

# ALEXIS M. MYCHAJLIW

Postdoctoral Fellow, La Brea Tar Pits  
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insectivora.org

*Genomes, bones, and sediments hold clues to how organisms responded to environmental and anthropogenic changes in the past. I apply a diverse methodological toolkit to reconstruct the ecological histories of extant species and place these results in a conservation context.*

## APPOINTMENTS

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2017-present      **Postdoctoral Fellow, La Brea Tar Pits & Museum**  
Holocene paleoecology and conservation biology of California vertebrates.

## EDUCATION

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**Stanford University, School of Humanities & Sciences.** California, USA. 2017.  
PhD in Biology (Ecology & Evolution)  
Advisor: Elizabeth A. Hadly  
*From the Pleistocene to the Anthropocene: fossils, genes, and the future of Caribbean mammals*

**Cornell University, College of Agriculture & Life Sciences.** New York, USA. 2012.  
B.S. Biological Sciences (Ecology & Evolutionary Biology)  
Minors: 1. Natural Resources  
          2. Applied Economics & Management (Environmental & Resource Economics)  
*Magna cum laude* with Distinction in Research

## FELLOWSHIPS

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2014-2017      Stanford Interdisciplinary Graduate Fellow  
2015-2016      Haas Center Graduate Public Service Fellow  
2014             Stanford Graduate Fellowship in Science & Engineering (declined)  
2010-2012      Biology Research Fellow, Cornell University

## PUBLICATIONS

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\*Indicates equal author contributions, † indicates mentored undergraduate student

10. †Gibson, LM, **Mychajliw, AM**, Leon, Y, Rupp, E, Hadly EA. Using the past to contextualize the present and future distribution of an endemic Caribbean mammal. Conservation Biology, *Accepted, in press.*
9. \*Cooke, SB, \*Davalos, LM, **\*Mychajliw, AM**, \*Turvey, ST, & \*Upham, N. 2017. Anthropogenic extinction dominates Holocene declines of West Indian mammals. Annual Review of Ecology, Evolution, & Systematics, 48: 301-327.
8. Cooke, SB, **Mychajliw, AM**, Southon, J, & MacPhee, RDE. 2017. Jamaica's last monkey: the extinction of *Xenothrix mcgregori*. Journal of Mammalogy, 98: 937-949.
7. Barnosky, AD, Hadly, EA, Gonzalez, P, Head, J, Polly, D, Lawing, AM, Eronen, J, ...+30 incl. **Mychajliw, AM**. 2017. Merging paleontology with conservation biology to guide the future of terrestrial ecosystems. Science, 355: 594.
6. Solari, KA, \*Frank, HK, \*Frishkoff, LO, \*Hsu, JL, \*Kemp, ME, **\*Mychajliw, AM**, & Hadly, EA. 2016. Opportunity for some, extinction for others: the fate of species in the Anthropocene. Evolutionary Ecology Research, 17:787-813.

5. Lyons, SK, Miller, JH, Fraser, D, Smith, FA, Boyer, A, Lindsey, E, & **Mychajliw, AM**. 2016. The changing role of mammal life histories in late Quaternary extinction vulnerability on continents and islands. *Biology Letters*. doi:10.1098/rsbl.2016.0342
4. **Mychajliw, AM**, Kemp, ME, Truebe, ST, & Hadly, EA. 2016. A geographic approach to teaching and communicating global change in California. Book chapter in: *STEM and GIS in Higher Education* (Ed. Cowen, DJ), ESRI Press.
3. \*Goldberg, A, \***Mychajliw, AM**, & Hadly, EA. 2016. Post-invasion demography of prehistoric humans in South America. *Nature*, 532: 232-235.
2. **Mychajliw, AM**, Kemp, ME, & Hadly, EA. 2015. Using the Anthropocene as a teaching, communication, and community engagement opportunity. *The Anthropocene Review*, 2:267-278.
1. **Mychajliw, AM** & Harrison, RG. 2014. Genetics reveal the origin and timing of a cryptic insular introduction of muskrats in North America. *PLoS One*, 9:e111856.

*Manuscripts in Revision, Submitted, & in Preparation (available upon request)*

Swift, J, Roberts, P, Bovin, N, ...+15 incl. **Mychajliw, AM**. Micro-methods for megafauna: novel approaches to the study of Late Quaternary extinctions and their contributions to conservation in the Anthropocene. *BioScience – In Revision*

Steadman, DW, Almonte, JN, **Mychajliw, AM**. An extinct eagle (Aves: Accipitridae) from the Quaternary of Hispaniola. *Journal of Raptor Research – Submitted*

**Mychajliw, AM**, Koenigs, CK, Hadly, EA. Insectivory promotes broad isotopic niches for an endangered mammal across seasons and tissue types in a mosaic landscape. – *In Submission*

**Mychajliw, AM**, Bohmann, K, Nielsen, M, Martinez, P, Rupp, E, Hadly, EA. Fecal metabarcoding illuminates dietary generalism as a mechanism for persistence in an endangered mammal, the Hispaniolan Solenodon. – *In Submission*

**Mychajliw, AM** & Hadly, EA. Historic and ancient DNA uncovers high Holocene genetic diversity prior to range fragmentation in a “last survivor”, the Hispaniolan Solenodon. – *In Submission*

Buckley M, Harvey VL, Orihuela J, **Mychajliw, AM**, Hadly EA, Almonte JN, Lawless C, Chamberlain AT, Egerton VM, Manning PL. Evolutionary history of the extinct 'island shrews' (Nesophontes) from collagen sequence analysis. – *Submitted*

## RESEARCH FUNDING

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### *Co-Principal Investigator*

2018 **National Socio-Environmental Synthesis Center (SESYNC) Pursuit**  
Funding for 15 participants travel, accommodations for 3 meetings over 2 years (>\$30,000)  
*The death and life of biodiversity: modeling extinction and resilience on islands*

2016 **NSF Division of Environmental Biology, Population & Community Ecology Program**  
Doctoral dissertation improvement grant (\$20,464)  
*Investigating species interactions across 15,000 years of extinctions and invasions: an isotopic approach*

### *Research Grants*

2018 Society for Science & the Public Advocate Grant (\$3,000)  
2016 Lewis & Clark Fund for Exploration & Field Research (\$4,500)  
2016 American Society of Mammalogists Grant in Aid of Research (\$550)  
2016 Center for African Studies Graduate Research Grant, Stanford (\$3,500)  
2016 Center for Latin American Studies Field Research Grant, Stanford (\$900)  
2014 Community Engaged Research Fund, Stanford Humanities & Sciences (\$2,500)

- 2014 Center for Computational, Evolutionary, and Human Genomics, Trainee Grant (**\$7,250**)  
 2013 Paleontological Society Outreach Grant (**\$3,000**)  
 2011 Dextra Undergraduate Research Fund (**\$1,300**)  
 2010 Rawlings Cornell Presidential Research Scholarship (**\$5,000**)

### *Awards*

- 2017 Romer Dissertation Prize Finalist, Society for Vertebrate Paleontology  
 2016 Student Public Policy Award, American Society of Mammalogists  
 2016 Denise Gaudreau Award for Excellence in Quaternary Studies, American Quaternary Association  
 2013 NSF Graduate Research Fellowship, Honorable Mention  
 2012 NSF Graduate Research Fellowship, Honorable Mention  
 2008 Intel Science Talent Search National Winner, 9<sup>th</sup> Place

## TEACHING EXPERIENCE

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### *Teaching Awards*

- Biosciences Excellence in Teaching Award, Stanford School of Medicine
- Norman K. Wessells Award for Outstanding Teaching, Stanford Department of Biology
- Departmental Excellence in Teaching Award, Stanford Department of Biology
- Community Engaged Learning and Research Course Grant Award, Haas Center (**\$4,045**)

### *Courses Taught*

#### **Instructor of Record, Stanford University**

- Bio 128. **Geographic Impacts of Global Change: Mapping the Stories.** (2 quarters, 2014; 2015)  
 Instructor of record, co-developer of course, with community partners at Governor's Office of California and White House National Security Council. Documents and course products, including syllabus, podcasts, ArcGIS Story Maps, publicly available: <http://www.mappingglobalchange.org/teaching-materials.html>

#### **Teaching Assistant, Stanford University**

- Bio 43. Ecology, Evolution & Plant Biology. (1 quarter; 2014)  
 Bio 101. Ecology. (1 quarter; 2013)

#### **Teaching Assistant, Cornell University**

- BioMG 1250. Personal Genomics & Medicine. (2 semesters; 2011, 2012)  
 BioSM 1780. Evolution & Marine Diversity. (intensive field course, 4 weeks; 2012)  
 BioEE 2740. Vertebrates: Structure, Function, Evolution. (2 semesters; 2010, 2012)  
 BioEE 2780. Evolutionary Biology. (3 semesters; 2009, 2010)

### *Guest Lectures*

#### **Institute for Field Research**

- ARCH 300K Introduction to Paleoecology; Conservation and Rancho La Brea Research (2018)  
 Developed full-day, hands-on "Sediment Grain Analysis" lab activity

#### **University of Southern California**

- CORE 103 La Brea Tar Pits: A Window into the Past and a Guide for the Future (2017-8)

#### **La Brea Tar Pits & Museum – Docent Training**

- Paleoecology, Research at La Brea, Natural Selection, Adaptation (quarterly)

## RESEARCH QUALIFICATIONS

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### *Active International Field Sites*

- 2013-present **Dominican Republic**  
 La Selle- Jaragua- Bahoruco- Enriquillo UNESCO Biosphere Reserve  
*Research Partners:* Grupo Jaragua (conservation NGO)  
 Museo Nacional de Historia Natural of Santo Domingo

2018-present **Trinidad & Tobago**  
Forest Reserve and Petrotrin Oil Fields  
*Research Partners:* University of the West Indies

*Northeastern US Field Experience*

2009-2011 **Isles of Shoals, Gulf of Maine**  
*Organization:* Shoals Marine Laboratory

2008-2010 **New York & Kings Counties, New York**  
*Organization:* New York City Audubon Society

2006-2008 **Greene County, New York**  
Siuslaw Model Forest – Agroforestry Resource Center  
*Organization:* Cornell Cooperative Extension

*Specialized Technical Training*

2017- UC Irvine Keck Accelerator Mass Spectrometry Facility  
2016-2018 Stanford University Stable Isotope Biogeochemistry Lab  
2016 Centre for GeoGenetics, Denmark

## FIRST-AUTHOR PRESENTATIONS

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*Chaired Symposia*

2018 **Joint Meeting of the Canadian and American Quaternary Associations**  
*“Island biogeography in a changing world: an interdisciplinary roadmap from the Quaternary”*

2017 **12<sup>th</sup> International Mammalogical Congress**  
*“From the Pleistocene to the Anthropocene: the future of Caribbean mammals”*

*Select Invited Presentations*

2019 [upcoming] Invited Plenary Speaker, **The Wildlife Society**, Yosemite, California  
*“Of creatures huge, fierce, and strange: the Pleistocene roots of our Anthropocene extinctions in North America”*

2018 Invited Talk, **Natural Areas Association Conference**, University of Indiana.  
*“Fossil and historic collections reveal the ecological legacy of California’s lost bears”*

2018 Invited Technical Session, **Geological Society of Trinidad & Tobago**.  
*“La Brea in LA: 150 years of excavation in asphalt”*

2018 Featured Presentation, **Biodiversity Heritage Library Annual Meeting**, Los Angeles County Museum of Natural History.  
*“Eyewitness to extinction: BHL documents the consequences of the Columbian exchange”*

2017 Invited Talk & Workshop Participant, in: “Megafauna & Methods”, **Max Planck Institute for the Science of Human History**, Jena, Germany.  
*“Mammals, humans, and climate: Caribbean extinctions as a model counterpart to continents”*

2016 Invited Talk & Symposium Participant, in: “Humanos, cambios climáticos y extinciones”. **IX Congreso Latinoamericano de Paleontología**, Lima, Peru.  
*“The relative roles of climate and culture in Late Pleistocene/Holocene human demography”*

2015 Invited Talk & Panelist, **UC Berkeley Global Change Biology Center**: Integrating biology and paleobiology to enhance conservation of terrestrial ecosystems on a rapidly changing planet.  
*“A Role for Ataxic Metrics in Conservation – Island Systems”*

2015 Invited Talk, Plagiodontia Lecture Series, **Museo Nacional de Historia Natural**, Santo Domingo, Dominican Republic.

*“¿Quién murió y cuando? El desarrollo de una cronología y el modelo de la dinámica de extinción en los mamíferos del Caribe”*

#### *Select Presentations & Posters*

- 2018 Talk, **Latin American & Caribbean Conservation Biology Congress**, University of the West Indies.  
*“Recent extinctions & current threats: using the fossil record to guide conservation of Caribbean biodiversity”*
- 2018 Talk, **American Society of Mammalogists**, Kansas State University.  
*“Paleoecology of a Pleistocene woodrat (Neotoma) midden from the La Brea Tar Pits”*
- 2017 Romer Prize Session Talk, **Society of Vertebrate Paleontology**, Calgary, Canada.  
*“Fossils, feces, & the future: a 20,000 year experiment of mammalian extinctions on islands”*
- 2017 Talk, **International Mammalogical Congress**, Perth, Australia.  
*“Genomic and isotopic approaches reveal mechanisms of persistence in the endemic Hispaniolan solenodon”*
- 2017 Talk, **IX Congreso de la Biodiversidad Caribeña**, Santo Domingo, Dominican Republic.  
*“La flexibilidad dietética promueve la supervivencia de un mamífero relictual, el solenodonte”*
- 2016 Colbert Poster Prize Session, **Society of Vertebrate Paleontology**, Salt Lake City, Utah.  
*“What is ‘natural’ after 10,000 years of extinction and invasion? Conservation paleobiological approaches in Parque Nacional Jaragua, Dominican Republic”*
- 2013 Poster, **Student Conference on Conservation Science**, American Museum of Natural History.  
*“Integrating ancient and modern DNA to conserve a “living fossil” mammal, the Solenodon”*
- 2012 Poster, **American Society of Mammalogists**, Reno, Nevada.  
*“Origin and timing of a recent insular colonization of muskrats, Ondatra zibethicus”*

## ADVISING & MENTORSHIP

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### *Undergraduate Thesis/Project Students*

#### **Stanford University:**

Laura Cussen [Honors-2015], Lauren Gibson [Honors-2017], Charlie Jiang, Shane Johnson, Sijo Smith, Delaney Sztraicher [Honors-2015]

#### **Universidad Autónoma de Santo Domingo, Dominican Republic:**

Maria Caridad Novas [Thesis-2017]

### *High School Science Fair Projects*

#### **Girls Academic Leadership Academy, Los Angeles:**

Developed an externally funded high school science research program for 6 low-income/underrepresented minority female students. Students pursued independent research at the La Brea Tar Pits & Museum and received mentorship in STEM career pathways. They participated in the Google Science Fair and the Los Angeles County Science & Engineering Fair [2018-2019]

### *Mentorship Programs*

(#) Indicates number of students worked with:

- Biology Student Advisor, Undergraduate Office of Biology, Cornell (20)
- Internship in Human Biology, Undergraduate Human Biology Program, Stanford (1)
- Mentoring Undergraduate Interdisciplinary Research program, Woods Institute, Stanford (2)
- Stanford @ COP21 Undergraduate Paris Climate Research, Stanford (1)
- Stanford Storytelling Project (1)
- Senior Reflection in Art & Science, Department of Biology, Stanford (1)
- Vice Provost for Undergraduate Education, Stanford, Summer Research Internship (4)

- Volpert Scholar in Earth Systems Undergraduate Summer Research, Stanford (1)

## OUTREACH

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### *District, County, & State Science Fair Judge – Zoology, Ecology, Chemistry*

California State Science Fair • Gaspar de Portola Middle School Science Fair • Hollywood High School Senior Projects • Los Angeles County Science & Engineering Fair • Orange County Science & Engineering Fair • Riverside County Science & Engineering Fair

### *Women in Science*

**Daises Dig Dire Wolves** – Programming for Girl Scout troops that includes hands-on microfossil sorting and exposure to fossil excavations at the La Brea Tar Pits

**Project STEM** – Guest “STEM Superstar” for Predators Week, using fossil cast props

**Office of Los Angeles Mayor WiSTEM Initiative** – Participant in women in science community events

### *K-12 Outreach*

**Skype a Scientist** – Skype with classes grades 4-7 across US, featuring natural history specimen props

**Adventures in Nature, Jr. Scientist Programs** – Act as visiting scientist to lead owl pellet dissections and other interactive activities for student events at Natural History Museum of Los Angeles County

**Career Days** – Participate in local career days at elementary schools in Los Angeles

**International Science & Engineering Fair (ISEF)** – Selected to serve as “adult in charge” chaperone for California delegation of high school students to ISEF [upcoming 2019]

### *Podcast, Media, & TV Appearances*

**Generation Anthropocene Podcast** – “The Survivor”

**Science... Sort of Podcast** – “LOST”

**Geovida** – TV program in the Dominican Republic. Guest for discussion on Caribbean extinctions

**Travel Channel** – Guest expert for program on human colonization of North America

**ArcLight Theaters Hollywood** – Panelist for documentary “Inventing Tomorrow” by Fishbowl Films

### *Museum-Based Community Engagement & Informal Education*

**Exhibit Development** – Contributed to museum exhibits about native mammals at the Museo del Hombre and the Museo Nacional de Historia Natural in the Dominican Republic, including 3D printing

**Behind the Scenes Tours** – Regularly lead tours for diverse audiences at the La Brea Tar Pits & Museum

**Community Events** – Develop booth programming based on active research, for events such as Nature Fest, Haunted Museum, and Dino Fest at the Natural History Museum of Los Angeles County

## PROFESSIONAL SERVICE

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2018-	Data steward, FAUNMAP constituent database of Neotoma Paleoecology Database
2018-	Biodiversity committee, American Society of Mammalogists
2017-	Museum donor engagement, including lectures and behind-the-scenes tours
2017	Graduate student feedback coordinator, Stanford Evolution Faculty Search
2016	Applicant selection committee, Haas Public Service Fellowship
2016	Departmental teaching assistant mentor, Department of Biology
2015	Host/visa sponsor for international visiting scholar from Dominican Republic
2013-2015	PhD admission weekend committee, Department of Biology

*Peer reviewer for:* American Museum Novitates, Ecology and Evolution, Journal of Human Evolution, Journal of Mammalogy, Novitates Caribaea, PLoS One, Royal Society Open Science, The Anthropocene Review

## POLICY IMPACTS

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### **International Union for the Conservation of Nature (IUCN)**

Contributor to IUCN Small Mammal Specialist Group species assessments

**Stakeholder Analysis of Endangered Species Act**

Policy assessment and role of judicial review in gray wolf de-listing, Cornell in Washington

**Story Mapping Global Change, ArcGIS Story Maps**

Mapped geo-referenced media articles and stakeholder interview podcasts about global change, tailored to needs of Governor's Office of CA and White House National Security Council

**Federal Science Funding**

Participant in Biological & Ecological Sciences Coalition congressional visit days