

My research focuses on weather hazard climatology, human-environment interactions, and applied dendrochronology and quantitative wood anatomy to extend meteorological and environmental records of extreme events such as tropical cyclones, flooding, insect infestations, and wildfire.

EDUCATION

- Doctor of Philosophy in Geography, University of Tennessee, Knoxville 2023
- *Dissertation title:* Using Quantitative Wood Anatomy to Improve Tree-Ring Reconstructions of Climate and Environmental Disturbances
- Master of Science in Geography, University of Tennessee, Knoxville 2014
- Concentration in Dendroclimatology
- Bachelor of Science in Geography, Ohio University, Athens 2009
- Emphasis in Meteorology, Minor in History

CURRENT POSITIONS

- Postdoctoral Fellow, University of Louisville 2023 – Present
- ◇ National Science Foundation P4Climate Project, OGMB230903. Duties are to lead in sample and image processing, the measurement of quantitative wood anatomy (QWA) metrics, and the development of QWA metric chronologies; participate in all other aspects of proposed work including analysis, interpretation, manuscript preparation, and dissemination for NSF project.
- Visiting Scientist, University of Tennessee, Knoxville 2023 – Present

PAST POSITIONS

- Graduate Teaching Associate, University of Tennessee, Knoxville 2018 – 2023
- ◇ Duties are to construct syllabus and learning objectives; create weekly lectures, in-class activities, quizzes, and exams; teach lectures for a 120+ class; hold office hours; manage graduate teaching assistants and their laboratory/grading duties.
 - Geography 131: Intro to Weather, Climate, & Climate Change
 - Geography 333: Climate Change & Human Response
- Graduate Teaching Assistant, University of Tennessee, Knoxville 2016 – 2023
- ◇ Duties include laboratory instruction; holding office hours; grading labs and exams; and when needed, giving lectures for professor.
 - Geography 131: Intro to Weather, Climate, & Climate Change (5 semesters)
 - Geography 132: Landscapes & Environmental Change
 - Geography 101: World Geography
 - Geography 331: Natural Hazards (3 semesters)

- Geography 333: Climate Change & Human Response
- Geography 334: Meteorology
- Geography 411: Introduction to Geographic Information Systems (*3 semesters*)
- Geography 432: Environmental History from Tree Rings
- Geography 434: Climatology
- Geography 436: Water Resources
- GIS & Remote Sensing Labs (*2 semesters*)

Post-Master's Research Associate, Oak Ridge National Laboratory, Geographic Information Systems & Technology (GIST) Group 2015 – 2017

- ◇ Researcher on the Population Density Tables (PDT) project, focused on the construction of reports that can illustrate the normal or episodic movement of persons throughout the world. Duties were to collect demographics using open-source data, such as national censuses and demographic health surveys; organize data by keeping track of newly released census reports.

Adjunct Instructor, University of Tennessee, Chattanooga 2015 – 2016

- ◇ Introductory courses with 40–70 students covering physical geography, atmospheric and earth sciences, and climate change. Duties included preparing syllabus and course objectives, creating and grading weekly lectures, homework, quizzes, and exams. Additionally, provided material for proposal to make physical geography course a requirement in university program.
 - Geography 1010: Introduction to Physical Geography (*2 semesters*)
 - Geography 2060: Atmosphere, Weather & Climate (*2 semesters*)

Tutor, Club Z! In-Home Tutoring 2011 – 2016

- ◇ Tutored students from 4th grade to 12th grade level attending public and private schools. Met one-on-one with students after school and on weekends to improve on Math, Science, Social Studies, English, writing and reading skills.

Research Intern, Oak Ridge National Laboratory, GIST Group Summer 2013

- ◇ 10-week internship assisting with LandScan project by mapping settlements within rural regions; training program models

Undergraduate Teaching Assistant, Ohio University Winter/Spring 2009

- ◇ Led labs separate from lecture; helped students with and graded assignments.
 - Geography 201: Introduction to Weather
 - Geography 301: Meteorology

Weather Anchor, WOUB, Ohio University 2008 – 2009

- ◇ Presented before a green screen during each newscast; worked on forecasting skills; explained the weather to southeast Ohio region.

FELLOWSHIPS, GRANTS, & AWARDS

2023: Robert G. Long Outstanding PhD Student Award, UTK Geography Department, \$500

2014, 2015, 2022, 2023: Student Publication Award, UTK Geography Department

2022: Stewart K. McCroskey Memorial Grant, UTK Geography Department, \$1500

2022: Jeanne E. Harris Chrysalis Scholarship, AWG, \$2000

2022: FY20 Graduate Fellowship, UTK Graduate School, \$2000

2022: Specialty Meeting Student Travel Grant, AMS, \$2000

2022: Anne U. White Fund, AAG, \$1500

2022: Graduate Student Affinity Group Research & Support Award, AAG, \$250

2018, 2022: Outstanding Teaching Assistant Award, UTK Geography Department
 2022: Primary Lead Publication Award, UTK Geography Department
 2022: AAG Council Award for Best Graduate Student Paper, AAG, \$1000
 2021: John Fraser Hart Award, Best PhD Paper, SEDAAG, \$1000
 2021: Student-Faculty Research Award, UTK, \$4990
 2019: North American Dendroecological Fieldweek Research Fellowship, NSF, \$1500
 2017, 2018, 2019: Chancellor's Fellowship, UTK Geography Department, \$3000/year
 2014, 2016, 2018: Special Award for Extraordinary Service, UTK Geography Department
 2018: Stewart K. McCroskey Memorial Grant, UTK Geography Department, \$500
 2018: Photography/Map Competition (1st place), AAG Landscape Specialty Group, \$250
 2016: Chancellor's Fellowship, UTK Geography Department, \$5000

PUBLICATIONS

- Collins-Key, S. A., Bekker, M. F., & Horn, S. P., 2023. Evidence of past flood events in wood anatomical features of riparian oak, Pearl River Wildlife Management Area, Louisiana. *Journal of Hydrology (In Revision)*.
- de Graauw, K., Rochner, M., van de Gevel, S., Stachowiak, L., Collins-Key, S. A., Henderson, J., Merrill, Z., & Hessel, A., 2023. Applications of dendroarchaeological data for understanding paleoenvironmental change: Opportunities and challenges. *The Holocene* 34 (1): 3–13.
- Burow, D., Cannistraci, A. M., Collins-Key, S. A., Davis, H., Goldman, W., Grondin, N. S., Maguire, D., & Ellis, K. N., 2023. Relating weather trends and residence time to local climate change concerns in Knoxville, Tennessee. *Geographical Review*. <https://doi.org/10.1080/00167428.2023.2239879>
- Harley, G. L., Therrell, M. D., Maxwell, J.T., Bhuta, A., Bregy, J.C., Heeter, K. J., Patterson, T., Rochner, M., Rother, M.T., Stambaugh, M., Zampieri, N.E., Altman, J., Collins-Key, S., *et al.*, 2023. The Longleaf Tree-Ring Network: Reviewing and expanding the utility of *Pinus palustris* Mill. dendrochronological data across the southeast United States. *Progress in Physical Geography: Earth and Environment*. <https://doi.org/10.1177/03091333221147652>
- Collins-Key, S. A., Rochner, M. L., Stachowiak, L. A., & Schneider, E. A., 2022. Using dendroecology applications to strengthen the historic integrity of Cumberland Homesteads Tower in Crossville, Tennessee. *Tree-Ring Research* 78 (1): 45–55.
- Collins-Key, S. A., 2022. Beyond Title IX. *Science* 375 (6576): 114.
- Stachowiak, L. A., Rochner, M. L., Schneider, E. A., Harley, G. L., Collins-Key, S. A., & Bonawitz, H. A., 2021. Tree-Ring Based Reconstruction of Historical Fire in an Endangered Ecosystem in the Florida Keys. *Fire* 4 (4): 79.
- Collins-Key, S. A. & Altman, J., 2021. Detecting tropical cyclone disturbances from climate- and oscillation-free tree-ring width chronology of wetland longleaf pine in south-central Georgia. *Global and Planetary Change* 201: 103490.
- Patterson, T. W., Maxwell, R. S., Harley, G. L., Oliver, J. S., Speer, J. H., Collins, S. A., Downe, M., Gannon, B., Ma, L., Raso, C., Russell, C., & Teets, A., 2016. Climate-growth relationships of *Pinus rigida* (Mill.) at the species' northern range limit, Acadia National Park, Maine. *Northeastern Naturalist* 23 (4): 490–500.
- Stachowiak, L. A., Schneider, E. A., Rochner, M. L., & Collins, S. A., 2016. Dendrochronological dating of two historic log cabins on the Belle Meade Plantation, Davidson County, Tennessee, USA. *Vegetation History and Archaeobotany* 25 (2): 105–115.

Stachowiak, L. A., Schneider, E. A., Rochner, M. L., Collins, S. A., Swiney, C. P., & McKenzie, T. G., 2014. Dendrochronological dating of the historic McKenzie Home, Meigs County, Tennessee, USA. *Tree-Ring Research* 70 (1): 31–39.

SELECTED PRESENTATIONS

*Indicates presenter of paper/poster

- Collins-Key, S. A., Bekker, M. F., Horn, S. P., Collins-Key, J. D., & Kerr, M. T., 2023. Wood anatomical anomalies as indicators of hemlock woolly adelgid infestation in eastern hemlock, Great Smoky Mountains National Park, Tennessee. *Annual Meeting of the American Association of Geographers (AAG)*, 23–27 March 2023, Denver, CO. Paper presentation.
- Collins-Key, S. A., Bekker, M. F., Horn, S. P., Collins-Key, J. D., & Kerr, M. T., 2022. Pathogen infestation and its effects on reconstructing climate from eastern hemlock in Great Smoky Mountains National Park, Tennessee. *Annual Meeting of the Southeastern Division of the Association of American Geographers (SEDAAG)*, 20–22 November 2022, Atlanta, GA. Paper presentation.
- Collins-Key, S. A., Stachowiak, L. A., Horn, S. P., Bekker, M. F., & Hamilton, M. A., 2022. The usability of Caribbean pine for wildfire and hurricane reconstructions in the Turks & Caicos Islands. *Annual Meeting of the American Association of Geographers (AAG)*, 25 February–1 March 2022, Virtual. Paper presentation.
- Collins-Key, S. A., 2021. Evidence of past flood events in the anatomical tree-ring features of riparian oak, Pearl River Wildlife Management Area, Louisiana. *Annual Meeting of the Southeastern Division of the Association of American Geographers (SEDAAG)*, 21–22 November 2021, Florence, AL. Paper presentation.
- Ellis, K. N.*, Burow, D., Cannistraci, A. M., Collins-Key, S. A., Davis, H., Goldman, W., Grondin, N. S., Maguire, D., & Mason, L. R., 2021. Climate change and extreme weather trends: Is what you see what you believe? *UTK Geography Virtual Research Symposium (GeoSym)*, 18–19 March 2021, Virtual. Paper presentation.
- Collins-Key, S. A., 2020. “What Can We Do to Help You Be Successful?”: Offering an Alternate Narrative Related to the Title IX Reporting Experience. *The National Academies of Sciences, Engineering, and Medicine (NASEM) Action Collaborative on Preventing Sexual Harassment 2020 Virtual Summit*, 19–20 October 2020. Poster presentation.
- Collins-Key, S. A., Kaiser, A. L., von Arx, G., Bekker, M. F., Bhandari, S., Dems, C. L., Germain, S. J., & Wittenbraker, W. C., 2020. A dendro-anatomical approach to evaluate disturbance-induced features and mortality in whitebark pine (*Pinus albicaulis* Engelm.) in the Greater Yellowstone Ecosystem, Wyoming, USA. *1st Tree-Ring Society (TRS) Virtual Symposium*, 29 May 2020. Paper presentation.
- Collins-Key, S. A., Ellis, K. N., & Mason, L. R., 2020. The perception of flash flood risk among emergency managers in the NWS-MRX County Warning Area. *Annual Meeting of the American Meteorological Society (AMS)*, 12–16 January 2020, Boston, MA. Paper presentation.
- Collins-Key, S. A., 2019. Detecting flood signatures in the tree-ring record: Expanding dendrohydrological techniques and integrating paleofloods into flood risk assessments. *Annual Meeting of the American Association of Geographers (AAG)*, 3–7 April 2019, Washington, DC. Paper presentation.
- Collins-Key, S. A., 2018. Examining intensity trends of tropical cyclones impacting the Louisiana deltaic region using extreme value theory. *Annual Meeting of the Southeastern Division of the Association of American Geographers (SEDAAG)*, 18–20 November 2018, Johnson City, TN. Paper presentation. (Also

- presented at the *Southeast Severe Storms Symposium XVII (SESVR)*, 22–24 March 2019, Starkville, MS, as a poster presentation.)
- Collins-Key, S. A., 2018. Policy alternatives and community preparedness for wildfire management in the southeastern US. *Annual Meeting of the American Association of Geographers (AAG)*, 10–14 April 2018, New Orleans, LA. Paper presentation.
- Collins-Key, S. A., 2018. Dendrochronological analysis of abrupt and inexplicable mortality in urban hackberry (*Celtis occidentalis* L.), Augusta, Georgia, USA. *UTK Geography Research Symposium (GeoSym)*, 15–16 February 2018, Knoxville, TN. Lightning talk.
- Collins-Key, S. A., 2017. Industrialized animal agriculture: Communicating the harms of high meat consumption & the modern agricultural system on public health, food security, and the environment. *Annual Meeting of the Southeastern Division of the Association of American Geographers (SEDAAG)*, 19–21 November 2017, Starkville, MS. Poster presentation.
- Collins-Key, S. A., 2017. A feminist epistemological approach to climate change research. *UTK Pipeline Women in STEM Research Symposium*, 21 March 2017, Knoxville, TN. Paper presentation.
- Collins, S. A., Urban, M. L., Rose, A. N., & Axley, D. E., 2016. Systematizing demographics to enhance the accuracy of population density. *Annual Meeting of the American Association of Geographers (AAG)*, 29 March–2 April 2016, San Francisco, CA. Paper presentation.
- Stachowiak, L. A., Schneider, E. A., Rochner, M. L., & Collins, S. A.*, 2015. Dendrochronological dating of two historic log cabins on the Belle Meade plantation, Davidson County, Tennessee, USA. *Annual Meeting of the Southeastern Division of the Association of American Geographers (SEDAAG)*, 22–24 November 2015, Pensacola, FL. Paper presentation.
- Collins, S. A., 2014. Detecting hurricane signals in the tree-ring growth responses of the longleaf pine in Valdosta, Georgia, USA: Preliminary results. *Annual Meeting of the American Association of Geographers (AAG)*, 8–12 April 2014, Tampa, FL. Paper presentation.
- Collins, S. A., Rochner, M. L., Schneider, E. A., Stachowiak, L. A., & Swiney, C. P., 2013. Restoration ecology and tree-ring dating at Cumberland Homesteads Tower in Crossville, Tennessee. *Annual Meeting of the Southeastern Division of the Association of American Geographers (SEDAAG)*, 24–26 November 2013, Roanoke, VA. Poster presentation.
- Collins, S. A., 2013. The influence of climate anomalies on the development, sequence and outcome of Hurricane Sandy. *Annual Meeting of the American Association of Geographers (AAG)*, 7–11 April 2013, Los Angeles, CA. Poster presentation.

OTHER ACTIVITIES AT CONFERENCES

- Collins-Key, S. A., Edwards, J., & Bekker, M. F. (Organizers and Chairs). Quantitative Wood Anatomy. *Annual Meeting of the American Association of Geographers (AAG)*, 23–27 March 2023, Denver, CO.
- Collins-Key, S. A. & Edwards, J. (Organizers and Chairs). Climate and Disturbance Events in Tree-Ring Records. *Annual Meeting of the American Association of Geographers (AAG)*, 25 February–1 March 2022, Virtual.
- Collins-Key, S. A. & Catherwood, A. A. (Organizers and Chairs). Special session: Applications in Dendrochronology. *Annual Meeting of the Southeastern Division of the Association of American Geographers (SEDAAG)*, 21–22 November 2021, Florence, AL.

Smith, L. G., Collins-Key, S. A., & Tucker, C. S. (Organizers), Tucker, C. S. (Chair). Special session: Applications in Dendrochronology. *Annual Meeting of the Southeastern Division of the Association of American Geographers* (SEDAAG), 24–25 November 2019, Wilmington, NC.

Panelist, 2017. “Graduate Student Health and Wellbeing: A Frank Discussion, Session III.” Panel series organized by Kerr, M. T., *Annual Meeting of the American Association of Geographers* (AAG), 5–9 April 2017, Boston, MA. Panel session.

PROFESSIONAL MEMBERSHIPS

American Association for the Advancement of Science (AAAS)
 American Geophysical Union (AGU)
 American Meteorological Society (AMS)
 Association of American Geographers (AAG)
 Association of Fire Ecology (AFE)
 Association for Tree-Ring Research (ATR)
 Association for Women Geoscientists (AWG)
 Gamma Theta Upsilon Geographical Honor Society (GTU)
 Geological Society of America (GSA)
 Society of American Foresters (SAF)
 Southeastern Division of Association of American Geographers (SEDAAG)
 Tree-Ring Society (TRS)

LABORATORY & FIELD EXPERIENCE

Environmental Change Laboratory (<i>formerly the Laboratory of Tree-Ring Science</i>) University of Tennessee	2013 – Present Knoxville, TN
Climate Lab University of Tennessee	2018 – 2020 Knoxville, TN
<ul style="list-style-type: none"> ◇ <i>Tornado Safety Project</i>, September 2018 	
Scalia Laboratory, Senior Weather Forecaster Ohio University	2007 – 2009 Athens, OH

WORKSHOPS & PROFESSIONAL DEVELOPMENT

21st International Training Course on Wood Anatomy and Tree-Ring Ecology, Pontresina, Switzerland (*hosted by the Swiss Federal Research Institute for Forest, Snow, and Landscape Research WSL*), 11–16 December 2022

AmeriDendro Training Workshops, Montreal, QC, 27 June 2022

- ◇ Blue Intensity for Dendrochronology
- ◇ Using Tree-Ring Stable Isotopes of Carbon and Oxygen in Paleoclimate and Ecophysiology

Dendrochronology Intensive Summer Course (Online), University of Arizona, 7–18 June 2021

- ◇ Isotope Dendrochronology Track (*Instructors: Soumaya Belmecheri & Paul Szejner*)

North American Dendroecological Fieldweek, Cody, WY, 20–29 July 2019

- ◇ Quantitative Wood Anatomy Group (*Leaders: Georg von Arx & Matthew Bekker*)

North American Dendroecological Fieldweek, Acadia National Park, ME, 1–10 June 2015

- ◇ Dendroclimatology Group (*Leaders: Grant Harley & Stockton Maxwell*)

SERVICE TO UNIVERSITY & ACADEMIC COMMUNITY

Early Career Representative, AAAS, 2024 – Present

- ◇ Section E Geology and Geography Steering Committee

Geography Graduate Student Association, UTK

- ◇ President, 2022 – 2023
- ◇ Vice President, 2019 – 2020
- ◇ Graduate Representative to the Faculty, 2018 – 2019

Graduate Student Senate, UTK

- ◇ Proxy, 2022–2023
- ◇ Co-chair, Equity & Diversity Committee, 2018 – 2020
- ◇ Council for Diversity & Interculturalism, 2019 – 2020
- ◇ Teaching & Learning Committee for Faculty Senate, 2018 – 2019

Steering Committee for Biennial UTK Geography Research Symposium

- ◇ Former chair (*advising capacity*), 2022 – 2023
- ◇ Former chair (*advising capacity*), 2018 – 2021
- ◇ Chair, 2016 – 2018
- ◇ Co-chair, 2014 – 2016
- ◇ Physical geography chair, 2012 – 2014

Guest Lecturer for Geography 345: People & Environment, UTK, 2017 – 2019

- ◇ Presentation: *What's Wrong with the Red Meat Industry?*

Manuscript Review for the following Journals:

- ◇ *Science of the Total Environment*
- ◇ *Urban Ecosystems*
- ◇ *Weather, Climate, and Society*

RESEARCH AND TECHNICAL SKILLS

R & R Studio

- ◇ R Markdown, HTML, and CSS

Adobe Illustrator, Photoshop, InDesign

Microsoft Word, Excel, PowerPoint

ArcGIS/ArcMap

SPSS

Keynote & Infographics Lab

ROXAS (anatomical image processing)

Dendrochronology software

- ◇ COFECHA, WinDendro/WinCell, ARSTAN, Velmex/MeasureJ2X, CooRecorder, CDendro

QuestionPro (survey creation/distribution)

Mendeley

Overleaf/LaTeX

REFERENCES

Sally P. Horn, Ph.D. | Full Professor of Geography

The University of Tennessee, Knoxville | Department of Geography & Sustainability
418 Burchfiel Geography Bldg. | 1000 Philip Fulmer Way
Knoxville, TN 37996
(865) 974-2418 | shorn@utk.edu

Matthew F. Bekker, Ph.D. | Full Professor of Geography

Brigham Young University | Department of Geography
672C Spencer W. Kimball Tower
Provo, UT 84602
(801) 422-1961 | matthew_bekker@byu.edu

Kelsey N. Ellis, Ph.D. | Associate Professor of Geography

The University of Tennessee, Knoxville | Department of Geography & Sustainability
313 Burchfiel Geography Bldg. | 1000 Philip Fulmer Way
Knoxville, TN 37996
(865) 974-6038 | ellis@utk.edu

Maegen L. Rochner, Ph.D. | Assistant Professor of Geography

University of Louisville | Department of Geographic and Environmental Sciences
219 Lutz Hall | 200 E W Shipp Ave.
Louisville, KY 40292
(502) 852-2692 | maegen.rochner@louisville.edu

Grant L. Harley, Ph.D. | Associate Professor of Geography

University of Idaho | Department of Earth and Spatial Sciences
305D McClure Hall | 875 Perimeter Drive, MS 3021
Moscow, ID 83844
(208) 885-0950 | gharley@uidaho.edu

Georg von Arx, Ph.D. | Head of Dendrosciences Research Group

Swiss Federal Research Institute for Forest, Snow, and Landscape Research WSL
Zürcherstrasse 111
8903 Birmensdorf
+41 44 739 23 16 | georg.vonarx@wsl.ch

Marie L. Urban, M.S. | Interim Group Leader

Oak Ridge National Laboratory | Human Geography Group
P.O. Box 2008 MS 6017
Oak Ridge, TN 37831
(865) 576-3568 | urbanml@ornl.gov

Craig R. Laing, Ph.D. | Associate Professor of Geography

The University of Tennessee, Chattanooga | Social, Cultural, & Justice Studies
308B Brock Hall | 615 McCallie Ave
Chattanooga, TN 37403
(423) 425-4430 | craig-laing@utc.edu