BOOK OF
ABSTRACTS

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Synergies between the American and Sweet chestnuts could impact the rural bioeconomy

T2.26 Silviculture for the Bioeconomy and Ecosystem Services in Castanea Forests

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Abstract: Sweet chestnut (*Castanea sativa*) and American chestnut (*C. dentata*) have been explicitly linked to historical and contemporary cultures and have played important roles in rural bioeconomies. These species also have been important for enhancing ecological services, such as mast production, soil stabilization, and high water use efficiency. Threats to these species are unprecedented and additive, including global climate change, nonnative pests and pathogens, land use changes, and lack of scientific knowledge and technologies. We will provide a synthesis of traditional and novel silvicultural systems for chestnut, focusing on timber and non-timber forest products that enhance the forest bioeconomy. Sweet and American chestnuts require divergent management strategies to sustain their conservation values, and both species require active forest management to maintain or restore populations in native or naturalized habitats. Even-aged regeneration systems are the preferred silvicultural practice for both species. Coppicing is commonly implemented for sweet chestnut and provides a potential future strategy for American chestnut once disease-resistant material is available. *Cryphonectria parasitica* causes chestnut blight and may limit long-rotation timber production of American chestnut making coppice systems more attractive for managers. High forests of sweet chestnuts are managed primarily for timber production in single or mixed species plantations and naturalized stands, although ecosystem services are being increasingly considered in value estimations for this species. American chestnut will probably be reintroduced to achieve ecological restoration goals that can be considered in determining values to the bioeconomy. Traditional and emerging markets for sweet chestnut, such as biomass or carbon, may help inform future opportunities around American chestnut, particularly for tribal and rural communities. Climate change and other threats call for synergistic partnerships and knowledge sharing to maintain or restore sweet and American chestnuts as part of the global ecosystem.