



Audubon MARYLAND-DC



## **Bird Monitoring Report, 2017 – Parkers Creek IBA**

**David Curson (Audubon Maryland-DC) and Chris Eberly (Maryland Bird Conservation Partnership), January 19, 2018**

Parkers Creek Important Bird Area (IBA) is a site of statewide importance for bird conservation. It was identified as an IBA in 2006, using data from a series of bird survey transects walked in 1999 and 2004 which showed that the site supports a diverse assemblage of Forest Interior-Dwelling Species (FIDS), with at least 19 out of 24 potentially occurring species breeding regularly. The site qualifies as an IBA not only for its FIDS assemblage but also for two declining at-risk bird species: Wood Thrush and Kentucky Warbler. In 2016, Audubon Maryland-DC produced a site account of Parkers Creek IBA detailing its ornithological significance and conservation management, available online at <http://md.audubon.org/conservation/southern-maryland-important-bird-areas-inform-land-use-planning>

In 2017, Audubon Maryland-DC and Maryland Bird Conservation Partnership (MBCP) implemented a program of bird monitoring at several IBAs across Maryland, with funding from Maryland Department of Natural Resources and individual donors. The goal of the monitoring was to provide managers with data on bird abundance and location and to provide a current baseline against which to measure population trends in the future. At Parkers Creek, bird monitoring was carried out by six volunteers who attended a training session at the American Chestnut Land Trust (ACLT) office on 24 May.

### **Methods**

Birds were monitored using point count surveys conducted during the height of the bird breeding season, 21 May and 30 June. Each point count location was surveyed twice with the two replicate surveys at least one week apart. Observers were instructed to conduct the first survey before 11 June and the second survey on 11 June or later, and this was followed in 15 out of 16 surveys (an observer scheduling conflict caused one second survey to be conducted on 8 June). Surveys were completed during the first four hours after sunrise generally between 0600 and 1000 EST. Weather and wind conditions were recorded during each count following the Beaufort scale and standard weather codes. Surveys were not conducted during high wind conditions (> 12 mph) or during dense fog, steady drizzle, or prolonged rain.

Birds were counted in two distinct habitat types: forest and marsh. Five survey locations were established along Parkers Creek to monitor birds in the open marsh, much of which is tidal. A total of 59 survey locations were established along walking trails in forest habitat managed by ACLT. These survey locations were divided into routes that could each be easily covered by an observer

in a single morning. The marsh route was accessed by kayak and the forest routes were done on foot. In order to reduce the probability that individual birds were counted more than once (from two points) survey locations were selected using ArcGIS so that a minimum of 300 meters separated points. The volunteer observers were assigned a route and navigated to survey locations using the Avenza app on smart phones. Points were marked with flagging at point centers, and the flagging was removed after the survey season ended.

On survey routes in forest habitat, counts at each location were 5 minutes in duration, with counts split between an initial 3-minute period and the following 2-minute period. The division into two time periods can provide a measure of how detectable each species is within a given timeframe. All birds seen or heard up to an unlimited distance were counted – we did not ask observers to estimate distance to birds because observers generally vary greatly in their ability to do this accurately.

On the survey route in open marsh habitat, the SHARP (Saltmarsh Habitat & Avian Research Program) bird survey protocol was used (see [www.tidalmarshbirds.org](http://www.tidalmarshbirds.org)). This method uses a 12-minute survey which includes the broadcast of vocalizations of seven species of secretive marshbirds.

**Table 1.** Bird survey routes and dates of survey completion at Parkers Creek IBA in 2017.

<b>Route name</b>	<b>Habitat</b>	<b># survey points</b>	<b>Observer(s)</b>	<b>Date of 1<sup>st</sup> visit</b>	<b>Date of 2<sup>nd</sup> visit</b>
A	Forest	8	Andy Brown	6-2-2017	6-28-2017
B	Forest	9	John Swartz	6-1-2017	6-8-2017
C	Forest	9	Marcia Watson	6-8-2017	6-20-2017
D	Forest	8	Tom Seaton	6-10-2017	6-17-2017
E	Forest	9	Leslie Starr	5-27-2017	–
			Marcia Watson	–	6-13-2017
F	Forest	8	Marcia Watson	6-9-2017	6-21-2017
G	Forest	8	Bob Boxwell	5-30-2017	6-16-2017
H	Marsh	5	Leslie Starr	6-3-2017	6-21-2017

Observers recorded birds during surveys on field datasheets designed by Audubon and MBCP, and, after surveys were completed, entered data into the computer on Excel spreadsheet templates also provided by Audubon and MBCP. Audubon staff and volunteers combined and summarized the individual datasets submitted by observers.

## **Results**

In total, 1674 detections were made of 71 species during the 2017 bird point count surveys of Parkers Creek. The number of detections does not equate directly to the number of individual birds detected because some birds may have been detected on both survey visits.

On the seven survey routes in forest habitat, 59 species were detected, 20 of which were FIDS (see Table 2). One of the FIDS, Cerulean Warbler does not breed in this region (Maryland

Coastal Plain) and likely was a migrant individual. The high species richness of breeding FIDS (19 species) reflects the high quality of the Parkers Creek ecosystem for forest specialist birds. The four most abundant species on the forest survey routes (Acadian Flycatcher, Red-eyed Vireo, Wood Thrush and Ovenbird) were all FIDS. Another measure of the high conservation value of this site for FIDS is the fact that more than half of all bird detections were of FIDS; the mean number of birds detected per point was 15.0 and the mean number of FIDS individuals detected per point was 7.8.

**Table 2.** Total detections and mean relative abundance (detections/point) of each species observed at 59 survey points in forest habitat at Parkers Creek IBA in 2017. Each point was surveyed twice, yielding a total of 118 counts. FIDS are denoted in **bold** font.

<b>Species</b>	<b>FIDS</b>	<b>Total detections</b>	<b>Mean detections/ 5-min. count</b>
<b>Acadian Flycatcher</b>	FIDS	<b>196</b>	<b>1.66</b>
American Crow		71	0.60
American Goldfinch		33	0.28
<b>American Redstart</b>	FIDS	<b>6</b>	<b>0.05</b>
American Robin		4	0.03
Bald Eagle		1	0.01
Baltimore Oriole		1	0.01
<b>Barred Owl</b>	FIDS	<b>1</b>	<b>0.01</b>
Belted Kingfisher		1	0.01
<b>Black-and-white Warbler</b>	FIDS	<b>1</b>	<b>0.01</b>
Blue Grosbeak		2	0.02
Blue Jay		24	0.20
Blue-gray Gnatcatcher		19	0.16
Brown Thrasher		3	0.03
Brown-headed Cowbird		13	0.11
Carolina Chickadee		22	0.19
Carolina Wren		36	0.31
<b>Cerulean Warbler</b>	FIDS	<b>1</b>	<b>0.01</b>
Chimney Swift		4	0.03
Chipping Sparrow		8	0.07
Common Grackle		5	0.04
Common Yellowthroat		18	0.15
Downy Woodpecker		25	0.21
Eastern Bluebird		1	0.01
Eastern Kingbird		2	0.02
Eastern Towhee		6	0.05
Eastern Wood-Pewee		97	0.82
Field sparrow		7	0.06
Gray Catbird		7	0.06

Great Blue Heron		3	0.03
Great Crested Flycatcher		16	0.14
<b>Hairy Woodpecker</b>	FIDS	<b>3</b>	<b>0.03</b>
<b>Hooded Warbler</b>	FIDS	<b>32</b>	<b>0.27</b>
Indigo Bunting		19	0.16
<b>Kentucky Warbler</b>	FIDS	<b>10</b>	<b>0.08</b>
<b>Louisiana Waterthrush</b>	FIDS	<b>21</b>	<b>0.18</b>
Marsh Wren		1	0.01
Mourning Dove		57	0.48
Northern Cardinal		61	0.52
Northern Flicker		3	0.03
Northern Mockingbird		1	0.01
<b>Northern Parula</b>	FIDS	<b>56</b>	<b>0.47</b>
Orchard Oriole		1	0.01
Osprey		1	0.01
<b>Ovenbird</b>	FIDS	<b>116</b>	<b>0.98</b>
<b>Pileated Woodpecker</b>	FIDS	<b>24</b>	<b>0.20</b>
Pine Warbler		6	0.05
Prairie Warbler		2	0.02
<b>Prothonotary Warbler</b>	FIDS	<b>1</b>	<b>0.01</b>
Red-bellied Woodpecker		62	0.53
<b>Red-eyed Vireo</b>	FIDS	<b>161</b>	<b>1.36</b>
<b>Red-shouldered Hawk</b>	FIDS	<b>1</b>	<b>0.01</b>
Red-winged Blackbird		17	0.14
Ruby-throated Hummingbird		3	0.03
<b>Scarlet Tanager</b>	FIDS	<b>67</b>	<b>0.57</b>
<b>Summer Tanager</b>	FIDS	<b>23</b>	<b>0.19</b>
Tufted Titmouse		114	0.97
Veery		1	0.01
White-breasted Nuthatch		31	0.26
White-eyed Vireo		6	0.05
Wild Turkey		4	0.03
<b>Wood Thrush</b>	FIDS	<b>154</b>	<b>1.31</b>
<b>Worm-eating Warbler</b>	FIDS	<b>31</b>	<b>0.26</b>
Yellow Warbler		2	0.02
Yellow-billed Cuckoo		11	0.09
Yellow-breasted Chat		2	0.02
<b>Yellow-throated Vireo</b>	FIDS	<b>19</b>	<b>0.16</b>
Yellow-throated Warbler		11	0.09
Total relative abundance			14.99
Total FIDS relative abundance			7.83

On the single survey route of five points in open marsh habitat 196 detections were made of 32 bird species. The two most abundant species were Red-winged Blackbird and Common Yellowthroat, both of which are wetland species that are also found in grassy and early successional habitats in uplands. Only one marsh specialist bird, as defined by the Audubon Maryland-DC Important Bird Areas program, was detected at Parkers Creek in 2017 - this was Marsh Wren. The marsh habitat at Parkers Creek is of limited extent, and many of the birds detected from these marsh points were forest birds in adjacent uplands.

**Table 3.** Total detections and mean relative abundance (detections/point) of each species observed at 5 survey points in open marsh habitat at Parkers Creek IBA in 2017. Each point was surveyed twice.

Species	Marsh specialist <sup>1</sup>	Total detections	Mean detections/ 5-min. count
American Crow		12	1.2
Barn Swallow		2	0.2
Belted Kingfisher		2	0.2
Blue Grosbeak		1	0.1
Blue Jay		12	1.2
Canada Goose		3	0.3
Carolina Wren		7	0.7
Common Grackle		2	0.2
Common Yellowthroat		22	2.2
Eastern Wood-Pewee		6	0.6
Great Blue Heron		3	0.3
Great Crested Flycatcher		2	0.2
Indigo Bunting		1	0.1
<b>Marsh Wren</b>	<b>Marsh</b>	<b>3</b>	<b>0.3</b>
Mourning Dove		9	0.9
Northern Cardinal		7	0.7
Northern Rough-winged Swallow		2	0.2
Osprey		1	0.1
Ovenbird		1	0.1
Pileated Woodpecker		1	0.1
Red-bellied Woodpecker		7	0.7
Red-eyed Vireo		7	0.7
Red-winged Blackbird		45	4.5
Ruby-throated Hummingbird		1	0.1
Scarlet Tanager		4	0.4
Tree Swallow		1	0.1
Tufted Titmouse		9	0.9
White-eyed Vireo		4	0.4
Wild Turkey		5	0.5

Wood Thrush	8	0.8
Yellow-billed Cuckoo	1	0.1
Yellow-throated Vireo	5	0.5
Grand total	196	19.6

<sup>1</sup> Marsh specialist birds as defined by Maryland-DC Important Bird Areas Program Criteria for site selection; available online at <http://md.audubon.org/conservation/important-bird-areas-0>

### **Discussion and Recommendations**

The data collected in 2017 have can inform the conservation management of Parkers Creek’s forest birds in a number of ways:

1. The data provide a baseline against which future bird survey data can be compared to examine population trends, as long as the same survey methodology is used in the future.
2. The data can be compared to past bird surveys completed in 1999 and 2004 to gain (relatively limited) insights into recent trends in the species composition of the bird assemblage at the site.
3. The data provide an indicator of habitat quality at this site relative to other sites in the region (Maryland Coastal Plain).
4. Examination of the spatial distribution of the occurrence of certain species across the site may provide information useful for making habitat management decisions.

The 2017 bird survey data show that one of the most significant ornithological features of Parkers Creek IBA is the high abundance and diversity of the FIDS assemblage. The 19 species of FIDS detected (excluding Cerulean Warbler which is very likely a migrating individual) may not be the full complement of FIDS at the site because Eastern Whip-poor-will was not detected and may in fact be present. It was recorded in 1999 during nocturnal visits. The high abundance and diversity of FIDS reflects the unfragmented condition and well-managed forest habitat of the site.

The occurrence of Hooded Warbler and Kentucky Warbler at the site indicate a healthy vertical structural diversity of forest vegetation. These two species nest and forage in the shrub understory layer and have disappeared from many Maryland forests over recent decades as the understory has become denuded by excessive deer browsing. At Parkers Creek the shrub understory has been successfully maintained by effective deer management.

The marshbird community in the open marshes flanking Parkers Creek is very limited. Only one marsh specialist bird–Marsh Wren–was detected here despite the fact the call-playbacks were used to solicit responses by secretive marshbirds. In 1999 several marshbird species were recorded in surveys conducted by Leslie Starr, who also was one of the observers in 2017. These included Least Bittern, Black Rail, Virginia Rail, and Clapper Rail. Virginia Rail and Least Bittern were also recorded here during the fieldwork period of the 2<sup>nd</sup> Maryland-DC Breeding Bird Atlas (2002-2006).

In 1999 and 2004 a series of bird surveys was completed at Parkers Creek by Leslie Starr. The 1999 and 2004 surveys used a different methodology (walking transects) than the point counts used in 2017, and birds were counted in different locations than in 2017. Because different

methods were used a direct comparison of bird abundance between years is not possible. However, in all three years the surveys covered a significant portion of the site and were extensive enough to quantify the species composition of the site's FIDS assemblage. For this reason, a comparison of the abundance ranks of species between years likely reflects real changes in their relative abundance within the FIDS assemblage.

Table 4 presents this comparison. Not surprisingly, the ranks are generally correlated between years. However, comparing the 1999/2004 surveys with those of 2017, there are four species that have changed abundance rank by more than 3 positions. Worm-eating Warbler and Pileated Woodpecker increased their rank abundance each by 3.75 positions. The abundance rank of Kentucky Warbler decreased by 3.75 positions, and the rank of American Redstart decreased by 4.25 positions. Although no definitive conclusions can be drawn from these indirect comparisons, they do suggest changes in relative abundance that can be examined further as more data are gathered in future years.

## **Attachments**

1. Map of location of bird survey points in 2017.
2. Monitoring birds at IBAs, 2017 – Instructions.

## **Data associated with this report**

The following data associated with this report are available:

1. Field data sheets containing raw data collected by volunteers are stored at the offices of Audubon Maryland-DC.
2. Bird survey data were entered into an Excel database by the observers who collected the data and copies are held by Audubon Maryland-DC. Individual Excel spreadsheets were combined into a single file and summarized by pivot table. Filename: Parkers Creek bird survey data with summary\_2017.xlsx.
3. A GIS shapefile of bird survey point locations is held by Audubon Maryland-DC and by Maryland Bird Conservation Partnership.

**Table 4.** Abundance ranks, and changes in abundance ranks between years, of Forest Interior-Dwelling Species (FIDS) at Parkers Creek IBA in bird surveys completed in 1999, 2004, and 2017.

Species	Abundance rank 1999	Abundance rank 2004	Abundance rank 2017	Rank comparison 1999-2004	Rank comparison 1999-2017	Rank comparison 2004-17	Mean rank change (1999/2004 - 2017)
Acadian Flycatcher	3.5	2	1	1.5	2.5	1	1.75
Red-eyed Vireo	2	1	2	1	0	-1	-0.5
Wood Thrush	1	3	3	-2	-2	0	-1
Ovenbird	5	6	4	-1	1	2	1.5
Scarlet Tanager	6	7	5	-1	1	2	1.5
Northern Parula	3.5	4	6	-0.5	-2.5	-2	-2.25
Hooded Warbler	7	5	7	2	0	-2	-1
Worm-eating Warbler	12.5	11	8	1.5	4.5	3	3.75
Pileated Woodpecker	12.5	13	9	-0.5	3.5	4	3.75
Summer Tanager	9	14	10	-5	-1	4	1.5
Louisiana Waterthrush	14	12	11	2	3	1	2
Yellow-throated Vireo	8	10	12	-2	-4	-2	-3
Kentucky Warbler	10	8.5	13	1.5	-3	-4.5	-3.75
American Redstart	11	8.5	14	2.5	-3	-5.5	-4.25
Hairy Woodpecker	15	15.5	15	-0.5	0	0.5	0.25
Black-and-white Warbler	17	18	17	-1	0	1	0.5
Prothonotary Warbler	18	17	17	1	1	0	0.5
Red-shouldered Hawk	16	15.5	17	0.5	-1	-1.5	-1.25

Cerulean Warbler, detected in 2017, excluded because of likely migrant status.

Nocturnal FIDS (Eastern Whip-poor-will, Barred Owl) excluded because these were greatly under-represented on surveys.



|