



Summary of Landbird Monitoring Data for Pictured Rocks National Lakeshore

2011–2016

Natural Resource Data Series NPS/GLKN/NRDS—2017/1083



ON THE COVER

Black-throated Blue Warbler (*Dendroica caerulescens*)

NPS photo/Cindy Heyd

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Abstract

Pictured Rocks National Lakeshore initiated a landbird monitoring program in 2011. The data presented here are a very preliminary look at some general summaries. A total of 802 individuals among 82 species were recorded over the six-year period (2011–2016). The Red-eyed Vireo was the most common species recorded in all years, and was one of 16 species of which 10 or more individuals were recorded in each of the six years.

Acknowledgments

We are grateful to S. Hickman, S. Haas, and B. Johnson who conducted the songbird surveys. S. Hickman, as the observer during the first year of the surveys was especially helpful with set-up and reporting back any issues. Pictured Rocks is conducting a better songbird survey today because of his assistance, feedback, and dedication.

Introduction

Pictured Rocks National Lakeshore initiated a landbird monitoring program in 2011 with the following objectives:

1. Identify landbird species present during breeding season within the lakeshore, track changes in relative abundance, and produce data consistent for comparison with other Great Lakes Network parks.
2. Monitor breeding birds in specialized habitats within the park as indicators of ecosystem health. Targeted habitats include forest openings, shoreline-forest interface, perched dunes, riparian and wetland zones, and mixed hardwood forest including beech-dominated forests.
3. Observe changes in relative abundance of landbirds due to alterations of forest habitat within the Inland Buffer Zone (IBZ).
4. Estimate migratory songbird arrival dates yearly and track possible trends in response to climate change.

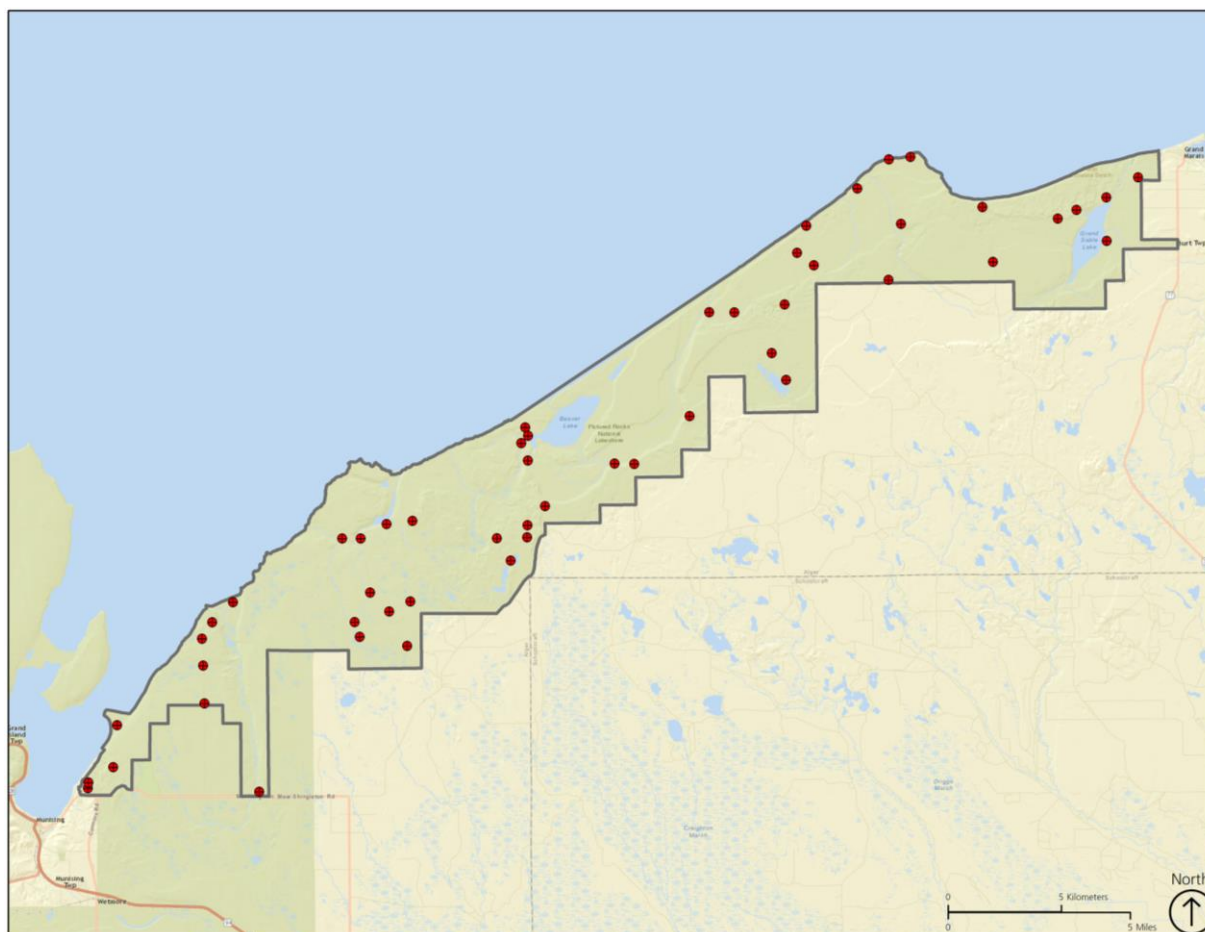
The data presented here are a very preliminary look at some general summaries after five seasons of data collecting at Pictured Rocks. Statistical analyses of these data will be conducted later in 2017.

Methods

Sampling design followed suggestions provided by Knutson et al. (2010a). Fifty-two (52) sampling points were randomly distributed across the park (Figure 1). Sample points are ≥ 250 m apart.

Survey methods are detailed in Knutson et al. (2010b). Briefly, each point is visited once each year between 1 June and 1 July. All surveys are conducted between 0.5 hr before sunrise and 4 hrs after sunrise. Typically, a single observer conducts the counts, which take two or more mornings to complete, depending on weather. Counts are only conducted when winds are <10 mph and no heavy rain or fog is present.

Count duration is 10 mins, during which time the observer identifies all birds heard or seen, noting for each the number of individuals, the minute of first detection (0, 1, 2, 3,...9), the type of detection (Singing, Calling, Observed, Flyover, or Non-vocal [such as drumming grouse or tapping woodpeckers]), and the distance from the point using distance bins of 0–50 m from the point, 51–100 m, and >100 m.



Data Summaries

Points

The total number of survey points varied until a total of 52 was settled upon in 2012. The number of points completed relative to the total also varied, except in 2012, 2015, and 2016 (Table 1).

Table 1. Number of songbird survey points visited each year, 2011–2016, at Pictured Rocks NL.

Year	Total Number of Points	Number of Points Surveyed
2011	48	47
2012	49	49
2013	53	52
2014	52	49
2015	52	52
2016	52	52

Species

A total of 82 species were recorded across the six years (2011–2016), with an average of 66 species per year (range = 63–68). The Red-eyed Vireo was the most common species recorded in all years, and the Ovenbird was in the top three most common species in all years. Other common species were the American Robin, and Black-throated Green Warbler, and the Cedar Waxwing (Table 2).

Table 2. Three most common species, by year, recorded during songbird surveys at Pictured Rocks NL, 2011–2016.

Year	Species (in order of abundance)
2011	Red-eyed Vireo Ovenbird American Robin
2012	Red-eyed Vireo American Robin Ovenbird
2013	Red-eyed Vireo Ovenbird American Robin
2014	Red-eyed Vireo Black-throated Green Warbler Ovenbird
2015	Red-eyed Vireo Ovenbird Black-throated Green Warbler
2016	Red-Eyed Vireo Ovenbird Cedar Waxwing

Thirty-four (34) of the species recorded over the six-year period are long-distance (Neotropical) migrants, 31 are short-distance migrants (wintering in the southern United States), and 17 species are permanent residents in the PIRO area (Appendix 1).

Individuals

An average of 802 individual birds were recorded each year (range = 700–857) (Figure 2). Ten or more individuals of 16 species were recorded in each of the six years (Table 3). Of the 16 species recorded in abundances of ≥ 10 individuals in all years, five exhibit potential trends in their annual abundances (Figure 3). Two species (American Redstart and Nashville Warbler) are potentially increasing (Figure 4), while three (American Robin, Hermit Thrush, and Rose-breasted Grosbeak) appear to be declining (Figure 5).

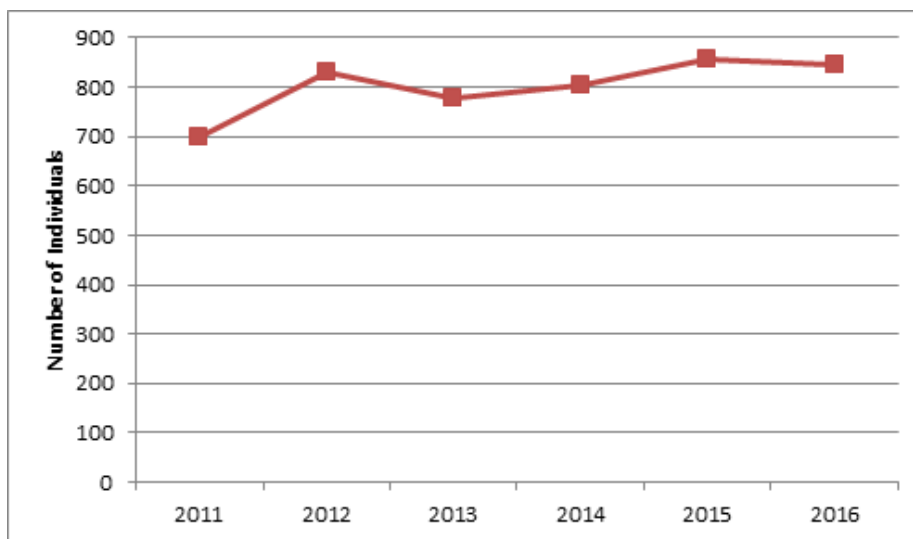


Figure 2. Total number of individual birds recorded during surveys at Pictured Rocks NL, 2011–2016.

Table 3. Species observed in abundances of ≥ 10 individuals in all years, 2011–2016.

Species	2011	2012	2013	2014	2015	2016
American Redstart	16	21	19	43	53	49
American Robin	45	67	64	47	32	24
Black-capped Chickadee	12	21	10	14	14	20
Black-throated Blue Warbler	16	30	20	23	20	21
Black-throated Green Warbler	33	42	36	61	58	40
Chipping Sparrow	14	13	14	24	15	16
Hermit Thrush	36	55	49	23	24	17
Least Flycatcher	18	16	13	26	25	23
Nashville Warbler	24	11	12	29	40	40
Ovenbird	52	62	72	61	83	67
Red-eyed Vireo	74	88	85	83	91	84
Rose-breasted Grosbeak	27	30	22	20	20	18

Table 3 (continued). Species observed in abundances of ≥ 10 individuals in all years, 2011–2016.

Species	2011	2012	2013	2014	2015	2016
Swainson's Thrush	15	24	20	24	18	11
White-throated Sparrow	13	14	15	17	13	21
Yellow-bellied Sapsucker	22	33	30	18	25	23
Yellow-rumped Warbler	19	18	25	18	20	14

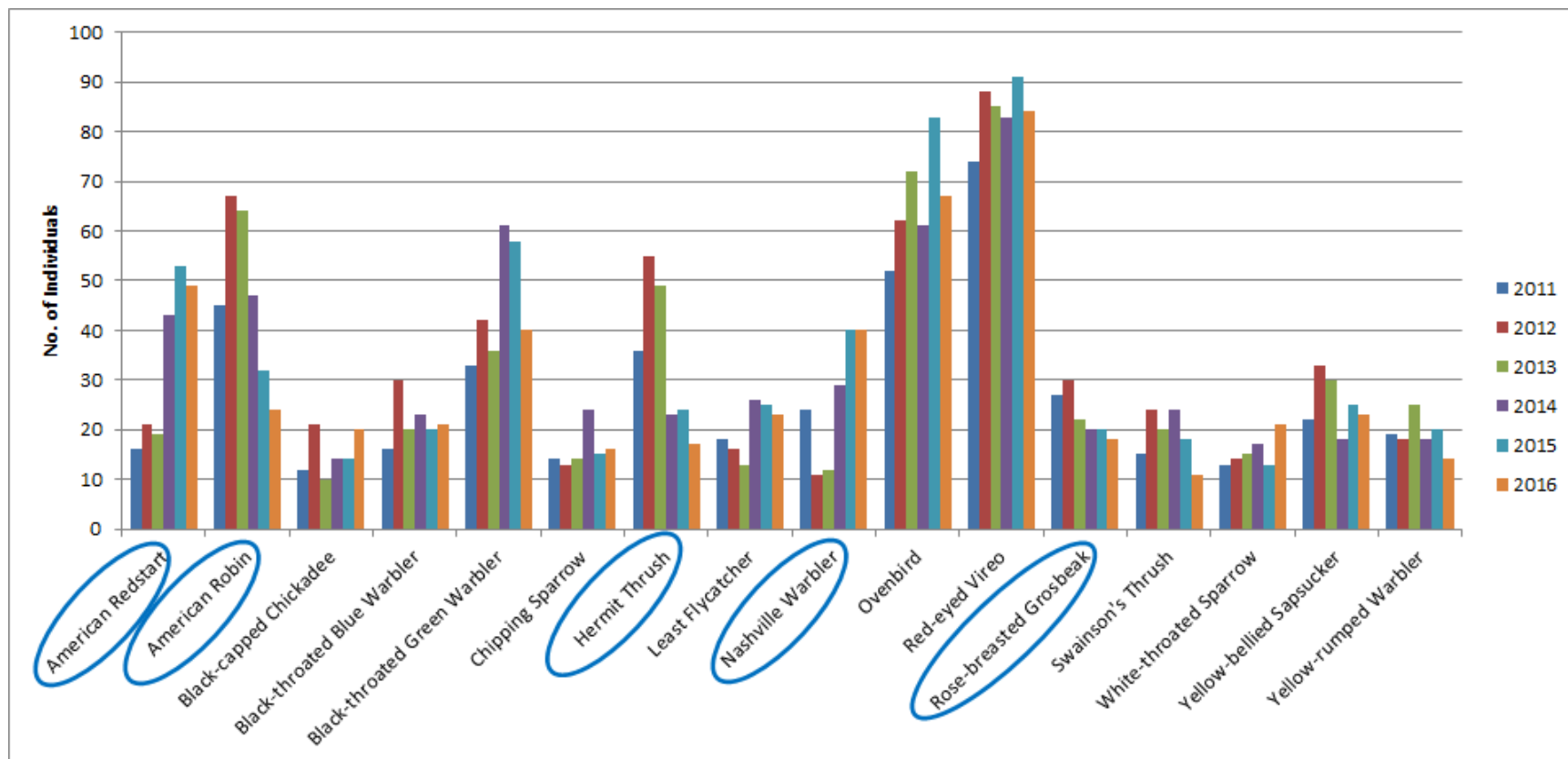


Figure 3. Abundances of 16 species with ≥ 10 individuals across all years, 2011–2016. Circled names indicate species exhibiting potential trends.

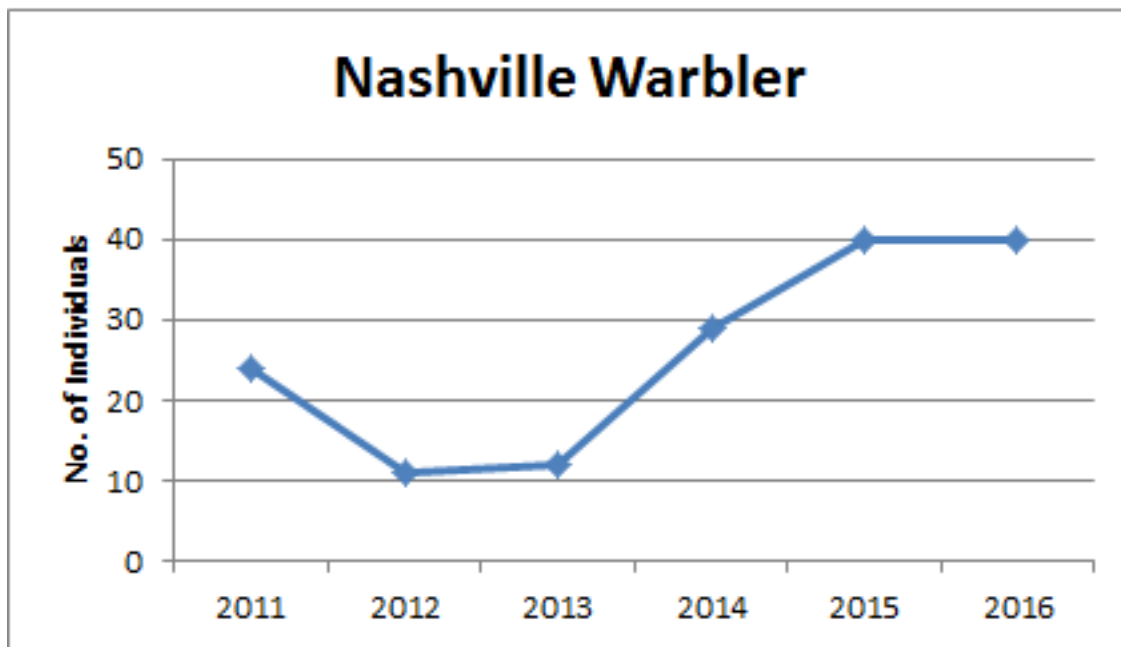
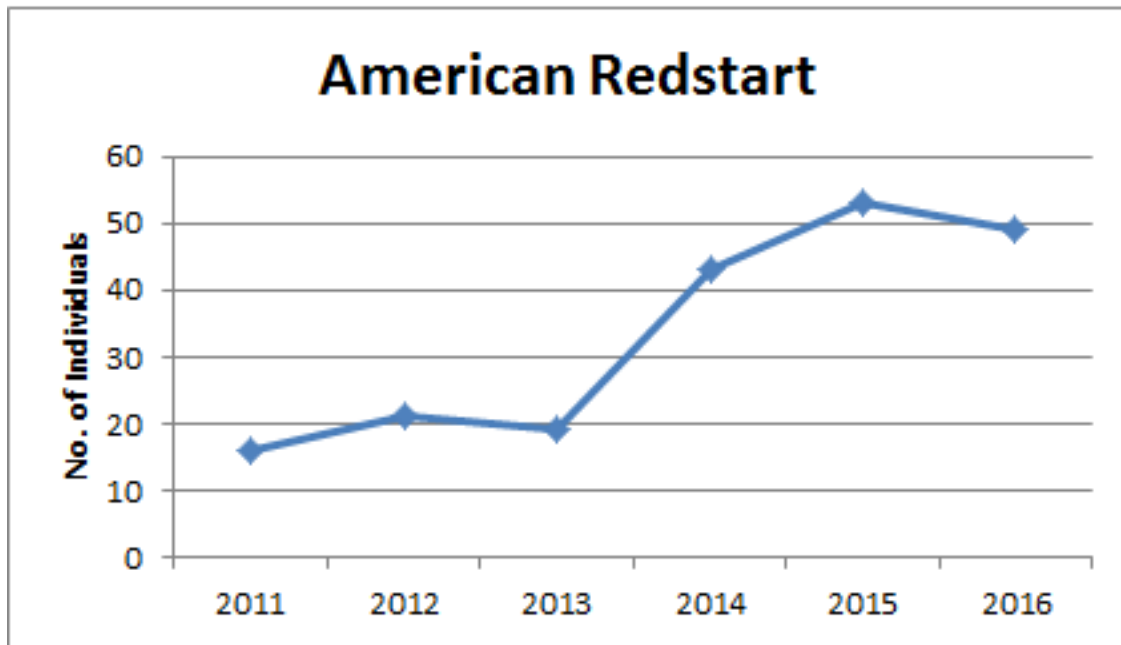


Figure 4. Songbird survey data from Pictured Rocks NL, 2011–2016, suggest the abundances of the American Redstart (*top*) and Nashville Warbler (*bottom*) are increasing.

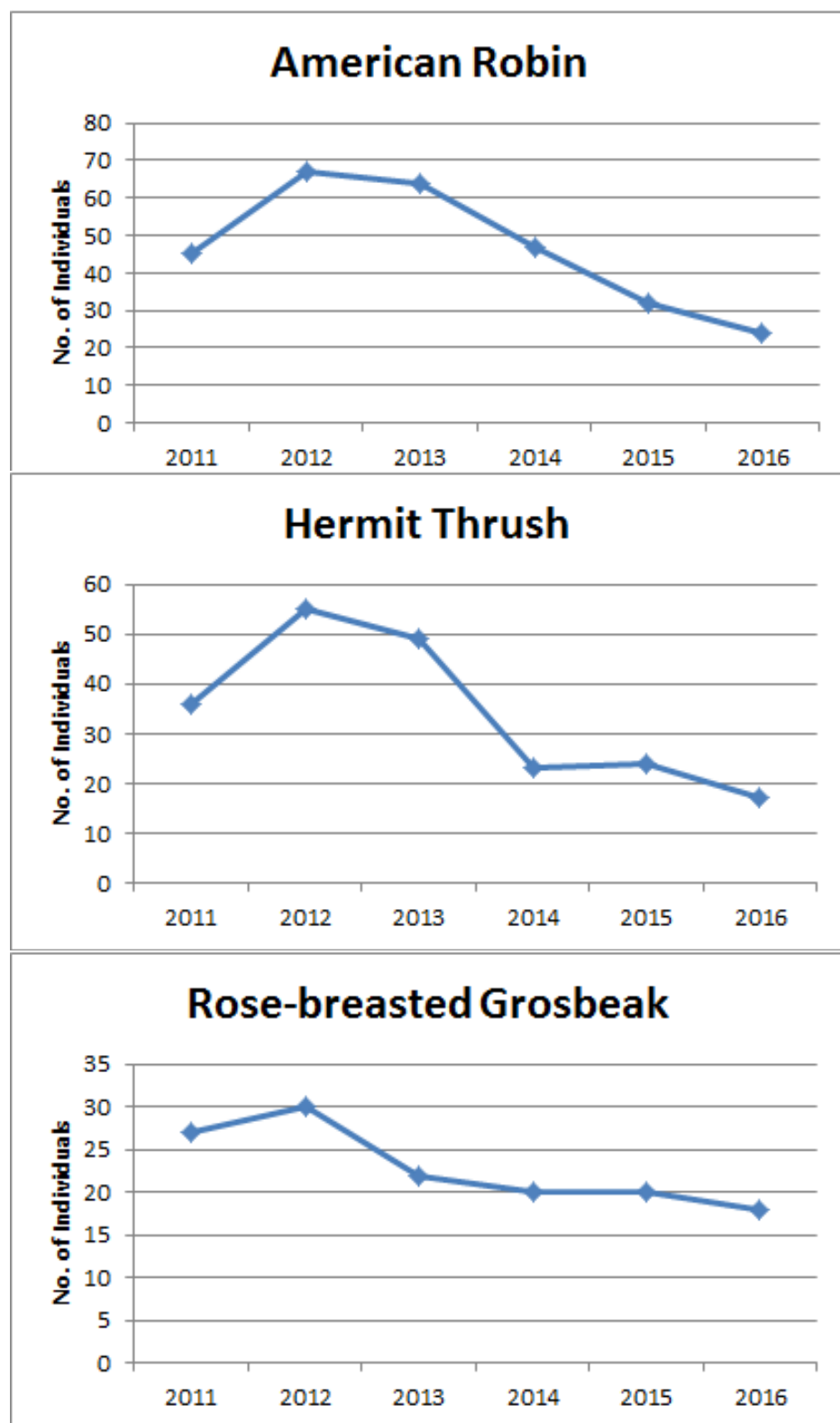


Figure 5. Songbird survey data from Pictured Rocks NL, 2011–2016, suggest the abundances of the American Robin (*top*), Hermit Thrush (*middle*), and Rose-breasted Grosbeak (*bottom*) are declining.

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Appendix 1. Songbird species recorded at Pictured Rocks National Lakeshore during June point count surveys, 2011–2016, and the migratory habit of each.

LD = Long-distance (Neotropical) migrant, SD = short-distance migrant, P = permanent resident.

Species	Migration habit
Alder Flycatcher	LD
American Crow	P
American Goldfinch	P
American Redstart	LD
American Robin	P
Belted Kingfisher	SD
Black-and-white Warbler	LD
Black-billed Cuckoo	LD
Blackburnian Warbler	LD
Black-capped Chickadee	P
Black-throated Blue Warbler	LD
Black-throated Green Warbler	LD
Blue Jay	P
Blue-headed Vireo	SD
Bobolink	LD
Brown Creeper	P
Brown Thrasher	SD
Brown-headed Cowbird	SD
Canada Warbler	LD
Cape May Warbler	LD
Cedar Waxwing	P
Chesnut-sided Warbler	LD
Chimney Swift	LD
Chipping Sparrow	SD
Clay-colored Sparrow	SD
Common Grackle	SD
Common Raven	P
Common Yellowthroat	LD
Connecticut Warbler	LD
Dark-eyed Junco	SD
Downy Woodpecker	P
Eastern Bluebird	SD
Eastern Kingbird	LD
Eastern Meadowlark	SD

Appendix 1 (continued). Songbird species recorded at Pictured Rocks National Lakeshore during June point count surveys, 2011–2016, and the migratory habit of each.

LD = Long-distance (Neotropical) migrant, SD = short-distance migrant, P = permanent resident.

Species	Migration habit
Eastern Phoebe	SD
Eastern Towhee	SD
Eastern Whip-poor-will	SD
Eastern Wood-Pewee	LD
Evening Grosbeak	p
Golden-crowned Kinglet	SD
Gray Catbird	LD
Great Crested Flycatcher	LD
Hairy Woodpecker	P
Hemit Thrush	SD
House Wren	SD
Indigo Bunting	LD
Least Flycatcher	LD
Magnolia Warbler	LD
Mourning Dove	SD
Mourning Warbler	LD
Nashville Warbler	LD
Northern Flicker	P
Northern Parula	LD
Northern Waterthrush	LD
Ovenbird	LD
Pileated Woodpecker	P
Pine Siskin	P
Pine Warbler	SD
Purple Finch	SD
Red Crossbill	SD
Red-breasted Nuthatch	P
Red-eyed Vireo	LD
Red-winged Blackbird	SD
Rose-breasted Grosbeak	LD
Ruby-throated Hummingbird	SD
Ruffed Grouse	P
Savannah Sparrow	SD
Scarlet Tanager	LD
Song Sparrow	SD

Appendix 1 (continued). Songbird species recorded at Pictured Rocks National Lakeshore during June point count surveys, 2011–2016, and the migratory habit of each.

LD = Long-distance (Neotropical) migrant, SD = short-distance migrant, P = permanent resident.

Species	Migration Habit
Swainson's Thrush	LD
Swamp Sparrow	SD
Veery	LD
Vesper Sparrow	SD
White-breasted Nuthatch	P
White-throated Sparrow	SD
White-winged Crossbill	SD
Winter Wren	SD
Wood Thrush	LD
Yellow Warbler	LD
Yellow-bellied Flycatcher	LD
Yellow-bellied Sapsucker	SD
Yellow-rumped Warbler	SD

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