

Amanda M. Schwantes

Nicholas School of the Environment
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EDUCATION

Duke University, Durham, NC

PhD, Ecology, expected Dec 2017

University Program in Ecology. Nicholas School of the Environment

Committee: Drs. Jennifer J. Swenson (co-advisor), Robert B. Jackson (co-advisor),
James S. Clark, and Amilcare Porporato

Dissertation: *Forecasting and monitoring forest response to a changing climate: drought-induced tree mortality in Texas*

University of Virginia, Charlottesville, VA

BS, Environmental Science with Highest Distinction and

BA, Chemistry (Double Major). May 2009

RESEARCH INTERESTS

Forest disturbance, drought-induced tree mortality, global change ecology, remote sensing, geospatial analysis, landscape ecology, and conservation biology

PEER-REVIEWED PUBLICATIONS

Schwantes, AM, JJ Swenson, M González-Roglich, DM Johnson, JC Domec, and RB Jackson. (2017). Measuring canopy loss and climatic thresholds from an extreme drought along a 5-fold precipitation gradient across Texas. *Global Change Biology*. In press.

Schwantes, AM, JJ Swenson, and RB Jackson (2016). Quantifying drought-induced tree mortality in the open canopy woodlands of central Texas. *Remote Sensing of the Environment*. 181, 54-64.

Austin, KG, M González-Roglich, D Schaffer-Smith, **AM Schwantes**, and JJ Swenson (2017). Trends in size of tropical deforestation events signal increasing dominance of industrial-scale drivers. *Environmental Research Letters*. 12, 054009.

McDowell, NG, NC Coops, PSA Beck, JQ Chambers, C Gangodagamage, JA Hicke, C Huang, R Kennedy, DJ Krofcheck, M Litvak, AJH Meddens, J Muss, R Negrón-Juarez, C Peng, **AM Schwantes**, JJ Swenson, LJ Vernon, AP Williams, C Xu, M Zhao, SW Running, and CD Allen (2015). Global satellite monitoring of climate-induced vegetation disturbances. *Trends in plant science*, 20(2), 114-123.

Tully, KA, TE Wood, **AM Schwantes**, and D Lawrence (2013). Soil nutrient availability and reproductive effort drive patterns in nutrient resorption in *Pentaclethra macroloba*. *Ecology*. 94(4), 930-940.

MANUSCRIPTS SUBMITTED OR IN PREPARATION

Johnson, DM, JC Domec, B Carter, **AM Schwantes**, DR Woodruff, K McCulloh, R Wortemann, JJ Swenson, DS Mackay, NG McDowell, and RB Jackson. Co-occurring woody species have diverse hydraulic strategies and mortality rates during an extreme drought. (submitted).

Schwantes, AM, AJ Parolari, JJ Swenson, DM Johnson, JC Domec, RB Jackson, N Pelak, and A Porporato. Accounting for landscape heterogeneity improves spatial predictions of tree vulnerability following drought. (in preparation).

Gonzalez-Roglich, M, **AM Schwantes**, JJ Swenson, and J Vincent. Satellite-based datasets underestimate the global surface area of forest cover and loss. (In preparation).

GRANTS, FELLOWSHIPS, & HONORS

- Duke Graduate School Fellowship (stipend/tuition for 1 yr). 2016
- NASA Earth and Space Science Fellowship (stipend/tuition for 3 yrs, \$30,000/yr). 2013
- James B. Duke Fellowship (stipend supplement for 4 yrs, \$5,000/yr). 2012
- AmeriCorps Segal Education Award. (\$4725). 2010
- College of Arts and Sciences Grant (undergraduate research funding, \$1500). 2008
- Raven Fellowship (undergraduate research funding, \$2500). 2008
- U.Va. Distinguished Majors Program with Highest Distinction. 2009
- U.Va. Dean's List (8/8 semesters)

PRESENTATIONS

Schwantes, AM, JJ Swenson, M González-Roglich, DM Johnson, JC Domec, and RB Jackson. 2016. "Drivers of drought-induced tree mortality across Texas." Oral Presentation. US-IALE Annual Meeting: Landscape Change, April 2016. Asheville, NC.

Schwantes, AM, JJ Swenson, DM Johnson, JC Domec, and RB Jackson. 2014. "Quantifying drought-induced tree mortality at local and landscape scales in central Texas." Oral Presentation. Ecology across Scales Symposium, March 2014. Duke University. Durham, NC.

Schwantes, AM, JJ Swenson, DM Johnson, JC Domec, and RB Jackson. 2013. "Drought-induced Canopy Loss in Texas." Oral Presentation. Remote sensing of vegetation mortality: challenges, solutions, and ecological understanding Institute of Geophysics and Planetary Physics (IGPP) workshop. Los Alamos National Laboratory. Santa Fe, NM.

Schwantes, AM, JJ Swenson, and RB Jackson. 2013. "Quantifying Drought-induced Canopy Loss at Multiple Scales in Texas." Oral Presentation. US-IALE 2013 Annual Symposium: Landscape Dynamics along Environmental Gradients. April 2013. Austin, TX.

CONFERENCE POSTERS

Schwantes, AM, JJ Swenson, M González-Roglich, DM Johnson, JC Domec, and RB Jackson. 2016. "Identifying Climatic Thresholds that Control the Spatial Patterning of Drought-Induced

Canopy Loss across a 5-Fold Precipitation Gradient in Texas.” Poster. American Geophysical Union Fall Meeting, December 2016. San Francisco, CA.

Schwantes, AM, JJ Swenson, DM Johnson, JC Domec, and RB Jackson. 2015. “Quantification of Drought-Induced Tree Mortality in Texas: Fine scale to Regional Estimates.” Poster. American Geophysical Union Fall Meeting, December 2015. San Francisco, CA.

Schwantes, AM., JJ Swenson, DM Johnson, JC Domec, and RB Jackson. 2015. “Quantification of Drought-Induced Tree Mortality in Texas: Fine scale to Regional Estimates.” Poster. 2015 NASA Carbon Cycle & Ecosystems Joint Science Workshop, April 2015. Hyattsville, MD.

Schwantes, AM, JJ Swenson, DM Johnson, JC Domec, and RB Jackson. 2014. “Who Died, Where? Quantification of Drought-Induced Tree Mortality in Texas.” Poster. American Geophysical Union Fall Meeting, December 2014. San Francisco, CA.

RESEARCH EXPERIENCE

Nicholas School of the Environment. Duke University, Durham, NC.

Doctoral Research

Sept 2012-present

Research advisors: Dr. Jennifer J. Swenson and Dr. Robert B. Jackson

- Developed remote sensing approaches that improved monitoring of drought-induced canopy loss, scaling from field estimates to 1-m orthophotos to 30-m Landsat imagery and taking advantage of machine-learning algorithms and time-series & geospatial analysis, using Python/arcPy, R, and IDL/ENVI API.
- Developed a quantitative model of soil moisture dynamics across a landscape, accounting for spatial differences in aspect, topography, and soils using MATLAB, emphasizing the importance of including landscape diversity when projecting future tree water stress.

Department of Environmental Sciences. University of Virginia, Charlottesville, VA.

Undergraduate Research

Sept 2007-May 2009

Research advisor: Dr. Deborah Lawrence.

- Designed and implemented a Distinguished Majors Program (DMP) thesis.
- Conducted a field study in La Selva, Costa Rica, examining the effect of soil nutrient availability and reproductive effort on nutrient resorption in *Pentaclethra maculosa*.
- Received “Highest Distinction” for undergraduate DMP thesis.

PROFESSIONAL EXPERIENCE

Research Assistant. Abt Associates. Bethesda, MD. Nov 2011-Aug 2012

- Assisted the Environmental Protection Agency on projects in public health and toxicology.
- Maintained a product/partner database for EPA’s Safer Product Labeling Program.
- Updated dose response modeling reports for several drinking water contaminants for EPA’s Office of Ground Water and Drinking Water.
- Received Spot Bonus award for work excellence.

Biotech Intern. Student Conservation Association. Death Valley, CA. Sept 2010-Mar 2011

- Conducted field surveys of native/invasive plants at Death Valley National Park.

Trails Program Manager. AmeriCorps Volunteer. Incline Village, NV. Sept 2009-Sept 2010

- Recruited/managed volunteers to build trail with the Tahoe Rim Trail Association.
- Assisted with environmental education hikes and backpacking trips for children.

Restoration Intern. Student Conservation Association. Gatlinburg, TN. May 2007-Aug 2007

- Chemically treated hemlock trees to prevent hemlock wooly adelgid infestations.