



## **Bird Monitoring Report, 2017 – Patapsco Valley IBA**

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Patapsco Valley Important Bird Area (IBA) is a site of statewide importance for bird conservation. It was identified as an IBA using data from a series of Bird Blitz surveys carried out in 2006. These surveys showed a number of at-risk species present in significant numbers, including: Wood Thrush, Blue-winged Warbler, Prairie Warbler, Eastern Whip-poor-will. Several other at-risk species were found to be present but it was uncertain if their populations exceeded thresholds set in the IBA criteria. These included: Willow Flycatcher, Cerulean Warbler and Worm-eating Warbler. The site also qualifies as an IBA for its diverse assemblage of Forest Interior-Dwelling Species (FIDS), supporting 23 of 25 FIDS that regularly breed in Maryland's Piedmont zone. Different regions of Patapsco Valley IBA support distinctly different bird communities – most of the site is forested and supports FIDS, while Soldiers Delight NEA and Morgan Run NEA were included in the IBA because of their shrubland bird communities, including species such as Eastern Whip-poor-will (Soldiers Delight only), Blue-winged Warbler (Morgan Run and other scattered locations) and Prairie Warbler (Soldiers Delight, Morgan Run and other locations). Population thresholds for IBA site selection and the bird species assemblages characteristic of Maryland's major habitat types are provided in the IBA Criteria for Site Selection, available online at <http://md.audubon.org/conservation/important-bird-areas> .

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 Patapsco Valley IBA, bird monitoring was carried out at the McKeldin section of Patapsco Valley State Park and Morgan Run NEA by three volunteers who attended a training session at McKeldin on May 31<sup>st</sup>. The training was hosted by Park Service staff Kimberly Sweigard and Catharine Love.

### **Methods**

Birds were monitored using point count surveys conducted during the height of the bird breeding season between 21 May and 30 June. Each point count location was surveyed twice with the two replicate surveys at least 1 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 all cases. 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 at two DNR properties within Patapsco Valley IBA, the McKeldin section of Patapsco State Park (four survey routes) and Morgan Run NEA (one survey route). These survey locations were divided into routes that could each be easily covered by an observer in a single morning. 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. This eliminated the need to mark survey points with flagging.



*Volunteers and Md Park Service staff at bird survey training at McKeldin, May 31 2017.*

Counts at each survey 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.

**Table 1.** Bird survey routes and dates of survey completion at Patapsco Valley State Park and Morgan Run NEA (MR)\* in 2017.

Route name	Habitat	# survey points	Observer(s)	Date of 1 <sup>st</sup> visit	Date of 2 <sup>nd</sup> visit
McKeldin A	Forest	5	Peter Martin	6-8-2017	6-20-2017
McKeldin B	Forest	5	Peter Martin	6-8-2017	6-20-2017
McKeldin C	Forest	7	Dan and Georgia McDonald	6-8-2017	6-15-2017
McKeldin D	Forest	8	Dan and Georgia McDonald	6-5-2017	6-15-2017
MR*	Shrubland and forest	7	Dan and Georgia McDonald	6-2-2017	6-12-2017

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 and Discussion

### *Patapsco Valley SP, McKeldin section*

At Patapsco Valley SP in 2017, two surveys were completed at each of 25 survey points, and 608 detections were made of 41 bird species. The number of detections does not equate directly to the number of individual birds detected because some individuals may have been detected on both survey visits.

Fifteen of the bird species detected were FIDS (see Table 2), and 13 of these are listed as Species of Greatest Conservation Need (SGCN) on Maryland's State Wildlife Action Plan. Three of the four most abundant species (Red-eyed Vireo, Acadian Flycatcher, Eastern Wood-Pewee, Wood Thrush) were FIDS. The mean number of birds detected per point was 12.16 and 45% of these detections were FIDS. One species, Yellow-throated Vireo, was recorded during site visits but was not detected on the point count surveys. This species is reasonably common at McKeldin and may have been overlooked by observers during the point counts.

**Table 2.** Total detections and mean relative abundance (detections/point) of each species observed at 25 survey points in forest habitat at Patapsco Valley State Park IBA in 2017. Each point was surveyed twice, yielding a total of 50 counts.

Species	Species of Greatest Conservation Need (SGCN)	Habitat assemblage	Total detections	Mean detections/ 5-min. count
<b>Acadian Flycatcher</b>	<b>SGCN</b>	<b>FIDS</b>	<b>56</b>	<b>1.12</b>
American Crow			10	0.2
<b>American Redstart</b>	<b>SGCN</b>	<b>FIDS</b>	<b>9</b>	<b>0.18</b>
American Robin			44	0.88
<b>Black-and-white Warbler</b>	<b>SGCN</b>	<b>FIDS</b>	<b>1</b>	<b>0.02</b>
Blue Jay			8	0.16
Blue-gray Gnatcatcher			7	0.14
Brown-headed Cowbird			8	0.16
Canada Goose			2	0.04
Carolina Chickadee			8	0.16
Carolina Wren			18	0.36
Cedar Waxwing			2	0.04
<b>Cerulean Warbler</b>	<b>SGCN</b>	<b>FIDS</b>	<b>2</b>	<b>0.04</b>
Chipping Sparrow			4	0.08
Downy Woodpecker			6	0.12
Eastern Phoebe			1	0.02
Eastern Towhee		SHRUB	26	0.52
Eastern Wood-Pewee			54	1.08
Gray Catbird			3	0.06
Great Crested Flycatcher			8	0.16
<b>Hooded Warbler</b>	<b>SGCN</b>	<b>FIDS</b>	<b>1</b>	<b>0.02</b>

**Table 2** (cont'd)

Species	SGCN	Habitat assemblage	Total detections	Mean detections
Indigo Bunting			7	0.14
<b>Louisiana Waterthrush</b>	<b>SGCN</b>	<b>FIDS</b>	<b>6</b>	<b>0.12</b>
Mourning Dove			18	0.36
Northern Cardinal			20	0.4
Northern Flicker			6	0.12
<b>Northern Parula</b>	<b>SGCN</b>	<b>FIDS</b>	<b>23</b>	<b>0.46</b>
Northern Rough-winged Swallow			2	0.04
<b>Ovenbird</b>	<b>SGCN</b>	<b>FIDS</b>	<b>37</b>	<b>0.74</b>
<b>Pileated Woodpecker</b>		<b>FIDS</b>	<b>6</b>	<b>0.12</b>
Red-bellied Woodpecker			23	0.46
<b>Red-eyed Vireo</b>		<b>FIDS</b>	<b>57</b>	<b>1.14</b>
<b>Scarlet Tanager</b>	<b>SGCN</b>	<b>FIDS</b>	<b>17</b>	<b>0.34</b>
Tufted Titmouse			28	0.56
<b>Veery</b>	<b>SGCN</b>	<b>FIDS</b>	<b>7</b>	<b>0.14</b>
White-breasted Nuthatch			17	0.34
<b>Wood Thrush</b>	<b>SGCN</b>	<b>FIDS</b>	<b>50</b>	<b>1</b>
<b>Worm-eating Warbler</b>	<b>SGCN</b>	<b>FIDS</b>	<b>2</b>	<b>0.04</b>
Yellow-bellied Sapsucker			1	0.02
Yellow-billed Cuckoo			3	0.06
<b>Yellow-throated Vireo</b>	<b>SGCN</b>	<b>FIDS</b>	<b>0</b>	<b>P</b>
<i>Total relative abundance</i>				12.16
<i>Total FIDS relative abundance</i>				5.48

The number of FIDS species detected (15) by these surveys represents a reasonably diverse FIDS assemblage considering the area covered was just a small section of the state park. However, a notable characteristic of the FIDS community at this site is the very low density of FIDS that nest and forage in the shrub understory layer (Hooded Warbler, Kentucky Warbler, Worm-eating Warbler). The combined density of these species was 0.04 individuals/5-minute count, and Kentucky Warbler was absent. Birders who visited McKeldin in the 1980s recall higher numbers of these species at that time, due to denser understory vegetation.

### ***Morgan Run NEA***

At Morgan Run NEA in 2017, two surveys were completed at each of seven survey points, and 169 detections were made of 44 bird species. The number of detections does not equate directly to the number of individual birds detected because some individuals may have been detected on both survey visits. Twelve species were recorded on site visits but not during the point count surveys.

Although the number of bird species found at Morgan Run at just seven points exceeded the number found at more locations at McKeldin, far fewer of the birds were habitat specialists. The survey points were mostly located along the boundary between mature shrub/young forest habitat and more mature forest – just eight of the species detected were FIDS, and another eight were shrub habitat specialists, as indicated in Table 3. These habitat specialists represented only a small proportion of all birds found – 14% of all individuals detected were FIDS and 19% were shrub habitat specialists. Ten species, all of them habitat specialists, are listed as Species of Greatest Conservation Need (SGCN) on Maryland’s State Wildlife Action Plan. Of the four most abundant species (Gray Catbird, Eastern Towhee, Common Yellowthroat, Cedar Waxwing), only one, Eastern Towhee, is a habitat specialist (in the shrub assemblage).

**Table 3.** Total detections and mean relative abundance (detections/point) of each species observed at 7 survey points in shrub and forest edge habitat at Morgan Run NEA in 2017. Each point was surveyed twice, yielding a total of 14 counts.

Species	Species of Greatest Conservation Need (SGCN)	Habitat assemblage	Total detections	Mean detections/ 5-min. count
<b>Acadian Flycatcher</b>	<b>SGCN</b>	<b>FIDS</b>	<b>1</b>	<b>0.07</b>
American Crow			4	0.29
American Goldfinch			5	0.36
<b>American Redstart</b>	<b>SGCN</b>	<b>FIDS</b>	<b>3</b>	<b>0.21</b>
American Robin			5	0.36
Barn Swallow			0	P
Barred Owl			0	P
Black Vulture			0	P
Blue Jay			1	0.07
Blue-gray Gnatcatcher			2	0.14
Blue-winged Warbler	SGCN	SHRUB	1	0.07
Brown Thrasher		SHRUB	1	0.07
Brown-headed Cowbird			5	0.36
Carolina Chickadee			3	0.21
Carolina Wren			3	0.21
Cedar Waxwing			11	0.79
<b>Cerulean Warbler</b>	<b>SGCN</b>	<b>FIDS</b>	<b>0</b>	<b>P</b>
Chipping Sparrow			0	P
Common Yellowthroat			12	0.86
Downy Woodpecker			1	0.07
Eastern Towhee		SHRUB	15	1.07
Eastern Wood-Pewee			4	0.29
Field Sparrow		SHRUB	4	0.29
Gray Catbird			30	2.14
Great Crested Flycatcher			1	0.07
House Wren			0	P
Indigo Bunting			3	0.21

Table 3 (cont'd)

Species	SGCN	Habitat assemblage	Total detections	Mean detections
Mourning Dove			8	0.57
Northern Cardinal			9	0.64
Northern Flicker			0	P
Northern Mockingbird			0	P
<b>Ovenbird</b>	<b>SGCN</b>	<b>FIDS</b>	<b>1</b>	<b>0.07</b>
<b>Pileated Woodpecker</b>		<b>FIDS</b>	<b>2</b>	<b>0.14</b>
Prairie Warbler	SGCN	SHRUB	2	0.14
Red-bellied Woodpecker			0	P
<b>Red-eyed Vireo</b>		<b>FIDS</b>	<b>7</b>	<b>0.50</b>
Red-tailed Hawk			0	P
<b>Scarlet Tanager</b>	<b>SGCN</b>	<b>FIDS</b>	<b>0</b>	<b>P</b>
Tufted Titmouse			5	0.36
Turkey Vulture			0	P
White-breasted Nuthatch			1	0.07
White-eyed Vireo		SHRUB	7	0.50
Willow Flycatcher	SGCN	SHRUB	2	0.14
<b>Wood Thrush</b>	<b>SGCN</b>	<b>FIDS</b>	<b>10</b>	<b>0.71</b>
Yellow-breasted Chat	SGCN	SHRUB	0	P
<i>Total relative abundance</i>				12.07
<i>Total FIDS relative abundance</i>				1.71
<i>Total SHRUB birds relative abundance</i>				2.29

<sup>1</sup> Shrub and early successional 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>

Three of the shrub specialist species detected on the surveys are at-risk species that contributed to the identification of Patapsco Valley IBA. Each of these appears to have declined since the IBA was identified. A Bird Blitz survey completed in June 2006 by Bill Ellis counted totals of six Blue-winged Warblers, five Willow Flycatchers, and five Prairie Warblers in a single day. The 2017 point count surveys detected far fewer of these species, and observers reported that the shrub habitat encircled by the count locations has grown up into young woodland. This habitat appears to have declined in suitability for shrub specialist birds with the result that these species have declined significantly on the site.

The shrub specialist bird community that was present in 2006 was of considerable conservation value and it is unfortunate that it has declined since then. It is recommended that this habitat is managed to return it to the mature shrub vegetation that existed in 2006.

## **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. Filenames: McKeldin bird survey data with summary\_2017.xlsx; Morgan Run 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.