

2020 Final Research Report 2nd Virginia Breeding Bird Atlas Manassas National Battlefield Park

Study#: MANA-00112

Permit#: MANA-2017-SCI-0007

Start Date: Apr 18, 2017

Expiration Date: Dec 31, 2020

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Summary

This report covers the fifth and final year (2020) of the 5-year Second Virginia Breeding Bird Atlas. In total, volunteer citizen scientists have reported 47 species with confirmed breeding and 20 species probably breeding within Manassas National Battlefield Park, including one Virginia priority species (Barn Owl).

Background

Purpose of study

The goal of the Second Virginia Breeding Bird Atlas (VABBA2) is to document the distribution and abundance of breeding birds in Virginia, ultimately providing a contemporary record of current bird communities and how they compare to data from the first atlas. These data will be easily accessible to support conservation of birds and their habitats.

The VABBA2 vision brings together multiple objectives to achieve a clearer understanding of Virginia avifauna.

- a) Document the current distribution of Virginia's breeding birds
- b) Assess changes in species distribution since the first Virginia BBA (1985-1989)
- c) Collect information on the distribution and occurrence of priority species for which current data are lacking
- d) Engage birders, ornithologists, government agencies, non-governmental organizations, K-12 students and educators, universities, and industry in the pursuit of scientific information and a broad conservation message

Field Methods

The state is organized into a sampling grid comprised of single units, or "blocks", using the 7.5-minute topographic quads prepared by the U.S. Geological Survey (USGS). Each quad is divided

into 6 blocks, representing a 23 square kilometer area, approximately 9 square miles. Within a quad, each block is assigned a two-letter directional code: northwest (NW), northeast (NE), center-west (CW), center-east (CE), southwest (SW), or southeast (SE). A block is the basic unit within which Atlasers conduct surveys for breeding birds. The goal is to maximize the number of species recorded within each block, and, for each species recorded, to confirm breeding to the extent possible.

For this study, monitoring of bird breeding behaviors is done throughout all blocks that include portions of Manassas National Battlefield Park (MANA). VABBA2 blocks associated with this study include:

- Gainesville CW
- Gainesville CE
- Gainesville NE
- Manassas CW

Individuals (Atlasers) sign up to be the Principle Atlaser for one or more blocks, indicating their commitment to ensure that this block will be completely surveyed during the 2016-2020 period. Responsibilities for a Principal Atlaser include:

- a) Adequately surveying for all breeding bird species.
- b) Confirming breeding status for as many species as possible.
- c) Regularly submitting data from their block to the Virginia Breeding Bird Atlas 2 eBird portal.
- d) Providing additional details for birds designated as priority species by entering information into Priority Species database.

Breeding categories and codes to be reported include:

- a) Observed category:
(no code) = Observed
F = Flyover
- b) Possible category:
H = in appropriate habitat
S = singing male
- c) Probable category:
P = Pair in suitable habitat
S7 = Singing male heard 7+ days apart, same locale
T = Territorial Defense
C = Courtship Display or Copulation
N = Probable Nest site
A = Agitated Behavior
B = Nest Building (cavity nests)
- d) Confirmed category:
CN = Carrying Nest material
NB = Nest Building (non-cavity)
PE = Physiological Evidence

DD = Distraction Display
UN = Used Nest
FL = Fledged or downy young
ON = Occupied Nest
CF = Carrying Food
FY = Feeding Young
FS = Fecal Sac
NE = Nest with Eggs
NY = Nest with Young

Nighttime surveys are an important aspect of a thorough Atlasing plan. Two methods are used for nighttime surveys. The first strategy focuses on covering as much ground as possible. The Atlaser lays out a driving or walking transect with periodic pauses, e.g. every 0.5 miles, to listen for the territorial calls of males or courtship vocalizations between males and females. Here, the goal is to cover as much ground within the block as possible. The second strategy focuses on visiting likely habitats for nocturnal species within the block. In this approach, observers select a few locations within suitable breeding habitats and visit these on an evening's nocturnal survey.

Additional information is documented for Virginia priority species, so designated because of those species are of conservation concern or may be indicators of expanding or retracting breeding ranges within the state.

Comparison with National Park Service Brochure

The National Park Service brochure "Birds of Manassas National Battlefield Park" shows both the likelihood of finding specific species within the park during each season (Spring, Summer, Fall, and Winter) and whether a species has been recorded as nesting within the park. While the brochure indicates 55 nesting species within the park, it is not clear whether that number reflects possible and probable categories or only confirmed breeding.

It is important to note the VABBA2 effort focuses only on birds that are potentially breeding within Virginia. The Cornell eBird project, of which VABBA2 is a part, includes reports of all sightings of birds around the world regardless of breeding status. It would be possible to determine all sightings within MANA that have taken place, not just those reported to VABBA2 during its five-year span. Such an analysis could be performed at the end of the VABBA2 project to further inform MANA staff and visitors of which birds have been present within the park.

2020 Results

In addition to the two investigators in this study, numerous additional citizen science volunteers participated in the program through the VABBA2 eBird portal. Participants bird on their own schedule, then enter their sightings and associated breeding codes in the website for the

appropriate block(s). Note that birders are reporting by block, not necessarily by park boundaries. However, the location associated with each report does indicate whether that survey was done within the park or outside of the park. This enabled the principle investigator to determine the highest breeding code reported in the park for each species, thereby constraining all results to the park for analysis.

In summarizing the data this year, the only reports evaluated were VABBA2 reports within the park's boundaries (same protocol as previous years). Similar to last year, results were assessed only at the category level (i.e., observed, possible, probable, and confirmed). It should be noted that authorized researchers can access the raw data from Cornell Lab, if needed.

A spreadsheet, included in this report, was developed by the principle investigator to track results within MANA. This spreadsheet includes:

- Summary information, by species, for each of the four breeding categories within the park as of the end of 2020 (summarizing data from 2016 through 2020)
- Summary results by species for each of the four breeding categories within the park from the previous year (2019)
- "Birds of Manassas National Battlefield Park" listings by season and nesting, developed by the National Park Service
- Details of likely species potential breeding behavior throughout the year

Three species had their breeding status upgraded this year, including a confirmation of breeding **Turkey Vultures**. While Killdeer are highly likely to have bred in the Brawner Farm area, with observations of both distraction displays and, later, recently fledged birds, the behaviour did not rise to the official criteria for confirmation. Unlike the previous year, no species reported last year had their status downgraded based on further analysis of the data.

Once again, the block with the highest number of codes reported was Gainesville CE, which is largely made up of park property. The second highest reporting block was Gainesville CW, which includes Brawner Farm and Stuart's Hill/Park Headquarters. Because the Manassas CW block only includes a small tip of the park (east of Stone Bridge), few sightings were reported there that fell within park boundaries.

As of 22 December 2020, the totals by category within the park boundaries were as follows:

- Confirmed: 47
- Probable: 20
- Possible: 11
- Observed: 55
- -----
- Total: **133**

Changes to species category coding were:

- New species reported: 1
- Code upgraded: 3
- Code downgraded: none
- Status unchanged: 129

Within park boundaries, the 47 species confirmed as breeding (up from 46 last year) include:

- Mallard
- Wild Turkey
- Turkey Vulture
- Cooper's Hawk
- Red-shouldered Hawk
- Red-tailed Hawk
- Mourning Dove
- Yellow-billed Cuckoo
- Barn Owl (Virginia priority species)
- Great Horned Owl
- Red-bellied Woodpecker
- Downy Woodpecker
- American Kestrel
- Eastern Phoebe
- Great Crested Flycatcher
- Yellow-throated Vireo
- Red-eyed Vireo
- Blue Jay
- American Crow
- Tree Swallow
- Barn Swallow
- Carolina Chickadee
- Tufted Titmouse
- House Wren
- Carolina Wren
- Blue-gray Gnatcatcher
- Eastern Bluebird
- American Robin
- Gray Catbird
- Northern Mockingbird
- Brown Thrasher
- European Starling
- Common Yellowthroat
- Prairie Warbler
- Eastern Towhee
- Field Sparrow
- Chipping Sparrow
- Grasshopper Sparrow
- Northern Cardinal
- Blue Grosbeak
- Indigo Bunting
- Red-winged Blackbird
- Eastern Meadowlark
- Common Grackle
- Brown-headed Cowbird
- Orchard Oriole
- Baltimore Oriole

An additional 20 species were recorded as "Probable", plus 11 more species recorded as "Possible". This means that there were 67 species that were either confirmed or probably breeding in the park, and 78 species that could be listed as possible or higher status.

References:

1. Virginia Breeding Bird Atlas 2
This site has a variety of information and tools for both observers and Atlasers.
website: <http://amjv.org/index.php/vabba2/>
The statewide VABBA2 2018 Season Summary can be found at:
http://amjv.org/wp-content/uploads/2018/12/Season2018Summary_Final.pdf
2. Cornell Lab of Ornithology, eBird, Virginia Breeding Bird Atlas 2
This is the primary data entry portal for all sightings.
website: <http://ebird.org/content/atlasva/>
3. National Park Service, U.S. Department of Interior, Manassas, "Birds of Manassas National Battlefield Park", (no date or number)
4. VABBA1 Block Explorer
This interactive site allows users to view and sign up for individual survey blocks, download topographic maps, and view results from the 1st VABBA.
website: <http://vafwis.dgif.virginia.gov/BBA2/BlockExplorer/>

MANA VABBA2 2020 Final Summary

Species (* = VA priority species)	Highest result through 2020 VABBA2				Highest result through 2019 VABBA2				NPS MANA list				
	Observe	Poss	Prob	Confirm	Observe	Poss	Prob	Confirm	nested	Sp	S	F	W
Canada Goose		same				yes			yes	A	C	A	A
Mute Swan													
Wood Duck			same				yes		yes				
Northern Shoveler													
Gadwall													
American Wigeon													
American Black Duck*													
Mallard				same				yes		C	C	C	C
Blue-winged Teal													
Hooded Merganser*	same				yes					U		U	U
Bufflehead	same				yes								
Common Merganser*													
Red-breasted Merganser										U		U	R
Northern Bobwhite		same				yes			yes	C	C	C	C
Ruffed Grouse													
Wild Turkey				same				yes	yes	C	C	C	C
Common Loon										R		R	R
Pied-billed Grebe										O			O
Double-crested Cormorant	same				yes					O	O	O	
Brown Pelican													
American Bittern*													
Least Bittern													
Great Blue Heron		same				yes				C	C	C	C
Great Egret													
Snowy Egret													
Little Blue Heron													
Tricolored Heron													
Cattle Egret													
Green Heron			same				yes			O	O	O	
Black-crowned Night-Heron										U	U		
Yellow-crowned Night-Heron													
White Ibis													
Glossy Ibis										R	R	R	

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Species (* = VA priority species)	Highest result through 2020 VABBA2				Highest result through 2019 VABBA2				NPS MANA list				
	Observe	Poss	Prob	Confirm	Observe	Poss	Prob	Confirm	nested	Sp	S	F	W
Black Vulture	same				yes				yes	C	C	C	C
Turkey Vulture				up			yes		yes	A	A	A	A
Osprey	same				yes					R	R		
Mississippi Kite*													
Bald Eagle	same				yes					O	O	O	O
Northern Harrier*	same				yes					U		U	C
Sharp-shinned Hawk	same				yes								
Cooper's Hawk				same				yes		U	U	U	U
Northern Goshawk											R	R	
Red-shouldered Hawk				same				yes	yes	C	C	C	C
Broad-winged Hawk	same				yes					C	U	C	
Red-tailed Hawk				same				yes	yes	C	C	C	C
Golden Eagle*													
Black Rail*													
Clapper Rail													
King Rail*													
Virginia Rail													
Sora													
Common Gallinule*													
American Coot													
Black-necked Stilt													
American Avocet													
Wilson's Plover													
Piping Plover													
Killdeer			up			yes				C	C	C	C
Spotted Sandpiper*	same				yes					U		R	
Solitary Sandpiper	same				yes					U		U	
Willet													
Upland Sandpiper*													
American Woodcock			same				yes			O	U	U	U
Wilson's Snipe	same				yes					U		U	
Laughing Gull													
Herring Gull	same				yes								

MANA VABBA2 2020 Final Summary

Species (* = VA priority species)	Highest result through 2020 VABBA2				Highest result through 2019 VABBA2				NPS MANA list				
	Observe	Poss	Prob	Confirm	Observe	Poss	Prob	Confirm	nested	Sp	S	F	W
Great Black-backed Gull													
Bonaparte's Gull													
Ring-billed Gull	same				yes					C		O	C
Least Tern													
Gull-billed Tern													
Caspian Tern*													
Common Tern													
Forster's Tern													
Royal Tern													
Sandwich Tern													
Black Skimmer													
Rock Pigeon	same				yes				yes	C	C	C	C
Mourning Dove				same				yes	yes	A	A	A	A
Eurasian Collared-Dove*													
Yellow-billed Cuckoo				same				yes		U	U	U	
Black-billed Cuckoo										R	R	R	
Barn Owl*				same				yes	yes	U	U	U	U
Long-eared Owl										R	R	R	R
Short-eared Owl													
Great Horned Owl				same				yes		U	U	U	U
Barred Owl			same				yes		yes	U	U	U	U
Northern Saw-whet Owl*													
Eastern Screech-Owl										U	U	U	U
Common Nighthawk	same				yes								
Chuck-will's-Widow													
Eastern Whip-poor-will													
Chimney Swift		same				yes			yes	C	C	C	
Ruby-throated Hummingbird		same				yes			yes	C	C	C	C
Belted Kingfisher			same				yes		yes	C	C	C	C
Red-headed Woodpecker			same				yes		yes	O	O	O	O
Red-bellied Woodpecker				same				yes	yes	C	C	C	C
Yellow-bellied Sapsucker	same				yes					C	C	C	O
Downy Woodpecker				same				yes		C	C	C	C

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Species (* = VA priority species)	Highest result through 2020 VABBA2				Highest result through 2019 VABBA2				NPS MANA list				
	Observe	Poss	Prob	Confirm	Observe	Poss	Prob	Confirm	nested	Sp	S	F	W
Hairy Woodpecker			same				yes			C	C	C	C
Red-cockaded Woodpecker*													
Northern Flicker		same				yes			yes	C	C	C	C
Pileated Woodpecker			same				yes		yes	U	U	U	U
American Kestrel				same				yes	yes	C	R	C	C
Merlin										R		R	
Peregrine Falcon													
Monk Parakeet*													
Olive-sided Flycatcher													
Yellow-bellied Flycatcher*													
Eastern Wood-Pewee			same				yes		yes	C	C	C	
Acadian Flycatcher			same				yes			C	C	C	
Alder Flycatcher													
Willow Flycatcher										C	C	C	
Least Flycatcher										C	C	C	
Eastern Phoebe				same				yes	yes	C	C	C	O
Great Crested Flycatcher				same				yes	yes	C	C	C	
Eastern Kingbird			same				yes		yes	C	C	C	
Loggerhead Shrike*													
White-eyed Vireo		same				yes				U	U	U	
Yellow-throated Vireo				same				yes		U	U	R	
Blue-headed Vireo	same				yes					U	U	U	
Philadelphia Vireo										U	U	U	
Warbling Vireo													
Red-eyed Vireo				same				yes	yes	C	C	C	
Blue Jay				same				yes	yes	C	C	C	C
American Crow				same				yes	yes	A	A	A	A
Fish Crow	same				yes				yes	C	C	C	C
Common Raven	same				yes					O	O	O	O
Horned Lark													
Purple Martin	same				yes				yes	C	C	C	
Tree Swallow				same				yes	yes	A	U	A	
Northern Rough-winged Swallow			same				yes			O	O	U	

MANA VABBA2 2020 Final Summary

Species (* = VA priority species)	Highest result through 2020 VABBA2				Highest result through 2019 VABBA2				NPS MANA list				
	Observe	Poss	Prob	Confirm	Observe	Poss	Prob	Confirm	nested	Sp	S	F	W
Bank Swallow										R	U	R	
Cliff Swallow													
Barn Swallow				same				yes	yes	C	C	C	
Carolina Chickadee				same				yes	yes	A	A	A	A
Black-capped Chickadee													
Tufted Titmouse				same				yes	yes	A	A	A	A
Red-breasted Nuthatch	same				yes					O		O	O
White-breasted Nuthatch		same				yes			yes	U	U	U	U
Brown-headed Nuthatch													
Brown Creeper	same				yes				yes	U	U	U	U
House Wren				same				yes	yes	O	O	O	
Sedge Wren													
Marsh Wren										R	R	R	
Winter Wren	same				yes					O		O	O
Carolina Wren				same				yes	yes	C	C	C	C
Bewick's Wren													
Blue-gray Gnatcatcher				same				yes	yes	C	C	C	
Golden-crowned Kinglet	same				yes					U		U	C
Ruby-crowned Kinglet	same				yes					U		U	C
Eastern Bluebird				same				yes	yes	A	A	A	A
Veery	new									U		U	
Hermit Thrush*	same				yes					U		U	U
Swainson's Thrush	same				yes					U		U	U
Wood Thrush		same				yes			yes	C	C	C	
American Robin				same				yes	yes	A	A	A	A
Gray Catbird				same				yes	yes	C	C	C	C
Northern Mockingbird				same				yes	yes	C	C	C	C
Brown Thrasher				same				yes	yes	C	C	C	U
European Starling				same				yes	yes	A	A	A	A
Cedar Waxwing			same				yes			C		C	C
Ovenbird	same				yes					C	C	C	
Worm-eating Warbler										R		R	
Northern Waterthrush													

MANA VABBA2 2020 Final Summary

Species (* = VA priority species)	Highest result through 2020 VABBA2				Highest result through 2019 VABBA2				NPS MANA list				
	Observe	Poss	Prob	Confirm	Observe	Poss	Prob	Confirm	nested	Sp	S	F	W
Louisiana Waterthrush										U	R	U	
Golden-winged Warbler*										R		R	
Brewster's Warbler*													
Lawrence's Warbler*													
Blue-winged Warbler*	same				yes					U		R	
Black-and-white Warbler	same				yes								
Tennessee Warbler	same				yes						R		R
Prothonotary Warbler													
Swainson's Warbler													
Nashville Warbler*										R		R	
Mourning Warbler*													
Kentucky Warbler										U	R	U	
Common Yellowthroat				same				yes		C	C	C	
Hooded Warbler										U	U	U	
American Redstart	same				yes					C	R	C	
Cerulean Warbler*										R		R	
Northern Parula		same				yes				U	U	O	
Magnolia Warbler	same				yes					U		U	
Bay-breasted Warbler										U		U	
Blackburnian Warbler	same				yes					R		R	
Yellow Warbler	same				yes					U	O	R	
Chestnut-sided Warbler	same				yes					R		R	
Blackpoll Warbler	same				yes					C		C	
Black-throated Blue Warbler	same				yes						U		
Palm Warbler	same				yes					U		U	
Pine Warbler			same				yes		yes	C	C	C	C
Yellow-rumped Warbler	same				yes					C	C	C	C
Prairie Warbler				same				yes			U	U	
Yellow-throated Warbler										O	O	U	
Black-throated Green Warbler	same				yes						U		
Canada Warbler	same				yes					R		R	
Wilson's Warbler										R		R	
Yellow-breasted Chat			same				yes			C	C	C	

MANA VABBA2 2020 Final Summary

Species (* = VA priority species)	Highest result through 2020 VABBA2				Highest result through 2019 VABBA2				NPS MANA list				
	Observe	Poss	Prob	Confirm	Observe	Poss	Prob	Confirm	nested	Sp	S	F	W
Eastern Towhee				same				yes		C	C	C	C
Bachman's Sparrow*													
Field Sparrow				same				yes		C	C	C	C
Chipping Sparrow				same				yes					
Clay-colored Sparrow										R	R	R	R
Lincoln's Sparrow	same				yes					-	-	-	-
Grasshopper Sparrow				same				yes		O	O	O	
American Tree Sparrow										R		R	R
Henslow's Sparrow*									yes	R	R	R	R
Saltmarsh Sparrow*													
Seaside Sparrow													
Vesper Sparrow	same				yes					O	O	O	R
Savannah Sparrow	same				yes					O		O	R
Fox Sparrow	same				yes					U		U	U
Song Sparrow		same				yes				C	C	C	C
Swamp Sparrow	same				yes					U		U	U
Dark-eyed Junco	same				yes					C		C	A
White-crowned Sparrow										O	O	O	O
White-throated Sparrow	same				yes					C	C	C	A
Summer Tanager			same				yes						
Scarlet Tanager			same				yes			O	O	O	
Northern Cardinal				same				yes	yes	C	C	C	C
Rose-breasted Grosbeak	same				yes					-	-	-	-
Blue Grosbeak				same				yes		U	U	U	
Evening Grosbeak										R		R	R
Indigo Bunting				same				yes					
Dickcissel*													
Bobolink*													
Red-winged Blackbird				same				yes	yes	A	A	A	C
Rusty Blackbird	same				yes						R	R	
Eastern Meadowlark				same				yes	yes	C	C	C	C
Common Grackle				same				yes	yes	C	C	C	C
Boat-tailed Grackle													

MANA VABBA2 2020 Final Summary

	Highest result through 2020 VABBA2					Highest result through 2019 VABBA2					NPS MANA list				
Species (* = VA priority species)	Observe	Poss	Prob	Confirm		Observe	Poss	Prob	Confirm		nested	Sp	S	F	W
Brown-headed Cowbird				same					yes		yes	C	C	C	U
Orchard Oriole				same					yes		yes	U	U	O	
Baltimore Oriole				same					yes		yes	U	R	U	
House Finch			up				yes					C	C	C	C
Purple Finch	same					yes						U		U	U
Pine Siskin												O		O	O
Red Crossbill*															
American Goldfinch			same					yes				A	A	C	C
House Sparrow	same					yes					yes	C	C	C	C
totals	55	11	20	47		54	13	19	46		55				
Total species coded through 2020	133														
Total species coded in 2019 report	132														
Compared to 2019 report: color code and number															
code downgraded	0														
code upgraded	3														
new species reported	1														
unchanged	129														
color for no code for MANA															
color for listed in MANA checklist															

MANA VABBA2 2020 Final Summary

[illegible]

MANA VABBA2 2020 Final Summary

Species (* = priority species)	Probable Breeding Times																																																
	B = Breeding season								T = Transition (migration or breeding possible)								M = Migration								N = Nonbreeding								= species likely not breeding																
	Jan				Feb				March				April				May				June				July				August				Sept				Oct				Nov				Dec				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4					
King Rail*																																																	
Virginia Rail																																																	
Sora																																																	
Common Gallinule*																																																	
American Coot																																																	
Black-necked Stilt																																																	
American Avocet																																																	
Wilson's Plover																																																	
Piping Plover																																																	
Killdeer	N	N	N	N	M	M	M	M	M	M	M	T	T	T	B	B	B	B	B	B	B	B	B	B	B	T	T	T	T	T	M	M	M	M	M	M	M	M	M	M	M	M	M	M	N	N	N	N	
Spotted Sandpiper*																																																	
Solitary Sandpiper																																																	
Willet																																																	
Upland Sandpiper*	N	N	N	N	N	N	N	N	N	N	M	M	M	M	M	T	T	T	T	T	B	B	B	B	T	T	M	M	M	M	M	M	M	M	M	M	M	M	M	M	N	N	N	N	N	N	N	N	
American Woodcock	N	N	N	M	M	M	M	M	T	T	T	T	T	T	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	T	T	M	M	M	M	M	M	M	M	N	N	N	N	N	N	
Wilson's Snipe																																																	
Laughing Gull																																																	
Herring Gull																																																	
Greater Black-backed Gull																																																	
Bonaparte's Gull																																																	
Ring-billed Gull																																																	
Least Tern																																																	
Gull-billed Tern																																																	
Caspian Tern*																																																	
Common Tern																																																	
Forster's Tern																																																	
Royal Tern																																																	
Sandwich Tern																																																	
Black Skimmer																																																	
Rock Pigeon	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	N	N	N	N
Mourning Dove	N	N	N	N	N	N	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	N	N	N	N
Eurasian Collared-Dove*	N	N	N	N	N	N	N	N	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	N	N	N	N	
Yellow-billed Cuckoo	N	N	N	N	N	N	N	N	N	N	N	M	M	M	M	M	T	T	B	B	B	B	B	B	B	B	B	B	B	B	B	B	T	T	T	T	M	M	M	M	M	M	M	N	N	N	N		
Black-billed Cuckoo	N	N	N	N	N	N	N	N	N	N	N	N	M	M	M	M	T	T	T	T	T	B	B	B	B	B	B	B	B	T	T	T	T	T	M	M	M	N	N	N	N	N	N	N	N	N	N	N	
Barn Owl*	N	N	N	N	N	N	N	N	N	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Long-eared Owl																																																	
Short-eared Owl	N	N	N	N	N	N	M	M	M	T	T	T	T	T	B	B	B	B	B	B	B	B	B	T	T	T	T	T	M	M	M	M	M	M	M	M	M	M	M	M	N	N	N	N	N	N	N	N	
Great Horned Owl	N	N	N	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Barred Owl	N	N	N	N	N	N	N	N	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Northern Saw-whet Owl*																																																	
Eastern Screech-Owl	N	N	N	N	N	N	N	N	N	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Common Nighthawk	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	M	M	T	T	B	B	B	B	B	B	T	T	T	M	M	M	M	M	M	M	M	M	M	M	M	M	N	N	N	N	N	N	N	N
Chuck-will's-Widow	N	N	N	N	N	N	N	N	N	N	N	N	M	M	M	M	T	T	B	B	B	B	B	B	B	B	B	T	M	M	M	M	M	M	M	M	M	M	N	N	N	N	N	N	N	N	N	N	N
Eastern Whip-poor-will	N	N	N	N	N	N	N	N	N	N	N	N	N	M	M	M	T	B	B	B	B	B	B	B	B	B	T	T	M	M	M	M	M	M	M	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chimney Swift	N	N	N	N	N	N	N	N	N	N	N	N	N	M	M	M	T	B	B	B	B	B	B	B	B	B	B	T	M	M	M	M	M	M	M	M	M	M	N	N	N	N	N	N	N	N	N	N	N
Ruby-throated Hummingbird	N	N	N	N	N	N	N	M	M	M	M	M	M	M	M	T	T	T	B	B	B	B	B	B	B	B	B	T	M	M	M	M	M	M	M	M	M	M	M	M	M	M	N	N	N	N	N	N	N
Belted Kingfisher	N	N	N	N	N	N																																											

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Species (* = priority species)	Probable Breeding Times																																															
	B = Breeding season								T = Transition (migration or breeding possible)								M = Migration								N = Nonbreeding								= species likely not breeding															
	Jan				Feb				March				April				May				June				July				August				Sept				Oct				Nov				Dec			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
	American Goldfinch	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	M	M	M	M	M	T	B	B	B	B	B	B	B	B	B	B	B	B	M	M	M	M	M	M	M	M	M	N	N	N	N
House Sparrow	N	N	N	N	N	N	N	N	N	N	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	N	N	N	N	N	N	N	N	N	N	N	N