



I-69 EVANSVILLE TO INDIANAPOLIS TIER 2 STUDIES

Section 2—Final Environmental Impact Statement

APPENDIX N BIRD SURVEY

BIRDS OF THE PATOKA RIVER REGION IN PIKE AND GIBSON COUNTIES, INDIANA

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BIRDS OF THE PATOKA RIVER REGION IN PIKE AND GIBSON COUNTIES, INDIANA

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Abstract

In fulfillment of biological studies for Tier II Environmental Impact Statements (EIS) of the proposed I-69 corridor from Evansville to Indianapolis, Indiana, the Patoka River crossing in Pike and Gibson counties in Section 2 was surveyed for birds in October 2004 and March and May 2005. The study corridor, approximately 1.4 miles (2.3 km) in length and 500 feet (152 m) wide, was searched morning and evening to maximize the number of avian species seen or heard. A total of 128 species representing 39 species was recorded. No evidence of breeding by federal or state endangered, threatened, or special concern species was observed within the study area. Eight listed species (bald eagle, northern harrier, red-shouldered hawk, common nighthawk) flew over the project study area and four wood warblers (golden-winged, cerulean, black-and-white, and hooded) were foraging during migration in May 2005. Over half (52%) of the birds observed in the Patoka River study corridor were Neotropical migrants, 35 percent were temperate migrants, and 13 percent were permanent residents. Unique species assemblages found in early-successional woods, fields, and grasslands in the northern portion of the study corridor included northern bobwhite, yellow-breasted chat, Bell's vireo, grasshopper sparrow, dickcissel, blue grosbeak, and orchard oriole. This bird survey augments Tier I environmental studies completed in 1993 in the Patoka River corridor. Fall 2004 and spring 2005 surveys added 72 species for a total of 133 birds recorded in the Patoka River study area.

Key Words – Birds, migration, Patoka River, southwestern Indiana

1.0 Introduction

This bird survey is part of studies for the Tier II Environmental Impact Statements for Section 2 of the proposed I-69 from Evansville to Indianapolis, Indiana. Quality Environmental Professionals, Inc. (QEPI) and their client, the Indiana Department of Transportation, contracted Environmental Solutions and Innovations, Inc (ESI) to conduct fall and spring bird surveys of the impact area in the Patoka River bottomlands in Pike and Gibson counties, Indiana. A bridge, approximately 1.4 miles (2.3 km) long and 500 feet (152 m) wide, is proposed to span the study area, crossing over farm fields, woodlots, and bottomland forests of the Patoka River floodplain.

The objective of these surveys was to improve understanding of spring and fall occurrence and habitat use by resident and migrant birds in the Patoka River region on Section 2 of I-69. Bird censuses conducted in October 2004 and March and May 2005, provide information about the following:

- Species richness of resident and migratory birds
- Presence of unique habitat associations and species composition
- Presence of state and federal endangered, threatened, and special concern bird species within the Patoka River study corridor.

This study will also augment and update previous bird surveys completed in July and September 1993 as part of Tier I environmental impact studies (BLA 2003).

2.0 Study Area

2.1 Location –

The study corridor is located in southwestern Indiana in Pike and Gibson counties along the Patoka River, west of route 57 (Figure 1). A survey width of 500 feet (152 m) runs southwest from the intersection of County Road 300 W and CR 200 S north of the Patoka River in Pike County to CR 150 N south of the Patoka River in Gibson County. The total length of the study area is approximately 1.4 miles (2.3 km).

2.2 Physiography –

Located within the Southern Bottomland Natural Region, the Patoka River is exemplary of silt-bottomed, low-gradient streams characteristic of the region (Homoya et al. 1985). Much of this region encounters frequent flooding, and soils are mostly neutral to acidic silt loams. This natural region is distinguished from other bottomland regions in Indiana by the presence of vegetation and wildlife similar to the lower Mississippi Valley and Gulf Coast Plain (Homoya et al. 1985). Some distinctively southern species found in the Patoka River region include bald cypress (*Taxodium distichum*), copperbelly watersnake (*Nerodea erythrogaster*) and yellow-crowned night-heron (*Nyctanassa violacea*).

2.3 Description –

Prior to human influence, the study area was characterized by meandering oxbows, sloughs, and marshes of the Patoka River that snaked through mature bottomland forests. The surrounding hardwood swamps were frequently inundated during spring rains. Recent history of the landscape in the

study area includes modification of the natural hydrology and intensive farming. The Patoka River Canal, completed in 1924, and the Wabash and Erie Canal significantly drained and modified the oxbows. Flooding of cropland was further reduced and controlled by a network of earthen levees and dikes northwest of the study area. Today, several cultivated and fallow fields, woodlots, forest edges, and old roads and bridges dissect the original bottomland forests. The remnant oxbows are relatively separated from the original meandering Patoka River and many form small ephemeral ponds. Flooding, however, still occurs within the study area during heavy spring rains.

The flora is indicative of bottomland forests with saturated wetland soils. Dominant tree species include eastern sycamore (*Plantanus occidentalis*), silver maple (*Acer saccharinum*), green ash (*Fraxinus pensylvanica*), red maple (*Acer rubrum*), American elm (*Ulmus americana*), black walnut (*Juglans nigra*), and shellbark hickory (*Carya lacinos*). Disturbed early-successional fields and forests, typical of abandoned cropland, dominate the northern portion of the study corridor. Black locust (*Robinia pseudoacacia*), white ash (*Fraxinus americana*), box elder (*Acer negundo*), red elm (*Ulmus rubra*), and tree of heaven (*Ailanthus altissima*) are common along forest edges and in the power line right-of-way to the north.

During May 2005, farm fields near the oxbows were dominated by butterweed (*Senecio glabellus*; Family: Asteraceae; Appendix C), a common herbaceous plant abundant in moist to wet fallow fields and ditches (USDA 2005). Altered hydrology and intensive farming in this area have also

introduced several invasive species including multiflora rose (*Rosa multiflora*), Japanese honeysuckle (*Lonicera japonica*), autumn olive (*Eleagnus umbellata*), meadow fescue (*Festuca pratensis*), white sweet clover (*Melilotus alba*), Johnson grass (*Sorghum halepense*), and garlic mustard (*Alliaria petiolata*).

2.4 Bird Migration –

Each spring and fall, billions of migratory passerines, ducks, and shorebirds, pass between breeding grounds in North America and wintering areas in Mexico and Central and South America. Indiana is situated within the Mississippi flyway, a major migratory route through the continental United States and the longest route of any in the western hemisphere (Gill 1995). The general north-and-south direction of rivers within the Mississippi flyway is of major importance to migrants. Nocturnal migrants, including wood warblers, vireos, and thrushes, commence their migratory flight about a half-hour after sunset. Some birds travel up to 120 miles each night and by morning forage in migratory stopover areas such as the bottomlands of the Patoka River in southwestern Indiana. Migratory stopover sites are important for replenishing fat reserves, molting, or simply resting (Gill 1995). Spring migration is concentrated over a short period of time as migrants sprint to the breeding grounds. In southern Indiana, species richness is highest in early to mid-May. Fall migration, however, is more protracted with some species, such as the yellow warbler (Family: Parulidae), departing breeding grounds by end of July. Other species, such as ducks and shorebirds, migrate as late as November.

2.4.1 Migratory Guilds –

The birds of North America can be classified into certain migratory guilds:

neotropical migrant, temperate migrant, or permanent resident. These guilds are useful in describing species composition and assemblage of a particular state, region, or study area (Ehrlich et al. 1988; Peterjohn et al. 1993). Neotropical migrants are birds of the western hemisphere that migrate long distances from the New World tropics (“neotropics”) to breeding grounds in arctic and temperate regions of North America and Greenland. The neotropics begin south of the Tropic of Cancer in central Mexico and extend to Central and South America and the West Indies. Neotropical migrants can be classified as breeders and transients within North America. For example, a blackpoll warbler in Indiana during spring migration is a transient en route to breeding grounds in Canada or Alaska. Approximately 19 wood warblers (Family: Parulidae) breed in the state of Indiana today and another 18 warblers stopover in the state during spring and fall migration and are transients to breeding grounds further north (Castrale et al. 1998).

Temperate migrants are birds that migrate shorter distances only within North America’s temperate or arctic regions. These migrants can be classified as breeders, transients, or those that over-winter in some areas. For example, dark-eyed juncos (Family: Emberizidae) nest in northern Canada, Alaska, and at higher elevations of the Appalachian Mountains, but winter in Indiana and as far south as the Gulf States. Dark-eyed juncos that over-winter in the southern United States are transients, migrating through Indiana during spring and fall.

Other birds do not migrate and are permanent residents in Indiana. Northern cardinals, wild turkeys, and introduced species such as house sparrows and rock

pigeons are year-round residents that breed and also spend the winter in Indiana.

3.0 Methods

3.1 Survey Methodology –

A meander-search methodology was employed to survey birds in the Patoka River study area. The length (1.4 miles) of the study corridor was walked each morning by up to three observers. This qualitative approach was used to maximize the number of avian species seen or heard within the study corridor. Quantitative surveys, such as point-count bird surveys, were not suitable because of 1.) limited size of the study corridor and potential for overlap of point-count survey locations, and 2.) need for flexibility in active, directed searches that fixed point counts or transect surveys do not provide (Bibby et al. 2000).

Surveys were conducted over 10 days: 2 - 3 October 2004, 10 - 11 March 2005, and 6 - 11 May 2005. A total of 62 hours was spent walking the corridor. All bird species seen or heard, including birds flying over the study area, were recorded on data sheets. One datasheet was used for each survey day for a total of 10 datasheets (Appendix D). The relative abundance of each species was estimated and recorded on the data sheet. The species list was also supplemented by observations from other biologists working in the study area during the months of March, April, and May. Common names follow American Ornithological Union *Checklist of North American Birds, Seventh Edition*.

3.1.1 Dusk/Night Surveys –

Surveys for nocturnal birds (owls, nighthawks, whip-poor-wills) were conducted between 7:00 and 9:00 pm on 10 March and 6, 8, and 10 May 2005. A total of 8 hours were logged during dusk/night surveys. The entire length of the study corridor was walked while listening for calls of nocturnal species. Playback of great-horned, eastern screech, and barred owls and whip-poor-will calls was used to elicit a response (either calling back or moving within viewing range). Calls were played on a portable CD player and amplified using an electronic bullhorn. Calls were played for 10 to 20 seconds followed by a 5-minute listening period.

3.1.2 Threatened and Endangered Species –

Special attention was given to looking for possible threatened or endangered bird species within the study area. A list of 40 federal and state threatened, endangered, and special concern bird species was obtained from Indiana Department of Natural Resources (available at <http://www.in.gov/dnr/fishwild/endangered/birds.htm>). Each species was evaluated to determine the likelihood of nesting within the Patoka River study corridor. Lack of suitable habitat or infrequency of occurrence, based on Indiana breeding bird surveys (Castrale et al. 1998), was used to determine that 34 species from this list have a low probability of nesting within the study area. The following six species were identified as possible breeders within boundaries of the Patoka River study area:

- Yellow-crowned night heron (state endangered)
- Northern Harrier (state endangered)

- Red-shouldered hawk (state special concern)
- Whip-poor-will (state special concern)
- Loggerhead shrike (state endangered)
- Henslow's sparrow (state endangered)

Breeding habitat descriptions in southwestern Indiana for each species were obtained from *Atlas of Breeding Birds of Indiana* (Castrale et al. 1998). These descriptions were used to identify potentially suitable breeding sites within the Patoka River study area (Table 2). Efforts to detect or locate these species were concentrated in survey areas identified in Table 2. Survey efforts included:

- Pursue songs or call notes to possibly locate individuals
- Conduct call play-back for whip-poor-wills; Section 3.1.1)
- Locate nests
- Watch for adults carrying nesting material or fecal sacs
- Search grassland near power line ROW for Henslow's sparrow and northern harrier.
- Search for evidence of loggerhead shrike territory (i.e., dead impaled prey on thorns or barbed wire and nests in thorny shrubs).

All sightings of threatened or endangered species were recorded on the survey datasheets (Appendix D).

3.2 Migratory Guilds –

To analyze species composition, one of five migratory guilds was assigned to each species recorded within the Patoka River study area. Guilds were assigned based on

status as neo-tropical migrants, temperate migrants, or permanent residents within southern Indiana (Section 2.4.1; Table 1). Species fit into one of five possible classifications:

1. Neo-tropical Migrant – Breeding (NM-B)
2. Neo-tropical Migrant – Transient (NM-T)
3. Temperate Migrant – Breeding (TM-B)
4. Temperate Migrant – Transient (TM-T)
5. Permanent Resident (PR)

Evidence of breeding within south-central or southwestern Indiana, based on Castrale et al. (1998), was used to determine each species classification as breeding or transient. Breeding within the study area was not considered in the classification because surveys were conducted during spring and fall migration. The total number and percentage of species in each classification was calculated for the Patoka River study corridor over the three survey periods. Chi-square analysis was used to test for statistical significance between migratory guilds. Chi-square analysis was used, where $\chi^2 = \sum [(O - E)^2/E]$, where O is the observed frequency and E is the expected frequency.

3.3 Weather –

Temperature, percent cloud cover, wind, and rainfall were recorded at the beginning of the survey period. Weather information was recorded on bird survey data sheets (Appendix D). A synopsis of weather conditions for each survey period in each month is provided below.

No precipitation was encountered during 2 - 3 October 2004 surveys. Temperatures were

between 15 and 25°C (60 - 75°F). Winds were calm throughout the surveys.

A light dusting of snow was present on the ground during 10 and 11 March surveys. Temperatures hovered around freezing both days.

No precipitation was recorded during 6 - 11 May 2005 surveys. Temperatures ranged from 10 to 15°C (50-60°F) in the morning to highs of 27°C (80°F) later in the afternoon. Overnight winds were conducive for migration (from the south at 10 mph). Most survey days in May were clear and cloudless.

4.0 Results

4.1 Species Richness –

A total of 128 bird species representing 39 families was heard and/or seen within the Patoka River study corridor during fall 2004 and spring 2005 (Table 1). Seventy-four and 38 species were recorded in October 2004 and March 2005, respectively. Highest species richness was recorded during May 2005 with 110 species observed over 6 days (Table 1). Of 128 birds recorded over three survey periods, 29 (23%) were wood warblers (Family: Parulidae).

Species richness was highest (84 species) on 8 May (Figure 2). Of 82 species recorded in May, 28 (34%) were wood warblers.

A number of nesting and breeding observations were recorded within the study area. They include:

1. A wild turkey nest with six eggs found along a grassy ditch in the southern portion of the study area on

6 May 2005. A female flushed from the nest.

2. A blue-gray gnatcatcher nest found along CR 300 W.
3. Eight killdeer (4 adults and 4 young) observed in a field north of the Patoka River on 10 May 2005.
4. A fledgling great-horned owl found in a tree near the power line right-of-way in the northern portion of the study area
5. A prothonotary warbler nest found in a snag in the oxbow
6. Bell's vireos, yellow-breasted chats, grasshopper sparrows, blue-grosbeaks, dickcissels, and orchard orioles were defending territory in grassland habitat in the northern section of the study area.

4.1.1 Migratory Guilds

Of 128 bird species recorded in the Patoka River study corridor, 67 (52%) were Neotropical migrants (44 resident breeders and 23 transients; Table 4). Forty-four species (35%) were temperate migrants (33 resident breeders and 11 transients) and 17 species (13%) were non-migratory, permanent residents (Table 4). The three migratory guilds were not evenly represented in the study corridor ($\chi^2 = 29.14, P < 0.00$). No statistical difference was found between the number of breeding and transient species in both Neotropical and temperate migratory guilds (Table 4).

A significant difference was found between the number of breeding and transient birds ($\chi^2 = 28.13, P = < 0.00$). Approximately 73 percent (94 species) of birds observed in the Patoka study area have a breeding range that includes southern Indiana. Twenty-seven percent (34 species) are transient species en

route to northern breeding grounds (Table 4).

4.2 Dusk/Night Surveys –

Recorded playback of eastern screech, great-horned, barred owls, and whip-poor-wills failed to elicit responses from these respective species. Great-horned and barred owls were heard calling during early morning and evening hours in May 2005. Evening calling of Henslow's sparrows was not detected in the grassy fields in the northern portion of the study corridor. On 10 May 2005, one common nighthawk flew over the study area.

4.3 Threatened and Endangered Species –

No nests or breeding evidence of state or federally listed bird species were found. Eight state-listed and one federal-listed species were observed either flying over or foraging within the study area (Table 4). Bald eagle, northern harrier, red-shouldered hawk, and common nighthawk flew over the project area. A sharp-shinned hawk was hunting in forest and field edges on 11 March 2005. Four warblers (golden-winged, cerulean, black-and-white, and hooded warblers) were observed in trees along CR 300 W during May 2005.

5.0 Discussion

The objective of these surveys was to improve the understanding of spring and fall occurrence of resident and migratory birds in the Patoka River region on Section 2 of I-69. These surveys provide information about species richness, unique habitats or species assemblages, and presence of state

or federally listed birds within the Patoka River study corridor.

Greater understanding of the birds of the Patoka River corridor is achieved by comparing this study with previous surveys completed during I-69 Tier I Environmental Impact Statement (BLA 2003).

5.1 Species Richness

The species complement was typical for the geographic location and types of habitat within the study corridor. A total of 128 species from 39 families was recorded during fall and spring migration. Many families were well-represented, including flycatchers, vireos, thrushes, warblers, sparrows, and blackbirds. The lack of suitable habitat (open water, extensive mudflats) resulted in few ducks or shorebirds.

During July and September 1993, bird surveys were completed at 30 sites along the proposed highway corridor from Bloomington to Evansville, Indiana (BLA 2003). Three sites were in the Patoka River bottomlands. A total of 56 species was recorded, including five species not detected during the present, 2004/05 surveys: American woodcock, red-headed woodpecker, Cape May warbler, worm-eating warbler, and purple finch. Seventy-two additional species detected during 2004/05 survey, bring the total to 133 species found within the Patoka River study area.

5.1.1 Migratory Guilds –

Both Neotropical and transient migrants were well-represented in the surveys. Over half of the total species detected were Neotropical migrants and over a third were temperate migrants (Table 4). Ninety-four species, or 75 percent of the total, detected

during surveys have breeding records in southwestern Indiana (Castrale et al. 1998). Indiana breeding bird surveys indicate that 134 species breed in southwestern Indiana. More species on average were detected in survey blocks in southern Indiana than any other part of the state, which likely reflects the greater abundance of forest cover (Castrale et al. 1998).

At the local scale, diversity of edge habitats in the Patoka River study corridor may account for high species richness. In central Pennsylvania during fall migration, species richness of migratory guilds was highest in structurally heterogeneous habitats, especially forest edge habitats (Rodewald and Brittingham 2002). Movement of migratory flocks through different habitats was slower in forest and agriculture edges compared to pole stage and forest interior. Possibly, selection of edge habitats during migration may be related to greater food availability in forest and agriculture edges (Rodewald and Brittingham 2002). Bottomland forest, early-successional forest, fallow fields, cropland, and hedgerows provide a variety of edge habitats in the Patoka River study area for Neotropical and temperate migratory landbirds.

5.1.2 Species Assemblage –

Old fields and brushy fencerows at the north end of the study corridor are breeding grounds for a variety of bird species dependent on early-successional habitats. Dickcissels and grasshopper sparrows were common in open areas dominated by Johnson grass (*Sorghum halepense*) and meadow fescue (*Festuca pratensis*). Northern bobwhite, yellow-breasted chat, orchard oriole, field sparrow, blue grosbeak, and Bell's vireo were found throughout the overgrown shrubs and hedges beneath the power line. Among these, Bell's vireo is the

least common in Indiana. Significant population declines (3.5% annually 1966 to 1987 in north-central U.S.) have occurred for this species and the U.S. Fish and Wildlife Service lists Bell's vireo as a species of management concern (Hands et al. 1989). First reported in Indiana in 1922, Bell's vireo, however, has expanded its range in Indiana becoming more common in reclaimed strip-mines in the southwestern part of the state (Castrale et al. 1998).

5.2 Threatened and Endangered Species –

No breeding evidence of state or federally listed bird species was detected in 1993 or 2004/05. No suitable breeding habitat exists within the study area for bald eagles, sharp-shinned hawks, or common nighthawks. These species were only seen flying over the study area. Extensive tracts of reclaimed strip-mines in southwestern Indiana offer habitat for wintering and nesting northern harriers. There are only two confirmed breeding records of northern harriers south of the study area in Warrick County, Indiana (Castrale et al. 1998). Northern harriers were not encountered in May, suggesting open prairie-like grasslands in the northern portion of the study are not suitable nesting sites.

A red-shouldered hawk, seen and heard on 11 March 2005 west of the study corridor, may represent a male establishing nesting territory. Red-shouldered hawks were seen flying over the project area throughout March and April by herpetologists in the study area. This species was the most common woodland raptor detected during surveys in the late 1980s in the Hoosier National Forest and along the Patoka River (Castrale et al. 1987). No nests were seen during May 2005 within the study area. The

species most likely nests east and west of the study area in more contiguous forest tracts.

Four warblers (golden-winged, cerulean, black-and-white, and hooded warblers) were observed in trees along CR 300 W during May 2005. These birds were likely migrants en route to northerly breeding grounds. Golden-winged warblers are exceptionally rare breeders in Indiana, with only four probable instances, all in northern Indiana (Castrale et al. 1998). Southwestern Indiana is on the periphery of core summer breeding ranges in Indiana for cerulean, black-and-white, and hooded warblers. Cerulean and hooded warblers were observed only once during surveys in May 2005. Individuals were not detected on subsequent survey dates suggesting that these species are not defending breeding territories within the Patoka River study area.

Sightings of black-and-white warblers were more frequent (detected four out of six survey days in May), but nevertheless were likely transients. Black-and-white warblers are common migrants in Indiana, but most breeding records are from Hoosier National Forest in south-central Indiana. Scattered unconfirmed breeding records are known from Knox, Martin, Perry, and Posey counties in southwestern Indiana (Castrale et al. 1998).

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Appendix A

Tables

Table 1. Birds (128 species, 39 families) found on the Patoka Bottomlands during fall 2004 and spring 2005. Guild refers to migratory classification: **NM-B** = Neotropical Migrant-Breeding, **NM-T** = Neotropical Migrant-Transient, **TM-B** = Temperate Migrant-Breeding, **TM-T** = Temperate Migrant-Transient, and **PR** = Permanent Resident. Refer to text for migratory guild definitions. * = Observed August 2004 by other biologists within survey area. ** = Observed April 2005 by other biologists within survey area. Common names follow American Ornithological Union *Checklist of North American Birds, Seventh Edition*.

Species	Guild	Survey Month			Species	Guild	Survey Month		
		October	March	May			October	March	May
ARDEIDAE (Herons)					Eastern Screech Owl*	TM-B			
Great Blue Heron	TM-B	X	X	X	Great Horned Owl	TM-B			X
Green Heron	NM-B			X	Barred Owl	TM-B			X
CATHARTIDAE (Vultures)					CAPRIMULGIDAE (Goatsuckers)				
Turkey Vulture	TM-B	X	X	X	Common Nighthawk	NM-B			X
ANATIDAE (Geese, ducks)					APODIDAE (Swifts)				
Canada Goose	TM-B	X		X	Chimney Swift	NM-B	X		X
Wood Duck	NM-B	X	X	X	TROCHILIDAE (Hummingbirds)				
Mallard	TM-B	X			Ruby-throated Hummingbird	NM-B	X		X
ACCIPITRIDAE (Hawks)					ALCEDINIDAE (Kingfishers)				
Bald Eagle **	TM-B				Belted Kingfisher	TM-B	X	X	
Northern Harrier	TM-B	X			PICIDAE (Woodpeckers)				
Sharp-shinned Hawk	TM-B		X		Red-bellied Woodpecker	PR	X	X	X
Coopers Hawk	TM-B		X		Yellow-bellied Sapsucker	TM-T	X		
Red-shouldered Hawk	TM-B	X	X	X	Downy Woodpecker	PR	X	X	X
Red-tailed Hawk	TM-B	X	X	X	Hairy Woodpecker	PR	X		X
FALCONIDAE (Falcons)					Northern Flicker	TM-B	X		X
American Kestrel	TM-B	X	X	X	Pileated Woodpecker	PR	X	X	X
PHASIANIDAE (Turkeys)					TYRANNIDAE (Flycatchers)				
Wild Turkey	PR			X	Least Flycatcher	NM-T			X
Northern Bobwhite	PR			X	Acadian Flycatcher	NM-B			X
CHARADRIIDAE (Plovers)					Eastern Wood-Pewee	NM-B	X		X
Killdeer	TM-B	X	X	X	Great-crested Flycatcher	NM-B			X
SCOLOPACIDAE (Sandpipers)					Eastern Kingbird	NM-B			X
Solitary Sandpiper**	NM-T				Eastern Phoebe	NM-B	X		X
COLUMBIDAE (Doves, pigeons)					VIREONIDAE (Vireos)				
Rock Pigeon	PR	X	X	X	White-eyed Vireo	NM-B			X
Mourning Dove	TM-B	X	X	X	Yellow-throated Vireo	NM-B			X
CUCULIDAE (Cuckoos)					Philadelphia Vireo	NM-T			X
Yellow-billed Cuckoo	NM-B			X	Red-eyed Vireo	NM-B	X		X
STRIGIDAE (Owls)									

Species	Guild	Survey Month		
		October	March	May
Bell's Vireo	NM-B			X
Warbling Vireo	NM-B			X
CORVIDAE (Crows, jays)				
Blue Jay	TM-B	X	X	X
American Crow	TM-B	X	X	X
ALAUDIDAE (Larks)				
Horned Lark	TM-B		X	
HIRUNDINIDAE (Swallows)				
Tree Swallow	NM-B			X
Northern Rough-winged Swallow	NM-B	X		X
Barn Swallow	NM-B			X
PARIDAE (Chickadees, titmice)				
Carolina Chickadee	PR	X	X	X
Tufted Titmouse	PR	X	X	X
SITTIDAE (Nuthatches)				
White-breasted Nuthatch	PR	X	X	X
CERTHIDAE (Creepers)				
Brown Creeper	TM-T	X		
TROGLODYTIDAE (Wrens)				
Carolina Wren	PR	X	X	X
House Wren	NM-B			X
Winter Wren	TM-T	X		
REGULIDAE (Kinglets)				
Ruby-crowned Kinglet	TM-T	X		
Golden-crowned Kinglet	TM-T	X		
SYLVIIDAE (Gnatcatchers)				
Blue-gray Gnatcatcher	NM-B			X
TURDIDAE (Thrushes)				
Eastern Bluebird	TM-B	X	X	X
American Robin	TM-B	X	X	X
Wood Thrush	NM-B			X
Veery	NM-T			X
Gray-cheeked Thrush	NM-T			X
Swainson's Thrush	NM-T	X		X
MIMIDAE (Mimics)				
Gray Catbird	NM-B	X		X
Northern Mockingbird	PR	X	X	X
Brown Thrasher	TM-B			X

Species	Guild	Survey Month		
		October	March	May
STURNIDAE (Starlings)				
European Starling	PR	X	X	X
MOTACILLIDAE (Pipits)				
American Pipit	TM-T		X	
BOMBYCILLIDAE (Waxwings)				
Cedar Waxwing	TM-B	X		
PARULIDAE (Warblers)				
Blue-winged Warbler	NM-B			X
Golden-winged Warbler	NM-T			X
Tennessee Warbler	NM-T	X		X
Orange-crowned Warbler	NM-T	X		
Nashville Warbler	NM-T			X
Northern Parula	NM-B	X		X
Yellow Warbler	NM-B			X
Chestnut-sided Warbler	NM-T	X		X
Magnolia Warbler	NM-T	X		X
Yellow-rumped Warbler	TM-T	X		X
Blackburnian Warbler	NM-T			X
Black-throated Green Warbler	NM-T	X		X
Yellow-throated Warbler	NM-B			X
Palm Warbler	NM-T	X		X
Bay-breasted Warbler	NM-T	X		X
Blackpoll Warbler	NM-T	X		X
Cerulean Warbler	NM-B			X
Black-and-white Warbler	NM-B	X		X
American Redstart	NM-B	X		X
Prothonotary Warbler	NM-B			X
Ovenbird	NM-B	X		X
Northern Waterthrush	NM-T			X
Kentucky Warbler	NM-B			X
Mourning Warbler	NM-T			X
Common Yellowthroat	NM-B	X		X
Hooded Warbler	NM-B			X
Wilson's Warbler	NM-T			X
Canada Warbler	NM-T			X
Yellow-breasted Chat	NM-B			X
THRAUPIDAE (Tanagers)				
Summer Tanager	NM-B	X		X

Species	Guild	Survey Month		
		October	March	May
Scarlet Tanager	NM-B			X
EMBERIZIDAE (Sparrows)				
Eastern Towhee	TM-B	X		X
Chipping Sparrow	TM-B	X		X
Field Sparrow	TM-B	X		X
Grasshopper Sparrow	NM-B			X
Song Sparrow	TM-B	X	X	X
Lincoln's Sparrow	NM-T	X		X
White-throated Sparrow	TM-T	X	X	X
White-crowned Sparrow	TM-T			X
Dark-eyed Junco	TM-T		X	
CARDINALIDAE (Grosbeaks)				
Northern Cardinal	PR	X	X	X
Rose-breasted Grosbeak	NM-B	X		X
Blue Grosbeak	NM-B			X
Indigo Bunting	NM-B	X		X
Dickcissel	NM-B			X
ICTERIDAE (Blackbirds)				
Red-winged Blackbird	TM-B	X	X	X
Eastern Meadowlark	TM-B	X		X
Rusty Blackbird**	TM-T			
Common Grackle	TM-B	X	X	X
Brown-headed Cowbird	TM-B	X	X	X
Orchard Oriole	NM-B			X
Baltimore Oriole	NM-B			X
FRINGILLIDAE (Finches)				
House Finch	TM-B	X	X	X
American Goldfinch	TM-B	X	X	X
PASSERIDAE (Weaver finches)				
House Sparrow	PR	X	X	X
TOTAL		74	38	110

Table 2. State Endangered or Special Concern bird species in Indiana with a potential to breed within the Patoka River study corridor. Preferred habitats are described from *Atlas of Breeding Birds of Indiana* (Castrale et al. 1998).

Species	Preferred Breeding Habitat in Indiana	Potential Breeding Habitat within Patoka Study Area
Yellow-crowned night-heron	Swamps, sloughs, muddy backwaters	Oxbow
Northern Harrier	Fallow fields, cropland, hayfields, pastures, wet meadows, edges of ponds and lakes	Powerline right-of-way and fields at northern portion of study area
Red-shouldered hawk	Bottomland-riparian forests	Forest and field edges
Whip-poor-will	Woodland edges, second-growth forests with well-developed understory	Forest and field edges
Loggerhead shrike	Open country with scattered trees and shrubs, agriculture landscapes: pastures, hayfields, thorny hedgerows	Powerline right-of-way and fields at northern portion of study area
Henslow's sparrow	Wet or dry grasslands with many standing dead stalks of last year's vegetation	Powerline right-of-way and fields at northern portion of study area

Table 3. Federal and state endangered, threatened, and special concern bird species encountered in the Patoka Bottomlands fall 2004 and spring 2005. FT = Federally Threatened, SE = State Endangered, SC = Special Concern. No federal or state listed species were observed nesting within the study area.

Common Name	Status	Observation	Date
Bald eagle	FT, SE	One adult bald eagle flew over the project area.	April 2005
Northern Harrier	SE	One adult male and one adult female seen flying over fields at north end of study area.	3 October 2004
Sharp-shinned Hawk	SC	One adult sharp-shinned hawk was hunting songbirds in field/woodlot south of Patoka River canal within the study area.	11 March 2005
Red-shouldered Hawk	SC	Red-shouldered hawk seen and heard from a woodlot west of the study area and south of the Patoka River canal (Figure 1).	11 March 2005
Common Nighthawk	SC	One common nighthawk flew over the study area.	9 May 2005
Golden-winged Warbler	SE	One adult golden-winged warbler was foraging along CR 300 W.	8 May 2005
Cerulean Warbler	SC	One adult cerulean warbler was foraging in a sycamore tree (<i>Plantanus occidentalis</i>) along CR 300 W.	10 May 2005
Black-and-white Warbler	SC	Four individuals were foraging along CR 300 W.	6, 8, 9, and 10 May 2005
Hooded Warbler	SC	One adult male was vocalizing in the woods east of CR 300 W.	9 May 2005

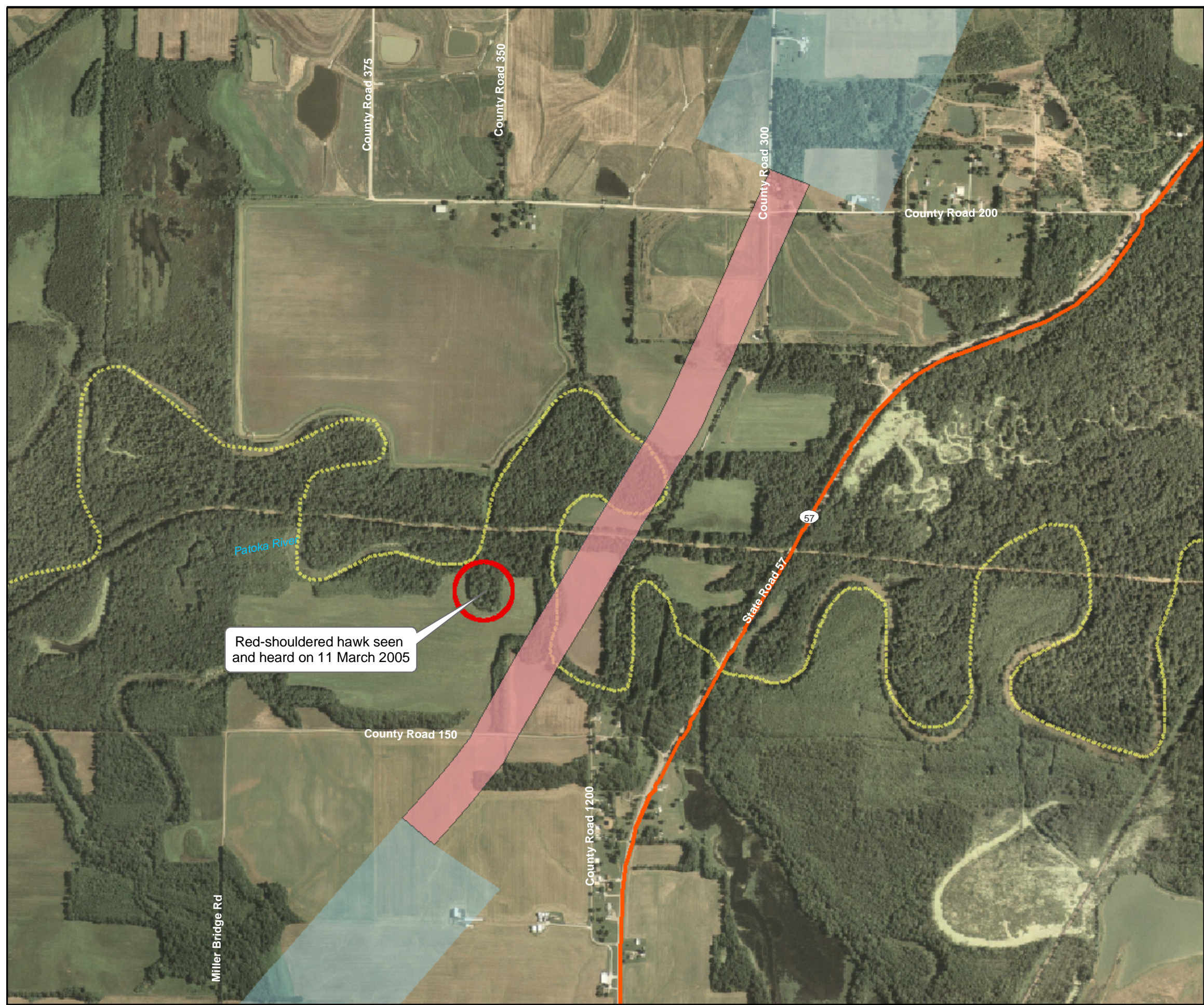
Table 4. Total number (percentage) and Chi-square test of bird species by migratory guild observed in the Patoka River study corridor during fall 2004 and spring 2005 surveys. Refer to text (Section 2.4.1) for migratory guild descriptions.

Migratory Guild	Breeding	Transient	Total	χ^2	<i>P</i>
Neotropical migrant	44 (34)	23 (18)	67 (52)	2.07	0.15
Temperate migrant	33 (26)	11 (9)	44 (35)	0.06	0.81
Permanent resident	17 (13)	0 (0)	17 (13)		
Total	94 (73)	34 (27)	128	28.13	< 0.00

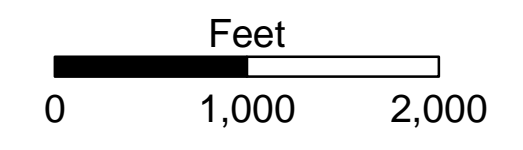
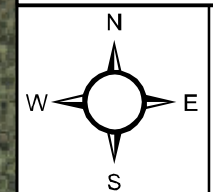
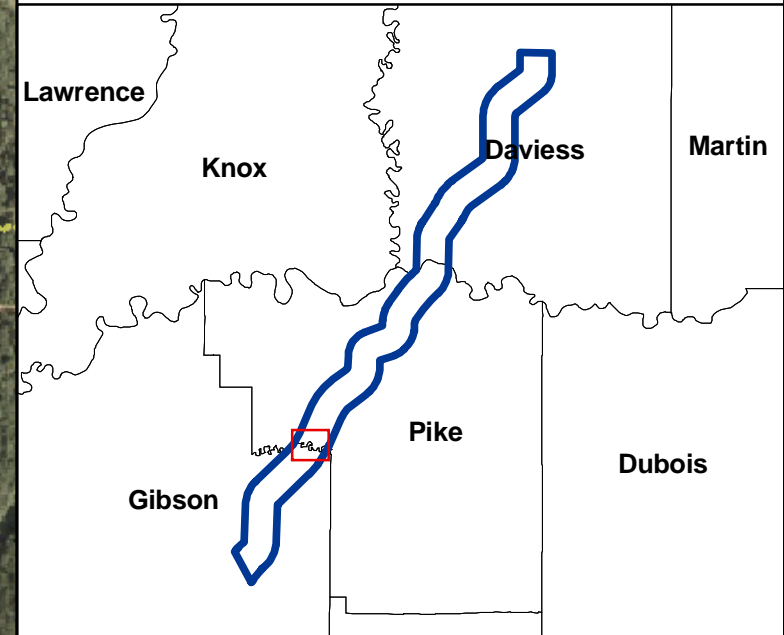
Appendix B

Figures

Figure 1. Aerial map of the 500-foot survey corridor for fall 2004 and spring 2005 bird surveys in the Patoka River study area in Pike and Gibson counties, Indiana.

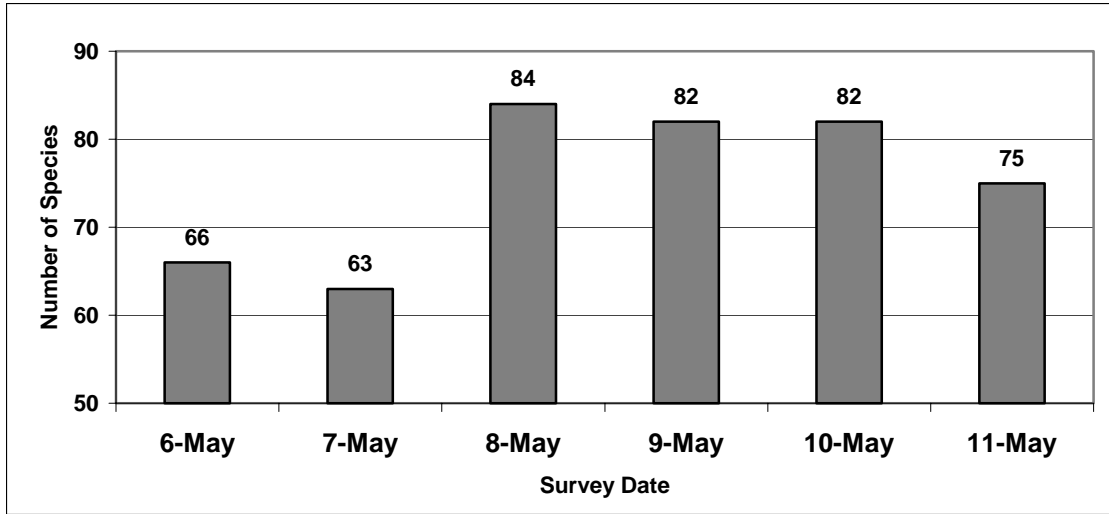


- 500-foot survey corridor
- 2000-foot corridor
- County Line



Source:
Base Map: IGS Aerial Gibson County, Indiana

Figure 2. Number of bird species recorded in the Patoka River study corridor over six days in May 2005.



Appendix C
Photographs



Fallow field dominated by butterweed (*Senecio glabellus*; Family: Asteraceae) during May 2005. The tree line, alive with migrating warblers, vireos, and thrushes, borders the Patoka River.



Power line right-of-way at the northern portion of the Patoka River study corridor. A unique assemblage of breeding birds, including Bell's vireos, yellow-breasted chats, blue grosbeaks, and orchard orioles, was found on the hillside to the north. Dickcissels and grasshopper sparrows were nesting in the open, grassy areas on the other side of the hill.



Remnant oxbow of the Patoka River. Bordering CR 300 W, several neotropical migrants, including black-and-white warblers, one cerulean warbler, northern waterthrushes, and several species of thrush, were seen foraging among the trees and shrubs.



Southernmost bridge over CR 300 W. Wood thrush, acadian flycatcher, blue-gray gnatcatcher, northern parula, and yellow-throated warbler were among many Neotropical migrants breeding in the Patoka River study corridor.

Appendix D

Datasheets



BIRD SURVEY DATA SHEET

Project Number: Pesi 112-04 Project Name: I-69 Segment 2 - Bird Surveys Date: 2 OCT. 2004 Page 1 of 1
 Site #: _____ Site Name: PATOKA crossing State/County: TN / Gibson + Pike
 Time: 7:30 a.m. Temp: mid-60s Wind: _____ Cloud Cover: 50 % Biologists: Jeanette Taskula, Chris Lettlich,
 GPS: Northing: 4 2 4 8 3 2 4 Easting: 4 7 0 4 5 9 Zone: 1 6 S Ted Cable

Comments: Total species: 39
Fo = flyover

LOONS		Red-shouldered Hawk	Black-billed Cuckoo	Barn Swallow	Prothonotary Warbler	
Red-throated Loon		Broad-winged Hawk	Yellow-billed Cuckoo	CHICKADEES	Worm-eating Warbler	
Common Loon		Red-tailed Hawk	OWLS	Black-cap Chickadee	Ovenbird	
GREBES		Rough-legged Hawk	Barn Owl	Carolina Chickadee	6 Northern Waterthrush	
Pied-billed Grebe		FALCONS	Eastern Screech Owl	Tufted Titmouse	2 Louisiana Waterthrush	
Horned Grebe		American Kestrel	Great Horned Owl	NUTHATCHES	Kentucky Warbler	
Red-necked Grebe		Merlin	Snowy Owl	Red-breasted Nuthatch	Connecticut Warbler	
Eared Grebe		Peregrin Falcon	Barred Owl	White-breasted Nuthatch	1 Mourning Warbler	
CORMORANTS		TURKEYS, ETC	Long-eared Owl	CREEPERS	Common Yellowthroat	1
Double-crested Cormorant		Ring-necked Pheasant	Short-eared Owl	Brown Creeper	Hooded Warbler	
HERONS		Wild Turkey	N. Saw-whet Owl	WRENS	Wilson's Warbler	
American Bittern		Northern Bobwhite	GOATSUCKERS	Carolina Wren	1 Canada Warbler	
Least Bittern		RAILS	Common Nighthawk	House Wren	Yellow-bre Chat	
Great Blue Heron		Virginia Rail	Chuck-will's-widow	Winter Wren	1 TANAGERS	
Great Egret		Sora	Whip-poor-will	Sedge Wren	Summer Tanager	1
Snowy Egret		Purple Gallinule	SWIFTS	Marsh Wren	Scarlet Tanager	
Cattle Egret		Common Moorhen	Chimney Swift	KINGLETS	SPARROWS	
Little Blue Heron		American Coot	HUMMERS	Golden-crowned Kinglet	2-3 Eastern Towhee	
Green Heron		CRANES	Ruby-throated Hummer	Ruby-crowned Kinglet	Am. Tree Sparrow	
Black-cr Night Heron		Sandhill Crane	KINGFISHERS	GNATCATCHERS	Chipping Sparrow	
Yellow-cr Night Heron		PLOVERS	Belted Kingfisher	Blue-gray Gnatcatcher	Field Sparrow	
VULTURES		Black-bellied Plover	WOODPECKERS	THRUSHES	Vesper Sparrow	
Black Vulture		Am. Golden Plover	Red-headed Woodp	Eastern Bluebird	Savannah Sparrow	
Turkey Vulture	1	Semipalmated Plover	Red-bellied Woodp	2 Veery	Grasshopper Sparrow	
GEESE, DUCKS		Piping Plover	Yellow-bell Sapsucker	1 Gray-cheeked Thrush	Henslow's Sparrow	
G. White-fronted Goose		Killdeer	Downy Woodpecker	1 Swainson's Thrush	1 Nelson's Sh-t Sparrow	
Snow Goose		SANDPIPERS	Hairy Woodpecker	Hermit Thrush	Fox Sparrow	
Canada Goose <u>FO</u>	8	Greater Yellowlegs	Northern Flicker	1 Wood Thrush	Song Sparrow	
Mute Swan		Lesser Yellowlegs	Pileated Woodpecker	American Robin	2 Lincoln's Sparrow	
Tundra Swan		Solitary Sandpiper	FLYCATCHERS	MIMICS	Swamp Sparrow	
Trumpeter Swan		Willet	Least Flycatcher	Gray Catbird	White-thro Sparrow	
<u>river</u> Wood Duck <u>6-8</u>		Spotted Sandpiper	Eastern Wood-Pewee	Northern Mockingbird	White-cro Sparrow	
Gadwall		Upland Sandpiper	Yellow-bell Flycatcher	Brown Thrasher	Dark-eyed Junco	
American Wigeon		Ruddy Turnstone	Acadian Flycatcher	STARLINGS	Lapland Longspur	
Am. Black Duck		Sanderling	Alder Flycatcher	European Starling	100+ Snow Bunting	
Mallard		Semipalmated Sandpi.	Willow Flycatcher	WAXWINGS	GROSBEAKS	
Blue-winged Teal		Western Sandpiper	Eastern Phoebe	Cedar Waxwing <u>FO</u>	1 Northern Cardinal	5
Northern Shoveler		Least Sandpiper	Great-crested Flycatcher	WARBLERS	Rost-bre Grosbeak	2
Northern Pintail		White-rumped Sandpi.	Eastern Kingbird	Blue-winged Warbler	Blue Grosbeak	39
Green-winged Teal		Pectoral Sandpiper	SHRIKES	Golden-winged Warbler	Indigo Bunting	
Canvasback		Dunlin	Northern Shrike	Tennessee Warbler	1 Dickcissel	
Redhead		Stilt Sandpiper	Loggerhead Shrike	Orange-cro Warbler	1 BLACKBIRDS	
Ring-necked Duck		Short-billed Dowitcher	VIREOS	Nashville Warbler	Bobolink	
Great Scaup		Long-billed Dowitcher	White-eyed Vireo	Northern Parula	Red-winged Blackbird <u>FO</u>	100+
Lesser Scaup		Wilson's Snipe	Yellow-throated Vireo	Yellow Warbler	Eastern Meadowlark	
White-winged Scoter		American Woodcock	Bell's Vireo	Chestnut-sided Warbler	1 Yellow-hea Blackbird	
Black Scoter		Wilson's Phalarope	Blue-headed Vireo	Magnolia Warbler	Rusty Blackbird	
Long-tailed Duck		Red-necked Phalarope	Warbling Vireo	Yellow-rumped Warbler	1 Common Grackle <u>FO</u>	100+
Bufflehead		GULLS	Philadelphia Vireo	Cape May Warbler	Bronw-hea Cowbird	
Common Goldeneye		Franklin's Gull	Red-eyed Vireo	Black-thr Blue Warbler	Orchard Oriole	
Hooded Merganser		Bonaparte's Gull	CROWS, JAYS	Blackburnian Warbler	Baltimore Oriole	
Common Merganser		Ring-billed Gull	Blue Jay	1 Black-thr Green Warbler	1 FINCHES	
Red-breasted Merg		Herring Gull	American Crow	1 Yellow-throated Warbler	Purple Finch	
Ruddy Duck		Caspian Tern	LARKS	Pine Warbler	House Finch	1
HAWKS		Common Tern	Horned Lark	Prairie Warbler	Red Crossbill	
Osprey		Forster's Tern	SWALLOWS	Palm Warbler	White-wing Crossbill	
Bald Eagle		Black Tern	Purple Martin	Bay-breasted Warbler	1 Pine Siskin	
Northern Harrier		DOVES	Tree Swallow	Blackpoll Warbler	1 American Goldfinch	1
Sharp-shinned Hawk		Rock Pigeon	N. Rough-win Swallow <u>FO</u>	7 Cerulean Warbler	EVENING GROSBEAK	
Coopers Hawk		Mourning Dove	1 Bank Swallow	Black-&white Warbler	WEAVER FINCHES	
Northern Goshawk		CUCKOOS	Cliff Swallow	American Redstart	1 House Sparrow	



BIRD SURVEY DATA SHEET

Project Number: Pesi 112-04 Project Name: I-69 Segment 2 - Bird Surveys Date: 3 OCT. 2004 Page 1 of 1
 Site #: Site Name: PATOKA crossing State/County: IN/Gibson & Pike
 Time: 7:30 am. Temp: mid-60s Wind: 0 Cloud Cover: 0 % Biologists: J. Jaskula, C. Lewicki, T. Cable
 GPS: Northing: 4 2 4 8 3 2 4 Easting: 4 7 0 4 5 9 Zone: 1 6 S
 Comments: FO = flyover, Total species: 61

LOONS		Red-shouldered Hawk <u>fo 1</u>	Black-billed Cuckoo	Barn Swallow	Prothonotary Warbler				
Red-throated Loon		Broad-winged Hawk	Yellow-billed Cuckoo	CHICKADEES	Worm-eating Warbler				
Common Loon		Red-tailed Hawk	OWLS	Black-cap Chickadee	Ovenbird	1			
GREBES		Rough-legged Hawk	Barn Owl	Carolina Chickadee	2	Northern Waterthrush			
Pied-billed Grebe		FALCONS	Eastern Screech Owl	Tufted Titmouse	1	Louisiana Waterthrush			
Horned Grebe		American Kestrel	1	Great Horned Owl	NUTHATCHES	Kentucky Warbler			
Red-necked Grebe		Merlin		Snowy Owl	Red-breasted Nuthatch	Connecticut Warbler			
Eared Grebe		Peregrin Falcon		Barred Owl	White-breasted Nuthatch	9	Mourning Warbler		
CORMORANTS		TURKEYS, ETC	Long-eared Owl	CREEPERS		Common Yellowthroat			
Double-crested Cormorant		Ring-necked Pheasant	Short-eared Owl	Brown Creeper	1	Hooded Warbler			
HERONS		Wild Turkey	N. Saw-whet Owl	WRENS		Wilson's Warbler			
American Bittern		Northern Bobwhite	GOATSUCKERS	Carolina Wren		Canada Warbler			
Least Bittern		RAILS	Common Nighthawk	House Wren		Yellow-bre Chat			
Great Blue Heron <u>FO</u>	1	Virginia Rail	Chuck-will's-widow	Winter Wren		TANAGERS			
Great Egret		Sora	Whip-poor-will	Sedge Wren		Summer Tanager	1		
Snowy Egret		Purple Gallinule	SWIFTS	Marsh Wren		Scarlet Tanager			
Cattle Egret		Common Moorhen	Chimney Swift <u>FO</u>	3	KINGLETS	SPARROWS			
Little Blue Heron		American Coot	HUMMERS	Golden-crowned Kinglet	1	Eastern Towhee	2		
Green Heron		CRANES	Ruby-throated Hummer	1	Ruby-crowned Kinglet	1	Am. Tree Sparrow		
Black-cr Night Heron		Sandhill Crane	KINGFISHERS	GNATCATCHERS		Chipping Sparrow	2		
Yellow-cr Night Heron		PLOVERS	Belted Kingfisher	1	Blue-gray Gnatcatcher		Field Sparrow	1	
VULTURES		Black-bellied Plover	WOODPECKERS	THRUSHES		Vesper Sparrow			
Black Vulture		Am. Golden Plover	Red-headed Woodp	1	Eastern Bluebird	1	Savannah Sparrow		
Turkey Vulture <u>FO</u>	1	Semipalmated Plover	Red-bellied Woodp	2	Veery		Grasshopper Sparrow		
GEESE, DUCKS		Piping Plover	Yellow-bell Sapsucker		Gray-cheeked Thrush		Henslow's Sparrow		
G. White-fronted Goose		Killdeer	1	Downy Woodpecker	3	Swainson's Thrush	1	Nelson's Sh-t Sparrow	
Snow Goose		SANDPIPERS	Hairy Woodpecker	1	Hermit Thrush		Fox Sparrow		
Canada Goose <u>FO</u>	3	Greater Yellowlegs	Northern Flicker	1	Wood Thrush		Song Sparrow	3	
Mute Swan		Lesser Yellowlegs	Pileated Woodpecker	1	American Robin	1	Lincoln's Sparrow	1	
Tundra Swan		Solitary Sandpiper	FLYCATCHERS	MIMICS		Swamp Sparrow			
Trumpeter Swan		Willet	Least Flycatcher		Gray Catbird	1	White-thro Sparrow	5-10	
Wood Duck <u>FO</u>	3	Spotted Sandpiper	Eastern Wood-Pewee	1	Northern Mockingbird	2	White-cro Sparrow		
Gadwall		Upland Sandpiper	Yellow-bell Flycatcher		Brown Thrasher		Dark-eyed Junco		
American Wigeon		Ruddy Turnstone	Acadian Flycatcher		STARLINGS		Lapland Longspur		
Am. Black Duck		Sanderling	Alder Flycatcher		European Starling	100+	Snow Bunting		
Mallard	1	Semipalmated Sandpi.	Willow Flycatcher		WAXWINGS		GROSBEAKS		
Blue-winged Teal		Western Sandpiper	Eastern Phoebe	1	Cedar Waxwing		Northern Cardinal	1	
Northern Shoveler		Least Sandpiper	Great-crested Flycatcher		WARBLERS		Rost-bre Grosbeak	2	
Northern Pintail		White-rumped Sandpi.	Eastern Kingbird		Blue-winged Warbler		Blue Grosbeak		
Green-winged Teal		Pectoral Sandpiper	SHRIKES		Golden-winged Warbler		Indigo Bunting	3-5	
Canvasback		Dunlin	Northern Shrike		Tennessee Warbler	1	Dickcissel		
Redhead		Stilt Sandpiper	Loggerhead Shrike		Orange-cro Warbler		BLACKBIRDS		
Ring-necked Duck		Short-billed Dowitcher	VIROES		Nashville Warbler		Bobolink		
Great Scaup		Long-billed Dowitcher	White-eyed Vireo		Northern Parula		Red-winged Blackbird	50+ <u>fo</u>	
Lesser Scaup		Wilson's Snipe	Yellow-throated Vireo		Yellow Warbler		Eastern Meadowlark	2	
White-winged Scoter		American Woodcock	Bell's Vireo		Chestnut-sided Warbler		Yellow-hea Blackbird		
Black Scoter		Wilson's Phalarope	Blue-headed Vireo		Magnolia Warbler	1	Rusty Blackbird		
Long-tailed Duck		Red-necked Phalarope	Warbling Vireo		Yellow-rumped Warbler	3	Common Grackle <u>FO</u>	100+	
Bufflehead		GULLS	Philadelphia Vireo		Cape May Warbler		Bron-hea Cowbird <u>FO</u>	10	
Common Goldeneye		Franklin's Gull	Red-eyed Vireo	1	Black-thr Blue Warbler		Orchard Oriole		
Hooded Merganser		Bonaparte's Gull	CROWS, JAYS		Blackburnian Warbler		Baltimore Oriole		
Common Merganser		Ring-billed Gull	Blue Jay		Black-thr Green Warbler		FINCHES		
Red-breasted Merg		Herring Gull	American Crow		Yellow-throated Warbler		Purple Finch		
Ruddy Duck		Caspian Tern	LARKS		Pine Warbler		House Finch	6	
HAWKS		Common Tern	Horned Lark		Prairie Warbler		Red Crossbill		
Osprey		Forster's Tern	SWALLOWS		Palm Warbler	1	White-wing Crossbill		
Bald Eagle		Black Tern	Purple Martin		Bay-breasted Warbler	2	Pine Siskin		
Northern Harrier <u>FO</u>	1	DOVES	Tree Swallow		Blackpoll Warbler	1	American Goldfinch	5	
Sharp-shinned Hawk		Rock Pigeon <u>FO</u>	2	N. Rough-win Swallow		Cerulean Warbler		Evening Grosbeak	
Coopers Hawk		Mourning Dove	Bank Swallow		Black-&-white Warbler	1	WEAVER FINCHES		
Northern Goshawk		CUCKOOS	Cliff Swallow		American Redstart	1	House Sparrow	3	

→ North portion of survey area.



BIRD SURVEY DATA SHEET

Project Number: Pesi 112-04 Project Name: I-69 Segment 2 - Bird Surveys Date: 10 March Page 1 of 1

Site #: Site Name: PATOKA crossing State/County: IN/Gibson²⁰⁰⁵ Pike

Time: 10:15 am Temp: 30-40°F Wind: 4-7 Cloud Cover: 100 % Biologists: Jeanette Jaskula

GPS: Northing: 4 2 4 8 3 2 1 Easting: 4 7 0 4 5 9 Zone: 1 6 S

Comments: FO = flyover → calling outside study area. Total species: 32

LOONS	Red-shouldered Hawk	1	Black-billed Cuckoo	0	Barn Swallow		Prothonotary Warbler	
Red-throated Loon	Broad-winged Hawk		Yellow-billed Cuckoo		CHICKADEES		Worm-eating Warbler	
Common Loon	Red-tailed Hawk	1	OWLS		Black-cap Chickadee		Ovenbird	
GREBES	Rough-legged Hawk		Barn Owl		Carolina Chickadee	3	Northern Waterthrush	
Pied-billed Grebe	FALCONS		Eastern Screech Owl		Tufted Titmouse	2	Louisiana Waterthrush	
Horned Grebe	American Kestrel		Great Horned Owl		NUTHATCHES		Kentucky Warbler	
Red-necked Grebe	Merlin		Snowy Owl		Red-breasted Nuthatch		Connecticut Warbler	
Eared Grebe	Peregrin Falcon		Barred Owl		White-breasted Nuthatch	1	Mourning Warbler	
CORMORANTS	TURKEYS, ETC		Long-eared Owl		CREEPERS		Common Yellowthroat	
Double-crested Cormorant	Ring-necked Pheasant		Short-eared Owl		Brown Creeper		Hooded Warbler	
HERONS	Wild Turkey		N. Saw-whet Owl		WRENS		Wilson's Warbler	
American Bittern	Northern Bobwhite		GOATSUCKERS		Carolina Wren calling	3	Canada Warbler	
Least Bittern	RAILS		Common Nighthawk		House Wren		Yellow-bre Chat	
Great Blue Heron <u>FD 2</u>	Virginia Rail		Chuck-will's-widow		Winter Wren		TANAGERS	
Great Egret	Sora		Whip-poor-will		Sedge Wren		Summer Tanager	
Snowy Egret	Purple Gallinule		SWIFTS		Marsh Wren		Scarlet Tanager	
Cattle Egret	Common Moorhen		Chimney Swift		KINGLETS		SPARROWS	
Little Blue Heron	American Coot		HUMMERS		Golden-crowned Kinglet		Eastern Towhee	
Green Heron	CRANES		Ruby-throated Hummer		Ruby-crowned Kinglet		Am. Tree Sparrow	
Black-cr Night Heron	Sandhill Crane		KINGFISHERS		GNATCATCHERS		Chipping Sparrow	
Yellow-cr Night Heron	PLOVERS		Belted Kingfisher <u>Call/ing 1</u>		Blue-gray Gnatcatcher		Field Sparrow	
VULTURES	Black-bellied Plover		WOODPECKERS		THRUSHES		Vesper Sparrow	
Black Vulture	Am. Golden Plover		Red-headed Woodp		Eastern Bluebird		Savannah Sparrow	
Turkey Vulture <u>3</u> <u>FO</u>	Semipalmated Plover		Red-bellied Woodp	1	Veery		Grasshopper Sparrow	
GEESE, DUCKS	Piping Plover		Yellow-bell Sapsucker		Gray-cheeked Thrush		Henslow's Sparrow	
G. White-fronted Goose	Killdeer <u>5-10</u>		Downy Woodpecker	3	Swainson's Thrush		Nelson's Sh-t Sparrow	
Snow Goose	SANDPIPERS		Hairy Woodpecker		Hermit Thrush		Fox Sparrow	
Canada Goose	Greater Yellowlegs		Northern Flicker		Wood Thrush		Song Sparrow <u>Singing! 3</u>	
Mute Swan	Lesser Yellowlegs		Pileated Woodpecker	2	American Robin <u>100+</u>		Lincoln's Sparrow	
Tundra Swan	Solitary Sandpiper		FLYCATCHERS		MIMICS		Swamp Sparrow	
Trumpeter Swan	Willet		Least Flycatcher		Gray Catbird		White-thro Sparrow <u>10-20</u>	
Wood Duck <u>5-10</u>	Spotted Sandpiper		Eastern Wood-Pewee		Northern Mockingbird	3	White-cro Sparrow	
Gadwall	Upland Sandpiper		Yellow-bell Flycatcher		Brown Thrasher		Dark-eyed Junco	5
American Wigeon	Ruddy Turnstone		Acadian Flycatcher		STARLINGS		Lapland Longspur	
Am. Black Duck	Sanderling		Alder Flycatcher		European Starling <u>200+</u>		Snow Bunting	
Mallard <u>2</u>	Semipalmated Sandpi.		Willow Flycatcher		WAXWINGS		GROSBEAKS	
Blue-winged Teal	Western Sandpiper		Eastern Phoebe		Cedar Waxwing		Northern Cardinal	5
Northern Shoveler	Least Sandpiper		Great-crested Flycatcher		WARBLERS		Rust-bre Grosbeak	
Northern Pintail	White-rumped Sandpi.		Eastern Kingbird		Blue-winged Warbler		Blue Grosbeak	
Green-winged Teal	Pectoral Sandpiper		SHRIKES		Golden-winged Warbler		Indigo Bunting	
Canvasback	Dunlin		Northern Shrike		Tennessee Warbler		Dickcissel	
Redhead	Stilt Sandpiper		Loggerhead Shrike		Orange-cro Warbler		BLACKBIRDS	
Ring-necked Duck	Short-billed Dowitcher		VIREOS		Nashville Warbler		Bobolink	
Great Scaup	Long-billed Dowitcher		White-eyed Vireo		Northern Parula		Red-winged Blackbird <u>100+</u>	
Lesser Scaup	Wilson's Snipe		Yellow-throated Vireo		Yellow Warbler		Eastern Meadowlark	
White-winged Scoter	American Woodcock		Bell's Vireo		Chestnut-sided Warbler		Yellow-hea Blackbird	
Black Scoter	Wilson's Phalarope		Blue-headed Vireo		Magnolia Warbler		Rusty Blackbird	
Long-tailed Duck	Red-necked Phalarope		Warbling Vireo		Yellow-rumped Warbler		Common Grackle <u>100+</u>	
Bufflehead	GULLS		Philadelphia Vireo		Cape May Warbler		Bronn-hea Cowbird	
Common Goldeneye	Franklin's Gull		Red-eyed Vireo		Black-thr Blue Warbler		Orchard Oriole	
Hooded Merganser	Bonaparte's Gull		CROWS, JAYS		Blackburnian Warbler		Baltimore Oriole	
Common Merganser	Ring-billed Gull		Blue Jay	3	Black-thr Green Warbler		FINCHES	
Red-breasted Merg	Herring Gull		American Crow <u>FC 2</u>		Yellow-throated Warbler		Purple Finch	
Ruddy Duck	Caspian Tern		LARKS		Pine Warbler		House Finch	3
HAWKS	Common Tern		Horned Lark <u>Fields 2</u>		Prairie Warbler		Red Crossbill	
Osprey	Forster's Tern		SWALLOWS		Palm Warbler		White-wing Crossbill	
Bald Eagle	Black Tern		Purple Martin		Bay-breasted Warbler		Pine Siskin	
Northern Harrier	DOVES		Tree Swallow		Blackpoll Warbler		American Goldfinch <u>5-10 FO</u>	
Sharp-shinned Hawk	Rock Pigeon <u>FD 10</u>		N. Rough-win Swallow		Cerulean Warbler		Evening Grosbeak	
Coopers Hawk	Mourning Dove	5	Bank Swallow		Black-&-white Warbler		WEAVER FINCHES	
Northern Goshawk	CUCKOOS		Cliff Swallow		American Redstart		House Sparrow	5



BIRD SURVEY DATA SHEET

Project Number: Pesi 112-04 Project Name: I-69 Segment 2 - Bird Surveys Date: 11 March Page 1 of 1

Site #: Site Name: PATOKA crossing State/Country: IN/Gibson + Pike

Time: 9:12 am Temp: 30.5°F Wind: 1-3 mph Cloud Cover: 100% Biologists: Jeanette Taskula

GPS: Northing: 4248324 Easting: 470459 Zone: 16S

Comments: light snow on ground, flurries, cold. FO = flyover
heard called outside study area Total species: 35

LOONS	Red-shouldered Hawk	1	Black-billed Cuckoo	Barn Swallow	Prothonotary Warbler	
Red-throated Loon	Broad-winged Hawk		Yellow-billed Cuckoo	CHICKADEES	Worm-eating Warbler	
Common Loon	Red-tailed Hawk	1	OWLS	Black-cap Chickadee	Ovenbird	
GREBES	Rough-legged Hawk		Barn Owl	Carolina Chickadee	3 Northern Waterthrush	
Pied-billed Grebe	FALCONS		Eastern Screech Owl	Tufted Titmouse	2 Louisiana Waterthrush	
Horned Grebe	American Kestrel	1	Great Horned Owl	NUTHATCHES	Kentucky Warbler	
Red-necked Grebe	Merlin		Snowy Owl	Red-breasted Nuthatch	Connecticut Warbler	
Eared Grebe	Peregrin Falcon		Barred Owl	White-breasted Nuthatch	3 Mourning Warbler	
CORMORANTS	TURKEYS, ETC		Long-eared Owl	CREEPERS	Common Yellowthroat	
Double-crested Cormorant	Ring-necked Pheasant		Short-eared Owl	Brown Creeper	Hooded Warbler	
HERONS	Wild Turkey		N. Saw-whet Owl	WRENS	Wilson's Warbler	
American Bittern	Northern Bobwhite		GOATSUCKERS	Carolina Wren	2 Canada Warbler	
Least Bittern	RAILS		Common Nighthawk	House Wren	Yellow-bre Chat	
Great Blue Heron	Virginia Rail	1	Chuck-will's-widow	Winter Wren	TANAGERS	
Great Egret	Sora		Whip-poor-will	Sedge Wren	Summer Tanager	
Snowy Egret	Purple Gallinule		SWIFTS	Marsh Wren	Scarlet Tanager	
Cattle Egret	Common Moorhen		Chimney Swift	KINGLETS	SPARROWS	
Little Blue Heron	American Coot		HUMMERS	Golden-crowned Kinglet	Eastern Towhee	
Green Heron	CRANES		Ruby-throated Hummer	Ruby-crowned Kinglet	Am. Tree Sparrow	
Black-cr Night Heron	Sandhill Crane		KINGFISHERS	GNATCATCHERS	Chipping Sparrow	
Yellow-cr Night Heron	PLOVERS		Belted Kingfisher	1 Blue-gray Gnatcatcher	Field Sparrow	
VULTURES	Black-bellied Plover		WOODPECKERS	THRUSHES	Vesper Sparrow	
Black Vulture	Am. Golden Plover		Red-headed Woodp	Eastern Bluebird	2 Savannah Sparrow	
Turkey Vulture	1 Semipalmated Plover		Red-bellied Woodp	1 Veery	Grasshopper Sparrow	
GEESE, DUCKS	Piping Plover		Yellow-bell Sapsucker	Gray-cheeked Thrush	Henslow's Sparrow	
G. White-fronted Goose	Killdeer	5-10	Downy Woodpecker	3 Grayson's Thrush	Nelson's Sh-t Sparrow	
Snow Goose	SANDPIPERS		Hairy Woodpecker	Hermit Thrush	Fox Sparrow	
Canada Goose	Greater Yellowlegs		Northern Flicker	Wood Thrush	Song Sparrow	3
Mute Swan	Lesser Yellowlegs		Pileated Woodpecker	2 American Robin	50-100 Lincoln's Sparrow	
Tundra Swan	Solitary Sandpiper		FLYCATCHERS	MIMICS	Swamp Sparrow	
Trumpeter Swan	Willet		Least Flycatcher	Gray Catbird	White-thro Sparrow	5-10
Wood Duck	5-10 1 Spotted Sandpiper		Eastern Wood-Pewee	Northern Mockingbird	2 White-cro Sparrow	
Gadwall	Upland Sandpiper		Yellow-bell Flycatcher	Brown Thrasher	Dark-eyed Junco	5-10
American Wigeon	Ruddy Turnstone		Acadian Flycatcher	STARLINGS	Lapland Longspur	
Am. Black Duck	Sanderling		Alder Flycatcher	European Starling	200+ Snow Bunting	
Mallard	Semipalmated Sandpi.		Willow Flycatcher	WAXWINGS	GROSBEAKS	
Blue-winged Teal	Western Sandpiper		Eastern Phoebe	Cedar Waxwing	Northern Cardinal	5-10
Northern Shoveler	Least Sandpiper		Great-crested Flycatcher	WARBLERS	Rost-bre Grosbeak	
Northern Pintail	White-rumped Sandpi.		Eastern Kingbird	Blue-winged Warbler	Blue Grosbeak	
Green-winged Teal	Pectoral Sandpiper		SHRIKES	Golden-winged Warbler	Indigo Bunting	
Canvasback	Dunlin		Northern Shrike	Tennessee Warbler	Dickcissel	
Redhead	Stilt Sandpiper		Loggerhead Shrike	Orange-cro Warbler	BLACKBIRDS	
Ring-necked Duck	Short-billed Dowitcher		VIREOS	Nashville Warbler	Bobolink	
Great Scaup	Long-billed Dowitcher		White-eyed Vireo	Northern Parula	Red-winged Blackbird	100+
Lesser Scaup	Wilson's Snipe		Yellow-throated Vireo	Yellow Warbler	Eastern Meadowlark	
White-winged Scoter	American Woodcock		Bell's Vireo	Chestnut-sided Warbler	Yellow-hea Blackbird	
Black Scoter	Wilson's Phalarope		Blue-headed Vireo	Magnolia Warbler	Rusty Blackbird	
Long-tailed Duck	Red-necked Phalarope		Warbling Vireo	Yellow-rumped Warbler	Common Grackle	100+
Bufflehead	GULLS		Philadelphia Vireo	Cape May Warbler	Bron-hea Cowbird	100+
Common Goldeneye	Franklin's Gull		Red-eyed Vireo	Black-thr Blue Warbler	Orchard Oriole	
Hooded Merganser	Bonaparte's Gull		CROWS, JAYS	Blackburnian Warbler	Baltimore Oriole	
Common Merganser	Ring-billed Gull		Blue Jay	3 Black-thr Green Warbler	FINCHES	
Red-breasted Merg	Herring Gull		American Crow	5 Yellow-throated Warbler	Purple Finch	
Ruddy Duck	Caspian Tern		LARKS	Pine Warbler	House Finch	5-10
HAWKS	Common Tern		Horned Lark	in fields 3	Prairie Warbler	Red Crossbill
Osprey	Forster's Tern		SWALLOWS	Palm Warbler	White-wing Crossbill	
Bald Eagle	Black Tern		Purple Martin	Bay-breasted Warbler	Pine Siskin	
Northern Harrier	DOVES		Tree Swallow	Blackpoll Warbler	American Goldfinch	5-10
Sharp-shinned Hawk	1 Rock Pigeon	FO 10	N. Rough-win Swallow	Cerulean Warbler	Evening Grosbeak	
Coopers Hawk	1 Mourning Dove	5	Bank Swallow	Black-&-white Warbler	WEAVER FINCHES	
Northern Goshawk	CUCKOOS		Cliff Swallow	American Redstart	House Sparrow	5-10

1 American pipit foraging in fields. Took flight calling over the fields. "pip-pit" - "pip-pit"

→ perched in tree at forest/field border: swooped down into field and flushed hundreds of Red-winged blackbirds, cowbirds, & grackles.



BIRD SURVEY DATA SHEET

Project Number: Pesi 112-04 Project Name: I-69 Segment 2 - Bird Surveys Date: 6 May 2005 Page 1 of 2

Site #: _____ Site Name: Patoka bottoms State/County: Pike & Gibson in IN

Time: 7¹⁵ am - 12 pm Temp: 60s Wind: 0 Cloud Cover: 0 % Biologists: J. JASKULA

GPS: Northing: 4248324 Easting: 470459 Zone: 16S 66 species

Comments: Entire project study area was walked including the powerline Row at north end of study area. FO = Flyover * = nesting w/ project study area

LOONS		Red-shouldered Hawk		Black-billed Cuckoo		Barn Swallow		Prothonotary Warbler	<u>~5</u>
Red-throated Loon		Broad-winged Hawk		Yellow-billed Cuckoo		CHICKADEES		Worm-eating Warbler	
Common Loon		Red-tailed Hawk		OWLS		Black-capped Chickadee		Ovenbird	
GREBES		Rough-legged Hawk		Barn Owl		Carolina Chickadee	<u>5</u>	Northern Waterthrush	
Pied-billed Grebe		FALCONS		Eastern Screech Owl		Tufted Titmouse	<u>3</u>	Louisiana Waterthrush	
Horned Grebe		American Kestrel		Great Horned Owl fledgling	<u>1</u>	NUTHATCHES		Kentucky Warbler	
Red-necked Grebe		Merlin		Snowy Owl		Red-breasted Nuthatch		Connecticut Warbler	
Eared Grebe		Peregrin Falcon		Barred Owl		White-breasted Nuthatch	<u>2</u>	Mourning Warbler	
CORMORANTS		TURKEYS, ETC		Long-eared Owl		CREEPERS		Common Yellowthroat	<u>10</u>
Double-crested Cormorant		Ring-necked Pheasant		Short-eared Owl		Brown Creeper		Hooded Warbler	
HERONS		Wild Turkey <u>nest w/ 6 eggs</u>	<u>1 ♀</u>	Northern Saw-whet Owl		WRENS		Wilson's Warbler	
American Bittern		Northern Bobwhite		GOATSUCKERS		Carolina Wren	<u>4</u>	Canada Warbler	
Least Bittern		RAILS		Common Nighthawk		House Wren	<u>1</u>	Yellow-bre Chat	<u>5</u>
Great Blue Heron <u>FO</u>	<u>5</u>	Virginia Rail		Chuck-will's-widow		Winter Wren		TANAGERS	
Great Egret		Sora		Whip-poor-will		Sedge Wren		Summer Tanager	
Snowy Egret		Purple Gallinule		SWIFTS		Marsh Wren		Scarlet Tanager	
Cattle Egret		Common Moorhen		Chimney Swift <u>FO</u>	<u>3</u>	KINGLETS		SPARROWS	
Little Blue Heron		American Coot		HUMMERS		Golden-crowned Kinglet		Eastern Towhee	
Green Heron		CRANES		Ruby-throated Hummer		Ruby-crowned Kinglet		Am. Tree Sparrow	
Black-crowned Night Heron		Sandhill Crane		KINGFISHERS		GNATCATCHERS		Chipping Sparrow	<u>1</u>
Yellow-crowned Night Heron		PLOVERS		Belted Kingfisher		Blue-gray Gnatcatcher	<u>~15-20</u>	Field Sparrow	<u>5-10</u>
VULTURES		Black-bellied Plover		WOODPECKERS		THRUSHES		Vesper Sparrow	
Black Vulture		American Golden Plover		Red-headed Woodpecker		Eastern Bluebird		Savannah Sparrow	
Turkey Vulture <u>FO</u>	<u>1</u>	Semipalmated Plover		Red-bellied Woodpecker	<u>3</u>	Veery	<u>1</u>	Grasshopper Sparrow	
GEESE, DUCKS		Piping Plover		Yellow-bellied Sapsucker		Gray-cheeked Thrush		Henslow's Sparrow	
G. White-fronted Goose		Killdeer <u>FO</u>	<u>3</u>	Downy Woodpecker	<u>2</u>	Swainson's Thrush	<u>1</u>	Nelson's Sh-t Sparrow	
Snow Goose		SANDPIPERS		Hairy Woodpecker		Hermit Thrush		Fox Sparrow	
Canada Goose <u>FO</u>	<u>3</u>	Greater Yellowlegs		Northern Flicker	<u>2</u>	Wood Thrush	<u>3-5</u>	Song Sparrow	<u>5-10</u>
Mute Swan		Lesser Yellowlegs		Pileated Woodpecker	<u>1</u>	American Robin	<u>~10</u>	Lincoln's Sparrow	
Tundra Swan		Solitary Sandpiper		FLYCATCHERS		MIMICS		Swamp Sparrow	
Trumpeter Swan		Willet		Least Flycatcher	<u>1</u>	Gray Catbird		White-throated Sparrow	<u>~5</u>
Wood Duck <u>Patoka canal</u>	<u>2</u>	Spotted Sandpiper		Eastern Wood-Pewee	<u>1</u>	Northern Mockingbird	<u>1</u>	White-crowned Sparrow	<u>1</u>
Gadwall		Upland Sandpiper		Yellow-bellied Flycatcher		Brown Thrasher	<u>2</u>	Dark-eyed Junco	
American Wigeon		Ruddy Turnstone		Acadian Flycatcher		STARLINGS		Lapland Longspur	
American Black Duck		Sanderling		Alder Flycatcher		European Starling	<u>~20-30</u>	Snow Bunting	
Mallard		Semipalmated Sandpiper		Willow Flycatcher		WAXWINGS		GROSBEAKS	
Blue-winged Teal		Western Sandpiper		Eastern Phoebe	<u>4</u>	Cedar Waxwing		Northern Cardinal	<u>10-15</u>
Northern Shoveler		Least Sandpiper		Great-crested Flycatcher	<u>4</u>	WARBLERS		Rose-breasted Grosbeak	<u>1</u>
Northern Pintail		White-rumped Sandpi.		Eastern Kingbird		Blue-winged Warbler	<u>1</u>	Blue Grosbeak	<u>2</u>
Green-winged Teal		Pectoral Sandpiper		SHRIKES		Golden-winged Warbler		Indigo Bunting	<u>~20-30</u>
Canvasback		Dunlin		Northern Shrike		Tennessee Warbler	<u>3</u>	Dickcissel	
Redhead		Still Sandpiper		Loggerhead Shrike		Orange-crowned Warbler		BLACKBIRDS	
Ring-necked Duck		Short-billed Dowitcher		VIREOS		Nashville Warbler	<u>3</u>	Bobolink	
Great Scaup		Long-billed Dowitcher		White-eyed Vireo	<u>2</u>	Northern Parula	<u>3</u>	Red-winged Blackbird	<u>~10-20</u>
Lesser Scaup		Wilson's Snipe		Yellow-throated Vireo		Yellow Warbler	<u>1</u>	Eastern Meadowlark	<u>3</u>
White-winged Scoter		American Woodcock		Bell's Vireo	<u>2</u>	Chestnut-sided Warbler		Yellow-headed Blackbird	
Black Scoter		Wilson's Phalarope		Blue-headed Vireo		Magnolia Warbler		Rusty Blackbird	
Long-tailed Duck		Red-necked Phalarope		Warbling Vireo	<u>2</u>	Yellow-rumped Warbler	<u>5</u>	Common Grackle	<u>10</u>
Buffhead		GULLS		Philadelphia Vireo		Cape May Warbler		Brown-headed Cowbird	<u>10</u>
Common Goldeneye		Franklin's Gull		Red-eyed Vireo	<u>~10</u>	Black-thro. Blue Warbler		Orchard Oriole	
Hooded Merganser		Bonaparte's Gull		CROWS, JAYS		Blackburnian Warbler		Baltimore Oriole	<u>1</u>
Common Merganser		Ring-billed Gull		Blue Jay	<u>3</u>	Black-thr Green Warbler		FINCHES	
Red-breasted Merg		Herring Gull		American Crow <u>FO</u>	<u>3</u>	Yellow-throated Warbler	<u>1</u>	Purple Finch	
Ruddy Duck		Caspian Tern		LARKS		Pine Warbler		House Finch	<u>~5</u>
HAWKS		Common Tern		Horned Lark		Prairie Warbler		Red Crossbill	
Osprey		Forster's Tern		SWALLOWS		Palm Warbler	<u>1</u>	White-winged Crossbill	
Bald Eagle		Black Tern		Purple Martin		Bay-breasted Warbler		Pine Siskin	
Northern Harrier		DOVES		Tree Swallow		Blackpoll Warbler	<u>1</u>	American Goldfinch	<u>~10</u>
Sharp-shinned Hawk		Rock Pigeon		N. Rough-winged Swallow <u>FO</u>	<u>3</u>	Cerulean Warbler		Evening Grosbeak	
Coopers Hawk		Mourning Dove	<u>2</u>	Bank Swallow		Black-&-white Warbler	<u>1</u>	WEAVER FINCHES	
Northern Goshawk		CUCKOOS		Cliff Swallow		American Redstart		House Sparrow	<u>1</u>

1 near
band
at power
line.

Beaufort Wind Scale entire project area was walked 66 species

Wind Speed (mph)	Description	Visible Condition
0	Calm	Smoke rises vertically
1-3	Light Air	Direction of wind shown by smoke but not by wind vanes
4-7	Light Breeze	Wind felt on face; leaves rustle; ordinary wind vane moved by wind
8-12	Gentle Breeze	Leaves and small twigs in constant motion; wind extends light flag
13-18	Moderate Breeze	Raises dust and loose paper; small branches are moved
19-24	Fresh Breeze	Small trees in leaf begin to sway; crested wavelets form on inland water
25-31	Strong Breeze	Large branches in motion; telephone wires whistle; umbrellas used with difficulty
32-38	Moderate Gale	Whole trees in motion; inconvenience in walking against wind
39-46	Fresh Gale	Breaks twigs off trees; generally impedes progress

Additional sightings/Comments:

The powerline row at the north end of the project study area is excellent early-successional habitat. Open, sunny, weedy with scattered ^{large} trees and shrubs. Highlights: Blue Grosbeak
 Bell's Vireo
 Y-B chat

Also in the row, 1 fledgling Greathorned owl. I noticed it when I heard clicking sounds from the tree. It was clapping its mouth. I watched it for 5 minutes. Did not see an adult in the area.

Walking from the most northern bridge on Slickem Hill Road to the intersection to the south is very productive. Good mix of open and closed swamp habitat.

Not as many warblers as expected, only 12 species. Missing were common species such as Black-throated green warbler + ovenbirds.

Adam + Josh found a turkey nest off CR 1150. A farmer was operating some large machinery to spray chemicals (herbicides) when the ♀ flushed from her nest. The nest is in an open weedy strip bordering a small eutrophic stream between 2 fallow fields.



BIRD SURVEY DATA SHEET

Project Number: Pesi 112-04 Project Name: I-69 Segment 2 - Bird Surveys Date: 7 May 2005 Page 2 of 2

Site #: _____ Site Name: Patoka bottoms State/County: Pike/Coibson/IN

Time: 6:45-12:00 pm Temp: 70's Wind: 0-2 Cloud Cover: 0-20% Biologists: J. JASKULA, V. BRACK

GPS: Northing: 4 2 4 8 3 2 4 Easting: 4 7 0 4 5 9 Zone: 1 6 S

Comments: FO = flyover 63 Species

LOONS		Red-shouldered Hawk		Black-billed Cuckoo		Barn Swallow		Prothonotary Warbler	3
Red-throated Loon		Broad-winged Hawk		Yellow-billed Cuckoo	1	CHICKADEES		Worm-eating Warbler	
Common Loon		Red-tailed Hawk	FO	OWLS		Black-capped Chickadee		Ovenbird	1
GREBES		Rough-legged Hawk		Barn Owl		Carolina Chickadee	1	Northern Waterthrush	
Pied-billed Grebe		FALCONS		Eastern Screech Owl		Tufted Titmouse	3	Louisiana Waterthrush	
Horned Grebe		American Kestrel		Great Horned Owl		NUTHATCHES		Kentucky Warbler	
Red-necked Grebe		Merlin		Snowy Owl		Red-breasted Nuthatch		Connecticut Warbler	
Eared Grebe		Peregrin Falcon		Barred Owl		White-breasted Nuthatch	1	Mourning Warbler	
CORMORANTS		TURKEYS, ETC		Long-eared Owl		CREEPERS		Common Yellowthroat	5-10
Double-crested Cormorant		Ring-necked Pheasant		Short-eared Owl		Brown Creeper		Hooded Warbler	
HERONS		Wild Turkey		Northern Saw-whet Owl		WRENS		Wilson's Warbler	
American Bittern		Northern Bobwhite		GOATSUCKERS		Carolina Wren	3	Canada Warbler	
Least Bittern		RAILS		Common Nighthawk		House Wren	1	Yellow-bre Chat	5
Great Blue Heron	FO	Virginia Rail	3	Chuck-will's-widow		Winter Wren		TANAGERS	
Great Egret		Sora		Whip-poor-will		Sedge Wren		Summer Tanager	1
Snowy Egret		Purple Gallinule		SWIFTS		Marsh Wren		Scarlet Tanager	
Cattle Egret		Common Moorhen		Chimney Swift	FO	KINGLETS		SPARROWS	
Little Blue Heron		American Coot		HUMMERS		Golden-crowned Kinglet		Eastern Towhee	
Green Heron		CRANES		Ruby-throated Hummer		Ruby-crowned Kinglet		Am. Tree Sparrow	
Black-crowned Night Heron		Sandhill Crane		KINGFISHERS		GNATCATCHERS		Chipping Sparrow	
Yellow-crowned Night Heron		PLOVERS		Belted Kingfisher		Blue-gray Gnatcatcher	6-10	Field Sparrow	5
VULTURES		Black-bellied Plover		WOODPECKERS		THRUSHES		Vesper Sparrow	
Black Vulture		American Golden Plover		Red-headed Woodpecker		Eastern Bluebird	2	Savannah Sparrow	
Turkey Vulture		Semipalmated Plover		Red-bellied Woodpecker	2	Veery		Grasshopper Sparrow	
GEESE, DUCKS		Piping Plover		Yellow-bellied Sapsucker		Gray-cheeked Thrush		Henslow's Sparrow	
G. White-fronted Goose		Killdeer in fields	2	Downy Woodpecker	2	Swainson's Thrush		Nelson's Sh-t Sparrow	
Snow Goose		SANDPIPERS		Hairy Woodpecker		Hermit Thrush		Fox Sparrow	
Canada Goose	FO	Greater Yellowlegs	3	Northern Flicker	1	Wood Thrush	2	Song Sparrow	2
Mute Swan		Lesser Yellowlegs		Pileated Woodpecker	1	American Robin	5-10	Lincoln's Sparrow	1
Tundra Swan		Solitary Sandpiper		FLYCATCHERS		MIMICS		Swamp Sparrow	
Trumpeter Swan		Willet		Least Flycatcher	2	Gray Catbird	2	White-throated Sparrow	5
Wood Duck	FO	Spotted Sandpiper	2	Eastern Wood-Pewee	1	Northern Mockingbird	2	White-crowned Sparrow	
Gadwall		Upland Sandpiper		Yellow-bellied Flycatcher		Brown Thrasher	1	Dark-eyed Junco	
American Wigeon		Ruddy Turnstone		Acadian Flycatcher		STARLINGS		Lapland Longspur	
American Black Duck		Sanderling		Alder Flycatcher		European Starling	~10	Snow Bunting	
Mallard		Semipalmated Sandpiper		Willow Flycatcher		WAXWINGS		GROSBEAKS	
Blue-winged Teal		Western Sandpiper		Eastern Phoebe	1	Cedar Waxwing		Northern Cardinal	5
Northern Shoveler		Least Sandpiper		Great-crested Flycatcher	3	WARBLERS		Rose-breasted Grosbeak	
Northern Pintail		White-rumped Sandpiper		Eastern Kingbird		Blue-winged Warbler		Blue Grosbeak	1
Green-winged Teal		Pectoral Sandpiper		SHRIKES		Golden-winged Warbler		Indigo Bunting	10-20
Canvasback		Dunlin		Northern Shrike		Tennessee Warbler	2	Dickcissel	
Redhead		Stilt Sandpiper		Loggerhead Shrike		Orange-crowned Warbler		BLACKBIRDS	
Ring-necked Duck		Short-billed Dowitcher		VIREOS		Nashville Warbler	2	Bobolink	
Great Scaup		Long-billed Dowitcher		White-eyed Vireo	2	Northern Parula	3	Red-winged Blackbird	3
Lesser Scaup		Wilson's Snipe		Yellow-throated Vireo	1	Yellow Warbler		Eastern Meadowlark	
White-winged Scoter		American Woodcock		Bell's Vireo	2	Chestnut-sided Warbler		Yellow-headed Blackbird	
Black Scoter		Wilson's Phalarope		Blue-headed Vireo		Magnolia Warbler		Rusty Blackbird	
Long-tailed Duck		Red-necked Phalarope		Warbling Vireo	1	Yellow-rumped Warbler		Common Grackle	5
Bufflehead		GULLS		Philadelphia Vireo		Cape May Warbler		Brown-headed Cowbird	10-20
Common Goldeneye		Franklin's Gull		Red-eyed Vireo	4	Black-thro. Blue Warbler		Orchard Oriole	1
Hooded Merganser		Bonaparte's Gull		CROWS, JAYS		Blackburnian Warbler		Baltimore Oriole	2
Common Merganser		Ring-billed Gull		Blue Jay	2	Black-thr Green Warbler	1	FINCHES	
Red-breasted Merg		Herring Gull		American Crow	FO	Yellow-throated Warbler	1	Purple Finch	
Ruddy Duck		Caspian Tern		LARKS		Pine Warbler		House Finch	
HAWKS		Common Tern		Horned Lark		Prairie Warbler		Red Crossbill	
Osprey		Forster's Tern		SWALLOWS		Palm Warbler		White-winged Crossbill	
Bald Eagle		Black Tern		Purple Martin		Bay-breasted Warbler		Pine Siskin	
Northern Harrier		DOVES		Tree Swallow	FO	Blackpoll Warbler		American Goldfinch	10
Sharp-shinned Hawk		Rock Pigeon	FO	N. Rough-winged Swallow	FO	Cerulean Warbler		Evening Grosbeak	
Coopers Hawk		Mourning Dove	FO	Bank Swallow		Black-&-white Warbler		WEAVER FINCHES	
Northern Goshawk		CUCKOOS		Cliff Swallow		American Redstart	1	House Sparrow	

counted in area

Beaufort Wind Scale

Wind Speed (mph)	Description	Visible Condition
0	Calm	Smoke rises vertically
1-3	Light Air	Direction of wind shown by smoke but not by wind vanes
4-7	Light Breeze	Wind felt on face; leaves rustle; ordinary wind vane moved by wind
8-12	Gentle Breeze	Leaves and small twigs in constant motion; wind extends light flag
13-18	Moderate Breeze	Raises dust and loose paper; small branches are moved
19-24	Fresh Breeze	Small trees in leaf begin to sway; crested wavelets form on inland water
25-31	Strong Breeze	Large branches in motion; telephone wires whistle; umbrellas used with difficulty
32-38	Moderate Gale	Whole trees in motion; inconvenience in walking against wind
39-46	Fresh Gale	Breaks twigs off trees; generally impedes progress

Additional sightings/Comments:

New species since yesterday:
(May 6)

Reported by Adam Mann (ESI)

- Yellow-throated Vireo
- Yellow-billed cuckoo
- Tree Swallow
- Lincoln's Sparrow.
- ↳ near pond at powerline Row.
- Orchard Oriole
- Summer Tanager
- Am. Redstart
- Pigeon (Flyover)

- Red-tailed hawk (FO)
- Black-th. Green warbler
- Gray catbird.

We started @ the powerline Row again. Blue Grosbeaks & Bell's Vireos were present again.

Arrive: 6:45 - 9:30 → powerline row to parking lot.

9:30 - 12:00 → Snoopy's Nose, south on Sticker Hill Road (3000)

While searching the powerline row I looked for evidence of Loggerhead Shrikes. No caches of dead animals on barb wire or in trees were found. Shrikes prefer to nest placement in thorny shrubs; a few thorny shrubs are present, but they are not dense. Red cedar is also part of L. Shrike habitat in SW Indiana; no cedar are present in the Patoka study area.



BIRD SURVEY DATA SHEET

Project Number: Pesi 112-04 Project Name: I-69 Segment 2 - Bird Surveys Date: 8 May 2005 Page 1 of 2

Site #: _____ Site Name: Patoka Bottoms State/County: Gibson/Pike in IN

Time: 5:45 - 12:00 pm Temp: 70s Wind: 0-3 Cloud Cover: 0 % Biologists: J. JASKULA, T. CERVONE

GPS: Northing: 730-905 pm 4248324 Easting: 470459 Zone: 16s (60m-9.00)

Comments: FO = flyover 84 Species

LOONS	Red-shouldered Hawk	Black-billed Cuckoo	Barn Swallow <u>FO</u>	<u>2</u>	Prothonotary Warbler	<u>5-10</u>
Red-throated Loon	Broad-winged Hawk	Yellow-billed Cuckoo	<u>2</u>	CHICKADEES	Worm-eating Warbler	
Common Loon	Red-tailed Hawk <u>FO</u>	<u>1</u>	OWLS	Black-capped Chickadee	Ovenbird	<u>3</u>
GREBES	Rough-legged Hawk	Barn Owl	Carolina Chickadee	<u>2</u>	Northern Waterthrush	
Pied-billed Grebe	FALCONS	Eastern Screech Owl	Tufted Titmouse	<u>3</u>	Louisiana Waterthrush	
Horned Grebe	American Kestrel	Great Horned Owl	<u>2</u>	NUTHATCHES	Kentucky Warbler	<u>1</u>
Red-necked Grebe	Merlin	Snowy Owl	Red-breasted Nuthatch		Connecticut Warbler	
Eared Grebe	Peregrin Falcon	Barred Owl	White-breasted Nuthatch	<u>1</u>	Mourning Warbler	<u>1</u>
CORMORANTS	TURKEYS, ETC	Long-eared Owl	CREEPERS		Common Yellowthroat	<u>3</u>
Double-crested Cormorant	Ring-necked Pheasant	Short-eared Owl	Brown Creeper		Hooded Warbler	
HERONS	Wild Turkey	Northern Saw-whet Owl	WRENS		Wilson's Warbler	
American Bittern	Northern Bobwhite	GOATSUCKERS	Carolina Wren	<u>3</u>	Canada Warbler	
Least Bittern	RAILS	Common Nighthawk <u>FO</u>	House Wren	<u>1</u>	Yellow-bre Chat	<u>4</u>
Great Blue Heron <u>FO</u>	Virginia Rail	Chuck-will's-widow	Winter Wren		TANAGERS	
Great Egret	Sora	Whip-poor-will	Sedge Wren		Summer Tanager	<u>1</u>
Snowy Egret	Purple Gallinule	SWIFTS	Marsh Wren		Scarlet Tanager	<u>3</u>
Cattle Egret	Common Moorhen	Chimney Swift <u>FO</u>	<u>2</u>	KINGLETS	SPARROWS	
Little Blue Heron	American Coot	HUMMERS	Golden-crowned Kinglet		Eastern Towhee	
Green Heron	CRANES	Ruby-throated Hummer	Ruby-crowned Kinglet		Am. Tree Sparrow	
Black-crowned Night Heron	Sandhill Crane	KINGFISHERS	GNATCATCHERS		Chipping Sparrow	
Yellow-crowned Night Heron	PLOVERS	Belted Kingfisher	Blue-gray Gnatcatcher <u>(FO)</u>	<u>5</u>	Field Sparrow	<u>2</u>
VULTURES	Black-bellied Plover	WOODPECKERS	THRUSHES		Vesper Sparrow	
Black Vulture	American Golden Plover	Red-headed Woodpecker	Eastern Bluebird	<u>1</u>	Savannah Sparrow	
Turkey Vulture	Semipalmated Plover	Red-bellied Woodpecker	<u>2</u>	Veery	Grasshopper Sparrow	<u>1</u>
GEESE, DUCKS	Piping Plover	Yellow-bellied Sapsucker	Gray-cheeked Thrush	<u>2</u>	Henslow's Sparrow	
G. White-fronted Goose	Killdeer <u>FO</u>	<u>1</u>	Downy Woodpecker	<u>1</u>	Swainson's Thrush	<u>5-10</u>
Snow Goose	SANDPIPERS	Hairy Woodpecker	Hermit Thrush		Nelson's Sh-t Sparrow	
Canada Goose <u>FO</u>	Greater Yellowlegs	Northern Flicker	<u>2</u>	Wood Thrush	Fox Sparrow	
Mute Swan	Lesser Yellowlegs	Pileated Woodpecker	<u>1</u>	American Robin	Song Sparrow	<u>3</u>
Tundra Swan	Solitary Sandpiper	FLYCATCHERS			Lincoln's Sparrow	
Trumpeter Swan	Willet	Least Flycatcher	<u>1</u>	MIMICS	Swamp Sparrow	
Wood Duck <u>FO</u>	<u>2</u>	Spotted Sandpiper	<u>2</u>	Gray Catbird	White-throated Sparrow	<u>2</u>
Gadwall	Upland Sandpiper	Eastern Wood-Pewee	<u>2</u>	Northern Mockingbird	White-crowned Sparrow	
American Wigeon	Ruddy Turnstone	Yellow-bellied Flycatcher		Brown Thrasher	Dark-eyed	
American Black Duck	Sanderling	Acadian Flycatcher	<u>1</u>	STARLINGS	Lapland Longspur	
Mallard	Semipalmated Sandpiper	Alder Flycatcher		European Starling	Snow Bunting	
Blue-winged Teal	Western Sandpiper	Willow Flycatcher		WAXWINGS	GROSBEAKS	
Northern Shoveler	Least Sandpiper	Eastern Phoebe	<u>3</u>	Cedar Waxwing	Northern Cardinal	<u>5-10</u>
Northern Pintail	White-rumped Sandpi.	Great-crested Flycatcher	<u>4</u>	WARBLERS	Rose-breasted Grosbeak	<u>1-2</u>
Green-winged Teal	Pectoral Sandpiper	Eastern Kingbird	<u>1</u>	Blue-winged Warbler	Blue Grosbeak	<u>1</u>
Canvasback	Dunlin	SHRIKES		Golden-winged Warbler	Indigo Bunting	<u>10-20</u>
Redhead	Stilt Sandpiper	Northern Shrike		Tennessee Warbler	Dickcissel	<u>1</u>
Ring-necked Duck	Loggerhead Shrike	VIREOS		Orange-crowned Warbler	BLACKBIRDS	
Great Scaup	Short-billed Dowitcher	White-eyed Vireo	<u>1</u>	Nashville Warbler	Bobolink	
Lesser Scaup	Long-billed Dowitcher	Yellow-throated Vireo	<u>1</u>	Northern Parula	Red-winged Blackbird	<u>4</u>
White-winged Scoter	Wilson's Snipe	Bell's Vireo	<u>1</u>	Yellow Warbler	Eastern Meadowlark	<u>3</u>
Black Scoter	American Woodcock	Blue-headed Vireo	<u>1</u>	Chestnut-sided Warbler	Yellow-headed Blackbird	
Long-tailed Duck	Wilson's Phalarope	Warbling Vireo	<u>2</u>	Magnolia Warbler	Rusty Blackbird	
Buffhead	Red-necked Phalarope	Philadelphia Vireo		Yellow-rumped Warbler	Common Grackle	<u>5</u>
Common Goldeneye	GULLS	Red-eyed Vireo	<u>5</u>	Cape May Warbler	Brown-headed Cowbird	<u>10-20</u>
Hooded Merganser	Franklin's Gull	CROWS, JAYS		Black-thro. Blue Warbler	Orchard Oriole	<u>1</u>
Common Merganser	Bonaparte's Gull	Blue Jay	<u>3</u>	Blackburnian Warbler	Baltimore Oriole	<u>3</u>
Red-breasted Merg	Ring-billed Gull	American Crow	<u>3</u>	Black-thr Green Warbler	FINCHES	
Ruddy Duck	Herring Gull	LARKS		Yellow-throated Warbler	Purple Finch	
HAWKS	Caspian Tern	Horned Lark		Pine Warbler	House Finch	
Osprey	Common Tern	SWALLOWS		Prairie Warbler	Red Crossbill	
Bald Eagle	Forster's Tern	Purple Martin		Palm Warbler	White-winged Crossbill	
Northern Harrier	Black Tern	Tree Swallow		Bay-breasted Warbler	Pine Siskin	
Sharp-shinned Hawk	DOVES	N. Rough-winged Swallow <u>FO</u>	<u>3</u>	Blackpoll Warbler	American Goldfinch	<u>5</u>
Coopers Hawk	Rock Pigeon	Bank Swallow		Cerulean Warbler	Evening Grosbeak	
Northern Goshawk	Mourning Dove	Cliff Swallow		Black-&-white Warbler	WEAVER FINCHES	
	CUCKOOS			American Redstart	House Sparrow	

Beaufort Wind Scale

Wind Speed (mph)	Description	Visible Condition
0	Calm	Smoke rises vertically
1-3	Light Air	Direction of wind shown by smoke but not by wind vanes
4-7	Light Breeze	Wind felt on face; leaves rustle; ordinary wind vane moved by wind
8-12	Gentle Breeze	Leaves and small twigs in constant motion; wind extends light flag
13-18	Moderate Breeze	Raises dust and loose paper; small branches are moved
19-24	Fresh Breeze	Small trees in leaf begin to sway; crested wavelets form on inland water
25-31	Strong Breeze	Large branches in motion; telephone wires whistle; umbrellas used with difficulty
32-38	Moderate Gale	Whole trees in motion; inconvenience in walking against wind
39-46	Fresh Gale	Breaks twigs off trees; generally impedes progress

Additional sightings/Comments:

New birds to the study area:

Acadian flycatcher	Golden-winged warbler	Bay-breasted warbler
Barn swallow	Chestnut-sided warbler	Mourning warbler
Gray-checked thrush	Blackburnian warbler	Kentucky warbler
Am. Kestrel	Summer Tanager	
Grasshopper sparrow	Common Nighthawk	
Dickcissel		

New warblers arriving each day. Tennessee + Nashville warblers are common.

At the powerline row at north end of study area I found 4 Dickcissels and 3-5 Grasshopper sparrows. Kestel on the wire, too.

Arrived onsite in the evening at 7³⁰ pm. I walked through the grassy areas near the powerline row looking/listening for Henslow's Sparrows. None found. Habitat does not appear suitable. Also searched for evidence of Loggerhead shrikes. No prey impaled on barb wire fence near row. A common nighthawk flew over.

During the afternoon, Adam, Josh, + I took the canoe through the oxbow near Snoopy's Nose.



BIRD SURVEY DATA SHEET

Project Number: Pesi 112-04 Project Name: I-69 Segment 2 - Bird Surveys Date: 9 May 05 Page 1 of 2

Site #: Site Name: Patoka Bottoms State/County:

Time: 5³⁰-11⁰⁰ Temp: 70s Wind: 0-5 Cloud Cover: 0-30% Biologists: J. JASKULA

GPS: Northing: 4 2 4 8 3 2 4 Easting: 4 7 0 4 5 9 Zone: 1 6 S

Comments: 82 species

LOONS		Red-shouldered Hawk		Black-billed Cuckoo		Barn Swallow		Prothonotary Warbler	5-10
Red-throated Loon		Broad-winged Hawk		Yellow-billed Cuckoo	2	CHICKADEES		Worm-eating Warbler	
Common Loon		Red-tailed Hawk		OWLS		Black-capped Chickadee		Ovenbird	1
GREBES		Rough-legged Hawk		Barn Owl		Carolina Chickadee	2	Northern Waterthrush	1
Pied-billed Grebe		FALCONS		Eastern Screech Owl		Tufted Titmouse	3	Louisiana Waterthrush	
Horned Grebe		American Kestrel	1	Great Horned Owl		NUTHATCHES		Kentucky Warbler	1
Red-necked Grebe		Merlin		Snowy Owl		Red-breasted Nuthatch		Connecticut Warbler	
Eared Grebe		Peregrin Falcon		Barred Owl		White-breasted Nuthatch	1	Mourning Warbler	
CORMORANTS		TURKEYS, ETC		Long-eared Owl		CREEPERS		Common Yellowthroat	5-10
Double-crested Cormorant		Ring-necked Pheasant		Short-eared Owl		Brown Creeper		Hooded Warbler	1
HERONS		Wild Turkey		Northern Saw-whet Owl		WRENS		Wilson's Warbler	
American Bittern		Northern Bobwhite calling	1	GOATSUCKERS		Carolina Wren	3	Canada Warbler	
Least Bittern		RAILS		Common Nighthawk		House Wren		Yellow-bre Chat	3-5
Great Blue Heron	FO	Virginia Rail	5	Chuck-will's-widow		Winter Wren		TANAGERS	
Great Egret		Sora		Whip-poor-will		Sedge Wren		Summer Tanager	1
Snowy Egret		Purple Gallinule		SWIFTS		Marsh Wren		Scarlet Tanager	2
Cattle Egret		Common Moorhen		Chimney Swift	FO	KINGLETS		SPARROWS	
Little Blue Heron		American Coot		HUMMERS		Golden-crowned Kinglet		Eastern Towhee	1
Green Heron	FO	CRANES	1	Ruby-throated Hummer	1	Ruby-crowned Kinglet		Am. Tree Sparrow	
Black-crowned Night Heron		Sandhill Crane		KINGFISHERS		GNATCATCHERS		Chipping Sparrow	
Yellow-crowned Night Heron		PLOVERS		Belted Kingfisher		Blue-gray Gnatcatcher	5-10	Field Sparrow	3
VULTURES		Black-bellied Plover		WOODPECKERS		THRUSHES		Vesper Sparrow	
Black Vulture		American Golden Plover		Red-headed Woodpecker		Eastern Bluebird	1	Savannah Sparrow	
Turkey Vulture	FO	Semipalmated Plover	5	Red-bellied Woodpecker	2	Veery	1	Grasshopper Sparrow	5
GEESE, DUCKS		Piping Plover		Yellow-bellied Sapsucker		Gray-cheeked Thrush	1	Henslow's Sparrow	
G. White-fronted Goose		Killdeer	3	Downy Woodpecker	2	Swainson's Thrush	5-10	Nelson's Sh-t Sparrow	
Snow Goose		SANDPIPERS		Hairy Woodpecker	1	Hermit Thrush		Fox Sparrow	
Canada Goose	FO	Greater Yellowlegs	4	Northern Flicker	4	Wood Thrush	5	Song Sparrow	3
Mute Swan		Lesser Yellowlegs		Pileated Woodpecker	2	American Robin	40	Lincoln's Sparrow	
Tundra Swan		Solitary Sandpiper		FLYCATCHERS		MIMICS		Swamp Sparrow	
Trumpeter Swan		Willet		Least Flycatcher	1	Gray Catbird	3	White-throated Sparrow	
Wood Duck	FO	Spotted Sandpiper	2	Eastern Wood-Pewee	2	Northern Mockingbird	3	White-crowned Sparrow	
Gadwall		Upland Sandpiper		Yellow-bellied Flycatcher		Brown Thrasher	2	Dark-eyed Junco	
American Wigeon		Ruddy Turnstone		Acadian Flycatcher	2	STARLINGS		Lapland Longspur	
American Black Duck		Sanderling		Alder Flycatcher		European Starling	FO	Snow Bunting	
Mallard		Semipalmated Sandpiper		Willow Flycatcher		WAXWINGS		GROSBEAKS	
Blue-winged Teal		Western Sandpiper		Eastern Phoebe	2	Cedar Waxwing		Northern Cardinal	5-10
Northern Shoveler		Least Sandpiper		Great-crested Flycatcher	3	WARBLERS		Rose-breasted Grosbeak	
Northern Pintail		White-rumped Sandpi.		Eastern Kingbird	2	Blue-winged Warbler		Blue Grosbeak	3
Green-winged Teal		Pectoral Sandpiper		SHRIKES		Golden-winged Warbler		Indigo Bunting	10-20
Canvasback		Dunlin		Northern Shrike		Tennessee Warbler	2	Dickcissel	5-10
Redhead		Stilt Sandpiper		Loggerhead Shrike		Orange-crowned Warbler		BLACKBIRDS	
Ring-necked Duck		Short-billed Dowitcher		VIREOS		Nashville Warbler	2	Bobolink	
Great Scaup		Long-billed Dowitcher		White-eyed Vireo	2	Northern Parula	2	Red-winged Blackbird	10-20
Lesser Scaup		Wilson's Snipe		Yellow-throated Vireo		Yellow Warbler	2	Eastern Meadowlark	5
White-winged Scoter		American Woodcock		Bell's Vireo	1	Chestnut-sided Warbler	5-10	Yellow-headed Blackbird	
Black Scoter		Wilson's Phalarope		Blue-headed Vireo		Magnolia Warbler		Rusty Blackbird	
Long-tailed Duck		Red-necked Phalarope		Warbling Vireo	2	Yellow-rumped Warbler	1	Common Grackle	FO
Bufflehead		GULLS		Philadelphia Vireo		Cape May Warbler		Brown-headed Cowbird	5-10
Common Goldeneye		Franklin's Gull		Red-eyed Vireo	10-20	Black-thro. Blue Warbler		Orchard Oriole	1
Hooded Merganser		Bonaparte's Gull		CROWS, JAYS		Blackburnian Warbler	3	Baltimore Oriole	3
Common Merganser		Ring-billed Gull		Blue Jay	5	Black-thr Green Warbler	1	FINCHES	
Red-breasted Merg		Herring Gull		American Crow	FO	Yellow-throated Warbler	2	Purple Finch	
Ruddy Duck		Caspian Tern		LARKS		Pine Warbler		House Finch	
HAWKS		Common Tern		Horned Lark		Prairie Warbler		Red Crossbill	
Osprey		Forster's Tern		SWALLOWS		Palm Warbler		White-winged Crossbill	
Bald Eagle		Black Tern		Purple Martin		Bay-breasted Warbler	3	Pine Siskin	
Northern Harrier		DOVES		Tree Swallow		Blackpoll Warbler	5-10	American Goldfinch	5-10
Sharp-shinned Hawk		Rock Pigeon		N. Rough-winged Swallow	2	Cerulean Warbler		Evening Grosbeak	
Coopers Hawk		Mourning Dove	2	Bank Swallow		Black-&-white Warbler		WEAVER FINCHES	
Northern Goshawk		CUCKOOS		Cliff Swallow		American Redstart	1	House Sparrow	

Beaufort Wind Scale

52 species

Wind Speed (mph)	Description	Visible Condition
0	Calm	Smoke rises vertically
1-3	Light Air	Direction of wind shown by smoke but not by wind vanes
4-7	Light Breeze	Wind felt on face; leaves rustle; ordinary wind vane moved by wind
8-12	Gentle Breeze	Leaves and small twigs in constant motion; wind extends light flag
13-18	Moderate Breeze	Raises dust and loose paper; small branches are moved
19-24	Fresh Breeze	Small trees in leaf begin to sway; crested wavelets form on inland water
25-31	Strong Breeze	Large branches in motion; telephone wires whistle; umbrellas used with difficulty
32-38	Moderate Gale	Whole trees in motion; inconvenience in walking against wind
39-46	Fresh Gale	Breaks twigs off trees; generally impedes progress

Additional sightings/Comments:

New Birds today in the project study area:

Northern waterthrush - skulking among the willows on the ground. Easily overlooked if not for its song

RT Hummingbird

Hooded warbler

Green Heron - flyover

Bobwhite - calling near powerline row

Eastern towhee

Attempted to estimate the Dickcissel population at the north end of the study area. As many as 10 can be heard, but the habitat stretches quite away, maybe up to 30 are using the grassy areas within & north of the study area.

Continued to search for Loggerhead Shrikes. None found.

24 warblers thus far in May. (25 including fall)



BIRD SURVEY DATA SHEET

Project Number: Pesi 112-04 Project Name: I-69 Segment 2 - Bird Surveys Date: 10 May 05 Page 1 of 2

Site #: _____ Site Name: Patoka bottoms State/County: Gibson/Pike in IN

Time: 5:15-12:15 pm Temp: 60-70 Wind: 0-7 Cloud Cover: 0 % Biologists: J. JASKULA

GPS: Northing: 4248324 Easting: 470459 Zone: 16S

Comments: _____ 82 species

LOONS		Red-shouldered Hawk		Black-billed Cuckoo		Barn Swallow	2	Prothonotary Warbler	5-10
Red-throated Loon		Broad-winged Hawk		Yellow-billed Cuckoo	1	CHICKADEES		Worm-eating Warbler	
Common Loon		Red-tailed Hawk	FO 1	OWLS		Black-capped Chickadee		Ovenbird	
GREBES		Rough-legged Hawk		Barn Owl		Carolina Chickadee	2	Northern Waterthrush	2
Pied-billed Grebe		FALCONS		Eastern Screech Owl		Tufted Titmouse	3	Louisiana Waterthrush	
Horned Grebe		American Kestrel		Great Horned Owl		NUTHATCHES		Kentucky Warbler	
Red-necked Grebe		Merlin		Snowy Owl		Red-breasted Nuthatch		Connecticut Warbler	
Eared Grebe		Peregrin Falcon		Barred Owl	1	White-breasted Nuthatch	1	Mourning Warbler	
CORMORANTS		TURKEYS, ETC		Long-eared Owl		CREEPERS		Common Yellowthroat	5-10
Double-crested Cormorant		Ring-necked Pheasant		Short-eared Owl		Brown Creeper		Hooded Warbler	
HERONS		Wild Turkey		Northern Saw-whet Owl		WRENS		Wilson's Warbler	1
American Bittern		Northern Bobwhite		GOATSUCKERS		Carolina Wren	3	Canada Warbler	
Least Bittern		RAILS		Common Nighthawk		House Wren		Yellow-bre Chat	3
Great Blue Heron	3	Virginia Rail		Chuck-will's-widow		Winter Wren		TANAGERS	
Great Egret		Sora		Whip-poor-will		Sedge Wren		Summer Tanager	1
Snowy Egret		Purple Gallinule		SWIFTS		Marsh Wren		Scarlet Tanager	2
Cattle Egret		Common Moorhen		Chimney Swift	FO 1	KINGLETS		SPARROWS	
Little Blue Heron		American Coot		HUMMERS		Golden-crowned Kinglet		Eastern Towhee	1
Green Heron		CRANES		Ruby-throated Hummer	3	Ruby-crowned Kinglet		Am. Tree Sparrow	
Black-crowned Night Heron		Sandhill Crane		KINGFISHERS		GNATCATCHERS		Chipping Sparrow	1
Yellow-crowned Night Heron		PLOVERS		Belted Kingfisher		Blue-gray Gnatcatcher	5-10	Field Sparrow	3
VULTURES		Black-bellied Plover		WOODPECKERS		THRUSHES		Vesper Sparrow	
Black Vulture		American Golden Plover		Red-headed Woodpecker		Eastern Bluebird		Savannah Sparrow	
Turkey Vulture	FO 1	Semipalmated Plover		Red-bellied Woodpecker	2	Veery	1	Grasshopper Sparrow	3
GEESE, DUCKS		Piping Plover		Yellow-bellied Sapsucker		Gray-cheeked Thrush	1	Henslow's Sparrow	
G. White-fronted Goose		Killdeer	4 adults, 4 young	Downy Woodpecker	2	Swainson's Thrush	5-10	Nelson's Sh-t Sparrow	
Snow Goose		SANDPIPERS		Hairy Woodpecker	1	Hermit Thrush		Fox Sparrow	
Canada Goose	FO 5	Greater Yellowlegs		Northern Flicker	2	Wood Thrush	4	Song Sparrow	3
Mute Swan		Lesser Yellowlegs		Pileated Woodpecker	1	American Robin	5	Lincoln's Sparrow	
Tundra Swan		Solitary Sandpiper		FLYCATCHERS		MIMICS		Swamp Sparrow	
Trumpeter Swan		Willet		Least Flycatcher		Gray Catbird	2	White-throated Sparrow	5
Wood Duck ♀ in tree	4	Spotted Sandpiper		Eastern Wood-Pewee	2	Northern Mockingbird	2	White-crowned Sparrow	
Gadwall		Upland Sandpiper		Yellow-bellied Flycatcher		Brown Thrasher	1	Dark-eyed Junco	
American Wigeon		Ruddy Turnstone		Acadian Flycatcher	1	STARLINGS		Lapland Longspur	
American Black Duck		Sanderling		Alder Flycatcher		European Starling	FO 7	Snow Bunting	
Mallard		Semipalmated Sandpiper		Willow Flycatcher		WAXWINGS		GROSBEAKS	
Blue-winged Teal		Western Sandpiper		Eastern Phoebe	2	Cedar Waxwing		Northern Cardinal	5-10
Northern Shoveler		Least Sandpiper		Great-crested Flycatcher	3	WARBLERS		Rose-breasted Grosbeak	2
Northern Pintail		White-rumped Sandpi.		Eastern Kingbird	1	Blue-winged Warbler		Blue Grosbeak	2
Green-winged Teal		Pectoral Sandpiper		SHRIKES		Golden-winged Warbler		Indigo Bunting	10-20
Canvasback		Dunlin		Northern Shrike		Tennessee Warbler	3	Dickcissel	5
Redhead		Stilt Sandpiper		Loggerhead Shrike		Orange-crowned Warbler		BLACKBIRDS	
Ring-necked Duck		Short-billed Dowitcher		VIREOS		Nashville Warbler	4	Bobolink	
Great Scaup		Long-billed Dowitcher		White-eyed Vireo	2	Northern Parula	2	Red-winged Blackbird	5-10
Lesser Scaup		Wilson's Snipe		Yellow-throated Vireo	1	Yellow Warbler	1	Eastern Meadowlark	2
White-winged Scoter		American Woodcock		Bell's Vireo	1	Chestnut-sided Warbler	1	Yellow-headed Blackbird	
Black Scoter		Wilson's Phalarope		Blue-headed Vireo		Magnolia Warbler		Rusty Blackbird	
Long-tailed Duck		Red-necked Phalarope		Warbling Vireo	2	Yellow-rumped Warbler	2	Common Grackle	FO 1
Bufflehead		GULLS		Philadelphia Vireo		Cape May Warbler		Brown-headed Cowbird	5-10
Common Goldeneye		Franklin's Gull		Red-eyed Vireo	10-20	Black-thro. Blue Warbler		Orchard Oriole	1
Hooded Merganser		Bonaparte's Gull		CROWS, JAYS		Blackburnian Warbler	2	Baltimore Oriole	4
Common Merganser		Ring-billed Gull		Blue Jay	3	Black-thr Green Warbler		FINCHES	
Red-breasted Merg		Herring Gull		American Crow	FO 2	Yellow-throated Warbler	1	Purple Finch	
Ruddy Duck		Caspian Tern		LARKS		Pine Warbler		House Finch	
HAWKS		Common Tern		Horned Lark		Prairie Warbler		Red Crossbill	
Osprey		Forster's Tern		SWALLOWS		Palm Warbler		White-winged Crossbill	
Bald Eagle		Black Tern		Purple Martin		Bay-breasted Warbler	1	Pine Siskin	
Northern Harrier		DOVES		Tree Swallow		Blackpoll Warbler	5-10	American Goldfinch	5-10
Sharp-shinned Hawk		Rock Pigeon		N. Rough-winged Swallow	1	Cerulean Warbler	1	Evening Grosbeak	
Coopers Hawk		Mourning Dove	2	Bank Swallow		Black-&-white Warbler	1	WEAVER FINCHES	
Northern Goshawk		CUCKOOS		Cliff Swallow		American Redstart	1	House Sparrow	

Beaufort Wind Scale

82 species

Wind Speed (mph)	Description	Visible Condition
0	Calm	Smoke rises vertically
1-3	Light Air	Direction of wind shown by smoke but not by wind vanes
4-7	Light Breeze	Wind felt on face; leaves rustle; ordinary wind vane moved by wind
8-12	Gentle Breeze	Leaves and small twigs in constant motion; wind extends light flag
13-18	Moderate Breeze	Raises dust and loose paper; small branches are moved
19-24	Fresh Breeze	Small trees in leaf begin to sway; crested wavelets form on inland water
25-31	Strong Breeze	Large branches in motion; telephone wires whistle; umbrellas used with difficulty
32-38	Moderate Gale	Whole trees in motion; inconvenience in walking against wind
39-46	Fresh Gale	Breaks twigs off trees; generally impedes progress

Additional sightings/Comments:

New Birds: Cerulean warbler - 1♂ - singing in oak (Quercus sp.) next to 300 W near northern-most bridge (across from Snoopy's nose near the oxbow). Only heard at 5³⁰am, not relocated.

Most likely this is a migrant and not a breeding resident.

Wilson's warbler - seen in the same area as the Cerulean warbler at 7⁴⁵am. (Cerulean not present at this time.)

Killdeer - 4 adults, 4 young - in the field North of Snoopy's nose.

Also birded from 7⁰⁰ - 9¹⁵ - no whip-poor-wills. 1 Barred Owl calling.



BIRD SURVEY DATA SHEET

Project Number: Pesi 112-04 Project Name: I-69 Segment 2 - Bird Surveys Date: 11 May 2005 Page 1 of 2

Site #: _____ Site Name: Patoka bottoms State/County: IN / Pike, Gibson

Time: 5:00-11:00am Temp: _____ Wind: 0 Cloud Cover: 0 % Biologists: J. JASKULA, T. CEDERONE

GPS: Northing: 4248324 Easting: 470459 Zone: 16S

Comments: _____

75 species

LOONS	Red-shouldered Hawk	Black-billed Cuckoo	Barn Swallow	Prothonotary Warbler	3
Red-throated Loon	Broad-winged Hawk	Yellow-billed Cuckoo	2 CHICKADEES	Worm-eating Warbler	
Common Loon	Red-tailed Hawk	OWLS	Black-capped Chickadee	Ovenbird	
GREBES	Rough-legged Hawk	Barn Owl	Carolina Chickadee	2 Northern Waterthrush	1
Pied-billed Grebe	FALCONS	Eastern Screech Owl	Tufted Titmouse	3 Louisiana Waterthrush	
Horned Grebe	American Kestrel	Great Horned Owl	NUTHATCHES	Kentucky Warbler	1
Red-necked Grebe	Merlin	Snowy Owl	Red-breasted Nuthatch	Connecticut Warbler	
Eared Grebe	Peregrin Falcon	Barred Owl	White-breasted Nuthatch	1 Mourning Warbler	
CORMORANTS	TURKEYS, ETC	Long-eared Owl	CREEPERS	Common Yellowthroat	5-10
Double-crested Cormorant	Ring-necked Pheasant	Short-eared Owl	Brown Creeper	Hooded Warbler	
HERONS	Wild Turkey	Northern Saw-whet Owl	WRENS	Wilson's Warbler	
American Bittern	Northern Bobwhite	2 GOATSUCKERS	Carolina Wren	4 Canada Warbler	
Least Bittern	RAILS	Common Nighthawk	House Wren	Yellow-bre Chat	3
Great Blue Heron	1 Virginia Rail	Chuck-will's-widow	Winter Wren	TANAGERS	
Great Egret	Sora	Whip-poor-will	Sedge Wren	Summer Tanager	1
Snowy Egret	Purple Gallinule	SWIFTS	Marsh Wren	Scarlet Tanager	
Cattle Egret	Common Moorhen	Chimney Swift	FO 4 KINGLETS	SPARROWS	
Little Blue Heron	American Coot	HUMMERS	Golden-crowned Kinglet	Eastern Towhee	
Green Heron	CRANES	Ruby-throated Hummer	1 Ruby-crowned Kinglet	Am. Tree Sparrow	
Black-crowned Night Heron	Sandhill Crane	KINGFISHERS	GNATCATCHERS	Chipping Sparrow	
Yellow-crowned Night Heron	PLOVERS	Belted Kingfisher	1 Blue-gray Gnatcatcher	5-10 Field Sparrow	2
VULTURES	Black-bellied Plover	WOODPECKERS	THRUSHES	Vesper Sparrow	
Black Vulture	American Golden Plover	Red-headed Woodpecker	Eastern Bluebird	Savannah Sparrow	
Turkey Vulture	2 Semipalmated Plover	Red-bellied Woodpecker	2 Veery	1 Grasshopper Sparrow	3
GEESE, DUCKS	Piping Plover	Yellow-bellied Sapsucker	Gray-cheeked Thrush	1 Henslow's Sparrow	
G. White-fronted Goose	Killdeer	4 Downy Woodpecker	1 Swainson's Thrush	5-10 Nelson's Sh-t Sparrow	
Snow Goose	SANDPIPERS	Hairy Woodpecker	Hermit Thrush	Fox Sparrow	
Canada Goose	FO 1 Greater Yellowlegs	Northern Flicker	1 Wood Thrush	5-10 Song Sparrow	2
Mute Swan	Lesser Yellowlegs	Pileated Woodpecker	1 American Robin	5-10 Lincoln's Sparrow	
Tundra Swan	Solitary Sandpiper	FLYCATCHERS	MIMICS	Swamp Sparrow	
Trumpeter Swan	Willet	Least Flycatcher	Gray Catbird	2 White-throated Sparrow	
Wood Duck	FO 2 Spotted Sandpiper	Eastern Wood-Pewee	3 Northern Mockingbird	2 White-crowned Sparrow	
Gadwall	Upland Sandpiper	Yellow-bellied Flycatcher	Brown Thrasher	2 Dark-eyed Junco	
American Wigeon	Ruddy Turnstone	Acadian Flycatcher	1 STARLINGS	European Starling	FO 5
American Black Duck	Sanderling	Alder Flycatcher	WAXWINGS	GROSBEAKS	
Mallard	Semipalmated Sandpiper	Willow Flycatcher	Cedar Waxwing	Northern Cardinal	3
Blue-winged Teal	Western Sandpiper	Eastern Phoebe	2 WARBLERS	Rose-breasted Grosbeak	2
Northern Shoveler	Least Sandpiper	Great-crested Flycatcher	3 Blue-winged Warbler	Blue Grosbeak	1
Northern Pintail	White-rumped Sandpi.	Eastern Kingbird	3 Golden-winged Warbler	Indigo Bunting	10-20
Green-winged Teal	Pectoral Sandpiper	SHRIKES	Tennessee Warbler	3 Dickcissel	4
Canvasback	Dunlin	Northern Shrike	Orange-crowned Warbler	BLACKBIRDS	
Redhead	Stilt Sandpiper	Loggerhead Shrike	Nashville Warbler	2 Bobolink	
Ring-necked Duck	Short-billed Dowitcher	VIREOS	Northern Parula	3 Red-winged Blackbird	5-10
Great Scaup	Long-billed Dowitcher	White-eyed Vireo	2 Yellow Warbler	1 Eastern Meadowlark	2
Lesser Scaup	Wilson's Snipe	Yellow-throated Vireo	Chestnut-sided Warbler	3 Yellow-headed Blackbird	
White-winged Scoter	American Woodcock	Bell's Vireo	1 Magnolia Warbler	5-10 Rusty Blackbird	
Black Scoter	Wilson's Phalarope	Blue-headed Vireo	2 Yellow-rumped Warbler	1 Common Grackle	FO 5
Long-tailed Duck	Red-necked Phalarope	Warbling Vireo	1 Cape May Warbler	5-10 Brown-headed Cowbird	
Bufflehead	GULLS	Philadelphia Vireo	1 Black-thro. Blue Warbler	1 Orchard Oriole	1
Common Goldeneye	Franklin's Gull	Red-eyed Vireo	10 Blackburnian Warbler	2 Baltimore Oriole	3
Hooded Merganser	Bonaparte's Gull	CROWS, JAYS	Black-thr Green Warbler	1 FINCHES	
Common Merganser	Ring-billed Gull	Blue Jay	2 Yellow-throated Warbler	1 Purple Finch	
Red-breasted Merg	Herring Gull	American Crow	FO 3 Pine Warbler	House Finch	
Ruddy Duck	Caspian Tern	LARKS	Horned Lark	Prairie Warbler	Red Crossbill
HAWKS	Common Tern	SWALLOWS	Palm Warbler	White-winged Crossbill	
Osprey	Forster's Tern	Purple Martin	Bay-breasted Warbler	1 Pine Siskin	
Bald Eagle	Black Tern	Tree Swallow	Blackpoll Warbler	5-10 American Goldfinch	5-10
Northern Harrier	DOVES	N. Rough-winged Swallow	Cerulean Warbler	Evening Grosbeak	
Sharp-shinned Hawk	Rock Pigeon	Bank Swallow	1 Black-&-white Warbler	WEAVER FINCHES	
Coopers Hawk	Mourning Dove	FO 1 Cliff Swallow	American Redstart	1 House Sparrow	
Northern Goshawk	CUCKOOS				

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32-38	Moderate Gale	Whole trees in motion; inconvenience in walking against wind
39-46	Fresh Gale	Breaks twigs off trees; generally impedes progress

Additional sightings/Comments:

New species:
Magnolia warbler
Philadelphia Vireo

2 Bobwhite crossed road in northern section.