

Breakout 4B: Bioenergy and Ecosystem Services: Assessing the Tradeoffs and Informing Policy

Panelists:

- John Gunn, Manomet Center for Conservation Sciences
- Tom Gower, University of Wisconsin
- Timothy Robards, Spatial Informatics Group
- Jesse Caputo, State University of New York Environmental Science and Forestry
- Moderator Brian Kittler, Pinchot Institute for Conservation

Abstract:

Energy was one of the original ecosystem services people derived from forests. As markets for biomass expand important questions about the tradeoffs between this ecosystem service and others have come into focus. This panel discussion will review several tradeoffs and synergies between biomass feedstock production and subsequent utilization in bioenergy systems and the proliferation of other ecosystem services. The panel will seek to clarify/summarize major areas of contention regarding the biophysical effects (e.g., carbon time balance, nutrient cycling, biodiversity) of forest biomass feedstock production and utilization in bioenergy systems. Panelists will use examples from their research to illustrate changes in ecosystem services (both positive and negative) associated with biomass harvesting and bioenergy production. The panel will address the following questions: (1) what are appropriate Life Cycle Assessment boundaries and methodologies to assess the time value of CO₂e in bioenergy systems?, (2) what are the impacts of biomass harvesting/production regimes on nutrient cycling and forest productivity, biodiversity, and water quality?, (3) how can ecosystem services valuation methodology/tools be used to assess bioenergy systems and help people weigh the tradeoffs?, (4) what is the role of policy in orienting biomass markets toward balancing tradeoffs in ecosystem services and yielding net benefits for society?

1. Overarching themes and key takeaways

- Develop regulations that maintain forest productivity, but that do not deplete the system of carbon and nutrients
- Opportunities to bring more value to woody biomass. Need to have people championing the issues, receptive governmental agencies, and demand for the biomass.
- We need to continue to execute good science on effects on ecosystem services, but also produce information that is in line temporally with the fast paced bioenergy industry. Science will need to continue to be spatially and temporally explicit.
- We don't need to start from scratch in developing woody biomass sector for bioenergy. Let's use what we have already and focus on making the methods sustainable
- chicken and egg scenario—people are reluctant to plant energy crops until there's more certainty of a biomass market
- Biomass: we can start thinking of it as another ecosystem service