

Nicole D. Garrett

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Education

University of Minnesota in progress

Ph.D., Department of Anthropology

Committee: Kieran McNulty (co-advisor), David Fox (co-advisor), Martha Tappen, and Gilbert Tostevin

Dissertation Title: Stable isotope paleoenvironmental reconstructions of the Early Miocene and Late Pleistocene deposits on Rusinga and Mfangano Islands, Lake Victoria, Kenya.

Expected completion date: August 2015

University of Colorado at Boulder 2007

Masters of Arts, Department of Anthropology

Committee: Herbert Covert (advisor), Matt Sponheimer, and Jaelyn Eberle

Thesis Title: Isotope Analyses of two Perissodactyls from the Bridgerian-Uintan Transition in the Bridger Formation, Greater Green River Basin, Wyoming.

Iowa State University 2004

Bachelor of Science, Department of Zoology

Minor: Anthropology

Peer-Reviewed Publications

Garrett, N.D., et al., *in prep.* Early Miocene paleoenvironments of Rusinga and Mfangano Islands, Kenya: integrating conventional and compound-specific isotope analyses of terrestrial paleosols.

Garrett, N.D., et al., *in prep.* Stable isotope paleoecology of the Early Miocene Rusinga and Mfangano Island faunal communities.

Garrett, N.D., Fox, D.L., McNulty, K.P., Tryon, C.A., Faith, J.T., Peppe, D.J., Van Plantinga, A., 2015. Stable isotope paleoecology of late Pleistocene Middle Stone Age humans from equatorial East Africa, Lake Victoria Basin, Kenya. *Journal of Human Evolution* 82: 1-14.

Djukanovic, V., Orczyk, W., Gao, H., Sun X., **Garrett, N.D.**, Zhen, S., Gordon-Kamm, W., Barton, J., Lyznik, L.A., 2006. Gene Conversion in Transgenic Maize Plants Expressing FLP/FRT and Cre/loxP Site-Specific Recombination Systems. *Plant Biotechnology Journal* 4: 345-357.

Research Experience

University of Minnesota

2009 - present

Dissertation Research

- My research focuses on the relationship between climate change and primate evolution utilizing a variety of stable light isotope analyses
- Analyzed the stable carbon and oxygen isotope composition of paleosol carbonate and organic matter and fossil mammalian tooth enamel from the Late Pleistocene and Early Miocene deposits on Rusinga and Mfangano Islands, Kenya
- Learned the standard operating procedures for a Costech ECS 4010 Elemental Analyzer coupled with a Thermo Finnigan Delta V mass spectrometer
- Trained undergraduate students in the pretreatment of mammalian enamel, paleosol bulk organic matter, and pedogenic carbonate samples for carbon and oxygen isotope analysis
- Trained undergraduate and graduate students in the daily standard operating procedures for a Costech ECS 4010 Elemental Analyzer coupled with a Thermo Finnigan Delta V isotope ratio mass spectrometer as well as in minor maintenance procedures (changing the insert, oxidation and reduction columns)

Lamont Doherty Earth Observatory of Columbia University

2014 - present

Dr. Pratigya Polissar's Laboratory

- Spent two weeks learning and applying compound specific (*n*-alkane and fatty acid) isotope (carbon and hydrogen) analysis techniques to the Late Pleistocene and Early Miocene paleosols from Rusinga and Mfangano Island to complete and expand on the work started in 2011
- Organic chemistry laboratory methods include sodium sulfate columns for water removal from lipid extracts, aminopropyl columns for separation of neutral, acid, and polar fractions from lipid extracts, carboxylic acid methylation, silica gel columns for separation of aliphatic, ketone, and polar fractions from lipid extracts as well as for separation of neutral, acid, and polar fractions of the methylated ketone fraction
- Learned the standard operating procedure for the Dionex ASE-350 for lipid extraction

Large Lakes Observatory of the University of Minnesota at Duluth

2011 and 2013

Dr. Josef Werne's Laboratory

- Spent four weeks over two summers learning and applying compound specific (*n*-alkane) isotope (carbon) analysis techniques to the Late Pleistocene paleosols from Rusinga Island

University of Colorado at Boulder

2004 - 2007

Thesis Research

- My research focused on the relationship between climate change and early primate evolution, specifically across the Eocene-Oligocene transition in North America
- Analyzed the stable carbon and oxygen isotope composition of fossil mammalian tooth enamel from the Bridger Formation, Greater Green River Basin, Wyoming

Research Experience Continued

University of Colorado at Boulder 2006 - 2007

Dr. Jaelyn Eberle's Laboratory Laboratory

- Assisted with setup of clean, wet-lab space for bioapatite pretreatment including research and purchase of a water purification system, vacuum system, and various chemicals and general laboratory supplies as needed for pretreatment procedures
- Pretreated fossil enamel samples for isotopic analysis

University of Colorado at Boulder 2006 - 2007

Dr. Matt Sponheimer's Laboratory

- Pretreated fossil enamel samples for isotopic analysis
- Formalized pretreatment procedure to minimize enamel sample loss

University of Bradford 2006

Course Title: Principles and Practices of Stable Light Isotopes

- Five-day intensive course covering the theory of fractionation, isotope effects, and applications of carbon, hydrogen, oxygen, nitrogen, and sulfur isotope distributions
- Spent an additional five days working in the lab learning enamel pretreatment procedures

Pioneer Hi-Bred International; Johnston, IA 2002 - 2004

Transcription and Translation Laboratory Research Assistant

Primary Investigator: Dr. L Alexander Lyznik

- Extracted DNA from transgenic maize and *E. coli*, completed PCR, gel electrophoresis, and southern blot analyses
- Assisted with the production of a peer-reviewed journal publications as well as multiple internal poster and podium presentations of laboratory results

Iowa State University 2004

Independent Research with Dr. Jill Pruett

- Identified the genus and species of four great ape skeletons in the anthropological collection using a variety of skeletal measurements

Iowa State University 2003 - 2004

Independent Research with Dr. Ralph Ackerman

- Created ArcGIS maps of various climatic factors along the Mississippi river for use in Dr. Ackerman's analysis of climate change impact on temperature-dependent sex determination in various turtle species

Grants and Fellowship Awards

Doctoral Dissertation Fellowship (\$22,500), Graduate School, University of Minnesota	2014 - 2015
Graduate Research Partnership Program Grant (\$4,000), College of Liberal Arts, University of Minnesota	2014
Thesis Research Travel Grant (\$2,500), Graduate School, University of Minnesota	2014
Research Grant (\$13,428), Leakey Foundation	2013
Scholarly Travel Grant (\$150), Graduate and Professional Student Association, University of Minnesota	2013
Travel Grant (\$300), Department of Anthropology, University of Minnesota	2013
Summer Block Grant (5 awards - \$14,200 total), Department of Anthropology, University of Minnesota	2009 - 2015
William H. Burt Fund Award (\$1,200), University of Colorado Natural History Museum, University of Colorado at Boulder	2006

Published Conference Abstracts

† podium presentation, * poster presentation

- * **Garrett, N.D.**, Fox, D.L., McNulty, K.P., Michel, L., Peppe, D.J., 2015. Early Miocene paleoenvironments of Rusinga Island, Kenya: new data from fossil mammalian tooth enamel stable isotope compositions. *Journal of Vertebrate Paleontology*
- * Terhune, C.E., Curran, S., Fox, D.L., **Garrett, N.D.**, Hubbard, J., Petculescu, A., Robinson, C., Robu, M., Stiuca, E., 2015. Paleoenvironmental conditions in early Pleistocene Romania: implications for hominin dispersals. *Journal of Vertebrate Paleontology*
- † Tryon, C.A., Faith, J.T., Peppe, D.J., Fox, D.L., Blegen, N., Beverly, E.J., Driese, S., Jacobs, Z., Bo, L., Price, G., Joannes-Boyau, R., Sharp, W., Zaarur, S., Affek, H., Blumenthal, S., Chritz, K., **Garrett N.D.**, Jenkins, K., Johnson, C.R., Keegan, W., Patterson, D., O'Brien, H., 2015. The Pleistocene prehistory of the Lake Victoria basin, Equatorial Africa. African Quaternary (AfQUA) conference. Cape Town, South Africa.
- * **Garrett, N.D.**, Fox, D.L., McNulty, K.P., Tryon, C.A., Faith, J.T., and Peppe, D.J., 2014. Stable isotopic paleoenvironmental reconstruction of the late Pleistocene Middle Stone Age sites on Rusinga and Mfangano Islands, Lake Victoria, Kenya. *American Journal Of Physical Anthropology* 153(S58): 124.
- † **Garrett, N.D.**, Fox, D.L., Tryon, C.A., Faith, J.T., and Peppe, D.J., 2013. Stable isotopic paleoenvironmental reconstruction of the late Pleistocene sites on Rusinga and Mfangano Islands, Lake Victoria, Kenya. *Journal of Vertebrate Paleontology* 33(Suppl. 1).
- † Faith, J.T., Peppe, D.J., Tryon, C.A., Beverly, E.J., Blegen, N., Driese, S.G., **Garrett, N.D.**, O'Brien, H., Patterson, D., and Van Plantinga, A., 2013. Late Quaternary paleoenvironments in the Lake Victoria Basin, Kenya: climatic and biogeographic implications. *Geological Society of America, Abstract with Programs*, 45(7): 752.
- † Michel, L.A., Peppe, D.J., Driese, S.G., McNulty, K.P., Fox, D.L., and **Garrett, N.D.**, 2013. Equatorial paleoenvironment leading into the Miocene Climatic Optimum: lessons learned from Rusinga and Mfangano Islands, Lake Victoria, Kenya. *Geological Society of America, Abstract with Programs*, 45(7): 457.

Published Conference Abstracts Continued

- †Peppe, D.J., Faith, J.T., Tryon, C.A., Fox, D.L., **Garrett, N.D.**, Van Plantinga, A., Keegan, W., Nightingale, S., Ogondo, J., and Zaarur, S., 2011. Terrestrial evidence for late Quaternary lake level changes from the Lake Victoria Basin, Equatorial Africa. *Geological Society of America, Abstract with Programs*, 43(5): 335.
- †Tryon, C.A., Faith, J.T., Peppe, D.J., Van Plantinga, A., Fox, D.L., **Garrett, N.D.**, Keegan, W.F., and Ogondo, J., 2011. Middle Stone Age hominin occupation of arid environments in the Lake Victoria basin: New evidence from Rusinga and Mfangano islands, Kenya. *PaleoAnthropology*: A24.
- ***Garrett, N.D.**, Fox, D.L., McNulty, K.P., Tryon, C.A., and Peppe, D.J., 2010. Isotope paleoecology of the Pleistocene Wasiriya Beds of Rusinga Island, Kenya. *Journal of Vertebrate Paleontology* 30(Suppl. 3): 94A.
- †Tryon, C., Faith, T.J., Peppe, D.J., McNulty, K.P., Jenkins, K., **Garrett, N.D.**, Dunsworth, H.M., and Harcourt-Smith, W.E.H., 2010. Paleoenvironmental context for Middle Stone Age hominins in Equatorial Africa: The Pleistocene Wasiriya Beds of Rusinga Island (Kenya). *PaleoAnthropology*: A34.

Teaching Experience and Training

University of Minnesota

Instructor of Record	ANTH/EEB 3002: Sex, Evolution, and Behavior	2014
Guest Lecturer	ANTH 3401/5401: The Human Fossil Record	2014
Instructor of Record	ANTH 1001: Human Evolution	2013
Teaching Assistant	ANTH/EEB 3002: Sex, Evolution, and Behavior	2013
Head Teaching Assistant	ANTH 1001: Human Evolution	2011 - 2012
Assistant Head TA	ANTH 1001: Human Evolution	2010 - 2011
Teaching Assistant	ANTH 1001: Human Evolution	2009 - 2010

University of Colorado at Boulder

Lecturer	EBIO 1230: General Biology I	2007
Teaching Assistant	EBIO 1230 and 1240: General Biology I and II	2005 - 2007
Teaching Assistant	ANTH 2030 and 2040: Laboratory in Physical Anthropology I and II	2004 - 2005
Graduate Teacher Program	20 Workshops Completed	2004 - 2006

Professional Affiliations

National Museums of Kenya	2014 - present
Geological Society of America	2012 - present
Society of Vertebrate Paleontology	2010 - present
The Paleoanthropology Society	2009 - present
American Association of Physical Anthropologists	2009 - present
American Association for the Advancement of Science	2004 - present

Synergistic Activities

Graduate Curriculum Committee Member, Department of Anthropology, University of Minnesota	2014 - 2015
Election Judge (Primary and General Elections), City of Minneapolis, Minnesota	2014
Graduate Research and Improvement Project Team Member, University of Minnesota	2013 - 2014
Curriculum Committee Member, Department of Anthropology, University of Colorado at Boulder	2006 - 2007
Colloquium Committee Member, Department of Anthropology, University of Colorado at Boulder	2005 - 2006

Editing Experience

Evolving: My Journey to Reconcile Science and Faith by Steve Davis (Oct, 2014)

Non-fiction e-book (~60,000 words) written by a Baptist Pastor about his personal journey from Young-Earth Creationism to Evolutionary Creationism including the theology, paleontology, astrophysics and geology (among other topics) that have influenced his beliefs

- My role was to edit and comment on the scientific portions of the text to ensure their accuracy and understandability, particularly for individuals new to evolutionary theory and other aspects of the natural and physical sciences

The Israelite Nation in Ancient History, From the Time of Abraham until the End of the Persian Empire - Part One and Part Two by Dr. Boulos A. Ayad (2008 - 2009)

The Brooklyn Museum Aramaic Papyri and the Conflict among Scholars from 1953 to 2007 regarding Historical and Archaeological Problems and Certain Terms and Their Interpretations by Dr. Boulos A. Ayad (2007)

- My role was to edit these two manuscripts (published on the University of Colorado at Boulder Department of Anthropology website) specifically for grammar, readability, and overall formatting
- Transcribed hand-written manuscripts into Microsoft Word documents

Relevant Coursework

Biological Anthropology: Core Course: Biological Anthropology; Forensic Anthropology; Primate Behavior, Ecology, and Evolution; Hominin Paleoecology; Primate Comparative Anatomy; Advanced Osteology; Human Fossil Record; Primate Evolution; Nutrition and Anthropology

Earth Sciences: Earth Systems; Isotope Geology; Soil Chemistry and Mineralogy; Vertebrate Paleontology

Biology: Landscape Ecology; Environmental Physiology; Comparative Chordate Anatomy; Animal Behavior; Biological Evolution; Embryology; Principles of Genetics; Principles of Molecular and Cellular Biology; Principles of Physiology

Technical and Data Analysis: Museum Practicum in Geology; Biometry; Quantitative Methods