

ALEXIS M. MYCHAJLIW

Postdoctoral Fellow, Japanese Society for the Promotion of Science

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insectivora.org

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

APPOINTMENTS

- Jan. 2020 **Postdoctoral Research Associate, University of Oklahoma**
Historical ecology to inform CA Channel Islands species management.
- 2019-present **Postdoctoral Research Fellow, Hokkaido University, Japan**
Isotopic ecology of Japanese mammals in response to urbanization.
- 2019-present **Research Affiliate, University of Southern California**
- 2019-present **Research Associate, La Brea Tar Pits & Museum, California**
- 2017-2019 **Postdoctoral Fellow, La Brea Tar Pits & Museum, California**
Holocene paleoecology, conservation biology, & reintroduction of CA species.

EDUCATION

- Stanford University, School of Humanities & Sciences.** California, USA. 2017.
PhD in Biology (Ecology & Evolution), advisor Elizabeth A. Hadly
Dissertation Title: "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

- 2019 Japan Society for the Promotion of Science (JSPS) Short-Term Postdoctoral Fellowship
- 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

*Indicates equal author contributions, † indicates mentored undergraduate/high school student

12. Casewell, NR, Petras D, Card, DR, Suranse, VC, **Mychajliw, AM**, ... + 27, Turvey, ST. 2020.
Solenodon genome reveals convergent evolution of venom in eulipotyphlan mammals.
Proceedings of the National Academy of Sciences, *Accepted, available online.*
11. †Gibson, LM, **Mychajliw, AM**, Leon, Y, Rupp, E, Hadly EA. 2019. Using the past to contextualize the present and future distribution of an endemic Caribbean mammal. Conservation Biology, 33: 500-510.

10. 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, 69: 877-887.
9. Steadman, DW, Almonte, JN, **Mychajliw, AM**. 2019. An extinct eagle (Aves: Accipitridae) from the Quaternary of Hispaniola. Journal of Raptor Research, 53: 319-333.
8. *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.
7. Cooke, SB, **Mychajliw, AM**, Southon, J, & MacPhee, RDE. 2017. Jamaica's last monkey: the extinction of *Xenothrix mcgregori*. Journal of Mammalogy, 98: 937-949.
6. 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.
5. 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.
4. 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
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 Submitted/in Revision (available upon request)

Mychajliw, AM, Mohammed RS, Rice KA, Farrell AB, Rincon AD, McAfee R, McDonald HG, Lindsey EL. The biogeography of "breas": contextualizing the taphonomy, ecology, and diversity of Trinidad's Quaternary asphaltic record.

Book Chapters and Book Reviews

2. **Mychajliw, AM**. 2019. Smilodon: the iconic sabertooth. Journal of Mammalogy. *In Press*.
1. **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.

RESEARCH FUNDING

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

- 2019 National Geographic Early Career Grant (**\$7,000**)
2019 Paleontological Society Norman Newell Early Career Grant (**\$5,000**)
2019 Evolving Earth Foundation Grant (**\$2,700**)
2019 The Explorers Club – Mamont Scholar Grant (**\$2,780**)
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, 9th Place

TEACHING EXPERIENCE

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**)

Instructor of Record

Instructor of Record, Institute for Field Research - Archaeology Field Schools

Arch 300K. **Conservation Paleoecology at the La Brea Tar Pits.** (4 weeks, 2019)
Managed 10 staff members and 12 students. Oversaw teaching of excavation and site maintenance, geologic mapping and stratigraphic methods, microfossil sorting, asphalt cleaning, specimen accessioning. Developed lectures, field trip, and assignments, including overarching theme of informing conservation decision-making in California.

Short Course, University of the West Indies, St. Augustine, Trinidad & Tobago

UWIZM. **Asphaltic Environments: Ecology, Geology, and Taphonomy.** (2 weeks, 2019)
Instructor in partnership with staff at the University of the West Indies Zoology Museum. Lecture, field, and lab components. 40 students: undergraduate and masters.

High School Course Instructor, Girls Academic Leadership Academy, Los Angeles, California

GALA. **Introduction to Methods in Scientific Research.** (1 semester, 2018)
Led a daily class at an all-girls high school (galacademy.org) in partnership with AP Biology teacher (see *Mentorship* section). Taught topics in ecology, connected students with diverse female mentors, and built confidence in STEM and public speaking.

Instructor of Record, Stanford University

Bio 128. **Geographic Impacts of Global Change: Mapping the Stories.** (2 quarters, 2014; 2015)
Co-developer of course, with community partners at Governor's Office of California and White House National Security Council. Taught the scientific principles of global change, stakeholder engagement, environmental justice, and bridging the science-policy gap.

Syllabus, student podcasts, ArcGIS Story Maps, reflection prompts publicly available:
<http://www.mappingglobalchange.org/teaching-materials.html>

Teaching Assistantships

Stanford University

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

Cornell University

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

ADVISING & MENTORSHIP

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 & Society for Science and the Public, Los Angeles:

- Independently developed an externally funded high school science research program for 6 low-income/ underrepresented minority female students [2018-2019]
- Students pursued independent research at the La Brea Tar Pits & Museum
- Participated in the Google Science Fair, Los Angeles County Science & Engineering Fair

University Mentorship Programs

(#) Indicates number of students worked with:

- Biology Student Advisor, Undergraduate Office of Biology, Cornell (**20**)
- East Palo Alto Tennis & Tutoring, Stanford-High School Partnership (**1**)
- 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**)

RESEARCH QUALIFICATIONS

Active International Field Sites

2018-present **Trinidad & Tobago – supported by National Geographic**
Dynamics of past and present biodiversity
Forest Reserve, Aripo Savannah, Massey Energy Fields
Research Partner: University of the West Indies Zoology Museum

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

US Field Experience

- 2017-2019 **Rancho La Brea, Los Angeles**, La Brea Tar Pits & Museum
- 2009-2011 **Isles of Shoals, Gulf of Maine**, Shoals Marine Laboratory
- 2008-2010 **New York & Kings Counties, New York**, New York City Audubon Society
- 2006-2008 **Greene County, New York**, Siuslaw Model Forest – Agroforestry Resource Center

Specialized Technical Training

- National Geographic “Sciencetelling” Bootcamp
- UC Irvine Keck Accelerator Mass Spectrometry Facility
- Stanford University Stable Isotope Biogeochemistry Lab
- Centre for GeoGenetics, Denmark

FIRST-AUTHOR PRESENTATIONS

Plenary Addresses

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

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 **12th International Mammalogical Congress**
“From the Pleistocene to the Anthropocene: the future of Caribbean mammals”

Select Invited Presentations

- 2019 Invited Animal Ecology Seminar, **School of Environmental Sciences, Hokkaido University, Japan**.
“Fossils are data too! Studying natural experiments from historical and paleontological records”
- 2019 Invited Seminar, **Hokkaido University Museum, Hokkaido, Japan**.
“What can ice age fossils tell us about California’s extinct ecosystems and brown bears?”
- 2019 Invited Symposium Participant, **North American Paleontological Convention**.
“Holocene arrival and historic loss of the California grizzly bear: Bridging timescales of decline in the 6th mass extinction”
- 2019 Invited Speaker, USC Paleosciences Research Consortium, **University of Southern California**.
“Recent extinctions & current threats: using the fossil record to guide conservation of Caribbean biodiversity”
- 2019 Invited Talk, **Colgate University**, Hamilton, New York.
“Breas, bears & bones: global change lessons from the Quaternary”
- 2019 Invited Talk, **California State University - Channel Islands**, Camarillo, California.
“Changing climates, shifting baselines: the hidden ecological experiments of the historic & fossil records”
- 2018 Invited Talk, **Colby College**, Waterville, Maine.
“What makes a survivor? Using past ecological experiments to avert extinction in the Anthropocene”
- 2018 Invited Talk, **Natural Areas Association Conference**, University of Indiana.
“Fossil and historic collections reveal the ecological legacy of California’s lost bears”
- 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"

Select Presentations & Posters

- 2019 eLightning Session, **American Geophysical Union**, Fall Meeting, San Francisco, CA, USA.
"Stable isotope analysis of asphaltic coprolites reveals stability of woodrat diet (Neotoma sp.) from Rancho La Brea, Los Angeles,"
- 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"

OUTREACH

District, County, & State Science Fair Judge – Animal Science, Zoology, Ecology, Chemistry
California State Science Fair • Gaspar de Portola Middle School Science Fair • Hollywood High School Projects • Intel International Science & Engineering Fair • 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” mentor for California delegation of 7 high school students to ISEF

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 Late Pleistocene ecosystems of North America
ArCLight Theaters Hollywood – Panelist for documentary “Inventing Tomorrow” by Fishbowl Films

Museum 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
Docent Training – Develop lecture programming to train museum docents on paleoecology, natural selection, adaptation, and current research at the La Brea Tar Pits

General Public Speaking

2019 Explorer Spotlight, **National Geographic Headquarters**.

2019 Natural History Public Lecture Series, **Pacific Grove Museum of Natural History**.
“Unearthing the California Grizzly”

2019 Technical Symposia, **Intel International Science & Engineering Fair**. (high school students)
“Expanding access to ecology and evolution science fair projects using traditional and digital museum collections”

2018 Members Lecture Series, **Geological Society of Trinidad & Tobago**.
“La Brea in LA: 150 years of excavation in asphalt”

2015 Plagiodontia Public Lecture Series, **Museo Nacional de Historia Natural**, Dominican Republic.
“¿Quién murió y cuando? El desarrollo de una cronología y el modelo de la dinámica de extinción en los mamíferos del Caribe”

POLICY IMPACTS

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

California Grizzly Bear Reintroduction

Provide scientific foundation for legal considerations to designate California as critical habitat for *Ursus arctos* in North America

PROFESSIONAL SERVICE

2019 Applicant selection committee, NSF intern program, La Brea Tar Pits & Museum
2018- Data steward, FAUNMAP constituent database of Neotoma Paleocology 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, Ecography, Ecology and Evolution, Global Ecology & Conservation, Journal of Human Evolution, Journal of Mammalogy, Novitates Caribaea, Philosophical Transactions of the Royal Society B, PLoS One, Royal Society Open Science, Science, The Anthropocene Review