



Bird Monitoring Report, 2018—Mattawoman Creek IBA

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Mattawoman Creek Important Bird Area (IBA) is a site of statewide importance for bird conservation. It was designated as an IBA in 2009 using Data from the 2nd Breeding Bird Atlas of Maryland and DC (Ellison 2010) and Bird Blitz surveys conducted by Audubon in 2009. These surveys demonstrated that the site qualifies for IBA designation based on both the bird species at risk criterion and the species assemblage criterion¹. Along with containing significant numbers of at-risk species—including Prothonotary Warbler, Wood Thrush, and Kentucky Warbler—the site supports one of the most diverse assemblages of Forest Interior Dwelling Species (FIDS) in Maryland’s Coastal Plain, with 20 out of 24 potentially occurring species breeding regularly². The site mostly consists of deciduous woodland, though it also includes some areas of forested wetland, which support at-risk floodplain specialists including Prothonotary Warbler and Louisiana Waterthrush.

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. In 2018, IBA monitoring at Mattawoman Creek IBA began, conducted along two survey routes chosen to be representative of the two dominant habitat types at the site.

Methods

In 2018, surveys were conducted along two routes in the Mattawoman Creek IBA (see Map 1). Seven survey points were located in the Mattawoman State Natural Environmental Area (NEA),

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 A 2016 site account of Mattawoman Creek IBA detailing its ornithological significance and conservation management is online at <http://md.audubon.org/conservation/southern-maryland-important-bird-areas-inform-land-use-planning>

in a wetland and forested floodplain habitat, and eight survey locations were located along the Upper Mattawoman Creek in an oak-hickory forest between US-301 and Acton Rd. 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.

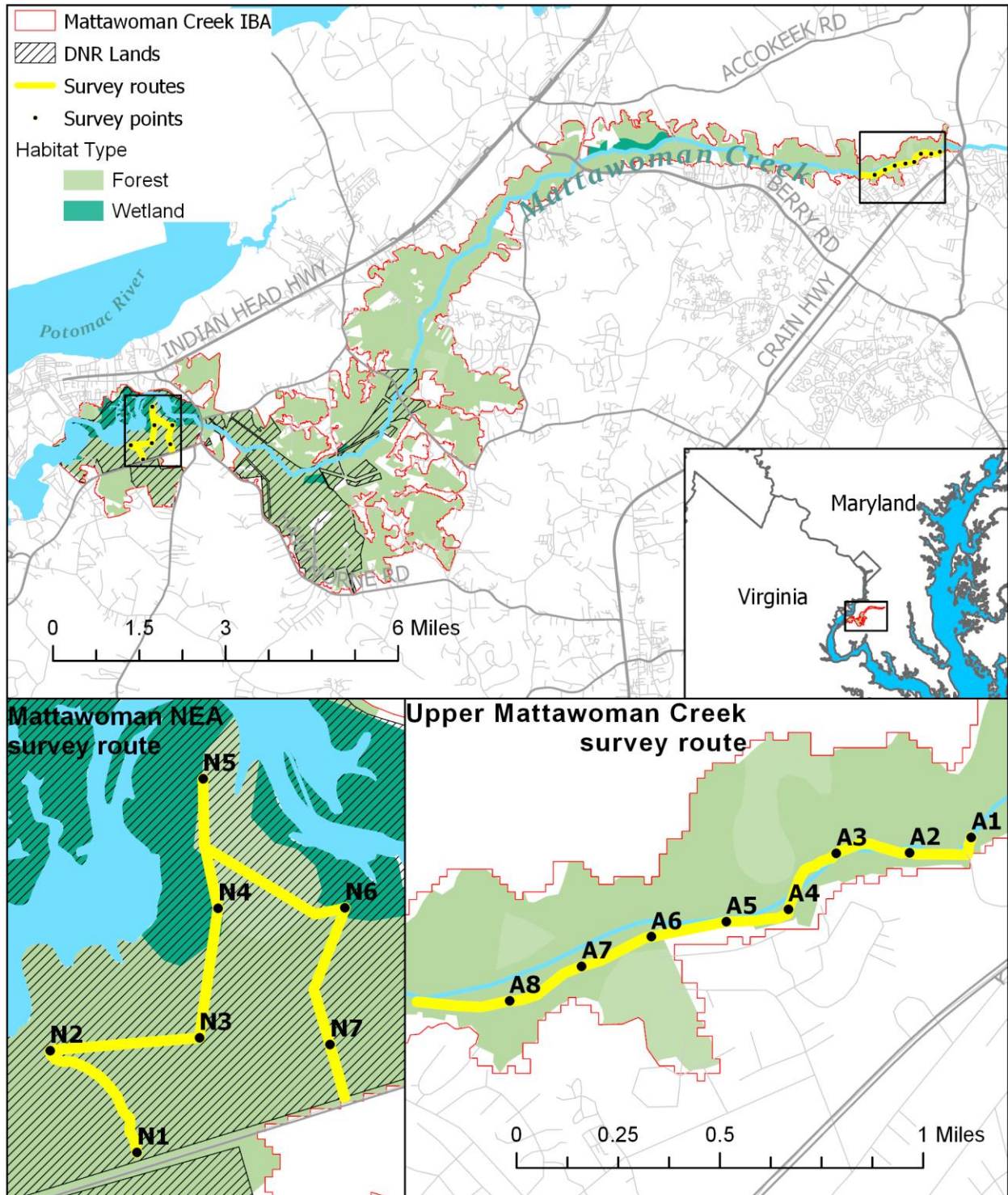
Surveys were completed during the first four hours after sunrise generally between 0600 and 1000 EST. Weather and wind conditions were recorded during each count following the Beaufort scale (for wind) and standard weather codes. Surveys were not conducted during high wind conditions (> 12 mph) or during 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 Mattawoman Creek IBA.

Route name	Habitat type	# survey points	Observer	Date of visit 1	Date of visit 2
Upper Mattawoman Creek	Deciduous forest	8	Ross Geredien	06/09/18	06/16/18
Mattawoman NEA	Forested wetland	7	Tom Seaton	05/25/18	06/17/18

Map 1. Mattawoman Creek IBA monitoring. Overview map with inset maps of routes and points surveyed in spring 2018. Scales of the two lower maps are equal. Habitat type derived from Maryland Integrated Map (2016).



Results

A total of 438 detections were made of 46 species at Mattawoman Creek IBA in 2018. Of these detections, 285 (65%) occurred along the Upper Mattawoman Creek survey route (Table 2) and the remaining 153 (35%) occurred on the Mattawoman NEA route (Table 3). Among the 46 species detected, 20 were present on both survey routes, 16 were detected only at the Upper Mattawoman Creek route, and 10 were detected only at the Mattawoman NEA route. A total of 16 FIDS were detected at the IBA (seven on both routes, seven at Upper Mattawoman Creek only, and four at Mattawoman NEA only). One additional FIDS (Hooded Warbler) was heard signing along the Upper Mattawoman Creek route between 5 minute surveys but was not detected during a survey. Along the Upper Mattawoman Creek route, FIDS comprised 22.8% of all detections, and at Mattawoman NEA, FIDS comprised 40.1% of all detections.

Among the 16 FIDS detected at Mattawoman Creek IBA, 11 are listed as Species of Greatest Conservation Need (SGCN) in Maryland's State Wildlife Action Plan. Two additional SGCNs which are not FIDS were also detected: Chimney Swift and Great Blue Heron. At the Mattawoman NEA route, of the four most common species (Eastern Wood Pewee, Wood Thrush, Red-Eyed Vireo, and Tufted Titmouse), two are FIDS (Wood Thrush and Red-Eyed Vireo). Of the four most common species at the Upper Mattawoman Creek Route (Carolina Wren, Northern Cardinal, Tufted Titmouse, and Red-Eyed Vireo), only Red-Eyed Vireo is a FIDS.

Table 2. Total detections and mean relative abundances at Upper Mattawoman Creek survey locations. Eight points were each surveyed twice in May-June 2018, yielding 50 total counts. FIDS species are shown in bold, and Species of Greatest Conservation Need are indicated by *. A mean detection of P indicates that the species was detected between survey points or outside the survey period.

Species	Habitat specialist	Total detections	Mean detections / 5 min count
Acadian Flycatcher*	FIDS	18	1.13
American Crow		17	1.06
American Goldfinch		14	0.88
Barred Owl	FIDS	1	0.06
Black-and-white Warbler*	FIDS	1	0.06
Blue Jay		2	0.13
Blue-gray Gnatcatcher		18	1.13
Brown-headed Cowbird		6	0.38
Carolina Chickadee		12	0.75
Carolina Wren		29	1.81
Chimney Swift*		1	0.06
Common Grackle		3	0.19
Common Yellowthroat		2	0.13
Downy Woodpecker		10	0.63

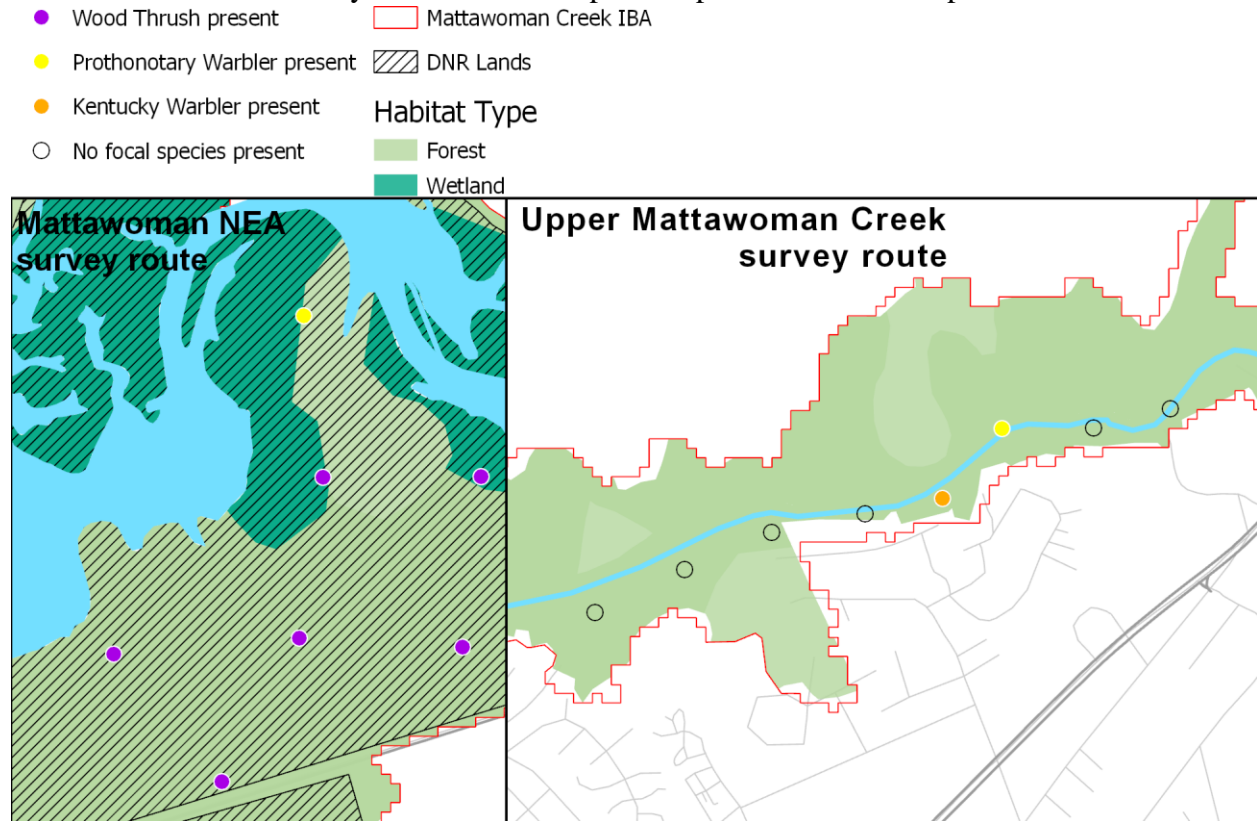
Species	Habitat specialist	Total detections	Mean detections / 5 min count
Eastern Towhee	SHRUB	1	0.06
Eastern Wood-Pewee		2	0.13
Gray Catbird		1	0.06
Great Crested Flycatcher		7	0.44
Hooded Warbler*	FIDS		P
Indigo Bunting		4	0.25
Kentucky Warbler*	FIDS	2	0.13
Louisiana Waterthrush*	FIDS	1	0.06
Northern Cardinal		29	1.81
Northern Mockingbird		1	0.06
Northern Parula*	FIDS	10	0.63
Pileated Woodpecker	FIDS	4	0.25
Prothonotary Warbler*	FIDS	1	0.06
Red-bellied Woodpecker		14	0.88
Red-eyed Vireo	FIDS	22	1.38
Red-shouldered Hawk	FIDS	2	0.13
Red-winged Blackbird		3	0.19
Scarlet Tanager*	FIDS	1	0.06
Summer Tanager	FIDS	2	0.13
Tufted Titmouse		25	1.56
White-breasted Nuthatch		1	0.06
White-eyed Vireo	SHRUB	14	0.88
Wood Thrush*	FIDS		P
Yellow-billed Cuckoo		4	0.25
Total relative abundance			17.81
Total FIDS relative abundance			4.06

Table 3. Total detections and mean relative abundances at Mattawoman NEA survey locations. Seven points were each surveyed twice in May-June 2018, yielding 14 total counts.

Species	Habitat specialist	Total detections	Mean detections/ 5 min count
Acadian Flycatcher*	FIDS	9	0.64
American Crow		1	0.07
American Redstart*	FIDS	1	0.07
Blue Jay		3	0.21
Blue-Gray Gnatcatcher		4	0.29
Canada Goose		1	0.07
Carolina Wren		6	0.43
Common Grackle		1	0.07

Species	Habitat specialist	Total detections	Mean detections/ 5 min count
Eastern Wood-Pewee		15	1.07
Great Blue Heron*		1	0.07
Great Crested Flycatcher		3	0.21
Louisiana Waterthrush*	FIDS		P
Mourning Dove		7	0.50
Northern Cardinal		8	0.57
Northern Flicker		1	0.07
Northern Parula*	FIDS	7	0.50
Ovenbird*	FIDS	9	0.64
Pileated Woodpecker		5	0.36
Pine Warbler		2	0.14
Prothonotary Warbler*	FIDS	1	0.07
Red-Bellied Woodpecker		9	0.64
Red-Eyed Vireo	FIDS	12	0.86
Red-Winged Blackbird		2	0.14
Scarlet Tanager*	FIDS	7	0.50
Summer Tanager	FIDS	1	0.07
Tufted Titmouse		11	0.79
White-Breasted Nuthatch		7	0.50
Wood Thrush*	FIDS	14	1.00
Yellow-Billed Cuckoo		2	0.14
Yellow-Throated Vireo*	FIDS	1	0.07
Yellow-Throated Warbler		2	0.14
Total relative abundance			10.93
Total FIDS relative abundance			4.43

Map 2. Location of detections of selected priority species. A maximum of one priority species was detected at each survey location. See Map 1 for spatial extents of maps.



Discussion

The species assemblages detected on the two survey routes were not clearly distinct. A number of FIDS were detected at both survey routes and only one species classified as a habitat specialist other than forest interior was detected. Although the Mattawoman NEA route included some wetland habitat, the 10 species which were detected only at the Mattawoman NEA route were not marsh or wetland specialists; further, FIDS made up a higher proportion of detections at the Mattawoman NEA than the Upper Mattawoman Creek route. Species which depend on aquatic environments such as Louisiana Waterthrush and Prothonotary Warbler were detected (or heard outside the survey period) on both survey routes.

Comparisons between 2018 monitoring data at Mattawoman Creek IBA and previous data will yield only limited insights into current trends in bird abundance and diversity, since previous surveys during Breeding Bird Atlas data collection and Bird Blitz surveys were conducted using substantially different methodology. Nevertheless, it is useful to note that the FIDS species richness (17 species including one species, Hooded Warbler, heard only outside the survey period) detected during 2018 monitoring does not appear to be a significant shift from a richness of 18 detected during the 2009 Bird Blitz (Curson & Yeany 2010). Some species such as Wood Thrush were detected at relatively high rates in both 2018 IBA monitoring and the 2009 Bird

Blitz (Curson & Yeany 2010). However, this year's monitoring found a much lower abundance of species such as Prothonotary Warbler and Hooded Warbler.

Limited insights may also be gained through comparisons with data from other recent IBA monitoring in Southern Maryland and elsewhere on the Maryland Coastal Plain. 2017 monitoring at Parkers Creek IBA found similar mean relative abundances of all species to 2018 monitoring at Mattawoman Creek IBA, though the FIDS relative abundance was substantially higher (Curson & Eberly 2018). A total of 19 FIDS were detected at Parkers Creek IBA, though this does not necessarily imply that the bird assemblage at Mattawoman Creek IBA is less diverse, as the Parkers Creek monitoring was more extensive and included eight survey routes.

Finally, the data collected in 2018 at Mattawoman Creek will be a useful baseline to compare to future monitoring efforts by Audubon Maryland-DC and the Maryland Bird Conservation Partnership. More reliable estimates of trends in abundance and richness may be made possible by replicating surveys at the same routes and points in future breeding seasons at this and other Maryland IBAs.

Acknowledgements

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