

**Final Report of Bird Inventory:  
Shiloh National Military Park, 2003-2005**

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## **Acknowledgments**

We thank Stacy Allen, Ranger and Resource Manager at SHIL, for coordinating all of BHS's visits to the park. He helped make all parts of the park accessible and visits to them productive.

Dennis Turnbo was the ranger responsible for BHS's introduction to most sites within the park, spending many hours making BHS familiar with less visited sites that included wet areas, beaver ponds, old-growth forests, and recently acquired properties not shown on maps. He also made available all the historical bird records in the park files. His love for the park and its wildlife was obvious, and he provided valuable insight about the birds and different habitats in the park. Although he retired about six months after the bird inventory began with 30 years in the NPS, the information he provided and the interest he showed were responsible for starting the bird inventory on the fast track.

Marcus Johnson returned to the park fulltime, after a stint as part-time NPS employee and full-time student, about six months after the bird inventory began. He was very enthusiastic about all the inventories in the park and accompanied BHS on most of her inventory trips there, traveling from park boundary to park boundary and entering many swamps, deep muddy areas, flooded streams, steep bluffs, and beaver ponds. His conversations with BHS covered all the techniques for collecting bird data listed in this report, all the habitats of the park, and all the management programs required to maintain healthy bird populations in the park, as well as the various methods that could be used to involve the public in bird surveys in the park and to increase public appreciation of birds in the park.

Ranger Rick Welch came to SHIL more than a year after the bird inventory began. He had already acquired an interest in birds, so he was able to provide BHS with information that assisted with the bird inventory. Since he lived in a forested area of the park and maintained bird feeders, he was able to offer information that led to more complete knowledge of the seed-eating birds using the park. He also assisted with some of the night surveys BHS conducted. His interest and bird records were much appreciated.

The entire Maintenance Department at SHIL was helpful, informative, and friendly during the two years of the bird inventory, and all its members are to be especially thanked for maintaining all of the park's gated dirt roads in drivable condition so that the various bird surveys could be conducted in a timely manner.

Tom Diggs materially assisted the success of the bird inventory by flagging the sites of many plots used for point counts.

Special acknowledgment goes to all persons who shared historical bird records in the park. The Memphis Chapter of the Tennessee Ornithological Society made 57 field trips to SHIL between 1933 and 1997 (M. Waldron letter to K. Higgins, NPS, 8 July 1997). Waldron also prepared a park checklist based on that data. Ben Coffey, Jr., park ranger James W. Howell, and resource management specialist Dean Berg also prepared earlier checklists. R. Ford and D. Simbeck contributed records as well. These data provided a broad view of the birdlife in the park because some of the birds breeding in the park in earlier decades are no longer present in the park or in nearby areas.

We are greatly indebted to the staff of the Center for the Management, Utilization, and Protection of Water Resources at Tennessee Technological University for high quality management of the fiscal paperwork associated with this bird inventory. Director Dennis George, Sandra Pigg, Yvette Clark, Amy Knox, and especially Glenda Sharks and Mary Williford contributed much to our success.

Finally, we are especially grateful to Teresa Leibfreid, Inventory and Monitoring Coordinator for the Cumberland Piedmont Network of the NPS, for her dedication and support throughout the duration of this bird inventory.

# **Final Report of Bird Inventory: Shiloh National Military Park, 2003-2005**

## **Introduction**

Shiloh National Military Park (SHIL ) is located in Hardin County, Tennessee, on the western shore of the Tennessee River about 16 km (10 mi) downriver from the town of Savannah. Established in 1894 to commemorate one of the bloodiest battles of the Civil War, SHIL is about 166 km (110 mi) east of Memphis, Tennessee, and 35 km (22 mi) north of Corinth, Mississippi. Featuring over 600 monuments and iron troop markers, as well as 217 Civil War cannons, SHIL is also one of the best documented of all the Civil War battlefields because a gathering of all possible veterans of the action took place just five years following the battles there with many of the nation's foremost historians and surveyors in attendance to record for posterity the events of those fateful days in early April 1862 and their precise locations. Besides preserving the sites of battles, SHIL is also the site of a national cemetery, still active to this day; the remains of many of the battle's 23,746 casualties are buried in the cemetery. Another important feature of this park service unit is Shiloh Indian Mounds National Historic Landmark, located on bluffs overlooking the Tennessee River. Preserving six platform mounds, this site is the finest surviving Mississippian mound-builder village in the Tennessee Valley. The culture represented at this site peaked about A.D. 1200. The purpose of this study was 1) to inventory the

bird species occurring at SHIL; and 2) to indicate the status and relative seasonal abundance of documented species.

### **Description of Study Site**

In 2003 SHIL encompassed 1629 hectares (4025 acres), but the park has increased in size somewhat since that year as a result of land purchases in the northeastern and southeastern sectors of the park. For a park of moderate size SHIL harbors a diverse array of habitats.

Elevation in the park ranges from about 120 m (400 ft) at the Tennessee River shoreline to almost 180 m (600 ft) on the higher bluffs and in the adjacent uplands. Above the floodplains along the Tennessee River, some quite steep hills and drop-offs are present.

The surface layer of soil in the park is thin except in the floodplains. The bluffs consist of terrace soils, mainly Savannah silt loam type. Small streams in the park are gravel-bottomed, and there are many dry, steep gullies; undergrowth along the streams and gullies is often quite dense.

The eastern border of the park is the Tennessee River, a fairly large waterway used extensively for water-borne transportation; besides the occasional paddle-wheeler and many recreational fishing boats, commercial barge traffic on the river can be almost constant at times. Pickwick Dam, located upriver near Savannah, is a hydro-electric facility; when generating power, the dam release large amounts of water that can alter the level of the river 1.5-2 m (4.5-6.4 ft) and cause water to back up through Brown's Landing into the floodplain within the park just south of the Indian Mounds and roughly 3 km (1.5

mi) from the northeastern boundary. Most of the remaining part of the park that borders the river is located on high bluffs including, from north to south, a mature forest, the national cemetery, River Drive, and a former agricultural area that now features several large beaver ponds and a riparian forest. These beaver ponds are well established and increasing. Paralleling the Tennessee River and maintaining a stable water level throughout the year, they host the largest variety of birds and amphibians in the park. Besides providing nesting habitat for some unusual birds in the park, they are extremely attractive to a broad range of migrant birds during spring and fall, as well as waterfowl during winter.

The northeastern sector of SHIL is the most “park-like” part of the park with large trees and many mowed areas; this area is also where most of the developed sites within the park are located. The grounds of the Visitor Center and its parking area are good for finding birds. A large maintenance complex, old residential areas for park employees, the national cemetery, and Pittsburgh Landing are all located a short distance from one another in this part of the park.

In the northwestern sector of the park, the Owl Creek bottomlands encompass a large floodplain that contains several large beaver ponds, and in the extreme northwestern corner of the park a large sod farm operation lies along the park boundary. Along the Hamburg-Savannah Rd. (a jeep trail) is an old-growth forest where stands of very large oaks grow in a floodplain. Record rainfall events during the inventory, combined with high winds, blew over about 20% of these oaks. Trees growing in usually wet and often flooded bottomlands

near a large picnic area west of Rt. 22 include many black tupelos, water tupelos, and willows; various wetland grasses are also present.

The southwestern area of the park north of Rt. 142 borders another large sod farm operation and some smaller farms. The extreme southwestern area borders rural housing areas and small farms. This part of the park has extensive woodlands including a heavy mix of pines.

Besides bottomlands associated with Owl Creek, Glover Branch, Dill Branch, and three streams that converge at Brown's Landing, there are several scattered locations in the park where bowl-like depressions hold water for long periods of time and create fair-sized wet areas in the forest. One such area with a spring creates Bloody Pond, which is shallow and tree surrounded. Another such area is Water Oaks Ponds, also possessing a spring; it lies in a semi-open area and has wetland vegetation that is mowed regularly when it is dry. Both of these "ponds" are located in the central area of the park. However, most of the central area is dry upland wooded habitat characterized by hickories, red and black oak, and occasional cedars and pines. Indeed 65% of the park is now wooded, as it was at the time of the Battle of Shiloh; the remainder is open and includes about 200 hectares (500 acres) maintained in mowed grass. One leased field along East Corinth Rd. was cultivated in millet and winter wheat during the inventory. These crops were harvested and completely removed by the lessee. The park also maintains two small peach orchards near Corinth for historical purposes. Near Corinth Rd. and Reconnoitering Rd. there is a large field that is mowed less than most of the fields; containing a mix of native

grasses, this field was one of the most productive for field-obligate species of birds.

Several small but productive shrub-scrub sites were found. The largest was near the leased field. Perhaps because it had almost outgrown the shrub-scrub stage, it was used less by birds at the end of the inventory period than it was near the beginning of the inventory.

Bottomland water oaks and hackberry are well represented in the park and are an important food resource for birds. The park contains very little herbaceous growth; poison ivy, grapevines, and green-briar dominate as ground cover in the forests. The Owl Creek bottomlands have native grasses, willows, and small trees, and more mature trees occur along their edges. Cane is starting to dominate some of the riparian forest near the Tennessee River; in general, that area has the greatest variety of herbaceous plant-life in the park.

### **Methods--Bird Inventory Techniques**

Point counts were the most regimented method of collecting bird data at this NPS unit. Fifteen point counts were conducted during late May in each of two years, 2003 and 2004. The protocol for these counts entailed standing at the center of a 100-meter diameter plot and counting all birds heard and seen for 10 minutes; birds were recorded as occurring at one of four distance intervals (< 25 m; 25-50 m; 50-100 m; and >100 m) or as flyovers; birds were also recorded as occurring within one of three temporal intervals (0-3 min; 3-5 min; 5-10 min) (Hamel 1992; Hamel et al. 1996). Any birds flushed during approach to the plot center were included among the birds recorded at the point. Birds believed to

have been already counted at a one point were not counted if detected at an adjacent point. All birds seen or heard were recorded on a special point count data form. All point count data are provided in a supplemental Excel file included with this report.

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

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

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

The fifth and last method of obtaining bird data at this site was the general inventory, involving less regimented efforts to visit many promising sites within this NPS unit during the course of a day and to keep track of all species sighted. During the breeding period for birds, which includes most of the spring and summer, the general inventory included efforts to detect breeding evidence of for all species breeding in the unit. A special effort was made to scan the Tennessee River at dawn and dusk, as well as more often on days following frontal passages. Additionally, hawk watches were conducted during spring and fall from the bluff near Dill Branch; this was also a site from which to scan during early fall for nighthawks. All species seen or heard and all breeding evidence observed were recorded on a standard field card.

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

## **Results**

### **Expected Species List**

There being no bird list available for a site close to SHIL, we chose to adopt the bird list for the Nashville Area, located about 140 km (90 mi) northeast of SHIL, as the expected species list for the park. The bird list for the Nashville Area, resulting from eight decades of field work in Davidson County and eight surrounding counties, includes 315 species (see the following website for the list, updating Parmer et al.[1985]:

<http://www.mindspring.com/~tnwarbler/NTOS/Species%20Accounts.htm>). Since Nashville lies within the Central Basin of Tennessee and is situated next to a major waterway, the Cumberland River, many of its physiographic characteristics are similar to those found at SHIL along the Tennessee River.

### **Total Species Inventoried**

During the inventory period, Barbara Stedman made visits to the unit on a total of 53 days during all seasons from summer 2003 to summer 2005 (13 days during spring; 12 during summer; 16 during fall; and 12 during winter). In the course of these visits she observed 187 species (Appendix A: Table 1) by one or more of the methods described above; an additional 17 species have been recorded historically in the park, bringing the total park list of birds to 204 species (Appendix A: Table 1). The total of 187 species detected during the two-year inventory represents 59% of the 315 species that might be expected to occur at the site.

Some negative factors that kept the number of species detected by BHS during the inventory from being greater are noted below.

- During spring and early summer of each year of the inventory above normal rainfall was experienced, resulting in flood conditions in many areas of the park. See “Influence of Weather” below.
- Lack of sizable shrub-scrub habitat and the mowing of fields to keep the grass very short limited the presence of some grassland species in all seasons.

- Lack of any mudflats for shorebird habitat except in a few small areas prevented more species in this group from being detected.
- Loud traffic on some roads in the park, especially Rt. 22, much of each day limited the ability to hear birdsong for considerable distances on either side of the road in those areas.
- Duck hunting outside the park and its attendant gunfire affected many species of birds inside the park that were near hunting areas, such as the Owl Creek bottomlands; the sound of gunfire caused many species, including raptors, to take flight when it occurred; if it occurred enough, these species abandoned roosts near affected areas.
- Loud boat traffic on the Tennessee River disturbed roosting raptors along the park's bluffs, ducks foraging or roosting on nearby beaver ponds, or even songbirds, which stopped singing when such disturbances were nearby.

### **Breeding Species Inventoried**

Evidence of breeding by species using the unit was divided into three categories: possible evidence; probable evidence; and confirmed evidence. In all, 85 species (Appendix A: Table 1) were placed in one of these categories, including 5 (6%) possible breeders, 26 (30%) probable breeders, and 54 (64%) confirmed breeders.

Point counts were conducted during the breeding period of many species. A total of 67 species was registered during point counts conducted during 2003,

while 65 species were detected during point counts conducted in 2004. In all, point count effort led to data for 70 species of birds (Appendix A: Table 2), all of which use SHIL during the breeding season. Data from the point counts are provided in a supplemental Excel file submitted in conjunction with this report.

### **Species Composition of the Unit**

Generally speaking, the larger and more diverse in habitat a site is, the larger the number of bird species that will be found in it. This rule of thumb was thoroughly borne out by the data obtained during this survey; i.e., SHIL is a moderately large park with diverse habitats, and its bird list is correspondingly large and diverse.

## **Discussion**

### **Comparative Effectiveness of Survey Techniques**

Each of the five survey techniques used for this inventory was effective for its purpose, but in terms of generating the largest number of species per unit of time expended, the general inventory was probably the most effective, followed by the migration walk and the point count (for breeding species only). Due to their restricted emphasis, night surveys and raptor surveys generated fewer species per unit of time expended, but the quality of the species detected by these methods was high.

### **Influence of Weather on Results**

An effort was made to visit STRI during periods when the weather was conducive for registering the maximum number of species during general

inventory work, migration walks, point counts, night surveys, and raptor surveys, so the influence of weather on the results of the overall inventory was generally positive.

During spring migration period of the first year of the bird inventory, flooding and high wind conditions resulted in the downing of many trees in areas which harbor large numbers of songbirds; the downed trees prevented access to these sites, probably depressing the number of species detected in the park. During the second spring of the inventory, wet conditions again prevailed but access to birding sites was not prevented by downed trees, and the wet conditions probably caused many migrants to land and stay a few days, perhaps increasing the number of species detected in the park.

Each summer of the inventory began with very wet conditions; the first summer in particular had so much flooding that many bottomland nesters could well have had to nest outside the park, or they may have started nesting later in the season when water receded, but also after the point counts were conducted.

Temperatures during both winters of the inventory were slightly above average; there was very little snow and little or no invasion of winter finches such as Pine Siskins, field birds such as Horned Larks and longspurs, or irruptive raptors such as Rough-legged Hawk.

During the second winter of the inventory a major failure of the mast crop was experienced in the region around SHIL; most oaks and hickories failed to produce nuts perhaps as a result of the excessive flooding earlier in the year. However, in SHIL many of the older oaks and mast-producing trees still managed

to produce a good crop, causing many (175+) Red-headed Woodpeckers and other woodpeckers to winter there. Wood Ducks were in good numbers in the beaver ponds as well.

Frontal passages during from late fall through winter into spring sometimes caused impressive migrations of water-related birds to occur along the Tennessee River.

The early and middle part of the fall migration each year lacked really strong cold fronts. The lack of such fronts in combination with a plentiful supply of food resources in SHIL each fall caused many migrants of many species to linger in the park, taking a respite from their travels and gaining body fat. Such gatherings of migrants were especially noteworthy in the forests along the Tennessee River.

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

Overall results of the inventory were quite good, as was expected, but the initial expectation regarding numbers and diversity of grassland species fell well short. Numbers of raptor species and overall numbers of raptors were low in all seasons, but especially for raptors depending on grasslands for food resources. The following park policies account in large measure for the low number of grassland species at SHIL:

- mowing often and very close to the ground dramatically decreases grassland bird species in the park;
- using commercial lawn-type grasses, rather than native species, is also detrimental to grassland birds;
- mowing in wetland areas whenever they are dry enough to be mowed also inhibits use of these areas by grassland species during dry periods;
- mowing right up to the forest edge without leaving a buffer zone of tall grass and shrubs to provide food and cover further diminishes the presence of grassland and shrub-scrub species such as quail, sparrows, and meadowlarks.

The Grasshopper Sparrow is a grassland species especially expected to occur in some numbers at SHIL, but there were few records except from areas where no park mowers operated. Shrub-scrub species such as Prairie Warbler and Field Sparrow were also detected in low numbers, mainly because shrub-scrub habitat is also limited in extent in the park. Wintering species that use grassland and shrub-scrub habitats were also limited in the park. Vultures, harriers, kestrels, Peregrine Falcons, and shrikes were also

detected in low numbers, another indication of the depressing effect of the park's grassland practices.

### **Unexpected Results**

The density of birds breeding in the old-growth area of the park was much greater than expected.

The Owl Creek bottomlands were much more productive as habitat for migrant and breeding birds than expected. For instance, a singing Le Conte's Sparrow was noted in this area, as well as a singing Connecticut Warbler, both rarities when found in Tennessee, especially the former. Other rare migrants found in this area were American and Least bitterns, the former in the beaver ponds in the extreme southeastern part of the park. Breeding birds found within this area included Green Heron, Willow Flycatcher, White-eyed Vireo, Prothonotary Warbler, Common Yellowthroat, and Yellow-breasted Chat.

Beaver ponds were not expected as part of the park ecosystem at SHIL; they have been present in the park only a short time, but they are increasing in size and being colonized by wetland vegetation. Many species of wetland birds could become breeders in the park if these ponds are allowed to continue as part of the park ecosystem.

A pair of Bald Eagles has nested for years about 1.6 km (1 mi) downriver from the park, but it was unexpected to find during summer 2004 that another pair was building a nest directly across the river from the park; this pair collected nest material in the park and hunted regularly in the southeastern border of the park, so it was part of their territory.

Perhaps not too unexpected was the sighting of a Eurasian Collared-Dove at the national cemetery (and at other areas near the park); this exotic dove is increasing throughout west Tennessee along the Mississippi River, so it should undergo the same kind of expansion along the Tennessee River.

Quite unexpected on 17 September 2003 was the observation of a singing Bell's Vireo. Prior to 1997 (Nicholson 1997) there were only a half dozen Tennessee records of this species, which is considered a rare breeder in the state.

The number of Prothonotary Warblers nesting in the park was much higher than expected.

One Swainson's Warbler, a species of special concern, was somewhat unexpectedly located in a canebrake in the extreme southeastern section of the park. This species is rare in the south-central part of Tennessee (Nicholson 1997). Monitoring of this area in the future may establish the species as more regular there than was thought to be the case.

### **Birds Not Found**

Some species of warblers, including Blue-winged, Black-and-white, Cerulean, and Worm-eating, were either absent or in low numbers. In particular, Cerulean Warblers were deemed unusual absentees because habitat for their breeding appears to be present in the park.

Bewick's Wren has been found breeding historically in the park, but it was not found during the inventory despite diligent searches. The species likes to nest in cluttered areas, such as log debris piles; few such sites are present in the

park. Should this wren ever reappear as a nester in the park, great care to prevent disturbing the birds should be exercised.

### **Recommendations for Management and Protection of Significant Habitats**

- Revise the mowing regime in the park to be more bird and wildlife friendly;
- Avoid mowing wetlands sites down to short grass (mow infrequently and leave the grass at least 6 inches high after mowing; in particular, the wetland grasses around Water Oak Pond should be maintained with as little mowing as possible);
- Create grassland and shrub-scrub buffer zones between grassland and forested areas, making these 15 m (50 ft) wide where possible; such areas can be bush-hogged once per year in late July to maintain a height of 1-1.5 m;
- Leave a 15 m (50 ft) corridor of unharvested crops around any field that is planted with millet or wheat;
- Create more shrub-scrub habitat maintained at 2-3 m (7-10 ft) height; this is a productive habitat used by many species;
- Create more native grass fields like the one on Reconnoitering Rd.;
- Allow log debris piles that result from field clearing operations to rot naturally, encouraging many species to use them for foraging and nesting sites, especially Bewick's Wrens.

### **Suitability of Habitat for Persistence of Sensitive Species**

Currently, the many beaver ponds in the park are being maintained by the beavers; as long as these beaver ponds are allowed to exist, they will host a

variety of wetland birds of conservation concern. Disturbance to these ponds will result in loss of such species.

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## Appendix A

**Table 1.** Species, status, and seasonal abundance of birds observed at Shiloh National Military Park. \* = possible breeding evidence noted; \*\* = probable breeding evidence noted; \*\*\* = confirmed breeding evidence noted. Key to abbreviations: PR = permanent resident; SR = summer resident; TR = transient; VR = visitor; WR = winter resident; C = common; FC = fairly common; U = uncommon; VU = very uncommon; R = rare. Seventeen species are listed as a result of historical fieldwork; the common names of these species are in **blue CAPS**; status and seasonal codes for these species are also in **blue**. Status and seasonal codes that result from historical information for other species are in **blue** and are also underlined.

|       | Common Name         | Scientific Name              | Status | Sp | Su | Fa | Wi |
|-------|---------------------|------------------------------|--------|----|----|----|----|
| _____ | Snow Goose          | <i>Chen caerulescens</i>     | WR     |    |    | VU | VU |
| _____ | Canada Goose        | <i>Branta canadensis</i>     | WR     |    |    | U  | U  |
| _____ | Wood Duck ***       | <i>Aix sponsa</i>            | PR     | U  | U  | U  | U  |
| _____ | Gadwall             | <i>Anas strepera</i>         | WR     | VU |    |    |    |
| _____ | American Wigeon     | <i>Anas americana</i>        | WR     | VU |    |    |    |
| _____ | American Black Duck | <i>Anas rubripes</i>         | WR     |    |    | VU | VU |
| _____ | Mallard *           | <i>Anas platyrhynchos</i>    | WR     | U  | R  | VU | U  |
| _____ | Blue-winged Teal    | <i>Anas discors</i>          | TR     | VU | R  | VU |    |
| _____ | Northern Shoveler   | <i>Anas clypeata</i>         | WR     | VU |    |    | VU |
| _____ | Green-winged Teal   | <i>Anas crecca</i>           | WR     |    |    |    | VU |
| _____ | CANVASBACK          | <i>Aythya valisineria</i>    | WR     | VU |    | VU | VU |
| _____ | Redhead             | <i>Aythya americana</i>      | WR     | VU |    |    |    |
| _____ | Ring-necked Duck    | <i>Aythya collaris</i>       | WR     |    |    | VU |    |
| _____ | Common Goldeneye    | <i>Bucephalus clangula</i>   | WR     |    |    |    | VU |
| _____ | Hooded Merganser    | <i>Lophodytes cucullatus</i> | WR     | VU |    |    | U  |
| _____ | Wild Turkey ***     | <i>Meleagris gallopavo</i>   | PR     | C  | A  | A  | C  |
| _____ | Northern Bobwhite * | <i>Colinus virginianus</i>   | PR     | U  | U  | U  |    |

|       |                                  |                                 |    |           |          |           |          |
|-------|----------------------------------|---------------------------------|----|-----------|----------|-----------|----------|
| _____ | <b>Common Loon</b>               | <i>Gavia immer</i>              | TR | <u>R</u>  |          | R         | <u>R</u> |
| _____ | <b>Pied-billed Grebe</b>         | <i>Podilymbus podiceps</i>      | WR | VU        |          |           |          |
| _____ | <b>HORNED GREBE</b>              | <i>Podiceps auritus</i>         | TR | R         |          | R         | R        |
| _____ | <b>Double-crested Cormorant</b>  | <i>Phalacrocorax auritus</i>    | TR | VU        | VU       | U         | U        |
| _____ | <b>American Bittern</b>          | <i>Botaurus lentiginosus</i>    | TR | R         |          | <u>R</u>  |          |
| _____ | <b>Least Bittern</b>             | <i>Ixobrychus exilis</i>        | UN |           | R        |           |          |
| _____ | <b>Great Blue Heron ***</b>      | <i>Ardea herodias</i>           | PR | U         | U        | U         | U        |
| _____ | <b>Great Egret</b>               | <i>Ardea alba</i>               | VR | U         | <u>R</u> | U         |          |
| _____ | <b>Snowy Egret</b>               | <i>Egretta thula</i>            | TR | VU        | <u>R</u> | <u>VU</u> |          |
| _____ | <b>Little Blue Heron</b>         | <i>Egretta caerulea</i>         | TR | VU        |          |           |          |
| _____ | <b>Green Heron **</b>            | <i>Butorides virescens</i>      | SR | U         | U        | U         |          |
| _____ | <b>Black-crowned Night-Heron</b> | <i>Nycticorax nycticorax</i>    | WR |           |          |           | VU       |
| _____ | <b>Black Vulture</b>             | <i>Coragyps atratus</i>         | PR | VU        |          | U         | U        |
| _____ | <b>Turkey Vulture ***</b>        | <i>Cathartes aura</i>           | PR | U         | U        | U         | U        |
| _____ | <b>Osprey</b>                    | <i>Pandion haliaetus</i>        | TR | VU        |          | <u>R</u>  |          |
| _____ | <b>Bald Eagle</b>                | <i>Haliaeetus leucocephalus</i> | PR | U         | VU       | U         | U        |
| _____ | <b>Northern Harrier</b>          | <i>Circus cyaneus</i>           | WR | <u>VU</u> |          | <u>VU</u> | VU       |
| _____ | <b>Sharp-shinned Hawk</b>        | <i>Accipiter striatus</i>       | WR | VU        |          | U         | U        |
| _____ | <b>Cooper's Hawk</b>             | <i>Accipiter cooperi</i>        | UN | VU        | <u>R</u> | U         | VU       |
| _____ | <b>Red-shouldered Hawk ***</b>   | <i>Buteo lineatus</i>           | PR | U         | U        | U         | U        |
| _____ | <b>Broad-winged Hawk **</b>      | <i>Buteo platypterus</i>        | SR | U         | U        | U         |          |
| _____ | <b>Red-tailed Hawk ***</b>       | <i>Buteo jamaicensis</i>        | PR | U         | U        | U         | U        |
| _____ | <b>American Kestrel</b>          | <i>Falco sparverius</i>         | TR | <u>U</u>  | <u>U</u> | R         | <u>U</u> |
| _____ | <b>American Coot</b>             | <i>Fulica americana</i>         | TR |           |          | VU        |          |
| _____ | <b>American Golden-Plover</b>    | <i>Pluvialis dominica</i>       | TR | VU        |          |           |          |
| _____ | <b>SEMIPALMATED PLOVER</b>       | <i>Charadrius semipalmatus</i>  | TR | VU        |          | VU        |          |
| _____ | <b>Killdeer **</b>               | <i>Charadrius vociferus</i>     | PR | U         | U        | U         | U        |
| _____ | <b>SPOTTED SANDPIPER</b>         | <i>Actitis macularius</i>       | TR | R         |          | R         |          |
| _____ | <b>Solitary Sandpiper</b>        | <i>Tringa solitaria</i>         | TR | R         |          | R         |          |

|       |                                    |                                   |    |           |    |   |           |    |
|-------|------------------------------------|-----------------------------------|----|-----------|----|---|-----------|----|
| _____ | <b>Lesser Yellowlegs</b>           | <i>Tringa flavipes</i>            | TR |           |    |   | R         |    |
| _____ | <b>Pectoral Sandpiper</b>          | <i>Calidris melanotos</i>         | TR | VU        |    |   |           |    |
| _____ | <b>Wilson's Snipe</b>              | <i>Gallinago delicata</i>         | TR | U         |    |   |           | U  |
| _____ | <b>American Woodcock</b>           | <i>Scolopax minor</i>             | TR | VU        |    |   | R         | VU |
| _____ | <b>Bonaparte's Gull</b>            | <i>Larus philadelphia</i>         | WR | <u>U</u>  |    |   | <u>U</u>  | U  |
| _____ | <b>Ring-billed Gull</b>            | <i>Larus delawarensis</i>         | WR | FC        |    |   | <u>U</u>  | FC |
| _____ | <b>Herring Gull</b>                | <i>Larus argentatus</i>           | WR | <u>VU</u> |    |   | U         | U  |
| _____ | <b>Caspian Tern</b>                | <i>Hydroprogne caspia</i>         | TR | VU        |    |   |           |    |
| _____ | <b>Black Tern</b>                  | <i>Chlidonias niger</i>           | TR |           |    |   | R         |    |
| _____ | <b>COMMON TERN</b>                 | <i>Sterna hirundo</i>             | TR | R         |    |   | R         |    |
| _____ | <b>Forster's Tern</b>              | <i>Sterna forsteri</i>            | TR | VU        |    |   | <u>VU</u> |    |
| _____ | <b>Rock Pigeon</b>                 | <i>Columba livia</i>              | PR | VU        | VU |   | VU        | VU |
| _____ | <b>Eurasian Collared-Dove</b>      | <i>Streptopelia decaocto</i>      | VR |           |    | R |           |    |
| _____ | <b>Mourning Dove **</b>            | <i>Zenaida macroura</i>           | PR | C         | A  |   | A         | C  |
| _____ | <b>Yellow-billed Cuckoo ***</b>    | <i>Coccyzus americanus</i>        | SR | U         | FC |   | FC        |    |
| _____ | <b>Black-billed Cuckoo</b>         | <i>Coccyzus erythrophthalmus</i>  | TR | R         |    |   | R         |    |
| _____ | <b>Barn Owl</b>                    | <i>Tyto alba</i>                  | PR |           |    |   | R         |    |
| _____ | <b>Eastern Screech-Owl **</b>      | <i>Otus asio</i>                  | PR | U         | U  |   | U         | U  |
| _____ | <b>Great Horned Owl ***</b>        | <i>Bubo virginianus</i>           | PR | U         | U  |   | U         | U  |
| _____ | <b>Barred Owl ***</b>              | <i>Strix varia</i>                | PR | U         | U  |   | U         | U  |
| _____ | <b>Common Nighthawk</b>            | <i>Chordeiles minor</i>           | TR | R         |    |   | VU        |    |
| _____ | <b>Chuck-will's-widow ***</b>      | <i>Caprimulgus carolinensis</i>   | SR | FC        | FC |   | <u>U</u>  |    |
| _____ | <b>Whip-poor-will **</b>           | <i>Caprimulgus vociferus</i>      | SR | U         | VU |   | VU        |    |
| _____ | <b>Chimney Swift ***</b>           | <i>Chaetura pelagica</i>          | SR | U         | U  |   | U         |    |
| _____ | <b>Ruby-throat. Hummingbird **</b> | <i>Archilochus colubris</i>       | SR | U         | U  |   | FC        |    |
| _____ | <b>Belted Kingfisher **</b>        | <i>Ceryle alcyon</i>              | PR | U         | U  |   | U         | U  |
| _____ | <b>Red-headed Woodpecker ***</b>   | <i>Melanerpes erythrocephalus</i> | PR | U         | U  |   | U         | U  |
| _____ | <b>Red-bellied Woodpecker ***</b>  | <i>Melanerpes carolinus</i>       | PR | FC        | FC |   | FC        | FC |
| _____ | <b>Yellow-bellied Sapsucker</b>    | <i>Sphyrapicus varius</i>         | WR | VU        |    |   | U         | U  |

|       |                                    |                                   |    |    |    |           |          |
|-------|------------------------------------|-----------------------------------|----|----|----|-----------|----------|
| _____ | <b>Downy Woodpecker ***</b>        | <i>Picoides pubescens</i>         | PR | FC | U  | FC        | FC       |
| _____ | <b>Hairy Woodpecker ***</b>        | <i>Picoides villosus</i>          | PR | U  | U  | U         | U        |
| _____ | <b>Northern Flicker ***</b>        | <i>Colaptes auratus</i>           | PR | U  | U  | FC        | U        |
| _____ | <b>Pileated Woodpecker ***</b>     | <i>Dryocopus pileatus</i>         | PR | FC | U  | FC        | FC       |
| _____ | <b>OLIVE-SIDED FLYCATCHER</b>      | <i>Contopus cooperi</i>           | TR |    | R  |           |          |
| _____ | <b>Eastern Wood-Pewee ***</b>      | <i>Contopus virens</i>            | SR | FC | FC | FC        |          |
| _____ | <b>Acadian Flycatcher ***</b>      | <i>Empidonax virescens</i>        | SR | FC | FC | U         |          |
| _____ | <b>Willow Flycatcher **</b>        | <i>Empidonax traillii</i>         | SR |    | R  |           |          |
| _____ | <b>Least Flycatcher</b>            | <i>Empidonax minimus</i>          | TR | VU |    |           |          |
| _____ | <b>Eastern Phoebe ***</b>          | <i>Sayornis phoebe</i>            | PR | FC | FC | FC        | U        |
| _____ | <b>Great Crested Flycatcher **</b> | <i>Myiarchus crinitus</i>         | SR | U  | U  | U         |          |
| _____ | <b>Eastern Kingbird **</b>         | <i>Tyrannus tyrannus</i>          | SR | U  | U  | VU        |          |
| _____ | <b>SCISSOR-TAILED FLYCATCHER</b>   | <i>Tyrannus forficatus</i>        | TR | R  | R  | R         |          |
| _____ | <b>LOGGERHEAD SHRIKE</b>           | <i>Lanius ludovicianus</i>        | PR | U  | U  | U         | U        |
| _____ | <b>White-eyed Vireo ***</b>        | <i>Vireo griseus</i>              | SR | C  | C  | C         |          |
| _____ | <b>Bell's Vireo</b>                | <i>Vireo bellii</i>               | TR |    |    | R         |          |
| _____ | <b>Yellow-throated Vireo **</b>    | <i>Vireo flavifrons</i>           | SR | FC | FC | U         |          |
| _____ | <b>Blue-headed Vireo</b>           | <i>Vireo solitarius</i>           | TR | VU |    | U         | <u>R</u> |
| _____ | <b>Warbling Vireo</b>              | <i>Vireo gilvus</i>               | TR | VU | R  | VU        |          |
| _____ | <b>Philadelphia Vireo</b>          | <i>Vireo philadelphicus</i>       | TR | R  |    | R         |          |
| _____ | <b>Red-eyed Vireo **</b>           | <i>Vireo olivaceus</i>            | SR | C  | FC | U         |          |
| _____ | <b>Blue Jay ***</b>                | <i>Cyanocitta cristata</i>        | PR | A  | A  | A         | C        |
| _____ | <b>American Crow ***</b>           | <i>Corvus brachyrhynchos</i>      | PR | A  | A  | A         | A        |
| _____ | <b>Horned Lark</b>                 | <i>Eremophila alpestris</i>       | TR | VU |    | VU        | VU       |
| _____ | <b>Purple Martin</b>               | <i>Progne subis</i>               | SR | U  | U  | <u>VU</u> |          |
| _____ | <b>Tree Swallow ***</b>            | <i>Tachycineta bicolor</i>        | SR | VU | VU | VU        |          |
| _____ | <b>N. Rough-winged Swallow **</b>  | <i>Stelgidopteryx serripennis</i> | SR | FC | U  | U         |          |
| _____ | <b>Bank Swallow</b>                | <i>Riparia riparia</i>            | TR | R  | R  | VU        |          |
| _____ | <b>Cliff Swallow</b>               | <i>Petrochelidon pyrrhonota</i>   | TR | U  | R  | U         |          |

|       |                                    |                                 |    |          |    |           |          |
|-------|------------------------------------|---------------------------------|----|----------|----|-----------|----------|
| _____ | <b>Barn Swallow ***</b>            | <i>Hirundo rustica</i>          | SR | A        | A  | A         |          |
| _____ | <b>Carolina Chickadee ***</b>      | <i>Poecile carolinensis</i>     | PR | A        | A  | A         | C        |
| _____ | <b>Tufted Titmouse ***</b>         | <i>Baeolophus bicolor</i>       | PR | A        | A  | A         | C        |
| _____ | <b>RED-BREASTED NUTHATCH</b>       | <i>Sitta canadensis</i>         | WR | R        |    | R         | R        |
| _____ | <b>White-breasted Nuthatch ***</b> | <i>Sitta carolinensis</i>       | PR | U        | FC | FC        | FC       |
| _____ | <b>Brown Creeper</b>               | <i>Certhia americana</i>        | WR | VU       |    | VU        | U        |
| _____ | <b>Carolina Wren ***</b>           | <i>Thryothorus ludovicianus</i> | PR | A        | A  | A         | C        |
| _____ | <b>BEWICK'S WREN</b>               | <i>Thryomanes bewickii</i>      | SR | R        | VU | R         | R        |
| _____ | <b>House Wren</b>                  | <i>Troglodytes aedon</i>        | TR | VU       |    | <u>U</u>  | <u>R</u> |
| _____ | <b>Winter Wren</b>                 | <i>Troglodytes troglodytes</i>  | WR | VU       |    | U         | U        |
| _____ | <b>Marsh Wren</b>                  | <i>Cistothorus palustris</i>    | TR | R        |    |           |          |
| _____ | <b>Golden-crowned Kinglet</b>      | <i>Regulus satrapa</i>          | WR | VU       |    | U         | U        |
| _____ | <b>Ruby-crowned Kinglet</b>        | <i>Regulus calendula</i>        | WR | U        |    | U         | C        |
| _____ | <b>Blue-gray Gnatcatcher ***</b>   | <i>Poliophtila caerulea</i>     | SR | A        | C  | C         |          |
| _____ | <b>Eastern Bluebird ***</b>        | <i>Sialia sialis</i>            | PR | A        | A  | A         | A        |
| _____ | <b>Veery</b>                       | <i>Catharus fuscescens</i>      | TR | VU       |    | <u>VU</u> |          |
| _____ | <b>Gray-cheeked Thrush</b>         | <i>Catharus minimus</i>         | TR | R        |    | <u>U</u>  |          |
| _____ | <b>Swainson's Thrush</b>           | <i>Catharus ustulatus</i>       | TR | U        |    | U         |          |
| _____ | <b>Hermit Thrush</b>               | <i>Catharus guttatus</i>        | WR | VU       |    | VU        | FC       |
| _____ | <b>Wood Thrush ***</b>             | <i>Hylocichla mustelina</i>     | SR | FC       | U  | U         |          |
| _____ | <b>American Robin ***</b>          | <i>Turdus migratorius</i>       | PR | A        | C  | C         | A        |
| _____ | <b>Gray Catbird **</b>             | <i>Dumetella carolinensis</i>   | SR | U        | VU | U         |          |
| _____ | <b>Northern Mockingbird ***</b>    | <i>Mimus polyglottus</i>        | PR | FC       | U  | U         | U        |
| _____ | <b>Brown Thrasher ***</b>          | <i>Toxostoma rufum</i>          | PR | FC       | FC | FC        | U        |
| _____ | <b>European Starling ***</b>       | <i>Sturnus vulgaris</i>         | PR | C        | C  | FC        | C        |
| _____ | <b>American Pipit</b>              | <i>Anthus rubsecens</i>         | TR | VU       |    |           |          |
| _____ | <b>Cedar Waxwing *</b>             | <i>Bombycilla cedrorum</i>      | PR | VU       | VU | VU        | U        |
| _____ | <b>Blue-winged Warbler</b>         | <i>Vermivora pinus</i>          | TR | VU       |    | VU        |          |
| _____ | <b>Tennessee Warbler</b>           | <i>Vermivora peregrina</i>      | TR | U        |    | U         |          |
| _____ | <b>Orange-crowned Warbler</b>      | <i>Vermivora celata</i>         | TR | <u>R</u> |    | VU        | <u>R</u> |

|       |                            |                                |    |    |           |          |          |
|-------|----------------------------|--------------------------------|----|----|-----------|----------|----------|
| _____ | Nashville Warbler          | <i>Vermivora ruficapilla</i>   | TR | R  |           |          |          |
| _____ | Northern Parula **         | <i>Parula americana</i>        | SR | U  | U         | U        |          |
| _____ | Yellow Warbler *           | <i>Dendroica petechia</i>      | SR | U  | U         | <u>R</u> |          |
| _____ | Chestnut-sided Warbler     | <i>Dendroica pensylvanica</i>  | TR | U  |           | U        |          |
| _____ | Magnolia Warbler           | <i>Dendroica magnolia</i>      | TR | U  |           | U        |          |
| _____ | Cape May Warbler           | <i>Dedroica trigrina</i>       | TR | VU |           |          |          |
| _____ | Yellow-rumped Warbler      | <i>Dendroica coronata</i>      | WR | C  |           | C        | A        |
| _____ | Black-thr. Green Warbler   | <i>Dendroica virens</i>        | TR | VU |           | U        |          |
| _____ | Blackburnian Warbler       | <i>Dendroica fusca</i>         | TR | U  |           | U        |          |
| _____ | Yellow-throated Warbler ** | <i>Dendroica dominica</i>      | SR | FC | FC        | FC       |          |
| _____ | Pine Warbler ***           | <i>Dendroica pinus</i>         | PR | FC | U         | U        | VU       |
| _____ | Prairie Warbler ***        | <i>Dendroica discolor</i>      | SR | U  | U         | U        |          |
| _____ | Palm Warbler               | <i>Dendroica palmarum</i>      | TR | U  |           | U        | <u>R</u> |
| _____ | Bay-breasted Warbler       | <i>Dendroica castanea</i>      | TR | VU |           | U        |          |
| _____ | Blackpoll Warbler          | <i>Dendroica striata</i>       | TR | VU |           |          |          |
| _____ | Cerulean Warbler           | <i>Dendroica cerulea</i>       | TR | VU | <u>VU</u> | VU       |          |
| _____ | Black-and-white Warbler    | <i>Mniotilta varia</i>         | TR | U  | <u>VU</u> | U        |          |
| _____ | American Redstart          | <i>Setophaga ruticilla</i>     | TR | U  | <u>U</u>  | U        |          |
| _____ | Prothonotary Warbler ***   | <i>Protonotaria citrea</i>     | SR | C  | FC        | U        |          |
| _____ | Worm-eating Warbler **     | <i>Helmitheros vermivorum</i>  | SR | U  | U         | U        |          |
| _____ | Swainson's Warbler **      | <i>Limnothlypis swainsonii</i> | SR | R  | R         |          |          |
| _____ | Ovenbird **                | <i>Seiurus aurocapillus</i>    | SR | U  | U         | U        |          |
| _____ | Northern Waterthrush       | <i>Seiurus novaboracensis</i>  | TR | U  |           | <u>U</u> |          |
| _____ | Louisiana Waterthrush ***  | <i>Seiurus motacilla</i>       | SR | FC | U         | U        |          |
| _____ | Kentucky Warbler ***       | <i>Oporornis formosus</i>      | SR | FC | U         | U        |          |
| _____ | Connecticut Warbler        | <i>Oporornis agilis</i>        | TR | R  |           |          |          |
| _____ | <b>MOURNING WARBLER</b>    | <i>Oporornis philadelphia</i>  | TR | R  |           | R        |          |

|       |                                |                                  |    |           |    |    |    |
|-------|--------------------------------|----------------------------------|----|-----------|----|----|----|
| _____ | <b>Common Yellowthroat **</b>  | <i>Geothlypis trichas</i>        | SR | C         | C  | FC |    |
| _____ | <b>Hooded Warbler **</b>       | <i>Wilsonia citrina</i>          | SR | U         | U  | U  |    |
| _____ | <b>WILSON'S WARBLER</b>        | <i>Wilsonia pusilla</i>          | TR | R         |    | R  |    |
| _____ | <b>Canada Warbler</b>          | <i>Wilsonia canadensis</i>       | TR | R         |    |    |    |
| _____ | <b>Yellow-breasted Chat **</b> | <i>Icteria virens</i>            | SR | FC        | FC | VU |    |
| _____ | <b>Summer Tanager ***</b>      | <i>Piranga rubra</i>             | SR | C         | C  | C  |    |
| _____ | <b>Scarlet Tanager **</b>      | <i>Piranga olivacea</i>          | SR | FC        | U  | FC |    |
| _____ | <b>Eastern Towhee ***</b>      | <i>Pipilo erythrophthalmus</i>   | PR | FC        | FC | C  | FC |
| _____ | <b>BACHMAN'S SPARROW</b>       | <i>Aimophila aestivalis</i>      | SR |           | U  |    |    |
| _____ | <b>AMERICAN TREE SPARROW</b>   | <i>Spizella arborea</i>          | TR | R         |    | R  | R  |
| _____ | <b>Chipping Sparrow ***</b>    | <i>Spizella passerina</i>        | PR | C         | A  | A  | U  |
| _____ | <b>Field Sparrow ***</b>       | <i>Spizella pusilla</i>          | PR | C         | C  | FC | FC |
| _____ | <b>VESPER SPARROW</b>          | <i>Pooecetes gramineus</i>       | TR | R         |    |    |    |
| _____ | <b>LARK SPARROW</b>            | <i>Chondestes grammacus</i>      | SR |           | R  |    |    |
| _____ | <b>Savannah Sparrow</b>        | <i>Passerculus sandwichensis</i> | WR | U         |    | U  |    |
| _____ | <b>Grasshopper Sparrow **</b>  | <i>Ammodramus savannarum</i>     | SR | VU        | U  | R  |    |
| _____ | <b>Le Conte's Sparrow</b>      | <i>Ammodramus leconteii</i>      | TR | R         |    |    |    |
| _____ | <b>Fox Sparrow</b>             | <i>Passerella iliaca</i>         | WR | VU        |    | VU | U  |
| _____ | <b>Song Sparrow</b>            | <i>Melospiza melodia</i>         | WR | VU        |    | U  | FC |
| _____ | <b>Lincoln's Sparrow</b>       | <i>Melospiza melodia</i>         | TR | VU        |    | U  |    |
| _____ | <b>Swamp Sparrow</b>           | <i>Melospiza georgiana</i>       | WR | VU        |    | U  | U  |
| _____ | <b>White-throated Sparrow</b>  | <i>Zonotrichia albicollis</i>    | WR | C         |    | FC | C  |
| _____ | <b>White-crowned Sparrow</b>   | <i>Zonotrichia leucophrys</i>    | WR | <u>VU</u> |    | VU | VU |
| _____ | <b>Dark-eyed Junco</b>         | <i>Junco hyemalis</i>            | WR | U         |    | U  | A  |
| _____ | <b>Northern Cardinal ***</b>   | <i>Cardinalis cardinalis</i>     | PR | A         | C  | A  | A  |
| _____ | <b>Rose-breasted Grosbeak</b>  | <i>Pheucticus ludovicianus</i>   | TR | U         |    | U  |    |
| _____ | <b>Blue Grosbeak ***</b>       | <i>Passerina caerulea</i>        | SR | U         | FC | U  |    |
| _____ | <b>Indigo Bunting ***</b>      | <i>Passerina cyanea</i>          | SR | FC        | A  | C  |    |

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

**Table 2.** Species registered during point counts conducted at 21 plots (10 minutes each) at unlimited distance during the breeding seasons of 2004 (SJS) and 2005 (BHS) at SHIL. Greater detail about the results of these point counts is provided in an Excel file that supplements this report. Inds = total individuals counted.

| Species              |       | 2004 |       | 2005 |
|----------------------|-------|------|-------|------|
|                      | Stops | Inds | Stops | Inds |
| Wood Duck            | 3     | 4    | 1     | 2    |
| Wild Turkey          | 2     | 2    | 3     | 6    |
| Northern Bobwhite    | 2     | 2    | 5     | 5    |
| Least Bittern        | 1     | 1    | --    | --   |
| Great Blue Heron     | 2     | 2    | 2     | 2    |
| Green Heron          | 1     | 1    | 1     | 1    |
| Red-shouldered Hawk  | 2     | 2    | 4     | 4    |
| Broad-winged Hawk    | 4     | 4    | 3     | 3    |
| Red-tailed Hawk      | 1     | 1    | 1     | 1    |
| Killdeer             | 1     | 1    | --    | --   |
| Mourning Dove        | 5     | 10   | 12    | 14   |
| Yellow-billed Cuckoo | 8     | 9    | 7     | 7    |
| Great Horned Owl     | 2     | 2    | 2     | 2    |
| Barred Owl           | 1     | 1    | 1     | 1    |

|                                 |    |    |    |    |
|---------------------------------|----|----|----|----|
| <b>Chimney Swift</b>            | 2  | 2  | 1  | 1  |
| <b>Ruby-thr. Hummingbird</b>    | -- | -- | 1  | 2  |
| <b>Belted Kingfisher</b>        | 1  | 1  | 1  | 1  |
| <b>Red-headed Woodpecker</b>    | 3  | 3  | 7  | 11 |
| <b>Red-bellied Woodpecker</b>   | 12 | 24 | 11 | 17 |
| <b>Downy Woodpecker</b>         | 7  | 11 | 3  | 4  |
| <b>Hairy Woodpecker</b>         | 2  | 3  | 2  | 2  |
| <b>Northern Flicker</b>         | 5  | 7  | 5  | 6  |
| <b>Pileated Woodpecker</b>      | 5  | 6  | 6  | 8  |
| <b>Eastern Wood-Pewee</b>       | 13 | 18 | 17 | 20 |
| <b>Acadian Flycatcher</b>       | 13 | 22 | 7  | 14 |
| <b>Eastern Phoebe</b>           | 6  | 7  | 7  | 7  |
| <b>Great Crested Flycatcher</b> | 7  | 12 | 10 | 14 |
| <b>Eastern Kingbird</b>         | -- | -- | 4  | 5  |
| <b>White-eyed Vireo</b>         | 7  | 9  | 7  | 7  |
| <b>Yellow-throated Vireo</b>    | 9  | 9  | 12 | 14 |
| <b>Red-eyed Vireo</b>           | 21 | 40 | 19 | 35 |
| <b>Blue Jay</b>                 | 10 | 28 | 13 | 26 |
| <b>American Crow</b>            | 8  | 25 | 7  | 17 |
| <b>Purple Martin</b>            | 1  | 2  | 1  | 1  |
| <b>N. Rough-winged Swall.</b>   | 1  | 2  | 1  | 2  |
| <b>Carolina Chickadee</b>       | 11 | 23 | 9  | 15 |
| <b>Tufted Titmouse</b>          | 17 | 36 | 17 | 37 |
| <b>White-breasted Nuthatch</b>  | 9  | 18 | 9  | 19 |
| <b>Carolina Wren</b>            | 19 | 65 | 21 | 49 |
| <b>Blue-Gray Gnatcatcher</b>    | 10 | 19 | 8  | 13 |
| <b>Eastern Bluebird</b>         | 9  | 21 | 6  | 9  |
| <b>Wood Thrush</b>              | 14 | 21 | 14 | 19 |
| <b>American Robin</b>           | 3  | 7  | 6  | 8  |
| <b>Northern Mockingbird</b>     | 4  | 4  | 4  | 4  |
| <b>Brown Thrasher</b>           | 2  | 2  | 6  | 7  |
| <b>Cedar Waxwing</b>            | -- | -- | 1  | 2  |
| <b>Northern Parula</b>          | 1  | 1  | 3  | 3  |
| <b>Yellow Warbler</b>           | -- | -- | 1  | 1  |
| <b>Yellow-throated Warbler</b>  | 2  | 2  | 1  | 2  |
| <b>Pine Warbler</b>             | 3  | 4  | 3  | 5  |
| <b>Prairie Warbler</b>          | 1  | 1  | -- | -- |
| <b>Prothonotary Warbler</b>     | 3  | 14 | 4  | 10 |
| <b>Worm-eating Warbler</b>      | 1  | 1  | -- | -- |
| <b>Ovenbird</b>                 | 2  | 4  | -- | -- |
| <b>Louisiana Waterthrush</b>    | 3  | 5  | 1  | 2  |
| <b>Kentucky Warbler</b>         | 6  | 7  | 6  | 6  |
| <b>Common Yellowthroat</b>      | 1  | 1  | 3  | 5  |
| <b>Hooded Warbler</b>           | 3  | 3  | 3  | 3  |
| <b>Yellow-breasted Chat</b>     | 5  | 5  | 7  | 12 |

|                             |    |           |    |           |
|-----------------------------|----|-----------|----|-----------|
| <b>Summer Tanager</b>       | 15 | 28        | 16 | 25        |
| <b>Scarlet Tanager</b>      | 3  | 4         | 3  | 3         |
| <b>Eastern Towhee</b>       | 8  | 11        | 8  | 15        |
| <b>Chipping Sparrow</b>     | 8  | 29        | 7  | 11        |
| <b>Field Sparrow</b>        | 2  | 2         | -- | --        |
| <b>Northern Cardinal</b>    | 17 | 80        | 18 | 55        |
| <b>Blue Grosbeak</b>        | 9  | 18        | 11 | 18        |
| <b>Indigo Bunting</b>       | 15 | 62        | 16 | 34        |
| <b>Red-winged Blackbird</b> | 1  | 4         | -- | --        |
| <b>Eastern Meadowlark</b>   | 2  | 2         | -- | --        |
| <b>Common Grackle</b>       | 2  | 4         | 1  | 2         |
| <b>Brown-headed Cowbird</b> | 12 | 37        | 11 | 25        |
| <b>Orchard Oriole</b>       | -- | --        | 2  | 2         |
| <b>American Goldfinch</b>   | -- | --        | 3  | 4         |
|                             |    |           |    |           |
| <b>Total Species</b>        |    | <b>67</b> |    | <b>65</b> |