SUMMARY CURRICULUM VITAE

Steven T. Brantley, Ph.D.
Ecohydrologist

Dr. Brantley is broadly interested in the effects of land management on water yield and balancing water yield with other ecosystem services. His previous research has given him a wide range of experiences in quantifying the effects of land cover change on fluxes of water, carbon, nitrogen and sediments. His current research in the longleaf pine-wiregrass ecosystem focuses on three primary areas: 1) interactions between prescribed fire and provision of ecosystem services 2) the effects of prescribed fire on tree stress and overall forest health, and 3) the potential role of longleaf pine restoration and prescribed fire in improving water yield. Dr. Brantley's outreach activities center on raising awareness of links between land management, evapotranspiration, and watershed function.

Education

Ph.D. in Integrative Life Sciences, Virginia Commonwealth University, May 2009

M.S. in Biology, Virginia Commonwealth University, Richmond, VA., August 2005

B.S. in Biology, Virginia Commonwealth University, Richmond, VA., August 2003

Professional Experience

2020–Present: Associate Scientist, The Jones Center at Ichauway

2014–2020: Assistant Scientist, The Jones Center at Ichauway

2010–2014: Post-doctoral Research Associate, Coweeta Hydrologic Lab, US Forest Service

2011–2013: Adjunct Professor, Department of Geosciences and Natural Resources, Western Carolina University

2009–2010: Lab Manager, Coastal Plant Ecology Lab, Virginia Commonwealth University

2004–2009: Research Assistant, Coastal Plant Ecology Lab, Virginia Commonwealth University

2003–2007: Lab Instructor, Department of Biology, Virginia Commonwealth University

Recent Research Publications

Brantley ST, OS Stuber, DL Holder, RS Taylor. 2024. Fire exclusion alters forest water use partitioning: a comprehensive water budget component analysis in longleaf pine woodlands. *Ecological Monographs* 94: e1623.

Belovitch MW, ST Brantley, DP Aubrey. 2024. Hydraulic redistribution supplies a major water subsidy and improves water status of understory species in a longleaf pine ecosystem. *Ecohydrology* 17: e2680.

English CJ, SE Younger JB Cannon, ST Brantley, D Markewitz, P Dwivedi. 2024. Forest management for Water Yield: Assessing the Barriers and Impacts of Privately-Owned Open Pine Woodlands in the Southeastern United States. *Trees, Forests, and People* 17: 100600.

Ritger HMW, ST Brantley, LR Boring, KD Klepzig, KJK Gandhi. 2023. Differential effects of fire regime and site conditions on bark beetle (Coleoptera: Curculionidae) activity in a longleaf pine (*Pinus palustris* Mill.) ecosystem. *Forest Ecology and Management* 549: 121488.

Younger SE, JB Cannon, ST Brantley. 2023. Impacts of longleaf pine (*Pinus palustris* Mill.) on long-term hydrology at the watershed scale. *Science of the Total Environment* 902: 165999.

Honings J, C Wicks, S Brantley. 2023. Field Guide to the Hydrogeology of the Jones Center at Ichauway. Internal Jones Center Publication. https://www.jonesctr.org/hydrogeology-field-guide/

Puhlick JJ, TL O'Halloran, G Starr, RB Abney, LS Pile, RA McCleery, ST Brantley, RK McIntyre, B Song, KD Klepzig. 2023. Opportunities for research on carbon management in longleaf pine ecosystems. *Forests* 14: 874.

Honings JP, CM Wicks, and ST Brantley. 2022. Ground-penetrating radar detection of hydrologic connectivity in a covered karst setting. *Hydrology* 9: 168.

Puhlick JJ, ST Brantley, TL O'Halloran, L Clay, and KD Klepzig. 2022. Perspectives: Carbon markets might incentivize poor ecological outcomes in longleaf pine ecosystems. *Forest Ecology and Management* 520: 120421.

Baniya B, SW Bigelow, A Sharma, RS Taylor, JG Vogel, and ST Brantley. 2022. Re-assembly of the longleaf pine ecosystem: Effects of groundcover seeding on understory community, fire behavior and soil properties. *Forests* 13: 519.

Barrie CJ, T Rasmussen, ST Brantley, SW Golladay, and EW Tollner. 2022. Creek-Aquifer Interactions on a karstic landscape in southwest Georgia. *Journal of Hydrology: Regional Studies* 40: 101046.

Belovitch MW, ST Brantley, and DP Aubrey. 2022. Interspecific variation in hydraulic redistribution and hydrologic partitioning. *Plant and Soil*: 472: 451–464.

Kenney G, CL Staudhammer, S Wiesner, ST Brantley, SW Bigelow, and G Starr. 2021. Hurricane Michael altered the structure and function of longleaf pine woodlands. *Journal of Geophysical Research: Biogeosciences* 126: e2021

Qi J, ST Brantley, and SW Golladay. 2021. Simulated longleaf pine (*Pinus palustris* Mill.) restoration increased streamflow: a case study in the lower Flint River Basin. *Ecohydrology* 15, 1: e2365.

Golladay SW, B. Clayton, ST Brantley, CR Smith, J Qi, and DW Hicks. 2021. Forest restoration increases isolated wetland hydroperiod: A ten-year case study.

Ecosphere 12: e03495.

Oishi AC, SO Denham, ST Brantley, KA Novick, PV Bolstad, CF Miniat. 2020. Quantifying the effects of stand age on components of forest evapotranspiration. *Acta Horticulturae* 1300: 89–96.

Qi J, ST Brantley, and SW Golladay. 2020. Simulated irrigation reduction improves low flow in streams—a case study in the Lower Flint River Basin. *Journal of Hydrology: Regional Studies* 28: 100665.

Miniat CF, DR Zietlow, ST Brantley, CL Brown, AE Mayfield III, RM Jetton, JR Rhea, and P Arnold. 2020. Physiological responses of eastern hemlock (*Tsuga canadensis*) to silvicultural release and variable site history: Implications for hemlock restoration. *Forest Ecology and Management* 460: 117903.

Current Jones Center Research Areas

Hydrologic modeling of the ACF Basin, Upper Floridan Aquifer, and Southeastern Coastal Plain

Landscape role of Geographically Isolated Wetlands

Longleaf ecosystem structure, function, and services under variable conditions.

Sustainable management of longleaf pine ecosystems: Adaptive silviculture for climate change in southeastern USA.

Ecological restoration of longleaf pine woodlands.

Predator influence on impacts of white-tailed deer browsing.

Recent Research Grants

Research Grant: Application of SWOT to understanding water storage and hydroperiod within geographically isolated wetlands. NASA. Total Award: $867,182. PI: FC O'Donnell; Co-PI's: ST Brantley and J Beck. 2024–2027.

Research Grant: Developing tools and knowledge to improve restoration in wetlands and associated longleaf pine forests on private lands in Georgia. NRCS CEAP/Easements. Total Award: $605,700. PI: J Cannon; Co-PI's: ST Brantley, SE Younger. 2024–2026.

Research Grant: Impacts of fire intensity and seasonality on post-fire response of eastern and western United States oak saplings. USDA AFRI. Total Award: $799,000. PI: DJ Johnson; Co-PI's: A Smith, H Adams, J O'Brien, ST Brantley, D Schwilk. 2024–2026.

Research Grant: Quantifying landscape-scale ecosystem benefits of restoration in longleaf pine forests. NRCS Conservation Effects Assessment Program. Total Award: 650,500. PI: J Cannon; Co-PI's: ST Brantley, SW Golladay, RK McIntyre. 2021–2024.

Research grant: A landscape-scale approach to wetland mitigation of non-point source agricultural runoff: spatial and temporal variability of wetland function. USDA

Agriculture and Food Research Initiative. Total award: $499,960. PI: FC O'Donnell (Auburn University); Co-PI's: MW Waters, SW Golladay, ST Brantley. 2020–2023.

Research grant: Understanding the resilience of longleaf pine savannas following Hurricane Michael. Funding agency: NSF RAPIDS. PI: G Starr (University of Alabama); Co-PI's: C Staudhammer, S Bigelow, and ST Brantley. Total Award: $197,083. 2019–2021.

Student Advisement

Carlie Blackburn, MS student, Auburn University, 2025–present. Topic: *Productivity and evapotranspiration of geographically isolated wetlands.*

Virginia Hudspeth, MS student, University of Georgia, 2024–present. Topic: *Oak sapling physiological responses to prescribed fire.*

Kathryn Perkins, MS student, Auburn University, 2024–present. Topic: *Forest management for hydrology of geographically isolated wetlands.*

Suranjana Chatterjee, PHD student, Auburn University, 2023–present. Topic: *Wetland hydrology and sedimentation modeling.*

Haley Ritger, PHD, University of Georgia Warnell School of Forest Resources. 2015–2023. Dissertation: *Forest health implications of restoring longleaf pine ecosystems with prescribed fire*.

Joseph Honings, PHD, Louisiana State University Department of Geology and Geophysics. 2018–2022. Dissertation: *Hydrogeologic investigation of a covered karst region.*

Phoebe Judge, MS, University of Georgia Odum School of Ecology, 2020–2022. Thesis: *The impacts of hydraulic redistribution on the physiology and growth of understory plants in longleaf pine sandhills*.

Benju Baniya, MS, University of Florida, 2020–2021. Thesis: *Re-assembly of the longleaf pine ecosystem: effects of groundcover seeding on understory characteristics, fire behavior, and soil properties.*

Gavin Kenney, MS, University of Alabama, 2019–2021. Thesis: *Effects of Hurricane Michael on the structure and function of longleaf pine woodlands.*

Coleman Barrie, MS, University of Georgia College of Engineering. 2017–2019. Thesis: *Groundwater flow on a karstic landscape in southwest Georgia.*

Michael Belovitch, MS, University of Georgia Warnell School of Forest Resources. 2016–2018. Thesis: *Hydraulic redistribution: roots to ecosystems.*