

Bioenergy, Sustainability, and Land-Use Change Report Oak Ridge National Laboratory (ORNL) March 2014

Publications and Reports:

A report on “Gaps in Agricultural and Forestry Best Management Practices for the Lower Little Tennessee Watershed: Examining Environmental Sustainability for Bioenergy” was submitted to the US Department of Energy’s (DOE’s) Bioenergy Technologies Office (BETO) by Rebecca Efroymsen, Esther Parish, and Virginia Dale in fulfillment of ORNL’s WBS 4.2.2.40, Task E goal for FY14, Quarter 2.

Dale V, Parish E, Kline K. Submitted. Mapping Risks to Global Biodiversity: Comparing Biofuel to Fossil Fuel Production. Proceedings of the National Academy of Sciences

ORNL Presentations:

March 12 – Virginia Dale, Esther Parish, Keith Kline and Maggie Davis presented a poster on “Bioenergy Sustainability” to highlight ongoing CBES research at the annual Science Advisory Board review of the ORNL Climate Change Science Institute (CCSI).

March 12 - Natalie Griffiths et al. presented a poster on ‘Water quality in forested watersheds prior to and during conversion to short-rotation pine for bioenergy’ at the annual Science Advisory Board review of the ORNL Climate Change Science Institute (CCSI).

Forum of the Center for Bioenergy Sustainability (CBES)

March 10 – Arnaldo Walter, Assistant Professor at University of Campinas (UNICAMP) presented “*The Research on Bioenergy Sustainability at University of Campinas, Brazil*”. This presentation can be accessed at the CBES website under forums: <http://www.ornl.gov/sci/ees/cbes/forums.shtml>

Other ORNL Activities:

Erin Webb has been invited to serve on the Eastern Regional Advisory Council for the University of Tennessee Institute of Agriculture. The key agenda item of the meeting is the “rural balance sheet” of the Governor’s Rural Challenge:

<https://www.tn.gov/agriculture/general/ruralchallenge.shtml#MainContent>

March 3-7 – Arnaldo Walter, a sustainability expert and professor from Unicamp in Campinas Brazil, was hosted at ORNL by Kline and Davis to collaborate on common indicators for sustainable biofuel initiatives. Dr. Walter will also participate in the DOE Landscape Design Workshop (New Bern, NC).

March 4-6 – Virginia Dale, Keith Kline, Yetta Jager and Natalie Griffiths attended the “Incorporating Bioenergy into Sustainable Landscape Designs” Workshop in New Bern, North Carolina. This workshop was hosted by the U.S. Department of Energy (DOE), Bioenergy Technologies Office. Virginia spoke on “A Landscape Design for Bioenergy Feedstocks,” and Keith spoke on “Biomass Standards.”

March 7 – Assistant Professor Floor van der Hilst and her PhD student Judith Verstegan of the Copernicus Institute of Sustainable Development, Utrecht University, The Netherlands, visited ORNL to discuss their research on bioenergy sustainability and opportunities for collaboration.

March 10 – Esther Parrish, Maggie Davis and Tony King participated in a call with the City of Knoxville Sustainability tranability staff to discuss regional vulnerabilities to climate change and potential links with ORNL and the City of Knoxville.

March 11 – Erin Webb attended a meeting to discuss ORNL’s participation in the USDA project at the University of Kentucky in Lexington, KY.

March 17 – Keith Kline led an international editing committee to assemble the next iteration of ISO 13065, Sustainability Criteria for Bioenergy, to be circulated for vote by the end of April.

March 25 –Several members of CBES met with Richard Hess of Idaho National Laboratory (INL) to discuss coordination of ongoing Resource Analysis and Sustainability projects for DOE BETO.

March 26-27 – Rebecca Efroymson and Terry Mathews attended the DOE-sponsored Algal Biofuels Strategy Workshop in Charleston, SC. Rebecca presented “Sustainable Development of Algae for Biofuel: Select Accomplishments and Directions.”

Upcoming ORNL Visits/Events:

April 3 – Joe Hughes will speak about a chapter he is working on with Dan Hayes and Virginia Dale on “Potential effects of climate change on natural disturbances in the southeastern upland hardwood forest region” at the Symposium on Natural Disturbances and Historic Range of Variation in Central Hardwood Forests at the annual meeting of the Association of Southeastern Biologists in Spartanburg, South Carolina.

April 7 – Virginia Dale and Esther Parish have been invited to participate in a Knoxville Climate Resilience Roundtable Discussion chaired by Knoxville Mayor Rogero who is serving as a member of the President’s State, Local and Tribal Leaders’ Task Force on Climate Preparedness and Resilience. The discussion on the implications of climate change for East Tennessee and how the Federal government can assist local communities in preparing for those impacts will take place at the University of Tennessee’s Baker Center for Public Policy. The event will be co-hosted by Director of Intergovernmental Affairs, David Agnew, and Acting Chair of the White House Council on Environmental Quality, Michael Boots.

April 29 – Rebecca Efroymson will receive the Holroyd Award, a science alumni award from La Salle University. She will discuss her career in energy sustainability and risk assessment; will lead an “Explorer Café” discussion on skepticism related to causal claims; and will mentor students engaged in undergraduate research.

May - Zachariah Seiden will speak on using SWAT to compare pine and switchgrass at the EWRI 2014 conference.

May 12-15 – Rebecca Efroymson will present at the Symposium on Forestry Best Management Practice (BMP) Effectiveness in the Eastern U.S. in Blacksburg, VA.

June 3 – UT collaborator Zachariah Seiden will present, “A Water Quality Model Comparison of Potential Impacts from Bioenergy Crop Land Conversions: Switchgrass versus Hardwood” at the EWRI World Environmental & Water Resources Congress in Portland, Oregon. Implications of this modeling work suggest hardwood pine as a bioenergy crop may reduce pollutant load and may be an effective

management practice for implication of a total maximum daily loads (TMDLs) in 303d listed water bodies in East Tennessee.

June 4-7 – Virginia Dale has been invited to be a guest speaker at the 4th Pan-American Congress on Plants and Bioenergy in Canada.

June 23: Virginia Dale has been invited to participate in the Conference of the National Socio-Environmental Synthesis Center (SESYNC) on “Environmental Decisions and Scientific Knowledge: Strategy & Opportunities for the Knowledge-to-Action Community of Practice.”

July 20-24 – Keith Kline and Maggie Davis have been invited to attend the Michigan Tech University meeting in Belem, Brazil, for the PIRE: Sustainability, Ecosystem Services, and Bioenergy Development across the Americas project.

Oct 5-11 – Virginia Dale will speak at the International Union of Forest Research Organization meeting in Salt Lake City, Utah.

Oct 8-10 – The 3rd annual meeting of the Southeastern Partnership for Integrated Biomass Supply Systems (IBSS) will take place at the University of Tennessee Institute of Agriculture (UTIA) campus