

Laci M. Gerhart Barley

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Education

University of Kansas Ecology and Evolutionary Biology Advisor: Dr. Joy K. Ward Dissertation Title: <i>Glacial Tree Physiology: Using Stable Isotopes to Reconstruct Plant Responses to Environmental Change Since the Last Glacial Period</i>	PhD 2013 (defended with honors)
Certificate in Environmental Studies	2012
University of Kansas Ecology and Evolutionary Biology	B.S. 2006 (graduated with distinction)
<u>Appointments</u>	
Lecturer, Potential for Security of Employment University of California, Davis	2017-present
Lecturer in Biology and Botany University of Hawai'i, West O'ahu University of Hawai'i, Manoa	2014-2017
Novus Post-doctoral Research Associate Kansas State University, Department of Geography Advisor: Dr. Kendra K. McLauchlan	2013-2017
Visiting Assistant Professor Kansas State University, Department of Geography	2014
NSF IGERT C-CHANGE Fellow University of Kansas	2012 – 2013
Energy and Environment Policy Intern American Association for the Advancement of Science	2012
Self Graduate Fellow University of Kansas	2008 – 2012

Peer- Reviewed Publications

- McLauchlan KK†, **LM Gerhart**†, JJ Battles, JM Craine, AJ Elmore, PE Higuera, MC Mack, BE McNeil, DM Nelson, N Pederson, SS Perakis (2017) Centennial-scale reductions in nitrogen availability in temperate forests of the United States, *Scientific Reports*, 7:7856 † These authors contributed equally to this work
- Li G, **LM Gerhart**, SP Harrison, JK Ward, JM Harris, IC Prentice (2017) Changes in biomass allocation buffer low CO₂ effects on tree growth during the last glaciation. *Scientific Reports*, 7:43087
- Carter JM, ME Orive, **LM Gerhart**, JH Stern, RM Marchin, J Nagel, JK Ward (2017) Warmest extreme year in U.S. history alters thermal requirements for tree phenology, *Oecologia*
- Becklin KM, JT Anderson, **LM Gerhart**, SM Wadhymar, CA Wessinger, JK Ward (2016), Examining plant physiological responses to climate change through an evolutionary lens. *Plant Physiology*, 172: 635-649
- Kranabetter JM, KK McLauchlan, SK Enders, JM Fraterrigo, PE Higuera, JL Morris, EB Rastetter, R Barnes, B Buma, D Gavin, **LM Gerhart**, L Gillson, P Hietz, MC Mack, B McNeil, S. Perakis (2016) A framework to assess biogeochemical response to ecosystem disturbance using nutrient partitioning ratios. *Ecosystems*, 19:387-395
- **Gerhart LM**, KK McLauchan (2014) Reconstructing terrestrial nutrient cycling using stable nitrogen isotopes in wood. *Biogeochemistry*, 120:1-21
- Fuller BT, SM Fahrni, JM Harris, AB Farrell, JB Coltrain, **LM Gerhart**, JK Ward, RE Taylor, JR Southon (2014) Ultrafiltration for asphalt removal from bone collagen for radiocarbon dating and isotopic analysis of Pleistocene fauna at the tar pits of Rancho La Brea, Los Angeles, California. *Quaternary Geochronology*, 22:85-98.
- Barve N, AJ Bonilla, J Brandes, JC Brown, N Brunzell, FV Cochran, RJ Crosthwait, J Gentry, **LM Gerhart**, T Jackson, AJ Kern, KS Oberhauser, HL Owens, AT Peterson, AS Reed, J Soberón, AD Sundberg LM Williams (2012) Climate-change causation of mass mortality events in overwintering monarch butterflies. *La Revista Mexicana de Biodiversidad*, 83: 817-824.
- **Gerhart LM**, JM Harris, JB Nippert, DR Sandquist, JK Ward. (2012) Glacial trees from the La Brea tar pits show physiological constraints of low CO₂. *New Phytologist*, 194: 63
 - Commentary: Tissue DT, JD Lewis. (2012) Learning from the past: how low [CO₂] studies inform plant and ecosystem response to future climate change, *New Phytologist*, 194(1):4-6
- **Gerhart LM**, JK Ward (2010) Tansley Review: Plant responses to low CO₂ of the past, *New Phytologist*, 188(3):674-695

Other Publications

- **Gerhart, L.M.** (2017) Brutal Honesty of a Life in Science: book review of *Lab Girl* by Hope Jahren, *Nature Plants*, 3:837-838
- **Gerhart, L.M.** (2013) House, Senate Committees investigate meningitis outbreak, *Issues in Science and Technology*, Winter Issue.

Research Funding

- 2015, named personnel on National Science Foundation Small Grant, Continental and Century Scale Assessment of Forest Nitrogen Cycling in the United States Using Dendroisotopes: \$149,963
- 2013, Kansas State University Academic Excellence Fund: \$2,870
- 2012, Department of Ecology and Evolutionary Biology Travel Award: \$300
- 2012, Botany Research Travel Award, Hall Plant Biology Fund: \$975
- 2012, Graduate Student Scholarship, Mary Harkey Hall Plant Biology Fund: \$500
- 2012, KU Office of Graduate Studies Travel Award: \$500
- 2012, National Science Foundation Doctoral Dissertation Improvement Grant. The El Niño Southern Oscillation and Glacial *Juniperus* Physiology: \$11,740
- 2011, KU Office of Graduate Studies Doctoral Student Research Fund Award: \$2,000
- 2011, KU Botany Summer Research Fellowship, Fratcher Botany Fund: \$2,000
- 2010, Arthur J. Mix Botany Scholarship: \$1500
- 2009, Graduate Student Scholarship, Mary Harkey Hall Plant Biology Fund: \$500

Teaching Experience

University of California, Davis: Instructor of Record

- Biological Sciences 2B: Introduction to Biology: Evolution and Ecology (Fall 2017)

University of Hawai'i, Mānoa: Instructor of Record

- Biology 171: Introduction to Biology I (Fall 2016)
- Biology 172: Introduction to Biology II (Fall 2016)

University of Hawai'i West O'ahu: Instructor of Record

- Biology 101/101L: Biology and Society with associated laboratory, (offered each semester Fall 2014 to Spring 2017)
- Botany 101: General Botany (Fall 2014, Spring 2015-2017)
- Biology 396: Introduction to Ecology, Writing-Intensive (Spring 2016)

Kansas State University, Instructor of Record

- Geography 735: Topics in Climatology and the IPCC (Spring 2014)

Technical Workshops

- Stable Light Isotopes in the Paleoenvironment II: Workshop held at Konza Prairie LTER, Kansas State University, May 26-31, 2013.

Invited Guest Lectures

- Using Glacial Trees to Understand Future Plant Function, Invited guest lecture for BIOL 101 - Principles of Biology, Honors, Prof J.A. Weghorst, Nov 30, 2011.
- Dendrochronology: Techniques and Methods, Invited guest lecture for EVRN 142 – Global Environmental Studies II: Ecology and Human Civilization, Profs J.J. Feddema, J.C. Brown and G.T. Cushman, February 8, 2011.
- The History, Current Status and Future of Ocean Fisheries, Invited guest lecture for BIOL 420/477 – Topics in Global Change and Ecology, Prof J.K. Ward, Spring 2008.

Graduate Teaching Assistant: University of Kansas

- Biology 408/409: Physiology of Organisms/Laboratory (Spring 2008)
- Biology 102: Introduction to Biology Laboratory (Fall 2007)
- Biology 418/613: Biology of the Honeybee (Fall 2007)

Mentorship

- 2016: Faculty liaison for Nicole Luurtsema, UH West O'ahu Kikaha Peer Academic Leaders (PALs) Program (teaching mentorship)
- 2015: Faculty liaison for Yashiro Uyeda, UH West O'ahu Kikaha Peer Academic Leaders (PALs) Program (teaching mentorship)
- 2013-2016: Allison Walker, Emily Sutton, Taylor Shanklin, KSU Undergraduates, Continental and Century Scale Assessment of Forest Nitrogen Cycling in the United States Using Dendroisotopes
- 2013-2014: Brittney Houck and Rebekah Raetzel, Professional Mentor, K-State First's Guide to Personal Success mentoring program for incoming freshman
- 2013: Kyleen Kelly, KSU Graduate Student, Vegetation and fire history of high-elevation pine communities in Grand Teton National Park, WY
- 2012: Kris Mo, KU Undergraduate, Growth and Physiological Responses of Glacial and Modern Trees to Changes in Atmospheric [CO₂] Since the Last Glacial Maximum
- 2009: Katherine Colvin, Rhea Codio, Cole Aldrich, KU Student Athletes, mentored on scientific skills and communication (written and oral).
- 2010: Member of the Graduate Mentor Team for the Undergraduate Summer Research Institute, Climate Change in Indigenous Communities, Haskell Environmental Research Studies (HERS) Program, Haskell Indian Nations University.

Awards and Fellowships

- UC Davis Center for Educational Effectiveness Course Redesign And Teaching Effectiveness (CREATE) Fellowship: 2017
- KU Libraries, 56th Annual Snyder Book Collecting Contest, First Place Graduate Student Division: 2012
- KU Office of Graduate Studies, Graduate Student Distinguished Service Award, Honorable Mention: 2012
- Sigma Xi Student Research Competition, Third Place Advanced Graduate Section: 2012
- Sigma Xi Student Research Competition, First Place Early Graduate Section: 2009
- NSF IGERT, C-CHANGE: Climate Change, Humans and Nature in the Global Environment Graduate Trainee: 2009-2011
- Madison and Lila Self Graduate Fellowship: 2008-2012

Invited Talks

- **Gerhart, L.M.** Reconstructing plant physiology since the last glacial period, UHWO Math+Science+X Seminar Series, February 20, 2015.

- **Gerhart, L.M.** and K.K. McLauchlan. Reconstructing terrestrial nutrient cycling using stable nitrogen isotopes in wood, KSU Ecology and Evolutionary Biology Section Seminar Series, November 7, 2013.
- **Gerhart, L.M.**, J. M. Harris, and J.K. Ward. Interannual responses of ice age trees to changes in atmospheric [CO₂] since the Last Glacial Maximum, BIO³ Seminar Series, KU Department of Ecology and Evolutionary Biology, August 24, 2010.

Oral Presentations

- **Gerhart L.M.** Interannual Responses of Glacial and Modern Trees to Changes in Atmospheric [CO₂]. Graduate Student Seminars, Department of Ecology and Evolutionary Biology New Student Recruitment Weekend, February 4, 2013.
- **Gerhart, L.M.**, J.K. Ward. Interannual Responses of Glacial and Modern *Agathis australis* to Changes in Atmospheric [CO₂]. Geological Society of America Annual Meeting, Charlotte, NC, November 4-7, 2012.
- **Gerhart, L.M.**, J.M. Harris, J.K. Ward. Growth and Physiological Responses of Glacial and Modern Trees to Changes in Atmospheric [CO₂] Since the Last Glacial Maximum. Ecological Society of America 97th Annual Meeting, Portland, OR, August 6-10, 2012.
- **Gerhart, L.M.**, J.M. Harris, J.K. Ward. Interannual Physiological Responses of Glacial *Juniperus* to Changes in Atmospheric [CO₂] Since the Last Glacial Maximum. American Geophysical Union Annual Meeting, San Francisco, CA, December 4-10, 2011.
- **Gerhart, L.M.** Climate and Communities in Crisis: Ecological and Cultural Complexities in the Monarch Butterfly Biosphere Reserve, Michoacán, Mexico, Association for Environmental Studies and Sciences Annual Meeting and Conference, Burlington, VT, June 23-26, 2011.
- Johnson, J.T. and **L.M. Gerhart**. Defining Traditional Ecological Knowledges, NSF Workshop on Understanding Rapid Environmental and Social Change in the Arctic: Bridging Traditional Knowledge and Interdisciplinary Science across IGERTs, Juneau, AK, March 22-24, 2011.
- **Gerhart, L. M.**, J. M. Harris, and J.K. Ward. Interannual Responses of Ice Age Trees to Changes in Atmospheric [CO₂] Since the Last Glacial Maximum, Ecological Society of America, 95th Annual Meeting, Pittsburgh, PA, August 1-6, 2010.
- **Gerhart, L. M.**, J.K. Ward, and J.M. Harris, Evolutionary Responses of Trees to Changes in Atmospheric [CO₂], Ecological Society of America, 94th Annual Meeting, Albuquerque, NM, August 2-7, 2009.

Poster Presentations

**denotes undergraduate author*

- **Gerhart, LM**, Incorporating Service Projects in Undergraduate Learning: Templates from dissimilar courses. 2nd Annual UC Davis Scholarship of Teaching and Learning Conference, Davis, CA, December 2017
- **Gerhart, LM**, KK McLauchlan, JJ Battles, JM Craine, AJ Elmore, PE Higuera, MC Mack, BE McNeil, DM Nelson, N Pederson, SS Perakis, Reconstructing century-scale changes in nitrogen cycling in forests throughout the U.S. using tree-ring δ¹⁵N chronologies. Plant Biology Annual Meeting, Honolulu, HI June 2017
- **Gerhart, LM**, KK McLauchlan, JJ Battles, JM Craine, AJ Elmore, PE Higuera, MC Mack, BE McNeil, DM Nelson, N Pederson, SS Perakis, Reconstructing century-scale

changes in nitrogen cycling in forests throughout the U.S. using tree-ring $\delta^{15}\text{N}$ chronologies. American Geophysical Union 50th Annual Fall Meeting, San Francisco, CA, December 2016

- Ward, JK, and **LM Gerhart**, Physiological and growth responses of trees to changing $[\text{CO}_2]$ since the last glacial period: Synchronous responses in both hemispheres, 16th International Congress on Photosynthesis Research, St. Louis, MO, August 16, 2013.
- *Mo, K, **LM Gerhart**, JM Harris, JK Ward, Growth and Physiological Responses of Glacial and Modern Trees to Changes in Atmospheric $[\text{CO}_2]$ Since the Last Glacial Maximum, Geological Society of America Annual Meeting, Charlotte, NC, November 4-7, 2012.
- **Gerhart, LM** Interannual responses of glacial *Juniperus* to atmospheric $[\text{CO}_2]$, NSF Workshop on Understanding Rapid Environmental and Social Change in the Arctic: Bridging Traditional Knowledge and Interdisciplinary Science across IGERTs, Juneau, AK, March 22-24, 2011.
- **Gerhart, LM** and JK Ward, Carbon assimilation in ice age trees growing at low atmospheric CO_2 , Gordon Research Conference – CO_2 Assimilation in Plants: Genome to Biome, University of New England, Biddeford, ME, August 17-22, 2008.
- **Gerhart, LM** and JK Ward, Evolutionary responses of tree growth to geologic changes in atmospheric CO_2 concentrations, Ecological Society of America, 93rd Annual Meeting, Milwaukee, WI, August 3-8, 2008.

Professional Experience

- Hawai'i National Great Teachers Seminar: 2015
- Statement of Accomplishment with Distinction for Coursera course An Introduction to Evidence-Based Undergraduate STEM Teaching: 2014
- Steering Committee Member, NSF-Funded Novus Research Coordination Network: 2013-present
- Post-doctoral Ambassador for ADVANCE program, K-State office for the Advancement of Women in Science and Engineering (KAWSE): 2013-2014
- K-State Liaison, Association for Women Geoscientists, Osage Chapter: 2013-2014
- Statement of Accomplishment with Distinction for Coursera course Computing for Data Analysis (R Programming): 2013
- Three month paid internship in science and technology policy with the Office of Government Relations, American Association for the Advancement of Science: 2012.
- Graduate Student Representative, Doctoral Education Work Group, Goal 2 of *Bold Aspirations*, KU's Strategic Planning Initiative, 2011-2012.
- Treasurer, Association for Women Geoscientists, Osage Chapter: 2011-2014
- Co-President, Ecology and Evolutionary Biology Graduate Student Organization: 2011-2013
- Graduate Student Representative, Microbial Ecologist position search, Department of Ecology and Evolutionary Biology: 2011
- Co-Organizer, Traditional Ecological Knowledges and Interdisciplinary Science, NSF Workshop on Understanding Rapid Environmental and Social Change in the Arctic: Bridging Traditional Knowledge and Interdisciplinary Science across IGERTs, March 22-24, 2011, Juneau, AK

- Graduate student representative, Strategic Planning Committee: 2009-2010

Outreach

- Girls Researching Our World (GROW), part of the K-State office for the Advancement of Women in Science and Engineering (KAWSE): 2015
- KU Strong Girls program: 2012
- Women in Science Day, Washburn University: 2011
- Douglas County Girl Scout Troops “Rocks Rock” Geology Badge activities: 2011
- KU Science Day for Quail Run 4th Graders: 2011
- Career Horizons through Talent Search: 2008-2009
- Discover Technology through Talent Search: 2007-2010
- Volunteer, Recruitment Coordinator, and Public Education Presenter for Operation WildLife (a non-profit rehabilitation facility for injured, orphaned and displaced Kansas wildlife): 2006-2008

References

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 Distinguished Professor
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