

Bioenergy, Sustainability, and Land-Use Change Report Oak Ridge National Laboratory (ORNL) January 2017

Publications

- Ferguson, Jake; Reichert, Brian ; Fletcher, Jr., Robert; and H. Jager (submitted) "Detecting population-environmental interactions with mismatched time series data," *Ecology*
- Hanssen SV, Duden AS, Junginger HM, Dale VH, van der Hilst F. 2017. Wood pellets, what else? Greenhouse gas parity times of European electricity from wood pellets that are produced in the south-eastern United States-- using different softwood feedstocks. GCB Bioenergy. DOI: 10.1111/gcbb.12426
- U.S. Department of Energy. 2017. 2016 Billion-Ton Report: Advancing Domestic Resources for a Thriving Bioeconomy, Volume 2: Environmental Sustainability Effects of Select Scenarios from Volume 1. R. A. Efroymson, M. H. Langholtz, K.E. Johnson, and B. J. Stokes (Eds.), ORNL/TM-2016/727. Oak Ridge National Laboratory, Oak Ridge, TN. 642p. doi 10.2172/1338837

<https://www.energy.gov/eere/bioenergy/downloads/2016-billion-ton-report-volume-2-environmental-sustainability-effects>

Specific chapters led by ORNL include:

- Chapter 3: Kline, Davis, Dunn, Eaton, Efroymson. Land Allocation and Management: Understanding Land-Use Change (LUC) Implications under BT16 Scenarios
- Chapter 5: Jager, Wu, Ha, Baskaran and Krieg. Water Quality Responses to Simulated Management Practices on Agricultural Lands Producing Biomass Feedstocks in Two Tributary Basins of the Mississippi River.
- Chapter 10: Jager, Wang, Kreig, Sutton, and Busch. Avian Response of Avian Biodiversity to Biomass Production.
- Chapter 12: Efroymson, Coleman, Wigmosta, Pattullo, Mayes, and Langholtz. Qualitative Analysis of Environmental Effects of Algae Production
- Chapter 13: Preston, Langholtz, Eaton, Daly, and Halbleib. Climate Sensitivity of Agricultural Energy Crop Productivity
- Chapter 14: Efroymson, Langholtz, Johnson, Negri, Turhollow, Kline, Bonner, Dale and contributions from all volume 2 authors. Synthesis, Interpretation, and Strategies to Enhance Environmental Sustainability

A blog highlighting the report can be found here www.ornl.gov/blog/eesd-review/new-billion-ton-report-analyzes-potential-environmental-effects-increasing-biomass

- Wolfe, AK, VH Dale, T Arthur, LM Baskaran, 2017. Ensuring that ecological science contributes to natural resource management using a Delphi-derived approach, In SA Gray et al. eds., Environmental Modeling with Stakeholders: Theory, Methods and Applications. Springer, pp. 103–124, DOI: 10.1007/978-3-319-25053-3_6.

Presentations

Jan. 10: Esther Parish presented the current state of her dissertation research to Bredesen Center students and staff in a presentation entitled "How sustainable are SE US wood pellet exports to Europe?" The presentation was part of the annual Bredesen Center Retreat held at the University of Tennessee Baker Center for Public Policy.



Jan. 23-24: Keith Kline presented “Reconciling food security and bioenergy: Priorities for action” at the Fuels for the Future International Conference on Renewable Mobility www.fuels-of-the-future.com/ in Berlin, Germany. Keith was an invited speaker for the plenary session. This conference is jointly organized by five industry associations and is a central forum for the European Union to debate current issues and challenges faced by policy-makers in the area of renewable mobility.” Later in the week, Keith will meet with colleagues and give a talk at Imperial College, London.

Jan. 27: Paul Leiby, Ruben, and Jonathan presented “Efficient Fuel and VMT Taxation for (Connected) Automated Vehicles—CAVs,” at the University of Maine Economics Seminar Series.

Jan. 31: Virginia Dale, Keith Kline, and Sarah Eichler–Inwood presented "Evaluating Sustainable Farming Systems and Landscapes" at the Systems Analysis workshop in Louvain La Neuve, Belgium.

Photo: Keith Kline, Sarah Eichler Inwood, and Virginia Dale with colleagues from CIMMYT at the Systems Analysis Workshop in Belgium.



Other ORNL Activities

Jan. 2-6: The Strategic Petroleum Reserve Team (P. Leiby, D. Bowman, G. Oladosu, R. Uria, M. Johnson) briefed DOE DAS for Petroleum Reserves R. Corbin, Associate DAS D. MacIntyre, and others, on “Oil Valuation Model (OVM) for Crude Valuation,” and delivering a version of that tool for estimating the fair market value of various crude oil types during SPR purchases or sales.

Jan. 4: Virginia Dale joined a conference call led by the Antares Group, Inc. on data and models being used for BETO’s Landscape Design project of which ORNL is a part. This call builds from a model intercomparison that Virginia suggested as a means to help the research team communicate and eventually aggregate their information.

Jan. 8-10: Paul Leiby participation in Transportation Review Board Annual Meeting in Washington DC; Presentation on January 8th Workshop re “Efficient Taxation of Connected and Automated Vehicles”; Presiding over session on LDV Fuel Economy on January 9th; Chairing Transportation Energy Committee meeting on January 10th.

Jan. 9: Virginia Dale provided slides to her BETO sponsor, Kristen Johnson, for Kristen’s presentation at the Transportation Research Board’s annual conference so that Kristen could highlight ORNL’s Bioenergy Sustainability project. The presentation is basically an overview of BETO’s approach to understanding and enhancing sustainability of bioenergy.

Jan. 11: Virginia Dale and Keith Kline had a Skype with staff from CIMMYT to discuss objectives of their new project on frameworks to assess agriculture sustainability, a literature review of such frameworks, and a process to select case studies where the selected framework will be tested.

Jan 19: Virginia dale will help lead a discussion of modeling needs in a conference call for BETO’s Landscape Design project.

Jan. 31- Feb. 1: Yetta Jager and Rebecca Novello attended a kick-off meeting in Wenatchee, Washington in this collaboration with PNNL (Wigmosta) and the Forest Service that will develop decision support tools for forest thinning to produce biofuels, reduce wildfires, and benefit salmon and other ESA-listed fishes. This project was highlighted as an ORNL story tip: <https://www.ornl.gov/news/environment-triple-benefit> which highlighted the potential for biomass, reduced wildfires, and salmon recovery as a result of forest thinning.

Jan. 31 to Feb. 2: At the invitation of the International Maize and Wheat Improvement Center (CIMMYT), Virginia Dale, Sarah Eichler-Inwood, and Keith Kline participated in a Maize and Wheat Systems Analysis

Workshop in Louvain-la-Neuve, Belgium.

Upcoming ORNL Visits/Events

Feb. 7-8: Esther Parish will participate in the Mission Advisory Board and Science Advisory Board kick-off meeting for the Environmental Metrics for Hydropower (EMH) Project that will be hosted by ORNL in the Washington, D.C. metro area. Over the past year, Esther has been working with the ORNL EMH project team to apply lessons learned from DOE bioenergy sustainability indicator development to the DOE hydropower space.

Mar. 6-9: Many ORNL CBES team members will participate in DOE Bioenergy Technologies Office External Peer Review, in Denver, CO.

Apr. 9-13: Esther Parish has been invited to present her research on wood pellet sustainability at the (US Regional Association of the International Association for Landscape Ecology meeting in Baltimore, Maryland: <http://usiale.org/baltimore2017/>). Her presentation will be part of a symposium entitled “Telecoupling people and landscapes among distant places around the world.” Virginia Dale and Keith Kline also submitted abstracts for the upcoming US IALE meeting.



April 10: Virginia Dale will speak on “Bridging Ecosystem Services and Sustainable Bioenergy Indicators with Stakeholders” at the 2017 International BIOMASS Conference & Expo in Minneapolis, Minnesota. as part of the pre-conference on “Emerging Biomass Feedstocks.”

Aug 6-11: Virginia Dale organized a special session on Large infrequent Disturbances for the Ecological Society of America meeting in Portland. Speakers are Monica Turner, Jerry Franklin, Ariel Lugo and Ólafur Arnalds.

TBD: Following up on the presentation by US Congressman Bruce Westerman (forester and engineer from Arkansas) on wood-based bioenergy at the US Industrial Pellet Association meeting, Virginia spoke with him and invited him to visit ORNL. That visit will likely be in early 2017.

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