

HYDROLOGIC LINKAGES BETWEEN FLOODPLAIN WETLANDS AND ADJACENT AGRICULTURAL LANDS

Cody Matteson, Darold Batzer, Steve Golladay, Lora Smith, Chelsea Smith,
Susan Wilde, Cody Matteson, C. Rhett Jackson, and Brittany Clark

AFFILIATION: University of Georgia, Warnell School of Forestry and Natural Resources

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Wetland areas, and riparian zones, can be very important components in the nitrogen cycle and transport process, depending on their hydrologic conditions and flow paths (Denver et al., 2014). Runoff from these agricultural areas typically contain forms of nitrogen and phosphorus (Dupas et al., 2015) due to various activities that are typical on a farm. Depending on where these activities are located in the landscape, stormwater and irrigation runoff flowing into a riparian zone can significantly reduce the nutrient load being discharged to an adjacent stream (Secoges, Aust, Seiler, Dolloff, & Lakel, 2013). The specific objectives of this research are 1) to assess the connectivity of wild hog wallows and former feed lots to elevated phosphorus and nitrogen levels, through water and soil, 2) to establish a connectivity with nutrient levels in runoff from agriculture, to nutrient levels in adjacent streams, 3) assess the correlation between the levels of nitrogen and phosphorus and the abundance of micro biota and micro fauna in order to better predict locations of harmful algal blooms, 4) correlate nutrient levels with water table levels over time, to assist farmers in determining the most efficient time to apply fertilizers, and 5) investigate the effects of riparian buffers on nutrient reduction and uptake by comparing different types and sizes of riparian zones which would ultimately assist in future riparian buffer implementation. During this study, 23 piezometers and 22 surface water locations will be sampled for pH, specific conductivity, dissolved oxygen, and temperature, as well as total nitrogen and total phosphorus. Sampling events will be conducted bimonthly during annual dry periods, and monthly during annual wet periods. This research project is located in the piedmont region of Georgia, known for sediment laden streams (Jackson, Martin, Leigh, & West, 2005) and reddish-brown sandy loam soil (Payne, 1976).

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