



Bird Monitoring Report, 2018—Parker’s Creek IBA

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As the last remaining watershed on the western shore of the Chesapeake Bay that is almost entirely undeveloped, 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 20 out of 24 potentially occurring species breeding regularly. The site also supports significant breeding populations of at least two species designated at risk, 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) began to implement 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. A report summarizing the results of the 2017 IBA monitoring of Parker’s Creek is available at <https://marylandbirds.org/iba-reports>. Bird monitoring was repeated in 2018 by volunteers trained by MBCP.

Methods

Birds were monitored using point count surveys conducted during the height of the bird breeding season, 24 May and 26 June. Each of 64 point count locations on eight survey routes was surveyed twice (except for one point which was surveyed only once) with the two replicate surveys at least one week apart. At each location, the first survey was conducted before 11 June and the second survey on 11 June or later (Table 1). 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 (see Map 1). 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. Points were marked with flagging at point centers, and the flagging was removed after the survey season ended.

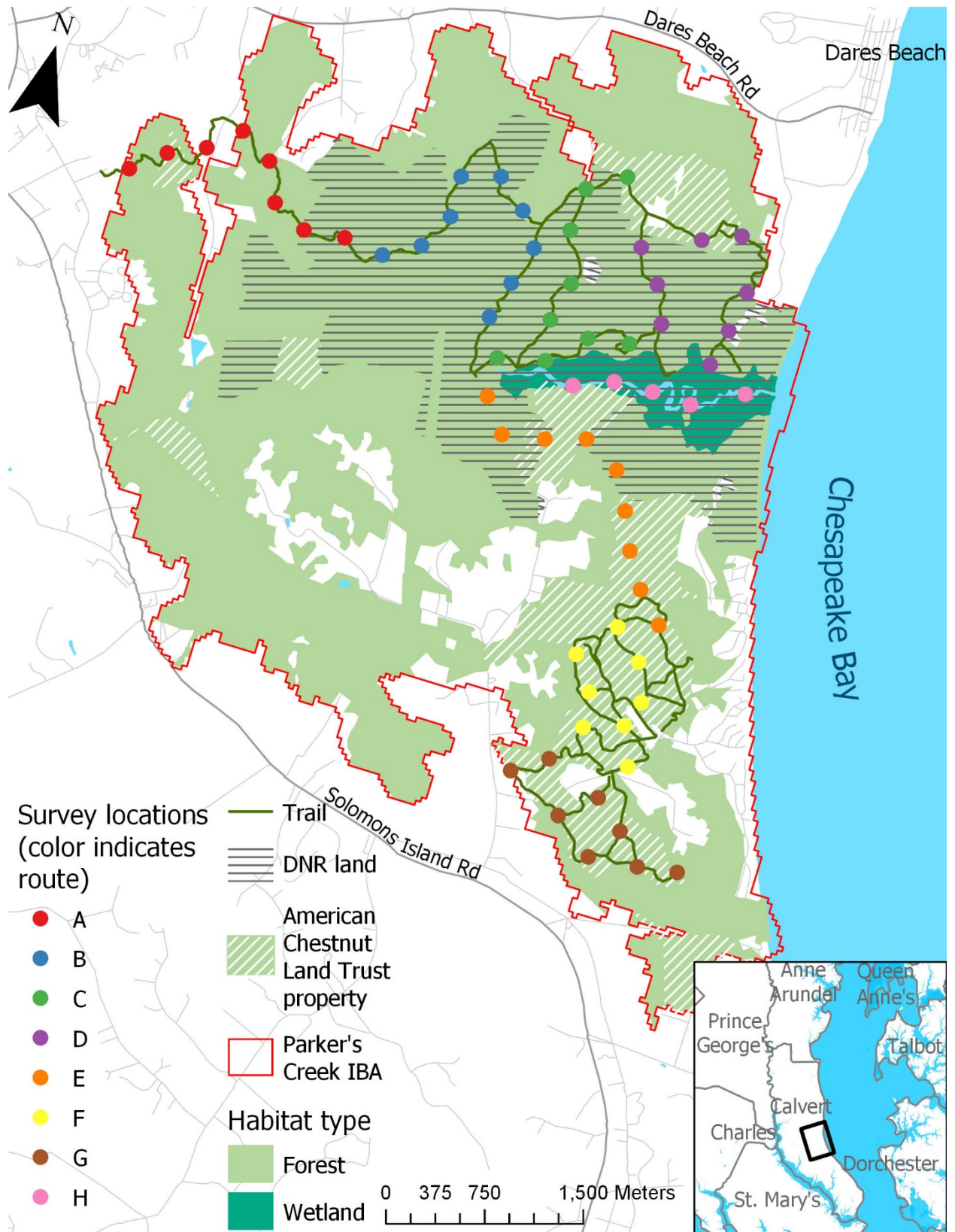
On survey routes in forest habitat, counts at each location were 5 minutes in duration, with counts split between an initial 3-minute period and the following 2-minute period. The division into two time periods can provide a measure of how detectable each species is within a given timeframe. All birds 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). 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 2018.

Route name	Habitat	# survey points	Observer(s)	Date of 1st visit	Date of 2nd visit
A	Forest	8	Oliver Griffin Marcia Watson	06/08/2017 --	-- 06/21/2018
B	Forest	9	John Swartz	06/01/2018	06/17/2018
C	Forest	9	Andrew Brown Marcia Watson	06/08/2018 --	-- 06/26/2018
D	Forest	8	Tom Seaton	05/26/2018	06/13/2018
E	Forest	9	Leslie Starr	05/24/2018	06/16/2018
F	Forest	8	Bob Boxwell	06/07/2018	06/14/2018
G	Forest	8	Leslie Starr Marcia Watson	06/07/2018 --	-- 06/18/2018
H	Marsh	5	Leslie Starr	05/29/2018	06/20/2018

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.



Map 1. Parker's Creek IBA monitoring. Locations of survey routes and point count locations surveyed in spring 2018. Habitat type derived from Maryland Integrated Map (2016).

Results

A total of 1852 detections were made of 65 species at Parker’s Creek IBA in 2018. 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. In the seven routes (A–G) in forest habitat, 1638 detections were made of 58 species, including 17 FIDS specialist species (Table 2). Of the five species most commonly detected in the forest survey routes (Acadian Flycatcher, Red-eyed Vireo, Tufted Titmouse, Wood Thrush, and Ovenbird), all but Tufted Titmouse are FIDS. Further, over half of the total detections in forest habitat were of FIDS (7.22 mean FIDS detections/count; 14.00 total detections/count). Five at-risk species and FIDS which are particularly good indicators of quality forest habitat chosen as focal species (Wood Thrush, Kentucky Warbler, Hooded Warbler, Worm-eating Warbler, and Red-headed Woodpecker) were found with generally higher concentrations in the southern region of the IBA (Map 2).

Table 2. Total detections and detections/count at survey locations in forest habitat. 58 points were each surveyed twice in May-June 2018, and one survey point (C9) was surveyed once, yielding 117 total counts. Habitat specialist species are shown in bold, and species at risk are indicated by * (both according to MD-DC IBA criteria).

Species	Habitat specialist	Total detections	Mean detections/ 5 min count
Acadian Flycatcher	FIDS	202	1.73
American Crow		36	0.31
American Goldfinch		15	0.13
American Redstart	FIDS	4	0.03
American Robin		7	0.06
Black-and-white Warbler	FIDS	4	0.03
Blackpoll Warbler		1	0.01
Blue Grosbeak		3	0.03
Blue Jay		28	0.24
Blue-gray Gnatcatcher		13	0.11
Brown Thrasher		2	0.02
Brown-headed Cowbird		24	0.21
Carolina Chickadee		28	0.24
Carolina Wren		54	0.46
Chimney Swift		2	0.02
Chipping Sparrow		3	0.03
Common Grackle		2	0.02
Common Yellowthroat		12	0.10
Downy Woodpecker		20	0.17
Eastern Bluebird		4	0.03
Eastern Towhee		4	0.03

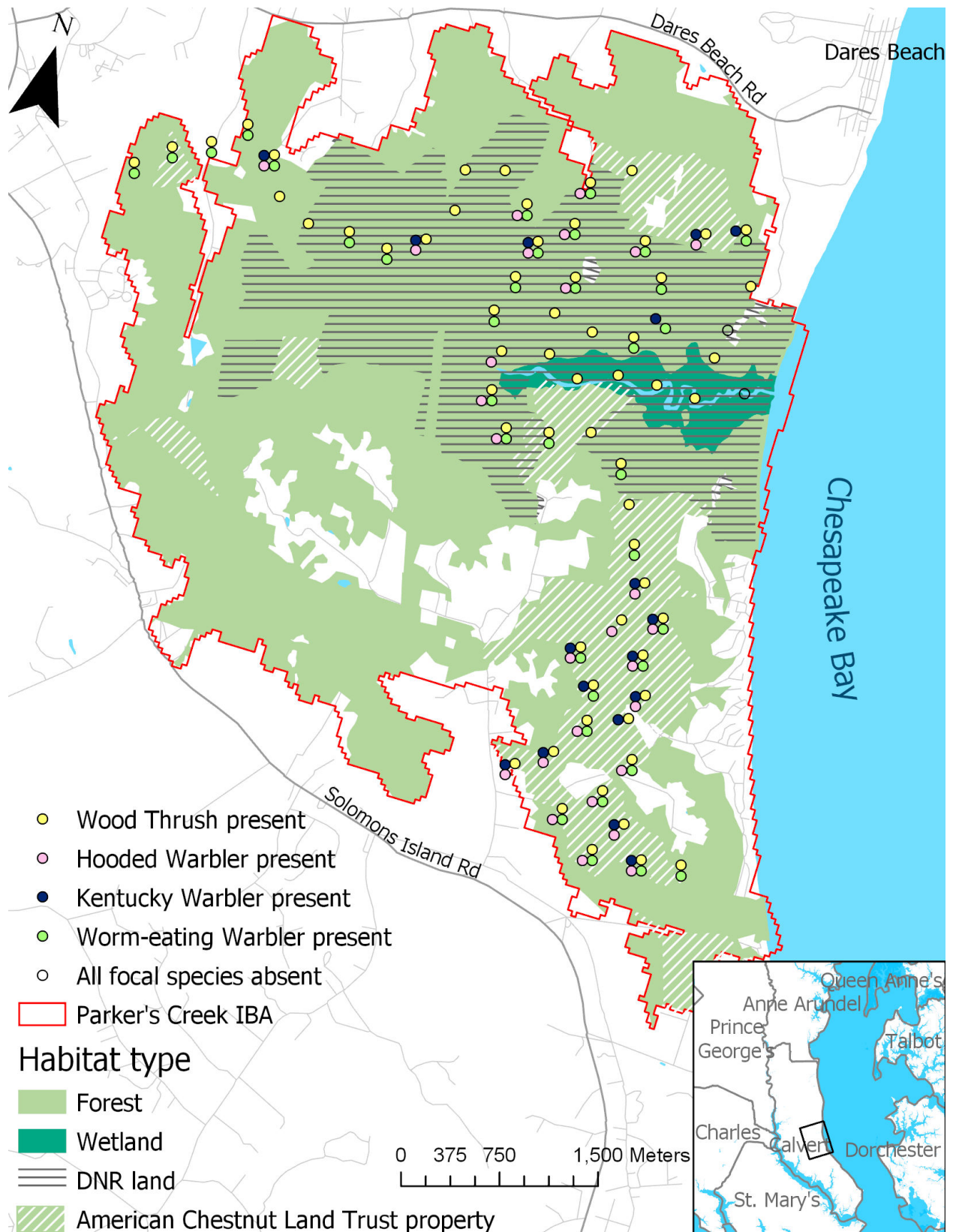
Species	Habitat specialist	Total detections	Mean detections/ 5 min count
Eastern Wood-Pewee		74	0.63
Field Sparrow		7	0.06
Fish Crow		3	0.03
Gray Catbird		3	0.03
Great-crested Flycatcher		18	0.15
Hairy Woodpecker	FIDS	6	0.05
Hooded Warbler	FIDS	30	0.26
House Wren		2	0.02
Indigo Bunting		15	0.13
Kentucky Warbler*	FIDS	19	0.16
Louisiana Waterthrush	FIDS	27	0.23
Mourning Dove		36	0.31
Northern Cardinal		84	0.72
Northern Flicker		2	0.02
Northern Parula	FIDS	42	0.36
Orchard Oriole		6	0.05
Osprey		1	0.01
Ovenbird	FIDS	108	0.92
Pileated Woodpecker	FIDS	23	0.20
Pine Warbler		2	0.02
Red-bellied Woodpecker		82	0.70
Red-eyed Vireo	FIDS	159	1.36
Red-headed Woodpecker*		1	0.01
Red-shouldered Hawk	FIDS	2	0.02
Red-winged Blackbird		13	0.11
Ruby-throated Hummingbird		2	0.02
Scarlet Tanager	FIDS	42	0.36
Summer Tanager	FIDS	18	0.15
Tufted Titmouse		118	1.01
White-breasted Nuthatch		38	0.32
Wood Thrush*	FIDS	117	1.00
Worm-eating Warbler*	FIDS	25	0.21
Yellow-billed Cuckoo		20	0.17
Yellow-breasted Chat		3	0.03
Yellow-throated Vireo	FIDS	17	0.15
Yellow-throated Warbler		5	0.04
Total FIDS abundance			7.22
Total mean relative abundance			14.00

On the survey route (route H) in tidal marsh habitat, 214 detections were made of 37 species, including a single Marsh specialist species, Marsh Wren (Table 3). 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. The area of marsh habitat at Parker's Creek is relatively small and many of the birds detected on this route (including 11 FIDS) detected from these marsh points were forest birds in adjacent uplands.

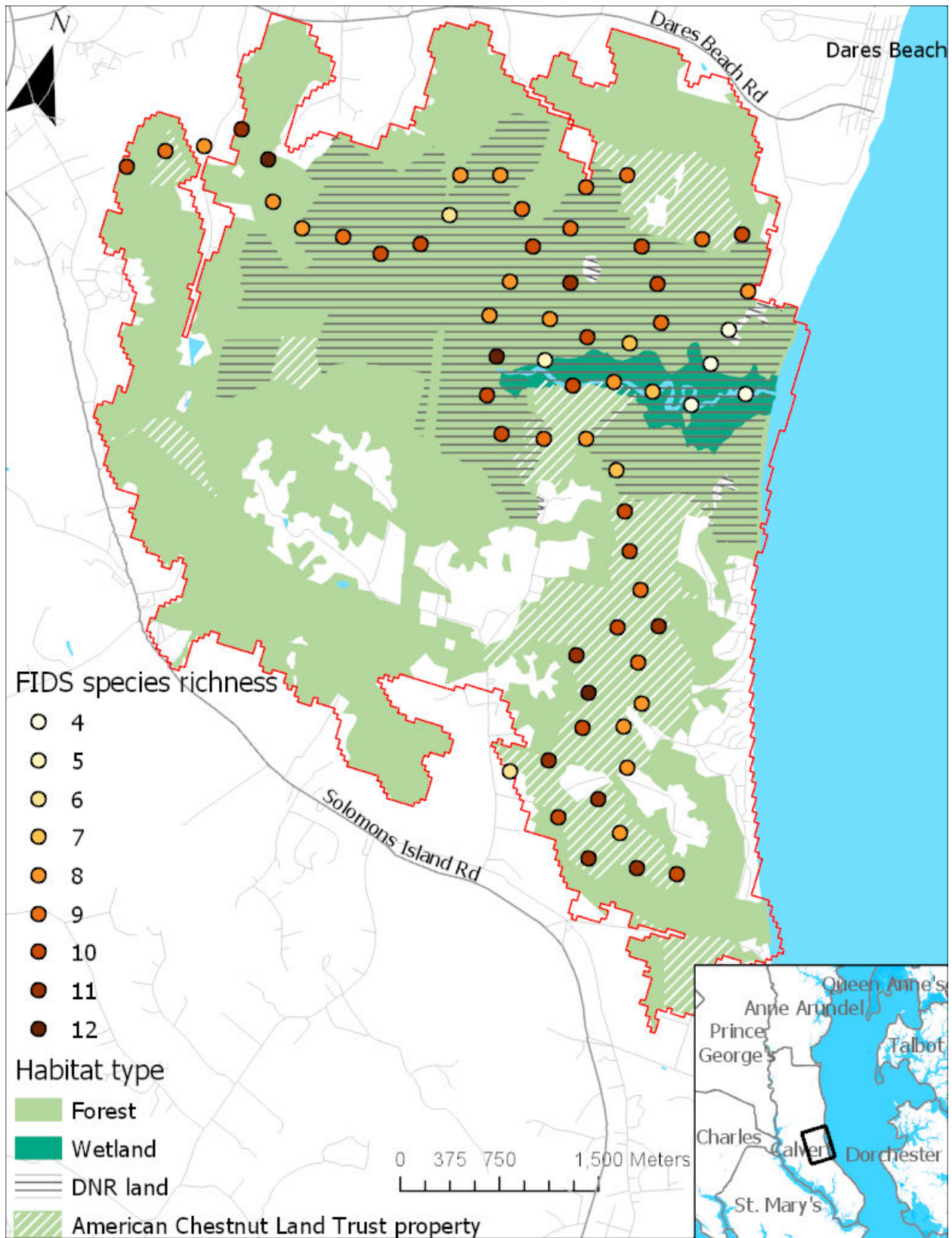
Table 3. Total detections and detections/count at survey locations in marsh habitat. Five points were each surveyed twice in May-June 2018, yielding 10 total counts. Habitat specialist species are shown in bold, and species at risk are indicated by * (both according to MD-DC IBA criteria).

Species	Habitat specialist	Total detections	Mean detections/ 5 min count
Acadian Flycatcher		2	0.20
American Crow		14	1.40
American Goldfinch		1	0.10
Bald Eagle*		3	0.30
Barn Swallow		1	0.10
Blue Grosbeak		2	0.20
Blue Jay		7	0.70
Brown-headed Cowbird		2	0.20
Canada Goose		12	1.20
Carolina Chickadee		1	0.10
Carolina Wren		7	0.70
Chimney Swift		2	0.20
Common Yellowthroat		23	2.30
Eastern Wood-Pewee		3	0.30
Great-crested Flycatcher		2	0.20
Indigo Bunting		3	0.30
Louisiana Waterthrush		2	0.20
Marsh Wren	Marsh	5	0.50
Mourning Dove		3	0.30
Northern Cardinal		9	0.90
Northern Parula		2	0.20
Northern Rough-winged Swallow		6	0.60
Orchard Oriole		1	0.10
Osprey		4	0.40
Ovenbird		2	0.20
Pileated Woodpecker		7	0.70
Red-bellied Woodpecker		8	0.80

Species	Habitat specialist	Total detections	Mean detections/ 5 min count
Red-eyed Vireo		5	0.50
Red-shouldered Hawk		2	0.20
Red-winged Blackbird		41	4.10
Scarlet Tanager		5	0.50
Summer Tanager		2	0.20
Tufted Titmouse		10	1.00
White-eyed Vireo		5	0.50
Wood Duck		3	0.30
Wood Thrush*		6	0.60
Yellow-throated Vireo		1	0.10
Total mean relative abundance			21.40



Map 2. Detections of selected priority species in 2017 and 2018. Species shown are either at risk or indicative of undisturbed forest habitat



Discussion

The data collected in 2018 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.
2. The data can be compared to past bird surveys completed in 1999, 2004, and 2017 to gain 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 high abundance and diversity of FIDS species—about half of all detections in forest habitats were of FIDS—suggests that the forest habitat within Parker's Creek IBA is a particularly important refuge for breeding birds. The 2018 FIDS species richness and relative abundance at Parker's Creek IBA were greater than at Mattawoman Creek IBA or at Patapsco IBA.

The total number of detections increased moderately from 1674 in 2017 to 1852 in 2018, and the number of species detected decreased from 71 to 65. There was a small decrease in the relative abundance of FIDS species in forest habitat, from 7.83 to 7.22. A Spearman Rank correlation test showed that the assemblage of FIDS species in 2017 and 2018 were significantly and highly correlated ($\rho=0.97$, $p=1.7 \times 10^{-11}$). Overall, these comparisons indicate that there were no major changes in the avian community at Parker's Creek between 2017 and 2018.

Although surveys completed in 1999 and 2004 did not follow the same protocol as the 2017 and 2018 surveys, trends can be examined using a comparison of the abundance ranks of species between years. Table 4 shows the abundance rank of each FIDS species detected, along with the difference in abundance rank between averages of the first two surveys and of the second two surveys. Two species (American Redstart and Yellow-throated Vireo) decreased their rank abundance by at least three positions, and three species (Louisiana Waterthrush, Pileated Woodpecker, and Worm-eating Warbler) gained at least three rank positions.

Table 4. Abundance ranks of FIDS species at Parker's Creek.

Species	Abundance rank 1999	Abundance rank 2004	Abundance rank 2017	Abundance rank 2018	Mean of 1999 and 2004 (Mean A)	Mean of 2017 and 2018 (Mean B)	Rank comparison (Mean A-Mean B)
Acadian Flycatcher	3.5	2	1	1	2.75	1	1.75
Red-eyed Vireo	2	1	2	2	1.5	2	-0.5
Wood Thrush	1	3	3	3	2	3	-1
Ovenbird	5	6	4	4	5.5	4	1.5
Scarlet Tanager	6	7	5	5.5	6.5	5.25	1.25
Northern Parula	3.5	4	6	5.5	3.75	5.75	-2
Hooded Warbler	7	5	7	7	6	7	-1
Louisiana Waterthrush	14	12	11	8	13	9.5	3.5
Worm-eating Warbler	12.5	11	8	9	11.75	8.5	3.25
Pileated Woodpecker	12.5	13	9	10	12.75	9.5	3.25
Kentucky Warbler	10	8.5	13	11	9.25	12	-2.75
Summer Tanager	9	14	10	12	11.5	11	0.5
Yellow-throated Vireo	8	10	12	13	9	12.5	-3.5
Hairy Woodpecker	15	15.5	15	14	15.25	14.5	0.75
American Redstart	11	8.5	14	15.5	9.75	14.75	-5
Black-and-white Warbler	17	18	17	15.5	17.5	16.25	1.25
Red-shouldered Hawk	16	15.5	17	17	15.75	17	-1.25
Prothonotary Warbler	18	17	17	18	17.5	17.5	0