

Curriculum Vitae
Elizabeth A. Lynch

Employment

2005- present Associate Professor, Luther College, Department of Biology
2001-2005 Assistant Professor, Luther College, Department of Biology
1997-2001 Assistant Professor, Loras College, Department of Biology
1998-2001 Content Consultant, WCB/McGraw-Hill Publishers, Life Sciences Division
1994-1997 Botanist, Great Lakes Indian Fish and Wildlife Commission, Odanah, WI
1997 Instructor, Northland College, Lifelong Learning Center

Degrees received

1988-1995 Ph.D. Ecology, Evolution and Behavior, University of Minnesota
Minor: Quaternary Paleoecology
1982-1986 B.Sc. Honors. Biology, Trent University, Peterborough, Ontario

Grants for research

2014. Luther College Student/Faculty Collaborative Research Award to Katelyn Story ('16) for *Reconstructing early-Holocene fire, vegetation, and extinct megafauna populations in northwest Wisconsin*.

2013-14. Iowa Science Foundation (\$5000) for *Botanical surveys of rare plant communities in northeastern Iowa*.

2013. Luther College Student/Faculty Collaborative Research Award to Brian Kurtz ('15) and Lynch for *Vascular plant and bryophyte surveys of Malanaphy Springs State Preserve*.

2012. Iowa College Foundation R.J. McElroy Student/Faculty Research Program to Madeline Kofoed ('14) and Lynch for *The impact of Mid-Holocene climate on fire regimes on a sand plain in northern Wisconsin*.

2011. Luther College Student/Faculty Collaborative Research Award to Shane Steele ('12) and Lynch for *An assessment of the restoration potential of wetland seeps at Luther College*.

2008-14. National Science Foundation, Division of Environmental Biology (\$102,059) for *Collaborative Research: The effect of landscape context on the sensitivity of vegetation to climate change*.

2003-06. National Science Foundation, Division of Environmental Biology (\$157,255) for *Collaborative Research: Fire and vegetation heterogeneity in time and space*.

2003-04. Center for Global and Regional Environmental Research, University of Iowa (\$20,000) for *Responses of vegetation and fire to Little Ice Age climate change across a Wisconsin sand plain*.

2004. Iowa College Foundation R.J. McElroy Student/Faculty Research Program (\$1400) to Kathryn Jensen ('05) and Lynch for *Morphologic and isotopic analysis of charcoal in lake sediments*.

2004. Luther College Student/Faculty Collaborative Research Award (\$3000) to Steffen Merten ('05) and Lynch for *Reconstruction of forest fire intensity using sedimentary charcoal records*.

2004. Luther College Student/Faculty Collaborative Research Award (\$3000) to Kathryn Jensen ('05) and Lynch for *Morphologic and isotopic analysis of charcoal in lake sediments*.

2003. H. George and Jutta F. Anderson Faculty Development Fund, Luther College (\$2000) for

Paleoecological analysis in a Wisconsin sand plain.

2002. Luther College Student/Faculty Collaborative Research Award (\$3000) to Andrew Bronson ('03) and Lynch for *Analysis of conifer stomata to aid in reconstructing vegetation history.*

2000. Iowa College Foundation R.J. McElroy Student/Faculty Research Program (\$2000) to Jennifer Martin (Loras College '02) and Lynch for *Fossil plant assemblages from mid-Pleistocene tills in southwestern MN.*

2000. Geological Society of America (\$300) to Jennifer Martin (Loras College '02) and Lynch for *Fossil plant assemblages from mid-Pleistocene tills in southwestern MN.*

1999. National Science Foundation, Division of Atmospheric Sciences (\$20,000) for *Late-glacial pollen record from the forest-steppe border, Wind River Range, Wyoming.*

1999. Iowa Academy of Science (\$5,000) for *Detecting the long-term dynamics of giant reed grass, Phragmites australis, in a coastal wetland.*

1997. Faculty Development Grant for Summer Research. Loras College (\$2500) for *Paleoecology of Bark Bay Slough.*

1996. Native Plant Conservation Initiative, National Fish and Wildlife Federation for *Impacts of logging on understory plants in northern hardwood forests.*

Publications

Peer-reviewed (*= undergraduate collaborator)

Tweiten, M.A., R.R. Calcote, E.A. Lynch, S.C. Hotchkiss, G.W. Shuurman. In press. Geophysical features influence the climate change sensitivity of northern Wisconsin pine and oak forests. Ecological Applications.

Lynch, E.A., Calcote, R., S.C. Hotchkiss, and M. Tweiten. 2014. Presence of lakes and wetlands decreases resilience of jack pine ecosystems to late-Holocene climatic changes. Canadian Journal of Forest Research 44:1331-1343.

Lynch, E.A., S.C. Hotchkiss, and R. Calcote. 2011. Charcoal signatures defined by multivariate analysis of charcoal records from ten lakes in northwest Wisconsin (USA) Quaternary Research 75:125-137.

Hotchkiss, S.C., R. Calcote, E.A. Lynch, C. Yanger* (In review) The paleoecology of landscapes: Using pollen assemblages to reconstruct landscape heterogeneity. The Holocene.

Tweiten, M.A., S.C. Hotchkiss, R.K. Booth, R.R. Calcote, E.A. Lynch. 2009. The response of a jack pine forest to late-Holocene climate variability in northwestern Wisconsin. The Holocene 19:1049-1061.

Power, M.J., Ortiz, N., Marlon, J., Bartlein, P.J., Harrison, S.P., Mayle, F., Ballouche, A., Bradshaw, R., Carcaillet, C., Cordova, C., Mooney, S., Moreno, P., Prentice, I.C., Thonicke, K., Tinner, W., Whitlock, C., Zhang, Y., Zhao, Y., Anderson, R.S., Beer, R., Behling, H., Briles, C., Brown, K., Brunelle, A., Bush, M., Clark, J., Colombaroli, D., Daniels, M., Dodson, J., Edwards, M.E., Fisinger, W., Gavin, D.G., Gobet, E., Hallett, D.J., Higuera, P., Horn, S., Inoue, J., Kaltenreider, P., Kennedy, L., Kong, Z.C., Long, C., Lynch, J., Lynch, E.A., McGlone, M., Meeks, S., Meyer, G., Minckley, T., Mohr, J., Noti, R., Pierce, J., Richard, P., Shuman, B.J., Takahara, H., Toney, J., Turney, C., Umbanhower, C., Vandergoes, M., Vanniore, B., Walsh, M., Wang, X., Williams, N., Wilmshurst, J., Zhang, J.H. 2008. Changes in fire activity since the LGM: an assessment based on a global synthesis and analysis of charcoal data. Climate Dynamics 30: 887–907.

Hotchkiss, S., R. Calcote, and E.A. Lynch. 2007. Response of vegetation and fire to Little Ice Age climate change: regional continuity and landscape heterogeneity. Landscape Ecology 22: 25-41.

*Jensen, K., E.A. Lynch, R. Calcote, S. Hotchkiss. 2007. Charcoal morphotypes in sediments from Ferry

Lake, Wisconsin (USA): Do different plant fuel sources produce distinctive charcoal morphotypes? *The Holocene* 17:907-915.

Lynch, E.A., Calcote R., and S. Hotchkiss. 2006. Late-Holocene vegetation and fire history on a Wisconsin sand plain. *The Holocene* 16:495-504.

Dahms, D.E., R.D. Hall, R.R. Shroba, C.J. Sorenson, E.A. Lynch, M.T. Applegarth, and J. Dillon. 2003. The Rocky Mountain glacial model: The Wind River Range, Wyoming. In: Easterbrook, D.J., editor, *Quaternary Geology of the United States, INQUA 2003 Field Guide Volume*. Pp. 345-364.

Lynch, E.A. and K. Salstonstall. 2002. Paleocological and genetic analyses provide evidence for recent colonization of native *Phragmites australis* populations in a Lake Superior wetland. *Wetlands* 22:637-646.

Lynch, E.A. 1998. Holocene vegetation changes in a park-forest vegetation mosaic in the Wind River Range, Wyoming. *Ecology* 79:1320-1338.

Lynch, E.A. 1996. The ability of pollen data from small lakes and ponds to sense fine-scale vegetation patterns in the subalpine zone of the central Rocky Mountains. *Review of Paleobotany and Palynology* 94:197-210.

Campbell, D.R., N.M. Waser, M.V. Price, E.A. Lynch, R.M. Mitchell. 1991. Components of phenotypic selection: pollen export and flower corolla width in *Ipomopsis aggregata*. *Evolution* 45:1458-1467.

Papers presented at national and regional conferences (= undergraduate collaborator)*

Hotchkiss, S.C., R. Calcote, E.A. Lynch, M.A. Tweiten, and G.S. Schuurman. 2013. When do the changes change? Climate sensitivity of vegetation and fire regimes varies with landscape context in northwestern Wisconsin. In *Resilience, Disturbance, and Long-Term Environmental Change: Integrating Paleoecology into Conservation and Management in the Anthropocene*. Ecological Society of America Annual Meeting, Minneapolis, Minnesota, August 2013.

Calcote, R., S.C. Hotchkiss, E.A. Lynch, and G. Schuurman. 2013. Variable responses to climate change: Drought, recovery, and vegetation shifts 1500 years ago. Ecological Society of America 98th annual meeting, Minneapolis, Minnesota, August 4-9.

*Siewert, J., S.C. Hotchkiss, M.A. Tweiten, E.A. Lynch, and R. Calcote. 2013. Sensitivity of fire regimes to landscape context and climatic variation over the past 13,000 years in northwestern Wisconsin. Ecological Society of America 98th annual meeting, Minneapolis, Minnesota, August 4-9.

Woods, P.S., R. Calcote, M.B. Edlund, S.C. Hotchkiss, and E.A. Lynch. 2013. Diatom based climate reconstruction for the western Great Lakes region. Ecological Society of America 98th annual meeting, Minneapolis, Minnesota, August 4-9.

Hotchkiss, S.C., R. Calcote, E.A. Lynch, M.A. Tweiten, and G.S. Schuurman. 2012. Fire and vegetation change on the northwest Wisconsin sand plain. In *Research-based Answers to Burning Questions about the Ecology of Prescribed Fires: When, Where, Why?* A Janet Meakin Poor Research Symposium. Chicago Botanic Garden, Glencoe, Illinois, October 26, 2012.

Lynch, E.A., Hotchkiss, S.C., Calcote, R., Tweiten, M.A. 2012. Climate change and inertia: A long-term perspective from pine and oak-dominated communities in northwestern Wisconsin. 97th Annual Meeting of the Ecological Society of America, August 2012, Portland, OR.

Baack, E. J. and E. A. Lynch 2012. Developing institutional support for land stewardship at a Midwestern liberal arts college. 97th Annual Meeting of the Ecological Society of America, August 2012, Portland, OR.

Hotchkiss, S.C., Lynch, E.A., Calcote, R., Tweiten, M.A. 2012. Using modern and presettlement pollen analogs to develop transition matrices for northern Wisconsin forests. 97th Annual Meeting of the Ecological Society of America, August 2012, Portland, OR.

Calcote, R., Hotchkiss, S.C., Lynch, E.A. 2012. Importance of soil texture in pollen-based climate

reconstructions. 97th Annual Meeting of the Ecological Society of America, August 2012, Portland, OR.

- *Marty, J., *Nevala-Plagemann, C., Calcote R., Lynch, E.A. 2012. Holocene climate history of northwestern Wisconsin reconstructed from lake level changes. American Quaternary Association (AMQUA) biennial meeting, June 2012, Duluth, MN.
- Lynch, E.A., Calcote, R., Hotchkiss, S.C. 2012. Jack pines are forever: American Quaternary Association (AMQUA) biennial meeting, June 2012, Duluth, MN.
- Calcote, R., S. Hotchkiss, E.A. Lynch 2012. Modern analog climate interpretations vary with soil texture. Poster presented June 22-23 at 22nd biennial AMQUA meeting, Duluth, MN.
- Hotchkiss, S., R. Calcote, E.A. Lynch, M. Tweiten. 2012. Transition matrices for a northern Wisconsin forest from modern and pre-European settlement analogs. Poster presented June 22-23 at 22nd biennial AMQUA meeting, Duluth, MN.
- *Nevala-Plagemann, C. and E.A. Lynch 2011. A late-Holocene history of fire and drought at Cheney Lake: has local climate affected fire regimes in northwestern Wisconsin? National Conference on Undergraduate Research, Ithaca, NY.
- Calcote, R., E.A. Lynch, S.C. Hotchkiss, P. Woods, C. Drake*, E. Erickson. 2010. A mid-Holocene prairie extension in northwestern Wisconsin. American Quaternary Association (AMQUA) biennial meeting, 12-15 August, 2010, Laramie, Wyoming.
- Calcote, R., S.C. Hotchkiss, E.A. Lynch, C. Drake, and *C. Sutheimer. 2010. Sensitivity of vegetation and fire to climate change varies among sites with different soil texture. Ecological Society of America 95th annual meeting, 1-6 August, Pittsburgh, Pennsylvania.
- Hotchkiss, S.C, Lynch E.A., and Calcote, R.C. 2009. Landscape context can affect the sensitivity of sand plain vegetation to climate change. 94th Annual Meeting of the Ecological Society of America. August, 2009. Albuquerque, NM.
- Calcote, R.C., Hotchkiss, S.C., Lynch, E.A. 2009. Establishment of a disjunct population of hemlock (*Tsuga canadensis*) by long-distance seed dispersal Landscape context can affect the sensitivity of sand plain vegetation to climate change. 94th Annual Meeting of the Ecological Society of America. August, 2009. Albuquerque, NM.
- Calcote, R.C., Hotchkiss, S.C., Lynch, E.A, Mladenoff, D.J., Rhemtula, J. 2008. Responses of forests on sandy soils to post-European land-use changes. 93rd Annual Meeting of the Ecological Society of America, August, 2008. Milwaukee, WI.
- Lynch, E.A., *Tomscha, S.T., and Schulte, L. 2008. Historic vegetation composition and structure at the prairie-forest border in northeastern Iowa. US-International Association for Landscape Ecology Annual Symposium, April 6-10, 2008, Madison, WI.
- Hotchkiss, S., Calcote, R. and Lynch, E.A. 2008. Paleoecological perspective on landscape scale vegetation patterns on the northwestern Wisconsin sand plain: How representative is pre-European settlement vegetation of the last 2000 years? US-International Association for Landscape Ecology Annual Symposium, April 6-10, 2008, Madison, WI.
- Lynch, E.A., Hotchkiss, S. and Calcote, R. 2007. Temporal and spatial variation in fire regimes on a sand plain in northwestern Wisconsin: multivariate analysis of high resolution lacustrine charcoal records. Ecological Society of America Annual Meeting, San Jose, CA.
- Hotchkiss, S., Lynch, E.A., Calcote, R. and M. Tweiten. 2007. Paleoecological perspective on restoration goals: vegetation, fire, and climate on the northwestern Wisconsin sand plain. Ecological Society of America Annual Meeting, San Jose, CA.
- *Tomscha, S.T. and E.A. Lynch. 2007. Fire and vegetation interactions over the past 3800 years at Lake Elevenses, Northwestern Wisconsin, USA. National Conference on Undergraduate Research, Dominican University of California, San Raphael CA.

- Lynch, E.A., S. Hotchkiss, and R. Calcote. 2006. Landscape patterns in response to climate change: 1000 years of vegetation change and fire history on a sand plain. American Quaternary Association Biennial Meeting, Bozeman, MT.
- *Sutheimer, C.M., S.C. Hotchkiss, E.A. Lynch, R. Calcote, M.A. Tweiten. 2006. Macrocharcoal morphology as a tool in reconstructing past vegetation. Ecological Society of America. Memphis, TN.
- Hotchkiss, S., R. Calcote, E.A. Lynch. 2006. Landscape patterns in response to climatic change: 1000 years of vegetation change and fire history on a sand plain. Ecological Society of America. Memphis, TN.
- Lynch, E. A. *K. Jensen, R. Calcote, and S. Hotchkiss. 2005. Morphology of charcoal from lake sediments: a clue to prehistoric fire regimes. Ecological Society of America Annual Meeting, Montreal, Quebec.
- Calcote, R., S. Hotchkiss, and E.A. Lynch. 2005. Pre- and post-settlement vegetation change on a Wisconsin sand plain. Ecological Society of America Annual Meeting, Montreal, Quebec.
- Hotchkiss, S., R. Calcote, E.A. Lynch, C. Yanger. 2005. Circles in the sand: An analysis of presettlement vegetation and pollen assemblages from the northwest Wisconsin sand plain. Annual Meeting, Ecological Society of America. Montreal, Quebec.
- Lynch, E.A., R. Calcote, S. Hotchkiss. 2004. Century-scale environmental change on a Wisconsin sand plain. American Quaternary Association Biennial Meeting, Lawrence, KS
- Calcote, R., S. Hotchkiss, E.A. Lynch. 2004. Can fossil pollen resolve landscape heterogeneity in pine- and oak-dominated vegetation?
- Booth, R., S. Hotchkiss, R. Calcote, and E.A. Lynch. 2004. Late Holocene hydroclimate variability on the northwestern Wisconsin sand plain. Ecological Society of American Annual Meeting, Portland, OR
- *Jensen, K. and E.A. Lynch. 2004. Is it local? Macroscopic charcoal in lake sediments as an indicator of forest fire. Grinnell Science Symposium, Grinnell College, IA
- *Kee, Y.S., *Dunham, L. and E.A. Lynch. 2004. A 750-year forest fire history from Metzger Lake, WI. Grinnell Science Symposium, Grinnell College, IA
- Lynch, E.A. 2003. *Phragmites australis*: a native invasive species in Lake Superior wetlands? Invasive Plants of the Upper Midwest Symposium, 30th Natural Areas Conference, Madison, WI (invited symposium speaker)
- Lynch, E.A., R. Calcote, S. Hotchkiss. 2003. Late-Holocene fire and vegetation history in the Wisconsin pine barrens. Ecological Society of America Annual Meeting, Savannah, GA
- *Merten, S. and Lynch E.A. 2002. Methods for fossil charcoal analysis to reconstruct forest fire history. PEW Consortium for Science and Math Annual Meeting, Chicago, IL
- *Bronson, A. and Lynch E.A. 2002. Morphology of conifer stomata from species native to northwestern Wisconsin. PEW Consortium for Science and Math Annual Meeting, Chicago, IL
- Lynch, E. A. 2001. Vegetation history of a Lake Superior coastal wetland. Iowa Academy of Science Annual Meeting, Des Moines, IA
- Lynch, E. A. 1999. Detecting the invasion of giant reed grass, *Phragmites australis*, in a Lake Superior coastal wetland. Ecological Society of America Annual Meeting, Madison, WI
- Lynch, E. A. 1997. Preexisting differences in understory species composition within forest stands indicate a need to collect baseline data to assess logging impacts. Ecological Society of America Annual Meeting, Albuquerque, NM
- Lynch, E. A. 1995. Origin of a park-forest vegetation mosaic in the Wind River Range, Wyoming. Ecological Society of America Annual Meeting, Knoxville, TN

Lynch, E. A. 1994. Holocene changes in a park-forest vegetation mosaic in the Wind River Range, Wyoming. Ecological Society of America Annual Meeting, Salt Lake City, UT

Technical reports

Lynch, E. A. 1997. GLIFWC-USFS Study on the Effects of Logging on Understory Plants. Final Report to the National Fish and Wildlife Foundation (Project 96-066-320). Great Lakes Indian Fish and Wildlife Commission, Odanah, WI.

Lynch, E. A. 1997. Ecology, Silviculture, and Status of Paper Birch (wiigwass) in the 1837 and 1842 Ceded Territories. Project Report 97-01. Great Lakes Indian Fish and Wildlife Commission, Odanah, WI.

Lynch, E. A. and B. Lupfer. 1995. Sweet Grass (Wiingashk) Project. Project Report 95-01. Great Lakes Indian Fish and Wildlife Commission. Odanah, WI.

Other publications

Baack, E. and E.A. Lynch. Ecological restoration: maintaining spaces for the wild. Agora Spring 2011.

Lynch, E.A. Pre-Euro-American vegetation at the prairie-forest border in northeastern Iowa. Agora Spring 2008.

Lynch, E.A. 2007. Looking for patterns in space and time. Agora. Fall 2007.

Lynch, E.A. 2003. Linking ecology and history. Agora. Winter 2003.

Lynch, E.A. 1996. Book review: A History of the Ecosystem Concept in Ecology. Natural Areas Journal.

Invited lectures and workshops

Ecological restoration: maintaining spaces for the wild. Text and Issues Lecture Series, Luther College (2010)

Pre-European vegetation of northeastern Iowa. Prairies Edge Sustainable Forestry Cooperative Annual Meeting. Postville, IA (2009) and Upper Iowa Audubon Society (2010)

Vegetation and fire history of the northwest Wisconsin sand plain. Natural Resources and Environmental Management Department, Iowa State University, Ames (2007)

Vegetation and fire history of the northwest Wisconsin sand plain. Biology Department, Augustana College, Sioux Falls, SD (2006)

Symposium speaker for Natural Areas Annual Meeting Conference, Madison, WI (2005)

Linking history and ecology. Text and Issues Lecture Series, Luther College (2003)

Methods for macroscopic charcoal analysis and conifer stomata analysis. 1-day workshop for students and faculty from University of Wisconsin and University of Minnesota (2002)

Methods for macrofossil analysis. Northland College, Ashland, WI (2001)

Contributions of paleoecology to conservation biology: uncovering the past to understand the present. Sigurd Olson Environmental Institute, Northland College, Ashland, WI (2001)

Lessons learned from paleoecology. Sigma-Xi Tri-States Chapter. Fall Banquet. Dubuque, Iowa (2000)

Why study historical ecology? NASA-GLOBE workshop for high school teachers. Loras College (2000)

Contributions of historical ecology to ecosystem management. University of Wisconsin-River Falls, Department of Biology (2000)

Panelist for paleoclimate section of The Science of Global Climate Change Symposium. University of Iowa (1999)

Detecting a plant species invasion using paleoecological methods. Loras College Annual Research Colloquium (1999)

Origin of a park-forest vegetation mosaic in the Wind River Range. University of Northern Iowa Geography Graduate Colloquium. (1998)

Challenges in reconstructing vegetation in a pine-dominated landscape. University of Iowa Departments of Geology and Ecology Seminar Series. (1997)

Origin of a park-forest vegetation mosaic. University of Wisconsin – Madison, Department of Forestry (1996)

Origin of a park-forest vegetation mosaic. University of Montana, Department of Biology (1995)

Awards and Fellowships

- 2000 Sigma Xi Scientific Research Society
 Delta Epsilon Sigma, National Catholic Honors Society
- 1991 Doctoral Dissertation Award, University of Minnesota
 Dissertation Improvement Award, National Science Foundation
- 1990 -1992 NSF Global Paleorecords Research Training Grant Traineeship, University of Minnesota
- 1990 Geological Society of America Outstanding Mention Award for graduate student
 proposal
- 1988 Ecology, Evolution, and Behavior Departmental Fellowship, University of Minnesota
- 1985 Harriet G. Barclay Scholarship, Rocky Mountain Biological Laboratory
- 1983 Trent University Scholarship

Current Service Activities at Luther

Academic Planning and Curriculum Committee
Curator of Luther College Herbarium

Professional Service

Advisor to Board of Directions, Seed Savers Exchange (2013-)
Reviewer of grant proposals for the National Science Foundation: Directorate of Environmental Biology,
Division of Atmospheric Sciences, and Division of Behavioral and Cognitive Sciences
Review of grant proposals to the Iowa Science Foundation: member of committee that coordinates
reviews and selects proposals for funding (2010-2013)
Reviewer for *Quaternary Research*, *Quaternary Science Reviews*, *The Holocene*, *Journal of Great Lakes
Research*, *Northern Journal of Applied Forestry*, *Ecosphere*, *Journal of Vegetation Science*