

# Zachary P. Taylor

Environmental Science Program  
Berry College  
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## EDUCATION

Ph.D. Geography, University of Tennessee, Knoxville, May 2011

Dissertation title: *Spatial Variation in Organic Carbon and Stable Isotope Composition of Lake Sediments at Laguna Zoncho, Costa Rica.* (Advisors: S. Horn and D. Finkelstein)

M.S. Geography, University of Tennessee, Knoxville, August 2005

Thesis title: *The Environmental History of Laguna Yaguarú, Eastern Bolivia: Pollen and Stable Carbon Isotope Analysis.* (Advisors: S. Horn and C. Mora)

B.S. *Magna cum Laude*, Environmental Science, University of Denver, March 2003

Minors: Geography and Geology

Honors Thesis title: *Paleoenvironmental History from Grand Mesa, Colorado: A Multiple Proxy Record from Sediment Analysis.* (Advisor: D. Sullivan)

## PROFESSIONAL EXPERIENCE

2014–present Assistant Professor, Environmental Science Program, Berry College

2013–2014 Adjunct Professor, Tokyo International University of America

2011–2014 Visiting Assistant Professor, Dept. of Env. & Earth Sciences, Willamette Univ.

2010–2011 Graduate Teaching Associate, Dept. of Geography, University of Tennessee

2009–2010 Graduate Teaching Assistant, Dept. of Earth & Planetary Sciences, Univ. of Tenn.

2008–2009 NSF Graduate Fellow, GK–12 Earth Project, University of Tennessee

2007–2008 Graduate Teaching Associate, Dept. of Geography, University of Tennessee

2006–2007 NSF Graduate Fellow, GK–12 Earth Project, University of Tennessee

2006 Head Graduate Teaching Assistant, Dept. of Geography, University of Tennessee

2005 Instructor and Mentor, Math and Science Regional Center, Univ. of Tennessee

2004–2005 Graduate Teaching Assistant, Dept. of Geography, University of Tennessee

2003–2004 Graduate Research Assistant, University of Tennessee

2001–2003 Undergraduate Research Assistant, Dept. of Geography, University of Denver

## **COURSES TAUGHT**

### **Berry College**

- EVS 104: Introduction to Environmental Science
- EVS 220: Geographic Information Systems
- EVS 405: Environmental Science Methods
- EVS 480: Biogeography
- EVS 480: Weather and Climate

### **Tokyo International University of America**

- AMSTU 321: Sustainability in the US and Asia

### **Willamette University**

- ENVR 105: Introduction to Environmental Science
- EARTH 112: Physical Geography
- EARTH 361: Quaternary Paleoenvironments
- ENVR 333: Global Climate Change
- EARTH 333: Geographic Information Systems
- ENVR 495/496: Environmental Science Senior Thesis

### **University of Tennessee**

- GEOG 131 Introduction to Physical Geography I
- GEOG 132: Introduction to Physical Geography II

## **TEACHING RECOGNITION**

- |      |   |
|------|---|
| 2009 | Citation for Outstanding Professional Promise, University of Tennessee                              |
| 2008 | Robert G. Long Outstanding Graduate Student Award, Department of Geography, University of Tennessee |
| 2008 | Outstanding Teaching Associate, Department of Geography, University of Tennessee                    |
| 2006 | Outstanding Teaching Assistant, Department of Geography, University of Tennessee                    |

## **RESEARCH INTERESTS**

- Quaternary climate change
- Multiple proxy paleoenvironmental reconstruction
- Stable isotope ratio geochemistry
- Biogeography
- Human-environment interactions
- Conservation biology

## PROFESSIONAL ACTIVITIES

### Grantsmanship

- 2017 Laura Maddox Smith Summer Research Institute for the Environmental Sciences Grant Program (Berry College): “Reconstructing environmental change using peatlands in West Virginia and Colorado,” \$6,000
- 2017 Community Engagement Course Development Grant, Berry College, \$1,000
- 2009 Yates Dissertation Fellowship, University of Tennessee, \$15,000
- 2008 National Science Foundation, Doctoral Dissertation Research Improvement Grant (Geography and Regional Science Program): “Interpreting Prehistoric Agriculture from Isotope and Pollen Indicators in Neotropical Lake Sediments: Do Multiple Cores Enhance Spatial Resolution?,” \$11,388
- 2008 Geological Society of America, Dissertation Grant Program: “Assessing Spatial Variation in Organic Carbon and Stable Isotopic Composition of Lake Sediments,” \$2,130
- 2003 Thesis Support Grant, Honors Program, University of Denver, \$200
- 2002 W.M. Keck Summer Research Fellowship, University of Denver, \$3,000
- 2001 W.M. Keck Summer Research Fellowship, University of Denver, \$3,000
- 2001 Partners in Scholarship Grant, University of Denver: “Prehistoric Fire History of Grand Mesa, Colorado” (with K. Schlachter and D. Sullivan), \$2,000

### Professional Development

- 2017 Academic Community Engagement Workshop, Berry College
- 2012 Technology Enhanced Learning Workshop, Willamette University
- 2010 Summer Grant Writing Institute, Office of Research, University of Tennessee
- 2006 Stable Isotope Ecology Course, SIRFER Lab, University of Utah

### Professional Affiliations

- Association of American Geographers
  - Paleoenvironmental Change Specialty Group
  - Biogeography Specialty Group
- Geological Society of America
- American Geophysical Union
- National Association of Geoscience Teachers

## PUBLICATIONS

- Taylor, Z.P.** “Identifying and quantifying range disjunctions at multiple taxonomic levels in western hemisphere mammals.” 2017. *The Professional Geographer* 69: 472–485.
- Taylor, Z.P.** and Bennett, D.E. 2016. “Ecosystem Services Valuation as an Opportunity for Inquiry Learning.” *Journal of Geoscience Education* 64: 175–182.

- Lane, C.S., Horn, S.P., **Taylor, Z.P.**, and Kerr, M.T. 2016. "Rapid Response of Terrestrially-Derived n-Alkane  $\delta^{13}\text{C}$  Values in Lacustrine Sediments to Prehistoric Land Clearance and Agriculture." *Quaternary Science Reviews* 145: 238–242.
- Taylor, Z.P.**, Horn, S.P., Finkelstein, D.B. 2015. "Assessing geochemical and isotopic intra-basin spatial variability in a small neotropical lake." *Journal of Paleolimnology* 54: 395–411.
- Taylor, Z.P.**, Horn, S.P., Finkelstein, D.B. 2013. "Late-Holocene droughts as controls on prehistoric agriculture in southern Central America." *Quaternary Science Reviews* 73: 196–200.
- Taylor, Z.P.**, Horn, S.P., Finkelstein, D.B. 2013. "Evaluating the use of maize pollen concentrations in lake sediments as indicators of prehistoric agriculture." *The Holocene* 23: 76–82.
- M.J. Power, Mayle, F.E., Bartlein, P.J., Marlon, J.R., Anderson, R.S., Behling, H., Brown, K.J., Carcaillet, C., Colombaroli, D., Gavin, D.G., Hallett, D.J., Horn, S.P., Kennedy, L.M., Lane C.S., Long, C., Moreno, P.I., Paitre, C., Robinson, G., **Taylor, Z.P.**, Walsh, M. 2012. "Climatic control of the biomass-burning decline in the Americas after AD 1500." *The Holocene* 23: 3–13.
- Taylor, Z.P.**, Horn, S.P., Mora, C.I., Orvis, K.H., Cooper, L.C. 2010. "A multiproxy palaeoecological record of late-Holocene forest expansion in lowland Bolivia." *Palaeogeography, Palaeoecology, Palaeoclimatology* 293: 98–107.
- Taylor, Z.P.**, Finkelstein, D.B., Horn S.P. 2010. "Evaluating isotopic and geochemical spatial variability in lake sediments." (abstract). *Geochimica et Cosmochimica Acta* 74 (12, Supplement 1): A1032.
- Lane, C.S., Horn, S.P., **Taylor, Z.P.**, Mora, C.I. 2009. "Assessing the scale of prehistoric human impact in the neotropics using stable carbon isotope analyses of lake sediments: A test case from Costa Rica." *Latin American Antiquity* 20 (1): 120–133.

### Manuscripts in Preparation

- Hash, M.\*, **Taylor, Z.P.**, Laudon, K., Lindh, B. "Evaluating wolf trapping efficiency using 15 years of data from northwestern Montana." In preparation for submission to the *Journal of Wildlife Management*.
- Taylor, Z.P.**, Laird, T.\*, Walsh, M. "A pre-colonial record of fire and vegetation history in the mid-Willamette Valley from Clear Lake, Oregon." In preparation for submission to *The Holocene*.

\*denotes undergraduate author

### PRESENTATIONS AT PROFESSIONAL MEETINGS

- Taylor, Z.P.**, Lane, C.S., and Horn, S.P. "Hydrogen isotope evidence of climatic control on prehistoric agricultural activities in southern Costa Rica." 2017. Annual meeting of the American Association of Geographers, Boston, Massachusetts.

- Albritton, M.J.\* and **Taylor, Z.P.** “A 7,000 year record of fire dynamics from Meridian Lake, Colorado.” 2017. Poster. Annual meeting of the American Association of Geographers, Boston, Massachusetts.
- Anderson, C.N.\*, **Taylor, Z.P.**, and Lane, C.S. “Holocene vegetation and fire history from Clear Pond, South Carolina.” 2017. Poster. Annual meeting of the American Association of Geographers, Boston, Massachusetts.
- Riley, K.R.\*, Allen, R.C.\*, and **Taylor, Z.P.** “Late-Holocene paleofire records from three lakes in western Colorado.” 2017. Poster. Annual meeting of the American Association of Geographers, Boston, Massachusetts.
- Horn, S.P., Johnson, E.N., Sánchez, M.P., **Taylor, Z.P.**, and Kerr, M.T. “Stable Carbon Isotope Ratios in Costa Rican Lake Sediments as a Proxy for Forest Clearance and Crop Cultivation.” 2017. XI Congreso Centroamericano de Antropología, San José, Costa Rica.
- Horn, S.P., Maureen Sánchez, M., Lane, C.S., **Taylor, Z.P.**, Kerr, M.T., Johanson, E.N., and Cecil, J.A. “Late Holocene Fires in Costa Rica: Patterns and Drivers.” 2016. Annual meeting of the American Association of Geographers, San Francisco, California.
- Taylor, Z.P.** “Balancing teaching and research at a liberal arts college.” 2015. Annual meeting of the Geological Society of America, Baltimore, Maryland.
- Taylor, Z.P.**, Laird, T\*, and Walsh, M. 2015. “Pre-settlement fire and vegetation history from Clear Lake, Oregon.” Poster. Annual meeting of the Association of American Geographers, Chicago, Illinois.
- Hash, M.\*, **Taylor, Z.P.**, Laudon, K., and Lindh, B. 2013. “Trapping and collaring of the gray wolf (*Canis lupis*) in NW Montana: An analysis of trends to improve efficiency.” Poster. Annual meeting of The Oregon Academy of Science, Salem, Oregon.
- Laird, T.\*, **Taylor, Z.P.**, and Walsh, M. 2013. “A pre-colonial record of fire and vegetation history in the mid-Willamette Valley from Clear Lake, Oregon.” Poster. Annual meeting of The Oregon Academy of Science, Salem, Oregon.
- Horn, S.P., Burgess, J.N., and **Taylor, Z.P.** 2012. “Within-basin variation in modern pollen assemblages in two neotropical lakes.” Annual meeting of the AASP – The Palynological Society, Lexington, Kentucky.
- Horn, S.P., **Taylor, Z.P.**, Sánchez Pereira, M., Cozadd, D., Anchukaitis, K.J., and Orvis, K.H. 2011. “Chiriquí Period Agriculture and Agricultural Decline at Laguna Vueltas, Costa Rica.” Developing International Geoarchaeology Conference, Knoxville, Tennessee.
- Taylor, Z.P.**, Horn, S.P., and Finkelstein, D.B. 2011. “Assessing the Impacts of Late-Holocene Droughts on Prehistoric Agriculture in Southwestern Costa Rica.” Annual meeting of the Association of American Geographers, Seattle, Washington.
- Horn, S.P., Valente, M.J., Underwood, C.A., and **Taylor, Z.P.** 2010. “Using macroscopic soil charcoal to introduce middle school students and teachers to proxy analysis of geological archives.” Poster. Annual meeting of the Geological Society of America, Denver, Colorado.

- Horn, S.P., Valente, M.J., Shroat-Lewis, R., Hamilton, J., Underwood, C.A., **Taylor, Z.P.**, and Grissino-Mayer, H.D. 2010. "Involving K–12 Students and Teachers in Ecological and Paleocological Research: Examples and Suggestions from the University of Tennessee GK–12 Earth Project". Poster. Annual meeting of Ecological Society of America, Pittsburg, Pennsylvania.
- Taylor, Z.P.**, Finkelstein, D.B., and Horn, S.P. 2010. "Evaluating isotopic and geochemical spatial variability in lake sediments." Annual Goldschmidt Conference, Knoxville, Tennessee.
- Taylor, Z.P.**, Horn, S.P., and Finkelstein, D.B. 2010. "A spatially-explicit, multiple-proxy reconstruction of maize agriculture from Laguna Zoncho, Costa Rica." Annual meeting of the Association of American Geographers, Washington, D.C.
- Taylor, Z.P.**, Finkelstein, D.B., and Horn, S.P. 2009. "Characterizing the Spatial and Temporal Variations in Organic Carbon Abundance and Stable Isotope Ratios in Lake Sediments Containing Evidence of Prehistoric Agriculture." Poster. Annual meeting of the American Geophysical Union, San Francisco, California.
- Taylor, Z.P.**, Horn, S.P., Mora, C.I., Orvis, K.H., and Cooper, L.W. 2009. "Paleoecological evidence of late-Holocene forest expansion in central South America." Annual meeting of the Southeast Division of the Association of American Geographers, Knoxville, Tennessee.
- Horn, S.P., Valente, M.J., **Taylor, Z.P.**, Caffrey, M.A., Underwood, C.A., Lane, C.S., and Lewis, D.B. 2009. "Educational Outreach on Pollen and Other Proxy Indicators in Sediment Records of Environmental Change." Annual meeting of AASP – The Palynological Society, Johnson City, Tennessee.
- Taylor, Z.P.**, Horn, S.P., and Finkelstein, D.B. 2009. "Searching for spatial variability in proxy signals of prehistoric agriculture using a network of lake-sediment cores." Annual meeting of the Association of American Geographers, Las Vegas, Nevada.
- Valente, M.J., **Taylor, Z.P.**, Lewis, D.B., and Horn, S.P. 2009. "Engaging Middle School Students in Quaternary Paleoenvironmental History: Lessons from the University of Tennessee GK–12 Earth Project." Poster. Annual meeting of the Association of American Geographers, Las Vegas, Nevada.
- Valente, M.J., Horn S.P., Nájera A., Lane C.S., and **Taylor Z.P.** 2009. "Paleoecology of an endemism hotspot: evidence from poza and marsh sediments of Cuatrociéngas, Mexico." Poster. Biannual meeting International Biogeography Society meeting in Merida, Mexico.
- Taylor, Z.P.** 2008. "Spatial Analysis of Mammal Disjunctions in the Western Hemisphere." Annual meeting of the Association of American Geographers, Boston, Massachusetts.
- Lane, C.S., Horn, S.P., **Taylor, Z.P.**, Mora, C.I., and Orvis, K.H. 2008. "The Importance of Prehistoric Maize Cultivation in the Interior of Hispaniola." Annual meeting of the Association of American Geographers, Boston, Massachusetts.

- Horn, S.P., Lane, C.S., Mora, C.I., Orvis, K.H., and **Taylor, Z.P.** 2007. "Paleoecological Reconstruction of Early Agriculture and Landscape Change in Costa Rica and the Dominican Republic: Approaches to Improve Spatial Resolution." Annual meeting of the Society for American Archaeology, Austin, Texas.
- Taylor, Z.P.**, Lane, C.S., Horn, S.P., Mora, C.I., and Finkelstein, D.B. 2007. "Lake Sediments as Archives of Spatially Varying Terrestrial Carbon Production: A High Resolution Test Using Surface Sediments from a Small Farm Pond in West Tennessee." Poster. Annual meeting of the Association of American Geographers, San Francisco, California.
- Lane, C. S., **Taylor, Z.P.**, Mora, C.I., Horn, S.P., and Orvis, K.H. 2006. "The Impact of Prehistoric Maize Agriculture on Lacustrine Sedimentary Isotopic Archives of Vegetation Change." Poster. Annual meeting of the Southeastern Division of the Geological Society of America, Knoxville, Tennessee.
- Taylor, Z.P.**, Horn, S.P., and Mora, C.I. 2006. "Intra-Basin Variation of Stable Carbon Isotope Values." Annual meeting of the Association of American Geographers, Chicago, Illinois.
- Taylor, Z.P.**, Horn, S.P., Mora, C.I., Orvis, K.H., and Cooper, L.W. 2005. "Environmental History at Laguna Yaguarú, Bolivia: Evidence from Pollen, Stable Carbon Isotopes, and an Embedded Mineral Facies." Annual meeting of the Association of American Geographers, Denver, Colorado.
- Taylor, Z.P.**, Horn S.P., Mora, C.I., Cozadd, D., Orvis, K.H., Sanchez, M., and Anchukaitis, K. 2004. "Stable Carbon Isotope Ratios at Laguna Vueltas, Costa Rica, as Indicators of Land-Use History and Paleoclimate." Annual meeting of the Geological Society of America, Denver, Colorado.
- Lane, C.S., **Taylor, Z.P.**, Mora, C.I., and Horn, S.P. 2004. "Reassessment of Prehistoric Impacts on Laguna Bonillita Using Stable Carbon Isotopes." Annual meeting of the Association of American Geographers, Philadelphia, Pennsylvania.
- Sullivan, D.G., **Taylor, Z.P.**, and Williams, T.J. 2004. "Evidence of Changes in Effective Moisture During the Holocene from Peat Humification Analysis." Annual meeting of the Association of American Geographers, Philadelphia, Pennsylvania.
- Taylor, Z.P.**, Schlachter, K.J., Behrent, M., and Sullivan D.G. 2003. "A Quaternary Environmental History of Grand Mesa, Colorado, from Sediment Analysis." Poster. Annual meeting of the Association of American Geographers, New Orleans, Louisiana.

\* denotes undergraduate author

## **OTHER PRESENTATIONS**

- 2017 "Climate Change and Prehistoric Agricultural Decline in Costa Rica." Department of Department of History and Geography Seminar. Missouri Western State University, Saint Joseph, Missouri.
- 2015 "Balancing Teaching and Research at a Liberal Arts College." Department of Geography Seminar, University of Tennessee, Knoxville, Tennessee.
- 2012 "Lake sediments as indicators of prehistoric agriculture in southwestern Costa Rica." Department of Environmental and Earth Sciences Seminar. Willamette University, Salem, Oregon.

- 2009 “Lake Sediments: Windows to the Past.” Presentation to a workshop designed to expose 6–12 grade science teachers to research and help them integrate research into their classrooms. University of Tennessee, Knoxville, Tennessee.
- 2003 “A Late Quaternary Paleoenvironmental History of Grand Mesa, Colorado, from Sediment Analysis.” Graduate Student Colloquium. Department of Geography, University of Denver, Denver, Colorado (with K. Schlachter).
- 2002 “Physical Geography and Biological Diversity in Ecuador.” Presentation to 9<sup>th</sup> and 12<sup>th</sup> grade biology classes. Palmer High School, Colorado Springs, Colorado.
- 2001 “Glaciers, Rainforests, and the Galapagos: A Quick Trip through Ecuador.” Presentation to 4<sup>th</sup> grade class at Fremont Elementary School, Colorado Springs, Colorado.
- 2001 “Prehistoric Fire History of Grand Mesa.” Symposium 2001: A Conference of Undergraduate Research, University of Denver, Denver, Colorado (with K. Schlachter and D. Sullivan).

## **UNDERGRADUATE RESEARCH ADVISING**

### **Student Grants**

- 2017 Crain, Jared. Richards Undergraduate Research Support Grant, \$1,347.
- 2016 Riley, Karli. Student Research Development Fund, \$500.
- 2016 Allen, Rhett. Student Research Development Fund, \$500.
- 2016 Anderson, Chelsea. Student Research Development Fund, \$500.
- 2016 Albritton, Meghan. Synovus Scholarship, \$2,000.
- 2015 Anderson, Chelsea. Richards Undergraduate Research Support Grant, \$1,161.

### **Student Research Presentations**

- Albritton, M.J. “A 7,000-year record of fire dynamics from Meridian Lake, Colorado.” 2017. Poster presented at the Berry College Symposium on Student Scholarship.
- Anderson, C.N. “Holocene vegetation and fire history from Clear Pond, South Carolina.” 2017. Poster presented at the Berry College Symposium on Student Scholarship.
- Riley, K.R., Allen, R.C. “Late-Holocene paleofire records from three lakes in western Colorado.” 2017. Poster presented at the Berry College Symposium on Student Scholarship.
- Anderson, C.N. “Fire Dynamics and Climate in Clear Pond, South Carolina”. 2016. Poster presented at the Berry College Symposium on Student Scholarship.
- Marchese, L. “Identifying and Quantifying Range Disjunctions at Multiple Taxonomic Levels of Mammals in the Western Hemisphere”. 2016. Poster presented at the Berry College Symposium on Student Scholarship.
- Riley, K.R. and Allen, R.C. “Reconstruction of Fire Behavior through Macroscopic Charcoal Analysis and Sediment Geochemistry”. 2016. Poster presented at the Berry College Symposium on Student Scholarship.



Selby, H. "A GIS Analysis of the Effects of Parks in Rome, Georgia, on Surrounding Home Values." 2015. Poster presented at the Berry College Symposium on Student Scholarship.

## **SERVICE**

### **Discipline**

- 2017–2019 Director, Paleoenvironmental Change Specialty Group of the American Association of Geographers.
- 2017 Judge, Graduate Student Presentation Competition, Paleoenvironmental Change Specialty Group of the American Association of Geographers.
- 2016 Participant, Continental Scientific Drilling Science Planning Workshop, Arlington, Virginia.
- 2013 Manuscript Reviewer, *The Holocene*.
- 2013 Proposal Reviewer, Natural Environment Research Council.
- 2012 Proposal Reviewer, National Geographic Society.
- 2012 Proposal Reviewer, Association of American Geographers Biogeography Specialty Group, Student Research Grant Competition.
- 2009 Panel Organizer (with T. Porter), "How to Perform Interdisciplinary Paleoenvironmental Research?" at the annual meeting of the Association of American Geographers.
- 2008–2010 Graduate Student Representative, Paleoenvironmental Change Specialty Group, Association of American Geographers.

### **College**

- 2017–present Member, Enrollment Management Committee
- 2017–present Member, Academic Community Engagement Faculty Advisory Committee
- 2016–present Member, College of Mathematical and Natural Science Research Committee
- 2016–present Member, Endowed Speaker Committee
- 2015–2017 Member, Center for Teaching Excellence Committee
- 2014–present Member, Environmental Science Committee
- 2013 Organizer, Environmental and Earth Sciences Research Symposia Series. (Willamette University).

## **OUTREACH ACTIVITIES**

- 2015–2017 Served as a judge at the Area Independent Science Fair held at the Berry Elementary School
- 2014 Led a field trip to the Marshall Forest Reserve for middle school students from the Rome Montessori School.

- 2008–2009, NSF Graduate Fellow, GK–12 Earth Project, University of Tennessee  
2006–2007 Developed and conducted labs and other activities to improve earth science education at rural, economically disadvantaged middle schools, and involved a schoolteacher in field and laboratory research to improve his understanding of science.
- 2009 Guide for Earth Science Day. Escorted student groups on lab tour for outreach activity in the Department of Earth and Planetary Sciences. University of Tennessee, Knoxville, Tennessee.
- 2006–2007 Judge and event coordinator for the Tennessee State Science Olympiad. Helped run competitive events relating to climate and geography, and judge answers. In 2007, I co-created the “Road Scholar” map interpretation activity.
- 2006 Instructor for Earth Science Day. Presented talk on remote sensing to middle school students visiting the Department of Earth and Planetary Sciences. University of Tennessee, Knoxville, Tennessee.
- 2006 Instructor for Math and Science Regional Center. Developed and taught a daylong orienteering and GPS workshop for high school students. The field component included an orienteering course and a geocaching activity. University of Tennessee, Knoxville, Tennessee.
- 2005 Instructor for Earth Science Day. Presented talk on remote sensing to middle school students visiting the Department of Earth and Planetary Sciences. University of Tennessee, Knoxville, Tennessee.