

**Title:** Avian community assemblage and vegetation association in emergent marsh at Arkansas Post

**Submitted to:** National Park Service

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**Background:** Throughout the United States we have seen a trend of wetland habitat loss. This trend has been particularly pronounced in Arkansas where much of the wetland habitat complex has been impacted by agricultural and timber practices. With this loss we have also seen associated decline in the wildlife populations that rely on these types of habitats. The King Rail is a wetland species that rely on a complex of emergent vegetation broken by open water that has seen significant decline due to the loss of this habitat type. Due to these losses and the decline of the species it is especially important to not only be able to track population trends, but it is imperative to target sites which have high potential for occurrence of these species for protection and management. Historically this is a species that is not well captured under normal bird survey protocol which leaves a gap in current understanding of population levels. We propose that by utilizing Audio Recording Units in conjunction with marsh bird monitoring protocols that this gap can be minimized to give a better understanding of true population trends.

**Purpose and Objectives:** Emergent marsh habitat is imperiled and many species of secretive marsh birds are in decline. The purpose of the study is to document avian community assemblage and vegetation association in emergent marsh habitats along backwater and flood plain of the Arkansas River, specifically within the boundaries of Arkansas Post. These data will allow us to determine the presence of declining marsh birds and understand the vegetation community that is important for these existence, which in turn can be used to inform future habitat management and restoration decisions in the region.

**Study Site:** This study will be conducted in wetland habitats of Arkansas Post National Memorial. We will sample birds and vegetation at 100-m intervals (n=24 locations) within the Parks boundary along the eastern shoreline of Post Bayou and Little Post Bayou (Fig 1.)

**Field Methods:** Acoustic recorders (n=4) anchored to t-posts will be set up overwater within 2-3 meters of the wetland edge, allowed to record singing birds for 4 days, then rotated to the next sampling station (n=24 in total). All sampling stations will be monitored 2 times during each breeding season. Rapid assessment, non-invasive vegetation surveys will be conducted at the time of each survey to determine the percentage of vegetation cover by species.

**Anticipated Benefits:** In 208 breeding King rails were detected in emergent marsh habitat in Arkansas for the first time in decades. This work will allow us to determine if king rails or other secretive marsh birds use emergent marsh and Arkansas post, and make an association of vegetation characteristics and other local habitat conditions that may influence habitat use of this area by this guild of birds. This work will serve as the research for Gabrielle Hargrove to pursue her Masters of Science degree from the University of Arkansas Monticello. These data will be shared with the National Park Service and can contribute to the parks existing inventory and monitoring efforts.

**Project Timeline:** Non-invasive avian communities monitoring and vegetation sampling will be conducted for 7 weeks during the primary breeding season starting 25 March-6 May 2019 and 2020 (as soon as permits are approved in 2019). The anticipated completion of the research and the degree program of Gabrielle Hargrove will be May 2021.

To Moore Bayou Park, 0.4mi 0.6km  
 To 169, 1.3mi 2.1km  
 To Gillett, 5mi 8km  
 To Dumas, 16mi 26km

