

Chris Guiterman

Research Scientist

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Education

- 2016 **Ph.D.**, *University of Arizona, School of Natural Resources and the Environment, Tucson, AZ.*
 - Climate and human drivers of forest vulnerabilities in the US Southwest: Perspectives from dendroecology
- 2009 **M.S.**, *University of Maine, Orono, School of Forest Resources, Orono, ME.*
 - The influences of conventional and low density thinning on leaf area, growth, and growing space relationships of eastern white pine (*Pinus strobus* L.)
- 2005 **B.A.**, *Bates College, Geology Department, Lewiston, ME.*
 - Strain variations of a hinge-parallel lineation, Presidential Range, New Hampshire

Experience

- 2017–
Present **Research Scientist**, *Laboratory of Tree-Ring Research, University of Arizona, Tucson, AZ.*
- 2010–2016 **Graduate Research Associate; Course Instructor; Teaching Assistant**, *University of Arizona, Tucson, AZ.*
- 2007–2009 **Graduate Research Assistant; Teaching Assistant**, *University of Maine, Orono, ME.*
- 2005–2007 **Forest Inventory Technician**, *Camp II Forest Management, Joseph, OR.*

Courses Taught

Lead or co-instructor

- Summer
2019 **Dendrochronology Intensive Summer Course (DISC)**, *Laboratory of Tree-Ring Research, University of Arizona.*
- Fall 2014 **GEOG 303: Field Study in Environmental Geography**, *School of Geography and Development, University of Arizona.*

- Summer 2013 **GEOG 230: Our Changing Climate (Online)**, *School of Geography and Development*, University of Arizona.
- Winter 2013 **GEOG 230: Our Changing Climate (Online)**, *School of Geography and Development*, University of Arizona.
- Summer 2012 **North American Dendroecological Fieldweek (NADEF)**, *Intro group*, Jemez Mountains, NM.
- Summer 2011 **GEOS 497K/597K: Dendroecology Fieldcourse**, *Laboratory of Tree-Ring Research*, University of Arizona.
- Fall 2011 **GEOG 397A: Field Course – Reading a Landscape**, *School of Geography and Development*, University of Arizona.
- Fall 2011 **GEOG 240: Our Dynamic Landscape**, *School of Geography and Development*, University of Arizona.
- Teaching assistant
- Fall 2010 **NATS 101: Physical Geography**, *School of Geography and Development*, University of Arizona.
- Summer 2009 **SFR 300: Forestry Summer Field Experience**, *School of Forest Resources*, University of Maine.
- Summer 2008 **SFR 300: Forestry Summer Field Experience**, *School of Forest Resources*, University of Maine.
- Fall 2003 **GEO: 230 Structural Geology**, *Geology Department*, Bates College.

Grants

Total research funding: \$928,666

Note: I served as the PI unless otherwise noted.

- 2019–2021 **Integrated watershed hazard assessment for wildfire, floods, and debris flows on the Navajo Nation**, *BIA Tribal Resilience Program*, \$150,000.
- 2020–2021 **Designing Climate Adaptation Plans for the forests of the Navajo Nation**, *Southwest Climate Adaptation Science Center*, \$225,328.
- Margaret Evans (PI)

- 2020 **A grove of stories: Dendrochronology of the Wheatfields Lake peel-tree grove on the Navajo Nation**, *University of Arizona Foundation Small Grants Program*, \$20,000.
- 2017–2018 **Dendrochronology study for Wupakti Residence 1 viga preservation**, *National Park Service, Wupakti National Monument*, \$14,377.
 ○ Ronald Towner (PI)
- 2017–2018 **Sourcing construction timbers at Aztec Ruins National Monument**, *Western National Parks Association. Grant #17-01*, \$7,400.
 ○ Ronald Towner (PI)
- 2017–2018 **Ancient Trees and global change: A vulnerability assessment of old-growth forests on the Navajo Nation**, *BIA Tribal Climate Resilience Program*, \$216,694.
- 2015–2017 **Climate drivers of tree growth across Navajo Forestlands: Incorporating dendrochronology into Continuous Forest Inventory to improve management strategies for a future climate**, *BIA Bureau of Forest Resource Planning and the Navajo Nation*, \$99,632.
- 2014–2016 **Fire regimes, demography, and climatic sensitivities of Navajo forestlands: Insights from the past to inform tribal forest management**, *EPA STAR Fellowship # F13F51318*, \$84,000.
- 2013–2015 **Forest-to-shrub type conversions: climate-disturbance interactions in the southwestern U.S.**, *USGS Cooperative agreement G13AC00247*, \$53,000.
 ○ Ellis Margolis (PI)
- 2014–2015 **Climatic sensitivities of Navajo forestlands: Use-inspired research to guide tribal forest management**, *Climate Assessment of the Southwest (CLIMAS) Fellowship, University of Arizona*, \$5,000.
- 2012–2014 **Dendrochronological Sourcing of Timbers from the Great Houses of Chaco Canyon, New Mexico**, *Bandelier National Monument, Desert Southwest CESU. #UAZDS-381*, \$10,735.
- 2013–2014 **Dendroecological analyses of fire-origin shrublands in former conifer forests of the Jemez Mountains, New Mexico**, *Bandelier National Monument, Desert Southwest CESU #UAZDS-402*, \$35,000.
- 2012–2013 **Dendrochronological Sourcing of Timbers from the Great Houses of Chaco Canyon, New Mexico**, *Western National Parks Association. Grant #13-02*, \$7,500.

- 2012 **Conference travel grant**, *University of Arizona Graduate and Professional Student Council*, \$500.

Awards and Honors

Publications

- 2020 **Convergence of Evidence Supports a Chuska Mountains Origin for the Plaza Tree of Pueblo Bonito, Chaco Canyon**, *CH Guiterman, CH Baisan, NB English, J Quade, JS Dean, TW Swetnam*, *American Antiquity*.
- 2019 **Spatiotemporal variability of human–fire interactions on the Navajo Nation**, *CH Guiterman, EQ Margolis, CH Baisan, DA Falk, CD Allen, TW Swetnam*, *Ecosphere*.
- 2018 **Long-term persistence and fire resilience of oak shrubfields in dry conifer forests of northern New Mexico**, *CH Guiterman, EQ Margolis, CD Allen, DA Falk, TW Swetnam*, *Ecosystems*.
- 2018 **Sampling bias overestimates climate change impacts on forest growth in the southwestern United States**, *S Klesse, RJ DeRose, CH Guiterman, AM Lynch, CD O'Connor, JD Shaw, ...*, *Nature Communications*.
- 2018 **burnr: Fire history analysis and graphics in R**, *SB Malevich, CH Guiterman, EQ Margolis*, *Dendrochronologia*.
- 2018 **Dendroecology meets genomics in the common garden: new insights into climate adaptation**, *MEK Evans, PF Gugger, AM Lynch, CH Guiterman, JC Fowler, S Klesse, ...*, *New Phytologist*.
- 2016 **Eleventh-century shift in timber procurement areas for the great houses of Chaco Canyon**, *CH Guiterman, TW Swetnam, JS Dean*, *Proceedings of the National Academy of Sciences*.
- 2016 **A new digital field data collection system for dendrochronology**, *PW Brewer, CH Guiterman*, *Dendrochronologia*.
- 2016 **Revisiting human-environment interactions in Chaco Canyon and the American Southwest**, *JL Betancourt, CH Guiterman*, *Past Global Changes*.

- 2015 **Dendroecological methods for reconstructing high-severity fire in pine-oak forests**, *CH Guiterman, EQ Margolis, TW Swetnam*, Tree-Ring Research.
- 2015 **Dendrochronological evaluation of ship timber from Charlestown Navy Yard (Boston, MA)**, *PP Creasman, C Baisan, C Guiterman*, Dendrochronologia.
- 2013 **Signal strength in sub-annual tree-ring chronologies from *Pinus ponderosa* in northern New Mexico**, *B Brice, KK Lorion, D Griffin, AK Macalady, CH Guiterman, JH Speer, ...*, Tree-Ring Research.
- 2012 **Long-Term Thinning Effects on the Leaf Area of *Pinus strobus* L. as Estimated from Litterfall and Individual-Tree Allometric Models**, *CH Guiterman, RS Seymour, AR Weiskittel*, Forest Science.
- 2011 **Influences of conventional and low-density thinning on the lower bole taper and volume growth of eastern white pine**, *CH Guiterman, AR Weiskittel, RS Seymour*, Northern Journal of Applied Forestry.

Software

Presentations (last five years)

Research Talks

- Nov 2019 **Modern area burned in a historical context in the Jemez Mountains, New Mexico**, *Margolis, E., C. Farris, C. D. Allen, L. Johnson, D. Falk, T. Swetnam, and C. Guiterman*, 8th International Fire Ecology and Management Congress, Tucson, AZ.
- Nov 2019 **Variable trajectories of Southwest ponderosa pine forests following high-severity fire**, *Iniguez, J., C. Guiterman, E. Margolis, C. Haffey, D. Carril*, 8th International Fire Ecology and Management Congress, Tucson, AZ.
- Nov 2019 **A synthesis of fire regimes in the southwestern United States**, *Guiterman, C., S. Malevich, E. Margolis, C. Baisan, E. Bigio, P. Brown, D. Falk, P. Fulé, and T. Swetnam*, 8th International Fire Ecology and Management Congress, Tucson, AZ.
- Jun 2019 **Beyond the tipping point in dry conifer forests of the US Southwest: Post-fire Gambel oak shrubfields as alternative stable states**, *Guiterman, C., E. Margolis, T. Assal, and C. Allen*, The North American Forest Ecology Workshop, Flagstaff, AZ.
 - Invited special session

- Apr 2019 **A Case Study for Using Digital Field Data Collection**, *Brice, R., P. Brewer, C. Guiterman*, American Association of Geographers, Washington, D.C..
- Apr 2019 **No evidence of fire exclusion in the fire-scar record for the Red Hills Region of the US Southeast**, *Rother, M., J. Huffman, K. Robertson, C. Guiterman*, American Association of Geographers, Washington, D.C..
- Aug 2018 **The fingerprint of transhumance and climate on fire regimes of the Navajo Nation**, *Guiterman, C.H., E.Q. Margolis, D.A. Falk, and T.W. Swetnam*, Ecological Society of America, New Orleans, LA.
 ○ Invited special session
- Jul 2018 **Disasters, natural variability, and resilience: How tree-ring data address today's challenges in forest ecosystems**, *Guiterman, C.H.*, Earth Science Information Partners (ESIP) Conference, Tucson, AZ.
 ○ Plenary presentation
- May 2018 **Persistent fire-induced vegetation state switches in southwestern ponderosa pine forests**, *Guiterman, C.H.*, The Fire Continuum Conference, Missoula, MT.
 ○ Invited special session
- Apr 2018 **Persistent fire-induced vegetation state switches in southwestern ponderosa pine forests**, *Guiterman, C.H.*, Society of American Foresters Southwest Section Meeting, Safford, AZ.
- Nov 2017 **Variability in tree-growth response to climate across dry conifer forests of the Navajo Nation**, *Guiterman, C.H., E.Q. Margolis, C.A. Woodhouse, A.P. Williams, D.A. Falk, and T.W. Swetnam*, Society of American Foresters, Albuquerque, NM.
- Aug 2017 **Targeted sampling designs influence tree-ring climate sensitivity: Implications for forest vulnerability assessments**, *Klesse, S., J. DeRose, C. O'Connor, D. Frank, C. Guiterman, J. Shaw, and M. Evans*, Ecological Society of America, Portland, OR.
- Apr 2017 **The origins of Chaco timbers by tree-ring based sourcing**, *Guiterman, C.H.*, Society of American Archaeologists, Vancouver, BC, Canada.
 ○ Invited oral presentation
- Dec 2016 **Persistence and fire regimes of oak shrubfields suggest increased dominance with climate change**, *Guiterman, C.H., E.Q. Margolis, T.W. Swetnam, D.A. Falk, and C.D. Allen*, 3rd Southwest Fire Ecology Conference, Tucson, AZ.
 ○ Invited special session oral presentation

- Dec 2016 **Navajo settlement, pastoralism, and the interruption of frequent fires in northeastern Arizona**, *Guiterman, C.H., E.Q. Margolis, C.H. Baisan, D.A. Falk, R.H. Towner, and T.W. Swetnam*, 3rd Southwest Fire Ecology Conference, Tucson, AZ.
- Oct 2015 **Climate Sensitivity of Navajo Forests: Use-inspired research to guide tribal forest management**, *Guiterman, C.H., A.C. Becenti, E.Q. Margolis, and T.W. Swetnam*, 13th Biennial Conference of Science and Management on the Colorado Plateau and Southwest Region, Flagstaff, AZ.
 ○ Invited special session; A.C. Becenti, Head Forester, Navajo Forestry Department
- Apr 2015 **Tree-Ring Sourcing of Great House Timbers and the Plaza Tree of Pueblo Bonito, Chaco Canyon, New Mexico**, *Guiterman, C.H., T.W. Swetnam, J.S. Dean, C.H. Baisan, and N.B. English*, Society of American Archaeology, San Francisco, CA.

Posters

- Apr 2018 **Drying surface water resources in the Chuska Mountains, Navajo Nation**, *Brice, R.L., C.H. Guiterman, C. McClellan*, C. Woodhouse*, American Association of Geographers, New Orleans, LA.
 ○ C. McClellan, Navajo Water Management Branch
- Dec 2016 **Climate Controls on Tree Growth Across Species and Sites in Northeastern Arizona**, *Schwan, M.R., C.H. Guiterman, and K.J. Anchukaitis*, American Geophysical Union, Fall Meeting, San Francisco, CA.
 ○ Poster presentation by MRS, an undergraduate honors student under my mentorship
- Oct 2016 **Paleoclimatic Indicators of Surface Water Resources in the Chuska Mountains, Navajo Nation**, *Brice, R., C. Guiterman, C. McClellan, and C. Woodhouse*, Mountains Without Snow: What are the Consequences? Mountain Climate Conference, Leavenworth, WA.
 ○ C. McClellan, Navajo Water Management Branch
- Jul 2016 **An 11th century shift in timber procurement areas for the great houses of Chaco Canyon**, *Guiterman, C.H., T.W. Swetnam, and J.S. Dean*, American Quaternary Association (AMQUA), Santa Fe, NM.