

WILDLIFE USE OF GEOGRAPHICALLY ISOLATED WETLANDS IN FORESTED VERSUS AGRICULTURAL LANDSCAPES

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Geographically isolated wetlands (GIWs) embedded southeastern longleaf pine forests provide important ecosystem services including water storage, nutrient processing and sequestration, and wildlife habitat. Although there is increasing recognition of these services, many GIWs are not afforded regulatory protection at the state or federal level and it has been estimated that more than 50% of GIWs in the southeastern U.S. have been altered by agricultural and urban land uses. Despite large scale alterations of wetlands and surrounding forests, many GIWs persist within agricultural landscapes and a basic understanding of the role of these wetlands as wildlife habitat is of interest. We examined the effects of landscape variables on wetland use and connectivity for a broad suite of fauna (amphibians, reptiles, and wading birds) in southwestern Georgia. Among amphibians species richness, diversity and abundance was highest in GIWs with more surrounding forest and wetland land use. Likewise, genetic data indicated that connectivity among populations of some amphibian species (southern cricket frog and dwarf salamander) was positively related to the amount of forest and wetlands in the surrounding landscape. However, populations of another amphibian species (southern leopard frog) showed little genetic differentiation even at the largest spatial scale (>20 km) and in agricultural landscapes. Wading bird use of GIWs was highest in wetlands in agricultural landscapes during breeding season, but increased in GIWs in forested landscapes late in the hydroperiod. During overland movements between wetlands, freshwater turtles moved through natural pine forests rather than agricultural lands or pine plantations.

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