

Avian Inventory at Six National Capital Region National Parks

Final Report (Revised)

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Summary

Biological Inventories to identify bird species in six National Capital Region Network parks (Antietam National Battlefield, Catoctin Mountain Park, Harper's Ferry National Historical Park, Manassas National Battlefield, Prince William Forest Park, and Wolf Trap National Park for the Performing Arts) were initiated in 2001. The goals of the inventories were to identify 90% of the bird species occurring in each park and to determine their breeding status and spatial distribution. Surveys were concluded in 2003, and a total of 175 species were identified in the Network parks; species richness ranged from 76 species at Wolf Trap National Park for the Performing Arts to 151 species at Manassas National Battlefield. Two methods were used to assess the completeness of the inventories (i.e., 90% species documentation): a direct comparison to an expected species list and species accumulation curves. Based on the results of the two methods of analysis it was concluded that 90% of the species had been documented in the six network parks. Additional inventories, utilizing a different survey methodology, may be beneficial to document the occurrence of the remaining species.

Acknowledgments

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Introduction

Basic biological inventories can provide important species-related information to resource managers. Information gathered from inventories can be used to educate park visitors on the importance of biological diversity and the role of parks in conserving it, and to alert them to opportunities to observe wildlife in parks. Within National Parks, inventory information can provide the basis for long-term monitoring, identify important habitats, and assist in the development of species or habitat conservation plans. Unfortunately, basic biological information is missing for many of our National Parks. As of 1994, the majority of National Parks surveyed did not have complete inventories of major taxonomic groups (Stohlgren et al. 1995). To remedy this situation, Congress in 1998 authorized funding to begin basic inventories and long-term monitoring of biological resources (National Park Service 1999). The National Park Service used this funding to establish 32 Inventory and Monitoring (I&M) Networks of parks with significant natural resources.

The National Capital Region Network (NCRN) is one of these Inventory and Monitoring Networks. The NCRN is composed of 11 National Park units with significant natural resources: Antietam National Battlefield (ANTI), Catoclin Mountain Park (CATO), Chesapeake and Ohio Canal National Historical Park (CHOH), George Washington Memorial Parkway (GWMP), Harper's Ferry National Historical Park (HAFE), Manassas National Battlefield Park (MANA), Monocacy National Battlefield (MONO), National Capital Parks- East (NACE), Prince William Forest park (PRWI), Rock Creek National Park (ROCR), and Wolf Trap National Park for the Performing Arts (WOTR).

In 2001, the NCRN developed a Biological Inventories Study Plan (Gray and Koenen 2001), which outlined the procedures the Network would use to implement inventories of vertebrates and vascular plants. The study plan identified six NCRN parks (ANTI, CATO, HAFE, MANA, PRWI, WOTR) that were in need of additional information on the bird species present. An inventory of birds at the six NCRN parks was begun in 2001.

The goals of the project were to:

1. Conduct field surveys to document 90% of the bird species occurring within the parks.
2. Determine the status and spatial distribution of the documented species at each park and in particular species of special concern.

Parks

The six NCRN parks targeted for additional surveys range in size from 53 to 7,518 hectares (ha), and encompass the Ridge and Valley, Piedmont, and Coastal Plain physiographic provinces.

Antietam National Battlefield (www.nps.gov/anti) is managed within the historical context of General Robert E. Lee's first invasion of the North in September 1862 during

the Civil War. The 1,318 ha park is located in the heart of Maryland, on rolling hills dotted with farm fields and pastures reminiscent of the day of the battle. Patches of forests, open meadows, croplands, and karsts are found within the park.

Catoctin Mountain Park (www.nps.gov/cato) originated as a Recreation Demonstration Area (RDA) under the National Industrial Recovery Act of 1933, and was transferred to the National Park Service in 1936. The park encompasses 2,336 ha of forested landscape located in the mountains of the Catoctin Ridge in north-central Maryland. Unique geological formations, consisting of metamorphic sandstone and greenish-gray metabasalts forming cliffs, occur in the park.

Harpers Ferry National Historical Park (www.nps.gov/hafe) is located at the confluence of the Shenandoah and Potomac Rivers in West Virginia, Virginia, and Maryland. The 926-ha park lies within the Blue Ridge physiographic province and contains forested mountains, riparian habitats, and floodplains that surround the park's historic town area. Caves are also found within park boundaries.

Manassas National Battlefield Park (www.nps.gov/mana) was established in 1940 to preserve the scene of two major Civil War battles that took place a few miles north of the prized railroad junction of Manassas, Virginia, in 1861 and 1862. The 2,064 ha park is located approximately 72 km southwest of Washington, D.C., within the Triassic basin of the northern Virginia Piedmont. The park is characterized by gently rolling hills with a patchwork of open fields and a successional range of oak-hickory forests with riparian vegetation along the streams.

Prince William Forest Park (www.nps.gov/prwi) is centered in the Quantico Creek watershed, which drains into the nearby Potomac River. Because the park includes two physiographic provinces (Piedmont and Coastal Plain) and lies in the transition zone between northern and southern climates, it exhibits a wide range of habitats and vegetative communities. It currently is the only natural area in the National Park System that contains a significant expanse of Piedmont Forest. The park contains several rare communities, including a seepage swamp and remote stands of eastern hemlock, which contain old growth specimens.

Wolf Trap National Park (www.nps.gov/wotr) encompasses 53 ha of rolling hills and woods originally donated to the National Park Service by Catherine Filene Shouse to be used exclusively for the performing arts. Wolf Trap lies entirely within the Piedmont physiographic province. Natural habitats within the park include streams, meadows and heavily wooded areas.

Methods

Documented observations on bird species in all 11 NCRN parks were compiled in 2000. This information was reviewed by a subject expert (Deanna Dawson, USGS-BRD), who prepared an expected species list for each park (Appendix A). It was determined that ANTI, CATO, HAFE, MANA, PRWI, and WOTR lacked enough supporting evidence to conclude that 90% of their park's bird species had been documented.

The NCRN noted that various bird inventories were being conducted in surrounding areas through volunteer efforts. Using a similar approach, volunteers were selected based on their ability to identify birds by sight and sound. Inexperienced birders were allowed to participate, but were asked to survey with an experienced birder. All volunteers conducted at least one survey with I&M staff or a volunteer group leader identified by I&M staff. No further standard testing was conducted to assess the capabilities of volunteers.

The NCRN developed a standard protocol and datasheet (Gray and Koenen 2001) to be used during all surveys. Volunteers were asked to spend at least 5 hours in the park per month, and collect presence / absence data on all birds seen or heard. Special effort was made to confirm the residency, migration or breeding status of all birds, and in particular the status of birds designated as Species of Special Concern by Partners in Flight (Pashley et al. 2000). Breeding status was assigned using standard Breeding Bird Atlas methodology (Robbins and Blom 1996, American Birding Association 2000). Residents were defined as species documented more than two months out of the year but were not documented breeders in the park. Migrants were defined as species seen for no more than two months out of the year. To determine a species distribution within a park, parks were divided into sections (Figure 1). Because of its small size, WOTR was not subdivided. Volunteers were asked to keep separate observations for each park section. Datasheets were submitted to the I&M staff and entered into a Database Template formatted for the bird inventory.

Information was queried from the database and analyzed by two methods to determine if 90% of the bird species at each park had been documented. The first method was to plot the number of new species observed on each survey visit versus the cumulative number of hours spent surveying at each park. This creates a species accumulation curve for each park. When the plotted data reaches a plateau, it can be concluded that 90% of the species have been documented. The second method used was to compare the species documented by the volunteers to the expected species list created for each park. This analysis was constrained to breeding and winter resident species because of the logistical difficulties in conducting thorough surveys of migrating birds. Queries were also used to assess each species breeding status and park distribution.

Results

Forty-seven individuals participated in the bird inventory project, including volunteers and park staff. Overall, participants spent 1809.1 hours conducting surveys and identified 175 bird species.

Antietam National Battlefield

Surveys began on 2 February 2001 and continued through 12 October 2002. Overall, 183 surveys were conducted (426.72 total survey hours) and 124 species were documented (Table 1); 112 species were documented in Section 1, 104 species were documented in Section 2, and 23 and 14 were documented in Sections 2A and 2B (subsections of 2),

respectively (Table 2). Forty-eight species were confirmed as breeders in the park (Table 1).

This effort resulted in documentation of 86.8% of the expected resident species (breeders and winter residents), based on a comparison with the expected species list; 16 expected residents and 54 expected migrants were not documented (Table 3). Species accumulation curves demonstrate a significant plateau, and only 0.07 new species were documented per survey hour in 2002, the last calendar year surveys were conducted (Figure 2).

Catoctin Mountain Park

One hundred thirty-one surveys were conducted between 6 February 2001 and 28 November 2002 (507.00 total survey hours). Overall, 108 species were documented (Table 1), 80 in Section 1, 81 in Section 2, 64 in Section 3, 46 in Section 4; 9 additional species were documented but were not designated to a Section (Table 2). Forty-one species were confirmed as breeders in the park (Table 1).

80.6% of the expected resident species (breeders and winter residents) have been documented based on a comparison with the expected species list; 18 expected residents and 24 expected migrants were not documented (Table 3). Species accumulation curves demonstrate a significant plateau, and only 0.07 new species were documented per survey hour in 2002, the last calendar year surveys were conducted (Figure 2).

Harper's Ferry National Historical Park

Surveys began on 10 February 2001 and continued through 14 November 2002. Overall, 64 surveys were conducted (219.75 total survey hours) and 114 species were documented (Table 1); Section 1 was not surveyed, 83 species were documented in Section 2, 74 species were documented in Section 3, and 103 species were documented in Section 4 (Table 2). Nine species were confirmed as breeders in the park (Table 1).

75.6% of the resident species (breeders and winter residents) expected to occur in the park have been documented; 31 expected residents and 51 expected migrants were not documented (Table 3). Species accumulation curves demonstrate a plateau, and only 0.16 new species were documented per survey hour in 2002, the last calendar year surveys were conducted (Figure 2).

Manassas National Battlefield

Surveys began on 3 February 2001 and continued through 13 September 2002. Overall, 172 surveys were conducted (522.58 total survey hours) and 151 species were documented (Table 1); 113 species were documented in Section 1, 73 species were documented in Section 2, 133 species were documented in Section 3, 111 species were documented in Section 4, 110 species were documented in Section 5, and 105 species were documented in Section 6 (Table 2). Fifty-four species were confirmed as breeding in the park (Table 1).

In the assessment of 90% species documentation, 89.3% of the resident species (breeders and winter residents) have been documented based on a comparison with the expected species list; 13 expected residents and 40 expected migrants were not documented (Table 3). Species accumulation curves demonstrate a significant plateau, and only 0.03 new species were documented per survey hour in 2002, the last calendar year surveys were conducted (Figure 2).

Prince William Forest Park

Surveys began on 12 January 2001 and continued through 5 November 2001. Overall, 41 surveys were conducted (84.98 total survey hours) and 100 species were documented (Table 1), 64 species in Section 1, 34 species in Section 2, 58 species in Section 3, 81 species in Section 4, 47 species in Section 5, and 34 species in Section 6 (Table 2). Five species were confirmed as breeders in the park (Table 1).

74.8% of the expected resident species (breeders and winter residents) have been documented based on a comparison with the expected species list; 17 expected residents and 42 expected migrants were not documented (Table 3). The species accumulation curves demonstrate a plateau; however only one year of data is available (Figure 2).

Wolf Trap National Park for the Performing Arts

Surveys began on 23 February 2001 and continued through 29 June 2003. Overall, 23 surveys were conducted (48.08 total survey hours) and 76 species were documented (Table 1). Fourteen species were confirmed as breeders in the park (Table 1).

75.3% of the resident species (breeders and winter residents) expected to occur in the park were documented based on a comparison with the expected species list; 20 expected residents and 39 expected migrants were not documented (Table 3). Species accumulation curves demonstrate a plateau, and only 0.22 new species were documented per survey hour in 2003, the last calendar year surveys were conducted (Figure 2).

Discussion

Biological inventories of birds began in the winter of 2001 and have added greatly to our knowledge on bird species diversity within NCRN parks. Surveys documented 175 species, ranging from 76 at WOTR to 151 at MANA. For comparison, bird species richness ranged from 94 to 163 at six Pennsylvania National Parks where 186 species were documented (Yahner et al. 2001).

In an attempt to evaluate the completeness of the NCRN bird inventories (i.e., Goal 1. documenting 90% of the bird species), we utilized two methods 1) a direct comparison to an expected species list and 2) species accumulation curves. Each method of analysis has potential flaws. The direct comparison makes the assumption that all expected species currently occur within a park. However, some species may not actually occur within the

park, just in the region, so would not be found even on targeted survey efforts. Other species may be present in some but not all years or use park habitats only occasionally.

Species accumulation curves provide a visual assessment of the number of new species documented versus survey effort. As the accumulation curve levels off, few new species are expected to be documented, even with additional surveys. However, accumulation curves only assess the likelihood of documenting a new species utilizing the same survey methodology; changing survey methodology may increase the likelihood of finding new species.

Evaluating the completeness of inventories with both analysis methods reduces some of the problems with interpreting the results. For instance, based on the expected species list analysis, no park has reached 90% species documentation. MANA had documented the most expected species with 89%. However, the species accumulation curve had leveled off, and in the last year of surveys, only 3 new species (including migrants) were documented per 100 survey hours. Even for WOTR, where occurrence of only 75% of the expected species was documented, only 2 new species were documented per survey hour in the last calendar year (only 1 was a resident). Therefore, although the percentage of expected species documented ranges from 75 to 89, the likelihood of documenting new species with the current sampling methodology is minimal. Overall, because more than 75% of expected resident species have been identified in each of the six network parks, and because of the low likelihood of documenting additional species, less than 2 per 10 survey hours, we believe we have met the first goal of the bird inventories.

Querying biological and distributional information from the database, allowed us to achieve the second goal of generating distribution information. It should be noted, however, that some sections were not visited frequently and the species distribution data should be considered preliminary and incomplete. Section 1 in HAFE, for example, was not visited at all because of difficult access. Section 6 at PRWI was not visited frequently suggesting why the species list may be lower than for other sections in the park. In addition, it should be noted that volunteers generally stayed on trails. Unique habitats such as marshy areas found only away from trails in Section 1 at PRWI were not surveyed.

In addition to addressing the two goals, this survey provides evidence for species of concern in the six parks. Overall, 20 of 23 species of concern were documented. Forest species including the Acadian Flycatcher, Wood Thrush, Louisiana Waterthrush, and Scarlet Tanager were documented during the breeding season at all six parks and were confirmed breeding at most. Shrub and grassland birds were generally rare although the Grasshopper Sparrow was confirmed at both ANTI and MANA. The Northern Bobwhite was documented as a probable breeding species at MANA. Coverage of both forested areas and grassland areas was good. Lack of evidence of Henslow Sparrow indicates they were not present in the parks during the time of the inventory even though they were considered potentially present. Lack of evidence of the American Woodcock, Whip-poor-will, American, American Black Duck, American and Least Bittern is likely due their being rare in addition to requiring more specialized survey techniques.

Despite having achieved the goals of the bird inventory program, we believe that there may be a benefit in conducting additional inventories for particular species groups. We recommend reviewing the list of expected species not documented in each park (Table 3), and working with bird specialists to develop survey methodologies to target them. Many of the undocumented species or species groups may be rare and may need management attention.

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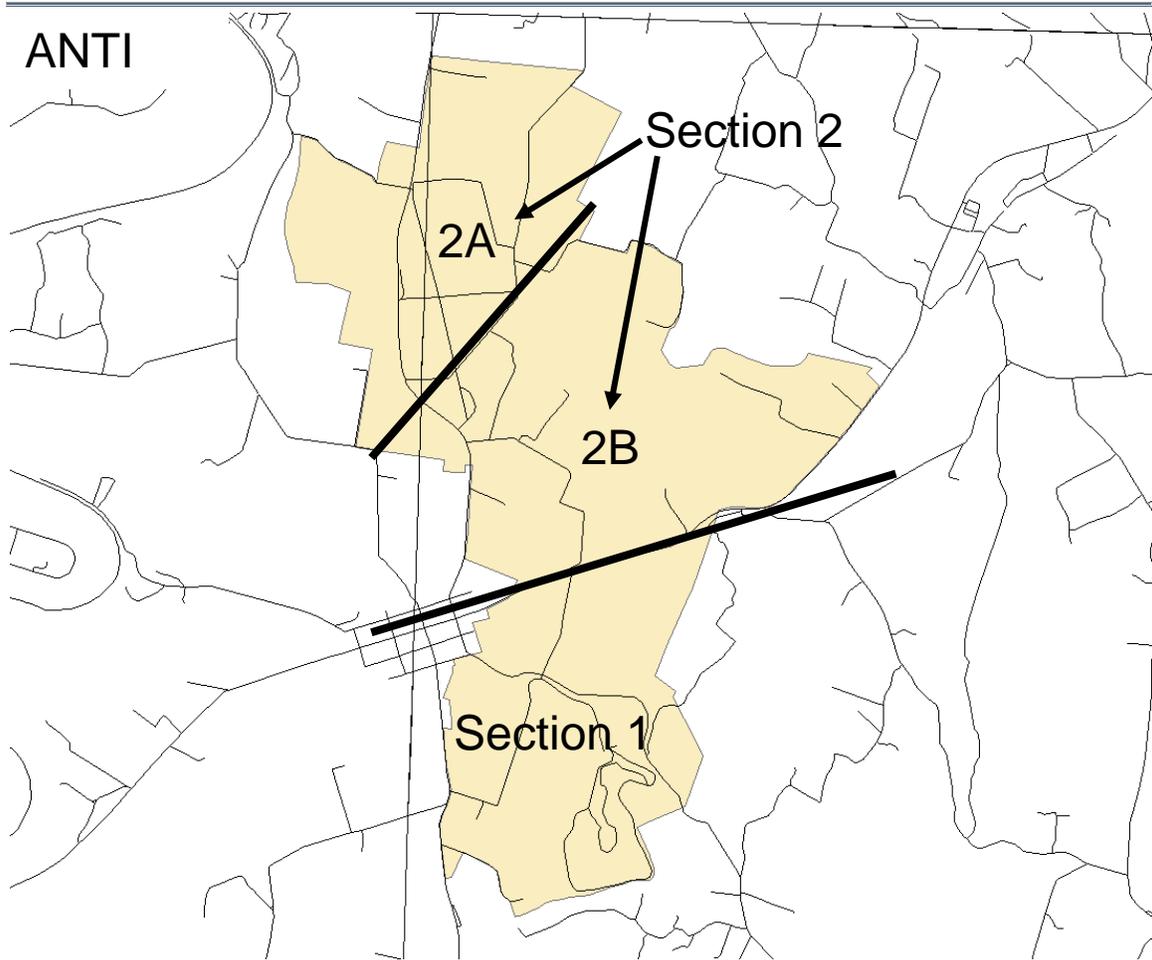
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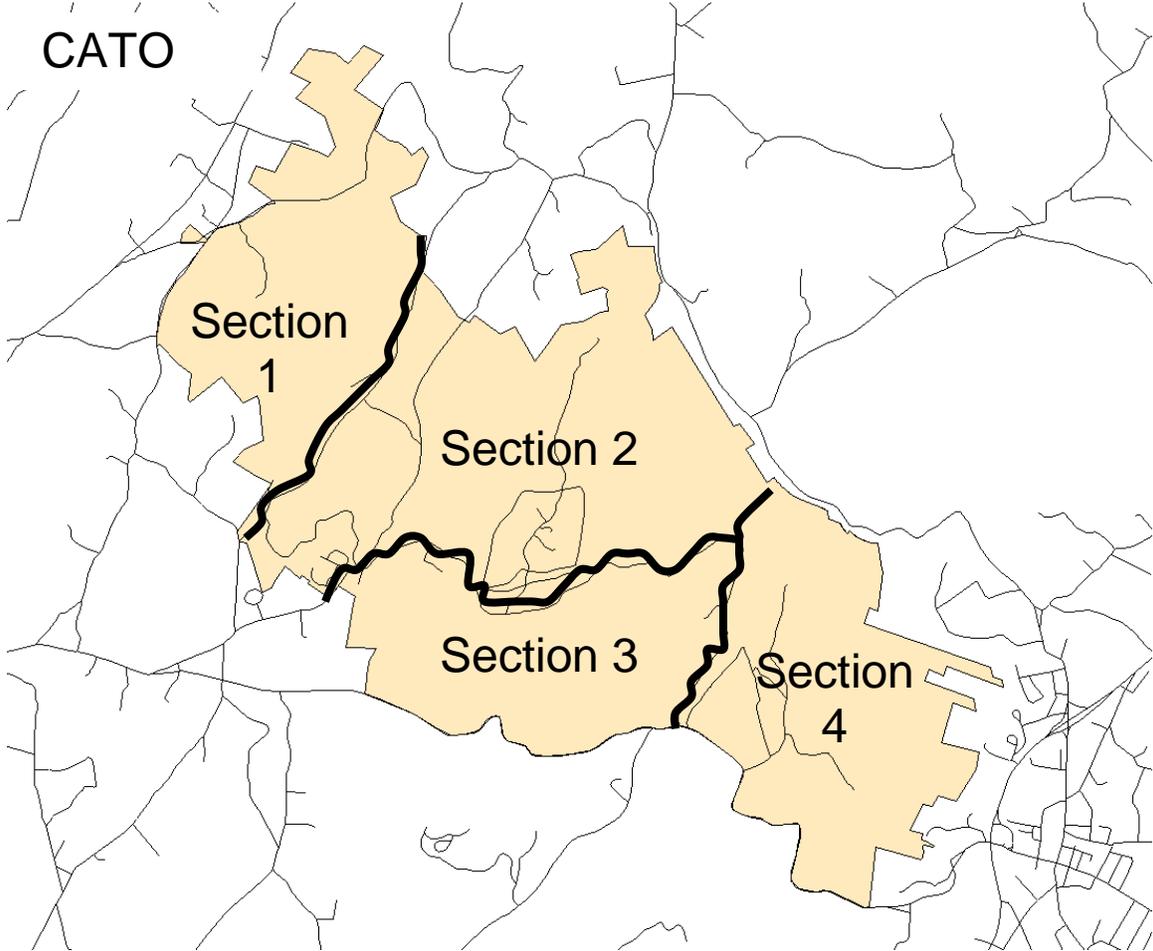
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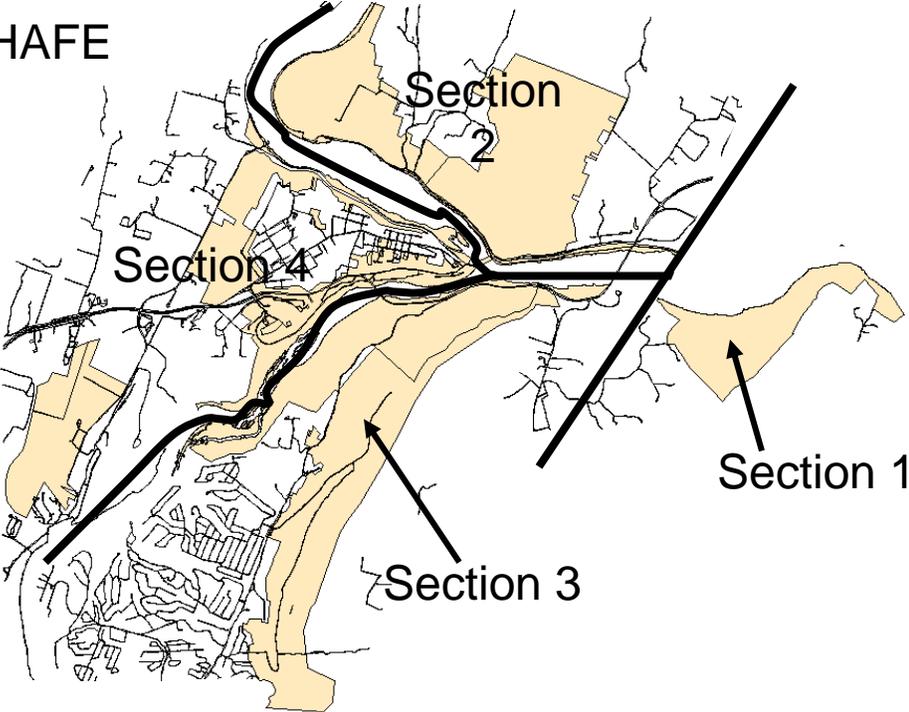
Figure 1. Maps of the six National Capital Region Network parks showing the division of each park into its associated birding sections. Antietam National Battlefield (ANTI), Catoctin Mountain Park (CATO), Harper's Ferry National Historical Park (HAFE), Manassas National Battlefield (MANA), Prince William Forest Park (PRWD), Wolf Trap National Park for the Performing Arts (WOTR).



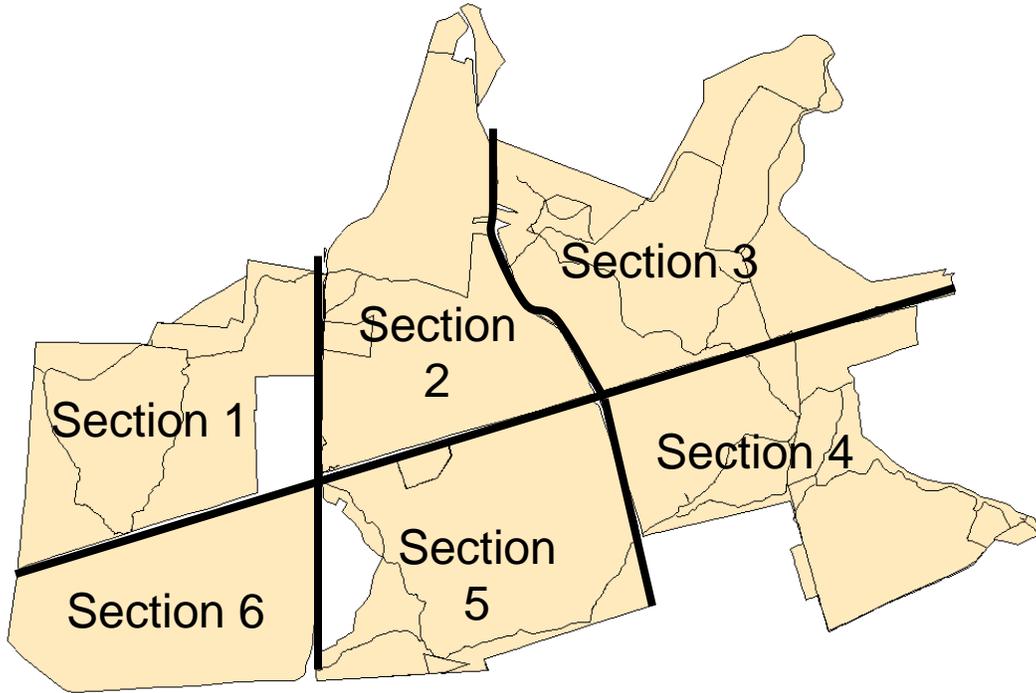
CATO



HAFE



MANA



WOTR



Figure 2. Species accumulation curves. The number of species documented versus effort (survey hours) for Antietam National Battlefield (ANTI), Catoctin Mountain Park (CATO), Harper's Ferry National Historical Park (HAFE), Manassas National Battlefield (MANA), Prince William Forest Park (PRWI), and Wolf Trap National Park for the Performing Arts (WOTR).

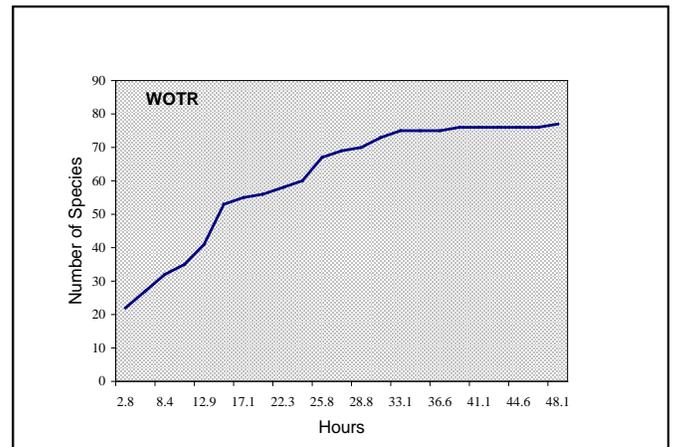
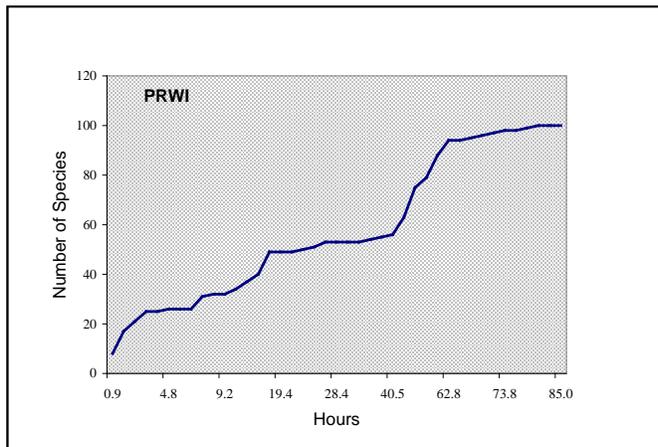
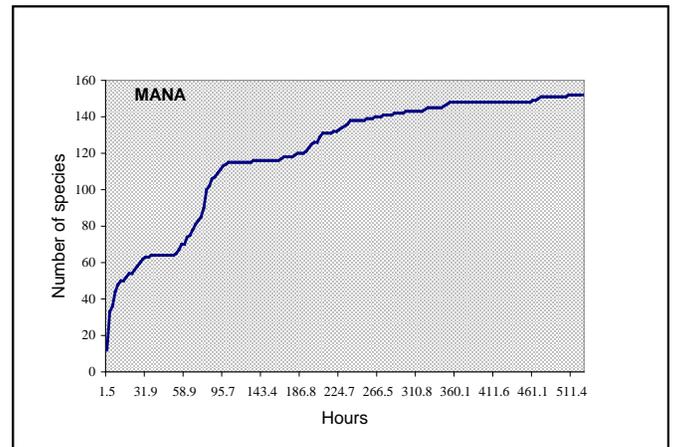
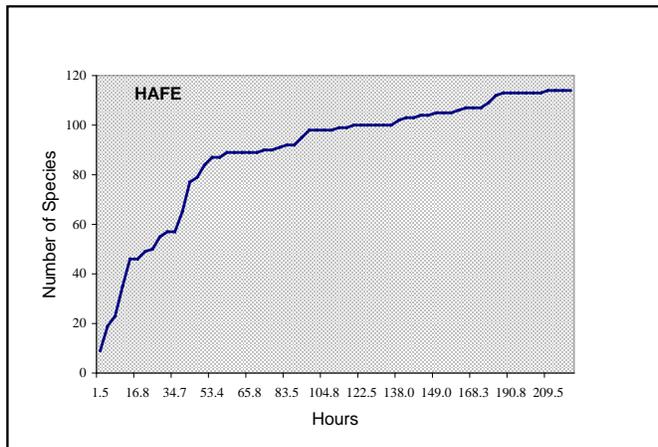
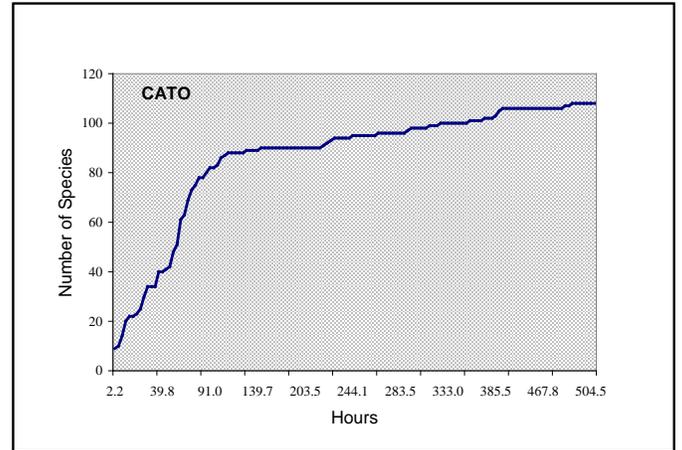
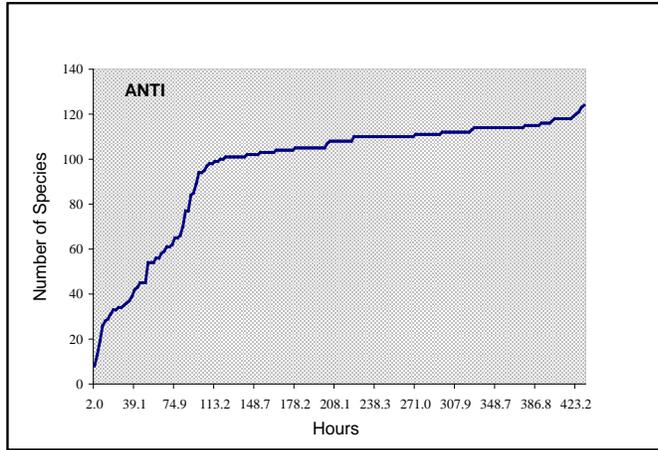


Table 1. Status of species (common (CO), probable (PR), possible (PO), observed (OB)) recorded at each park: (a) Antietam National Battlefield (ANTI), (b), Catoclin Mountain Park (CATO) (c), Harpers Ferry National Historical Park (HAFE), (d) Manassas National Battlefield (MANA), (e), Prince William Forest Park (PRWI), and (f) Wolf Trap National Park for the Performing Arts (WOTR).

Park Code	Species	CO	PR	PO	OB
ANTI	Great Blue Heron		x		x
ANTI	Great Egret				x
ANTI	Green Heron		x	x	x
ANTI	Black Vulture				x
ANTI	Turkey Vulture			x	x
ANTI	Canada Goose	x	x	x	x
ANTI	Wood Duck		x	x	x
ANTI	Mallard	x	x	x	x
ANTI	Common Merganser				x
ANTI	Osprey				x
ANTI	Northern Harrier				x
ANTI	Sharp-Shinned Hawk				x
ANTI	Cooper's Hawk				x
ANTI	Red-shouldered Hawk				x
ANTI	Broad-winged Hawk				x
ANTI	Red-tailed Hawk	x	x	x	x
ANTI	American Kestrel	x		x	x
ANTI	Wild Turkey		x		x
ANTI	Northern Bobwhite				x
ANTI	Killdeer		x		x
ANTI	Greater Yellowlegs				x
ANTI	Solitary Sandpiper				x
ANTI	Ring-billed Gull				x
ANTI	Rock Dove		x	x	x
ANTI	Mourning Dove	x	x	x	x
ANTI	Black-billed Cuckoo				x
ANTI	Yellow-billed Cuckoo		x	x	x
ANTI	Eastern Screech-Owl		x		x
ANTI	Great Horned Owl	x	x	x	x
ANTI	Barred Owl		x		x
ANTI	Common Nighthawk				x
ANTI	Chimney Swift		x	x	x
ANTI	Ruby-throated Hummingbird			x	x
ANTI	Belted Kingfisher		x	x	x
ANTI	Red-headed Woodpecker	x	x	x	x
ANTI	Red-bellied Woodpecker	x	x	x	x
ANTI	Yellow-Bellied Sapsucker				x
ANTI	Downy Woodpecker	x	x	x	x
ANTI	Hairy Woodpecker		x		x
ANTI	Northern Flicker	x	x	x	x
ANTI	Pileated Woodpecker	x	x	x	x

Park Code	Species	CO	PR	PO	OB
ANTI	Eastern Wood-Pewee		x	x	x
ANTI	Acadian Flycatcher		x	x	x
ANTI	Eastern Phoebe		x	x	x
ANTI	Great Crested Flycatcher		x	x	x
ANTI	Eastern Kingbird	x	x	x	x
ANTI	Loggerhead Shrike				x
ANTI	White-eyed Vireo	x	x	x	x
ANTI	Blue-headed Vireo				x
ANTI	Warbling Vireo		x		x
ANTI	Red-eyed Vireo		x	x	x
ANTI	Blue Jay		x	x	x
ANTI	American Crow	x	x	x	x
ANTI	Fish Crow			x	x
ANTI	Common Raven				x
ANTI	Horned Lark			x	x
ANTI	Purple Martin	x		x	x
ANTI	Tree Swallow	x	x	x	x
ANTI	Northern Rough-winged Swallow	x	x	x	x
ANTI	Barn Swallow	x	x	x	x
ANTI	Carolina Chickadee	x	x	x	x
ANTI	Tufted Titmouse	x	x	x	x
ANTI	White-breasted Nuthatch		x	x	x
ANTI	Brown Creeper				x
ANTI	Carolina Wren	x	x	x	x
ANTI	House Wren	x	x	x	x
ANTI	Winter Wren				x
ANTI	Golden-crowned Kinglet				x
ANTI	Ruby-crowned Kinglet				x
ANTI	Blue-gray Gnatcatcher	x	x	x	x
ANTI	Eastern Bluebird	x	x	x	x
ANTI	Veery				x
ANTI	Hermit Thrush				x
ANTI	Wood Thrush	x	x	x	x
ANTI	American Robin	x	x	x	x
ANTI	Gray Catbird	x	x	x	x
ANTI	Northern Mockingbird	x	x	x	x
ANTI	Brown Thrasher	x	x	x	x
ANTI	European Starling	x	x	x	x
ANTI	American Pipit				x
ANTI	Cedar Waxwing		x	x	x
ANTI	Northern Parula				x
ANTI	Yellow Warbler				x
ANTI	Magnolia Warbler				x
ANTI	Yellow-rumped Warbler				x
ANTI	Black-throated Green Warbler				x
ANTI	Blackburnian Warbler				x
ANTI	Pine Warbler		x		x
ANTI	Prairie Warbler		x		x

Park Code	Species	CO	PR	PO	OB
ANTI	Palm Warbler				X
ANTI	Blackpoll Warbler				X
ANTI	American Redstart				X
ANTI	Louisiana Waterthrush		X	X	X
ANTI	Common Yellowthroat		X		X
ANTI	Hooded Warbler				X
ANTI	Yellow-breasted Chat	X	X	X	X
ANTI	Scarlet Tanager		X	X	X
ANTI	Eastern Towhee	X	X	X	X
ANTI	American Tree Sparrow		X		X
ANTI	Chipping Sparrow	X	X	X	X
ANTI	Field Sparrow	X	X	X	X
ANTI	Vesper Sparrow		X	X	X
ANTI	Savannah Sparrow		X		X
ANTI	Grasshopper Sparrow	X	X	X	X
ANTI	Fox Sparrow				X
ANTI	Song Sparrow	X	X	X	X
ANTI	White-throated Sparrow		X		X
ANTI	White-crowned Sparrow				X
ANTI	Dark-eyed Junco				X
ANTI	Northern Cardinal	X	X	X	X
ANTI	Rose-breasted Grosbeak				X
ANTI	Blue Grosbeak	X	X	X	X
ANTI	Indigo Bunting	X	X	X	X
ANTI	Bobolink				X
ANTI	Red-winged Blackbird	X	X	X	X
ANTI	Eastern Meadowlark	X	X	X	X
ANTI	Common Grackle	X	X	X	X
ANTI	Brown-headed Cowbird	X	X	X	X
ANTI	Orchard Oriole	X	X	X	X
ANTI	Baltimore Oriole	X	X	X	X
ANTI	Purple Finch				X
ANTI	House Finch	X	X	X	X
ANTI	American Goldfinch	X	X	X	X
ANTI	House Sparrow	X	X	X	X
CATO	Great Blue Heron				X
CATO	Black Vulture				X
CATO	Turkey Vulture			X	X
CATO	Canada Goose	X			X
CATO	Sharp-shinned Hawk				X
CATO	Cooper's Hawk			X	X
CATO	Red-shouldered Hawk			X	X
CATO	Broad-winged Hawk	X	X	X	X
CATO	Red-tailed Hawk		X		X
CATO	Peregrine Falcon				X
CATO	Ruffed Grouse				X
CATO	Wild Turkey	X	X	X	X
CATO	Ring-billed Gull				X

Park Code	Species	CO	PR	PO	OB
CATO	Rock Dove				X
CATO	Mourning Dove	X	X	X	X
CATO	Yellow-billed Cuckoo	X	X	X	X
CATO	Eastern Screech-Owl				X
CATO	Great Horned Owl			X	X
CATO	Barred Owl		X	X	X
CATO	Chimney Swift		X	X	X
CATO	Ruby-throated Hummingbird			X	X
CATO	Belted Kingfisher	X	X	X	X
CATO	Red-bellied Woodpecker	X	X	X	X
CATO	Yellow-bellied Sapsucker		X	X	X
CATO	Downy Woodpecker	X	X	X	X
CATO	Hairy Woodpecker	X	X	X	X
CATO	Northern Flicker	X	X	X	X
CATO	Pileated Woodpecker	X	X	X	X
CATO	Eastern Wood-Pewee	X	X	X	X
CATO	Acadian Flycatcher	X	X	X	X
CATO	Eastern Phoebe	X	X	X	X
CATO	Great Crested Flycatcher	X	X	X	X
CATO	Eastern Kingbird				X
CATO	White-eyed Vireo			X	X
CATO	Yellow-throated Vireo	X	X	X	X
CATO	Blue-headed Vireo				X
CATO	Red-eyed Vireo	X	X	X	X
CATO	Blue Jay	X	X	X	X
CATO	American Crow	X	X	X	X
CATO	Common Raven			X	X
CATO	Barn Swallow	X			X
CATO	Carolina Chickadee	X	X	X	X
CATO	Black-capped Chickadee				X
CATO	Tufted Titmouse	X	X	X	X
CATO	Red-breasted Nuthatch				X
CATO	White-breasted Nuthatch	X	X	X	X
CATO	Brown Creeper			X	X
CATO	Carolina Wren	X	X	X	X
CATO	House Wren		X	X	X
CATO	Winter Wren				X
CATO	Golden-crowned Kinglet				X
CATO	Ruby-crowned Kinglet		X	X	X
CATO	Blue-gray Gnatcatcher	X	X	X	X
CATO	Eastern Bluebird	X	X	X	X
CATO	Veery	X	X	X	X
CATO	Swainson's Thrush				X
CATO	Hermit Thrush		X		X
CATO	Wood Thrush	X	X	X	X
CATO	American Robin	X	X	X	X
CATO	Gray Catbird	X	X	X	X
CATO	Northern Mockingbird			X	X

Park Code	Species	CO	PR	PO	OB
CATO	Brown Thrasher		x		x
CATO	European Starling		x	x	x
CATO	Cedar Waxwing			x	x
CATO	Tennessee Warbler				x
CATO	Orange-crowned Warbler				x
CATO	Nashville Warbler				x
CATO	Northern Parula		x	x	x
CATO	Yellow Warbler				x
CATO	Chestnut-sided Warbler		x	x	x
CATO	Magnolia Warbler			x	x
CATO	Black-throated Blue Warbler			x	x
CATO	Yellow-rumped Warbler			x	x
CATO	Black-throated Green Warbler			x	x
CATO	Blackburnian Warbler				x
CATO	Pine Warbler				x
CATO	Palm Warbler				x
CATO	Blackpoll Warbler		x		x
CATO	Cerulean Warbler	x	x	x	x
CATO	Black-and-white Warbler			x	x
CATO	American Redstart	x	x	x	x
CATO	Worm-eating Warbler		x	x	x
CATO	Ovenbird	x	x	x	x
CATO	Louisiana Waterthrush	x	x	x	x
CATO	Kentucky Warbler	x	x	x	x
CATO	Common Yellowthroat				x
CATO	Hooded Warbler	x	x	x	x
CATO	Canada Warbler				x
CATO	Scarlet Tanager	x	x	x	x
CATO	Eastern Towhee	x	x	x	x
CATO	Chipping Sparrow	x	x	x	x
CATO	Field Sparrow				x
CATO	Fox Sparrow				x
CATO	Song Sparrow				x
CATO	White-throated Sparrow			x	x
CATO	White-crowned Sparrow				x
CATO	Dark-eyed Junco				x
CATO	Northern Cardinal	x	x	x	x
CATO	Rose-breasted Grosbeak				x
CATO	Indigo Bunting		x		x
CATO	Red-winged Blackbird				x
CATO	Common Grackle		x	x	x
CATO	Brown-headed Cowbird	x	x	x	x
CATO	Baltimore Oriole		x	x	x
CATO	Purple Finch				x
CATO	House Finch				x
CATO	American Goldfinch		x	x	x
CATO	House Sparrow		x	x	x
HAFE	Double-crested Cormorant				x

Park Code	Species	CO	PR	PO	OB
HAFE	Great Blue Heron				x
HAFE	Great Egret				x
HAFE	Green Heron				x
HAFE	Black Vulture				x
HAFE	Turkey Vulture				x
HAFE	Canada Goose	x			x
HAFE	Wood Duck	x			x
HAFE	American Black Duck				x
HAFE	Mallard				x
HAFE	Canvasback				x
HAFE	Bufflehead				x
HAFE	Common Merganser				x
HAFE	Osprey				x
HAFE	Bald Eagle				x
HAFE	Sharp-shinned Hawk				x
HAFE	Cooper's Hawk				x
HAFE	Red-shouldered Hawk				x
HAFE	Broad-winged Hawk				x
HAFE	Red-tailed Hawk				x
HAFE	Peregrine Falcon				x
HAFE	Wild Turkey				x
HAFE	Northern Bobwhite				x
HAFE	Killdeer				x
HAFE	Spotted Sandpiper			x	x
HAFE	Laughing Gull				x
HAFE	Ring-billed Gull				x
HAFE	Herring Gull				x
HAFE	Rock Dove				x
HAFE	Mourning Dove				x
HAFE	Yellow-billed Cuckoo				x
HAFE	Chimney Swift				x
HAFE	Ruby-throated Hummingbird				x
HAFE	Belted Kingfisher				x
HAFE	Red-bellied Woodpecker	x	x		x
HAFE	Yellow-bellied Sapsucker				x
HAFE	Downy Woodpecker		x		x
HAFE	Hairy Woodpecker				x
HAFE	Northern Flicker				x
HAFE	Pileated Woodpecker				x
HAFE	Eastern Wood-Pewee	x	x		x
HAFE	Acadian Flycatcher				x
HAFE	Eastern Phoebe				x
HAFE	Great Crested Flycatcher		x		x
HAFE	Eastern Kingbird				x
HAFE	White-eyed Vireo				x
HAFE	Yellow-throated Vireo				x
HAFE	Blue-headed Vireo				x
HAFE	Warbling Vireo		x		x

Park Code	Species	CO	PR	PO	OB
HAFE	Red-eyed Vireo		x		x
HAFE	Blue Jay				x
HAFE	American Crow				x
HAFE	Fish Crow				x
HAFE	Common Raven				x
HAFE	Purple Martin				x
HAFE	Tree Swallow				x
HAFE	Northern Rough-winged Swallow	x			x
HAFE	Barn Swallow				x
HAFE	Carolina Chickadee				x
HAFE	Black-capped Chickadee				x
HAFE	Tufted Titmouse		x		x
HAFE	Red-breasted Nuthatch				x
HAFE	White-breasted Nuthatch				x
HAFE	Brown Creeper				x
HAFE	Carolina Wren		x		x
HAFE	House Wren			x	x
HAFE	Winter Wren				x
HAFE	Golden-crowned Kinglet				x
HAFE	Ruby-crowned Kinglet				x
HAFE	Blue-gray Gnatcatcher				x
HAFE	Eastern Bluebird		x		x
HAFE	Hermit Thrush				x
HAFE	Wood Thrush	x	x		x
HAFE	American Robin				x
HAFE	Gray Catbird				x
HAFE	Northern Mockingbird				x
HAFE	Brown Thrasher		x		x
HAFE	European Starling				x
HAFE	Cedar Waxwing				x
HAFE	Northern Parula				x
HAFE	Yellow Warbler				x
HAFE	Black-throated Blue Warbler				x
HAFE	Yellow-rumped Warbler				x
HAFE	Black-throated Green Warbler				x
HAFE	Blackburnian Warbler				x
HAFE	Yellow-throated Warbler				x
HAFE	Prairie Warbler			x	x
HAFE	Black-and-white Warbler				x
HAFE	American Redstart				x
HAFE	Prothonotary Warbler				x
HAFE	Worm-eating Warbler		x		x
HAFE	Ovenbird				x
HAFE	Louisiana Waterthrush		x		x
HAFE	Scarlet Tanager		x	x	x
HAFE	Eastern Towhee				x
HAFE	Chipping Sparrow				x
HAFE	Field Sparrow			x	x

Park Code	Species	CO	PR	PO	OB
HAFE	Savannah Sparrow				X
HAFE	Grasshopper Sparrow		X		X
HAFE	Song Sparrow		X		X
HAFE	White-throated Sparrow				X
HAFE	Dark-eyed Junco				X
HAFE	Northern Cardinal		X		X
HAFE	Rose-breasted Grosbeak				X
HAFE	Indigo Bunting	X	X		X
HAFE	Red-winged Blackbird				X
HAFE	Common Grackle	X			X
HAFE	Brown-headed Cowbird				X
HAFE	Orchard Oriole				X
HAFE	Baltimore Oriole		X	X	X
HAFE	Purple Finch				X
HAFE	House Finch				X
HAFE	American Goldfinch				X
HAFE	House Sparrow	X			X
MANA	Common Loon				X
MANA	Pied-billed Grebe				X
MANA	Double-crested Cormorant				X
MANA	Great Blue Heron			X	X
MANA	Green Heron	X	X	X	X
MANA	Black-Crowned Night-Heron				X
MANA	White Ibis				X
MANA	Black Vulture			X	X
MANA	Turkey Vulture			X	X
MANA	Canada Goose	X		X	X
MANA	Wood Duck	X	X	X	X
MANA	Mallard		X	X	X
MANA	Hooded Merganser				X
MANA	Red-breasted Merganser				X
MANA	Osprey				X
MANA	Bald Eagle				X
MANA	Northern Harrier				X
MANA	Sharp-shinned Hawk				X
MANA	Cooper's Hawk			X	X
MANA	Red-shouldered Hawk		X	X	X
MANA	Red-tailed Hawk	X	X	X	X
MANA	American Kestrel	X	X	X	X
MANA	Merlin				X
MANA	Wild Turkey	X		X	X
MANA	Northern Bobwhite		X	X	X
MANA	Killdeer			X	X
MANA	Solitary Sandpiper				X
MANA	Spotted Sandpiper				X
MANA	Common Snipe				X
MANA	American Woodcock				X
MANA	Ring-billed Gull				X

Park Code	Species	CO	PR	PO	OB
MANA	Rock Dove			X	X
MANA	Mourning Dove	X	X	X	X
MANA	Black-billed Cuckoo				X
MANA	Yellow-billed Cuckoo		X	X	X
MANA	Great Horned Owl				X
MANA	Barred Owl			X	X
MANA	Long-eared Owl				X
MANA	Chimney Swift			X	X
MANA	Ruby-throated Hummingbird			X	X
MANA	Belted Kingfisher		X	X	X
MANA	Red-headed Woodpecker				X
MANA	Red-bellied Woodpecker	X	X	X	X
MANA	Yellow-bellied Sapsucker				X
MANA	Downy Woodpecker	X	X	X	X
MANA	Hairy Woodpecker	X		X	X
MANA	Northern Flicker	X	X	X	X
MANA	Pileated Woodpecker		X	X	X
MANA	Eastern Wood-Pewee		X	X	X
MANA	Acadian Flycatcher	X		X	X
MANA	Willow Flycatcher	X	X	X	X
MANA	Eastern Phoebe	X	X	X	X
MANA	Great Crested Flycatcher	X	X	X	X
MANA	Eastern Kingbird	X	X	X	X
MANA	White-eyed Vireo		X	X	X
MANA	Yellow-throated Vireo		X	X	X
MANA	Blue-headed Vireo				X
MANA	Philadelphia Vireo				X
MANA	Red-eyed Vireo	X	X	X	X
MANA	Blue Jay	X		X	X
MANA	American Crow	X	X	X	X
MANA	Fish Crow			X	X
MANA	Common Raven				X
MANA	Purple Martin		X		X
MANA	Tree Swallow			X	X
MANA	Northern Rough-winged Swallow			X	X
MANA	Barn Swallow	X	X	X	X
MANA	Carolina Chickadee	X	X	X	X
MANA	Tufted Titmouse	X	X	X	X
MANA	Red-breasted Nuthatch				X
MANA	White-breasted Nuthatch	X	X	X	X
MANA	Brown Creeper				X
MANA	Carolina Wren	X	X	X	X
MANA	House Wren		X	X	X
MANA	Winter Wren				X
MANA	Marsh Wren				X
MANA	Golden-crowned Kinglet				X
MANA	Ruby-crowned Kinglet				X
MANA	Blue-gray Gnatcatcher	X	X	X	X

Park Code	Species	CO	PR	PO	OB
MANA	Eastern Bluebird	x	x	x	x
MANA	Veery				x
MANA	Swainson's Thrush				x
MANA	Hermit Thrush				x
MANA	Wood Thrush	x	x	x	x
MANA	American Robin	x		x	x
MANA	Gray Catbird	x	x	x	x
MANA	Northern Mockingbird	x	x	x	x
MANA	Brown Thrasher	x	x	x	x
MANA	European Starling	x		x	x
MANA	Cedar Waxwing			x	x
MANA	Blue-winged Warbler				x
MANA	Golden-winged Warbler				x
MANA	Tennessee Warbler				x
MANA	Nashville Warbler				x
MANA	Northern Parula	x	x	x	x
MANA	Yellow Warbler			x	x
MANA	Chestnut-sided Warbler				x
MANA	Magnolia Warbler				x
MANA	Black-throated Blue Warbler				x
MANA	Yellow-rumped Warbler				x
MANA	Black-throated Green Warbler		x		x
MANA	Blackburnian Warbler				x
MANA	Yellow-throated Warbler				x
MANA	Pine Warbler	x	x	x	x
MANA	Prairie Warbler	x	x	x	x
MANA	Palm Warbler				x
MANA	Bay-breasted Warbler				x
MANA	Blackpoll Warbler				x
MANA	Cerulean Warbler				x
MANA	Black-and-white Warbler			x	x
MANA	American Redstart			x	x
MANA	Worm-eating Warbler			x	x
MANA	Ovenbird	x	x	x	x
MANA	Louisiana Waterthrush	x		x	x
MANA	Kentucky Warbler		x	x	x
MANA	Common Yellowthroat	x	x	x	x
MANA	Hooded Warbler				x
MANA	Wilson's Warbler				x
MANA	Canada Warbler				x
MANA	Yellow-breasted Chat		x	x	x
MANA	Scarlet Tanager	x		x	x
MANA	Eastern Towhee	x	x	x	x
MANA	American Tree Sparrow				x
MANA	Chipping Sparrow	x	x	x	x
MANA	Clay-colored Sparrow				x
MANA	Field Sparrow	x	x	x	x
MANA	Vesper Sparrow			x	x

Park Code	Species	CO	PR	PO	OB
MANA	Savannah Sparrow			x	x
MANA	Grasshopper Sparrow	x	x	x	x
MANA	Fox Sparrow				x
MANA	Song Sparrow	x	x	x	x
MANA	Lincoln's Sparrow				x
MANA	Swamp Sparrow			x	x
MANA	White-throated Sparrow		x		x
MANA	White-crowned Sparrow				x
MANA	Dark-eyed Junco				x
MANA	Northern Cardinal	x	x	x	x
MANA	Rose-breasted Grosbeak				x
MANA	Blue Grosbeak	x	x	x	x
MANA	Indigo Bunting	x	x	x	x
MANA	Red-winged Blackbird	x	x	x	x
MANA	Eastern Meadowlark	x	x	x	x
MANA	Rusty Blackbird				x
MANA	Common Grackle			x	x
MANA	Brown-headed Cowbird	x	x	x	x
MANA	Orchard Oriole	x	x	x	x
MANA	Baltimore Oriole	x	x	x	x
MANA	Purple Finch				x
MANA	House Finch	x	x	x	x
MANA	American Goldfinch	x	x	x	x
MANA	House Sparrow				x
PRWI	Great Blue Heron				x
PRWI	Black Vulture				x
PRWI	Turkey Vulture				x
PRWI	Canada Goose				x
PRWI	Tundra Swan				x
PRWI	Wood Duck				x
PRWI	Mallard				x
PRWI	Hooded Merganser				x
PRWI	Bald Eagle				x
PRWI	Sharp-shinned Hawk				x
PRWI	Red-shouldered Hawk				x
PRWI	Broad-winged Hawk				x
PRWI	Red-tailed Hawk				x
PRWI	Killdeer				x
PRWI	American Woodcock				x
PRWI	Ring-billed Gull				x
PRWI	Mourning Dove				x
PRWI	Yellow-billed Cuckoo				x
PRWI	Eastern Screech-Owl				x
PRWI	Chimney Swift				x
PRWI	Ruby-throated Hummingbird				x
PRWI	Belted Kingfisher				x
PRWI	Red-bellied Woodpecker	x			x
PRWI	Yellow-bellied Sapsucker				x

Park Code	Species	CO	PR	PO	OB
PRWI	Downy Woodpecker	x			x
PRWI	Hairy Woodpecker				x
PRWI	Northern Flicker				x
PRWI	Pileated Woodpecker				x
PRWI	Eastern Wood-Pewee				x
PRWI	Acadian Flycatcher				x
PRWI	Eastern Phoebe	x	x		x
PRWI	Great Crested Flycatcher				x
PRWI	White-eyed Vireo				x
PRWI	Yellow-throated Vireo				x
PRWI	Blue-headed Vireo				x
PRWI	Warbling Vireo				x
PRWI	Red-eyed Vireo		x		x
PRWI	Blue Jay				x
PRWI	American Crow				x
PRWI	Fish Crow				x
PRWI	Northern Rough-winged Swallow				x
PRWI	Carolina Chickadee				x
PRWI	Tufted Titmouse	x	x		x
PRWI	Red-breasted Nuthatch				x
PRWI	White-breasted Nuthatch		x		x
PRWI	Brown Creeper				x
PRWI	Carolina Wren				x
PRWI	Winter Wren				x
PRWI	Golden-crowned Kinglet				x
PRWI	Ruby-crowned Kinglet				x
PRWI	Blue-gray Gnatcatcher		x		x
PRWI	Eastern Bluebird				x
PRWI	Veery				x
PRWI	Swainson's Thrush				x
PRWI	Hermit Thrush				x
PRWI	Wood Thrush		x	x	x
PRWI	American Robin		x		x
PRWI	Gray Catbird				x
PRWI	Brown Thrasher				x
PRWI	European Starling				x
PRWI	Cedar Waxwing				x
PRWI	Northern Parula				x
PRWI	Yellow Warbler				x
PRWI	Cape May Warbler				x
PRWI	Black-throated Blue Warbler				x
PRWI	Yellow-rumped Warbler				x
PRWI	Black-throated Green Warbler				x
PRWI	Yellow-throated Warbler				x
PRWI	Pine Warbler		x		x
PRWI	Prairie Warbler				x
PRWI	Palm Warbler				x
PRWI	Blackpoll Warbler				x

Park Code	Species	CO	PR	PO	OB
PRWI	Black-and-white Warbler				X
PRWI	American Redstart				X
PRWI	Prothonotary Warbler				X
PRWI	Worm-eating Warbler				X
PRWI	Ovenbird		X		X
PRWI	Louisiana Waterthrush		X		X
PRWI	Kentucky Warbler				X
PRWI	Common Yellowthroat		X		X
PRWI	Hooded Warbler		X		X
PRWI	Scarlet Tanager	X	X		X
PRWI	Eastern Towhee		X		X
PRWI	Chipping Sparrow				X
PRWI	Field Sparrow				X
PRWI	Fox Sparrow				X
PRWI	Song Sparrow				X
PRWI	Swamp Sparrow				X
PRWI	White-throated Sparrow				X
PRWI	Dark-eyed Junco				X
PRWI	Northern Cardinal		X		X
PRWI	Rose-breasted Grosbeak				X
PRWI	Indigo Bunting				X
PRWI	Red-winged Blackbird				X
PRWI	Rusty Blackbird				X
PRWI	Common Grackle				X
PRWI	Brown-headed Cowbird				X
PRWI	Purple Finch				X
PRWI	House Finch				X
PRWI	American Goldfinch				X
WOTR	Great Blue Heron				X
WOTR	Green Heron				X
WOTR	Black-crowned Night-Heron				X
WOTR	Black Vulture				X
WOTR	Turkey Vulture				X
WOTR	Canada Goose				X
WOTR	Wood Duck	X			X
WOTR	Mallard		X		X
WOTR	Sharp-shinned Hawk				X
WOTR	Red-shouldered Hawk		X	X	X
WOTR	Red-tailed Hawk				X
WOTR	Rock Dove				X
WOTR	Mourning Dove		X	X	X
WOTR	Yellow-billed Cuckoo				X
WOTR	Barn Owl				X
WOTR	Chimney Swift				X
WOTR	Belted Kingfisher				X
WOTR	Red-bellied Woodpecker		X		X
WOTR	Yellow-bellied Sapsucker				X
WOTR	Downy Woodpecker		X	X	X

Park Code	Species	CO	PR	PO	OB
WOTR	Hairy Woodpecker				X
WOTR	Northern Flicker		X		X
WOTR	Pileated Woodpecker	X			X
WOTR	Eastern Wood-Pewee		X	X	X
WOTR	Acadian Flycatcher		X	X	X
WOTR	Eastern Phoebe	X	X	X	X
WOTR	Great Crested Flycatcher				X
WOTR	Eastern Kingbird				X
WOTR	Blue-headed Vireo				X
WOTR	Warbling Vireo				X
WOTR	Red-eyed Vireo			X	X
WOTR	Blue Jay	X		X	X
WOTR	American Crow			X	X
WOTR	Fish Crow				X
WOTR	Carolina Chickadee		X	X	X
WOTR	Tufted Titmouse	X	X	X	X
WOTR	White-breasted Nuthatch	X			X
WOTR	Brown Creeper				X
WOTR	Carolina Wren	X	X	X	X
WOTR	House Wren		X	X	X
WOTR	Golden-crowned Kinglet				X
WOTR	Blue-gray Gnatcatcher			X	X
WOTR	Eastern Bluebird	X	X	X	X
WOTR	Veery				X
WOTR	Swainson's Thrush				X
WOTR	Hermit Thrush				X
WOTR	Wood Thrush	X	X	X	X
WOTR	American Robin	X	X	X	X
WOTR	Gray Catbird				X
WOTR	Northern Mockingbird			X	X
WOTR	European Starling				X
WOTR	Cedar Waxwing				X
WOTR	Northern Parula				X
WOTR	Black-throated Blue Warbler				X
WOTR	Yellow-rumped Warbler				X
WOTR	Pine Warbler				X
WOTR	Black-and-white Warbler				X
WOTR	Ovenbird		X	X	X
WOTR	Louisiana Waterthrush			X	X
WOTR	Common Yellowthroat				X
WOTR	Scarlet Tanager			X	X
WOTR	Eastern Towhee		X	X	X
WOTR	Chipping Sparrow	X	X	X	X
WOTR	Song Sparrow			X	X
WOTR	White-throated Sparrow				X
WOTR	Dark-eyed Junco				X
WOTR	Northern Cardinal		X	X	X
WOTR	Indigo Bunting			X	X

Park Code	Species	CO	PR	PO	OB
WOTR	Rusty Blackbird				x
WOTR	Common Grackle		x		x
WOTR	Brown-headed Cowbird				x
WOTR	Orchard Oriole		x		x
WOTR	Baltimore Oriole			x	x
WOTR	House Finch	x		x	x
WOTR	American Goldfinch	x	x	x	x
WOTR	House Sparrow	x			x

Table 2. Bird species recorded by park section for a) Antietam National Battlefield (ANTI), Catoctin Mountain Park (CATO), and Harper’s Ferry National Historical Park (HAFE), and for b) Manassas National Battlefield (MANA) and Prince William Forest Park (PRWI).

Species at ANTI	Section Unknown	Section 1	Section 2A	Section 2AB	Section 2B
Great Blue Heron	x	x		x	
Great Egret				x	
Green Heron		x		x	
Black Vulture		x		x	
Turkey Vulture	x	x	x	x	x
Canada Goose	x	x		x	x
Wood Duck	x	x			
Mallard		x		x	
Common Merganser		x			
Osprey		x			
Northern Harrier				x	
Sharp-Shinned Hawk		x		x	
Cooper's Hawk		x		x	
Red-shouldered Hawk		x		x	
Broad-winged Hawk				x	
Red-tailed Hawk		x	x	x	x
American Kestrel		x		x	
Wild Turkey		x		x	
Northern Bobwhite		x		x	
Killdeer		x		x	
Greater Yellowlegs				x	
Solitary Sandpiper				x	
Ring-billed Gull				x	
Rock Dove	x	x	x	x	
Mourning Dove	x	x	x	x	
Black-billed Cuckoo		x			
Yellow-billed Cuckoo		x		x	
Eastern Screech-Owl		x			
Great Horned Owl		x		x	
Barred Owl		x		x	
Common Nighthawk		x			
Chimney Swift		x		x	
Ruby-throated Hummingbird	x	x		x	
Belted Kingfisher	x	x		x	
Red-headed Woodpecker		x		x	
Red-bellied Woodpecker	x	x	x	x	
Yellow-Bellied Sapsucker		x		x	
Downy Woodpecker		x		x	
Hairy Woodpecker		x		x	
Northern Flicker		x		x	
Pileated Woodpecker		x		x	
Eastern Wood-Pewee	x	x		x	
Acadian Flycatcher		x		x	

Species at ANTI	Section Unknown	Section 1	Section 2A	Section 2AB	Section 2B
Eastern Phoebe	x	x		x	
Great Crested Flycatcher		x		x	
Eastern Kingbird	x	x		x	
Loggerhead Shrike				x	
White-eyed Vireo		x		x	
Blue-headed Vireo		x			
Warbling Vireo		x		x	
Red-eyed Vireo		x		x	
Blue Jay	x	x	x	x	x
American Crow	x	x	x	x	x
Fish Crow		x		x	
Common Raven		x		x	
Horned Lark		x		x	
Purple Martin		x		x	
Tree Swallow	x	x		x	
Northern Rough-winged Swallow	x	x		x	
Barn Swallow	x	x		x	
Carolina Chickadee	x	x		x	
Tufted Titmouse	x	x	x	x	
White-breasted Nuthatch		x		x	
Brown Creeper		x		x	
Carolina Wren	x	x	x	x	
House Wren		x		x	
Winter Wren		x			
Golden-crowned Kinglet		x		x	
Ruby-crowned Kinglet		x		x	
Blue-gray Gnatcatcher	x	x		x	
Eastern Bluebird	x	x	x	x	x
Veery				x	
Hermit Thrush				x	
Wood Thrush		x		x	
American Robin	x	x	x	x	x
Gray Catbird	x	x		x	
Northern Mockingbird	x	x	x	x	
Brown Thrasher		x		x	
European Starling	x	x	x	x	x
American Pipit				x	
Cedar Waxwing		x	x	x	x
Northern Parula		x			
Yellow Warbler		x		x	
Magnolia Warbler		x			
Yellow-rumped Warbler		x	x	x	
Black-throated Green Warbler				x	
Blackburnian Warbler		x			
Pine Warbler		x		x	
Prairie Warbler		x			
Palm Warbler		x		x	

Species at ANTI	Section Unknown	Section 1	Section 2A	Section 2AB	Section 2B
Blackpoll Warbler		x			
American Redstart		x			
Louisiana Waterthrush		x			
Common Yellowthroat		x			
Hooded Warbler		x			
Yellow-breasted Chat		x		x	
Scarlet Tanager		x		x	
Eastern Towhee	x	x		x	
American Tree Sparrow		x		x	
Chipping Sparrow	x	x		x	
Field Sparrow	x	x		x	
Vesper Sparrow	x	x		x	
Savannah Sparrow		x		x	
Grasshopper Sparrow	x	x		x	
Fox Sparrow		x			
Song Sparrow	x	x	x	x	x
White-throated Sparrow		x	x	x	x
White-crowned Sparrow		x		x	
Dark-eyed Junco		x	x	x	x
Northern Cardinal	x	x	x	x	x
Rose-breasted Grosbeak				x	
Blue Grosbeak		x		x	
Indigo Bunting	x	x		x	
Bobolink		x			
Red-winged Blackbird	x	x		x	
Eastern Meadowlark		x		x	
Common Grackle	x	x	x	x	
Brown-headed Cowbird	x	x		x	
Orchard Oriole	x	x		x	
Baltimore Oriole	x	x		x	
Purple Finch		x			
House Finch	x	x	x	x	x
American Goldfinch	x	x	x	x	
House Sparrow	x	x	x	x	
Total	42	112	23	104	14

Species at CATO	Section Unknown	Section 1	Section 2	Section 3	Section 4
Great Blue Heron	x			x	
Black Vulture	x	x	x		
Turkey Vulture	x	x	x	x	x
Canada Goose	x	x	x	x	
Sharp-shinned Hawk	x	x			
Cooper's Hawk		x	x		
Red-shouldered Hawk	x	x	x	x	
Broad-winged Hawk	x	x	x	x	x

Species at CATO	Section Unknown	Section 1	Section 2	Section 3	Section 4
Red-tailed Hawk	x	x	x	x	x
Peregrine Falcon	x				
Ruffed Grouse		x	x		
Wild Turkey	x	x	x		
Ring-billed Gull		x		x	
Rock Dove	x	x	x		
Mourning Dove	x	x	x	x	x
Yellow-billed Cuckoo	x	x	x	x	x
Eastern Screech-Owl		x		x	
Great Horned Owl	x		x		
Barred Owl	x	x	x		
Chimney Swift	x		x		
Ruby-throated Hummingbird	x	x	x	x	
Belted Kingfisher	x				
Red-bellied Woodpecker	x	x	x	x	x
Yellow-bellied Sapsucker	x	x	x	x	
Downy Woodpecker	x	x	x	x	x
Hairy Woodpecker	x	x	x	x	
Northern Flicker	x	x	x	x	
Pileated Woodpecker	x	x	x	x	x
Eastern Wood-Pewee	x	x	x	x	x
Acadian Flycatcher	x	x	x	x	x
Eastern Phoebe	x	x	x	x	x
Great Crested Flycatcher	x	x	x	x	x
Eastern Kingbird	x				
White-eyed Vireo	x		x		
Yellow-throated Vireo	x	x	x	x	
Blue-headed Vireo			x	x	
Red-eyed Vireo	x	x	x	x	x
Blue Jay	x	x	x	x	x
American Crow	x	x	x	x	x
Common Raven	x	x	x	x	
Barn Swallow	x	x			
Carolina Chickadee	x	x	x	x	x
Black-capped Chickadee		x			x
Tufted Titmouse	x	x	x	x	x
Red-breasted Nuthatch	x	x			
White-breasted Nuthatch	x	x	x	x	x
Brown Creeper	x	x	x	x	
Carolina Wren	x	x	x	x	x
House Wren	x	x	x	x	
Winter Wren		x	x		x
Golden-crowned Kinglet	x	x	x	x	x
Ruby-crowned Kinglet	x	x	x	x	
Blue-gray Gnatcatcher	x	x	x	x	x
Eastern Bluebird	x	x	x	x	
Veery	x	x	x	x	

Species at CATO	Section Unknown	Section 1	Section 2	Section 3	Section 4
Swainson's Thrush			x		x
Hermit Thrush	x	x	x		
Wood Thrush	x	x	x	x	x
American Robin	x	x	x	x	x
Gray Catbird	x	x	x	x	x
Northern Mockingbird	x	x	x	x	
Brown Thrasher		x	x		
European Starling	x	x	x	x	
Cedar Waxwing	x	x	x	x	
Tennessee Warbler	x				
Orange-crowned Warbler	x				
Nashville Warbler	x	x			
Northern Parula	x		x		
Yellow Warbler			x		
Chestnut-sided Warbler			x	x	
Magnolia Warbler	x		x	x	
Black-throated Blue Warbler	x	x			x
Yellow-rumped Warbler	x	x	x		x
Black-throated Green Warbler	x	x	x		x
Blackburnian Warbler				x	
Pine Warbler					x
Palm Warbler		x			
Blackpoll Warbler			x		x
Cerulean Warbler	x		x		
Black-and-white Warbler	x		x		x
American Redstart	x	x	x	x	x
Worm-eating Warbler	x	x			
Ovenbird	x	x	x	x	x
Louisiana Waterthrush	x	x	x	x	x
Kentucky Warbler	x	x	x	x	
Common Yellowthroat	x				
Hooded Warbler	x	x	x	x	
Canada Warbler	x				
Scarlet Tanager	x	x	x	x	x
Eastern Towhee	x	x	x	x	x
Chipping Sparrow	x	x	x	x	x
Field Sparrow			x		
Fox Sparrow	x	x			
Song Sparrow	x	x	x	x	
White-throated Sparrow	x	x	x	x	x
White-crowned Sparrow	x				x
Dark-eyed Junco	x	x	x	x	
Northern Cardinal	x	x	x	x	x
Rose-breasted Grosbeak			x		
Indigo Bunting	x	x	x		x
Red-winged Blackbird	x	x		x	

Species at CATO	Section Unknown	Section 1	Section 2	Section 3	Section 4
Common Grackle	x	x	x	x	x
Brown-headed Cowbird	x	x	x	x	x
Baltimore Oriole	x	x		x	
Purple Finch		x			
House Finch	x				
American Goldfinch	x	x	x	x	x
House Sparrow	x				
Total	90	81	81	64	46

Species at HAFE	Section 2	Section 3	Section 4
Double-crested Cormorant	x	x	x
Great Blue Heron	x	x	x
Great Egret		x	x
Green Heron			x
Black Vulture	x	x	x
Turkey Vulture	x	x	x
Canada Goose	x	x	x
Wood Duck	x	x	x
American Black Duck	x	x	x
Mallard	x	x	x
Canvasback		x	x
Bufflehead		x	
Common Merganser	x	x	
Osprey	x		x
Bald Eagle			x
Sharp-shinned Hawk	x		x
Cooper's Hawk		x	x
Red-shouldered Hawk			x
Broad-winged Hawk	x		x
Red-tailed Hawk	x	x	x
Peregrine Falcon	x		
Wild Turkey	x		x
Northern Bobwhite			x
Killdeer	x	x	x
Spotted Sandpiper			x
Laughing Gull			x
Ring-billed Gull	x	x	x
Herring Gull		x	
Rock Dove	x	x	x
Mourning Dove	x	x	x
Yellow-billed Cuckoo	x	x	x
Chimney Swift		x	x
Ruby-throated Hummingbird		x	x
Belted Kingfisher	x	x	x
Red-bellied Woodpecker	x	x	x
Yellow-bellied Sapsucker	x	x	x
Downy Woodpecker	x	x	x

Species at HAFE	Section 2	Section 3	Section 4
Hairy Woodpecker	x	x	x
Northern Flicker	x	x	x
Pileated Woodpecker	x	x	x
Eastern Wood-Pewee	x	x	x
Acadian Flycatcher	x	x	x
Eastern Phoebe	x		x
Great Crested Flycatcher	x	x	x
Eastern Kingbird	x	x	x
White-eyed Vireo	x		x
Yellow-throated Vireo	x	x	x
Blue-headed Vireo	x	x	x
Warbling Vireo	x		x
Red-eyed Vireo	x	x	x
Blue Jay	x	x	x
American Crow	x	x	x
Fish Crow		x	x
Common Raven	x	x	x
Purple Martin			x
Tree Swallow	x		x
Northern Rough-winged Swallow		x	x
Barn Swallow			x
Carolina Chickadee	x	x	x
Black-capped Chickadee	x	x	x
Tufted Titmouse	x	x	x
Red-breasted Nuthatch	x		
White-breasted Nuthatch	x	x	x
Brown Creeper	x	x	x
Carolina Wren	x	x	x
House Wren	x	x	x
Winter Wren	x		
Golden-crowned Kinglet	x	x	x
Ruby-crowned Kinglet	x	x	x
Blue-gray Gnatcatcher	x		x
Eastern Bluebird	x		x
Hermit Thrush	x		x
Wood Thrush	x	x	x
American Robin	x	x	x
Gray Catbird	x		x
Northern Mockingbird		x	x
Brown Thrasher			x
European Starling	x	x	x
Cedar Waxwing	x	x	x
Northern Parula			x
Yellow Warbler			x
Black-throated Blue Warbler	x	x	x
Yellow-rumped Warbler		x	x
Black-throated Green Warbler	x	x	x

Species at HAFE	Section 2	Section 3	Section 4
Blackburnian Warbler	x		
Yellow-throated Warbler			x
Prairie Warbler			x
Black-and-white Warbler	x	x	x
American Redstart	x		x
Prothonotary Warbler	x		
Worm-eating Warbler	x	x	
Ovenbird	x	x	
Louisiana Waterthrush	x	x	x
Scarlet Tanager	x	x	x
Eastern Towhee	x	x	x
Chipping Sparrow			x
Field Sparrow			x
Savannah Sparrow			x
Grasshopper Sparrow			x
Song Sparrow	x	x	x
White-throated Sparrow	x	x	x
Dark-eyed Junco	x		x
Northern Cardinal	x	x	x
Rose-breasted Grosbeak	x		
Indigo Bunting	x	x	x
Red-winged Blackbird	x		x
Common Grackle	x	x	x
Brown-headed Cowbird	x	x	x
Orchard Oriole	x		x
Baltimore Oriole	x	x	x
Purple Finch			x
House Finch		x	x
American Goldfinch	x	x	x
House Sparrow		x	x
Total	83	74	103

Species at MANA	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6
Common Loon			x			
Pied-billed Grebe				x		
Double-crested Cormorant						x
Great Blue Heron	x	x	x	x	x	x
Green Heron	x		x	x		x
Black-Crowned Night-Heron				x		
White Ibis						x
Black Vulture	x	x	x	x	x	x
Turkey Vulture	x	x	x	x	x	x
Canada Goose	x	x	x	x	x	x
Wood Duck	x		x	x	x	x
Mallard	x	x	x	x	x	x
Hooded Merganser			x	x		x
Red-breasted Merganser	x					x

Species at MANA	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6
Osprey	x				x	
Bald Eagle	x		x	x		
Northern Harrier		x	x	x		
Sharp-shinned Hawk	x		x	x	x	x
Cooper's Hawk	x	x	x	x	x	
Red-shouldered Hawk	x	x	x	x	x	x
Red-tailed Hawk	x	x	x	x	x	x
American Kestrel	x		x	x	x	x
Merlin			x	x		
Wild Turkey	x		x	x	x	
Northern Bobwhite	x	x	x	x		x
Killdeer	x		x	x		x
Solitary Sandpiper	x		x			x
Spotted Sandpiper			x			x
Common Snipe				x		
American Woodcock	x		x		x	
Ring-billed Gull	x	x	x	x	x	x
Rock Dove		x	x	x	x	x
Mourning Dove	x	x	x	x	x	x
Black-billed Cuckoo			x			
Yellow-billed Cuckoo	x	x	x	x	x	x
Great Horned Owl			x			
Barred Owl	x	x			x	x
Long-eared Owl			x			
Chimney Swift	x	x	x	x	x	x
Ruby-throated Hummingbird			x	x	x	x
Belted Kingfisher	x		x	x	x	
Red-headed Woodpecker			x	x	x	x
Red-bellied Woodpecker	x	x	x	x	x	x
Yellow-bellied Sapsucker	x	x	x	x	x	x
Downy Woodpecker	x	x	x	x	x	x
Hairy Woodpecker	x	x	x	x	x	x
Northern Flicker	x	x	x	x	x	x
Pileated Woodpecker	x	x	x	x	x	x
Eastern Wood-Pewee	x	x	x	x	x	x
Acadian Flycatcher	x		x	x	x	x
Willow Flycatcher	x				x	
Eastern Phoebe	x	x	x	x	x	x
Great Crested Flycatcher	x	x	x	x	x	x
Eastern Kingbird	x		x	x	x	x
White-eyed Vireo	x		x	x	x	x
Yellow-throated Vireo	x		x	x	x	x
Blue-headed Vireo	x	x	x	x	x	
Philadelphia Vireo			x		x	
Red-eyed Vireo	x	x	x	x	x	x
Blue Jay	x	x	x	x	x	x
American Crow	x	x	x	x	x	x
Fish Crow	x	x	x	x	x	x

Species at MANA	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6
Common Raven	x		x	x		
Purple Martin	x		x	x		
Tree Swallow	x		x	x	x	x
Northern Rough-winged Swallow			x			x
Barn Swallow	x	x	x	x	x	x
Carolina Chickadee	x	x	x	x	x	x
Tufted Titmouse	x	x	x	x	x	x
Red-breasted Nuthatch	x	x	x	x	x	x
White-breasted Nuthatch	x	x	x	x	x	x
Brown Creeper	x	x	x	x	x	x
Carolina Wren	x	x	x	x	x	x
House Wren			x	x	x	x
Winter Wren			x	x		x
Marsh Wren					x	
Golden-crowned Kinglet	x	x	x	x	x	x
Ruby-crowned Kinglet	x	x	x	x	x	x
Blue-gray Gnatcatcher	x	x	x	x	x	x
Eastern Bluebird	x	x	x	x	x	x
Veery			x		x	
Swainson's Thrush	x		x	x	x	
Hermit Thrush	x	x	x	x	x	
Wood Thrush	x	x	x	x	x	x
American Robin	x	x	x	x	x	x
Gray Catbird	x	x	x	x	x	x
Northern Mockingbird	x	x	x	x	x	x
Brown Thrasher	x	x	x	x	x	x
European Starling	x	x	x	x	x	x
Cedar Waxwing	x		x	x	x	x
Blue-winged Warbler			x		x	
Golden-winged Warbler	x				x	
Tennessee Warbler			x		x	
Nashville Warbler	x		x		x	
Northern Parula	x		x	x	x	x
Yellow Warbler	x		x			x
Chestnut-sided Warbler	x		x	x	x	
Magnolia Warbler	x	x	x	x	x	x
Black-throated Blue Warbler	x		x		x	x
Yellow-rumped Warbler	x	x	x	x	x	x
Black-throated Green Warbler	x		x	x	x	
Blackburnian Warbler			x		x	
Yellow-throated Warbler	x					
Pine Warbler	x	x	x	x	x	x
Prairie Warbler	x	x	x	x	x	x
Palm Warbler	x	x	x	x	x	x
Bay-breasted Warbler			x		x	
Blackpoll Warbler	x		x		x	
Cerulean Warbler				x		

Species at MANA	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6
Black-and-white Warbler	x		x	x	x	
American Redstart	x	x	x	x	x	x
Worm-eating Warbler						x
Ovenbird	x	x	x	x	x	x
Louisiana Waterthrush			x		x	
Kentucky Warbler			x			
Common Yellowthroat	x	x	x	x	x	x
Hooded Warbler				x		
Wilson's Warbler			x			
Canada Warbler	x		x	x	x	
Yellow-breasted Chat	x		x			x
Scarlet Tanager	x	x	x	x	x	x
Eastern Towhee	x	x	x	x	x	x
American Tree Sparrow	x					
Chipping Sparrow	x	x	x	x	x	x
Clay-colored Sparrow						x
Field Sparrow	x	x	x	x	x	x
Vesper Sparrow			x	x		x
Savannah Sparrow	x		x	x		x
Grasshopper Sparrow	x		x		x	x
Fox Sparrow	x	x	x	x	x	x
Song Sparrow	x	x	x	x	x	x
Lincoln's Sparrow			x			
Swamp Sparrow	x		x	x		x
White-throated Sparrow	x	x	x	x	x	x
White-crowned Sparrow			x	x		
Dark-eyed Junco	x	x	x	x	x	x
Northern Cardinal	x	x	x	x	x	x
Rose-breasted Grosbeak	x		x	x	x	x
Blue Grosbeak	x		x	x		x
Indigo Bunting	x	x	x	x	x	x
Red-winged Blackbird	x	x	x	x	x	x
Eastern Meadowlark	x	x	x	x	x	x
Rusty Blackbird				x		
Common Grackle	x	x	x	x	x	x
Brown-headed Cowbird	x	x	x	x	x	x
Orchard Oriole	x		x		x	x
Baltimore Oriole	x		x		x	x
Purple Finch	x	x	x		x	x
House Finch	x	x	x	x	x	x
American Goldfinch	x	x	x	x	x	x
House Sparrow			x			
Total	113	73	133	111	110	105

Species at PRWI	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6
Great Blue Heron	x	x		x	x	
Black Vulture	x					
Turkey Vulture	x	x	x	x	x	x

Species at PRWI	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6
Canada Goose	x	x	x	x	x	
Tundra Swan				x		
Wood Duck	x	x	x	x	x	
Mallard		x			x	
Hooded Merganser		x			x	
Bald Eagle						x
Sharp-shinned Hawk				x	x	
Red-shouldered Hawk			x	x		
Broad-winged Hawk	x			x		
Red-tailed Hawk		x		x	x	
Killdeer				x		
American Woodcock				x		
Ring-billed Gull	x	x	x	x		x
Mourning Dove	x	x	x	x	x	x
Yellow-billed Cuckoo	x					
Eastern Screech-Owl				x		
Chimney Swift				x		
Ruby-throated Hummingbird				x		
Belted Kingfisher			x	x	x	
Red-bellied Woodpecker	x	x	x	x	x	x
Yellow-bellied Sapsucker	x		x	x	x	x
Downy Woodpecker	x	x	x	x	x	x
Hairy Woodpecker	x		x	x	x	x
Northern Flicker	x		x	x	x	x
Pileated Woodpecker	x	x	x	x	x	x
Eastern Wood-Pewee	x		x	x	x	x
Acadian Flycatcher	x		x	x		
Eastern Phoebe	x	x	x	x	x	x
Great Crested Flycatcher	x					
White-eyed Vireo	x			x		
Yellow-throated Vireo			x	x		
Blue-headed Vireo	x		x	x		
Warbling Vireo	x					
Red-eyed Vireo	x		x	x	x	x
Blue Jay	x	x	x	x	x	x
American Crow	x	x	x	x	x	x
Fish Crow			x	x	x	
Northern Rough-winged Swallow				x		
Carolina Chickadee	x	x	x	x	x	x
Tufted Titmouse	x	x	x	x	x	x
Red-breasted Nuthatch				x		
White-breasted Nuthatch	x	x	x	x	x	x
Brown Creeper	x	x	x	x	x	
Carolina Wren	x	x	x	x	x	x
Winter Wren		x	x			x
Golden-crowned Kinglet	x	x	x	x	x	x
Ruby-crowned Kinglet	x	x	x	x	x	x
Blue-gray Gnatcatcher	x		x	x		x

Species at PRWI	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6
Eastern Bluebird		x	x	x		
Veery	x					
Swainson's Thrush				x		
Hermit Thrush	x	x	x	x	x	x
Wood Thrush	x		x	x	x	x
American Robin	x	x	x	x	x	x
Gray Catbird	x			x	x	
Brown Thrasher	x		x			
European Starling	x		x			
Cedar Waxwing				x		
Northern Parula	x		x	x	x	
Yellow Warbler	x					
Cape May Warbler				x		
Black-throated Blue Warbler				x		
Yellow-rumped Warbler	x	x	x	x		x
Black-throated Green Warbler	x			x		
Yellow-throated Warbler	x					
Pine Warbler	x	x	x	x	x	x
Prairie Warbler				x		
Palm Warbler				x		
Blackpoll Warbler	x					
Black-and-white Warbler	x			x	x	
American Redstart				x		
Prothonotary Warbler	x					
Worm-eating Warbler				x		
Ovenbird	x		x	x	x	x
Louisiana Waterthrush	x		x	x	x	
Kentucky Warbler				x		
Common Yellowthroat	x			x		
Hooded Warbler	x		x	x	x	
Scarlet Tanager	x		x	x		
Eastern Towhee	x	x	x	x	x	x
Chipping Sparrow				x		
Field Sparrow	x		x			
Fox Sparrow			x	x	x	
Song Sparrow	x	x	x	x	x	
Swamp Sparrow	x					
White-throated Sparrow	x	x	x	x	x	x
Dark-eyed Junco	x	x	x	x	x	x
Northern Cardinal	x	x	x	x	x	x
Rose-breasted Grosbeak				x		
Indigo Bunting			x			
Red-winged Blackbird			x	x		
Rusty Blackbird				x		
Common Grackle	x		x	x		
Brown-headed Cowbird	x	x	x	x	x	
Purple Finch			x	x		
House Finch			x			

Species at PRWI	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6
American Goldfinch	x		x	x	x	x
Total	64	34	58	81	47	34

Table 3. Resident (R) and migrant (M) bird species expected to occur, but not observed, at Antietam National Battlefield (ANTI), Catoctin Mountain Park (CATO), Harper’s Ferry National Historical Park (HAFE), Manassas National Battlefield (MANA), Prince William Forest Park (PRWI), and Wolf Trap National Park for the Performing Arts (WOTR).

Common Name	ANTI	CATO	HAFE	MANA	PRWI	WOTR
Pied-billed Grebe	M		M		M	
American Bittern*	M			M		
Little Blue Heron			M			
Green Heron		R			R	
Wood Duck		R				
Green-winged Teal	M		M	M	R	
American Black Duck*	M			M	R	
Mallard		R				
Northern Pintail	M		M	M	M	
Blue-winged Teal	M		M	M	M	
Northern Shoveler	M		M	M	M	
Gadwall	M		M	M	R	
American Wigeon	M		M	M	M	
Canvasback	M			M	R	
Redhead	M		M	M	M	
Ring-necked Duck	M		M	M	R	
Lesser Scaup	M		R	M	R	
Bufflehead	M			M	R	
Hooded Merganser	M		M			
Common Merganser				M	M	
Red-breasted Merganser			M			
Ruddy Duck	M		M	M	M	
Osprey		M			M	
Bald Eagle	M	M				
Northern Harrier			R			
Cooper's Hawk					R	R
Broad-winged Hawk				R		M
Rough-legged Hawk	R		R	R		
American Kestrel		R	R		M	R
Merlin	M	M	M		M	M
Peregrine Falcon*	M			M	M	M
Ring-necked Pheasant	R		R	R		
Ruffed Grouse	R		R			
Wild Turkey					R	
Virginia Rail	M			M		
Sora	M			M		
American Coot	M		M	M	R	
Killdeer		M				R
Greater Yellowlegs				M	M	
Lesser Yellowlegs	M			M	M	
Solitary Sandpiper		M	M		M	M
Spotted Sandpiper	M	M			M	
Upland Sandpiper	M		M	M		
Least Sandpiper	M			M	M	

Common Name	ANTI	CATO	HAFE	MANA	PRWI	WOTR
Pectoral Sandpiper	M			M	M	
Common Snipe	M		M			M
American Woodcock*	R	R	R			M
Bonaparte's Gull			M			
Ring-billed Gull						R
Rock Dove					R	
Black-billed Cuckoo		R	R		R	
Barn Owl	R	R	R	R		
Eastern Screech-Owl			R	R		R
Great Horned Owl			R		R	R
Barred Owl			R		R	R
Short-eared Owl	R		R	R		
Common Nighthawk			R	M		M
Whip-poor-will*		R	R	R	R	
Ruby-throated Hummingbird						R
Red-headed Woodpecker		M	R		M	M
Yellow-bellied Flycatcher	M	M	M	M	M	M
Alder Flycatcher	M	M	M	M	M	M
Willow Flycatcher	R	M	R		M	M
Least Flycatcher	M	M	M	M	M	M
Eastern Kingbird					R	
Horned Lark			R	R		
Purple Martin						R
Tree Swallow					R	
Bank Swallow			M	M		
Cliff Swallow	M		R	M		
Barn Swallow	R				R	R
Fish Crow		R				
Black-capped Chickadee	R					
House Wren					R	
Winter Wren						R
Ruby-crowned Kinglet						M
Veery*			M			
Gray-cheeked Thrush	M	M	M	M	M	M
Swainson's Thrush	M		M			
Northern Mockingbird					R	
Brown Thrasher						R
American Pipit			M	M		
Loggerhead Shrike*			R	R		
White-eyed Vireo						R
Yellow-throated Vireo	R					R
Warbling Vireo		R		R		
Philadelphia Vireo	M	M	M		M	M
Blue-winged Warbler	R	R	M		M	M
Golden-winged Warbler*	M	M	M		M	M
Tennessee Warbler	M		M		M	M
Orange-crowned Warbler	M		M	M	M	M
Nashville Warbler	M		M		M	M
Yellow Warbler						R
Chestnut-sided Warbler	M		M		M	M

Common Name	ANTI	CATO	HAFE	MANA	PRWI	WOTR
Magnolia Warbler			M		M	M
Cape May Warbler	M	M	M	M		M
Black-throated Blue Warbler	M					
Black-throated Green Warbler						M
Blackburnian Warbler					M	M
Prairie Warbler*		R				
Palm Warbler			M			M
Bay-breasted Warbler	M	M	M		M	M
Blackpoll Warbler			M			M
Cerulean Warbler*	M		R		M	M
Black-and-white Warbler	M					
American Redstart						M
Worm-eating Warbler*	M					
Ovenbird	R					
Northern Waterthrush	M	M	M	M	M	M
Kentucky Warbler*	R		R			R
Connecticut Warbler	M	M	M	M	M	M
Mourning Warbler	M	M	M	M	M	M
Common Yellowthroat			R			
Hooded Warbler*			R			M
Wilson's Warbler	M	M	M		M	M
Canada Warbler	M		M		M	M
Yellow-breasted Chat		R	R		R	R
Summer Tanager					R	
Rose-breasted Grosbeak						M
Blue Grosbeak		R	R			R
Dickcissel	R		R	R		
American Tree Sparrow		R	R		R	
Vesper Sparrow			R			
Grasshopper Sparrow*		R				
Fox Sparrow			M			R
Lincoln's Sparrow	M		M			M
Swamp Sparrow	M	M	M			
White-crowned Sparrow			R			
Lapland Longspur	R			R		
Snow Bunting	R			R		
Bobolink			M	M		
Red-winged Blackbird						R
Eastern Meadowlark		R	R			
Rusty Blackbird	M	M	M			
Orchard Oriole		R			R	
Baltimore Oriole					R	
Purple Finch						M
Pine Siskin		M	M	M	M	
Evening Grosbeak		M	M	M	M	
House Sparrow					R	

* Indicates Species of Concern (Gray and Koenen 2001).

Appendix A. Species Expected in Parks of the National Capital Region Network as produced in Gray and Koenen 2001.

1. Bird Species

Bird species (228) that are expected in the National Capital Network (Ilf, M. J., R. F. Ringler, J. L. Stasz. 1996. Birds of Maryland. Maryland Ornithological Society; C. S. Robbins. 1996. Atlas of the Breeding Birds of Maryland and the District of Columbia. Univ. of Pittsburgh Press; J. S. Hatfield, S. A. Ricciardi, G. A. Gough, D. Bystrak, S. Droege, and C. S. Robbins. 1994. Distribution and abundance of birds wintering in Maryland, 1988-1993. Maryland Birdlife 50: 1-83; Stewart, R. E. and C. S. Robbins. 1958. Birds of Maryland and the District of Columbia. USDI Fish and Wildlife Service, North American Fauna No. 62; reviewed by D. Dawson of USGS, Patuxent Wildlife Research Center, Maryland). Key: x = breeding has been recorded in the region, w = winter resident, m = migrant, p = possible occurrence, and pr = probable occurrence.

National Parks of the National Capital Network

Common Name	Breeding records in the region (H = historic)	ANTI	CATO	CHOH	GWMP	HAFE	MANA	MONO	NACE	PRWI	ROCR	WOTR
Common Loon				m	w				w			
Pied-billed Grebe	x	m		Po	Po	m	m	m	Po	m		
Horned Grebe					w				w			
Double-crested Cormorant	x			Po	Po	m			Po			
American Bittern*	x	m		m	Po		m	m	Po			
Least Bittern*	x				Po				Po			
Great Blue Heron	x	Po										
Great Egret				m	m	m			m			
Snowy Egret					m				m			
Little Blue Heron				m	m	m			m			
Cattle Egret					m				m			
Green Heron	x	Po	Pr	Po	Po	Po						
Black-crowned Night-Heron	H			Po	Po				Po		Po	
Yellow-crowned Night-Heron	x			Po	Po				Po			
Glossy Ibis					m				m			
Tundra Swan					w				w			
Canada Goose	x	Pr	Po	Pr	Pr	Pr	Po	Pr	Pr	Po	Po	Po
Wood Duck	x	Pr	Po	Pr	Pr	Po	Po	Pr	Pr	Po	Po	Po
Green-winged Teal		m		w	w	m	m	m	w	w		
American Black Duck*	x	m		w	Po	m	m	m	Po	w		
Mallard	x	Pr	Po	Po	Pr	Po	Pr	Po	Pr	Po	Po	Po
Northern Pintail		m		m	w	m	m	m	w	m		
Blue-winged Teal	H	m		m	m	m	m	m	m	m		
Northern Shoveler		m		m	m	m	m	m	m	m		
Gadwall		m		m	w	m	m	m	w	w		
American Wigeon		m		m	m	m	m	m	m	m		
Canvasback		m		m	w	m	m	m	w	w		
Redhead		m		m	m	m	m	m	m	m		
Ring-necked Duck		m		w	w	m	m	m	w	w		

National Parks of the National Capital Network

Common Name	Breeding records in the region (H = historic)		ANTI	CATO	CHOH	GWMP	HAFE	MANA	MONO	NACE	PRWI	ROCR	WOTR
Lesser Scaup			m		w	w	w	m	m	w	w		
Bufflehead			m		w	w	w	m	m	w	w		
Hooded Merganser			m		w	w	m	m	m	w	w		
Common Merganser			m		w	w	w	m	w	w	m		
Red-breasted Merganser					m	w	m			w			
Ruddy Duck			m		m	w	m	m	m	w	m		
Black Vulture	x		Po										
Turkey Vulture	x		Po	Pr	Pr	Po	Po	Po	Po	Po	Po	m	m
Osprey	x		m	m	Po	Po	m	m	m	Pr	m	m	
Bald Eagle	x		m	m	Pr	Po	m	m	m	Pr	Po		
Northern Harrier			w		m	m	w	w	w	m			
Sharp-shinned Hawk			w	w	w	w	w	w	w	w	w	w	W
Cooper's Hawk	x		w	Po	Po	Po	Po	Po	w	Po	Po	w	W
Red-shouldered Hawk	x		Po	Po	Pr	Po	Po	Po	Po	Pr	Pr	Po	m
Broad-winged Hawk	x		m	Po	m								
Red-tailed Hawk	x		Po	Po	Pr	Po	Po	Po	Po	Pr	Po	m	m
Rough-legged Hawk			w				w	w	w				
American Kestrel	x		Po	m	m	Po							
Merlin			m	m	m	m	m	m	m	m	m	m	m
Peregrine Falcon*			m	m	m	m	m	m	m	m	m	m	m
Ring-necked Pheasant	x		Po				Po	Po	Po				
Ruffed Grouse	x		Po	Po	Po		Po						
Wild Turkey	x		Po	Pr	Po								
Northern Bobwhite*	x		Po		Po	Po	Po	Po	Po	Pr			
King Rail	x					Po				Po			
Virginia Rail	x		m		m	Po		m	m	Po			
Sora	H		m		m	m		m	m	m			
Common Moorhen	x				m	Po				Po			
American Coot	H		m		w	w	m	m	m	w	w		
Semipalmated Plover						m				m			
Killdeer	x		Pr	m	Po	Po	Po	Po	Pr	Pr	m	Po	Po
Greater Yellowlegs			m		m	m		m	m	m	m		
Lesser Yellowlegs			m		m	m		m	m	m	m		
Solitary Sandpiper			m	m	m	m	m	m	m	m	m	m	m
Spotted Sandpiper			m	m	m	m	m	m	m	m	m	m	
Upland Sandpiper			m				m	m	m				
Semipalmated Sandpiper						m				m			
Western Sandpiper						m				m			
Least Sandpiper			m			m		m	m	m	m		
Pectoral Sandpiper			m			m		m	m	m	m		
Dunlin						m				m			
Short-billed Dowitcher						m				m			

National Parks of the National Capital Network

Common Name	Breeding records in the region (H = historic)		ANTI	CATO	CHOH	GWMP	HAFE	MANA	MONO	NACE	PRWI	ROCR	WOTR
Common Snipe			m		m	w	m	m	m	w		m	m
American Woodcock*	x		Po	m	m								
Laughing Gull					m	m				m			
Bonaparte's Gull					m	m	m			m			
Ring-billed Gull			m		w	w	w	m	m	w	m	w	W
Herring Gull					m	w	m			w		w	
Great Black-backed Gull					w	w				w		w	
Caspian Tern					m	m				m			
Forster's Tern					m	m				m			
Black Tern					m	m				m			
Rock Dove	x		Pr	Po	Po	Po	Pr	Po	Pr	Po	Po	Pr	Pr
Mourning Dove	x		Pr										
Black-billed Cuckoo	x		Po	m									
Yellow-billed Cuckoo	x		Po	Pr	Pr	Po	Po	Po	Po	Pr	Pr	Po	Po
Barn Owl	x		Po										
Eastern Screech-Owl	x		Pr	Pr	Pr	Po	Po	Po	Po	Pr	Po	Pr	Po
Great Horned Owl	x		Po	Pr	Pr	Po	Po	Po	Po	Pr	Po	Po	Po
Barred Owl	x		Po	Pr	Pr	Po	Po	Po	Po	Pr	Po	Po	Po
Short-eared Owl			w				w	w	w				
Common Nighthawk	x		m			m	Po	m	m	m		m	m
Whip-poor-will*	x			Po	Po		Po	Po		Po	Po		
Chimney Swift	x		Pr	Po	Po	Po	Pr	Po	Po	Po	Po	Po	Po
Ruby-throated Hummingbird	x		Po	Pr	Pr	Pr	Pr	Pr	Po	Pr	Pr	Pr	Po
Belted Kingfisher	x		Po										
Red-headed Woodpecker	x		Po	m	Po	m	Po	Po	Po	m	m	m	m
Red-bellied Woodpecker	x		Pr										
Yellow-bellied Sapsucker			w	w	w	w	w	w	w	w	w	w	W
Downy Woodpecker	x		Pr										
Hairy Woodpecker	x		Po	Pr	Pr	Pr	Pr	Po	Po	Pr	Pr	Pr	Po
Northern Flicker	x		Pr										
Pileated Woodpecker	x		Po	Pr	Pr	Pr	Pr	Po	Po	Pr	Pr	Po	Po
Eastern Wood-Pewee	x		Pr										
Yellow-bellied Flycatcher			m	m	m	m	m	m	m	m	m	m	m
Acadian Flycatcher*	x		Pr	Po									
Alder Flycatcher			m	m	m	m	m	m	m	m	m	m	m
Willow Flycatcher	x		Po	m	m	Po	Po	Po	Po	Pr	m	m	m
Least Flycatcher	x		m	m	Po	m	m	m	m	m	m	m	m
Eastern Phoebe	x		Pr										
Great Crested Flycatcher	x		Pr	Po									
Eastern Kingbird	x		Pr	Po	Pr	Pr	Pr	Pr	Pr	Pr	Po	Pr	Po
Horned Lark	x		Po				Po	Po	Po	Po			
Purple Martin	x		Po		Po	Po	Po	Po	Po	Po			Po

National Parks of the National Capital Network

Common Name	Breeding records in the region (H = historic)	ANTI	CATO	CHOH	GWMP	HAFE	MANA	MONO	NACE	PRWI	ROCR	WOTR
Dickcissel	x	Po				Po	Po	Po				
Eastern Towhee	x	Po	Pr	Pr	Pr	Pr	Pr	Po	Pr	Pr	Pr	Po
American Tree Sparrow		w	w	w	w	w	w	w	w	w	w	
Chipping Sparrow	x	Pr	Po	Pr	Pr	Pr	Pr	Pr	Pr	Po	Po	Po
Field Sparrow*	x	Pr	Po	Po	Po	Po	Pr	Po	Pr	Po	m	
Vesper Sparrow	x	Po		Po		Po	Po	Po	m		m	
Savannah Sparrow	x	Po			w	Po	Po	Po	w		m	
Grasshopper Sparrow*	x	Pr	Po			Po	Po	Po	Po		m	
Fox Sparrow		m	m	w	w	m	w	m	w	w	w	w
Song Sparrow	x	Pr										
Lincoln's Sparrow		m		m	m	m	m	m	m		m	m
Swamp Sparrow		m	m	m	w	m	m	m	w	m	m	
White-throated Sparrow		w	w	w	w	w	w	w	w	w	w	w
White-crowned Sparrow		w		m	m	w	w	w	m		m	
Dark-eyed Junco		w	w	w	w	w	w	w	w	w	w	w
Lapland Longspur		w					w	w				
Snow Bunting		w					w	w				
Bobolink		m			m	m	m	m	m		m	
Red-winged Blackbird	x	Pr	Po	Pr	Pr	Pr	Pr	Pr	Pr	Po	Po	Po
Eastern Meadowlark	x	Pr	Po			Po	Pr	Po	Po			
Rusty Blackbird		m	m	w	w	m	w	m	w	w	m	
Common Grackle	x	Pr										
Brown-headed Cowbird	x	Pr										
Orchard Oriole	x	Po	Po	Pr	Po	Po	Pr	Po	Pr	Po	Po	Po
Baltimore Oriole	x	Pr	Pr	Pr	Pr	Pr	Po	Po	Pr	Po	Po	Po
Purple Finch		m	m	m	m	m	m	m	m	m	m	m
House Finch	x	Pr	Po	Pr	Pr	Pr	Pr	Pr	Pr	Po	Pr	Pr
Pine Siskin			m	m	m	m	m		m	m	m	
American Goldfinch	x	Pr										
Evening Grosbeak			m	m	m	m	m		m	m	m	
House Sparrow	x	Pr	Po	Pr	Pr	Pr	Pr	Pr	Pr	Po	Pr	Pr
Total	137	191	147	197	210	194	194	189	218	164	150	128
Total breeding		97	98	113	108	109	103	98	112	84	74	69

* Indicates Species of Concern (Gray and Koenen 2001).

Appendix B. Species of concern as produced in Gray and Koenen 2001.

American Bittern
Least Bittern
American Black Duck
Bald Eagle
Peregrine Falcon
Northern Bobwhite
American Woodcock
Acadian Flycatcher
Veery
Wood Thrush
Golden-Winged Warbler
Yellow-Throated Warbler
Prairie Warbler
Cerulean Warbler
Prothonotary Warbler
Worm-Eating Warbler
Louisiana Waterthrush
Kentucky Warbler
Hooded Warbler
Scarlet Tanager
Field Sparrow
Grasshopper Sparrow
Henslow's Sparrow

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As the nation's principal conservation agency, the Department of the Interior has the responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environment and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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