Water Quality and Hydrologic Functions of Riparian Zones in Coastal Plain Watersheds. (S10-lowrance075612-Oral)

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Abstract:

Riparian ecosystems control the water quality of coastal plain watersheds both by influencing hydrology and by direct effects of nutrient cycling and uptake, production and storage of biomass, and microclimate effects. Long-term hydrologic and water quality studies from the Little River Watershed (GA), in the headwaters of the Suwannee River Basin, are used to demonstrate the effects of riparian ecosystems. The amount of available alluvial storage in riparian areas controls the peak discharge rates for storms. For a given watershed, the more available alluvial storage, the lower the peak discharge. For sub-watersheds of Little River, the percent of watershed in riparian area is inversely related to the annual runoff coefficient. High rates of transpiration by riparian vegetation remove water from the alluvial aquifer and can reverse water table gradients during the summer. The de-watered soils are then more effective in providing infiltration capacity for surface runoff and in providing co-deposition that occurs when surface runoff infiltrates. Nutrient uptake by vegetation sequesters nutrients in biomass and the biomass, especially at the soil surface provides high carbon conditions to promote denitrification in seasonally wet soils.

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