Emily D. Fountain

Address: Department Forest and Wildlife Ecology
Russell Labs
1630 Linden Dr
University of Wisconsin- Madison
Madison, WI 53706
USA

Email: efountain@gmail.com

Education

Lincoln University, Christchurch, New Zealand
Ph.D. in Evolutionary Biology, Thesis: *Time travelling weevils: Unraveling the evolutionary past of* Hadramphus *using historical and modern DNA*, December 2012
Post Graduate Certificate with distinction, **Applied Science**, July 2008

University of Missouri, Columbia, MO
B.Sc., Biology, May 2007

Awards and Funding

Brian Mason Scientific and Technical Trust Grant, 2012
Miss E. L. Hellaby Indigenous Grasslands Conservation Fund, 2009-2012
Mohamed bin Zayed Species Conservation Grant, 2011
Best Student Presentation Second Place, New Zealand/Australian Joint Entomological Conference, September 2011
International Mobility Fund, Royal Society New Zealand, December 2010- June 2011
Science Advisory Fund, 2010
Lady Isaac Scholarship in Nature Conservation, 2008
Lincoln University Bio-protection and Ecology Summer Scholarship, 2007
Best Undergraduate Research Concept and Poster Award, Life Sciences Week, 2007
Arts and Science Mentorship Research Grant, 2006

Research Experience

University of Wisconsin, Department of Forest and Wildlife Ecology June 2013-current
Postdoctoral Researcher, PIs: Drs. Zach Peery and Jon Pauli
Optimizing ddRAD protocol for SNP discovery in the two-toed sloth (*Choloepus hoffmanni*), assessing sloth dispersal in as semi-modified habitat using SNP data, investigating the molecular coevolution between sloths, their moths and algae.

Lincoln University, Bio-Protection CORE January 2013-June 2013
Research Fellow, supervised by: Dr. Stephen Wratten
Designed and ran field trial release of the biocontrol agent, *Cleobora mellyi*, assisted in eco-trail building for Greening Waipara project, assisted in molecular work on identification of aphid mummies

Seoul National University, School of Biological Sciences January 2013-March 2013
Bioinformatician, with Dr. Bruce Waldman
Analyzed next-generation sequencing data for targeted sequencing of frog adaptive immunity genes.

Lincoln University, Ecology Department December 2012-May 2013
Molecular Laboratory Manager, supervised by: Dr. Robert Cruickshank
Maintaining a PC1 molecular laboratory including biosafety regulations and student and postdoc training.

Lincoln University, Ecology Department October 2012-July 2013
Research Assistant, with Dr. Timothy Curran and Dr. Adrian Paterson
Developed molecular methods for analyzing genetic variation in *Leptospermum scoparium* (manuka) to determine correlations to flammability traits.

Lincoln University, Ecology Department September 2008-December 2013
Research Assistant, with Dr. Adrian Paterson and Dr. Robert Cruickshank
Researched feather lice evolution in Passerines by analyzing both nuclear and mitochondrial genes in a Bayesian framework.

Seoul National University, School of Biological Sciences March 2011-November 2012
Visiting Researcher, with Dr. Bruce Waldman
Developed next generation sequencing methods to target sequence the MHC class I and class II genes in non-model frog species.

Lincoln University, AGLS Division September 2010-May 2012
Research Assistant, supervised by Dr. Bruce Waldman
Created MHC genotype library for the *Xenopus laevis* colony and developed non-invasive DNA sampling method for amphibians.

University of Missouri, Department of Biomedical Sciences September 2006-August 2007
Research Assistant, with Dr. Cheryl Rosenfeld and Dr. Matthew Will
Studied the effect of omega-3 and omega-6 fatty acids on corticosterone, maternal behavior, and offspring sex-ratio in mice.

University of Missouri, Department of Biomedical Sciences August 2005-August 2007
Laboratory Technician, supervised by Dr. Jaime Riley
Studied the effect of a genistein versus casein diet on the methylization of embryos and maternal insulin levels in viable yellow heterozygous C57 mice.

University of Missouri, Life Sciences May 2006-September 2006
Undergraduate Mentorship Research Grant Program, Dr. Raymond Semlitsch and Dr. Matthew Lucy
Compared the corticosterone levels in the American toad, *Bufo americanus*, exposed to field habitat versus forest habitat.

Teaching/Leadership Experience

University of Wisconsin, Department of Forest and Wildlife Ecology Fall semester 2014
Instructor of a graduate seminar that covered the topic of next-generation sequencing in ecology and evolution.

University of Wisconsin, Department of Forest and Wildlife Ecology Spring semester 2014
Assisted as the co-instructor of conservation genetics graduate seminar.

Lincoln University, Department of Ecology 2009-2013
Taught molecular techniques to undergraduates new to the molecular laboratory, including: DNA extraction, primer design, PCR optimization, sequencing, and data analysis.

International Union for Conservation of Nature World Conservation Congress, Jeju, South Korea
11 September 2012
Assisted in organization of the workshop, Addressing the Global Amphibian Crisis by Integrating Policy, Planning, and Research, and was co-leader of the climate change/habitat management/urbanization discussion group.

Lincoln University, Department of Ecology February 2012
Organized "Meet the weevil" day for Haldon Primary School to teach students about conservation and threats to endemic New Zealand species.

Research Interests

Phylogenetics, systematics and evolutionary history of a species
Ancient DNA and historical DNA to determine changes in population demographics throughout time
Evolution of communication between the neuroendrocine and immune systems
Host-parasite relationships
Dietary effects on offspring sex-ratio

Publications/Technical Reports/Book Chapters

Pauli, J. N., Moss, W. E., Manlick, P. J., **Fountain, E. D.**, Kirby, R., Sultaire, S. M., Perrig, P. L., Mendoza, J. E., Pokallus, J. W. and Heaton, T. H. 2015. Accepted. Promoting exotics or protecting endemics? Uncertain histories, differing benchmarks and the case of martens in the Tongass National Forest. Conservation Biology.

Fountain, E. D., Malumbres-Olarte, J., Cruickshank, R. H. and Paterson, A. M. 2015. The effects of island forest restoration on open habitat specialists: the endangered weevil *Hadramphus spinipennis* Broun and its host-plant *Aciphylla dieffenbachii* Kirk. PeerJ. Doi 10.7717/peerj.749

Fountain, E. D., and Wratten, S. D. 2013. A narrative of agriculture and biodiversity loss. In *Ecosystem Services in New Zealand Conditions and Trends*, JR Dymond (Ed.), pp 115-120.

Fountain, E. D., Wiseman, B. H., Cruickshank, R. H., and Paterson, A. M. 2013. The ecology and conservation of *Hadramphus tuberculatus* (Pascoe 1877) (Coleoptera: Curculionidae: Molytinae). Journal of Insect Conservation 17:737-745.

Fountain, E. D., and Pugh, A. R. 2012. What do predators eat for dinner? Burkes Pass Scenic Reserve predator stomach content analysis for 2010-2011. Technical report for Environment Canterbury, New Zealand.

Fountain, E. D. 2010. The status of *Hadramphus spinipennis* Broun (Curculionidae) and *Aciphylla dieffenbachia* Kirk (Apiaceae) on Rangatira Island, Chathams. Technical report for Department of Conservation and Chatham Island Trust Board, New Zealand.

Fountain, E. D. 2010. Population analysis of *Hadramphus tuberculatus* (Pascoe) using cytochrome c oxidase I mitochondrial gene. Science Advisory Fund report for Department of Conservation, Canterbury, New Zealand.

Chinn, W. G., and **Fountain, E. D.** 2009. Invertebrate survey of Ashburton Lakes tenure review land and management implications. Technical report for Department of Conservation, Canterbury, New Zealand.

Fountain, E. D., Mao, J., Whyte, J. J, Mueller, K. E., Ellersieck, M. R., Will, M. J., MacDonald, R. Roberts, R.M., Rosenfeld, and C. S. 2008. Effects of diets enriched in Omega-3 and Omega-6 polyunsaturated fatty acids on offspring sex-ratio and maternal behavior in mice. Biology of Reproduction 78: 211-217.

Whyte, J. J., Alexenko, A. P., Davis, A. M., Grimm, K. M., **Fountain, E. D.**, and Rosenfeld, C. S. 2007. Maternal diet composition alters serum steroid and free fatty acid concentrations and vaginal pH in mice. Journal of Endocrinology 192: 75-81.

Abstracts and Posters

Wiseman, B. H., Cruickshank, R. H., Bowie, M. H., **Fountain, E. D.** 2011. Unexpected genetic variation in an endemic ground beetle: The molecular mystery of *Megadromus guerinii* (Coleoptera: Carabidae). 3rd Annual Combined Australian and New Zealand Entomological Societies Conference.

Fountain, E. D., Chinn, W. G., and Bowie, M. 2008. The conservation dilemma of *Hadramphus tuberculatus*: A duty to species or budget? New Zealand Entomological Society Annual Conference, Christchurch, New Zealand.

Mao, J., Davis, A. M., **Fountain, E. D.**, Roberts, R. M., and Rosenfeld, C. S. 2008. Differentiating X and Y-bearing spermatozoa associated with zona pellucidae at the time of fertilization. International Embryo Transfer Society Annual Meeting, Denver, Colorado.

Fountain, E.D., Whyte, J.J., Mueller K. E., Will, M. J., Ellersieck, M. R., Rosenfeld, C. S. 2007. Omega 3 and Omega 6 fatty acids effects on offspring sex-ratio and behavior in mice. Life Sciences Week, University of Missouri, Columbia, Missouri.

Mao, J., Alexenko, A. P., **Fountain, E. D.**, Whyte, J. J., Grimm, K. M., Roberts, R. M.., and Rosenfeld, C. S. 2007. Examination of metabolic hormones and blood glucose concentrations in female mice on diets that favor pronounced changes in sex-ratios of pups born. Society for the Study of Reproduction Annual Meeting, College Station, Texas.

Whyte, J. J., **Fountain, E. D.**, and Rosenfeld, C. S. 2006. Fluorescent in situ hybridization for sex determination at progressive stages of fertilization and development of mice. International Embryo Transfer Society Annual Meeting, Kyoto, Japan.

Presentations

Fountain, E. D., Cruickshank, R. H., and Paterson, A. M. (2012, November). The trials and tribulations of next-generation sequencing with non-model organisms. Presented at the New Zealand Ecological Society Conference, Lincoln University, Lincoln, New Zealand.

Fountain, E.D., Bowie, M., Cruickshank, R. and Paterson, A. (2011, December). Return of the living dead: Protecting the rediscovered weevil *Hadramphus tuberculatus* through historic DNA and the community. Presented at the International Congress of Conservation Biology, Auckland, New Zealand.

Fountain, E. D. and Malumbres-Olarte, J. (2011, September). Restroation vs. Conservation: The battle of the Chathams coxella weevil. Presented at the New Zealand/Australian Joint Entomological Society Conference, Lincoln University, Lincoln, New Zealand.

Fountain, E. D. (2011, September). Conservation through DNA: Unravelling the past of the weevil genus *Hadramphus*. Presented at the New Zealand/Australian Joint Entomological Society Conference, Lincoln University, Lincoln, New Zealand.

Paterson, A. M., Cruickshank, R. H., **Fountain, E. D.**, Galloway, T., Kennedy, M., and McLeod, C. (2011, September). Of lice and *Men*(*acanthus*): Supercoloniser or host-race complex? Presented at the New Zealand/Australian Joint Entomological Society Conference, Lincoln University, Lincoln, New Zealand.

Fountain, E. D. (2010, November). Back to the Future: Conservation of the weevil *Hadramphus tuberculatus*. Presented at the New Zealand Ecological Society Conference, Otago University, Dunedin, New Zealand.

Fountain, E. D. and Bowie, M. (2010, April). Finding a beetle in a needle stack: Molecular and monitoring methods in *Hadramphus tuberculatus*. Presented at the New Zealand Entomological Society Conference, Victoria University, Wellington. New Zealand.

Fountain, E. D. (2009, April).Old beetles, new tricks: DNA extraction from museum specimens without morphological damage. Presented at the New Zealand Entomological Society Conference, University of Auckland, Auckland, New Zealand.