Bird Monitoring Report, 2018—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 three at-risk species present in significant numbers, including Wood Thrush, Prairie Warbler, and Louisiana Waterthrush. 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 Blue-winged Warbler, Willow Flycatcher, Cerulean Warbler, Worm-eating Warbler, Kentucky Warbler, and Prothonotary 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 (Ellison 2010). 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).[1]

In 2017, Audubon Maryland-DC and Maryland Bird Conservation Partnership (MBCP) implemented a program of bird monitoring at several IBAs across Maryland. The goal of the monitoring is 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. IBA monitoring at Patapsco Valley IBA began in 2017 and was conducted again in 2018.[2] In 2017, monitoring was conducted along five survey routes in two separate survey areas, and one survey area with a single route was added in 2018.

Methods

In 2018, surveys were conducted along six routes in the Patapsco Valley IBA (see Map 1). Seven survey points were located in the Morgan Run Natural Environmental Area, 25 points were

[1] 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 .
[2] The 2017 Bird Monitoring Report for Patapsco Valley IBA is available at https://marylandbirds.org/iba-reports

located along four survey routes in the McKeldin area of Patapsco Valley State Park, and seven survey points were located in the Pickall area of Patapsco Valley State Park. Most survey routes covered oak-hickory and riparian forests, and the route at Morgan Run also included areas of shrubland habitat. 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.

Birds were monitored using point count surveys conducted during the height of the bird breeding season between 25 May and 30 June. A volunteer observer was assigned to each route, and conducted two surveys of each location at least one week apart (Table 1). Volunteer observers were trained on survey methodology, data recording, and data entry. Observers navigated to survey locations using a georeferenced PDF map with the Avenza app on a smartphone. This eliminated the need to mark survey points with flagging.

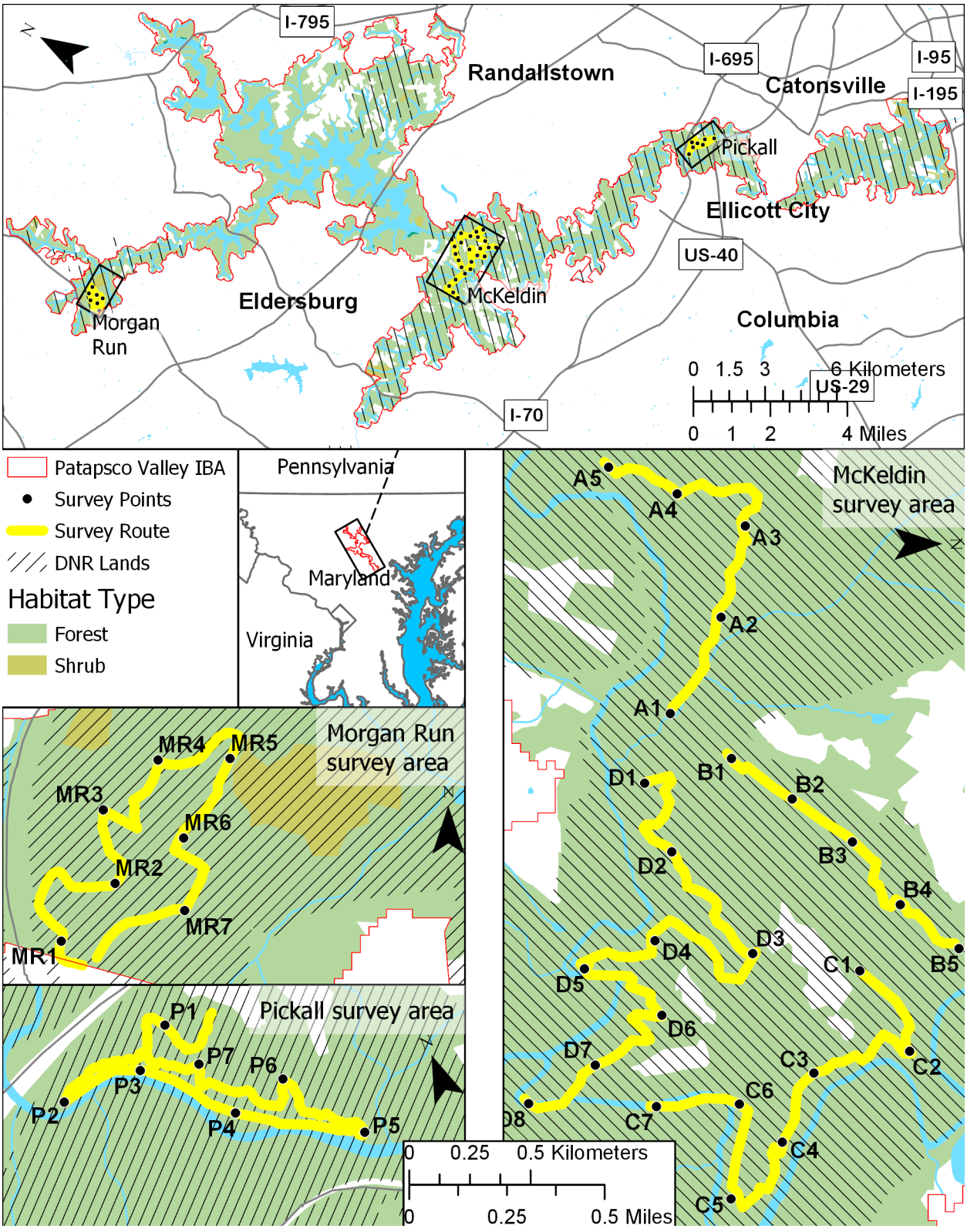
Surveys were completed during the first four hours after sunrise generally between 0600 and 1000 EST. Weather and wind conditions were recorded during each count following the Beaufort scale (for wind) and standard weather codes. Surveys were not conducted during high wind conditions (> 12 mph) or during dense fog, steady drizzle, or prolonged rain. Counts at each survey location were five 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. Observers also recorded any birds from a short list of priority species which they heard or saw between points or outside of a survey period.

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.

Table 1. 2018 bird survey routes at Patapsco Valley IBA.

Route name	Habitat type	Survey points	Observer	Date of visit 1	Date of visit 2
McKeldin A	Deciduous forest	5	Peter Martin	06/05/18	06/29/18
McKeldin B	Deciduous forest	5	Peter Martin	05/29/18	06/20/18
McKeldin C	Deciduous forest	8	Dan & Georgia McDonald	05/29/18	06/30/18
McKeldin D	Deciduous forest	7	Shawn Clotworthy	06/04/18	06/28/18
Morgan Run	Forest/Shrubland	7	Dan & Georgia McDonald	05/28/18	06/29/18
Pickall	Deciduous forest	7	Dan & Georgia McDonald	06/01/18	06/28/18

Map 1. 2018 Patapsco Valley IBA monitoring. Overview map with inset maps of routes and points surveyed in spring 2018. Scales of the three survey area maps are equal. Habitat type derived from Maryland Integrated Map (2016).



Results

A total of 854 detections were made of 55 at Patapsco Valley IBA in 2018. Of these detections, 585 (68.5%) occurred at the McKeldin area (Table 2), 139 (16.3%) occurred at the Morgan Run area (Table 3), and 130 (15.2%) occurred at the Pickall area (Table 4). Among the 55 species detected, 15 were present at all three survey areas, and 23 were detected at only one survey area (12 at McKeldin, 6 at Morgan Run, 5 at Pickall). Forest interior dwelling species (FIDS)[3] comprised 16 of the species (15 detected at McKeldin, 5 at Morgan Run, 10 at Pickall), and shrub specialist species[4] comprised 6 of the total species (2 detected at McKeldin, 6 at Morgan Run, 1 at Pickall). FIDS comprised 43% of all detections at McKeldin and 35% of all detections at Pickall, and FIDS and shrub specialist species each comprised 18% of detections at Morgan Run.

Among the four most commonly detected species at McKeldin, three were FIDS (Acadian Flycatcher, Wood Thrush, and Red-Eyed Vireo); among the five most commonly detected species at Morgan Run, one was a FIDS (Wood Thrush) and one was a shrub specialist species (Eastern Towhee); and among the four most common species at Pickall, only one was a FIDS (Acadian Flycatcher).

Table 2. Total detections and mean relative abundances at McKeldin survey locations. Eight points were each surveyed twice in May-June 2018, yielding 16 total counts. Habitat specialist (according to MD-DC IBA criteria) species are shown in bold, and Species of Greatest Conservation Need are indicated by *.

Species	Habitat specialist	Total detections	Mean detections/ 5 min count
Acadian Flycatcher*	**FIDS**	**53**	**1.06**
American Crow		7	0.14
American Goldfinch		5	0.10
American Redstart	**FIDS**	**6**	**0.12**
American Robin		26	0.52
Black-and-white Warbler*	**FIDS**	**2**	**0.04**
Blue Jay		10	0.20
Blue-gray Gnatcatcher		9	0.18
Brown-headed Cowbird		10	0.20
Canada Goose		12	0.24
Carolina Chickadee		11	0.22
Carolina Wren		27	0.54
Cerulean Warbler*	**FIDS**	**1**	**0.02**
Chipping Sparrow		2	0.04

[3] According to MD DNR's list of FIDS (Audubon MD-DC 2011).
[4] As defined by Maryland IBA Criteria (Audubon MD-DC 2011).

Species	Habitat specialist	Total detections	Mean detections/ 5 min count
Downy Woodpecker		11	0.22
Eastern Bluebird		2	0.04
Eastern Phoebe		4	0.08
Eastern Towhee	**SHRUB**	**18**	**0.36**
Eastern Wood-Pewee		49	0.98
Gray Catbird		1	0.02
Great Crested Flycatcher		7	0.14
Hairy Woodpecker	**FIDS**	**1**	**0.02**
Indigo Bunting		2	0.04
Louisiana Waterthrush*	**FIDS**	**2**	**0.04**
Mourning Dove		8	0.16
Mourning Warbler*	**SHRUB**	**1**	**0.02**
Northern Cardinal		39	0.78
Northern Flicker		6	0.12
Northern Parula*	**FIDS**	**18**	**0.36**
Ovenbird*	**FIDS**	**31**	**0.62**
Pileated Woodpecker	**FIDS**	**5**	**0.10**
Pine Warbler		1	0.02
Red-bellied Woodpecker		19	0.38
Red-eyed Vireo	**FIDS**	**48**	**0.96**
Red-winged Blackbird		4	0.08
Scarlet Tanager*	**FIDS**	**24**	**0.48**
Tufted Titmouse		20	0.40
Veery*	**FIDS**	**3**	**0.06**
White-breasted Nuthatch		14	0.28
White-eyed Vireo	**SHRUB**	**2**	**0.04**
Wood Thrush*	**FIDS**	**50**	**1.00**
Worm-eating Warbler*	**FIDS**	**4**	**0.08**
Yellow-billed Cuckoo		5	0.10
Yellow-throated Vireo*	**FIDS**	**5**	**0.10**
Total FIDS abundance			5.06
Total SHRUB abundance			0.42
Total mean relative abundance			11.70

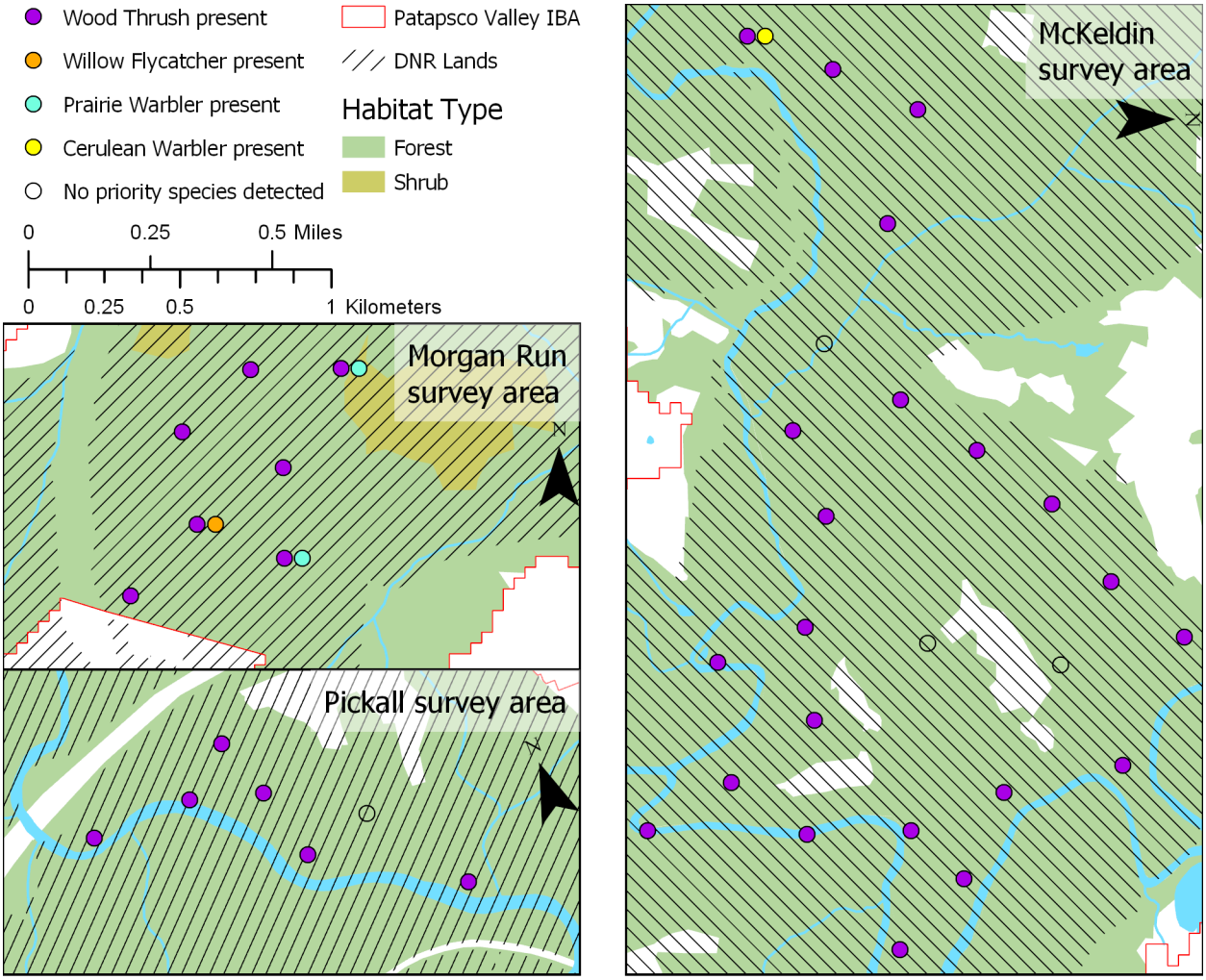
Table 3. **Total detections and mean relative abundances at Morgan Run survey locations.** Seven points were each surveyed twice in May-June 2018, yielding 14 total counts. Habitat specialist (according to MD-DC IBA criteria) species are shown in bold, and Species of Greatest Conservation Need are indicated by *.

Species	Habitat specialist	Total detections	Mean detections/ 5 min count
American Crow		3	0.21
American Goldfinch		9	0.64
American Redstart*	**FIDS**	**1**	**0.07**
American Robin		2	0.14
Blue-gray Gnatcatcher		5	0.36
Brown-headed Cowbird		3	0.21
Carolina Wren		2	0.14
Cedar Waxwing		1	0.07
Common Yellowthroat		3	0.21
Downy Woodpecker		1	0.07
Eastern Towhee	**SHRUB**	**12**	**0.86**
Eastern Wood-Pewee		4	0.29
Field Sparrow*	**SHRUB**	**8**	**0.57**
Gray Catbird		21	1.50
Great Crested Flycatcher		1	0.07
Mourning Dove		12	0.86
Northern Cardinal		15	1.07
Northern Flicker		1	0.07
Ovenbird*	**FIDS**	**1**	**0.07**
Pileated Woodpecker	**FIDS**	**1**	**0.07**
Prairie Warbler*	**SHRUB**	**2**	**0.14**
Red-bellied Woodpecker		2	0.14
Red-eyed Vireo*	**FIDS**	**10**	**0.71**
Tufted Titmouse		1	0.07
White-breasted Nuthatch		2	0.14
White-eyed Vireo	**SHRUB**	**1**	**0.07**
Willow Flycatcher*	**SHRUB**	**1**	**0.07**
Wood Thrush*	**FIDS**	**12**	**0.86**
Yellow-billed Cuckoo		1	0.07
Yellow-breasted Chat*	**SHRUB**	**1**	**0.07**
Total FIDS abundance			1.79
Total SHRUB abundance			1.79
Total mean relative abundance			9.93

Table 3. **Total detections and mean relative abundances at Pickall survey locations.** Seven points were each surveyed twice in May-June 2018, yielding 14 total counts. Habitat specialist (according to MD-DC IBA criteria) species are shown in bold, and Species of Greatest Conservation Need are indicated by *.

Species	Habitat specialist	Total detections	Mean detections/ 5 min count
Acadian Flycatcher*	**FIDS**	**12**	**0.86**
American Goldfinch		1	0.07
American Robin		11	0.79
Baltimore Oriole		2	0.14
Blue Jay		2	0.14
Brown-headed Cowbird		1	0.07
Canada Goose		14	1.00
Carolina Chickadee		3	0.21
Carolina Wren		10	0.71
Downy Woodpecker		1	0.07
Eastern Towhee	**SHRUB**	**1**	**0.07**
Eastern Wood-Pewee		11	0.79
Fish Crow		1	0.07
Louisiana Waterthrush*	**FIDS**	**1**	**0.07**
Mallard		3	0.21
Northern Cardinal		6	0.43
Northern Parula*	**FIDS**	**3**	**0.21**
Northern Waterthrush*	**FIDS**	**1**	**0.07**
Ovenbird*	**FIDS**	**4**	**0.29**
Pileated Woodpecker	**FIDS**	**4**	**0.29**
Red-bellied Woodpecker		3	0.21
Red-eyed Vireo	**FIDS**	**8**	**0.57**
Scarlet Tanager*	**FIDS**	**2**	**0.14**
Tufted Titmouse		9	0.64
Warbling Vireo		2	0.14
White-breasted Nuthatch		3	0.21
Wood Thrush*	**FIDS**	**10**	**0.71**
Worm-eating Warbler	**FIDS**	**1**	**0.07**
Total FIDS abundance			3.29
Total mean relative abundance			9.29

Map 2. Location of detections of selected priority species. At survey points with more than one priority species detected, some species indicators are shown adjacent to the location of the survey point. See Map 1 for spatial extents of maps.



Discussion

Since monitoring was conducted at many of the same locations in 2017 and 2018 (i.e. the four routes at McKeldin and the route at Morgan Run), comparisons between the species richness and abundances detected in the two years may provide some insights into trends in community assemblages at Patapsco Valley IBA. Both total mean relative abundance and relative abundance of FIDS and Shrubland species remained similar between the two years (Curson & Eberly 2018). Between 2017 and 2018, richness of species detected in the surveys increased from 40 species to 44 species at McKeldin, and decreased from 32 to 30 at Morgan Run. These small changes in survey results should not necessarily be considered to represent a true change in community assemblage.

From 2017 to 2018 at McKeldin, a large increase in abundance rank was seen in Canada Goose (36 to 15) and Downy Woodpecker (17 to 28); while a notable decrease in abundance rank was

seen in Indigo Bunting (24 to 39) and Louisiana Waterthrush (28 to 39). At Morgan Run, a notable increase in abundance rank was seen in Blue-gray Gnatcatcher (24 to 9), and notable decreases were seen in Cedar Waxwing (4 to 30) and White-eyed Vireo (9 to 30).

Among the three at-risk species which whose 2006 population estimates at Patapsco Valley IBA exceeded the IBA criteria thresholds (Wood Thrush, Louisiana Waterthrush, and Prairie Warbler), all three were detected in both 2017 and 2018. Wood Thrush continues to be detected at most survey points (Map 2); however, lower abundances of Prairie Warbler and Louisiana Waterthrush were detected in both 2017 and 2018 (six or fewer detections/year). Three of the additional seven at-risk species detected in 2006 (below IBA criteria population thresholds) were also detected in 2018: Worm-eating Warbler (five detections), Cerulean Warbler (one detection) and Willow Flycatcher (one detection).

Acknowledgements

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