

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

2014–Present: Assistant Scientist, Joseph W. Jones Ecological Research Center
2017–Present: Courtesy Assistant Professor, Geology Department, Louisiana State University
2015–Present: Adjunct Assistant Professor, Warnell School of Forestry and Natural Resources, University of Georgia
2010–2014: Post-doctoral Research Associate, Coweeta Hydrologic Lab, Otto, North Carolina
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

- Lapham, M., C. F. Miniati, A. E. Mayfield III, R. M. Jetton, S. T. Brantley, D. R. Zietlow, C. Brown, and J. R. Rhea. Shade and hemlock woolly adelgid infestation increase eastern hemlock foliar nutrient concentration. *Forest Science*. (In Press)
- Giencke, L. M., R. C. Denhof, L. K. Kirkman, O. S. Stuber, and S. T. Brantley. 2018. Seed sourcing for longleaf pine ground cover restoration: using plant performance to assess seed transfer zones and home-site advantage. *Restoration Ecology* 26:1127-1136.
- Oishi, A. C., C. F. Miniati, K. A. Novick, S. T. Brantley, J. M. Vose, and J. T. Walker. 2018. Rising temperatures reduce net carbon uptake, but not water use in a mature southern Appalachian forest. *Agricultural and Forest Meteorology* 252:269-282.
- Brantley, S. T., J. M. Vose, D. N. Wear, and L. E. Band. 2017. Planning for an uncertain future: restoration to mitigate water scarcity, and sustain carbon sequestration. Pages 291-309 in L. K. Kirkman, and S. B. Jack (eds.). *Ecological Restoration and Management of Longleaf Pine Forests*. CRC Press, Boca Raton, Florida.
- Brantley, S. T., A. E. Mayfield, III, R. M. Jetton, C. F. Miniati, D. R. Zietlow, C. L. Brown, and J. R. Rhea. 2017. Elevated light levels reduce hemlock woolly adelgid infestation and improve carbon balance of infested eastern hemlock seedlings. *Forest Ecology and Management* 385:150-160.
- Elliott, K. J., P. V. Caldwell, S. T. Brantley, C. F. Miniati, J. M. Vose, and W. T. Swank. 2017. Water yield following forest–grass–forest transitions. *Hydrology and Earth Systems Sciences* 21:981-997.
- Zinnert, J. C., J. A. Stallins, S. T. Brantley, and D. R. Young. 2017. Crossing scales: the complexity of barrier-island processes for predicting future change. *Bioscience* 67:39-52.
- Brantley, S. T., M. L. Schulte, P. V. Bolstad, and C. F. Miniati. 2016. Equations for estimating biomass, foliage area, and sapwood of small trees in the southern Appalachians. *Forest Science* 62:414-421.
- Caldwell, P. V., C. F. Miniati, K. J. Elliott, W. T. Swank, S. T. Brantley, and S. H. Laseter. 2016. Declining water yield from forested mountain watersheds in response to climate change and forest mesophication. *Global Change Biology* 22:2997-3012.
- Zinnert, J. C., S. T. Brantley, and D. R. Young. 2016. Bistability and the future of barrier islands. *Nature Climate Change* 6:5-6.
- Brantley, S. T., C. F. Miniati, K. J. Elliott, S. H. Laseter and J. M. Vose. 2015. Changes to southern Appalachian water yield and stormflow after the loss of a foundation species. *Ecohydrology* 8:518–528.

- Brantley, S.T., S. N. Bissett, D. R. Young, C. V. Wolner and L. J. Moore. 2014. Barrier island morphology and sediment grain size inhibit the recovery of dune building grasses following storm induced overwash. *PLOS One* 9(8): e0104747.
- Novick, K. A., S. T. Brantley, C. F. Miniati, J. T. Walker and J. M. Vose. 2014. Inferring the contribution of advection to total ecosystem scalar fluxes over a tall forest in complex terrain. *Agricultural and Forest Meteorology* 185:1–13.
- Brantley, S. T., C. R. Ford and J. M. Vose. 2013. Future species composition will affect forest water use after loss of eastern hemlock from southern Appalachian forests. *Ecological Applications* 23:777–790.
- Wolner, C. W. V., L. J. Moore, D. R. Young, S. T. Brantley, S. N. Bissett and R. A. McBride. 2013. Ecomorphodynamic feedbacks and barrier island response to disturbance: Insights from the Virginia Barrier Islands, Mid-Atlantic Bight, USA. *Geomorphology* 199:115–128.
- Young, D. R., S. T. Brantley, J. K. Vick and J. C. Zinnert. 2011. Landscape position and habitat polygons in a dynamic coastal barrier environment. *Ecosphere* 2:6. Article 71:1–15.
- Wolner, C. W. V., L. J. Moore, D. R. Young, S. T. Brantley, S. N. Bissett, M. D. Wilson and B. D. Watts. 2011. Dune builders vs. overwash maintainers: Ecomorphodynamic feedbacks on the Virginia Coast Reserve barrier islands. Pages 258-271 in P. Wang, J. D. Rosati, T. M. Roberts (eds.). *The Proceedings of the Coastal Sediments 2011*, Singapore: World Scientific.
- Brantley, S. T., J. C. Zinnert and D. R. Young. 2011. Application of hyperspectral vegetation indices for predicting variations in high leaf area index temperate shrub canopies. *Remote Sensing of Environment* 115:514–523.
- Brantley, S.T. and D. R. Young. 2010. Shrub expansion stimulates soil C and N storage along a coastal soil chronosequence. *Global Change Biology* 16:2052–2061.
- Brantley, S. T. and D. R. Young. 2010. Linking light attenuation and the occurrence of sunflecks to canopy structure in mesic shrub thickets. *Plant Ecology* 206:225–236.
- Brantley, S. T. and D. R. Young. 2009. Contribution of sunflecks in shrub thickets is minimal compared to temperate forest. *Ecology* 90:1021–1029.
- Brantley, S. T. and D. R. Young. 2008. Shifts in litter production and dominant nitrogen sources after expansion of shrub thickets. *Oecologia* 155:337–345.
- Brantley, S. T. and D. R. Young. 2007. Leaf-area index and light attenuation in rapidly expanding shrub thickets. *Ecology* 88:524–530.

Current Jones Center Research

Bigelow, S., S. Jack, S. Brantley, M. Conner, and L. Smith. Adaptive silviculture for climate change in southeastern USA.

Brantley, S., M. Conner, S. Taylor, L. Giencke, G. Morris, and S. Stuber. Longleaf Pine Ecosystem Study.

Golladay, S. W., S. T. Brantley, and J. Qi. Hydrologic variation and human development in the lower Flint River Basin.

Smith, L. L., S. W. Golladay, S. T. Brantley, and M. Conner. Geographically Isolated wetlands in the Coastal Plain landscape.

Research Grants

Golladay, S.W., and S.T. Brantley. Evaluation of current and potential water conservation strategies using SWAT modeling: The lower Flint River basin in Georgia. The Nature Conservancy. Total Award: \$38,000 for 11/01/106–12/31/2017.

Student Advisement

Coleman Barrie. Current. Surface-subsurface hydrologic interactions in a south Georgia karstic aquifer system. MS., College of Engineering, University of Georgia. (Co-Advisor with Bill Tollner).

Haley Ritger. Current. Interactions between prescribed fire, tree stress and insect communities in longleaf pine. Ph.D., Warnell School of Forestry and Natural Resources, University of Georgia. (Co-Advisor with Kamal Gandhi).

Michael Belovitch. 2018. Hydraulic redistribution – roots to ecosystem. MS., Warnell School of Forestry and Natural Resources, University of Georgia. (Co-Advisor with Doug Aubrey).