

## Marian Irene Hamilton

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### RESEARCH INTERESTS

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Paleoanthropology, paleoecology, stable isotopes, strontium isotopes, niche partitioning, landscape use, evolution of social systems, australopithecines, Bayesian methods

Science education, women in STEM, inquiry-based learning, citizen science, community engagement

### EDUCATION

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Ongoing	Ph.D.	The University of New Mexico <i>Using Strontium Isotopes to Reconstruct Dispersal Patterns and Landscape Use</i> , Sherry Nelson, advisor
2014	M.S.	The University of New Mexico Evolutionary Anthropology
2008	B.A.	The Pennsylvania State University BA Anthropology, BA History; Schreyer Honors College Scholar

### APPOINTMENTS AND EMPLOYMENT

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August 2017 - present	Online Graduate Assistant, <i>ANTH 150: Evolution and Human Emergence</i> - University of New Mexico, Albuquerque, NM
January 2017 – May 2017	Instructor of record, <i>ANTH 151L: Human Evolution Laboratory course</i> - University of New Mexico, Albuquerque NM. Included curricular re-evaluation and amendments of content and assessments to align with state standards.
August-December 2016	Graduate Teaching Assistant, <i>ANTH 357: Human Origins</i> - University of New Mexico, Albuquerque NM
Sept 2014 - May 2016	AVID Program Tutor - Albuquerque Public Schools, Albuquerque, NM
Aug 2012 - May 2013	Graduate Assistant, <i>ANTH 150: Evolution and Human Emergence</i> - University of New Mexico, Albuquerque, NM
Dec 2008 - May 2012	Teacher, 5th and 6th grade general science - Amistad Academy Middle School, New Haven, CT
June 2010 - May 2012	Content Lead and Lead Curriculum Developer, 5th Grade Science - Achievement First Charter Network, New Haven, CT
May 2008 - May 2010	Teach for America corps member - Hartford Public Schools; Amistad Academy Middle School, New Haven, CT

## **PUBLICATIONS**

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**Hamilton M.I.**, Drake B.L., Crown P., Wills W.H., Conrad C. (*In press*). The importance of modern analogues in stable oxygen isotope sourcing: a test case from Chaco Canyon, New Mexico. *American Antiquity*.

Nelson, S.V. & **Hamilton, M.I.** (*In press*) Evolution of the human dietary niche – initial transitions. In: MN Muller, RW Wrangham & DR Pilbeam (Editors), *Chimpanzees and Human Evolution*. Cambridge, MA: Harvard University Press.

Drake B.L., Wills W.I., **Hamilton M.I.**, Dorshow W. (2014). Strontium isotopes and the reconstruction of the Chaco regional system: evaluating uncertainty with Bayesian mixing models. *PLoS ONE*.

## **PUBLICATIONS IN PREPARATION**

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**Hamilton M.I.**, Nelson, S.V., Fernandez, D., Hunt, K. (*In prep*). *Strontium Isotopes as Indicators of Riparian Habitat Preference*. *Earth and Planetary Letters*.

**Hamilton, M.I.**, Nelson S.V. (*In prep*) *Identifying Philopatric Dispersal Patterns in Primates with Strontium Isotopes*. *Proceedings of the Royal Society B*.

**Hamilton, M.I.**, Nelson S.V., Copeland S. (*In prep*) *A Reassessment of Philopatric Dispersal Patterns in South African Hominids using Strontium Isotope Ratio Offsets*. *Journal of Human Evolution*.

## **NATIONAL FELLOWSHIPS AND GRANTS**

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April 2016	\$19,980	Wenner-Gren Foundation Dissertation Fieldwork Grant, <i>Tracking Dispersal and Home Range Size with Environmental and Faunal Strontium Isotopes</i>
Jan 2016	\$14,875	Leakey Foundation Research Grant, <i>Assessing Philopatry and Range Size with Strontium Isotopes</i>
Dec 2014	\$400	Sigma Xi Grant in Aid of Research: <i>Using Strontium Isotopes to Track Philopatry</i>
March 2013	\$96,000 stipend; \$36,000 research	National Science Foundation Graduate Research Fellowship Program (3 year appointment) for <i>Using Stable Isotopes and Mixing Models to Estimate Niche Breadth in the Fossil Record</i>
May 2010	\$9,450	Segal AmeriCorps Education Award Grant for completion of AmeriCorps/Teach For America service

## **OTHER GRANTS AND FUNDING AWARDS**

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July 2017	\$900	University of New Mexico Office of Graduate Studies Rodger's Research Grant for field work in Kibale National Park, summer 2017
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July 2017	\$500	Student Research Grant from the University of New Mexico for field work in Kibale National Park, summer 2017
Jan 2017	\$950	University of New Mexico Office of Graduate Studies Doctoral Conference Presentation Award
Nov 2016	\$500	Student Research Grant from the University of New Mexico for attendance at the American Association of Physical Anthropologists annual meeting
Nov 2015	\$400	Student Research Grant from University of New Mexico Graduate and Professional Student Association for attending AAA conference
Nov 2015	\$333	Department of Anthropology Travel Grant for 2015 AAA conference
June 2015	\$400	Department of Anthropology Graduate Research Grant for dissertation research in Kibale National Park
Sept 2014	\$500	Student Research Grant from University of New Mexico Graduate and Professional Student Association for field research at Kibale National Park
Aug 2014	\$400	Research Program and Travel Grant from University of New Mexico Office of Graduate Studies for field research at Kibale National Park
Feb 2013	\$600	Student Conference Award Program funding from University of New Mexico Office of Career Services for 2013 AAPA conference attendance

## **CONFERENCE PRESENTATIONS AND PUBLISHED ABSTRACTS**

**Hamilton MI.** (2017, April). *Strontium Isotope Ratios Indicate Mobility, Behavior Patterns in Modern Fauna from Kibale National Park, Uganda*. Paper/podium presentation given at the American Association of Physical Anthropologists annual conference, New Orleans, LA, USA.

**Hamilton MI.** (2017, April). *Tracking Mobility and Microhabitat Preference with Strontium Isotopes*. Nominated poster presentation given at the Graduate Resource Center's Shared Knowledge Conference, Albuquerque, NM, USA.

**Hamilton MI.** (2017, March). *The Importance of Modern Analogues in Oxygen Isotope Sourcing: A test case from Chaco Canyon, New Mexico*. In Wills WH (Chair), *New Methodological Advances in Chaco Canyon*. Symposium conducted at the meeting of the Society for American Archeology, Vancouver, BC, Canada.

**Hamilton MI.** (2016, November). *Strontium isotopes as trackers of microhabitat preference: a case study from Kibale National Park*. Paper/podium presentation given at the Southwestern Association of Biological Anthropology annual conference, Phoenix, AZ, USA.

**Hamilton MI.** (2016, April). *Establishing Philopatry and Home Range Size with Strontium Isotopes: An Extant Model from Kibale National Park*. Paper/podium presentation given at the American Association of Physical Anthropologists annual conference, Atlanta, GA, USA.

**Hamilton MI.** (2015, November). *You Are Where You Eat: Tracking Dispersal and Range Size with Strontium Isotope Geochemistry*. In Fontes and Horowitz (Chairs), *Exploring Human Geography: Global Case Studies in Landscape Archeology*. Symposium conducted at the meeting of the American Anthropological Association, Denver, CO.

**Hamilton MI.** (2015, October). *Environmental Strontium Isotopes and Reconstructing Faunal Mobility: A Case Study from Kibale National Park*. Paper/podium presentation given at the Southwestern Association of Biological Anthropology annual conference, Albuquerque, NM, USA.

**Hamilton MI.** (2015, April). *Tracking Dispersal and Range Size with Strontium Isotopes: Pilot Data from Kibale National Park*. Paper/podium presentation given at the Anthropology Graduate Student Union annual conference, Albuquerque, NM, USA.

**Hamilton MI.** (2015, March). *The Case for Uncertainty: How Much Variation is Enough? Strontium isotopes and evaluating geochemical versus geospatial sources*. Poster session presented at the annual meeting of the American Association of Physical Anthropologists, St. Louis, MO, USA.

**Hamilton MI, Nelson SV.** (2014, April). *The Use of Bayesian-inference Stable Isotope Mixing Models to infer Niche Breadth in the Fossil Record: an extant study from Kibale National Park*. Poster session presented at the annual meeting of the American Association of Physical Anthropologists, Calgary, Alberta, Canada.

## **OUTREACH AND PUBLIC SERVICE**

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January 2016 - present	Founding member and Director of Outreach, Advancing Women in Science undergraduate / graduate student organization, University of New Mexico
January 2014 – August 2016	Co-director, Project L’TtL - ecology and conservation education outreach program connecting Ugandan and American students
January 2014 – May 2017	Coordinator and presenter, Manzano High School anthropology graduate student lecture series
March 2015, September 2016, April 2017	Presenter, University of New Mexico Center for Stable Isotopes Brownbag Lecture Series
September 2015	Co-presenter, American Association of University Women’s <i>Expanding Your Horizons</i> workshop for 5-8th grade girls: <i>More than Just Dinosaurs! Using Paleontology as a Tool for Conservation</i>

April 2015; November 2014	Brownbag presenter, Anthropological Graduate Student Union brownbag lecture series
August 2014 - May 2015	Evolutionary Anthropology subfield representative to the Anthropology Graduate Student Union; AGSU conference committee member
January - June 2014	Truman Middle School Gifted Mentor program

## **FIELD EXPERIENCE**

Summer 2014, 2015, 2017	Doctoral research data collection, Kibale National Park and Toro- Semliki Wildlife Refuge, Uganda <i>Vegetation transects and water samples, strontium isotope analysis; faunal bone and tooth enamel collection, strontium, carbon, oxygen isotope analysis; elemental concentration data via portable XRF in vegetation, faunal tooth enamel and bone (in-situ)</i>
Summer 2013	Koobi Fora Paleoanthropological Field School, Kenya - George Washington University

## **SKILLS AND CERTIFICATIONS**

- Proficient in R and R-Studio; working knowledge of ArcGIS software
- Professional Educator's Certification (K-6 Education), State of Connecticut, valid through 2020
- Certified tree climber, Global Organization of Tree Climbers
- Laboratory experience in sample preparation (plant material, bone, tooth enamel) and measurement of strontium isotope analysis. University of Utah's Department of Geology and Geophysics Heavy Metals Laboratory, Diego Fernandez, supervisor
- Laboratory experience in sample preparation (bulk plant material, plant cellulose, bone carbonate, bone collagen, tooth enamel, urine) for carbon, oxygen, and nitrogen analysis. University of New Mexico's Center for Stable Isotopes, Sherry Nelson and Viorel Atudorei, supervisors
- Laboratory experience in compound-specific carbon and nitrogen analysis of primate hair. University of New Mexico's Center for Stable Isotopes, Seth Newsome, supervisor