

TRINA E. ROBERTS
CURRICULUM VITAE

National Evolutionary Synthesis Center (NESCent)
2024 West Main Street, Suite A200
Durham, NC 27705

Telephone: (919) 668-9107
Email: trina.roberts@duke.edu
<http://www.duke.edu/~tr34>

APPOINTMENTS

2008-present: Postdoctoral Fellow, National Evolutionary Synthesis Center, Durham, NC
Research on root reconstruction bias in phylogeographic trees.

2005-2008: Postdoctoral Fellow, University of Alaska Museum, University of Alaska Fairbanks.
Mentor: Link E. Olson, Curator of Mammals and Associate Professor of Systematic Biology.
Research on phylogeography, phylogenetics, and biogeography of the mammalian order
Scandentia (treeshrews).

EDUCATION

University of Chicago, Chicago, IL—Committee on Evolutionary Biology (1999-2005)
Ph.D. awarded August 2005. Dissertation title: *Divergence, diversity, distance, and disequilibrium:
Comparative phylogeography of six Philippine fruit bats*.
M.S. awarded December 2001.

Harvard University, Cambridge, MA (1993-1997)
A.B. *magna cum laude* (Biology) awarded June 1997. Senior honors thesis: *These birds are made for
walking: Effective mechanical advantage and muscle force in walking and running rhesus*; awarded High
Honors.

RESEARCH & PROFESSIONAL EXPERIENCE

Research Interests

Evolutionary biogeography, phylogeography, molecular systematics; using DNA data to infer evolutionary and demographic processes; integrating geographic and genetic data; using old and new museum specimens in genetic research; focus on Southeast Asian and North American mammals.

Peer-Reviewed Publications

Roberts, T.E., T.R.B. Davenport, K.B.P. Hildebrandt, T. Jones, W.T. Stanley, E.J. Sargis, and L.E. Olson. (2009). The biogeography of introgression in the critically endangered African monkey *Rungwecebus kipunji*. *Biology Letters* (online before print). DOI: 10.1098/rsbl.2009.0741.
Heaney, L.R. and **T.E. Roberts**. (In press, to be published in late 2009). New perspectives on the long-term biogeographic dynamics and conservation of Philippine fruit bats. In *Ecology, Evolution, and Conservation of Island Bats*, T.H. Fleming and P.A. Racey, editors. Chicago: University of Chicago Press.

- Roberts, T.E.**, E.J. Sargis, and L.E. Olson (2009). Networks, trees, and treeshrews: Assessing support and identifying conflict with multiple loci and a problematic root. *Systematic Biology* 58(2): 257-270.
- Roberts, T.E.** (2006). Mitochondrial DNA reveals multiple levels of allopatric divergence in the endemic Philippine fruit bat *Haplonycteris fischeri* (Pteropodidae). *Biological Journal of the Linnean Society* 88: 329-349.
- Roberts, T.E.** (2006). History, ocean channels, and distance determine phylogeographic patterns in three widespread Philippine fruit bats (Pteropodidae). *Molecular Ecology* 15: 2183-2199.

Submitted Manuscripts

- Roberts, T.E.** Present and past geography produce non-equilibrium genetic diversity in Philippine fruit bats. Submitted to *Journal of Biogeography*.

Manuscripts in Preparation

- Roberts, T.E.**, A.R. Gates, R.J. Rowe, E.A. Rickart, and L.R. Heaney. The phylogeography of the water shrew *Sorex palustris* among Utah's montane islands.
- Roberts, T.E.**, H.C. Lanier, E.J. Sargis, and L.E. Olson. Phylogeny and diversification timing in treeshrews.
- Roberts, T.E.**, E.J. Sargis, and L.E. Olson. Resurrection and relationships of *Tupaia discolor* using mitochondrial DNA.
- Roberts, T.E.**, E.J. Sargis, and L.E. Olson. From island to isthmus: The geography of diversification in the *Tupaia belangeri/Tupaia glis* species complex using "antique" DNA.

Software

- Roberts, T.E.** and L.E. Olson. ComPairWise: Comparing alternate sequence alignments. R package, available from CRAN.

Research Grants

- NSF Small Grant for Exploratory Research DEB-079787, 2007 (\$20,000). To **T.E. Roberts** (P.I.), L.E. Olson (co-P.I.), E.J. Sargis (co-P.I.). *JGER: Rescuing an important collection of Cambodian mammal specimens for curation and archiving at the University of Alaska Museum.*
- NSF Doctoral Dissertation Improvement Grant DEB-0206596, 2002 (\$10,000). To L.R. Heaney (P.I.), **T.E. Roberts** (co-P.I.), J.M. Bates (co-P.I.). *Comparative phylogeography of six Philippine fruit bats.*
- University of Chicago Provost's Academic Technology Innovation Grant, 2002 (\$22,150). Grant co-writer; grant awarded to Dr. C.A. Pfister (students were not allowed to be PIs). *Geographic Information Systems (GIS) technology for the Committee on Evolutionary Biology.*
- American Society of Mammalogists Grant-in-Aid of Research, 2002 (\$1,000). *Comparative phylogeography of Philippine fruit bats.*
- Hinds Grant, University of Chicago Committee on Evolutionary Biology, Winter 2001 and Fall 2001 (\$2,700 total). *Phylogeography and population structure of Philippine fruit bats (Pteropodidae).*

Research Experience

- 2008-present: Postdoctoral research, National Evolutionary Synthesis Center (NESCent). Sticky tips and misplaced roots: Is there a bias in intraspecific phylogenetics?
- 2005-2008: Postdoctoral research, University of Alaska Museum. Molecular systematics of treeshrews (Scandentia) and phylogeography of the *Tupaia belangeri/glis* species complex.
- Postdoctoral advisor: Link E. Olson.

- 1999-2005: Dissertation research, University of Chicago and Field Museum of Natural History. Comparative phylogeography of six Philippine fruit bats. Advisors: John M. Bates and Lawrence R. Heaney.
- 2003-2005: DNA sequencing in the Field Museum's Pritzker Laboratory for Molecular Systematics and Evolution for several studies of Philippine and North American mammals.
- 1997: Research assistant, Harvard Forest. Biomechanics of water transport and cavitation repair in trees. Advisor: N. Michele Holbrook.
- 1995-1997: Undergraduate research, Concord Field Station (Harvard University). Biomechanics of locomotion in vertebrates, including pronghorn and rheas. Advisor: Peter G. Weyand.

Field Experience

- 2007: University of Alaska Museum small mammal survey, Seima Biodiversity Conservation Area, Mondulkiri Province, Cambodia. Pitfall trapping and mistnetting survey.
- 2006: University of Alaska Museum/Bureau of Land Management small mammal survey, Kilbuck Mountains, Alaska. Small mammal trapping and preparation of museum specimens under remote conditions.
- 2002-2005: Field Museum research in Utah. Annual elevational surveys of montane small mammal communities, including trapping and preparation of specimens and tissues.

Ongoing Research & Collaborators

- With L.E. Olson and E.J. Sargis: Systematics and phylogeography of treeshrews (Scandentia); biogeography and evolution of Cambodian mammals.
- With J. Tung and C.C. Babbitt: Evolutionary history of a hybrid baboon population.
- With L.R. Heaney: Biogeography, systematics, and diversification patterns in Philippine fruit bats.
- With L.R. Heaney, R.J. Rowe, E.A. Rickart, and A.R. Gates: Biogeography of the small mammals of the Intermountain West.
- With W.T. Stanley, L.E. Olson, T. Davenport, E.J. Sargis, and T. Jones: Systematics and biogeography of African mammals.

Fellowships, Awards, & Honors

- NESCent Postdoctoral Fellowship, 2008-present.
- American Society of Mammalogists Elmer C. Birney Award, 2005.
- Field Museum Women in Science Graduate Fellowship, 2003-2004.
- Association for Women in Science Certificate of Merit, 2003.
- National Science Foundation Graduate Research Fellowship, 2000-2003.
- National Science Foundation Graduate Research Fellowship Honorable Mention, 1999-2000.

Professional Development & Coursework

- Effective College Teaching workshop, NESCent, 2008. Led by Jory Weintraub.
- Women Evolving Biological Sciences (WEBS) symposium, University of Washington, 2008. Led by Samantha Forde, Joyce Yen, and Claire Horner-Devine.
- MaNIS/ORNIS/HerpNet Georeferencing Road Show, University of Alaska Fairbanks, 2008. Led by John Wieczorek, Carol Spencer, and Heather Constable.
- Scientific Mentoring semester-long seminar, University of Alaska Fairbanks, Spring 2008. Led by Jonathan Runstadler.
- Workshop on Molecular Evolution and Extended Topics Session, Marine Biological Laboratories, Woods Hole, MA, 2003. Course director: Michael Cummings.

Summer Institute in Statistical Genetics (Probability and Statistical Inference; Population Genetic Data Analysis; Systematic Biology; Markov Chain Monte Carlo for Geneticists; Coalescent Theory), North Carolina State University, Raleigh, NC, 2003. Course director: Bruce Weir.

Conference and Symposium Presentations

- Roberts, T.E.**, E.J. Sargis, and L.E. Olson (2009). Antique DNA reveals broad geographic patterns in the *Tupaia belangeri*/*Tupaia glis* species complex. Oral presentation, Evolution meeting, Moscow, ID, and American Society of Mammalogists, Fairbanks, AK.
- Roberts, T.E.**, E.J. Sargis, and L.E. Olson (2008). Multilocus systematics of treeshrews (Mammalia; Scandentia): Concatenation, coalescence, or consensus? Oral presentation, Evolution meeting, Minneapolis, MN.
- Roberts, T.E.**, E.J. Sargis, and L.E. Olson (2007). Multilocus systematics of the Tupaiidae: Conflict and consensus in treeshrew trees. Oral presentation, American Society of Mammalogists, Albuquerque, NM.
- Stanley, W.T., G.B. Rathbun, **T.E. Roberts**, K. Hildebrandt, and L.E. Olson. (2007). A preliminary analysis of morphological and molecular differentiation among the three species of *Rhynchocyon*. Oral presentation by W.T. Stanley, American Society of Mammalogists, Albuquerque, NM.
- Roberts, T.E.** (2006). Divergence, dispersal, and DNA: Inferring divergence times and colonization routes in the Philippine fruit bats *Cynopterus brachyotis* and *Macroglossus minimus*. Oral presentation, American Society of Mammalogists, Amherst, MA.
- Roberts, T.E.** (2005). Geographic distance and ocean channels determine phylogeographic patterns in three widespread Philippine fruit bats. Elmer C. Birney Award presentation (plenary session), American Society of Mammalogists, Springfield, MO.
- Gates, A.R., **T.E. Roberts**, R.J. Rowe, E.A. Rickart, and L.R. Heaney (2005). Phylogeography of *Sorex palustris* among Utah's montane islands. Poster presentation, American Society of Mammalogists, Springfield, MO.
- Roberts, T.E.** (2005). Ocean channels and geographic distance determine phylogeographic patterns in three widespread Philippine fruit bats. Oral presentation, Evolution meeting, Fairbanks, AK.
- Roberts, T.E.** (2004). Reduced mtDNA diversity in endemic Philippine fruit bats on small, isolated islands. Oral presentation, Evolution meeting, Fort Collins, CO.
- Roberts, T.E.** (2004). Reduced mtDNA diversity in endemic Philippine fruit bats on small, isolated islands. Oral presentation, American Society of Mammalogists, Arcata, CA.
- Heaney, L.R. and **T.E. Roberts** (2004). The biogeography of genetic divergence in Philippine fruit bats. Invited symposium presentation, Association for Tropical Biology and Conservation, Miami, FL.
- Roberts, T.E.** (2004). Phylogeography of the endemic Philippine fruit bat *Ptenochirus minor*. Evolutionary Biology Student Symposium, University of Chicago.
- Roberts, T.E.** (2003). Phylogeography of the endemic Philippine fruit bats *Ptenochirus jagori* and *Ptenochirus minor*. Oral presentation, Evolution meeting, Chico, CA.
- Roberts, T.E.** (2003). Phylogeography of the endemic Philippine fruit bats *Ptenochirus jagori* and *Ptenochirus minor*. Poster presentation, International Biogeography Society, Mesquite, NV.
- Roberts, T.E.** (2002). Phylogeography of the endemic Philippine fruit bat *Haplonycteris fischeri*. Oral presentation, American Society of Mammalogists, Lake Charles, LA.
- Roberts, T.E.** (2002). Comparative phylogeography of the fruit bats *Haplonycteris fischeri* and *Cynopterus brachyotis* in the Philippines. Poster presentation, Evolution meeting, Champaign-Urbana, IL.

Invited Seminars

Biology department seminar, University of North Carolina at Greensboro, September 2009.

Disentangling treeshrew evolution and biogeography with antique DNA.

Zoology seminar, Smithsonian National Museum of Natural History, May 2009. *Disentangling treeshrew evolution and biogeography with "antique" DNA.*

Systematics Discussion Group, Duke University, October 2008. *Phylogenetic mixture models.*

BBL seminar, National Evolutionary Synthesis Center, September 2008. *A tale of two treeshrews (or maybe more): Systematics and biogeography in an obscure mammalian family.*

Life Sciences seminar, University of Alaska Fairbanks, February 2006. *Divergence, dispersal, distance, and disequilibrium: Comparative phylogeography of Philippine fruit bats.*

Evolution seminar, Northwestern University, April 2005. *Patterns of divergence in Philippine fruit bats: Implications for diversification and conservation priorities.*

Research seminar, Field Museum of Natural History, December 2004. *Genetics, geography, and the deep history of an endemic Philippine fruit bat.*

Natural History seminar, Department of Ecology and Evolution, University of Chicago, April 2003. *Phylogeography of Philippine fruit bats: Progress and prospects.*

TEACHING, OUTREACH, & PROFESSIONAL SERVICE

Teaching Experience

Presenter, Bioinformatics and Computational Biology Toolbox (workshop series for graduate students and faculty), University of Alaska Fairbanks, 2007.

Guest lecturer, History of Earth and Life (undergraduate course), University of Alaska Fairbanks, 2007.

Guest lecturer, Conservation Genetics (graduate/undergraduate course), University of Alaska Fairbanks, 2007.

Guest lecturer, Mammalogy (undergraduate course), University of Alaska Fairbanks, 2006.

Guest lecturer, Molecular Evolution (graduate/undergraduate course), University of Alaska Fairbanks, 2005.

Invited discussion leader, Advanced Topics in Evolution: Biogeography (graduate seminar), University of Alaska Fairbanks, 2005.

Tutorial leader, Science and Engineering in Research and Teaching Synthesis (SERTS) program (undergraduate course), Northwestern University, 2002, 2003, & 2004.

Guest lecturer, Biogeography (graduate/undergraduate course), University of Chicago, 2002 & 2004.

Guest lecturer, Mammalian Evolution (graduate/undergraduate course), University of Chicago, 2003.

Teaching Assistant, Biogeography (graduate/undergraduate course), University of Chicago, 2002.

Teaching Assistant, Ecology and Evolution (undergraduate course), University of Chicago, 2001.

Teaching Assistant, Grants, Publications, & Professional Issues (graduate course), University of Chicago, 2000.

Advising & Mentoring

Assisted as a mentor and advisor for Vuthy Va, a Cambodian graduate student, on the University of Alaska Museum field project in Keo Seima Biodiversity Area, Mondulkiri, Cambodia, spring 2007.

Helped train and advise Josie Bonham and Sarah Moore, University of Alaska Fairbanks undergraduate lab assistants working with Link Olson, 2007.

Co-mentor for Kyndall Hildebrandt (University of Alaska Fairbanks) for her undergraduate project on the phylogeography and taxonomy of water shrews (*Sorex palustris* and *S. alaskanus*) in Alaska, 2005-2006.

Co-advisor for RuthAnn Dohner (West Valley High School, Fairbanks, AK) for her project in the Alaska Statewide High School Science Symposium, 2005-2006.

Mentor and independent study advisor for Amber Gates, University of Chicago undergraduate student, 2004-2005.

Exhibits & Public Presentations

Invited speaker, Science Communicators of North Carolina, 2009.

Content contributor, University of Alaska Museum of the North special exhibit “The Nature and Art of Collections”, 2006.

Public education and outreach programs on Mammalogy Department research and DNA sequencing, University of Alaska Museum, 2005-2006.

“Scientist at the Field” three-hour public question-and-answer session on DNA sequencing and research at the Field Museum, 2003.

Public education and outreach programs, Field Museum Division of Mammals and Pritzker Laboratory, 2001-2005.

Memberships in Professional Societies

Society for the Study of Evolution; American Society of Mammalogists; International Biogeography Society; Society for Systematic Biology, National Postdoctoral Association.

Professional Service

Local organizing committee, American Society of Mammalogists 2009 annual meeting in Fairbanks, AK.

Organizer, Ecological & Evolutionary Genetics Seminars and visiting speaker series (including John Huelsenbeck, Mary Kuhner, May Berenbaum, Jeff Thorne, and Peter Raven), University of Alaska Fairbanks, 2006-2007.

Referee for *Evolution*, *Journal of Mammalogy*, *Journal of Biogeography*, *Animal Conservation*, *Molecular Ecology*, *Biological Journal of the Linnean Society*.

Member of Honoraria Committee (2006-present) and Grants-in-Aid Committee (2007-present), American Society of Mammalogists.

Student presentation evaluator, American Society of Mammalogists, 2005-2009.

Webmaster and board member, University of Chicago Women in Science, 2001-2003.