



# Mid-Atlantic Network

# Breeding Bird Resource Brief



Downy Woodpecker

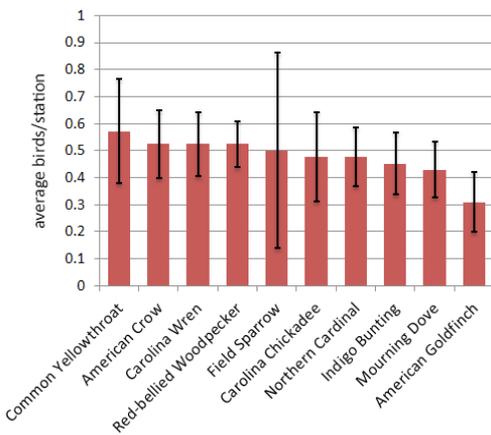
## Richmond National Battlefield Park 2012 Status & Trends

A total of 42 sampling stations were surveyed at the Malvern Hill unit of Richmond NBP during the park’s third season of breeding bird monitoring, including 26 stations in forested habitats and 16 stations in grassland habitats. Six volunteers from the local birding community surveyed each station once,

producing a total of 42 surveys for the season.

Between May and July, 426 birds of 59 species were detected throughout the unit. The number of species was similar across habitat types with 49 different species detected at forested stations, versus 47 species detected at grassland stations. The Common Yellowthroat had the highest relative abundance, averaging 0.57 birds / station. The American Crow was the most prevalent species, occurring at 40.5% of the stations surveyed.

Volunteers detected 23 species considered to be of conservation concern by Partners in Flight (PIF). PIF distinguishes species of concern facing immediate threats as “watchlist” species. “Stewardship” species are representative of avifaunal biomes that may or may not be in immediate danger.



The 10 most commonly detected bird species at Richmond NBP in 2012 and their associated relative abundance (average birds/station). Error bars indicate standard error, a measure of variation.

## 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.

Within the unit, 10 watchlist species and 13 stewardship species were detected (see table on back right). Five species of concern, including 1 watchlist species (Field Sparrow) and 4 stewardship species (Carolina Chickadee, Carolina Wren, Indigo Bunting, Red-bellied Woodpecker), were among the 10 most abundant species.

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



Great Crested Flycatcher

## 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.

## Management Applications

- A total of 59 species were detected across the unit, including 23 species of concern.
- 5 of the 10 most common species were Partners in Flight (PIF) species of concern.
- The Field Sparrow, a watchlist species, was the fifth most common species detected.

## Long-term Monitoring

Between May and July of each year, volunteer birders conduct point counts at monitoring stations in forest and grassland habitats. Many 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...

surveyed this year received a ranking of “Moderately Disturbed,” which is lower than in 2010 and 2011. Rankings, when broken out by guild, were also lower in 6 out of 9 categories. These results, however, are preliminary,

and yearly changes may be influenced by both natural and observer variation. Until more data is collected, these initial trends should be treated with caution.

		2011		2012	
	Guild	Percent	Rank	Percent	Rank
Structural	Forest Interior	25.63	Largely Intact	16.37	Moderately Disturbed
	Pine Associated	2.08	Largely Intact	2.24	Largely Intact
	Urban/Suburban	27.83	Largely Intact	63.22	Humanistic
Functional	Bark Prober	25.16	Naturalistic	16.62	Largely Intact
	Ground Forager	6.26	Largely Intact	3.29	Largely Intact
	Upper Canopy Forager	24.99	Naturalistic	5.61	Moderately Disturbed
Compositional	Nest Predator/Brood Parasite	15.13	Largely Intact	27.03	Humanistic
	Single Brooded	47.35	Naturalistic	28.54	Moderately Disturbed
	Exotic	0.00	Naturalistic	0.00	Naturalistic
Total BCI Score		0.86	Naturalistic	0.58	Moderately Disturbed

Avian forest guild summary and Bird Community Index (BCI) score for 2011-2012. Percents indicate the average percent guild membership at sampled monitoring stations. Total BCI scores range from 0-1 with 1 having the highest integrity. Ranks in descending order of ecological value are: Naturalistic, Largely Intact, Moderately Disturbed, and Humanistic.

## A Final Note

It is important to note that the results presented in this brief are preliminary and are limited to areas sampled in the park. For more information on this protocol, please see the full annual report accessible from our website.

We'd like to thank all our volunteers for walking off the beaten path in the summer heat to count birds: Ethan Bullard, Diane Jadowski, Kelly Kerney, Amberly Moon, and Dave Nichols.

Species	Detections	% Occupied
<b>Watchlist Species</b>		
Brown Thrasher	2	4.8
Chimney Swift	1	2.4
Eastern Wood-Pewee	11	23.8
Eastern Meadowlark	-	-
Field Sparrow	21	11.9
Northern Bobwhite	2	4.8
Northern Flicker	8	19.1
Prairie Warbler	1	2.4
Red-headed Woodpecker	2	4.8
Wood Thrush	3	7.1
<b>Stewardship Species</b>		
Acadian Flycatcher	1	2.4
Blue Grosbeak	8	11.9
Carolina Chickadee	20	31.0
Carolina Wren	22	38.1
Downy Woodpecker	1	2.4
Indigo Bunting	19	33.3
Orchard Oriole	1	2.4
Pileated Woodpecker	2	2.4
Pine Warbler	5	9.5
Red-bellied Woodpecker	22	50.0
Red-shouldered Hawk	3	7.1
Summer Tanager	2	4.8
White-eyed Vireo	1	2.4

Number of detections of Partners in Flight (PIF) watchlist and stewardship species and percent of stations with detections in Richmond NBP. Detections exclude flyovers and incidental encounters.

### References:

Johnson, M. J. 2014. Breeding bird monitoring: Mid-Atlantic Network 2012 summary report. Natural Resource Data Series NPS/MIDN/NRDS—2014/650. National Park Service, Fort Collins, Colorado.

Photographs by: Nicholas Bircher



**Lead Scientist**  
Mark J. Johnson  
Mark\_Johnson@nps.gov  
Ecologist / Data Manager

**Mid-Atlantic Network**  
120 Chatham Lane  
Fredericksburg, VA 22405  
<http://science.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/monitor/birds.cfm>