

Avifauna as Indicators of Ecological Integrity in Streamside Management Zones Impacted by Forestry Best Management Practices

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Abstract: Riparian ecosystems provide many ecological functions critical to both aquatic and terrestrial vertebrates. Many anecdotal field observations indicate that upland forest harvesting may effect riparian ecosystem functions, yet the relationship has not been well documented, especially for wildlife. As part of the collaborative Dry Creek watershed study at International Paper's Southlands Forest in Decatur County, Georgia, we evaluated the effects of Best Management Practices (BMP) timber harvesting on avian communities occupying riparian corridors/streamside management zones (SMZs) in headwater streams of the Gulf Coastal Plain of Georgia. Using repeated visits to established line transects, we collected data during the breeding seasons from 2003 to 2006 to assess the relative conservation value of treated and reference watersheds and the spatial distribution of select riparian zone avifauna. The activity patterns (as defined by records of occurrence from transect surveys) of Louisiana waterthrush (*Seiurus motacilla*), Acadian flycatchers (*Empidonax virescens*), and northern parula warblers (*Parula americana*) were analyzed using GIS and modifications of home range kernel estimates. Results for Louisiana waterthrush indicated a difference in clustered activity patterns within the riparian zones. Results also showed that conservation value for riparian zone avifauna was higher in the SMZ of the unharvested watersheds. We suggest that this approach may be a viable method for assessing a faunal component of riparian zone integrity.

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