CHRISTOPHER BLAIR

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RESEARCH INTERESTS AND STATEMENT

Molecular Systematics; Phylogeography; Landscape Genetics; Conservation Genetics

I am broadly interested in the application of molecular techniques to fundamental questions in ecology and evolution. I am interested in both the historical as well as contemporary forces influencing the genetic relatedness between groups at multiple spatial and temporal scales. My research spans multiple disciplines including systematics, phylogeography, landscape genetics and conservation genetics. I ask questions such as: What historical forces contributed to the current distribution of genetic lineages? How does current and historical landscape configuration shape contemporary patterns of gene flow between populations? How does landscape structure relate to genetic diversity? Other research interests include documenting the historical and ecological factors influencing herpetofaunal community structure on both local and regional scales, exploring novel molecular methods to tackle difficult questions, and the role of simulation studies in molecular phylogenetics and landscape genetics.

EDUCATION

Ph.D. University of Toronto, Department of Ecology and Evolutionary Biology, 2007–present
Dissertation: Phylogeography and landscape genetics of leaf-toed geckos (Phyllodactylidae: *Phyllodactylus*) in the tropical dry forests of western Mexico
Supervisor: Prof. Robert W. Murphy

M.A. Central Connecticut State University, Department of Biology, 2004–2006 (GPA 3.97)
Thesis: Ecological Factors Influencing *Eleutherodactylus* (Anura: Leptodactylidae) Abundance and Distribution at Five Sites in Southeast Peru
Supervisor: Dr. Tiffany M. Doan

B.A. University of Connecticut, Department of Marine Sciences, 1999–2003
Academic Major: Coastal Studies
Academic Minor: Natural Resource Economics and Policy

SKILLS

Computer: Microsoft Word, Excel, Power Point, Access, SAS, SPSS, Stella, JMP, SYSTAT, Statistica. Clustal, TreeView, FigTree, PAUP*, PHYLIP, BioEdit, Se-Al, MacClade, MrBayes, MrModeltest, Modeltest, MEGA, Tracer, GARLI, Adobe Photoshop, Adobe Illustrator, Adobe Dreamweaver, Adobe Acrobat, TNT, Mesquite, Genepop, FinchTV, BayesPhylogenies, BAPS, DnaSP, TESS

Technical: Microscopy, Dissection, CTD Meter, Light Meter, Fluorometer, Spectrophotometer, Oxygen Meter, Gas Chromatography, Oxygen Titrations, Water/Nutrient analyses, DNA Extraction (various techniques), PCR, Gel Electrophoresis, Gene Sequencing, Molecular Cloning, Microsatellite Development and Genotyping

GRANTS AND AWARDS

2010	Theodore Roosevelt Memorial Fund, American Museum of Natural History ($2,000)
2008	University of Toronto Tuition Fellowship, Department of Ecology and Evolutionary Biology ($1,200)
2007	University of Toronto Tuition Fellowship, Department of Ecology and Evolutionary Biology ($1,000)
2007–2011	University of Toronto Graduate Research Assistantship, Natural Sciences and Engineering Research Council of Canada ($9,000 per year)
2007–2011	University of Toronto Tuition Fellowship, Department of Ecology and Evolutionary Biology ($15,263.00 per year)
2006	Central Connecticut State University, Outstanding Scholar Award for the School of Arts & Sciences
2006	Central Connecticut State University, Department of Biology Department of Biology Academic Award for M.A. in Biological Sciences

RESEARCH AND RELEVANT WORK EXPERIENCE

2007 *Utah State University, Ecology Center, Research Technician*
Assisted graduate student in the studying the chemical ecology of tropical freshwater shrimp and their predatory fish species. Duties included monitoring patterns of shrimp migration when presented with the chemical cues of fish in both natural and artificial stream settings. Provided technical support; assisted in experimental design and data analysis; electro-shocking for fish species; various shrimp collecting techniques**.**

2007 *Utah State University, Ecology Center, Research Technician*
Collected data for the LTER (Long-term Ecological Research) project, which monitors the ecological processes in several taxonomic groups throughout the Caribbean National Forest (CNF). Duties performed included setting shrimp traps in streams throughout the forest to monitor the abundance and distribution of species of *Atya*, *Macrobrachium* and *Xiphocaris*.

2007 *Utah State University, Ecology Center, Research Technician*
Collected tissue samples of *Eleutherodactylus coqui* for DNA analysis, as part of a broad phylogeographic study of *E. coqui* throughout Puerto Rico.

2006 *Connecticut Department of Environmental Protection, Inland Fisheries Division*
Conducted inland fishery censuses using various electro-fishing and seining techniques to obtain accurate abundance/distribution data of fish species;
Performed creel surveys to determine the status of Connecticut inland fisheries for effective management and conservation;
Stocked various fish species in freshwater streams and lakes throughout Connecticut for population management

2006 *Central Connecticut State University, Department of Biology*
Phylogeography of *Proctoporus* (Squamata: Gymnophthalmidae) throughout the Peruvian Andes
DNA extraction, PCR amplification, gel electrophoresis, DNA purification and quantification
Supervisior: Dr. Tiffany M. Doan

2005 *Central Connecticut State University, Department of Biology*
Determining ecological relationships between arthropod and frog abundances in a Neotropical Peruvian rainforest
Supervisior: Dr. Tiffany M. Doan

2004 *Central Connecticut State University, Department of Biology*
Staining (*Crepidula plana)* larva with Calcein in order to monitor growth rates and ascertain the adverse effects (if any) of the chemical on larval development
Supervisor: Dr. Jeremiah N. Jarrett

2004–2006 *Central Connecticut State University, Department of Biology*
Investigating the potential causes and maintenance of phenotypic plasticity in the intertidal barnacle *Chthamalus fissus*
Supervisor: Dr. Jeremiah N. Jarrett

2004 *Averill Environmental Laboratory, Plainville, Connecticut*
Environmental Analyst
Extracted and analyzed organic compounds (PCB's, semi-volatiles, hydrocarbons, pesticides, herbicides) found in wastewater, groundwater, and soils in accordance with EPA standards and methodology;
Tested for coliform bacteria and inorganic compounds (nitrogen, phosphorus, and pH deviations) in groundwater samples.

2003 *Connecticut Department of Environmental Protection, Marine Fisheries Division*
Fisheries Statistics Project
Collected and processed data on marine fishing effort for the Connecticut marine fisheries industry to compile effective fishery management plans for the state.

2002 *Millstone Environmental Laboratory (Power Plant), Waterford, Connecticut*
Collected entrainment samples of fish and lobster larvae to determine the effects of the discharge units of Millstone Power Plant on the surrounding marine communities;
Collected crustaceans from Long Island Sound and recorded carapace length, mass, sex, claw structures, and shell status;
Performed trawls and seines to determine marine community composition present surrounding the power plant;
Measured and monitored eelgrass growth and abundance from the surrounding areas of the power plant

TEACHING EXPERIENCE AND PUBLIC EDUCATION

2010 University of Toronto Teaching Assistant
Animal Biodiversity (Vertebrate Section)

2009 University of Toronto Teaching Assistant
Animal Biodiversity (Vertebrate Section)

2008 University of Toronto Teaching Assistant
Animal Biodiversity (Vertebrate Section)

2006 Central Connecticut State University Teaching Assistant
General Biology I

2006 Central Connecticut State University
Independent tutor for General Biology I

2007 Royal Ontario Museum
Fact or Fiction?
Educating public on the general biology of snakes

PRESENTATIONS

2008 Doan TM, **Blair C**. Can Reptile Species Be Distinguished with Solely Morphometric Characters?
Joint Meeting of the American Society of Ichthyologists and Herpetologists, Society for the Study of Amphibians and reptiles and the Herpetologists' League, Montreal, Quebec, Canada.

2006 **Blair C**. Environmental Variables Influencing the Distribution of *Eleutherodactylus* (Anura: Leptodactylidae) at Five Sites in Southeast Peru.
Joint Meeting of the American Society of Ichthyologists and Herpetologists, Society for the Study of Amphibians and Reptiles and the Herpetologists' League, New Orleans, Louisiana.

2006 Jarrett JN, **Blair C**. Phenotypic Plasticity in Operculum Morphology of the Barnacle, *Chthamalus fissus:* an Alternative Strategy to Avoid Predation.
Ocean Sciences Meetings, Honolulu, Hawaii.

2005 Jarrett JN, **Blair C**. Growth, Survival, and Size-Specific Reproduction of the Barnacle, *Chthamalus fissus*, From Two Sites in Southern California and Baja California.
Benthic Ecology Meetings, Wilmington, North Carolina.

ATTENDED WORKSHOPS

2010 Developing the Best Practices for Landscape Genetics
NCEAS Santa Barbara, California

2009 Canadian Bioinformatics Workshop
Exploratory Data Analysis and Essential Statistics

PROFESSIONAL SERVICES AND AFFILIATIONS

Manuscript Reviewer
Zoological Journal of the Linnean Society (1), Journal of Herpetology (1), Zootaxa (1), South American Journal of Herpetology (1)

Society Membership
Willi Hennig Society (2009-present)
Herpetologists' League (2005-present)
Society for the Study of Amphibians and Reptiles (2005-present)
Herpetological Association of Africa (2007-present)
Society of Systematic Biologists (2005- present)
Molecular Ecology (2007-2008)
Molecular Ecology Resources (2007-2008)
Society for the Study of Evolution (2007-2008)
The Association for Tropical Biology and Conservation (2005-2008)
American Society of Ichthyologists and Herpetologists (2005-2008)

PUBLICATIONS

Papers published or in press

Blair C. 2007. *Arrhyton exiguum.* Natural History Note—Reproduction. *Herpetological Review* 38.

Blair C, Doan TM. 2009. Patterns of community structure and microhabitat usage in Peruvian *Pristimantis* (Anura: Strabomantidae). *Copeia* 2009: 303–312.

Blair C, Orlov NL, Shi H, Murphy RW. 2009. A taxonomic re-evaluation of *Goniurosaurus hainanensis* (Squamata: Eublepharidae) from Hainan Island, China. *Russian Journal of Herpetology* 16: 35–40.

Blair C, Mendez de la Cruz FR, Ngo A, Lindell J, Lathrop A, Murphy RW. 2009. Molecular phylogenetics and taxonomy of leaf-toed geckos (Phyllodactylidae: *Phyllodactylus*) inhabiting the peninsula of Baja California. *Zootaxa* 2027: 28–42.

Ngo A, **Blair C**, Murphy RW**.** DNA Barcoding—helping to reveal the hidden diversity of life. *ROM Magazine:* Spring 2009.

Murphy RW, **Blair C,** Mendez de la Cruz FR. 2009. A new species of leaf-toed gecko, genus *Phyllodactylus* (Squamata: Gekkota: Phyllodactylidae) from Guerrero, Mexico. *South American Journal of Herpetology* 4: 17–24.

Blair C. 2009. Daily activity patterns and microhabitat use of a heliothermic lizard, *Ameiva exsul* (Squamata: Teiidae) in Puerto Rico**.** *South American Journal of Herpetology* 4: 179–185.

Blair C, Murphy RW. 2010.Recent trends in molecular phylogenetic analysis: where to next? *Journal of Heredity:* doi:10.1093/jhered/esq092.

REFERENCES

Prof. Robert W. Murphy
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Prof. Allan J. Baker
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