Public Abstract

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Title:Quantifying bottomland hardwood forest and agricultural grassland evapotranspiration in floodplain reaches of a mid Missouri stream

Bottomland hardwood forests (BHF) play an important role in floodplain dynamics, particularly along urban streams where flood mitigation is critical to protecting human life and property. Enhanced evapotranspiration (ET) of riparian floodplain forests could help reduce flooding through drying of soils and improved absorption of overland flows. Quantifying BHF ET is essential for characterizing hydrological benefits of riparian forest consumptive water use. A bottomland hardwood forest (BHF) and Agricultural Grassland (AG) were instrumented with microclimate stations and WY 2012 ET was estimated six out of seven methods of ET calculation show higher rates of ET in BHF than AG, within the Hinkson Creek Floodplain. Widely applied methods of ET calculation estimated BHF ET to be from 802mm yr⁻¹ (P-M) to 975mm yr⁻¹ (SEB). Agricultural grassland site ET values were estimated to be 720mm yr⁻¹ (SEB) and 719mm yr⁻¹(P-M). The difference of these ET estimates between the BHF and AG sites respectively yield an additional 83mm yr⁻¹ to 255mm yr⁻¹ of soil moisture consumed. Coupled with the increased infiltration capacity of forest soils the enhanced evapotranspiration of bottomland forests could play a role in ameliorating flood events.