

**Bioenergy, Sustainability, and Land-Use Change Report  
Oak Ridge National Laboratory (ORNL) February 2012**

**ORNL Publications**

Dale VH and KL Kline (Submitted) Issues in using landscape indicators to assess land changes. Ecological indicators.

Dale VH, KL Kline KL, D Perla D, A Lucier (Submitted) Communicating about bioenergy sustainability. Environmental Management.

Parish ES, Kodra E, Steinhäuser K, Ganguly AR (2012) Estimating future global per capita water availability based on changes in climate and population. Computers & Geosciences. Available online 18 February 2012 at <http://dx.doi.org/10.1016/j.cageo.2012.01.019>

**ORNL Presentations:**

February 5-8 –In the Sustainability Symposium organized in conjunction with the 2012 National Biodiesel Conference in Orlando, FL, Keith Kline gave a presentation on “Land-Use Change Analyses and Improving Land Management” and Virginia Dale presented “Potential for Sustainable Deployment of Biofuels.”

February 22-24, 2012 – Virginia Dale and Matt Langholtz presented a talk on “Environmental and socioeconomic indicators for bioenergy sustainability as applied to Eucalyptus” at symposium on “Assessment and Management of Environmental Issues Related to Eucalyptus Culture in the Southern United States.” Matt also displayed a poster entitled “Harvest Scheduling of *Eucalyptus* spp. In Florida for Economic and Environmental Optimization.” The symposium was organized by the USDA Forest Service and the National Council for Air and Stream Improvement, Inc. (NCASI) in Charleston, SC.

**ORNL CBES Forum:**

February 16 – Brian Davison from BESC presented on behalf of Paul Gilna “How BESC relates to Sustainability”. This presentation can be accessed at the CBES website under forums: <http://www.ornl.gov/sci/ees/cbes/forums.shtml>

**Other ORNL Activities:**

February 2, 2012 –Keith Kline, Debo Oladosu, and Maggie Davis participated in a conference call with researchers from Brazil’s Bioethanol Science and Technology Laboratory (CTBE) and the Institute for International Trade Negotiations (ICONE) to discuss a CTBE-ICONE-ORNL partnership focused on linking ORNL’s version of the GTAP model (GTAP-DPS) and the Brazilian Land-Use Model (BLUM) for improved land-use change (LUC) analysis.

February 6 - As part of an ongoing collaboration between ORNL and ANL on modeling water quality, quantity, and biodiversity, Yetta Jager visited with May Wu and Eugene Yan at Argonne.

February 6, 13, and 14, 2012 – ORNL contributed to the planning and implementation of three working group (WG) 4 webinars for ISO PC 248 (Bioenergy Sustainability), helped finalize and submit the WG4 final report on the state of science of indirect effects, and provided planning input for the upcoming PC 248 plenary meeting in April. The report provides definitions that

suggest which effects could be measured and documented to assist in development of “ISO 13065- Sustainable Criteria for Bioenergy.”

February 16: Virginia Dale joined the first conference call on the forest chapter author team of the National Assessment of Climate Change. Virginia’s contribution will focus on the bioenergy aspects.

Feb 16: Those at the CBES reception joined a conference call with US Science Advisor John Houghton on energy courtesy of the American Society of Mechanical Engineers (ASME) Energy Committee and Robert Kennedy.

Feb 8: Keith Kline and Virginia Dale received a research Innovation Award from the National Biodiesel Conference: “In this age of skepticism and competition for resources, it behooves us to quantify the environmental benefits in methodical and scientific ways. Keith Kline and Virginia Dale are leaders in scientific thought and published research on the true environmental impact of biodiesel and renewable fuels...” <http://blog.biodieselconference.org/?p=905>

Feb 2-21: ORNL staff including Mac Post, Shujiang Kang and Keith Kline participated in a series of meetings related to the development of a Global Bioenergy Crop Model including conference calls with the Global Bioenergy Sustainability (GSB) project leadership in Brazil and the U.S., Jon Foley and the IonE team at University of Minnesota, Lee Lynd and Martin Keller.

Feb 24-27 – Esther Parish attended the Annual Meeting of the Association of American Geographers (AAG) Conference in NYC

#### **Upcoming ORNL Visits/Events:**

March 13 – Rebecca Efrogmson will give a presentation on environmental sustainability indicators at the BioEnergy Symposium 2012. Transportation Biofuels. Infrastructure, Design, Environment and Sustainability (IDEAS) center at UNC Charlotte

March 28—Esther Parish will present her research on “Projecting Continental U.S. Water Stress Based on Global Datasets” at the American Water Resources Association (AWRA) 2012 Spring Specialty Conference on GIS and Water Resources VII, "Managing Climate Change Impacts on Water Resources: Adaptation Issues, Options and Strategies" in New Orleans, LA.

April 8-12, 2012 – Peter Schweizer will present “Monetizing fish richness at spatial scales relevant to ecology and resource management“ at the 2012 US-IALE Annual meeting to be held in Newport, RI. Co-authors are Laurence Eaton, Yetta Jager and Rebecca Efrogmson.

April 10 – Matt Langholtz has been invited to speak at the 2012 Oklahoma Experimental Program to Stimulate Competitive Research (EPSCoR) Annual State Conference on Bioenergy in Stillwater, Oklahoma. <http://www.okepscor.org/public-outreach/news/save-date-2012-oklahoma-epscor-annual-state-conference>

April 12-13: Keith Kline will contribute to the IEA Task 38 meeting at Argonne National Lab to discuss accounting methods for the timing of emissions associated with bioenergy in Life-Cycle Assessments.

April 16-20, 2012 - Keith Kline and Maggie Davis will participate in the second plenary meeting of the ISO Project Committee (PC248) developing a standard on “Sustainability Criteria for Bioenergy” hosted by the U.S. Technical Advisory Group at Argonne National Lab.

April 30-May 3: ORNL contributions to the 34<sup>th</sup> Annual SIM conference in New Orleans are listed below. The presentations will be part of a session chaired by Kelly Tiller entitled “Biomass Supply & Sustainability” on the opening day.

<http://sim.confex.com/sim/34th/webprogrampreliminary/Session2137.html>

- **Posters:**

- “Scientific Approaches for Reducing Cost Barriers to Sustainability” - Keith Kline, Gbadebo Oladosu, Virginia Dale, Allen McBride.
- “Estimating the Benefits and Costs of Sustainable Corn Stover Production” – Laurence Eaton, Virginia Dale, Mark Downing, Matthew Langholtz, David Muth, Bob Perlack.
- “Beyond the Billion Ton: Expanding and refining National Feedstock Resource Analysis. Matthew Langholtz, Laurence Eaton, Robert Perlack et al.

- **Presentations:**

- “Indicators to Support Environmental and socioeconomic Sustainability of Bioenergy Systems” – Virginia Dale, Latha Baskaran, Maggie Davis et al.
- “The U.S. Billion Ton Update: Biomass Supply for a Bioenergy and Bioproducts Industry” – Laurence Eaton, Bob Perlack, Bryce Stokes et al.

May, 2012 – ORNL will host Marcello Moreira, a representative from ICONE, to compare parameters of GTAP-DPS and BLUM models, a first step in linking these two models for improved LUC modeling and analysis.

May 29-31 – Virginia Dale and Keith Kline are invited to attend the first workshop of the Research Coordination Network on Pan American Biofuels and Bioenergy Sustainability hosted by Dr. Mario Ruz at UNAM-CEPHCIS in Merida, Yucatan, Mexico.

August 5-10, 2012 - A Special Session proposal, "A Debate on the Sustainability of Biomass Production for Energy", has been selected for presentation at the 2012 Ecological Society of America (ESA) Annual Meeting in Portland, Oregon. Focused on the proposition, “Producing bioenergy can be sustainable for habitat availability and biodiversity, and can eschew the risk of new invaders”, this formal debate will allow opening statements by each of six experts, followed by rebuttals, with audience questions entertained during the final 30 minutes. The audience will be polled before and after to determine the winners. H. Jager is an organizer and R. Efrogmson will represent the “for” position.

August 5-10, 2012 – Virginia Dale will speak in the Symposium "Bioenergy and Biodiversity: Oxymoron or Opportunity?" to be held at the 2012 ESA Annual Meeting in Portland, OR. Her presentation is titled “Environmental and socioeconomic indicators of bioenergy sustainability.”

October 2012 - Virginia Dale is serving as a member of the Conference Programming Committee for the "Science for Biomass Feedstock Production and Utilization National Conference" to be held in October 2012 in New Orleans and sponsored by the Sun Grant Initiative. <http://www.sungrant.org/News+and+Events/2012+National+Conference.htm>