

Bioenergy, Sustainability, and Land-Use Change Report Oak Ridge National Laboratory (ORNL) May 2015

Publications

- Dale VH, RA Efroymsen, KL Kline, and M Davitt. In press. A framework for selecting indicators of bioenergy sustainability. *Biofuels, Bioproducts & Biorefining*. DOI: 10.1002/bbb.1562
- Parish ES, VH Dale, BC English, SW Jackson, DD Tyler. In press. Assessing multimetric aspects of sustainability: Application to a bioenergy crop production system in East Tennessee. *Ecosphere*.
- Jager, HI, LM Baskaran, PE Schweizer, A Turhollow, CC Brandt, and R Srinivasan. 2015 Forecasting changes in water quality in rivers associated with growing biofuels in the Arkansas-White-Red river drainage, USA. *Global Change Biology: Bioenergy*. DOI: 10.1111/gcbb.12169.
- Preston BL, AW King, KM Ernst, SM Absar, SS Nair, ES Parish. In Press. Scale and the Representation of Human Agency in the Modeling of Agroecosystems. *Current Opinion in Environmental Sustainability*.

ORNL Presentations

May 17-21: Natalie Griffiths gave a talk on “Effects of short-rotation pine management for bioenergy on water quality in the southeastern United States” at the Society for Freshwater Science conference in Milwaukee.



May 20-22: Virginia Dale and Keith Kline attended the International Energy Agency (IEA) Bioenergy Task 43 Meeting in Dublin, Ireland. They contributed to International Energy Agency (IEA) Inter-Task report “Mobilizing Sustainable Bioenergy Supply Chains” and to the Task 43 triennium (2016-18) planning. Task members expressed interest in collaboration on international standards, sustainability governance, land-use change, and landscape design and identified areas for continued inter-task collaborations with T38 and T40.

CBES FORUM

May 14 - Latha Baskaran of the Landscape Ecology and Regional Analysis Group in the Environmental Sciences Division was the CBES Forum speaker for May. Her seminar was titled ***Aquatic Macroinvertebrates for Assessing Water Quality Effects Associated with Bioenergy.***



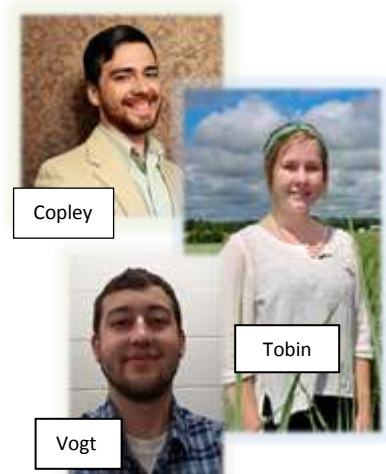
Other ORNL Activities

May 6: The final report from the workshop on biofuels and food security was issued: see CBES website or <http://www.ifpri.org/event/workshop-biofuels-and-food-security-interactions>

May 8: Yetta Jager, Latha Baskaran and Natalie Griffiths participated in a webinar with the Water Institute to learn about the Louisiana Ecosystem Model.

May 15: Matt Carr of the Algae Biomass Organization participated in a Congressional briefing to the Tennessee delegation termed “Tennessee Algae Day.” He discussed (broadly) ORNL’s algae research. Jeff Kanel of Renewable Algal Energy in Johnson City, and Joel Murdock at Federal Express also participated.

Three summer interns began work at ORNL under a Southeast Energy Development (SEED) fellowship that is sponsored by the Southeastern Partnership for Integrated Biomass Supply Systems (IBSS). Emma Tobin is a student at the University of Tennessee and her project focuses on analysis of data from the USDA Forest Inventory Analysis in order to characterize the use of woody residues for bioenergy in the southeastern US. Eric Vogt is from Auburn University. His project focus is data analysis to develop improved estimates of field efficiency in harvesting bioenergy feedstocks. Kirk Copley attends Auburn University. His project focus is to refine and update cost estimates for forestry machinery to collect and deliver bioenergy feedstocks.





Three more summer interns are here to work in the Renewable Energy Systems Group. Steven Gail is with the HERE Program and attends the University of Kentucky. His project focus is analysis of improved corn stover harvest and collection technologies developed and demonstrated by industrial partners for reducing cost of bioenergy feedstocks. Oluwafemi Oyedeji is with the ASTRO Program and attends the Auburn University. His project focus includes modeling regional field drying potential of corn stover to improve biomass harvest cost estimations. Johnson Luma is with the SULI Program and attends the University of Tennessee. His project focus includes modeling fire spread in biomass bale storage yards to develop improved safe storage practices.

May 20: Yetta Jager participated in the USDA/ARS Water Availability and Watershed Management Customer meeting which involved presentations about research related to irrigation systems, agricultural practices to mitigate water quality and agricultural drainage systems, and bioenergy initiatives.

May 22: Yetta Jager participated in a webinar meeting of the Mississippi River Basin / Gulf Hypoxia Taskforce project for Prairies and Grasslands. This group is focusing on developing conceptual models and decision tools for wildlife by coordinate efforts of agencies and private entities in the basin.

Upcoming ORNL Visits/Events:

June 15-17: Virginia Dale will give a talk on “Approach for sustainability assessment of southeast pellet production” at the Forestry Technical Session at the 2015 Southern Regional Meeting of the National Council for Air and Stream Improvement (NCASI) in Greenville, SC

June 23-24: Tim Theiss, Virginia Dale, Yetta Jager, and others plan to attend the “DOE Bioenergy 2015: Opportunities in a Changing Energy Landscape” conference in Washington, D.C. Virginia will give a poster on “Incorporating Bioenergy into Sustainable Landscape Designs Informs Opportunities, Barriers, and Paths Forward” coauthored by Keith L Kline, Timothy A. Volk, C. Tattersall Smith, and Inge Stupak. Yetta will present a poster entitled “Sustainable Bioenergy Production Can Enhance Water Quality” with coauthors Latha M. Baskaran, Gangsheng Wang, Jasmine Kreig, and Nate Sutton.

June 24: A work session is being organized with the American Society for Testing and Materials (ASTM) International Committee E48.80 for a new standard relevant to sustainability concepts, definitions and assessment of energy and industrial chemicals from biomass. See the ASTM website: <http://myastm.astm.org> to register for the June meeting. Contact Maggie Davis or Keith Kline for more information.

July 5-11: Virginia Dale plans to attend the 9th International Association of Landscape Ecology (IALE) World Congress in Portland, Oregon, and will present an invited talk on “Ecological implications of energy use: a focus on scale” in the John A. Wiens Symposium on Spatial Scaling in Ecology. She will also tell her personal story in an evening session as part of Springer

Storytellers and Story Colliders: <http://www.beforetheabstract.com/events/springer-storytellers-iale-portland/> .

August 8-14: Virginia Dale plans to attend the 2015 Ecological Society of America (ESA) Annual Meeting and give an invited talk. Keith Kline will also present on a landscape design approach for assessing trade-offs and sustainability of woody biomass production from forests in the Southeastern United States. This meeting is taking place in Baltimore, Maryland.

October 26-29: Virginia Dale plans to participate in the International Energy Agency (IEA) Bioenergy Conference 2015 in Berlin, Germany.

November 2-6: Keith Kline and Maggie Davis plan to attend the Society of American Foresters annual convention and present on, “Bioenergy Trade and Sustainability Assessment: Science, Truth and Consequences” and “Indirect Effects of Bioenergy: International Standards and Science.” Virginia Dale will also attend and will give a presentation on “Using landscape design to assess sustainability of wood biomass production from southeast US forests.”