
Natalie G. Mueller

135 Plant Science Building
Ithaca, NY 14850, USA
(585) 766-5654
ngm42@cornell.edu
ngmueller.net

School of Integrated Plant Sciences- Horticulture Section
Cornell University

PROFILE

I am an archaeologist and paleoethnobotanist who specializes in the historical ecology of North America and the origins of agriculture. By integrating morphometric, molecular, and experimental data, I study the domestication of plants and the subsequent evolution of agrobiodiversity throughout the Holocene. My research also concerns the development and spread of social institutions related to food production and food security. I have seven years of experience teaching field and lab methods, introductory courses, and advanced seminars. I have conducted field work and archaeobotanical analyses in North America, western and central Asia, and eastern Africa.

APPOINTMENTS

Postdoctoral Researcher, Cornell University School of Integrated Plant Sciences 2017-
Adjunct Professor of Anthropology, University College, Washington University in St. Louis 2015-2017

EDUCATION

Washington University in St. Louis

PhD, Anthropology with a certificate in American Culture Studies and a Teaching Citation 2017
Dissertation: "Seeds as Artifacts of Communities of Practice: The Domestication of Erect Knotweed in Eastern North America"

MA, Anthropology

Thesis: "Mound Centers and Seed Security: A Comparative Analysis of Botanical Assemblages from the Lower Illinois Valley" 2012

The George Washington University

BA, International Affairs and Archaeology 2009
Summa cum laude
Thesis: "Settling the Painful Disagreement: Archaeology and National Narratives in Israel"

GRANTS (PI or co-PI)

National Museum of Natural History Research Grant Program for Science: *The palette for selection: Growing and sequencing lost crops to understand the role of plasticity in plant domestication*, \$118,034. Co-PI: Logan Kistler. 2018-2020

National Science Foundation Research Experiences for Undergraduates #1460787: "*Long-term Perspectives on Human-River Dynamics at the Confluence of the Illinois and Mississippi Rivers: Interdisciplinary Research for Students in Ecology and Archeology*," 275, 111. Co-PI: Jane Buikstra 2018-2019

National Science Foundation Social and Behavioral Sciences Postdoctoral Research # 1714462: *Growing lost crops: Variation under cultivation in the Eastern Agricultural Complex*, \$138,000 2017-2019

George R. Throop Endowment Grant: *Survey for lost crops of eastern North America*, \$1,200 2016

National Science Foundation Dissertation Improvement Grant # BCS-1360868: *A case study in agricultural practice and domestication: Knotweed in eastern North America*, \$19,076 2014-2016

Wenner-Gren Dissertation Field Work Grant: *A case study in agricultural practice and domestication: Knotweed in eastern North America: Preliminary DNA work* \$7,808 2015-2016

FELLOWSHIPS

- Washington University in St. Louis Graduate School Dissertation Fellowship 2016-2017
- Lynne Cooper Harvey Fellowship in American Culture Studies 2010-2015

AWARDS

- Patty Jo Watson Award for Best Article or Book Chapter, Southeastern Archaeological Conference 2017
- Student Paper Award, Society For American Archaeology 2016
- Phi Beta Kappa, George Washington University 2009
- Jane Hart Award for Outstanding Achievement in Archaeology, George Washington University 2009

PEER-REVIEWED PUBLICATIONS

- Mueller, N.G.** “Documenting the evolution of agrobiodiversity in the archaeological record: Landraces of a newly described domesticated (*Polygonum erectum*) in North America.” *Journal of Archaeological Method and Theory*. 2018
- Mueller, N.G.** “The earliest occurrence of a newly described domesticated in eastern North America: Adena/Hopewell communities and agricultural innovation.” *Journal of Anthropological Archaeology*. 49 (39-50). 2018
- Mueller, N.G.**, Gayle J. Fritz, Paul Patton, Stephen Carmody, and Elizabeth Horton. “Growing lost crops: New directions in the study of eastern North America’s original agricultural system.” *Nature: Plants*. 3 (1-5). 2017
- Mueller, N.G.** “Carbonization, differential preservation, and sampling biases in domestication studies: An erect knotweed (*Polygonum erectum* L.) case study.” *Journal of Archaeological Science: Reports* 13 (303-311). 2017
- Mueller, N.G.** “Evolutionary bet-hedgers under cultivation: Investigating the domestication of erect knotweed (*Polygonum erectum* L.) using growth experiments.” *Human Ecology* 45(2):189-203. 2017
- Mueller, N.G.** “Documenting domestication in a lost crop (*Polygonum Erectum* L.): Evolutionary bet-hedgers under cultivation.” *Vegetation History and Archaeobotany* 26(3):313-327. 2017
- Mueller, N.G.** “An extinct domesticated subspecies of erect knotweed in eastern North America: *Polygonum erectum* L. subsp. *watsoniae* (Polygonaceae).” *Novon* 25(2). 2016
- Mueller, N.G.** and G.J. Fritz. “Women as symbols and actors in the Mississippi Valley: Evidence from female flint-clay statues and effigy vessels.” In *Native American Landscapes: An Engendered Perspective*, ed. Cheryl Claassen. Pp. 109-150. University of Tennessee Press, Knoxville, TN. 2016
- Ramsay, J. and **N.G Mueller**. “Telling seeds: Archaeobotanical investigations at Tell al-‘Umayri, Jordan.” In *Annual of the American Schools of Oriental Research 69: The Archaeology of Agro-Pastoralist Economies in Jordan*, ed. Kevin M. McGeough. Pp. 1-16. The American Schools of Oriental Research: Boston, MA. 2016

Langlie, B.S., **N.G. Mueller**, R.N. Spengler III, and G.J. Fritz. "Agricultural origins from the ground up: Archaeological perspectives on plant domestication." *American Journal of Botany* 101(10):1601-1617. 2014

Mueller, N.G. *Mound Centers and Seed Security: A Comparative Analysis of Botanical Assemblages from the Lower Illinois Valley*. Springer: New York, NY. 2013

OTHER WRITING

Mueller, N.G. and A.T. Flachs, co-editors and regular contributors. *Forage!* Blog of the Society for Ethnobiology, published bi-weekly. <https://ethnobiology.org/forage/blog> 2017-

Mueller, N.G. Research blog. ngmueller.net 2017

Mueller, N.G. Book Review: *Tikal: Paleoecology of an Ancient Maya City*, by D.L. Lentz et al. *Economic Botany* 69:4. 2015

TEACHING EXPERIENCE

Instructor of record, Washington University in St. Louis

*Original course development

*Introduction to Cultural Anthropology (*Asynchronous online seminar*) 2016, 2017

Culture and the Environment (*Upper level, political ecology*) 2015-2017

Introduction to Archaeology 2015

*Ten Thousand Years on Turtle Island: A Deep History of North America (*Upper level, multidisciplinary methods for exploring the pre-Columbian past*) 2014

Lab instructor, Washington University in St. Louis

Introduction to Archaeology 2013

(*Lithic tool production & analysis, experimental archaeology, and paleoethnobotany*)

Plants and People: Ethnobotany and Paleoethnobotany 2013

(*Analysis and interpretation of archaeological plant remains, including graduate-level mentorship*)

Field work instructor

Washington University Field School, the Dzungar Mountains Archaeological Project, Kazakhstan 2012

State University of New York at Brockport Field School, the Donnan Site Project, NY 2011

Teaching Assistant, Washington University

Brave New Crops (*Political Economy of Genetically Modified Plants*) 2016

Ancient Maya Archaeology and History 2015

Introduction to Cultural Anthropology 2015

Introduction to Archaeology 2012

World Archaeology 2012

Culture and the Environment 2011

Tutor, State University of New York at Brockport Anthropology Department

Introduction to Archaeology and Introduction to Human Evolution 2009

PROFESSIONAL PRESENTATIONS

- “New Directions in Ozark Bluff Shelters Paleoethnobotany.” Paper presented at the Annual Meetings of the Southeastern Archaeological Conference, Tulsa, OK. (with Logan Kistler) 2017
- “Agricultural Communities and the Rise of Cahokia: Evidence from Seeds.” Paper presented at the Annual Meetings of the Society of Ethnobiology, Montreal, Québec. 2017
- “The Role of Ritual in Early Food Producing Economies: Seed Keepers and Seed Exchange in Ethnography and in the Archaeological Record of Eastern North American.” Paper presented at The Annual Meetings of the Society for American Archaeology, Vancouver, BC. 2017
- “Understanding Crop Plasticity through Experimental Cultivation.” Paper presented in *Symposium: Growing Lost Crops: Insights into the Eastern Agricultural Complex* (co-organizer), at the Annual Meetings of the Southeastern Archaeological Conference, Athens, GA. 2016
- “Mississippian Agricultural Communities of Practice.” Paper presented at The Mississippian Conference, Cahokia Mounds State Historic Site, IL. 2016
- “Seeds as artifacts: Investigating the Spread of Agroecological Knowledge in Eastern North America, c. 1000 BCE-1300 CE.” Paper presented at the Annual Meetings of the Society for American Archaeology, Orlando, FL. 2016
- “Bet-Hedgers Under Cultivation: Insights into the Domestication of Erect Knotweed (*Polygonum erectum* L.) from the Field and Greenhouse.” Paper presented at the Annual Meetings of the Society for Ethnobiology, Tucson, AZ. 2016
- “Documenting Knotweed Domestication: Preliminary Results.” Paper presented at the Annual Meetings of the Midwest Archaeological Conference, Champaign-Urbana, IL. 2014
- “Developing Domestication Criteria for Crops with Knotty Morphologies: *Polygonum* in the Eastern Woodlands.” Poster presented at the Annual Meetings for the Society for American Archaeology, Austin, TX. 2014
- “Women as Symbols and Actors in Mississippian Ceremonialism.” Paper presented at the Annual Meetings of the Southeastern Archaeological Conference, Tampa, FL. 2013
- “Mound Centers and Seed Security in Middle Woodland Illinois.” Paper presented at the Annual Meetings of the Society for Economic Botany, Frostburg, MD. 2012
- “Plant Use and Community Organization in the Lower Illinois Valley.” Paper presented at the Annual Meetings of the Southeastern Archaeological Conference, Jacksonville, FL. (with Jane Buikstra and Jason King) 2011
- “Telling Seeds: Paleoethnobotanical Investigations at Tell al-‘Umayri Jordan.” Paper presented at the Annual Meeting of the American Schools of Oriental Archaeology, Atlanta, GA. (with Jennifer Ramsay) 2010

INVITED PUBLIC TALKS

- “Growing Lost Crops, Reconstructing Ancient Knowledge System.” Keynote address presented at the *7th International Conference on Reconstructive and Experimental Archaeology*. Colonial Williamsburg, VA. November 17. 2017

- “Rediscovering North America’s Lost Crops.” Presented in the *Food for Thought Series* at Ohio University, Athens, OH. February 22. 2017
- “Lost Crops, Agricultural Diversity, and Native American Nutrition.” With Gayle J. Fritz. 2017
Presented at the *Indigenous Rights and Environmental Justice Symposium: From Standing Rock to St. Louis*. Kathryn M. Buder Center for American Indian Studies at Washington University in St. Louis, MO. January 6.
- “Seeds as Artifacts: The Spread of Agricultural Knowledge in Eastern North America, c. 2500-800 BP.” Presented to the *Cahokia Archaeological Society* at Cahokia Mounds Visitor Center, IL. May 19. 2016
- “Erect Knotweed Domestication.” Presented to the *Missouri Archaeological Society: Three Rivers Chapter* at Mastodon State Historic Site, MO. Oct 12. 2015
- RESEARCH PROJECTS & FIELD WORK**
- Project Paleoethnobotanist**, the Kakapel Site, Western Kenya 2018-
Collaborators: Steven Goldstein (Max Planck Institute for the Science of Human History), Emmanuel Ndiema (National Museums of Kenya)
- Co-PI**: The palette for selection: Growing and sequencing lost crops to understand the role of plasticity in plant domestication 2018-
Collaborators: Logan Kistler, Vanessa Gonzalez (National Museum of Natural History), Elizabeth Horton (Arkansas Archaeological Survey), Paul Patton, Daniel Williams (Ohio U.), Benjamin Blackman (U. California, Berkeley)
- Co-PI and Instructor**: Long-term Perspectives on Human-River Dynamics at the Confluence of the Illinois and Mississippi Rivers: Interdisciplinary Research for Students in Ecology and Archeology 2018-
Collaborators: Jane Buikstra (Arizona State U.) Jason King (Center for American Archeology)
- Project Paleoethnobotanist**: the White Springs site, NY 2017-
Collaborators: Kurt Jordan (Cornell U.), Paula Turkon (Ithaca College)
- PI**: Growing lost crops: Variation under cultivation in the Eastern Agricultural Complex & Survey for Lost Crops 2017-
Collaborators: Jane Mt. Pleasant (Cornell U.)
- Co-PI**: Lost Crops Garden Network (lostcrops.org) 2014-
Collaborators: Elizabeth Horton, Paul Patton
- Project Paleoethnobotanist**: the Winchester Farm site, KY 2014-2016
Collaborators: Edward Henry (Colorado State U.), Mica Jones (Washington U. in St. Louis)
- Field crew**: Golden Eagle site, IL, Geophysical survey 2014
Collaborators: Center for American Archeology
- PI**: A Case Study in Agricultural Practice and Domestication: Knotweed in Eastern North America 2010-2013
- Project Paleoethnobotanist**: the Mound House Site, IL 2011-2012
Collaborators: Center for American Archeology
- Project Paleoethnobotanist**: the Donnan Site, NY 2011

Collaborator: Beth Ryan (Cornell U.)

Paleoethnobotanist-in- training: Tall al'Umayri, Jordan 2010
Collaborator: Jennifer Ramsay (State U. of New York at Brockport)

MEDIA COVERAGE

[“On a hunt for North America’s indigenous crops.”](#) Natalie Mueller speaking on Canadian Broadcasting Corporation’s *Quirks and Quarks*, March 30. 2018

[“Searching for Crops Long Forgotten.”](#) Natalie Mueller speaking on Wisconsin Public Radio, March 13. 2018

[“Why you don’t see ‘goosefoot’ on your Thanksgiving dinner table.”](#) Annalee Newitz speaking on National Public Radio’s *Science Friday*, February 23. 2018

[“Hunting for the ancient lost farms of North America.”](#) by Annalee Newitz for *Ars Technica*, January 26. 2018

OTHER RELEVANT EXPERIENCE AND TRAINING

Blackboard Consultant, The Teaching Center, Washington University in St. Louis 2015-2016

Online Course Development Seminar, University College, Washington University in St. Louis 2016

Royal Microscopical Society Summer Light Microscopy School, York, United Kingdom 2014

Angiosperm Plant Taxonomy Laboratory Course, University of Missouri, St. Louis 2013

Oregon State University Geoarchaeology Field School, Corvallis, OR 2009

Tel Megiddo Archaeological Field School, Megiddo, Israel 2008

SERVICE

Society of Ethnobiology research blog editor 2017-

Washington University Graduate Council Student Representative for Anthropology 2015-2016

Graduate Leadership Committee of the Department of Anthropology 2014-2015

Friday Archaeology Weekly Seminar Series Coordinator 2011-2013

REFERENCES

Gayle J. Fritz (advisor), Professor of Anthropology, Washington University in St. Louis
gjfritz@wustl.edu

Tristram R. Kidder, Professor and Chair of Anthropology, Washington University in St. Louis
trkidder@wustl.edu

Fiona Marshall, Professor of Anthropology, Washington University in St. Louis

fmarshal@wustl.edu

Jane Mt. Pleasant, Professor of Horticulture and American Indian and Indigenous Studies, Cornell University
jm21@cornell.edu