

Bird, Plant, and Herpetofaunal Communities in Mature Hardwood Coves and Intensively-managed Pine Plantations in Mississippi

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Abstract: Hardwood coves, a forest type defined by mature hardwoods, steep sloping topography and streams or seepages, are important ecosystems for herpetofauna and plant biodiversity. To assess ecological importance of hardwood coves as a part of an industrial forest matrix, we investigated the biological diversity of hardwood cove forests and managed pine forest plantations. In spring 2008, we selected 14 study locales on Weyerhaeuser-owned land in Webster County, Mississippi, including nine pine stands (three unthinned 5-year-old stands, two unthinned 12-year-old stands, and four thinned 20-year-old stands), three hardwood-dominated streamside management zones (SMZs), and two mature hardwood cove stands. We measured vegetation characteristics within each site using a quadrant and nested plot design to estimate understory, midstory, and overstory species composition and densitometer readings to determine midstory and overstory canopy cover. We inventoried breeding birds during spring 2008 and 2009 using point count surveys and sampled herpetofauna diversity using area searched within belt transects along streams within coves and SMZ sites. We conducted anuran call counts at each belt transect for five-minute period to determine presence and diversity of anurans. To date, 11 species of reptiles, 13 species amphibians, and 39 species of breeding birds have been recorded on the landbase. Preliminary analyses indicate that hardwood cove sites supported more deep forest-dwelling bird and salamander species, whereas managed pine plantations supported more grassland bird species. This cooperative research effort between Weyerhaeuser, Mississippi State University, and The Nature Conservancy has the potential to address ecological concerns in mature and old growth hardwood systems by maintaining and conserving biodiversity in cove ecosystems as part of overall biodiversity objectives within intensively-managed landscapes and will be used to develop a conservation plan for these cove hardwood areas owned by Weyerhaeuser Company.

Proc. Annu. Conf. Southeast. Assoc. Fish and Wildl. Agencies 64:209