

LAURA G. SMITH
CURRICULUM VITAE
UNIVERSITY OF TENNESSEE • KNOXVILLE, TN
PHONE (781)309-3445 • E-MAIL LSMIT224@VOLS.UTK.EDU
GITHUB: github.com/lgsmith295
WEBSITE: lgsmith.github.io

EDUCATION

University of Tennessee, Department of Geography, Knoxville, TN

Doctor of Philosophy (In Progress) in Geography, 2017- present. Current GPA 4.0, 37 semester hours
Dissertation Committee Chairs: Dr. Nicholas Nagle and Dr. Stockton Maxwell
Dissertation Title: *Hydroclimate from Tree Rings in the Tennessee Valley: Reinitiating Historic TVA Research, Examining the Complex Climate Growth Responses of Juniperus virginiana, and Exploring Reconstruction Modeling Techniques*

Frostburg State University, Department of Biology, Frostburg, MD 21532

Master of Science in Applied Ecology and Conservation Biology, 2016, GPA 3.9.

Advisor: Dr. Sunshine L. Brosi.

Thesis: *Geospatial Applications of a Pest and Disease Vulnerability Model in Washington DC Street Trees*

Frostburg State University, Department of Biology, Frostburg, MD 21532

Bachelor of Science in Ethnobotany, 2014, GPA 3.7, 132 Semester Hours

Academic Advisor: Sunshine L. Brosi, Internship Advisor: Raquel Ketterman

Senior Internship: *Get Rooted in Cumberland, One Tree at a Time- Using Social Media to Impact Residential Tree Planting Behavior*

SKILLS

- R statistical programming language including tidy data, data visualization, package development, reproducible research, and R markdown. **See website/github for examples**
- Statistical methods including regression, hierarchical modeling, dimension reduction, spatial data analysis, Bayesian methods, and machine learning
- ArcGIS
- Microsoft Office Suite
- Microscopy and plant microstructure identification
- Dendrochronology (tree ring analysis) field and lab protocol
- Woody and herbaceous plant field identification
- Community Outreach

RESEARCH

Research Assistant, University of Tennessee, August 2019-present.

Develop tree-ring based reconstructions of hydroclimate in the TN valley regions in collaboration with the Tennessee Valley Authority (TVA). Supply TVA with grant deliverables, attend monthly meetings with project associates, train and supervise undergraduate research assistant.

Research Associate, University of Tennessee, November 2017-present.

Dendrochronological dating of a variety of structures and artifacts, including: Abraham Lincoln Boyhood Home Cabin (2017), Hurricane Irma Dugout Canoe(2018), Senn Violin(2018)

Field Technician, University of Tennessee, Dendroecological Research at Isle Royale National Park, June 2018

Research Associate, Frostburg State University, Department of Biology, Frostburg, MD. May 2016-present
Collect, analyze, and interpret data (field and lab settings) for three separate grant-funded research projects involving the analysis of tree-rings for cultural and ecological purposes

Environmental Intern, City of Cumberland, Engineering Department. Cumberland, MD. June 2012-December 2013, June 2014-September 2014

Executed a grant-funded, community based social marketing project aimed at influencing Cumberland City residents to plant trees on privately owned property.

PUBLICATIONS

Smith, L.G., Nagle, N.N., Maxwell, R.S., Hocking, D.J. (In Review). Pcrecon: An R Package for the Development of Principal Component Regression Climate Reconstructions from Tree Rings.

Smith, L.G., Maxwell, R.S., Nagle, N.N. (In Prep). 1000 Year Annual Streamflow and Precipitation Reconstructions in the Tennessee River Valley.

Rochner, M. L., Merrill, Z. A., & Smith, L. G. (2019). Dendrochronological investigation of the Knob Creek Cabin at President Abraham Lincoln's boyhood home, Hodgenville, Kentucky, USA. *Journal of Archaeological Science: Reports*, 25, 400.

Flower, A., Bookout, B., Hagedorn, B., Hankin, L., Loveseth, J., Smith, L., & Whelan, A. (2017). Muscling into Meadows: A Preliminary Dendrochronological Analysis of Recent Conifer Encroachment in Mount Rainier's Subalpine Meadows. *Yearbook of the Association of Pacific Coast Geographers*, 79.

JOURNAL REVIEW

Quaternary Science Review, 2019
Water Resources Research, 2020

HONORS AND AWARDS

Honors:

Geography Department Outstanding Teaching Assistant Award, University of Tennessee, 2018-2019
Biology Department Graduate Student Honors, Frostburg State University, 2016
Dean's List, Frostburg State University, 2008-2009, 2012-2016

Awards: \$56,285

Tennessee Fellowship for Graduate Excellence, University of Tennessee, 2017-2020, \$40,000

Society for Economic Botany Travel Fellowship, Nature Genetics, 2015, \$2,000

REIL Research Experiences in Introductory Laboratories-Biology Network, Workshop Team Acceptance Full support to attend the conference including transportation, lodging, & registration, \$1,000

Richard Johnson Scholarship for Graduate Studies in Natural Resources, Frostburg State University, 2014-2015: \$770; 2015-2016: \$690

Allegany County Commissioner's Scholarship, 2015-2016: \$1,000

Frostburg Grant, 2014-2015: \$1,000

Frank D. Santamour Scholarship, Mid-Atlantic Chapter of the International Society of Arboriculture, 2013-2014: \$1,250

Full Academic Scholarship, Frostburg State University, 2007-2008: \$4,100; 2008-2009: \$4,475

Grants: \$109,838

Laura Smith and Nicholas Nagle, Reinitiating Historic Tennessee Valley Authority Research: Revisiting the Florence Hawley Collection and Reconstructing Streamflow from Tree Rings, Tennessee Valley Authority. Roles: Original proposal development and writing; project management; research assistant; supervisor to undergraduate research assistant. (\$66,125)

Sunshine Brosi and **Laura Smith**, Butternut and White Oak Resource Plantings for Cherokee Artisans, Cherokee Preservation Foundation. Roles: proposal development writing; research assistant (\$18,936)

Laura G. Smith and Sunshine Brosi Graduate Research Grant, Faculty Development 2015. (\$3,750)

Laura Smith and Sunshine Brosi, Chesapeake Bay Trust, Community Outreach Mini Grant 2013 (\$5,000)

Laura Smith and Raquel Ketterman, Maryland Department of Housing and Community Development, Community Legacy Program 2013 (\$16,000)

TEACHING

Graduate Teaching Assistant, University of Tennessee, Department of Geography, Knoxville, TN August 2017-present

Instruct weekly lab sections for courses including Weather, Climate, Climate Change (GEOG 131), Introductory Physical Geography (GEOG 132), and Quantitative Methods in Geography (GEOG 515 & GEOG 415). Assist with course preparation and grading for Biogeography (GEOG 435).

Group Leader/Instructor, North American Dendroecological Fieldweek, July 2019

Instruct introductory group on dendrochronological techniques, including: field safety protocol, sample collection, sample processing, laboratory protocol, crossdating, time-series standardization, chronology development, and statistical analysis of relationship between tree growth and environmental variables

Instructor of Record, Frostburg State University, Department of Biology. Frostburg, MD. September 2014-May 2017

Develop curriculum and instruct both lecture and field lab sections for Dendrology (BIOL 314), Plant Taxonomy (BIOL 328), and Forest Ecology (BIOL 425).

Teaching Assistant, Frostburg State University, Department of Biology. Frostburg, MD. September 2014-May 2016

Instruct weekly lab sections, assist with course preparation, and grading for Botany (BIOL 161) and Human Biology and the Environment (BIOL 109).

Private Tutor, August 2015- May 2016

Met weekly with non-traditional, community college student to work on study skills and review dendrology specimen in the field.

Tutor, Frostburg State University, Mathematics Department. Frostburg, MD. September 2008- May 2009

Met with 3 students on an individual basis, 1-2 times weekly for tutoring of an online probability and statistics course.

PRESENTATIONS

Invited Presentations

Canoes in Archaeology, Tallahassee, FL. March 2018

The Irma Dugout: A Case Study in Dendroarchaeological Dating

Laura Smith

Paper Presentations

American Association of Geographers(AAG), Washington, DC. April 2019

PCrecon: An R Package for the Development of Reproducible and Transparent Paleoclimate Reconstructions.

American Association of Geographers (AAG), Washington, DC. April 2019

Paleoclimate in the Tennessee Valley: Dendroclimatological Applications and Reinitiating Historic Research

Laura Smith

Southeast Division of the American Association of Geographers (SEDAAG), Johnson City, TN. November 2018

The Irma Dugout: A Case Study in Dendroarchaeological Dating

Laura Smith, Julie Duggins (State of Florida)

Geosymposium, November 2018, University of Tennessee, Knoxville. February 2018 **Dendrochronological Dating of Historic Red Cedar Samples**

Laura Smith and Henri Grissino-Mayer

Northeast American Fish and Wildlife Association, Norfolk, VA. October 2017

Evaluating Habitat Conditions and Population Fluctuations of the Allegheny Woodrat (*Neotoma magister*)

Laura Smith, Sunshine Brosi (Frostburg State University), Daniel Fellar (MD DNR)

Western Maryland Chapter of the Maryland Native Plant Society, Frostburg, MD. March 2017

What's in a Ring? From Wildflowers to Woodrats, Using Tree Ring Analysis to Help Solve Complex Ecological Problems

Laura Smith

Mid-Atlantic Chapter of the National Society of Arboriculture, Morgantown, WV. October 2016

Geospatial Applications of a Pest and Disease Vulnerability Model among Street Trees in Washington D.C.

Laura Smith, Sunshine Brosi (Frostburg State University)

Society for Economic Botany, Pine Mountain, KY. June 2016

Geospatial Applications of a Pest and Disease Vulnerability Model among Street Trees in Washington D.C.

Laura Smith, Sunshine Brosi (Frostburg State University)

Maryland Native Plant Society Fall Meeting, Frostburg, MD. March 2015

An Evaluation of Pest and Disease Vulnerability in the Urban Street Trees of Washington D.C.

Laura Smith, Sunshine Brosi (Frostburg State University)

Society for Economic Botany, Clanwilliam, South Africa. June 2015

Management of Urban Pests in the Shifting Context of Urban Ecology

Laura Smith, Sunshine Brosi (Frostburg State University)

Mid-Atlantic Chapter of the International Society of Arboriculture Conference, Cumberland, MD. June 2012

Get Rooted in Cumberland, One Tree at a Time, the Cumberland Residential Tree Planting Project

Laura Smith, Raquel Kettermann (City of Cumberland, MD)

Focus Frostburg, Frostburg, MD. April 2013

Becoming a Tree Campus USA

Laura Smith, Sunshine Brosi (Frostburg State University)

Poster Presentations

Southeastern Division of the American Association of Geographers. November 2019

Tennessee Eastern Redcedar Chronology Development and Climate-Growth Analysis

Erica Quin (University of Tennessee), Laura Smith

American Association of Geographers, Washington DC. April 2019

Hierarchical Bayesian models for climate reconstruction and uncertainty using tree-ring data

Laura Smith, Daniel Hocking (Frostburg State University)

American Association of Geographers New Orleans, LA. April 2018

Dendrochronological Dating of Eastern Red Cedar (*Juniperus virginiana* L.) Samples from Norris Basin, Tennessee: Re-evaluating the Florence Hawley Collection

Laura Smith, Henri Grissino-Mayer

Society for Economic Botany, Cherokee, NC. June 2014

Preservation of White Oak (*Quercus alba*) for Traditional Cherokee Basketry

Laura Smith, Sunshine Brosi (Frostburg State University)

Maryland Native Plant Society Annual Meeting, Frostburg, MD. May 2013

Influencing Resident Tree Planting Behavior Using Community Based Social Marketing

Laura Smith, Raquel Kettermann (City of Cumberland, MD)

Alliance for the Chesapeake Bay Forum, Shepherdstown, WV. September 2013

Using Community Based Social Marketing to Influence Tree Planting Behavior

Laura Smith, Raquel Kettermann (City of Cumberland, MD)

Workshops

Life Discovery in Biological Science Conference, San Jose, CA. June 2014

Creating Relevance in Botany through Cultural Connections

Laura Smith, Sunshine Brosi (Frostburg State University)

SERVICE WORK

Lab Safety Coordinator, Environmental Change Lab, University of Tennessee, August 2018- present

Tennessee Women in Geography (TWIG) Co-President, University of Tennessee, August 2018-present

McCroskey Grant Committee, University of Tennessee, September 2018- 2019

Student Representative to the Graduate Council, Frostburg State University, Frostburg MD. September 2015-May 2016

Graduate/Undergraduate Representative, Campus Tree Care Committee, Frostburg State University, Frostburg, MD. September 2012- May 2016

Volunteer, Savage River Arts Camp, Garrett County, MD. February 2015- July 2015

Volunteer, SEB Conference Committee, Frostburg, MD. April-June 2012

MEDIA AND OUTREACH

Web Article Hillary Dowdle, Tennessee Valley Authority. February 2019. *Rings of Truth*

<https://www.tva.gov/Environment/Rings-of-Truth>

Audio Cast Andrea Schniebel, University of Tennessee. March 2019. *Science Minute: The Hidden History of Tree Rings*

<https://news.utk.edu/2019/03/14/science-minute-audiocast-the-hidden-history-in-tree-rings/>

Newspaper Article Mark Pace, Times Free Press. May 2019. *TVA Scientists Research Tree Rings*

<https://www.timesfreepress.com/news/local/story/2019/may/15/tva-scientist-research-tree-rings/494742/>

<https://www.usnews.com/news/best-states/tennessee/articles/2019-05-25/student-finishes-old-tva-research-on-tree-rings-and-weather>

Radio News Segment, Will Davis, WUTC. *TVA Uses Tree Rings to Predict Drought*

<https://www.wutc.org/post/tva-uses-tree-rings-predict-drought>

TV News Segment Brittany Beggs, WRCBTV. *Cedar Trees Provide Insight on Weather and Climate from Centuries Ago*

<https://www.wrcbtv.com/story/40607346/cedar-trees-providing-insight-on-weather-and-climate-from-centuries-ago>

TV News Segment Jim Matheny, WBIR. July 2019. *Tree Rings Reveal Centuries of Hidden Climate History*

<https://www.wbir.com/article/news/local/tree-rings-reveal-centuries-of-hidden-climate-history/51-00d21eee-60f1-471c-9b31-4d5a02e66c5d>

CERTIFICATIONS

- Class B Sawyer, Game of Logging, instructed by Kevin Snyder Logging, Pleasantville, PA
- Wildlands Firefighter, S-130 Wildland Firefighter, S-190 Introduction to Wildlands Fire Behavior, and L-180 Human Factors on the Fireline, instructed by Ric Lillard, Green Ridge State Forest
- Maryland Woodland Connect, GPS Training, instructed by Jonathan Kays, Extension Specialist, University of Maryland
- SILVAH (Silviculture of Alleghany Hardwoods)-Oak Training, Decision support for managers of Allegheny hardwood and mixed oak ecosystems, Summer 2016
- National Institutes of Health, Protecting Human Subject Research Participants Certification
- Title IX Campus Training- Building a Supportive Community
- Project Learning Tree Instructor Certification

WORKSHOP PARTICIPATION

- Best Practices in Online Teaching and Learning. University of Tennessee Center for Teaching and Learning Innovation. February 2020

REFERENCES

Dr. Nicholas Nagle (Dissertation Committee Co-Chair), University of Tennessee, Knoxville, TN.

nnagle@utk.edu, 865-974-6035

Dr. Stockton Maxwell (Dissertation Committee Co-Chair) Radford University, Radford, VA.

rmaxwell2@radford.edu, 540-831-7604

Dr. Ronald Kalafsky (Geography Department Chair) University of Tennessee, Knoxville, TN.

kalafsky@utk.edu, 865-974-0407

Dr. David Puthoff (Biology Department Chair) Frostburg State University, Frostburg, MD

dpputhoff@frostburg.edu, 301-687-4172