

Jonathan A. Nations

NSF Postdoctoral Research Fellow
Department of the Geophysical Sciences
University of Chicago

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EDUCATION

- 2015 - 2020 | **PhD**, Biological Sciences, Louisiana State University
Dissertation: FUNCTION, HISTORY, AND ECOLOGY IN THE EXCEPTIONAL DIVERSIFICATION OF MURINE RODENTS
- 2011 - 2014 | **BSc**, Biological Sciences, University of Alaska Fairbanks
Undergraduate Thesis: CLIMBING BEHAVIOR OF NORTHERN RED-BACKED VOLES AND SCANSORIALITY IN *Myodes*
- 2008 - 2011 | **ASc**, Science and Math, Seattle Central Community College

RECENT PROFESSIONAL EXPERIENCE

- 2020 - 2023 | **NSF Postdoctoral Research Fellowship in Biology:**
Interdisciplinary Research Using Biological Collections
- 2020 - 2025 | **Research Affiliate:** Field Museum of Natural History
- 2015 - 2018 | **Curatorial Assistantship:** Mammals Division, LSU Museum of Natural Science
- 2014 - 2015 | **Assistant Collections Manager:** Mammals Division, University of Alaska Museum
- 2014 - 2015 | **Intern, Student Conservation Association:** Denali National Park & University of Alaska Museum
- 2011 - 2014 | **Curatorial Assistant:** Mammals Division, University of Alaska Museum

GRANTS, SCHOLARSHIPS, AND AWARDS

- 2022 | **Grainger Bioinformatics Center, Field Museum (\$5,700)**
Project: Dietary metabarcoding of Sulawesi shrews
- 2020 | **American Society of Mammalogists Fellowship (\$20,000)**
The highest award made to a graduate student member of ASM
- 2020 | **LSU Museum of Natural Science Outstanding Graduate Student**
Awarded annually to a graduate student who has made substantial contributions to science and the museum community
- 2019 | **Louisiana State University Prestigious Graduate Fellowship Award (\$4,000)**
Awarded to select students for funding dissertation research
- 2019 | **Research Triangle Nanotechnology Network Award (\$2,000)**
Support for μ CT scanning museum specimens at Duke University
- 2018 | **American Society of Mammalogists Patton Award (\$5,000)**
Support for museum-based research by graduate student members of ASM
- 2017 | **NSF East Asia Pacific Studies Institute Fellow (\$8,000)**
Sponsor: Dr. Kevin Rowe, Museums Victoria, Melbourne, Australia
- 2016 | **Society of Systematic Biologists Graduate Student Research Award (\$1,200)**
- 2016 | **American Society of Mammalogists Grant in Aid (\$1,000)**
Awarded to select ASM members for funding dissertation research

- 2015 | **National Science Foundation Graduate Research Fellowship** (\$138,000)
Three years of support over a five-year fellowship period for individuals who have demonstrated their potential for significant research achievements in STEM
- 2014 | **Outstanding Undergraduate Student: Biological Sciences, University of Alaska Fairbanks**
Awarded annually to one student in each division of the College of Natural Sciences and Mathematics
- 2014 | **Brina Kessel Medal for Excellence in Science, University of Alaska Fairbanks** (\$500)
Awarded annually to one student that demonstrated a commitment to their chosen scientific field, has an inquiring mind, has participated in true research activities of some kind, and demonstrates high levels of integrity in all matters
- 2013 | **Summer Undergraduate Research Award, University of Alaska Fairbanks** (\$5000)
- 2013 | **American Society of Mammalogists Travel Award** (\$300)
- 2012 | **Summer Undergraduate Research Award, University of Alaska Fairbanks** (\$5000)

PUBLICATIONS

- 2023 | SM Smith, DM Rowsey, **JA Nations**, KD Angielczyk, LR Heaney. The roles of phylogeny, body size, and substrate use in trabecular bone variation among Philippine “earthworm mice” (Rodentia: Chrotomyini). *Accepted*. Biological Journal of the Linnean Society.
- 2023 | Wisniewski, AL*, **JA Nations***, & GJ Slater. Bayesian prediction of multivariate ecology from phenotypic data yields novel insights into the diets of extant and extinct taxa. *Accepted*. The American Naturalist. **Joint first authorship*
- 2022 | **JA Nations**, H Handika, A Mursyid, R Darma Busta, Apandi, AS Achmadi, JA Esselstyn. Three new species of shrew (Soricidae: *Crociodura*) from West Sumatra, Indonesia: elevational and morphological divergence in syntopic, sister taxa. *In Revision*
- 2022 | **JA Nations**, BA Kohli, H Handika, AS Achmadi, MJ Polito, KC Rowe, JA Esselstyn. Trait-specific patterns of community ecospace occupancy in an insular mammal radiation. *In Revision*. bioRxiv hyperlink
- 2022 | Swanson, MT, AS Achmadi, **JA Nations**, MW Henson, H Handika, S Anita, KC Rowe, H Bennadji, MJ Polito & JA Esselstyn. Bacterial families variably associated with diet along the gut in a trophically diverse community of wild rodents. *In Review*
- 2022 | **JA Nations**, TC Giarla, A Morni, J William-Dee, MT Swanson, AE Hiller, F Khan, JA Esselstyn. Molecular data from the holotype of the enigmatic Bornean Black Shrew, *Suncus ater* Medway, 1965 (Soricidae, Crocidurinae), place it in the genus *Palawanosorex*. ZooKeys. 1137:17-31. ZooKeys hyperlink
- 2021 | Marcondes, RS*, **JA Nations***, GF Seeholzer, & RT Brumfield. 2021. Rethinking Gloger’s rule: climate, light environments, and color in a diverse family of tropical birds. The American Naturalist. 197(5): 592-606. **Joint first authorship*
- 2021 | **Nations, JA**, GG Mount, SM Morere*, AS Achmadi, KC Rowe, & JA Esselstyn. Locomotory mode transitions alter phenotypic evolution and lineage diversification in an ecologically rich clade of mammals. Evolution. 75(2): 376-393. **Undergraduate author*
- 2021 | **Nations, JA**, A Mursyid*, R Darma Busta*, SP Adrian*, H Handika, Apandi, AS Achmadi, & JA Esselstyn. An albino rat from West Sumatra, Indonesia represents the first report of albinism in a Sundaland rodent. Mammalia. 85(2): 168-172. **Undergraduate author*
- 2020 | Roycroft, EJ*, **JA Nations***, & KC Rowe. Environment predicts repeated body size shifts in a recent radiation of Australian mammals. Evolution. 74(3): 671-680. **Joint first authorship*

- 2019 | **Nations, JA**, LR Heaney, TC Demos, AS Achmadi, KC Rowe, & JA Esselstyn. A Simple Skeletal Measurement Effectively Predicts Climbing Behavior in Murine Rodents. *Biological Journal of the Linnean Society*. 128(2): 323-336.
Selected for BJLS Ecomorphology Collection Virtual Issue
- 2015 | **Nations, JA** & LE Olson. Climbing behavior of northern red-backed voles (*Myodes rutilus*) and scansoriality in *Myodes* (Rodentia, Cricetidae). *Journal of Mammalogy* 96(5): 957–963.

INVITED & DEPARTMENTAL SEMINARS

- 2022 | Departmental Seminar, Canadian Natural History Museum, Ottawa, ON
Modern take on the classics: Using probabilistic methods to investigate ecogeographical theories in understudied vertebrate groups
- 2021 | EvMorph Seminar, University of Chicago, Chicago, IL
Function, history, and ecology in two exceptional (and exceptionally different) mammal radiations
- 2021 | Departmental Seminar, Siena College, Loudonville, NY
Function, history, and ecology in the exceptional diversification of murine rodents
- 2019 | LSU Museum of Natural Science Seminar, Baton Rouge, LA
Travelogue: Gunung Murud Expedition, Sarawak, Malaysia, July – August 2019
- 2019 | LSU Museum of Natural Science Seminar, Baton Rouge, LA
Travelogue: The Giant Rat of Sumatra: Gunung Singgalang Expedition, West Sumatra, Indonesia
- 2018 | Biology Seminar, Andalas University, Padang, West Sumatra, Indonesia
The importance of museum specimens in the study of natural history
- 2017 | LSU Museum of Natural Science Seminar, Baton Rouge, LA
Travelogue: “Field Work in Borneo: Mt. Mulu, Sarawak, Malaysia
- 2015 | LSU Museum of Natural Science Seminar, Baton Rouge, LA
Travelogue: “Small Mammals in Ouachita National Forest, Arkansas

CONFERENCE PRESENTATIONS

- 2022 | American Society of Mammalogists Annual Meeting, Tucson, AZ
Bayesian prediction of multivariate ecology from phenotypic data yields novel insights into the diets of extant and extinct taxa
- 2021 | American Society of Mammalogists Annual Meeting - Plenary Session, Virtual Meeting
Niche packing, niche expansion, and the evolution of the exceptional rodent fauna of Sulawesi, Indonesia
- 2019 | American Society of Mammalogists Annual Meeting, Washington D.C.
Bergmann’s Rule in a recent radiation of Australian mammals
- 2019 | Evolution, Providence, RI
Environment predicts repeated body size shifts in a recent radiation of Australian mammals
- 2019 | LSU BioGrads Symposium, Baton Rouge, LA *poster
The locomotion and biogeography of Indo-Australian Archipelago rodents
Winner - Best Poster
- 2018 | Evolution, Montpellier, France *poster
The biogeography of murine locomotion across the Indo-Australian Archipelago
- 2018 | American Society of Mammalogists Annual Meeting, Manhattan, KS
The role of locomotor mode in lineage turnover and persistence among Indo-Australian rats and mice
- 2017 | 12th International Mammalogical Congress, Perth, Australia
The role of in-situ speciation in the generation of biodiversity across the Indo-Australian Archipelago

- 2016 | American Society of Mammalogists Annual Meeting, Minneapolis, MN
How do voles adapt? Ecomorphology of small-bodied North American rodents
- 2016 | Evolution, Austin, TX
Ecomorphological variation in the limbs of small-bodied "generalists:" a test case with voles
- 2014 | American Society of Mammalogists Annual Meeting, Oklahoma City, OK
Is climbing behavior reflected in the morphology of scansorial voles?
- 2013 | American Society of Mammalogists Annual Meeting, Philadelphia, PA
*Climbing in the Northern Red-backed Vole (*Myodes rutilus*)*
- 2013 | UAF Undergraduate Research Day, Fairbanks, AK
*Climbing in the Northern Red-backed Vole (*Myodes rutilus*)*
Winner: Best Oral Presentation
- 2011 | American Society of Mammalogists Annual Meeting, Portland, OR *poster
The effects of habitat size on small mammal diversity in Seattle City Parks
- 2010 | Mary Gates Undergrad Research Symposium; University of Washington *poster
Small mammal diversity in Seattle City Parks

MENTORSHIP

Undergraduates | **Shelby Oliveaux** (2019-20 - LSU - Collecting and processing geometric morphometric data), **Collin Cooper** (2019-20 - LSU - Processing microCT scan data for 3D morphometrics), **Finaz Wan Azman, Syam Zuraini** (2019 - University of Malaysia, Sarawak - Collection and preparation of museum specimens and associated tissue samples) **Ahmad Mursyid, Ryski Darma Busta, Taufiq Afdhal, Andri Saputra, Tengku Lidra, Sah Putra Adrian** (2018 - Andalas University, Padang, Indonesia - Collection and preparation of museum specimens and associated tissue samples), **Derra Leonard** (2016-2019 - Curatorial Assistant), **Sara Morere** (2016 - Research on locomotor modes of murine rodents (manuscript co-author)), **Rajvi Jariwala, Shay Cook** (2015-2016 - LSU - Curatorial methods and molecular lab work), **Chris Reglan** (2015-2016 - LSU - Curatorial methods), **Sarah Swanson** (2014-2015 - University of Alaska Museum - Identification, preparation and curation of museum specimens from Denali National Park)

High School Students | **Stefania Kremer, Briana Kremer** (2014-2015 - University of Alaska Museum - Identification, preparation and curation of museum specimens from Denali National Park), **Kelly May** (2012-2015 - University of Alaska Museum - Research on the effects of climate change on the body size of Alaska's shrews)

TEACHING & TRAINING

- 2023 | **Bayesian Approaches to Data Analysis:** Co-Instructor. Graduate seminar on Bayesian multilevel modeling. GEOS 36200, Department of the Geophysical Sciences, University of Chicago
- 2021 | **GitHub & version control in RStudio:** Mini-workshop at the Department of the Geophysical Sciences, University of Chicago
- 2019 | **Ecology & Management of Louisiana Wildlife:** Guest Instructor, LSU
Trained a team of students in small mammal surveying, handling, and identification
- 2018 | **Ecology & Management of Louisiana Wildlife:** Guest Instructor, LSU
- 2017 | **Mammalogy:** Teaching Assistant, LSU
- 2017 | **Ecology & Management of Louisiana Wildlife:** Guest Instructor, LSU
- 2016 | **Museum Experience for Undergraduates:** Co-founder, LSU
"Our mission is to train the next generation of museum researchers and advocates by exposing undergraduate students to the study of natural history, both locally and globally."
- 2015 | **Mammalogy:** Invited Instructor, LSU
Lead 12 undergraduate Mammalogy students on a field survey - Kisatchie National Forests, LA

OUTREACH

- 2022 | **U Chicago Southside Science Festival:** Public science festival, demonstrations of 3D surface scanning and mesh construction
- 2021 | **“Squirrel Expert”:** Kindergarten Class, The Philadelphia School
- 2020 | **LSU Museum Special Saturdays:** *Bust A Move - Mammal Locomotion.* Presentation and activities on mammal locomotion for ages 5-12
- 2019 | **LSU Night at the Museum - Mammals:** Museum specimen preparation demonstration, behind the scenes tours, and public engagement on the value of museum specimens
- 2019 | **LSU Museum Special Saturdays:** *Life in the Mountains*
- 2017 | **LSU Fall Fest:** Engaging with undergraduate students on the behalf of the LSU Museum of Natural Science
- 2017 | **LSU Night at the Museum - Mammals**
- 2017 | **LSU Museum Special Saturdays:** *Risky Rodents*
- 2016 | **LSU Fall Fest**
- 2016 | **LSU Museum 6th Grade Day:** Hosting local 6th grade students from around the Parish
- 2016 | **Bio-Blitz - East Baton Rouge Parish:** Surveying small mammals in EBR Parish parks
- 2016 | **LSU Fall Fest**
- 2015 | **LSU Fall Fest**

PROFESSIONAL SERVICE

- 2019 - present | Nomenclature Committee, American Society of Mammalogists
- 2019 - present | Biodiversity Committee, American Society of Mammalogists
Member of Muroidea taxonomic working group
- 2022 - present | Grants in Aid Committee, American Society of Mammalogists
- 2022 - present | Maintenance, Phylogenetics Task View CRAN Repository
- Journal Peer Review** | The American Naturalist, Systematic Biology, Evolution, Ecology and Evolution, Journal of Mammalogy, Theria, Zoological Research, Journal of Mammalian Evolution, Mammalian Species, Royal Society Open Science, PeerJ, Mammalia, Biodiversity Data Journal
- Grant Review** | NSF CAREER Program (*Ad hoc reviewer*), American Society of Mammalogists Grants in Aid (*upcoming*)

FIELDWORK: MUSEUM COLLECTION EXPEDITIONS

- Biota CAPTURE Project, Chicago, 2022
- Mt. Murud, Sarawak, Malaysia, 2019
- Mt. Singgalang, West Sumatra, Indonesia, 2018
- Mt. Talamau, West Sumatra, Indonesia, 2018
- Mt. Mulu, Sarawak, Malaysia, 2017
- Louisiana, various, 2015 - 2018
- Ouachita National Forest, Arkansas, 2015
- Denali National Park, Alaska, 2015
- Tongass National Forest, Juneau, Alaska, 2014
- Chugach National Forest, Valdez, Alaska, 2014
- Toolik Field Station, North Slope, Alaska, 2013
- White Mountain Recreational Area, Alaska, various 2012 - 2015

- Fairbanks Area, Alaska, various, 2011 - 2015