



Mid-Atlantic Network

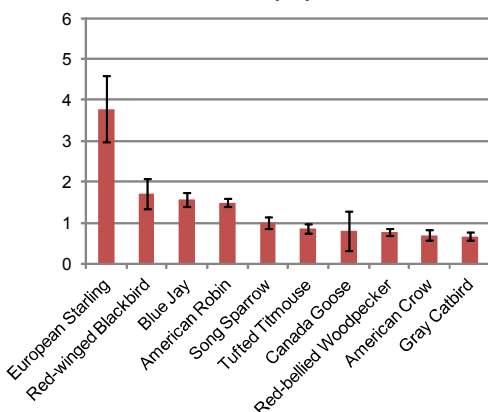
Breeding Bird Resource Brief



Baltimore Oriole

Valley Forge National Historical Park 2011 Status & Trends

A total of 74 stations were surveyed at Valley Forge NHP during the 2011 breeding bird monitoring program, including 36 stations in forested habitats and 38 stations in grassland habitats. Thirteen volunteer birders from the local birding community conducted an average of 3.39 surveys per station producing a total of 251 surveys for the season, the most number of surveys yet!



The 10 most commonly detected bird species at Valley Forge NHP in 2011 and their associated relative abundance (average birds/station). Error bars indicate standard error, a measure of variation.

Between May and July, 3,910 birds of 76 species were detected throughout the park. Several species were detected this year that were not in previous monitoring years including the Prairie Warbler, Double-crested Cormorant, Northern Rough-winged Swallow, Bobolink, Northern Parula, Louisiana Water-thrush, Grasshopper Sparrow, and Rose-breasted Grosbeak.

The European Starling was the most abundant species, averaging 3.78 birds per station, while the American Robin was the most prevalent species, occurring at 89.2% of stations surveyed.

Species of conservation concern, as defined by Partners in Flight (PIF), were well represented in the park, with volunteers detecting 24 species (see table on back right). PIF further distinguishes species of concern as “watchlist” species, which face immediate threats, or “stewardship” species, which are rep-

Objectives

1. Determine annual changes and long-term trends in species composition and relative abundance.
2. Improve our understanding of relationships between breeding birds, habitats and park management.

resentative of avifaunal biomes that may or may not be in immediate danger.

Within the park, 15 watchlist species and 8 stewardship species were detected. Only 1 species of concern, the Red-bellied Woodpecker, was among the 10 most abundant species.

Avian guilds, or groups of species occupying similar ecological niches, can be utilized for assessing response to environmental changes and ecosystem stressors via bird community assessments, or “indices” (BCIs). Based on a BCI developed for the Piedmont/Coastal Plain region (O’Connell et al. 2003), forested stations surveyed this year

Importance

In the densely populated Mid-Atlantic region, birds face numerous threats including urbanization, habitat loss, and fragmentation. National parks provide refuge from such threats with contiguous and protected tracts of habitat suitable for breeding birds. These parks host species of continental concern and other species that are declining throughout their range.

Birds are also excellent barometers of ecosystem health due to their high metabolism and prominent position in the food web. Detecting changes in bird populations may help alert park staff to ecological stressors such as invasive species, overbrowsing, detrimental park management practices, or climate change and help guide future management actions.



Tufted Titmouse

Management Applications

- A total of 76 species were detected across the park including 24 species of concern.
- The Red-bellied Woodpecker, a species of concern, was among the 10 most common species in the park.
- The upper canopy forager guild increased in integrity from “moderately disturbed” to “largely intact”, using a Bird Community Index (BCI).

Long-term Monitoring

Between May and July of each year, volunteer birders conduct point counts at monitoring stations in forest and grassland habitats. Stations in forested areas are located within 125 m of forest vegetation monitoring plots enabling park staff to associate long-term trends in vegetation with avian population trends.

During each 10-minute count, the volunteer records environmental

conditions, how the bird was detected (visually or aurally), and the distance and minute of first detection.

Each site is visited at least once, but volunteers are encouraged to make multiple visits in a season. Multiple visits are especially important for obtaining accurate density estimates as information on variability due to observers, weather, etc. can be accounted for.

Status & Trends Continued...

received the second highest ranking of “largely intact” which is consistent with the 2010 ranking for the park. All guild ranks remained consistent with last year’s rankings with the exception of the upper canopy foragers which increased from “moderately disturbed” to “largely intact.”

References:

O’Connell, et al. 2003. A bird community index for the Mid-Atlantic Piedmont and Coastal Plain. Final Report to the USGS – Patuxent Wildlife Research Center. Report No. 2003-02.

Photographs by:

Baltimore Oriole: Jim Schmidt
Tufted Titmouse: Bill Thompson

		2010		2011	
Guild		Percent	Rank	Percent	Rank
Structural	Forest Interior	23.21	Largely Intact	23.27	Largely Intact
	Pine Associated	0.00	Humanistic	0.00	Humanistic
	Urban/Suburban	51.55	Moderately Disturbed	47.76	Moderately Disturbed
Functional	Bark Prober	20.57	Naturalistic	20.18	Naturalistic
	Ground Forager	0.47	Moderately Disturbed	0.57	Moderately Disturbed
	Upper Canopy Forager	11.52	Moderately Disturbed	15.31	Largely Intact
Compositional	Nest Predator/Brood Parasite	20.70	Moderately Disturbed	16.79	Moderately Disturbed
	Single Brooded	38.44	Largely Intact	40.74	Largely Intact
	Exotic	0.35	Largely Intact	0.69	Largely Intact
Total BCI Score		0.61	Largely Intact	0.64	Largely Intact

Avian forest guild summary and Bird Community Index (BCI) score for 2010-2011. Percents indicate the average percent guild membership at monitoring locations across the park. Total BCI scores range from 0-1 with 1 having the highest integrity.

Species	Detections	% Occupied
Watchlist Species		
Baltimore Oriole	44	57.63
Black-billed Cuckoo	2	3.39
Brown Thrasher	4	5.08
Chimney Swift	4	5.08
Eastern Kingbird	34	33.90
Eastern Meadowlark	44	35.59
Eastern Towhee	25	35.59
Eastern Wood-Pewee	12	16.95
Field Sparrow	29	30.51
Grasshopper Sparrow	1	1.69
Northern Flicker	25	38.98
Prairie Warbler	3	1.69
Willow Flycatcher	4	5.08
Wood Thrush	21	23.73
Yellow-billed Cuckoo	1	1.69
Partners in Flight (PIF) Watchlist Species		
Carolina Chickadee	25	37.29
Carolina Wren	14	23.73
Downy Woodpecker	13	20.34
Indigo Bunting	18	28.81
Northern Parula	1	1.69
Orchard Oriole	33	23.73
Pileated Woodpecker	8	11.86
Red-bellied Woodpecker	47	55.93

Number of detections of Partners in Flight (PIF) watchlist and stewardship species and percent of stations with detections at Valley Forge NHP in 2011. Detections exclude flyovers and incidental encounters.

A Final Note

It is important to note that the data presented in this brief is preliminary as variability in the dataset has not yet been accounted for. For more information on this protocol, please see the full annual report accessible from the protocol website linked below.

Last but not least, we’d like to thank all our volunteers for walking off the beaten path in the summer heat to collect the data summarized in this brief.



Lead Scientist

Sarah Wakamiya
Sarah.Wakamiya@nps.gov
Data Manager/Biologist

Mid-Atlantic Network

120 Chatham Lane
Fredericksburg, VA 22405
www.nature.nps.gov/im/units/midn

Protocol Website:

More information and full annual reports may be found at
<http://science.nature.nps.gov/im/units/midn/ProtocolBirds.cfm>