

Daniel R. Green, PhD

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Forsyth Institute | 245 First Street Cambridge MA
Harvard University | 11 Divinity Avenue Cambridge MA

Education

- Ph.D.** Dec 2016
Harvard University, Department of Human Evolutionary Biology
Laboratory of Tanya M. Smith
Dissertation Title: *Reconstructing oxygen isotope seasonality in large herbivores through mineralization modeling, experimentation and optimization*
- M.A.** May 2012
Harvard University, Department of Human Evolutionary Biology
- B.S.** May 2008
University of Michigan
Majors in Anthropology–Zoology, History, French and Francophone Studies
Minor in Biology

Research Experience

- NIH Postdoctoral Research Fellow** Jan 2017 – present
The Forsyth Institute, Harvard School of Dental Medicine
Laboratory of Felicitas B. Bidlack
- Research Associate** Jan 2017 – present
Harvard University
Department of Human Evolutionary Biology
- Graduate Research Fellow** Sep 2009 – Dec 2017
Harvard University
Department of Human Evolutionary Biology
Laboratory of Tanya M. Smith
- Research Assistant** Jan 2006 – May 2006
University of Michigan
Department of Anthropology
Laboratory of Milford Wolpoff and William Sanders
- Research Assistant** Oct 2003 – May 2005
University of Michigan
Department of Ecology and Evolutionary Biology
Laboratory of Jianzhi Zhang

Publications

Smith TM, * Austin C*, **Green DR***, Joannes-Boyau R*, Bailey S, Dumitriu D, Fallon S, Grün R, James HF, Moncel M-H, Williams IS, Wood R, Arora M (2018) Wintertime stress, nursing, and lead exposure in Neanderthal children. *Science Advances* 4: eaau9483 *These authors contributed equally to this work.

- Green DR**, Hardt M, Schulte F, Lee K-H, Pugach MK, Bidlack FB. Integrating microsampling and proteomics to map matrix protein posttranslational modifications during tooth enamel mineralization. *In preparation*.
- Goodson JM, Hardt M, Hartman M-L, Alqaderi H, **Green DR**, Tavares M, Mutawa A-L, Ariga J, Soparkar P, Behbehani J, Behbehani K (2018) Salivary N1-Methyl-2-pyridone-5-carboxamide, a biomarker for uranium uptake, in Kuwaiti children exhibiting exceptional weight gain. *Frontiers in Endocrinology*, submitted.
- Green DR**, Smith TM, Green GM, Bidlack FB, Tafforeau P, Colman AS (2018) Quantitative reconstruction of seasonality from stable isotopes in teeth. *Geochimica et Cosmochimica Acta* 235:483–504.
- Green DR**, Olack G, Colman AS (2018) Determinants of blood water $\delta^{18}\text{O}$ variation in a population of experimental sheep: implications for paleoclimate reconstruction. *Chemical Geology* 485:32-43.
- Green DR**, Green GM, Bidlack FB, Colman AS, Tafforeau P, Smith TM (2017) Synchrotron imaging and Markov Chain Monte Carlo reveal tooth mineralization patterns. *PLoS ONE* 12(10): e0186391, <https://doi.org/10.1371/journal.pone.0186391>.
- Cho S, Huang ZY, **Green DR**, Smith DR, Zhang J (2006) Balancing selection generates trans-species polymorphisms at the complementary sex-determination locus of honey bees. *Genome Research* 16:1366-1375

Research Funding

National Institutes of Health Postdoctoral Training Fellowship Forsyth Institute Internal Competitive T90 Application <i>Inferring toxicant exposure timing and magnitude from human deciduous teeth</i> Awarded \$144,000	2018 – 2021
Forsyth Institute Pilot Grant <i>Inferring toxin exposure timing and magnitude from deciduous teeth</i> Awarded \$7,830	2017–2018
Leakey Foundation General Grant <i>Plio-Pleistocene Seasonal Precipitation through isotopes in Bovid molars, West Turkana</i> Awarded \$12,000	2014–2017
Wenner-Gren Foundation Dissertation Grant <i>Experimental Reconstruction of Seasonal Rainfall for Paleoclimate Research</i> Awarded \$18,810	2014–2016
National Science Foundation Doctoral Dissertation Improvement Grant <i>Experimental Determination of Tooth Mineralization Patterns in Ungulates for Application to Paleoseasonality Reconstruction</i> Awarded \$19,855	2012–2014
National Science Foundation Graduate Research Fellowship <i>A New Isotopic Sampling Method Combining Microtomography and Histology: Signal Distortion through Sampling Technique and Diagenesis</i> Awarded \$90,000	2011 – 2014

- Harvard University Committee on African Studies Summer Research Grant** 2012
Plio-Pleistocene Seasonal Precipitation through isotopes in Bovid molars, West Turkana
 Awarded \$5,000
- European Synchrotron Radiation Facility Research Award** 2012
Determination of Enamel Mineralization Pattern by Scans of Successive Developmental Stages With Application for Study of Paleoecology
 Awarded: 3 days beam time, est. \$10,000/day

Presentations

- Green DR**, Hardt M, Schulte F, Lee K-H, Pugach MK, Bidlack FB (2018) Mapping amelogenesis proteins in an expanded enamel proteome. *Gordon Research Conference on Biomineralization*, New London, NH (poster).
- Green DR**, Colman AS (2017) How tooth isotope sample number and location affect seasonality reconstruction. *Society of Vertebrate Paleontology annual meeting*, Calgary (presentation).
- Green DR**, Colman AS, Green GM, Tafforeau P, Bidlack F, Smith TM (2017) Seasonal climate reconstruction from seasonality in teeth. *National Cabinet of Archaeology*, Havana (presentation).
- Green DR**, Colman AS, Green GM, Tafforeau P, Bidlack F, Smith TM (2017) New Tooth Growth Model for Studying Ancient Climate. *Goldschmidt annual meeting*, Paris (presentation).
- Green DR**, Colman AS (2017) Phosphate-water $\delta^{18}\text{O}$ offset revision improves paleoclimatic reconstructions. *American Association of Physical Anthropologists annual meeting*, New Orleans (poster).
- Green DR**, Colman AS, Green GM, Bidlack F, Tafforeau P, Smith TM (2016) Experimental water switch in sheep improves models for seasonal climate reconstruction. *American Association of Physical Anthropologists annual meeting*, Atlanta (poster).
- Green DR**, Colman AS, Green GM, Tafforeau P, Bidlack F, Smith TM (2015) Seasonal climate reconstruction with isotopes and synchrotron X-rays. *Cleveland Museum of Natural History Paleoecology Symposium*. Cleveland, OH (poster)
- Green DR**, Green GM, Colman AS, Tafforeau P, Smith TM (2015) Synchrotron x-ray imaging and MCMC support seasonal climate reconstruction. *American Association of Physical Anthropologists annual meeting*, St. Louis, MO (poster)
- Green DR**, Green GM, Tafforeau P, Weaver J, Colman AS, Smith TM (2014) Synchrotron imaging helps reconstruct mineralization patterns, and ancient climate. *Gordon Conference on Biomineralization*, New London, NH (poster)
- Green DR**, Green GM, Smith TM, Tafforeau P (2013) Microtomographic assessment of mineralization patterns to inform isotope paleoenvironmental reconstruction. *American Association of Physical Anthropologists annual meeting*, Knoxville, TN (poster)
- Green DR**, Weaver J, Smith TM (2012) Quantitative Density with micro-Computed tomography: mapping mineralization. *Society of Integrative and Comparative Biology: Division of Vertebrate Morphology annual meeting*. Amherst, MA (presentation)
- Green DR**, Braun J, Morgan M, Pilbeam D, Tuross N, Smith TM (2010) Integrating carbon and oxygen isotope signals: seasonality in the Siwaliks, Pakistan. *Society of Integrative and Comparative Biology: Division of Vertebrate Morphology annual meeting*. Cambridge, MA (presentation)

Training Programs

Harvard University Instructor Training The Derek Bok Center for Teaching and Learning	2013, 2014
East Turkana Geological Field School National Science Foundation, Turkana, Kenya Directors: Thure Cerling, PhD and Frank Brown, PhD	2011
Stable Isotope Biogeochemistry and Ecology Short Course University of Utah Stable Isotope Ratio Facility for Ecological Research Directors: Jim Ehleringer, PhD and Thure Cerling, PhD	2010

Teaching Experience

Lecturer <i>Harvard University</i> , Department of Human Evolutionary Biology Climate Change and Human Evolution	2018
Teaching Assistant <i>Harvard University</i> , Department of Human Evolutionary Biology Introduction to Human Evolution – Sophomore Concentration Tutorial	2015, 2017
Teaching Assistant <i>Harvard University</i> , Department of Human Evolutionary Biology Human Evolutionary Anatomy	2012
Teaching Assistant <i>Turkana Basin Institute</i> , Field School Geology, Ecology, Paleontology, Archaeology, Evolution and Anatomy	2011

Honors and Awards

Harvard University Bok Center Certificate of Distinction in Teaching	2012
Italian Institute for Philosophical Studies Warburg Seminar Award	2009
University of Michigan Aix-en-Provence Travel Award	2006 – 2007
University of Michigan Biological Station Academic Scholarship	2006
University of Michigan Honors Program	2003 – 2008

Public Outreach and Mentorship

Wikipedia editor authored 45+ articles, including the Turkana Basin, with more than 4 million pageviews	2011 – present
Forsyth Institute undergraduate laboratory research mentor	2017
Harvard University Eliot House Resident Tutor focus on biology, graduate school applications, Marshall, Rhodes, and Fulbright fellowships, research experiences and funding.	2012 – 2016
Harvard University undergraduate laboratory research mentor	2009 – 2016

Harvard Museum of Comparative Zoology Volunteer	2011 – 2013
University of Michigan Society of Biology Students Co-President	2007 – 2008

Additional Skills

Python; HTML; qGIS; Microsoft and Adobe; French

References

Dr. Tanya M. Smith

Griffith University
Associate Professor
Australian Research Centre for Human Evolution
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Dr. David Pilbeam

Harvard University
Henry Ford II Professor of Human Evolution
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Dr. Daniel Lieberman

Harvard University
Edwin M. Lerner II Professor of Biological Sciences
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Dr. Albert Colman

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Graduate Committee Member
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