

Larval Amphibian Assemblages of Constructed Temporary Wetlands and Stream-connected Floodplain Pools on Public Forested Lands in North-central Mississippi

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Abstract: Several studies have proposed the creation of seasonal wetlands for ensuring habitat diversity and providing connectivity for herpetofaunal populations. However, few published studies have addressed differences in faunal communities between constructed and naturally occurring wetlands and the role they play in supporting pool-breeding amphibians. We measured larval amphibian diversity within temporary pools of public forested lands in north-central Mississippi. We quantified larval amphibian species richness, abundance, and community similarities between four isolated, upland ephemeral pools constructed as water sources for livestock and wildlife species (>40 years ago) and six stream-connected floodplain pools. We conducted aquatic sweepnet surveys twice monthly for 27 sample periods over a two-year period. Fourteen amphibian species (1,038 individuals) were captured at upland sites and 12 amphibian species (1,141 individuals) were captured at floodplain sites. Approximately 39% of the larval amphibian community differed between upland and floodplain temporary pools. Species richness of larval salamanders, newts, and anurans did not differ significantly between upland and floodplain pools, whereas, abundance of Ambystomatid salamanders and central newts (*Notophthalmus viridescens louisianensis*) showed significantly greater abundance in upland pools and central newts (larvae and adults) used upland pools exclusively. Differences in hydrologic regime, such as flood scour, and the presence of fish predators may have accounted for differences in abundance of salamanders and newts. This study results show the propensity for recolonization of constructed ponds and the value of these ponds for herpetofauna in upland forests. Furthermore, constructed wetlands in upland forests may serve as valuable reproductive sites for pool-breeding amphibians such as Ambystomatid salamanders and central newts. Thus, we submit that protection of upland and floodplain ephemeral pools is necessary to protect the diversity of amphibians on public lands in north-central Mississippi.

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