229–245

Digby, A., Towsey, M., Bell, B. D., Teal, P. D., 2013, *A practical comparison of manual and autonomous methods for acoustic monitoring*, Methods in Ecology and Evolution, 4(7), 675–683

Digby A., Bell, B. D., Teal, P. D., 2013, *Non-linear phenomena in little spotted kiwi calls*, Bioacoustics, doi:10.1080/09524622.2013.829755

Digby, A. et al., 2006, *The challenges of coronagraphic astrometry*, Astrophysical Journal, 650, 484

Digby A., N. C. Hambly, J. A. Cooke, I. N. Reid, R. D. Cannon, 2003, *The subdwarf luminosity function*, Monthly Notices of the Royal Astronomical Society, 344, 583

Digby A., J. Cooke, N. Hambly, I. N. Reid, R. Cannon, 2002, *Galactic structure and evolution from stellar dynamics*, EAS Publications Series, 2, 379

Oppenheimer B. R., Hambly N. C., Digby A., Hodgkin S. T., Saumon D., 2001, *Direct detection of galactic halo dark matter*, Science, 292, 698

Selected Presentations and media

Digby, A., *Kiwi pairs are double trouble*, press article, May 2013, Science News

Digby, A., *Kiwi calls*, interview, May 2013, Radio New Zealand National

Digby, A. et al., *Kiwi conservation from calls*, invited talks, April 2010, May 2011, May 2012, May 2013, National Kiwi Meeting, New Zealand

Digby, A. et al., *Acoustic monitoring for kiwi conservation*, invited talk, July 2012, Australasian eResearch Symposium, Wellington, New Zealand

Digby, A. et al., *Kiwi conservation through calls*, invited talk, December 2011, International Congress for Conservation Biology, Auckland, New Zealand

Digby, A. et al., *Kiwi acoustic ecology*, invited talk, October 2011, Australasian Ornithological Congress, Cairns, Australia

Digby, A. et al. *Kiwi acoustic ecology*, invited talk, August 2011, 3rd Symposium for Acoustic Communication by Animals, Cornell University, Ithaca, USA

Digby, A., *Recording little spotted kiwi calls*, interview, June 2010, Our Changing World, Radio New Zealand National

Digby, A. et al., *The Lyot Project: toward exoplanet imaging and spectroscopy*, poster, July 2004, BioAstronomy: Habitable Worlds, Reykjavik & SPIE: Advances in Adaptive Optics, Glasgow

Journal reviews

Invited reviewer for Astrophysical Journal, Emu (Austral Ornithology) and New Zealand Journal of Ecology

Other interests

Wildlife photography, ornithology, mountain biking, volleyball (Cambridge University Blues Squad 1998-9; Magdalene College club captain 1998-9; Edinburgh University Squad 1999-2003; teams in New York City and Wellington leagues), camping, hiking and travel. Was St John Ambulance member for 19 years, running first aid training and adventure holidays.

Referees

Available on request.