

ABSTRACT NO: 435

Peatland Forestry – Evolving Affects on Ecosystem Services

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Forest management practices on peatlands have evolved from simple ditching systems to alleviate operational constraints of excess water to integrated systems involving controlled drainage, fertilization, and stand tending practices in order to sustain ecosystem services while enhancing the forest production capacity of the land. Given that peatlands are inherently carbon sinks and hence relevant to the global carbon budget, consideration of the cumulative effects of forest management on the peatland carbon balance is warranted. Although active management of forested peatlands often results in a net reduction in ecosystem carbon storage, changes in allocation to trees can enhance the value of both products and services derived from the land. However, there are examples of net gains in ecosystem carbon storage as a result of enhanced productivity. Methane emissions are also affected by changes in the water table dynamics associated with peatland forestry, which could function to reduce the radiative forcing from the peatland. Emerging issues associated with renewable energy and biofuels are likely to drive the new management prescriptions and pose additional questions relative to the carbon balance and ecosystem services. Systems for increased utilization, shorter rotations, or intercropping will have implications on carbon and nutrient pools, water utilization, water quality, among other values. Validated models are needed to help assess the tradeoffs in products, services and ecosystem functions associated with new management systems applied to peatlands.