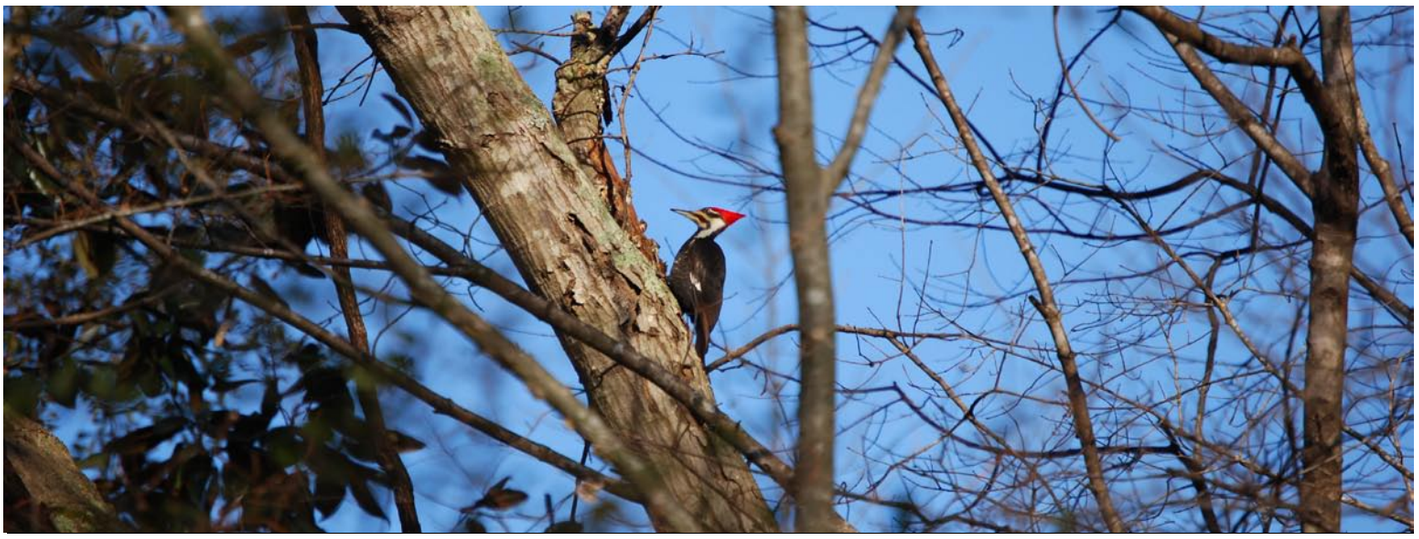
Vicksburg National Military Park

National Park Service
U.S. Department of the Interior

Vicksburg National Military Park

Bird Monitoring



Background

Vicksburg National Military Park (VICK) is part of the Inventory and Monitoring (I&M) Program's Gulf Coast Network (GULN). The I&M Program was established to monitor a subset of ecological indicators, "Vital Signs", that represent the overall health and condition of the natural resources within a park. This monitoring provides a foundation for understanding the status and trends of a park's natural resources, which assist staff in making management decisions, working with other agencies, and communicating with the public.

Why Birds?

Both resident and migratory land birds are highly ranked among all of the potential vital signs evaluated by the GULN. Key reasons for monitoring landbirds in Vicksburg National Military Park are that landbirds (1) come under the legal mandate related to the Endangered Species Act and Migratory Bird Treaty Act; (2) are specifically identified in the management objectives of the park; (3) are potential indicators of the effects of local and regional changes in ecosystems because of their rapid metabolism and high ecological position in most food webs; and (4) comparable regional and national datasets exist for land bird monitoring adjacent to several GULN parks. The Gulf Coast is widely held to be a major flyway, breeding, and over-wintering area for many migratory species. In addition, monitoring birds in parks can provide insight regarding habitat changes within parks and may contribute to regional or national databases that further our understanding of continental bird population trends. Ecologically, birds are an important and diverse component of park ecosystems.

Monitoring Objectives

- Contribute to established programs looking at regional trends (USGS Point Count Database, Monitoring Avian Productivity and Survivorship (MAPS), Christmas Bird Counts).
- Estimate relative abundance and population densities for commonly detected species.
- Estimate the geographic distribution of detected species within park boundaries.
- Investigate bird – habitat relationships and how they relate to vegetation structural changes due to either natural or human-induced processes (directly spatially linked to the GULN vegetation structure monitoring protocol at VICK).

Monitoring Approaches

The GULN has implemented two bird monitoring protocols intended to monitor breeding birds and non-breeding wintering birds. These methods utlize a random point count, fixed-duration, time and distance-based method. Sixty random points have been generated for VICK and broken into 4 panels with 2 panels being sampled each season. Breeding birds surveys occur between May 15 and June 15. At the first detection of each individual bird, observers record species identity, the time within 1-minute intervals for 10 minutes, and recourd an estimated distance within four distance annuli (0 – <25 m, 25 - <50 m, 50 - <100 m, and >100 m). Wintering birds occur between November 15 and February 15. At first detection of each indiviedual bird, observers record species, time within 2-minute intervals for 20 minutes, and an esimated distance within three distance annuli (>50m, <50m, flyovers). Methodology was developed Dan Twedt, USGS, and documented in the GULN Avian Monitoring Plan.

Background: Gulf Coast Network I&M Program

The GULN is one of 32 networks included in the Servicewide Inventory and Monitoring (I&M) Program. The network approach facilitates collaboration, information sharing, and economies of scale in natural resource monitoring. The eight network parks distribute across six ecoregions of the south-central and southeastern U.S.: the East Central Texas Plains (San Antonio Missions NHP), Western Gulf Coastal Plain (Palo Alto Battlefield NHP, Padre Island NS, Big Thicket NP), Mississippi Alluvial Plain (VICK, Jean Lafitte NHP&P), Mississippi River Loess Plain (VICK, Natchez Trace Parkway), Southern Coastal Plain (Gulf Islands NS), and Southeastern Plain to Interior Plateau (Natchez Trace Parkway)). The combination of upland, alluvial, and shoreline physical landscapes occurring in conjunction with the convergence of temperate and subtropical climates across the region creates enormous diversity in ecosystems and makes the region, the GULN, and its parks a center of biodiversity of great national value and interest.

The primary role of the I&M Program is to collect, organize, and make available natural resource data and transform data into information through analysis, synthesis, and modeling. The primary goals of the I&M Program are:

- Inventory the natural resources under National Park Service (NPS) stewardship to determine their nature and status.
- Monitor park ecosystems to better understand the dynamic nature and condition and provide reference points for comparisons with other, altered environments.
- Establish natural resource inventory and monitoring as a standard practice throughout the NPS system, transcending traditional program, activity, and funding boundaries.
- Integrate natural resource inventory and monitoring information into NPS planning, management, and decision making.
- Share NPS accomplishments and information with other natural resource organizations and form partnerships for attaining common goals and objectives.

Vital Signs

Vital signs are a subset of physical, chemical, and biological elements and processes of park ecosystems that are selected to represent the overall condition of park resources.

GULN high priority vital signs include: Weather & Climate, Coastal Dynamics, Surface Water Quality, Terrestrial Vegetation, Estuarine Submerged Aquatic Vegetation, Amphibians & Reptiles, Land Birds, and Adjacent Land Use. The network developed a monitoring plan tailored to the needs of the parks by defining network goals and objectives, identifying and prioritizing potential vital signs, and selecting a modest set of vital signs for long-term monitoring. Vital signs selection was driven by landscape-scale issues of common concerns among network parks. Criteria included ecological significance, management relevance, and legal mandate. In addition, data management is a hallmark of the I&M program. The GULN has developed and implemented a data management system that protects and enhances the long-term value of the data. This includes database designs, data archiving, and data reporting.