

Nathan Steadman Upham, Ph.D.

Dept. of Ecology and Evolutionary Biology
Yale University
165 Prospect St., OML 122
New Haven, CT, 06511, USA
Tel: 773.263.1533 (mobile) | email: nathan.upham@yale.edu

Integrative Research Center (Mammals)
Field Museum of Natural History
1400 S. Lake Shore Drive
Chicago, IL, 60605, USA
webpage: <http://n8upham.github.io/>

ACADEMIC DEGREES

2014	Ph.D.	Evolutionary Biology	University of Chicago, Chicago, IL.
2010	M.S.	Evolutionary Biology	University of Chicago.
2008	M.A.	Biology	Occidental College, Los Angeles, CA. (Cal Tech courses)
2006	B.A.	Biology	Occidental College. (UK exchange, 2004)

RESEARCH EXPERIENCE

-
- 2015-. *Postdoctoral Associate*, Yale University, Ecology & Evol Biology, lab of Walter Jetz:
- Investigating rates and timing of species diversification in tetrapods for the NSF-funded VertLife Terrestrial project; Focus on building a global molecular timetree of Mammalia, bioinformatics on next-gen sequence data, and project management across grant institutions.
- 2014-. *Research Associate*, Field Museum of Natural History, Integr Research Cent (Mammals):
- Working with Dr. Bruce Patterson on the biogeography of Neotropical mammals.
- 2014-15. *Postdoctoral Fellow*, McMaster Univ, Dept of Biology, lab of Ben Evans, Brian Golding:
- Research on the evolutionary genomics of polyploidy in mammals.
- Initiated a project on genome expansion in the largest mammalian genome—the desert vizcacha rats of Argentina; tasks included fieldwork, grant writing, and data analysis.
- 2008-14. *Doctoral student*, University of Chicago, Committee on Evolutionary Biology:
- Advisor: Bruce D. Patterson, MacArthur Curator of Mammals, Field Museum.
- 2008-14. *Resident Graduate Student*, Department of Zoology, Field Museum of Natural History:
- Collaborative researcher in the mammal collections (220,000+ specimens).
- Projects doing geometric morphometrics, DNA sequencing, analysis of phylogenies and macroevolutionary processes, and outreach to local primary school students.
- 2006-08. *Master's student*, Occidental College, Biology Department:
- Advisor: John C. Hafner, Professor of Biology and Curator of Birds & Mammals.
- 2006-08. *Curatorial Associate*, Moore Laboratory of Zoology, Occidental College:
- Responsible for care and maintenance of 65,000+ bird and mammal specimens.
- Managed specimen loans, curatorial employees, and the molecular systematics lab.
- 2004-06. *Summer Researcher* (for stipend), Biology Department, Occidental College.
- 2003-06. *Undergraduate Researcher* (for course credit), Biology Department, Occidental College:
- Advisor: John C. Hafner, Professor of Biology and Curator of Birds & Mammals.

PUBLICATIONS

PEER-REVIEWED ARTICLES (https://www.researchgate.net/profile/Nathan_Upham/publications)

(*co-first authors; **corresponding author)

In Press. (alphabetical by last name) *Cooke, S. B. *Dávalos, L. M., *Mychajliw, A. M., *Turvey, S. T., and *Upham, N. S. Anthropogenic extinction dominates Holocene declines of West Indian mammals. *Annual Review of Ecology, Evolution, and Systematics*. [Online early](#).

Accepted. *Burgin, C. J., *Colella, J. P., and **Upham, N. S. How many species of mammals are there? *Journal of Mammalogy*.

2017. Upham, N. S. and Borroto-Páez, R. Molecular phylogeography of endangered Cuban hutias within the Caribbean radiation of capromyid rodents. *Journal of Mammalogy* [98: 950-963](#).

2017. **Upham, N. S.** Past and present of insular Caribbean mammals: understanding Holocene extinctions to inform modern biodiversity conservation. *Journal of Mammalogy* [98: 913-917](#).
2017. Lim, B. K., Loureiro, L. O., **Upham, N. S.**, and Brocca, J. L. Phylogeography of Dominican Republic bats and systematic relationships in Neotropics. *Journal of Mammalogy* [98: 986-993](#).
2017. **Evans, B. J., ****Upham, N. S.**, Golding, G. B., Ojeda, R. A., and Ojeda, A. A. Evolution of the largest mammalian genome. *Genome Biology and Evolution* [9: 1711-1724](#). Press: [ScienceDaily](#), [CBC Radio](#).
2017. Maestri, R., Monteiro, L. R., Fornel, R., **Upham, N. S.**, Patterson B.D., and Freitas, T.R.O. The ecology of a continental evolutionary radiation: Is the radiation of sigmodontine rodents adaptive? *Evolution* [71: 610-632](#). Press: [Evolution Digest](#).
2017. Fabre, P.-H., **Upham, N. S.**, Emmons, L. H., Justy, F., Leite, Y. L. R., Loss, A. C., Orlando, L., Tilak, M.-K., Patterson, B. D., and Douzery, E. J. P. Mitogenomic phylogeny, diversification, and biogeography of South American spiny rats. *Molecular Biology and Evolution*. [34: 613-633](#).
2015. **Upham, N. S.** and Patterson, B.D. Evolution of caviomorph rodents: a complete phylogeny and timetree for living genera. [Pp. 63-120](#) In: *Biology of caviomorph rodents: diversity and evolution* (A.I. Vassallo and D. Antenucci, eds.). SAREM Series A, Buenos Aires, Argentina.
2015. D'Elía, G., Teta, P., **Upham, N. S.**, Patterson, B. D., and Pardiñas, U. F. J. Description of a new soft-haired mouse, genus *Abrothrix* (Sigmodontinae), from the temperate Valdivian rainforest. *Journal of Mammalogy* [96: 839-853](#). [Diario Austral](#).
2014. Patterson, B. D. and **Upham, N. S.** A newly recognized family of mammals from the Horn of Africa, the Heterocephalidae (Rodentia: Ctenohystrica). *Zoological Journal of the Linnean Society* [172: 942-963](#). Press: [BrainScoop](#), [Field Museum Blog](#).
2014. Patterson, B. D. and **Upham, N. S.** A study in contrasts: two extensive Neotropical radiations. *Frontiers in Ecology and Evolution* [2: 44](#).
2013. **Upham, N. S.**, R. Ojala-Barbour, J. Brito, P. M. Velazco and B. D. Patterson. Transitions between Andean and Amazonian centers of endemism in the radiation of some arboreal rodents. *BMC Evolutionary Biology* [13:191](#). Highly accessed article (6000+ views). Press: [UChicago](#).
2013. **Upham, N. S.**, and Hafner, J. C. Do nocturnal rodents in the Great Basin Desert avoid moonlight? *Journal of Mammalogy*. [94: 59-72](#). Press: [ScienceLife Blog](#).
2012. **Upham, N. S.** and Patterson, B. D. Diversification and biogeography of the Neotropical caviomorph lineage Octodontoidea (Rodentia: Hystricognathi). *Molecular Phylogenetics and Evolution* [63: 417-429](#).
2012. Light, J. E., Hafner, J. C., **Upham, N. S.**, and Reddington, E. Conservation genetics of kangaroo mice, genus *Microdipodops*. *Journal of Mammalian Evolution* [20: 129-146](#).
2011. Hafner, J. C., and **Upham, N. S.** Phylogeography of the dark kangaroo mouse, *Microdipodops megacephalus*: cryptic lineages and dispersal routes in North America's Great Basin. *Journal of Biogeography* [38: 1077-1097](#).
2008. Hafner, J. C., **Upham, N. S.**, Reddington, E. and Torres, C. W. Phylogeography of the pallid kangaroo mouse, *Microdipodops pallidus*: a sand-obligate endemic of the Great Basin, western North America. *Journal of Biogeography* [35: 2102-2118](#).

NON-REFEREED PUBLICATIONS

2017. Ceriaco, L. M. et al. and 490 signatories (incl **Upham, N. S.**) Photography-based taxonomy is inadequate, unnecessary, and potentially harmful for biological sciences. *Zootaxa*. [4196: 435-445](#).
2016. Lacher, T. E., Murphy, W. J., Rogan, J., Smith, A. T., and **Upham, N. S.** Evolution, phylogeny, ecology, and conservation of the clade Glires: Lagomorpha and Rodentia. [Pp. 15-26](#) In: *Handbook of the Mammals of the World: Volume 6. Lagomorphs and Rodents I*. (D. E. Wilson, T.E. Lacher, Jr., and R. A. Mittermeier, eds.). Lynx Ediciones, Barcelona.
2016. Pérez, M. E., and **Upham, N. S.** [Review] Mammals of South America, Volume 2: Rodents. *Ameghiniana* [53: 523-525](#).

2014. **Upham, N. S.** At the edge of what we know. *The Human Geographic*, issue 1 [online multi-media magazine, popular article on vizcacha rat fieldwork in Argentina]: <http://www.thehumangeographic.com/vizcacha-rat/>.

THESES

2014. **Upham, N. S.** *Ecological diversification and biogeography in the Neogene: Evolution of a major lineage of American and Caribbean rodents (Caviomorpha, Octodontoidea)*. Unpubl. Ph.D. dissertation, University of Chicago, xvi + 272 pp. <http://gradworks.umi.com/36/15/3615686.html>. [Abstract published](#) in *Mastozoologia Neotropical* **21**: 193-194.
2008. **Upham, N. S.** *Rodent activity in relation to moonlight in sandy and open habitats of the Great Basin Desert*. Unpubl. M.A. thesis, Occidental College, viii + 65 pp.
2006. **Upham, N. S.** *Phylogeography of the dark kangaroo mouse, Microdipodops megacephalus*. B.A. thesis, Occidental College, 35 pp.

MANUSCRIPTS IN PREP

- Upham, N. S.**, Esselstyn, J. A., Jetz, W. Rates and drivers of species-level diversification in global Mammalia. For *Nature*.
- Upham, N. S.** and Patterson, B. D. Testing for adaptively radiating clades in rodents. For *Evolution*.

RESEARCH GRANTS AWARDED

2016. **Instrumentl**, Crowdfunding Grant, “The super-sized genomes of desert vizcacha rats” (PI with Ben Evans and Agustina Ojeda as co-PIs), \$978 from 12 donations (2016).
2014. **Royal Ontario Museum**, Schad Conservation Grant, “Integrating ecological and economic tools for sustainable conservation: Mammals as indicators of ecosystem and societal health in the Dominican Republic” (co-author with Burton Lim as PI), \$30,000 (2014-2015).
2011. **National Science Foundation**, Doctoral Dissertation Improvement Grant (DDIG), “DISSERTATION RESEARCH Fossils and phylogeny: investigating the timing of diversification in a diverse lineage of Neotropical rodents (Caviomorpha: Octodontoidea)” (co-PI with Bruce Patterson as PI/PD), \$15,000 (2011-2013), [DEB-1110805](#).
2011. **University of Chicago**, Hinds Fund (Comm. on Evol. Biol.), “Time, species, and morphology: investigating the diversification of a diverse lineage of Neotropical rodents,” \$1000.
2010. **American Society of Mammalogists**, Grant-in-Aid of Research, “Diversification of the South American rodent superfamily Octodontoidea: enhancing temporal and phylogenetic resolution with a complete suite of genera,” \$1290.
2009. **Field Museum of Natural History**, Pritzker Laboratory, “Timetree of Neotropic rodents,” \$2000.
2005. **Norris Foundation**, Norris Scholars Fellowship, “Molecular phylogenetics of the dark kangaroo mouse, *Microdipodops megacephalus*,” \$3000 project, \$8000 stipend.
2004. **Howard Hughes Medical Institute**, Undergraduate Research Grant, \$500 project, \$600 stipend.
2003. **Occidental College**, Academic Student Projects Research Grant, \$300 project.

UNFUNDED GRANTS

2016. **National Science Foundation**, Division of Environmental Biology: Evolutionary Genetics. “Understanding the quantum genome expansion of desert vizcacha rats”. Full proposal.
2015. **National Science Foundation**, Division of Environmental Biology: Evolutionary Genetics. “Mechanisms and consequences of genome expansion in vizcacha rats”. Pre-proposal.
2015. **National Geographic Society**, Committee for Research and Exploration. “The humongous genomes of Argentine vizcacha rats: biodiversity conservation, mechanisms, and consequences”.
2015. **National Science Foundation**, Postdoctoral Fellowship in Biology FY 2015.

2014. **National Science Foundation**, Science, Engineering and Education for Sustainability Fellows.
 “Integrating ecological and economic tools for sustainable communities: Native species as indicators of ecosystem and societal health in Miches, Dominican Republic”.

FELLOWSHIPS AWARDED

2012. **Field Museum of Natural History**, Lester Armour Grad Fellow, \$26,000 stipend/yr (2012-2013).
 2009. **U.S. Department of Education**, GAANN Training Grant in Evolutionary Environmental Biology, \$30,000 stipend/yr (2009-2011), [P200A090336](#).
 2004. **Howard Hughes Medical Institute**, Undergrad Summer Fellow, \$200 project, \$4150 stipend.
 2002. **Occidental College**, President’s Scholarship, \$50,000 for tuition (2002-2006).

HONORS AND AWARDS

2017. **IUCN**, appointed as Taxonomy Advisor of the IUCN Small Mammal Specialist Group.
 2016. **American Society of Mammalogists**, appointed as Chair of the Mammal Biodiversity Committee.
 2015. **IUCN**, appointed as member of the IUCN Small Mammal Specialist Group, South America Team.
 2014. **American Society of Mammalogists**, elected to Board of Directors (2014-2017).
 2012. **American Society of Mammalogists**, A. Brazier Howell Graduate Student Honorarium for “Diversification and biogeography of a major lineage of Neotropical rodents (Caviomorpha: Octodontoidea)” (plenary session talk).
 2006. **American Society of Mammalogists**, Undergraduate Student Research Honoraria for “Phylogeography of the dark kangaroo mouse, *Microdipodops megacephalus*”.
 2006. **Occidental College**, graduated *magna cum laude* in Biology.
 2005. **Occidental College**, Kurata Student Award for Outstanding Senior in Biology.
 TRAVEL: **Society of Systematic Biologists**, early career travel award (2017).
American Society of Mammalogists, Student Travel Fellowship (2016, 2014, 2010).
Occidental College, Graduate Student Travel Awards (2008, 2007).

TEACHING EXPERIENCE

PRIMARY INSTRUCTOR

2014. *Sessional Faculty*, McMaster University, Department of Biology, Autumn semester:
 - Gave 36 lectures (1-hr each) and designed exams for “Biodiversity, Evolution & Humanity,” an introductory majors course of 700 students that I co-taught with Ben Bolker.

OTHER TEACHING

2016. *Yale Scientific Teaching Fellow*, Biological Sciences, Yale University (Spring semester).
 - Pedagogy course on active learning and evidence-based teaching methods.
 2012. *Program Facilitator*, Project Exploration education non-profit in Chicago Public Schools.
 - Led weekly “Brothers4Science” program, 6th-8th graders at Ariel Community Acad (Chicago).
 2012. University of Chicago: “Ecology & Evolution in the Southwest” (Spring quarter).
 - Led a weekly discussion section of 20 students on topics in desert ecology.
 - Field supervision and teaching during a four-week fieldtrip to the SW USA deserts.
 2011. University of Chicago: “Biogeography” (Winter quarter).
 - Led weekly labs of 8 students on spatial modeling of species ranges; gave a guest lecture.
 2010. University of Chicago: “Insect Ecology & Evolution” (Fall quarter).
 - Gave a guest lecture and graded exams for the lecture section.
 2010. *Workshop leader*, Northwestern University, SERTS teaching program.
 - Led 4 undergraduate students in projects related to museum science and mammal conservation.
 2009. *Teaching Assistant Training Course*, Division of Biological Sciences, University of Chicago (Fall quarter). Pedagogy course providing practical skills for lecturing and styles of teaching.
 2009. University of Chicago: “Mammalian Ecology” (Spring quarter).
 - Led weekly labs of 20 students in identifying mammalian skull features.

2007. Occidental College: “Evolutionary Biology” (Fall semester).
 - Led weekly review sessions for lecture topics, graded exams, and assisted with final projects.
2005. Occidental College: “Evolutionary Biology” (Fall semester). Graded exams, review sessions.
- 2006-07. *Lab instructor and lecturer*, Occidental College, High School Summer Oceanology Program.

MENTORING AND SCIENCE OUTREACH EXPERIENCE

UNDERGRADUATE STUDENTS

2016. Yale University student, mentored summer biodiversity research as part of the Map of Life project.
2012. Loyola University student, working in the Field Museum Pritzker Laboratory.
 - Mentored her summer & honors research on molecular techniques for bat phylogenetics project.
2012. Cornell University student, working in the Field Museum Division of Mammals.
 - Mentored her summer research project on rodent geometric morphometrics and feeding ecology.
2011. University of Wisconsin Madison student, working in the Field Museum Division of Mammals.
 - Mentored her summer project on rodent life-history traits and evolution.
- 2006-7. Occidental College student, working in the Moore Laboratory of Zoology.
 - Mentored her summer & honors research on the molecular phylogenetics of kangaroo mice.

K-12 STUDENTS

2017. Science Fair judge at Worthington Hooker Middle School (New Haven).
- 2014-15. Weekly tutor, Empowerment Squared program for Liberian immigrants (Hamilton, Canada).
- 2013-14. Weekly tutor, Reading Buddies and Homework Help programs, Hamilton Public Library.
- 2012-15. My research on digital touch-screen, Field Museum’s DNA Discovery Center exhibit (Chicago).
- 2012-13. Led “Talk to the Scientist Hour” programs, Field Museum’s Pritzker Laboratory (Chicago).
2012. Presented on comparative vertebrate anatomy to 8-12th graders, Project Exploration’s Junior Paleontologists summer course (Chicago).
2012. Discussed science careers with 7th grade class, Young Women’s Leadership School (Chicago).
2011. Presented on mammal biology to 8-12th graders, Project Exploration’s All Girls Expedition summer course (Chicago).
- 2010-12. Presented mammal specimens to 7-8th graders, Project Exploration’s Sisters4Science (Chicago).
2010. Weekly tutoring in 8th grade geometry, Canter Middle School (Chicago).
- 2009-12. Public presentation of mammal specimens, Field Museum Member’s Nights (Chicago).

PROFESSIONAL SERVICE

CURRENT POSITIONS

- 2016-. *Chair*, Mammal Biodiversity Committee, American Society of Mammalogists.
- 2017-. *Taxonomy Advisor and Member* (since 2015), IUCN Small Mammal Specialist Group.

SOCIETY MEMBERSHIPS AND SERVICE

- American Society of Mammalogists, ASM (2005-present)
 Board of Directors (2014-2017)
 Conservation Committee (2012-present)
 Mammal Biodiversity Committee (2016-present)
 Systematic Collections Committee (2011-present)
- American Society of Naturalists (2013-present)
- Society of Systematic Biologists, SSB (2009-2011, 2013, 2017-present)
- Canadian Society for Ecology and Evolution (2014-2015)
- European Society for Evolutionary Biology (2013)
- Sociedad Argentina para el Estudio de los Mamíferos, SAREM (2012-2014)
- Sociedade Brasileira de Mastozoologia, SBMz (2012-2013)
- Society for Conservation Biology, SCB (2012)
- American Association for the Advancement of Science, AAAS (2006-2010)

SYMPOSIA ORGANIZED

2015. Co-organizer of the featured symposium “The Last Remaining Caribbean Mammals: Conservation Priorities and the Historical Context of Extinctions in an Island Biodiversity Hotspot” at the American Society of Mammalogists, 95th Annual Meeting; Jacksonville, FL.
- Two, two-hour sessions including eight invited speakers from five countries.
 - Talks published in a [recent Special Feature](#) in the Journal of Mammalogy.
2009. Organizing committee, *Darwin / Chicago Symposium*, University of Chicago.

OTHER SERVICE

- Manuscript referee for *American Midland Naturalist* (2012), *BMC Evolutionary Biology* (2014 [x2]), *Ethology, Ecology & Evolution* (2014), *Journal of Biogeography* (2014, 2017 [x2]), *Journal of Mammalian Evolution* (2013), *Journal of Mammalogy* (2013, 2014 [x3], 2015), *Journal of Vertebrate Paleontology* (2016 [x2]), *Journal of Zoology* (2012), *Molecular Phylogenetics and Evolution* (2014 [x2]), *Organismal Diversity & Evolution* (2016), *PLoS One* (2013), and *Zootaxa* (2012, 2015).
- Grant referee for FONDECYT-Chile (2017).

FIELDWORK, LABWORK, AND MUSEUM EXPERIENCE

FIELD COLLECTING AND COURSES

- Argentina (2 trips, 1 month): Collecting octodontid rodents for a project on the genomics of mammalian tetraploidy. Provinces of Mendoza and San Juan (2014—0.5 month; 2015—0.5 month)
- Colombia (1 trip, 0.25 month): Surveying small mammals in the Sierra Nevada de Santa Marta (2016).
- Costa Rica (2 trips, 1.5 months): Participant in an NSF-sponsored (Pan-American Advanced Studies Institute) graduate course through the Organization for Tropical Studies. La Selva (2009—0.5 month; 2010—0.25 month); Monteverde (2009—0.25 month); Palo Verde (2009—0.25 month); Las Cruces (2009—0.25 month)
- Cuba (1 trip, 0.5 month): Scouting and permit discussions with Cuban biologists and collaborators (2017).
- Dominican Republic (1 trip, 0.75 month): Surveying endemic bats and small mammals (hutias, solenodon) for a project on biodiversity patterns and tourism sustainability. Provinces of La Vega, Sánchez Ramírez, Monte Plata, El Seibo, and La Altagracia (2015).
- Chihuahuan and Sonoran Deserts, USA (1 trip, 1 month): Teaching assistant on the University of Chicago’s Desert Ecology Field School (2011)
- Great Basin Desert, USA (12 trips, 3 months): Collected rodents at ~25 localities for multiple projects. Nevada (2003—0.25 month; 2004—1 month; 2005—0.5 month; 2006—0.5 month); Oregon (2004—0.5 month); California (2005—0.25 month)
- Yosemite and the eastern Sierra Nevada, USA (1 trip, 0.5 month): Teaching assistant on Occidental College’s California Environment Semester (2007)

MOLECULAR GENETICS LABS

- 2012–2013. McMaster University, Ancient DNA Centre (Hamilton, Canada): Performed clean-room DNA extractions and sequencing of nDNA and mtDNA from dried tissues (museum specimens).
2012. Universidade Federal do Espírito Santo, Laboratório de Mastozoologia e Biogeografia (Vitória, Brazil): PCR and DNA sequencing of rodent specimens from Brazil.
2012. Royal Ontario Museum, Laboratory for Molecular Systematics (Toronto, Canada): DNA sequenced imported tissues of Caribbean rodents.
- 2010–2012. Field Museum of Natural History, Pritzker Laboratory for Molecular Systematics and Evolution (Chicago, USA): Resident Ph.D. student; researched the molecular phylogeny and diversification of caviomorph rodents using DNA from fresh and dried tissues.
- 2003–2007. Occidental College, Moore Laboratory of Zoology (Los Angeles, USA): Undergraduate student (8 semesters, 3 summers) and Master’s student; researched the molecular systematics and

phylogeography of kangaroo mice using PCR and DNA sequencing.

MUSEUM COLLECTIONS WORK

Argentina: Museo Argentino de Ciencias Naturales “Bernardino Rivadavia” (Buenos Aires—2011, 2012); Museo de Ciencias Naturales de La Plata (La Plata—2011); Museo Municipal de Ciencias Naturales “Lorenzo Scaglia” (Mar del Plata—2011); Museo Paleontológico Edigio Feruglio (Trelew—2011); Instituto Argentino de Investigaciones de Zonas Áridas (Mendoza—2015)
Brazil: Museu de Zoologia, Universidade de São Paulo (São Paulo—2012); Museu Nacional (Rio de Janeiro—2012)
Canada: Royal Ontario Museum (Toronto—2012)
USA: Field Museum of Natural History (Chicago—2009-2014); Florida Museum of Natural History (Gainesville—2012); Moore Laboratory of Zoology (Los Angeles—2006-2008); University of California Museum of Vertebrate Zoology (Berkeley—2012); University of California Museum of Paleontology (Berkeley—2012)

TRAINED SKILLS

LANGUAGES

- Spanish – proficient written and spoken
- Computer programming – proficient in R and Bash-shell scripting, some experience with Python and relational databases (psql)

FIELDWORK

- Specimen sampling and collecting – mammal live-trapping and museum specimen preparation
- Navigation – Driving manual transmission and four-wheel drive vehicles; orienteering with map and compass; use of GPS devices
- Medical and risk – certified as Wilderness First Responder and in First-Aid (valid to April 2019)

RESEARCH METHODS

- Statistical phylogenetics software – e.g., BEAST, RAxML, MrBayes, Geneious, Mesquite
- Spatial analysis software – ArcGIS, R, GrassGIS
- Molecular genetics – fluent in methodologies for ancient DNA and modern DNA extraction, PCR amplification, Sanger DNA sequencing, bioinformatics for next-gen (Illumina) sequencing data

TRAINING COURSES AND WORKSHOPS ATTENDED

2015, 2017. *Wilderness First Responder*, National Outdoor Leadership School, Flagstaff, AZ: 10-day course including WFR and First-Aid certification (valid to April 2019).
 2012. *Orienting with GPS, Map and Compass*, University of California at Berkeley.
 2012. *Best Practices in Species Distribution Modeling in Conservation*, University of California at Berkeley.
 2012. *Genotype-by-sequencing workshop*, Field Museum of Natural History: one week of lectures and training in next-gen sequencing methods and analysis.
 2009. *Estimating Species Trees Workshop*, University of Michigan.

PRESENTATIONS

TO PROFESSIONAL MEETINGS (WITH PUBLISHED ABSTRACTS)

2017. American Society of Mammalogists, 97th Annual Meeting; Moscow, ID (oral). *Repeated radiations in the history of mammals: what drives rate variation across a new global tree?*
 2017. Society of Systematic Biologists standalone meeting, Baton Rouge, LA (5-min oral). *Rates and drivers of species-level diversification in global Mammalia*.
 2016. American Society of Mammalogists, 96th Annual Meeting; Minneapolis, MN (oral). *All mammals in one tree: complete species-level phylogeny of Mammalia using a supermatrix of 31 genes*.

2016. Evolution Annual Meetings; Austin, TX (oral). *A complete species-level phylogeny of Mammalia using a supermatrix of 31 genes* (with co-authors J. Esselstyn and W. Jetz).
2016. American Society of Naturalists standalone meeting, Asilomar, CA (20-min oral). *Mammalian phylogeny enters the matrix: A complete species-level analysis of mammals using a supermatrix of 31 genes* (with co-authors J. Esselstyn and W. Jetz).
2015. American Society of Mammalogists, 95th Annual Meeting; Jacksonville, FL (oral). *Endangered Cuban hutias: Population genetics and biogeography in the context of an evolutionary radiation* (with co-author R. Borroto-Páez). Part of the symposium “The Last Remaining Caribbean Mammals” that I co-organized.
2015. Society of Systematic Biologists standalone meeting, Ann Arbor, MI (5-min oral). *Testing for adaptively radiating clades*.
2014. American Society of Mammalogists, 94th Annual Meeting; Oklahoma City, OK (oral). *Testing for adaptive radiation and ecological constraint in a major lineage of rodents (Caviomorpha, Ctenohystrica)* (with co-author B. D. Patterson).
2014. Genomes to Biomes, 1st Joint Conference of the Canadian Societies CSEE, CSZ, and SCL; Montreal, QC (oral). *Testing for adaptive radiation and ecological constraint in a major lineage of rodents (Caviomorpha, Ctenohystrica)* (with co-author B. Evans and B. D. Patterson).
2013. Evolution Annual Meetings; Snowbird, UT (oral). *Andes-Amazon diversification in a diverse lineage of tropical rodents: integrating DNA sequences, fossils, and species traits* (with co-author B. D. Patterson).
2012. II Congreso Latinoamericano de Mastozoología; Buenos Aires, Argentina (oral). Invited participant in the symposium “Biología de los roedores Caviomorfos: diversidad y evolución” (delivered in English with Spanish slides). *Diversificación molecular y morfológica de un linaje mayor de roedores neotropicales (Caviomorpha: Octodontoidea)* (with co-author B. D. Patterson).
2012. Society for Conservation Biology, 1st North America Congress; Oakland, CA (poster). *Biogeography and conservation of Cuba’s endemic non-flying mammals* (with co-author R. Borroto-Páez).
2012. American Society of Mammalogists, 92nd Annual Meeting; Reno, NV (oral). Invited participant in the opening plenary session. *Diversification of a major lineage of Neotropical rodents (Caviomorpha, Octodontoidea): insights from DNA sequences and fossil mandibles*.
2011. IV Congreso Latinoamericano Paleontología de Vertebrados, San Juan, Argentina (oral). Invited participant in the symposium “Orígenes y Evolución del Neotrópico Sudamericano.” *Molecular phylogeny, divergence timing, and biogeography of the Neotropical caviomorph lineage Octodontoidea (Rodentia: Hystricognathi)* (with co-author B. D. Patterson).
2011. American Society of Mammalogists, 91st Annual Meeting; Portland, OR (poster). *A preliminary analysis of divergence timing and historical biogeography in the Neotropical caviomorph lineage Octodontoidea (Rodentia: Hystricognathi)* (with co-author B. D. Patterson).
2010. American Society of Mammalogists, 90th Annual Meeting; Laramie, WY (oral). *Evolution of the New World rodent superfamily Octodontoidea: preliminary patterns using multiple genes and fossils* (with co-author B. D. Patterson).
2009. 10th International Mammalogical Congress; Mendoza, Argentina (poster). *Moonlight avoidance by bipedal, but not quadrupedal, rodents in sandy and open habitats of the Great Basin Desert, U.S.* (with co-author J. C. Hafner).
2007. American Society of Mammalogists, 87th Annual Meeting; Albuquerque, NM (oral). *Rodent activity in response to lunar illumination in sandy habitats of the Great Basin Desert* (with co-author J. C. Hafner).
2006. American Society of Mammalogists, 86th Annual Meeting; Amherst, MA (oral). *Phylogeography of the dark kangaroo mouse, Microdipodops megacephalus* (with co-author J. C. Hafner).
2005. American Society of Mammalogists, 85th Annual Meeting; Springfield, MO (oral). *Molecular phylogenetics of the dark kangaroo mouse, Microdipodops megacephalus* (with J. C. Hafner).

INVITED SEMINARS

2017. University of New Hampshire, College of Life Sciences and Agriculture. *Untangling the bank: Mammalian evolution across scales to understand rates and drivers of species diversification.*
2014. Instituto Argentino de Investigaciones de Zonas Aridas (IADIZA), Mendoza-CONICET (delivered in English with Spanish slides). *Pruebas para la radiación adaptativa y limitaciones ecológicas en un linaje principal de roedores.*
2012. Universidade Federal do Espírito Santo, Departamento de Ciências Biológicas, Vitória, Brasil (delivered in English with Portuguese slides). *Diversificação molecular e morfológica de Neotropical roedor linhagem maior (Caviomorpha: Octodontoidea).*
2011. University of Chicago, GeoUnion (undergraduate science club). *Rats! : Explorations in the evolution of New World rodents.*
2009. University of Chicago, Animal Behavior Brownbag Seminar Series. *Moonlight avoidance by bipedal, but not quadrupedal, desert rodents in sandy and open habitats of the Great Basin.*

REFERENCE CONTACTS

Bruce D. Patterson (bpatterson@fieldmuseum.org; Ph.D advisor)
MacArthur Curator of Mammals, Integrative Research Center
Field Museum of Natural History
1400 S. Lake Shore Dr., Chicago IL 60605; tel: 312-665-7750

Walter Jetz (walter.jetz@yale.edu; current post-doc advisor)
Associate Professor, Department of Ecology and Evolutionary Biology
Yale University
165 Prospect St., New Haven, CT 06511; tel: 203-432-7540

Ben J. Evans (evansb@mcmaster.ca; former post-doc advisor)
Associate Professor of Biology, Department of Biology
McMaster University
1280 Main Street West, Hamilton, Ontario L8S4K1 Canada; tel: 905-525-9140 x 26973

John C. Hafner (hafner@oxy.edu; M.A. advisor)
Emeritus Director, Curator of Birds & Mammals, and Emeritus Professor of Biology
Moore Laboratory of Zoology and Department of Biology
Occidental College, Los Angeles, CA (Current address: 105 Franklin Ave, Fortuna, CA 95540)

Rob P. Guralnick (rguralnick@flmnh.ufl.edu; collaborator)
Associate Curator of Biodiversity Informatics
Department of Natural History and the Florida Museum of Natural History
University of Florida
358 Dickinson Hall, Gainesville, FL 32611; tel: 352-273-1980

Jacob A. Esselstyn (esselstyn@lsu.edu; collaborator)
Curator of Mammals, Museum of Natural Science; Assistant Prof., Dept. of Biological Sciences
Louisiana State University
119 Foster Hall, Baton Rouge, LA 70803; tel: 225-578-3083