

Final Report of Bird Inventory: Fort Donelson National Battlefield, 2003-2005

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Acknowledgments

For coordinating our fieldwork in the park, Robert Wallace, Resource Manager and Ranger, deserves many thanks. He was very helpful, providing much information and making access to all sites within the park possible. Furthermore, he asked many questions about managing the park for bird species of special concern and showed keen interest in learning about the species present in the park.

All staff members of the Resource Management Office and Visitor Center of the park were very helpful whenever called upon, and we thank them for this assistance.

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Introduction

Fort Donelson National Battlefield (FODO), established in 1928 to commemorate the site of the first major Union victory of the Civil War, is a small National Park Service unit that offers the visiting public a moderately rich bird fauna resulting from the diversity of habitats found within its boundaries. Within the battlefield boundaries lies Fort Donelson National Cemetery, created in 1867 as a burial site for the Union dead resulting from the victory; it contains about 1780 gravesites not only for Union soldiers killed in 1862 but also for American soldiers killed during all national wars and conflicts occurring down to the time of the Vietnam Conflict, and it remains an active national cemetery today. The purpose of this study was 1) to inventory the bird species occurring at FODO; and 2) to indicate the status and relative seasonal abundance of documented species.

Description of Study Site

Containing a total of 223 hectares (551 acres), this National Park Service unit is located on the Cumberland River (Lake Barkley) about 1.6 km (1 mi) west of Dover and about 5 km (3 mi) east of the southern portions of Land Between the Lakes in Stewart County, Tennessee. A slightly disjunct portion of the battlefield lies just south of Rt. 79 and contains about 5 km (3 mi) of rifle pits

originally constructed as part of the perimeter defenses of the fort and now used as a trail system and greenway. Another small (0.4 hectares [1 acre]) disjunct site that is part of the battlefield is the Surrender House (Dover Hotel) located on the east side of Dover just upriver from the Rt. 79 bridge over the Cumberland River.

In 2003 Congress passed a law expanding the area managed by FODO by up to 2000 acres so as to include two historic fort locations on the Tennessee River: Ft. Henry (about 18 km [11 mi] west of the main battlefield); and Ft. Herman in Kentucky. Since details about these additions to the battlefield were not worked out during the period of the bird inventory, these sites were not inventoried. Additionally, some parcels of land to the south of the battlefield that are now owned by the National Historic Trust and that may one day be added to the battlefield were not inventoried either.

Rt. 79, a major four-lane highway, runs through the southern part the main battlefield and brings the sound of heavy traffic, including many large trucks, to most of its parts. The Cumberland River forms the northern boundary of the park and carries a fairly large volume of boat traffic, both commercial and recreational. The noise generated by these transportation corridors sometimes inhibits effective detection of birdsong.

Besides its proximity to major transportation arteries, FODO is also surrounded by an active community of businesses and private homes. Many local residents use the park trails and roadways of the battlefield as a recreational site, and especially as a walking site, at all hours of day and night.

Despite its heavy use, FODO serves as a largely forested island in an urban area as far as birds are concerned.

Elevation in the park ranges from 131 m (432 ft) at the Cumberland River (Lake Barkeley) to about 200 m (660 ft) near the Visitor Center.

The Surrender House, the greenway, and the Main Battlefield are described in more detail below.

The Surrender House property is bordered by the Cumberland River on two sides; depending on water level, a small beach is sometimes exposed along the edge of the property. Around the old hotel building itself most of the area is mowed, but there is a small wooded bluff along the west boundary with a small ravine and stream at the bottom. Some of the trees present on the property are medium-sized and a few are large. There is a small amount of weedy growth along the river's edge when the water is too high for this area to be mowed (the water's edge is actually owned by the ACE). The whole site serves migrant land birds as a resting site while the open water adjacent to the site attracts water birds (gulls, herons, and swallows), and Ospreys have nested on a nearby channel marker. Several species of birds on the inventory list were found only at this site during the period of the bird inventory.

The greenway housing the old rifle pits lies south of Rt. 79. A trail runs about 3 km (1.5 mi) parallel to Rt. 79 among the earthworks and trenches. The trail traverses dry hillsides with mature hardwood forest. Two small creek crossings and several mowed areas are also present along the trail. Overall this

part of FODO was not found to be attractive to birds except at the sites where small amounts of shrubby growth was present near the creeks.

The Main Battlefield is located mainly north of Rt. 79. The purpose of the fort constructed at this site was to protect the Cumberland River batteries from land attack and to protect the supply line that the river provided to Nashville. At the time of the battle (1862) all trees within 180 m (200 yd) of the fort were felled to provide a clear line of fire. Confederate soldiers and slaves built the original 6.7-hectare (15-acre) earthen fort and 5 km (3 mi) of rifle pits in seven months; much evidence of these fortifications remains today. Some large portions of the Main Battlefield are now maintained in mowed fields, as are large areas near the river batteries and along the river's edge, but a few wooded areas on high bluffs are excepted.

The wooded sections of the Main Battlefield between Rt. 79 and the old fort include areas with steep slopes leading down to streambeds that are dry except during wet weather. Cedars and pines are present along with oaks and hickories in most area. Several trails traverse the ridges and hollows of this section of the park, crossing two small streams at several places.

The northwest boundary of the Main Battlefield is located at Hickman Creek, which is extensively flooded much of the year as a result two factors: Barkley Dam downstream of the park and a coal-fired steam plant upriver which releases large volumes of water on a regular basis. The northern boundary of the park is the Cumberland River (Lake Barkley), which serves as a corridor for inland barge traffic. Between the river batteries, located on the main river, and

the national cemetery another flooded stream, Indian Creek, is, present; like Hickman Creek this creek is extensively flooded much of the year, and it is subject to daily fluctuations in water level amounting to 0.3-0.6 m (1-2 ft). Additionally, during periods of heavy rainfall, water is released at upstream dams, bringing flood conditions to Hickman and Indian creeks, as well as the main river. Contrastingly, during drought conditions, water levels in these creeks goes down, revealing extensive mudflats. Although the ACE owns the shorelines of the river, the NPS manages and mows them. The main river is a natural migration corridor for many species of birds, while the two creeks afford excellent foraging and roosting areas for many species of waterbirds. During breeding season, these creeks and the river attract breeding species that require riparian habitat.

South of the national cemetery on Indian Creek an area is used infrequently as a boy scout camp. Part of this area is mowed field and part is forested, each attracting a fairly large number of bird species throughout the year. One of several deep gullies within the park is located on the northern border of the boy scout camp, separating it from the cemetery. Shrub-scrub habitat along the slope of this gully is highly productive of bird species adapted to this habitat in all seasons.

The national cemetery in the northeast part of the Main Battlefield is a mowed area with many gravesites and monuments; many large trees have grown up in this area, creating a city park effect. Some old-growth forest is located west and north of the cemetery, and there are some bluffs and steep drop-offs between the cemetery and the main river, making the area conducive to

the presence of raptors and other soaring species. East of the national cemetery is a cemetery of the city of Dover and residential areas.

Several trails in the Main Battlefield pass through forest and waterside habitats. One of these trails begins at the Visitor Center; this trail is characterized by considerable elevational change; it was the only area in the park where several species of warblers were found during the breeding season.

In 2005 an observation platform was added to the river batteries site, making it possible to scan a large area of river bottomland.

Most of the deep water areas along the river are heavily used by fishermen in boats. The area across the river from the park, and much of the surrounding countryside, is a hunting and fishing recreation area. During hunting season, gunfire can often be heard from Hickman Creek, and heavy gunfire often erupts from the bottomlands across the river where a large waterfowl management area is located. Sometimes flights of ducks depart this area when fired upon, often overflying the river and park; bald eagles patrol this area during hunting seasons and sometimes snare downed ducks before duck hunters can get to them.

Overall FODO is small by the standards of many parks, and it is surrounded by urban sprawl. Roads in the park are mainly limited by topography to the tops of ridges and away from steep areas and areas where water barriers are present, especially on the west, north, and east borders of the park. Four narrow, canopy-covered gravel roads that are gated to the public lie within the park. Fragmentation in the park forests is a lesser factor than it is in some larger

parks. For a park of its size, FODO has a large amount of riparian habitat. All of these factors led to a moderately large species list, especially of breeding birds, for a park of the size of FODO.

Methods--Bird Inventory Techniques

Point counts were the most regimented method of collecting bird data at this NPS unit. Fifteen point counts were conducted during early to mid-June in each of two years, 2004 and 2005. The protocol for these counts entailed standing at the center of a 100-meter diameter plot and counting all birds heard and seen for 10 minutes; birds were recorded as occurring at one of four distance intervals (< 25 m; 25-50 m; 50-100 m; and >100 m) or as flyovers; birds were also recorded as occurring within one of three temporal intervals (0-3 min; 3-5 min; 5-10 min) (Hamel 1992; Hamel et al. 1996). Any birds flushed during approach to the plot center were included among the birds recorded at the point. Birds believed to have been already counted at a one point were not counted if detected at an adjacent point. All birds seen or heard were recorded on a special point count data form. All point count data are provided in a supplemental Excel file included with this report.

A second method used to gather data about the birds of this site was the migration walk. During spring and fall, these walks were conducted 3-4 times per season. The walks typically lasted 1-2 hours and covered a distance of about 1.5 km (1 mi) through habitat considered to have potential for harboring migrant birds. All species seen or heard were recorded on a standard field card.

A third method used to gather data about the birds of the site was the raptor survey. These surveys were undertaken during fall and early winter. Typically, the survey lasted 2-4 hours during late morning. A route was driven by automobile along all the roads of the unit, usually totaling about 15 km. All raptors (and shrikes) detected were included in the resulting data. All species seen or heard were recorded on a standard field card.

A fourth method of gathering bird data at this site was the night survey, a somewhat informal method entailing the use of tape-recorded owl calls to elicit responses from owls at the site. Besides owls, nightjars were also detected by night surveys during summer; woodcocks at all seasons; and Grasshopper Sparrows during spring and summer. All species seen or heard were recorded on a standard field card, sometimes in conjunction with data obtained using the following method.

The fifth and last method of obtaining bird data at this site was the general inventory, involving less regimented efforts to visit many promising sites within this NPS unit during the course of a day and to keep track of all species sighted. During the breeding period for birds, which includes most of the spring and summer, the general inventory included efforts to detect breeding evidence of for all species breeding in the unit. All species seen or heard and all breeding evidence observed were recorded on a standard field card. At least 1-2 hours per day were spent in all seasons scanning from the river batteries area for raptors, for birds flying over and moving along the river, and for herons coming and going to roosts.

Data obtained during migration walks, raptor surveys, night surveys, and general inventory surveys are provided in a supplemental Excel file submitted with this report.

Results

Expected Species List

“The Birds of Stewart County, Tennessee” (Robinson and Blunk 1989; Appendix A: Table 1) lists 284 species of birds that have been observed in Stewart County where FODO is located, causing this list to be the best available compilation against which to compare results of the bird inventory at FODO. However, some habitats found within Stewart County do not occur at all within FODO and others are quite limited in extent by the small area of this park unit, making birds dependent on those habitats less likely to occur at FODO than elsewhere in the county. Nonetheless, we use the entire list in Robinson and Blunk (1989) as the expected species list for FODO.

Total Species Inventoried

During the inventory period, Barbara H. Stedman (most of the time) and Stephen J. Stedman (a few times) made visits to the unit on a total of 37 days during all seasons of the year (11 days during spring; 9 days during summer; 9 days during fall; and 8 days during winter). In the course of these visits we observed 175 species (Appendix A: Table 2) by one or more of the methods described above; one additional species—American White Pelican—was observed in the park by maintenance personnel during the inventory period (and

another species—Golden-winged Warbler—was recorded historically [Robinson and Blunk 1989]). The total of 175 species detected during the two-year inventory in FODO represents approximately 62% of the 284 species known to have occurred in Stewart County, Tennessee, as of 1989 (Robinson and Blunk 1989).

Some factors that limited the results of the inventory included

- Traffic noise from Rt. 79, often as loud as interstate traffic noise;
- Barge traffic noise on the Cumberland River, often very loud and sometimes constant during all seasons;
- Recreational boat disturbance on the main river and on Hickman and Indian creeks;
- Gunfire during hunting season, especially directly across the river from the river batteries;
- Urban development right up to park boundaries on three sides, probably inhibiting some species from nesting in otherwise suitable habitat;
- Mowing of grass to river edge, preventing growth of weedy habitat that would be attractive to many migrant species;
- High water during most migration seasons (see “Influence of Weather” below).

Breeding Species Inventoried

Evidence of breeding by bird species using the unit was divided into three categories: possible evidence; probable evidence; and confirmed evidence. In all, 89 species (Appendix A: Table 2) were placed in one of these categories,

including 20 (22%) possible breeders, 17 (19%) probable breeders, and 52 (59%) confirmed breeders.

Point counts were conducted during the breeding period of many species. A total of 44 species was registered during point counts conducted during mid-June 2004, while 62 species were detected during point counts conducted in early June 2005. In all, point count effort led to data for 63 species of birds, all of which use FODO during the breeding season (Appendix A: Table 3). Detailed data from the point counts are provided in a supplemental Excel file submitted in conjunction with this report.

Species Composition of the Isolated Units

Generally speaking, the larger and more diverse in habitat a site is, the larger the number of bird species that will be found in it. This rule of thumb was generally, but not entirely, borne out by the data obtained during this survey. The smallest unit of the park, the Surrender House, was a quite productive area to bird, more so than the greenway, which is a larger unit of the park, but one where fewer species were found than at the Surrender House. The Main Battlefield, with its large amount of riparian habitat and its considerable forested area, as well as its overall larger size than either of the other units, produced more species than either of two smaller units.

Discussion

Comparative Effectiveness of Survey Techniques

Each of the five survey techniques used for this inventory was effective for its purpose, but in terms of generating the largest number of species per unit of time expended, the general inventory was probably the most effective, followed by the migration walk and the point count (for breeding species only). Due to their restricted emphasis, night surveys and raptor surveys generated fewer species per unit of time expended. The raptor surveys at FODO produced better than expected results, possibly because of the presence of good roosting areas and because of the presence of many overlooks from which to observe them.

Influence of Weather on Results

An effort was made to visit FODO during periods when the weather was conducive for registering the maximum number of species during general inventory work, migration walks, point counts, night surveys, and raptor surveys, so the influence of weather on the results of the overall inventory was generally positive.

Very heavy rainfall during both years of the inventory prevented mudflat habitat for shorebirds from developing; the only exception was the fall of 2003. Flooding during late May 2005 was so great that two local Osprey nests were washed away: one at the Surrender House and one downstream from the Main Battlefield. Bottomland nesting birds at FODO, such as Canada Goose and Prothonotary Warbler, would have been negatively affected by these conditions also.

The fall of 2004 and the winter of 2004-2005 experienced a severe shortage of mast in the park as well as in the surrounding region, causing some species to move about seeking food resources. Some mast-obligate species may not have been recorded in the park during those seasons as a result of this factor.

The weather during both winters of the inventory was quite mild, resulting in an absence of species of boreal irruptives, such as Evening Grosbeak.

Description of Bird Diversity in Terms of Observed and Estimated Species Richness

Diversity of bird species in the park was excellent compared to the diversity we expected. This result took place despite several factors, including

- the small size of the park;
- the overall paucity of shrub-scrub habitat in the park;
- the absence of no-wake zones in Hickman and Indian creeks;
- the presence of urban development right up to the park boundary,
- the splitting of the park into two sections by Rt. 79;
- and the practice of mowing grass right up to the water's edge, leaving no weedy, shrub-scrub, or forest habitat for most bird species;

that were all likely negative in their effects on the diversity of species observed during the inventory. Although most of these factors could not be changed easily, a change in the mowing practices in the park would probably benefit many species of birds and increase bird diversity even more. Species that require weedy grassland and shrub-scrub habitats were in especially short supply in the park.

A testament to the suitability of the park to birdlife was provided by the fact that a pair of Bald Eagles moved its nest site from downriver to a very public site near the log huts; even near this public site, they successfully fledged two young during May 2005.

Another testament to the park's suitability to birdlife was provided by a pair of Ospreys that nested on a cellular tower near the park in late May 2005, following the destruction of an earlier nest that was flooded out. These Ospreys were observed gathering sticks for their new nest near Buckner's Final Defense, well inside the park.

Unexpected Results

The relatively dense population of Prothonotary Warblers in the park's riparian habitat was unexpected but welcome. The park's management practice of leaving dead snags standing is helpful in maintaining this population of a declining warbler.

Six species of diurnal raptors—Osprey, Bald Eagle, Cooper's Hawk, Red-shouldered Hawk, Broad-winged Hawk, and Red-tailed Hawk--were noted in the park during nesting season, certainly a noteworthy and unexpected density of avian predators.

The high number of some interior forest obligates, such as Barred Owl, several species of woodpeckers, Acadian Flycatcher, and Wood Thrush, was unexpected in such a relatively small area.

It was unexpected to find singing Cerulean Warblers at two sites during June 2005; further monitoring for this species is warranted based on this finding.

Also unexpected was the presence of two scarce nesters—Warbling Vireo and Baltimore Oriole—east of the river batteries.

Birds Not Found

In general breeding warblers were in short supply or not found at all.

Grassland breeding obligates such as Northern Bobwhite, Field Sparrow, and Grasshopper Sparrow were either absent or present in very small numbers. Wintering species using the same habitat were also scarce or absent.

Few shorebirds were found because mudflat habitat was often flooded during the inventory. This would not be the case in many future years.

Recommendations for Management and Protection of Significant Habitats

- Reduce mowing of grass within 50 m of the river to once per year in late July or early August;
- Allow a shrub-scrub corridor to grow up between the river grassy area and the nearby woodland; maintain this corridor at 1-2 m, bush-hogging every 3-4 years;
- Allow a 10-m wide band of shrub-scrub habit to grow up near the forest north of the stone fence at the national cemetery and below the maintenance buildings there;
- At Surrender House do not mow below the high-water level; the wildflowers there are enjoyed by the public, and many species of wildlife will use this natural weedy habitat;

- At Sandy Road allow more shrub-scrub habitat to grow up by cutting less grass on the west side of the road around the stream area; nesting Red-shouldered Hawks in this area would be benefited from less disturbance.
- If tree-cutting occurs in the greenway area, leave debris piles near the woodland edge to prevent erosion and to provide potential habitat for Bewick's Wren, an endangered species in Tennessee, and other species.
- Continue bird monitoring using volunteers from Cross Creeks NWR and other sources.
- Create and maintain a database of bird records to be used in updating the bird checklist for the park.

Suitability of Habitat for Persistence of Sensitive Species

Probably the only sensitive species among those in the park for prolonged periods of time (i.e., breeding or wintering) was the Bald Eagle, a pair of which nested in the park during 2005. "Everyone" in Dover knew about these birds, which were able to nest successfully despite a lot of mostly harmless attention. The habitat in the park appears suitable to this species, and there is no reason why it should not remain as a breeder for some time to come.

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Appendix A

Table 1. Expected species at FODO, based on Robinson and Blunk (1989).

Fulvous Whistling-Duck

Greater White-fronted Goose

Snow Goose

Ross's Goose

Brant

Barnacle Goose

Canada Goose

Mute Swan

Tundra Swan

Wood Duck

Gadwall

American Wigeon

Eurasian Wigeon

American Black Duck

Mallard

Blue-winged Teal

Cinnamon Teal

Northern Shoveler

Northern Pintail

Green-winged Teal

Canvasback

Redhead

Ring-necked Duck

Greater Scaup

Lesser Scaup

Surf Scoter

White-winged Scoter

Black Scoter

Long-tailed Duck

Bufflehead

Common Goldeneye

Hooded Merganser

Common Merganser

Red-breasted Merganser

Ruddy Duck

Ruffed Grouse

Wild Turkey

Northern Bobwhite

Common Loon

Pied-billed Grebe

Horned Grebe

Double-crested Cormorant

American Bittern

Least Bittern

Great Blue Heron

Great Egret

Snowy Egret

Little Blue Heron

Tricolored Heron

Cattle Egret

Green Heron

Black-crowned Night-Heron

Yellow-crowned Night-Heron

White Ibis

Glossy Ibis

Wood Stork

Black Vulture

Turkey Vulture

Osprey

Mississippi Kite

Bald Eagle

Northern Harrier

Sharp-shinned Hawk

Cooper's Hawk

Northern Goshawk

Red-shouldered Hawk

Broad-winged Hawk

Red-tailed Hawk

Rough-legged Hawk

Golden Eagle

American Kestrel

Merlin

Peregrine Falcon

Yellow Rail

King Rail

Virginia Rail

Sora

Purple Gallinule

Common Moorhen

American Coot

Sandhill Crane

Black-bellied Plover

American Golden-Plover

Semipalmated Plover

Piping Plover

Killdeer

Black-necked Stilt

American Avocet

Spotted Sandpiper

Solitary Sandpiper

Greater Yellowlegs

Willet

Lesser Yellowlegs

Upland Sandpiper

Marbled Godwit

Sanderling

Semipalmated Sandpiper

Western Sandpiper

Least Sandpiper

White-rumped Sandpiper

Baird's Sandpiper

Pectoral Sandpiper

Dunlin

Stilt Sandpiper

Buff-breasted Sandpiper

Short-billed Dowitcher

Long-billed Dowitcher

Wilson's Snipe

American Woodcock

Wilson's Phalarope

Red-necked Phalarope

Franklin's Gull

Bonaparte's Gull

Ring-billed Gull

Herring Gull

Great Black-backed Gull

Black-legged Kittiwake

Least Tern

Caspian Tern

Black Tern

Common Tern

Forster's Tern

Rock Pigeon

Mourning Dove

Common Ground-Dove

Yellow-billed Cuckoo

Black-billed Cuckoo

Barn Owl

Eastern Screech-Owl

Great Horned Owl

Snowy Owl

Barred Owl

Short-eared Owl

Common Nighthawk

Chuck-will's-widow

Whip-poor-will

Chimney Swift

Ruby-throated Hummingbird

Belted Kingfisher

Red-headed Woodpecker

Red-bellied Woodpecker

Yellow-bellied Sapsucker

Downy Woodpecker

Hairy Woodpecker

Red-cockaded Woodpecker

Northern Flicker

Pileated Woodpecker

Olive-sided Flycatcher

Eastern Wood-Pewee

Yellow-bellied Flycatcher

Acadian Flycatcher

Alder Flycatcher

Willow Flycatcher

Least Flycatcher

Eastern Phoebe

Great Crested Flycatcher

Eastern Kingbird

Scissor-tailed Flycatcher

Loggerhead Shrike

White-eyed Vireo

Yellow-throated Vireo

Blue-headed Vireo

Warbling Vireo

Philadelphia Vireo

Red-eyed Vireo

Blue Jay

American Crow

Common Raven

Horned Lark

Purple Martin

Tree Swallow

Northern Rough-winged Swallow

Bank Swallow

Cliff Swallow

Barn Swallow

Carolina Chickadee

Tufted Titmouse

Red-breasted Nuthatch

White-breasted Nuthatch

Brown Creeper

Carolina Wren

Bewick's Wren

House Wren

Winter Wren

Sedge Wren

Marsh Wren

Golden-crowned Kinglet

Ruby-crowned Kinglet

Blue-gray Gnatcatcher

Eastern Bluebird

Veery

Gray-cheeked Thrush

Swainson's Thrush

Hermit Thrush

Wood Thrush

American Robin

Gray Catbird

Northern Mockingbird

Brown Thrasher

European Starling

American Pipit

Cedar Waxwing

Blue-winged Warbler

Golden-winged Warbler

Tennessee Warbler

Orange-crowned Warbler

Nashville Warbler

Northern Parula

Yellow Warbler

Chestnut-sided Warbler

Magnolia Warbler

Cape May Warbler

Black-throated Blue Warbler

Yellow-rumped Warbler

Black-throated Green Warbler

Blackburnian Warbler

Yellow-throated Warbler

Pine Warbler

Prairie Warbler

Palm Warbler

Bay-breasted Warbler

Blackpoll Warbler

Cerulean Warbler

Black-and-white Warbler

American Redstart

Prothonotary Warbler

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Field Sparrow

Vesper Sparrow

Lark Sparrow

Savannah Sparrow

Grasshopper Sparrow

Le Conte's Sparrow

Nelson's Sharp-tailed Sparrow

Fox Sparrow

Song Sparrow

Lincoln's Sparrow

Swamp Sparrow

White-throated Sparrow

White-crowned Sparrow

Harris's Sparrow

Dark-eyed Junco

Lapland Longspur

Snow Bunting

Northern Cardinal

Rose-breasted Grosbeak

Blue Grosbeak

Indigo Bunting

Painted Bunting

Dickcissel

Bobolink

Red-winged Blackbird

Eastern Meadowlark

Western Meadowlark

Rusty Blackbird

Brewer's Blackbird

Common Grackle

Brown-headed Cowbird

Orchard Oriole

Baltimore Oriole

Purple Finch

House Finch

Red Crossbill

Common Redpoll

Pine Siskin

American Goldfinch

Evening Grosbeak

House Sparrow

Table 2. Species, status, and seasonal abundance of birds observed at Fort Donelson National Battlefield 2003-2005. * = possible breeding evidence noted; ** = probable breeding evidence noted; *** = confirmed breeding evidence noted. Key to abbreviations: PR = permanent resident; SR = summer resident; TR = transient; VR = visitor; WR = winter resident; UN = unknown status (or difficult to determine because observations are so few); C = common; FC = fairly common; U = uncommon; VU = very uncommon; R = rare.

	Common Name	Scientific Name	Status	Sp	Su	Fa	Wi
_____	Snow Goose	<i>Chen caerulescens</i>	WR			R	R
_____	Canada Goose **	<i>Branta canadensis</i>	PR	FC	VU	U	FC
_____	Wood Duck **	<i>Aix sponsa</i>	PR	U		VU	U
_____	Gadwall	<i>Anas strepera</i>	WR			R	
_____	American Wigeon	<i>Anas americana</i>	WR				VU
_____	American Black Duck	<i>Anas rubripes</i>	WR			VU	VU
_____	Mallard	<i>Anas platyrhynchos</i>	PR			VU	U
_____	Northern Shoveler	<i>Anas clypeata</i>	WR				VU
_____	Northern Pintail	<i>Anas acuta</i>	WR				R
_____	Green-winged Teal	<i>Anas crecca</i>	WR			VU	
_____	Ring-necked Duck	<i>Aythya collaris</i>	WR	VU		VU	VU
_____	Bufflehead	<i>Bucephala albeola</i>	WR				VU
_____	Hooded Merganser	<i>Lophodytes cucullatus</i>	WR				VU
_____	Ruddy Duck	<i>Oxyurus jamaicensis</i>	WR			VU	
_____	Wild Turkey ***	<i>Meleagris gallopavo</i>	PR	U	VU	VU	
_____	Northern Bobwhite **	<i>Colinus virginianus</i>	PR	U	VU	VU	VU
_____	Common Loon	<i>Gavia immer</i>	VR			R	R
_____	Pied-billed Grebe	<i>Podilymbus podiceps</i>	WR	VU			
_____	American White Pelican #	<i>Pelecanus erythrorhynchos</i>	VR	R			

_____	Double-crested Cormorant	<i>Phalacrocorax auritus</i>	WR	FC		VU	
_____	Great Blue Heron *	<i>Ardea herodias</i>	PR	U	U	FC	FC
_____	Great Egret	<i>Ardea alba</i>	VR	U		U	
_____	Little Blue Heron	<i>Egretta caerulea</i>	VR	U	VU	U	
_____	Green Heron **	<i>Butorides virescens</i>	SR	U	U	U	
_____	Black-crowned Night-Heron *	<i>Nycticorax nycticorax</i>	PR	U	U	U	U
_____	Yellow-cr. Night-Heron ***	<i>Nyctanassa violacea</i>	UN		R	R	
_____	Black Vulture	<i>Coragyps atratus</i>	PR	U	U	U	U
_____	Turkey Vulture	<i>Cathartes aura</i>	PR	U	U	U	U
_____	Osprey ***	<i>Pandion haliaetus</i>	SR	U	U	U	R
_____	Mississippi Kite	<i>Ictinia mississippiensis</i>	TR		R	R	
_____	Bald Eagle ***	<i>Haliaeetus leucocephalus</i>	WR	U	U	U	U
_____	Northern Harrier	<i>Circus cyaneus</i>	WR				R
_____	Sharp-shinned Hawk	<i>Accipiter striatus</i>	WR			VU	U
_____	Cooper's Hawk *	<i>Accipiter cooperi</i>	PR	VU	VU	VU	U
_____	Red-shouldered Hawk ***	<i>Buteo lineatus</i>	PR	U	U	U	U
_____	Broad-winged Hawk *	<i>Buteo platypterus</i>	SR	U	VU	U	
_____	Red-tailed Hawk ***	<i>Buteo jamaicensis</i>	PR	U	U	VU	U
_____	American Kestrel	<i>Falco sparverius</i>	VR				R
_____	Peregrine Falcon	<i>Falco peregrinus</i>	TR			R	
_____	Semipalmated Plover	<i>Charadrius semipalmatus</i>	TR			VU	
_____	Killdeer ***	<i>Charadrius vociferus</i>	PR	U	U	U	U
_____	Spotted Sandpiper	<i>Actitis macularius</i>	TR	VU	VU	U	
_____	Greater Yellowlegs	<i>Tringa melanoleuca</i>	TR			R	
_____	American Woodcock *	<i>Scolopax minor</i>	PR	VU	VU	VU	R
_____	Bonaparte's Gull	<i>Larus philadelphia</i>	WR				VU
_____	Ring-billed Gull	<i>Larus delawarensis</i>	WR	FC		U	A
_____	Herring Gull	<i>Larus argentatus</i>	WR				U
_____	Caspian Tern	<i>Hydroprogne caspia</i>	TR			U	
_____	Black Tern	<i>Chlidonias niger</i>	TR			VU	

_____	Forster's Tern	<i>Sterna forsteri</i>	TR	VU				
_____	Rock Pigeon	<i>Columba livia</i>	PR	VU			VU	
_____	Mourning Dove ***	<i>Zenaida macroura</i>	PR	FC	C		C	U
_____	Yellow-billed Cuckoo **	<i>Coccyzus americanus</i>	SR	U	U		U	
_____	Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	TR	VU				
_____	Eastern Screech-Owl **	<i>Otus asio</i>	PR	U	U		U	U
_____	Great Horned Owl ***	<i>Bubo virginianus</i>	PR	U	U		U	U
_____	Barred Owl **	<i>Strix varia</i>	PR	U	U		U	U
_____	Common Nighthawk	<i>Chordeiles minor</i>	TR	R			VU	
_____	Whip-poor-will	<i>Caprimulgus vociferus</i>	TR	R				
_____	Chimney Swift *	<i>Chaetura pelagica</i>	SR	U	U		U	
_____	Ruby-throat. Hummingbird *	<i>Archilochus colubris</i>	SR	U	U		U	
_____	Belted Kingfisher *	<i>Ceryle alcyon</i>	PR	U	U		U	U
_____	Red-headed Woodpecker ***	<i>Melanerpes erythrocephalus</i>	PR	U	U		U	U
_____	Red-bellied Woodpecker ***	<i>Melanerpes carolinus</i>	PR	FC	FC		FC	FC
_____	Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	WR	U			U	U
_____	Downy Woodpecker ***	<i>Picoides pubescens</i>	PR	FC	U		FC	FC
_____	Hairy Woodpecker ***	<i>Picoides villosus</i>	PR	U	U		U	U
_____	Northern Flicker **	<i>Colaptes auratus</i>	PR	U	U		U	U
_____	Pileated Woodpecker ***	<i>Dryocopus pileatus</i>	PR	U	U		FC	U
_____	Eastern Wood-Pewee ***	<i>Contopus virens</i>	SR	U	FC		U	
_____	Acadian Flycatcher ***	<i>Empidonax virens</i>	SR	U	FC		VU	
_____	Eastern Phoebe ***	<i>Sayornis phoebe</i>	PR	U	U		U	U
_____	Great Crested Flycatcher ***	<i>Myiarchus crinitus</i>	SR	U	U		VU	
_____	Eastern Kingbird ***	<i>Tyrannus tyrannus</i>	SR	U	U		VU	
_____	White-eyed Vireo ***	<i>Vireo griseus</i>	SR	FC	FC		FC	
_____	Yellow-throated Vireo **	<i>Vireo flavifrons</i>	SR	U	U		U	
_____	Blue-headed Vireo	<i>Vireo solitarius</i>	TR	VU			VU	
_____	Warbling Vireo *	<i>Vireo gilvus</i>	SR	VU	R		VU	
_____	Philadelphia Vireo	<i>Vireo philadelphicus</i>	TR				R	

_____	Red-eyed Vireo ***	<i>Vireo olivaceus</i>	SR	FC	C	U		
_____	Blue Jay ***	<i>Cyanocitta cristata</i>	PR	FC	C	FC	FC	
_____	American Crow **	<i>Corvus brachyrhynchos</i>	PR	FC	C	C	FC	
_____	Purple Martin	<i>Progne subis</i>	SR	U	U			
_____	Tree Swallow **	<i>Tachycineta bicolor</i>	SR	U	VU	U		
_____	N. Rough-winged Swallow ***	<i>Stelgidopteryx serripennis</i>	SR	U	U	U		
_____	Bank Swallow	<i>Riparia riparia</i>	TR	VU				
_____	Cliff Swallow ***	<i>Petrochelidon pyrrhonota</i>	SR	U	FC	U		
_____	Barn Swallow ***	<i>Hirundo rustica</i>	SR	U	FC	U		
_____	Carolina Chickadee ***	<i>Poecile carolinensis</i>	PR	C	FC	FC	A	
_____	Tufted Titmouse ***	<i>Baeolophus bicolor</i>	PR	C	FC	FC	A	
_____	Red-breasted Nuthatch	<i>Sitta canadensis</i>	WR				R	
_____	White-breasted Nuthatch ***	<i>Sitta carolinensis</i>	PR	U	FC	FC	FC	
_____	Brown Creeper	<i>Certhia americana</i>	WR	VU		R	VU	
_____	Carolina Wren ***	<i>Thryothorus ludovicianus</i>	PR	C	C	C	A	
_____	House Wren *	<i>Troglodytes aedon</i>	SR	VU	VU	VU		
_____	Winter Wren	<i>Troglodytes troglodytes</i>	WR	VU		VU	U	
_____	Sedge Wren	<i>Cistothorus platensis</i>	VR				R	
_____	Marsh Wren	<i>Cistothorus palustris</i>	TR			R		
_____	Golden-crowned Kinglet	<i>Regulus satrapa</i>	WR			VU	U	
_____	Ruby-crowned Kinglet	<i>Regulus calendula</i>	WR	U		VU	U	
_____	Blue-gray Gnatcatcher ***	<i>Poliophtila caerulea</i>	SR	C	FC	FC		
_____	Eastern Bluebird ***	<i>Sialia sialis</i>	PR	C	A	C	A	
_____	Veery	<i>Catharus fuscescens</i>	TR	VU				
_____	Gray-cheeked Thrush	<i>Catharus minimus</i>	TR	R				
_____	Swainson's Thrush	<i>Catharus ustulatus</i>	TR	U		VU		
_____	Hermit Thrush	<i>Catharus guttatus</i>	WR	U		VU	U	
_____	Wood Thrush ***	<i>Hylocichla mustelina</i>	SR	FC	FC	VU		
_____	American Robin ***	<i>Turdus migratorius</i>	PR	FC	C	C	A	

_____	Gray Catbird *	<i>Dumetella carolinensis</i>	SR	U	VU	VU		
_____	Northern Mockingbird ***	<i>Mimus polyglottus</i>	PR	U	FC	U	U	
_____	Brown Thrasher ***	<i>Toxostoma rufum</i>	PR	U	U	U	U	
_____	European Starling ***	<i>Sturnus vulgaris</i>	PR	FC	A	A	FC	
_____	American Pipit	<i>Anthus rubescens</i>	VR				R	
_____	Cedar Waxwing *	<i>Bombycilla cedrorum</i>	PR	VU	U	U	U	
_____	Blue-winged Warbler	<i>Vermivora pinus</i>	TR	VU		VU		
_____	Golden-winged Warbler ##	<i>Vermivora chrysoptera</i>	TR			R		
_____	Tennessee Warbler	<i>Vermivora peregrina</i>	TR	U		VU		
_____	Orange-crowned Warbler	<i>Vermivora celata</i>	TR	VU		R		
_____	Nashville Warbler	<i>Vermivora ruficapilla</i>	TR	VU		R		
_____	Northern Parula ***	<i>Parula americana</i>	SR	FC	FC	VU		
_____	Yellow Warbler *	<i>Dendroica petechia</i>	SR	U	R			
_____	Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	TR	U		VU		
_____	Magnolia Warbler	<i>Dendroica magnolia</i>	TR	U		VU		
_____	Cape May Warbler	<i>Dendroica tigrina</i>	TR	VU				
_____	Yellow-rumped Warbler	<i>Dendroica coronata</i>	WR	FC		FC	A	
_____	Black-thr. Green Warbler	<i>Dendroica virens</i>	TR	U		VU		
_____	Blackburnian Warbler	<i>Dendroica fusca</i>	TR	U		VU		
_____	Yellow-throated Warbler **	<i>Dendroica dominica</i>	SR	U	U	U		
_____	Pine Warbler ***	<i>Dendroica pinus</i>	SR	U	U	U		
_____	Prairie Warbler **	<i>Dendroica discolor</i>	SR	U	U	VU		
_____	Palm Warbler	<i>Dendroica palmarum</i>	TR	U		VU		
_____	Bay-breasted Warbler	<i>Dendroica castanea</i>	TR	VU		VU		
_____	Blackpoll Warbler	<i>Dendroica striata</i>	TR	U				
_____	Cerulean Warbler *	<i>Dendroica cerulea</i>	SR	U	R			
_____	Black-and-white Warbler	<i>Mniotilta varia</i>	TR	U		VU		
_____	American Redstart	<i>Setophaga ruticilla</i>	TR	U		VU		

_____	Prothonotary Warbler ***	<i>Protonotaria citrea</i>	SR	U	U	VU	
_____	Worm-eating Warbler *	<i>Helmitheros vermivorum</i>	SR	U	VU	VU	
_____	Ovenbird *	<i>Seiurus aurocapillus</i>	SR	U	VU	VU	
_____	Northern Waterthrush	<i>Seiurus novaboracensis</i>	TR	VU			
_____	Louisiana Waterthrush ***	<i>Seiurus motacilla</i>	SR	U	VU		
_____	Kentucky Warbler ***	<i>Oporornis formosus</i>	SR	U	VU	R	
_____	Common Yellowthroat **	<i>Geothlypis trichas</i>	SR	U	U	U	
_____	Hooded Warbler *	<i>Wilsonia citrina</i>	SR	U	VU	VU	
_____	Canada Warbler	<i>Wilsonia canadensis</i>	TR	VU			
_____	Yellow-breasted Chat	<i>Icteria virens</i>	TR	U		VU	
_____	Summer Tanager ***	<i>Piranga rubra</i>	SR	FC	FC	U	
_____	Scarlet Tanager **	<i>Piranga olivacea</i>	SR	U	U	U	
_____	Eastern Towhee ***	<i>Pipilo erythrophthalmus</i>	PR	FC	C	FC	U
_____	Chipping Sparrow ***	<i>Spizella passerina</i>	PR	C	A	C	U
_____	Field Sparrow *	<i>Spizella pusilla</i>	PR	U	VU	VU	VU
_____	Savannah Sparrow	<i>Passerculus sandwichensis</i>	WR	VU			VU
_____	Grasshopper Sparrow	<i>Ammodramus savannarum</i>	TR	R			
_____	Fox Sparrow	<i>Passerella iliaca</i>	WR	VU			VU
_____	Song Sparrow	<i>Melospiza melodia</i>	WR	VU		U	U
_____	Lincoln's Sparrow	<i>Melospiza lincolnii</i>	TR	VU		R	
_____	Swamp Sparrow	<i>Melospiza georgiana</i>	WR	U		VU	
_____	White-throated Sparrow	<i>Zonotrichia albicollis</i>	WR	FC		VU	A
_____	White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	WR	R			
_____	Dark-eyed Junco	<i>Junco hyemalis</i>	WR	U		VU	A
_____	Northern Cardinal ***	<i>Cardinalis cardinalis</i>	PR	FC	C	A	FC
_____	Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	TR	U		U	
_____	Blue Grosbeak *	<i>Passerina caerulea</i>	SR	U	VU	VU	
_____	Indigo Bunting ***	<i>Passerina cyanea</i>	SR	FC	C	FC	

_____	Bobolink	<i>Dolichonyx orizyvorus</i>	TR	R				
_____	Red-winged Blackbird ***	<i>Agelaius phoeniceus</i>	PR	U	U	VU	VU	
_____	Eastern Meadowlark **	<i>Sturnella magna</i>	PR	U	U	VU	VU	
_____	Rusty Blackbird	<i>Euphagus carolinus</i>	WR			R		
_____	Common Grackle ***	<i>Quiscalus quiscula</i>	PR	FC	C	U	U	
_____	Brown-headed Cowbird **	<i>Molothrus ater</i>	PR	FC	FC	VU		
_____	Orchard Oriole ***	<i>Icterus spurius</i>	SR	U	U	VU		
_____	Baltimore Oriole *	<i>Icterus galbula</i>	SR	U	VU			
_____	Purple Finch	<i>Carpodacus purpureus</i>	WR	VU				U
_____	House Finch ***	<i>Carpodacus mexicanus</i>	PR	U	U	U	U	
_____	Pine Siskin	<i>Carduelis pinus</i>	VR					R
_____	American Goldfinch ***	<i>Carduelis tristis</i>	PR	U	U	FC	U	
_____	House Sparrow ***	<i>Passer domesticus</i>	PR	VU	VU	U	VU	

Observed by park personnel; ## see Robinson and Blunk (1989).

Table 3. Species registered during point counts conducted at 15 plots (10 minutes each) at unlimited distance during the breeding seasons of 2004 (SJS) and 2005 (BHS) at Fort Donelson National Battlefield. Greater detail about the results of these point counts is provided in an Excel file that supplements this report. Inds = total individuals counted.

Species		2004		2005
	Stops	Inds	Stops	Inds
Observer		SJS		BHS
Wild Turkey	--	--	1	1
Great Blue Heron	--	--	2	3
Green Heron	--	--	1	1
Osprey	--	--	1	1
Bald Eagle	--	--	1	1
Broad-winged Hawk	--	--	1	1
Mourning Dove	2	2	7	10
Yellow-billed Cuckoo	3	4	4	4

Great Horned Owl	--	--	1	1
Barred Owl	--	--	1	1
Ruby-throated Hummingbird	2	2	1	1
Belted Kingfisher	--	--	2	2
Red-headed Woodpecker	--	--	1	1
Red-bellied Woodpecker	10	12	6	10
Downy Woodpecker	5	5	3	3
Hairy Woodpecker	1	1	2	2
Northern Flicker	1	1	3	3
Pileated Woodpecker	1	1	2	2
Eastern Wood-Pewee	7	7	5	6
Acadian Flycatcher	9	17	7	12
Eastern Phoebe	1	1	2	2
Great Crested Flycatcher	4	5	6	6
Eastern Kingbird	--	--	1	1
White-eyed Vireo	4	6	8	9
Yellow-throated Vireo	7	9	5	5
Red-eyed Vireo	15	19	13	25
Blue Jay	4	4	7	14
American Crow	8	10	3	11
Purple Martin	--	--	2	4
Barn Swallow	1	1	1	4
Carolina Chickadee	11	14	10	16
Tufted Titmouse	12	15	12	23
White-breasted Nuthatch	2	2	6	9
Carolina Wren	12	19	13	30
Blue-Gray Gnatcatcher	12	16	7	11
Eastern Bluebird	2	3	7	10
Wood Thrush	7	11	11	16
American Robin	1	1	4	7
Northern Mockingbird	--	--	2	2
Brown Thrasher	1	1	3	5
European Starling	--	--	1	7
Cedar Waxwing	1	1	1	2
Northern Parula	9	11	4	4
Yellow-throated Warbler	3	3	3	3
Pine Warbler	2	2	2	2
Prairie Warbler	1	1	--	--
Prothonotary Warbler	3	4	3	6
Louisiana Waterthrush	--	--	1	1
Kentucky Warbler	6	8	6	7
Common Yellowthroat	--	--	2	2
Summer Tanager	8	9	12	21
Scarlet Tanager	6	7	5	5
Eastern Towhee	3	3	4	6

Chipping Sparrow	1	1	6	15
Northern Cardinal	10	12	12	38
Blue Grosbeak	--	--	2	2
Indigo Bunting	3	6	6	11
Common Grackle	3	3	1	2
Brown-headed Cowbird	1	1	7	18
Orchard Oriole	2	3	4	6
Baltimore Oriole	--	--	1	1
House Finch	--	--	1	2
American Goldfinch	5	5	4	8
Total Species		44		62