Vermont

Survival by Degrees: 389 Species on the Brink

Background

Birds form part of healthy ecosystems, bring joy to people, and benefit local economies throughout the United States. In 2011, birdwatching-related industries drove $41 billion in expenditures and $107 billion in total industry output nationally. There are more than 292,000 total birders in Vermont alone [1]. Additionally, birds play critical roles in pollination, insect control, forest generation, seed dispersal, carrion scavenging, and many other ecosystem services we rely on.

However, the future of birds is at risk with alarming losses of biodiversity occurring worldwide. Global extinction rates are now 100 times higher than background rates [2]. Climate change exacerbates the global biodiversity crisis, with an anticipated rate of change 20 times faster in the next century than during the past two million years.

Audubon leads the way in conducting science to understand the vulnerability and threats to birds from climate change. Our science shows that stabilizing warming at a global average of 1.5°C (2.7°F), as recommended by the IPCC (Intergovernmental Panel on Climate Change) to reduce the global risk of climate change, would also reduce vulnerability and threats for many species of birds. To save birds we must address the underlying causes of climate change (*climate change mitigation*), and protect places that birds need now and will need in the future (*climate change adaptation*). Climate change mitigation means reducing or preventing the causes of climate change, such as greenhouse gas emissions. Climate change adaptation includes efforts to alter and adapt both our natural surroundings as well as our infrastructure to better withstand the threats of climate change.

Audubon's 2019 Report, *Survival by Degrees: 389 Bird Species on the Brink* [3], is a powerful look at how vulnerable birds are to climate change across North America based on a new, updated scientific analysis that leverages big data and incorporates the unique biology of each bird to determine its vulnerability. In this research, we related bird observations for 604 species with climate and habitat conditions at these locations and used modeling algorithms to capture the unique composition of each species's suitable range. We then mapped and compared the projected current and future ranges to estimate the projected range loss and gain under multiple future climate change scenarios. These projections were then used to assess how vulnerable each species was to climate change [4,5].

Figure 1. Black-throated Blue Warbler. Photo: Megumi Aita/Audubon Photography Awards

Future Climate and Habitat in Vermont

Across the state of Vermont, without substantial climate change mitigation (i.e., a 3°C/5.4°F global warming scenario), average temperatures during the warmest month are expected to increase approximately 6°C (11°F), and average temperatures during the coldest month are expected to increase approximately 6°C (11°F) from 2010 to the end of the century. Average annual precipitation is expected to increase by approximately 82 mm (3.2 in). Despite the overall increase in precipitation, available moisture is expected to decrease by 140% across the state due to increases in evapotranspiration [6].

The distribution of vegetation biomes, critical for plants and animals, are also projected to change under climate change scenarios [7]. By the end of the century under a 3°C (5.4°F) global warming scenario, approximately 9% of the state of Vermont will transition to a different biome. At present, the largest biome in the state is Deciduous Forest, covering 92% of the state. By the end of the century, Deciduous Forest will cover approximately 100% of the state.

All of these changes in climate and vegetation will alter plant and insect communities; influence availability of food, water, and shelter for birds; and will likely cause ecological disruption as species assemblages reshuffle. Over time, a complex suite of changes in climate and vegetation will inevitably affect Vermont's bird communities.

Climate Change Vulnerability

Climate change will negatively affect many birds in the state. Here, we assess vulnerability based on the amount of a species's range that may be gained or lost with climate change. We designate species that may lose much more range across North America than they have the potential to gain as *climate vulnerable*. In Vermont, 94 out of 168 species are climate vulnerable in summer under the 3°C scenario, meaning they stand to lose more of their North American summer range than they would gain under a warming climate. Reducing emissions to 1.5°C reduces the number of vulnerable species to 54. Impacts are somewhat lessened in winter, with 14 out of 93 species vulnerable under 3°C of warming and 7 species vulnerable if we reduce warming to 1.5°C.

Each bird was grouped by its primary habitat (see Table 2 for groupings), and these groups are not equally affected. In Vermont, the habitat groups with the most species vulnerable to the impacts of ongoing and future climate change are boreal forest (33 species) and eastern forest (28 species) in summer (Figure 2). In winter, boreal forest (11 species) and arctic (2 species) groups have the most vulnerable species.

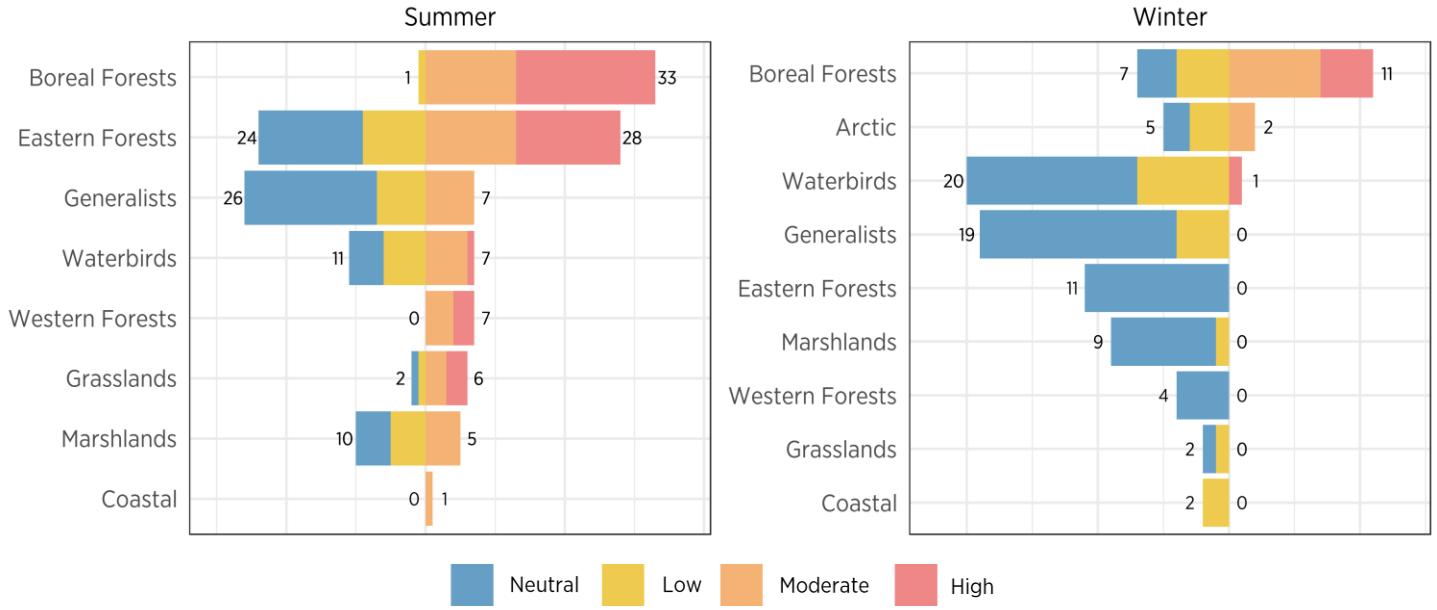

Figure 2. Number of species by their vulnerability to climate change in each habitat group under a global 3°C warming scenario. The species in each group are ones that currently live in the state, though vulnerability is assessed across the species's full North American range to better account for range-wide changes. Red and orange indicate number of vulnerable (high and moderate) species, and yellow and blue indicate non-vulnerable (low and neutral) species.

Climate-Related Threats

In addition to changes in climate across North America, we assessed the potential impacts of other forecasted threats related to climate change, including sea level rise, land use change, and extreme weather events, such as extreme spring heat, spring drought, fire weather, heavy rain, and false springs within the lower 48 states [8]. These threats are relevant to both birds and the places they need, but were only available for the lower 48 states, and were analyzed separately from vulnerability. This analysis provides information on how each location and the birds that occur there may be exposed to these specific, climate-related threats (Figure 3) beyond their range-wide vulnerability described above.

Here we summarize threats occurring within the state. Five climate-related threats will affect portions of Vermont (Table 1). The threat affecting both the greatest area and number of species in the state is extreme spring heat.

In Vermont, species that are most threatened by a combination of climate change and additional climate-related threats under 3°C of warming include Common Loon, Dark-eyed Junco, Olive-sided Flycatcher, Veery, Hermit Thrush, Bobolink, Ovenbird, Golden-winged Warbler, American Redstart, Chestnut-sided Warbler, and Black-throated Green Warbler. Common Raven and White-throated Sparrow each face four climate-related threats, despite being classified as not vulnerable based on range shifts. Bicknell's Thrush was not assessed in this research, but is considered at risk to climate change based on previous studies. For information on threats for individual species in Vermont, see Table 2.

Climate-Related Threats (Cont.)

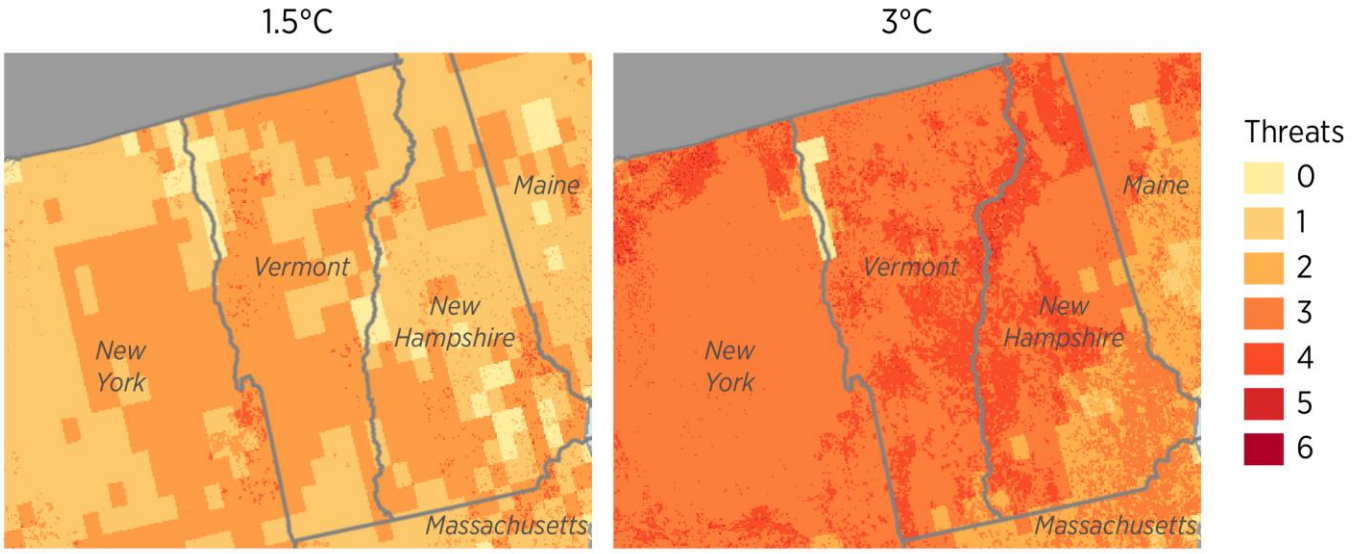

Figure 3. The number and distribution of overlapping climate-related threats under future global change scenarios of 1.5°C and 3°C. For detailed information on threats for each location in the state, refer to our online interactive tool at climate.audubon.org.

Table 1. Climate-related threats that Vermont is expected to experience under the warming scenarios 1.5°C (2.7°F) and 3°C (5.4°F), and the projected area and number of species affected. We report the projected amount(s) of global sea level rise associated with each scenario [8]. Threats and scenarios were omitted if no species were affected in that scenario.

Threat	Scenario	Area Affected (acres)	Summer (Vulnerable) Species Affected	Winter (Vulnerable) Species Affected
Urbanization	3°C	1,042,044	107 (36)	87 (3)
Cropland Expansion	3°C	175,445	1 (1)	
Extreme Spring Heat	1.5°C	3,977,896	144 (33)	96 (2)
	3°C	5,981,177	133 (43)	119 (6)
Fire Weather	3°C	5,848,728	133 (43)	119 (6)
Heavy Rain	1.5°C	5,712,820	136 (33)	88 (2)
	3°C	5,909,022	128 (43)	118 (5)

We also mapped risk, areas of high conservation value for birds that are exposed to climate change-related threats. For any one location, risk is the product of the number of overlapping climate change-related threats, the total number of bird species that occur under future climate, and the number of species with range-wide vulnerability under future climate. Risk is greater across Vermont in summer relative to winter, and mitigating warming from 3°C to 1.5°C would more than halve the average risk of climate change-related threats to birds across the state.

Conclusions and Caveats

Birds are early responders to climate change and can be important indicators of large-scale ongoing and future ecological change. We found that 50% of Vermont's 199 bird species are vulnerable to climate change across seasons. A rapidly changing climate could lead to population declines and local extinctions if species are not able to adapt. In addition, the reshuffling of bird communities at a continental scale will bring together species that previously lived in isolation, leading to novel, unpredictable interactions. Disruptions in food and nesting resources further compound vulnerabilities to climate change.

Although we project range gains offsetting loss for some species, especially in winter, it is unknown whether birds will establish populations in these new locations because of other factors not assessed here. On top of this, the added stressors of extreme weather events and other climate change-related threats will make establishment and persistence of populations difficult in the coming decades.

While these studies did not assess the effects of climate change on people, we know that the fate of humans and birds are deeply connected. Climate change is currently and will continue to cause harm to people too, who face threats like extreme weather, loss of coastal areas and changing economic patterns, to name a few. Climate change will cause disproportionate harm to vulnerable communities, including children, the elderly, the sick, and the poor, who may have fewer resources available to move or otherwise protect themselves from these threats. If we drastically reduce carbon emissions, we help people and birds alike.

This is the most comprehensive assessment of climate change vulnerability of birds in North America to date, but even this assessment may reasonably be considered conservative because the pace of change is exceeding the scenarios considered in this study. Our work concludes that climate change will have multiple, compounding effects on birds and will likely amplify biodiversity loss, unless actions are taken to lessen its effects.

Call to Action

We know what to do.

The scientific consensus is clear. We must reduce greenhouse gas emissions at an urgent speed and on a wide scale from every sector of the economy to achieve a more favorable future for birds and people. There is no single perfect solution, but we can make a series of changes that lead to large-scale, systemic adjustments to achieve the required reductions.

Addressing the underlying causes of climate change.

Audubon is pursuing policies that together can drive down emissions at the scale and speed we need. For instance, we can invest in 100% clean energy, energy efficiency, and clean transportation policies that will dramatically reduce carbon emissions from the U.S. and world economies. We can adapt, improve, and innovate. We can power our cars, homes, cities, factories, farms, communities, and economy with clean energy-without contributing to climate change. We are working to implement policies and conservation practices that offset what we cannot eliminate, such as planting forests and testing new technologies to capture (i.e., sequester) carbon through industrial processes and permanently store it underground. We can do all of this in ways that spur innovation, create good jobs, promote homegrown industries, and build our economy for a smarter future.

Protecting the places birds need.

We can also pursue policies and conservation practices that help us avoid some of the worst effects of climate change by building more resilient infrastructure—meaning our cities, roads, and other structures—or even ranches, parks, floodplains, forests, and wetlands that can serve as good wildlife habitat and simultaneously protect our communities from extreme weather.

Audubon has identified the best opportunities to increase the resilience of coastal wetlands in key places that can serve as the first line of defense against the threat of sea level rise. We work to ensure key landscapes that are critical for birds have clean and reliable sources of water, now and in the future, and we advocate for conservation-minded management of working and urban landscapes that can help birds adapt to the changing climate.

We still have time.

We can avert and limit dangerous warming and its worst effects if we act quickly. Science tells us that in order to limit warming to a rise of 1.5°C (2.7°F), we must reduce greenhouse gas emissions 45% below 2010 levels by 2030 and reach net-zero carbon emissions by 2050.

We must act now.

We are on a dangerous path, but we have the power to chart a better one. Still, change will come only if we demand action from the public officials who represent us and the businesses we support.

We ask you to join us.

Be part of the solution. We can do this, together.

How You Can Help in Vermont

There are many ways you can help birds facing the worst impacts of climate change. Manage habitats to create a resilient landscape benefits bird species currently found in Vermont and those likely to see expanded ranges into the state. Plant native species around your home and in your neighborhood. Support policies to address the climate crisis.

More Information

This project was conducted by the National Audubon Society. For more information, including details on the methods, please see the project website (climate.audubon.org) and the scientific publications [5,8].

References

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Species Projections

Table 2. Climate suitability projections in summer and winter under the 3°C warming scenario for birds in Vermont. Each bird is associated with the *Habitat Group* representing its primary habitat (see classification key below). *Range-wide Vulnerability* is the vulnerability of each species, across its full North American range under 3°C of global warming, based on long-term climate and vegetation change. High and moderately vulnerable species are considered vulnerable to climate change, whereas low and neutral species are considered not vulnerable. In *State Trends*, we show the top two trends in climate and habitat suitability for select birds in Vermont, with colors reflecting the trend according to the legend below and percentages reflecting the percent of the state's area in which each trend will occur. The total percentage reflects the area of the state that the species currently occupies and is projected to occupy in the future. Potential colonization indicates that climate and habitat are projected to become suitable for the species, whereas potential extirpation indicates that climate and habitat are suitable today but projected to become unsuitable. *State Threats* shows the additional climate-related threats each species might face, indicated by icons as in Table 1. Threats shown here were assessed within each state for species under either 1.5°C or 3°C warming (i.e., species that will be completely extirpated from the state do not have threats shown). Omitted species are either not present in the state during that season or not modeled due to data deficiency. These lists may have been further reduced by local experts. For a full list of species modeled in Vermont, see the project website (climate.audubon.org).

Habitat classifications:

F-B = Boreal Forests
F-E = Eastern Forests
F-W = Western Forests
F-S = Subtropical Forests
A = Arctic
D = Aridlands
G = Grasslands
M = Marshlands
C = Coastal
W = Waterbirds
Gen = Generalists

Trend classifications:

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Snow Goose	W	Winter	Low	24%	
Canada Goose	W	Summer	Moderate	33% 44%	
	W	Winter	Neutral	6% 94%	
Wood Duck	W	Summer	Low	63% 17%	
	W	Winter	Neutral	67%	
Blue-winged Teal	M	Summer	Low	2% 5%	
Northern Shoveler	M	Winter	Neutral	6%	
Gadwall	M	Winter	Neutral	5% 15%	
American Wigeon	M	Winter	Neutral	10%	
Mallard	W	Summer	Low	88% 5%	
	W	Winter	Neutral	89% 6%	
American Black Duck	W	Summer	Moderate	79% 9%	
	W	Winter	Low	13% 47%	
Northern Pintail	M	Winter	Neutral	4% 9%	
Green-winged Teal	M	Winter	Neutral	7%	
Canvasback	M	Winter	Neutral	4% 11%	
Redhead	M	Winter	Low	4% 12%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Ring-necked Duck	W	Summer	Moderate	13% 7%	
	W	Winter	Neutral	18%	
Greater Scaup	W	Winter	Neutral	6% 34%	
Lesser Scaup	W	Winter	Neutral	3% 19%	
White-winged Scoter	W	Winter	Neutral	5% 5%	
Long-tailed Duck	W	Winter	Low	6% 1%	
Bufflehead	W	Winter	Low	3% 13%	
Common Goldeneye	W	Summer	High	17%	
	W	Winter	Neutral	22% 7%	
Hooded Merganser	W	Summer	Low	70% 13%	
	W	Winter	Neutral	3% 32%	
Common Merganser	W	Summer	Moderate	82% 6%	
	W	Winter	Low	19% 49%	
Red-breasted Merganser	W	Winter	Low	5% 17%	
Ruffed Grouse	F-B	Summer	Moderate	99%	
	F-B	Winter	Moderate	58% 42%	
Spruce Grouse	F-B	Summer	High	22%	
	F-B	Winter	High	44%	
Wild Turkey	Gen	Summer	Neutral	64% 26%	
	Gen	Winter	Neutral	56% 33%	
Pied-billed Grebe	M	Summer	Neutral	2% 4%	
	M	Winter	Neutral	8%	
Horned Grebe	M	Winter	Neutral	3% 11%	
Red-necked Grebe	M	Winter	Neutral	4% 4%	
Mourning Dove	Gen	Summer	Neutral	40% 55%	
	Gen	Winter	Neutral	60% 35%	
Yellow-billed Cuckoo	F-E	Summer	Neutral	36% 64%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Black-billed Cuckoo	F-E	Summer	Low	38% 41%	
Eastern Whip-poor-will	F-E	Summer	High	43% 40%	
Chimney Swift	F-E	Summer	Neutral	20% 78%	
Ruby-throated Hummingbird	F-E	Summer	Neutral	77% 22%	
Virginia Rail	M	Summer	Moderate	26% 6%	
	M	Winter	Low	5%	
Sora	M	Summer	Moderate	5%	
Common Gallinule	M	Summer	Neutral	3% 5%	
American Coot	M	Winter	Neutral	<1% 12%	
Sandhill Crane	M	Summer	Moderate	11%	
Killdeer	W	Summer	Neutral	29% 26%	
American Woodcock	F-E	Summer	Moderate	9% 87%	
	F-E	Winter	Neutral	25%	
Wilson's Snipe	M	Summer	Moderate	10%	
	M	Winter	Neutral	6%	
Spotted Sandpiper	W	Summer	Moderate	18% 11%	
Ring-billed Gull	W	Winter	Neutral	14% 64%	
Herring Gull	W	Summer	Low	18% 4%	
	W	Winter	Neutral	28% 67%	
Great Black-backed Gull	C	Summer	Moderate	3% 1%	
	C	Winter	Low	8% 5%	
Caspian Tern	W	Summer	Low	1% 4%	
Black Tern	M	Summer	Low	2% 4%	
Common Tern	W	Summer	Low	2% 4%	
Forster's Tern	M	Summer	Neutral	2%	
Common Loon	W	Summer	Moderate	100%	
	W	Winter	Low	5%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Double-crested Cormorant	W	Summer	Neutral	4% 16%	
	W	Winter	Neutral	5%	
American Bittern	M	Summer	Low	68%	
	M	Winter	Neutral	3%	
Least Bittern	M	Summer	Neutral	7% 1%	
Great Blue Heron	W	Summer	Neutral	52% 47%	
	W	Winter	Neutral	8% 87%	
Great Egret	W	Summer	Neutral	5% 6%	
Snowy Egret	M	Summer	Neutral	3%	
Green Heron	M	Summer	Neutral	21% 20%	
Black-crowned Night-Heron	M	Summer	Neutral	7% 5%	
	M	Winter	Neutral	5%	
Turkey Vulture	Gen	Summer	Neutral	16% 49%	
	Gen	Winter	Neutral	48%	
Osprey	W	Summer	Neutral	36% 12%	
Northern Harrier	M	Summer	Low	10%	
	M	Winter	Neutral	3% 9%	
Sharp-shinned Hawk	F-W	Summer	Moderate	91%	
	F-W	Winter	Neutral	18% 79%	
Cooper's Hawk	Gen	Summer	Neutral	14% 76%	
	Gen	Winter	Low	13% 78%	
Northern Goshawk	F-B	Summer	High	77%	
	F-B	Winter	Low	73% 26%	
Bald Eagle	Gen	Summer	Low	7% 93%	
	Gen	Winter	Neutral	92% 8%	
Red-shouldered Hawk	F-E	Summer	Neutral	14% 86%	
	F-E	Winter	Neutral	16%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Broad-winged Hawk	F-E	Summer	Low	31% 49%	
Red-tailed Hawk	Gen	Summer	Neutral	17% 82%	
	Gen	Winter	Neutral	48% 37%	
Rough-legged Hawk	A	Winter	Moderate	16% 7%	
Barn Owl	Gen	Summer	Neutral	77%	
	Gen	Winter	Neutral	81%	
Eastern Screech-Owl	F-E	Summer	Neutral	26% 59%	
	F-E	Winter	Neutral	12% 77%	
Great Horned Owl	Gen	Summer	Neutral	12% 66%	
	Gen	Winter	Neutral	9% 66%	
Snowy Owl	A	Winter	Low	69% 28%	
Barred Owl	F-E	Summer	Neutral	96% 3%	
	F-E	Winter	Neutral	5% 95%	
Long-eared Owl	F-W	Winter	Low	52%	
Short-eared Owl	G	Winter	Neutral	4% 6%	
Northern Saw-whet Owl	F-B	Summer	Moderate	88%	
	F-B	Winter	Low	87% 13%	
Belted Kingfisher	Gen	Summer	Neutral	93% 7%	
	Gen	Winter	Neutral	94%	
Yellow-bellied Sapsucker	F-E	Summer	High	90%	
	F-E	Winter	Neutral	97%	
Red-headed Woodpecker	F-E	Summer	High	71%	
	F-E	Winter	Neutral	60%	
Red-bellied Woodpecker	F-E	Summer	Neutral	6% 80%	
	F-E	Winter	Neutral	6% 81%	
Black-backed Woodpecker	F-B	Summer	High	44%	
	F-B	Winter	Moderate	44%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Downy Woodpecker	Gen	Summer	Neutral	57% 43%	
	Gen	Winter	Neutral	45% 53%	
Hairy Woodpecker	Gen	Summer	Low	14% 75%	
	Gen	Winter	Low	9% 81%	
Pileated Woodpecker	F-E	Summer	Neutral	89% 4%	
	F-E	Winter	Neutral	74% 12%	
Northern Flicker	Gen	Summer	Moderate	7% 93%	
	Gen	Winter	Neutral	70% 30%	
American Kestrel	Gen	Summer	Neutral	57% 22%	
	Gen	Winter	Neutral	14%	
Merlin	F-E	Summer	Moderate	94%	
	F-E	Winter	Neutral	98% 2%	
Peregrine Falcon	Gen	Summer	Neutral	42% 33%	
	Gen	Winter	Neutral	16% 77%	
Olive-sided Flycatcher	F-B	Summer	High	40%	
Eastern Wood-Pewee	F-E	Summer	Low	21% 69%	
Yellow-bellied Flycatcher	F-B	Summer	High	33%	
Acadian Flycatcher	F-E	Summer	Moderate	81%	
Alder Flycatcher	F-B	Summer	Moderate	93%	
Willow Flycatcher	F-W	Summer	Moderate	42% 54%	
Least Flycatcher	F-B	Summer	Moderate	98%	
Eastern Phoebe	F-E	Summer	Low	71% 10%	
Great Crested Flycatcher	F-E	Summer	Moderate	39% 43%	
Eastern Kingbird	G	Summer	Moderate	35% 42%	
Northern Shrike	F-B	Winter	Moderate	100%	
White-eyed Vireo	F-E	Summer	Neutral	74%	
Yellow-throated Vireo	F-E	Summer	Moderate	18% 63%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Blue-headed Vireo	F-E	Summer	High	88%	
Philadelphia Vireo	F-B	Summer	High	5%	
Warbling Vireo	Gen	Summer	Neutral	21% 79%	
Red-eyed Vireo	F-E	Summer	Low	27% 73%	
Canada Jay	F-B	Summer	High	16%	
	F-B	Winter	High	20%	
Blue Jay	F-E	Summer	Neutral	81% 11%	
	F-E	Winter	Neutral	89% 7%	
American Crow	Gen	Summer	Low	85% 8%	
	Gen	Winter	Neutral	97% 3%	
Fish Crow	Gen	Summer	High	7%	
	Gen	Winter	Low	2%	
Common Raven	Gen	Summer	Low	21% 79%	
	Gen	Winter	Low	61% 39%	
Northern Rough-winged Swallow	Gen	Summer	Neutral	11% 72%	
Purple Martin	Gen	Summer	Neutral	5% 49%	
Tree Swallow	Gen	Summer	Moderate	37% 39%	
Bank Swallow	Gen	Summer	Neutral	14% 36%	
Barn Swallow	Gen	Summer	Neutral	36% 46%	
Cliff Swallow	Gen	Summer	Neutral	13% 36%	
Carolina Chickadee	F-E	Summer	Neutral	5%	
	F-E	Winter	Low	4%	
Black-capped Chickadee	F-B	Summer	Low	9% 89%	
	F-B	Winter	Low	88% 11%	
Boreal Chickadee	F-B	Summer	High	30%	
	F-B	Winter	High	22%	
Tufted Titmouse	F-E	Summer	Neutral	8% 83%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
	F-E	Winter	Neutral	5% 87%	
Red-breasted Nuthatch	F-B	Summer	Moderate	95%	
	F-B	Winter	Neutral	2% 98%	
White-breasted Nuthatch	F-E	Summer	Low	40% 43%	
	F-E	Winter	Neutral	56% 40%	
Brown Creeper	F-W	Summer	Moderate	83%	
	F-W	Winter	Neutral	100%	
House Wren	Gen	Summer	Moderate	23% 42%	
Winter Wren	F-E	Summer	High	82%	
	F-E	Winter	Low	40%	
Marsh Wren	M	Summer	Low	1% 6%	
	M	Winter	Low	6%	
Carolina Wren	F-E	Summer	Neutral	3% 97%	
	F-E	Winter	Neutral	7% 93%	
Blue-gray Gnatcatcher	Gen	Summer	Neutral	4% 88%	
Golden-crowned Kinglet	F-B	Summer	Moderate	62%	
	F-B	Winter	Neutral	12% 54%	
Ruby-crowned Kinglet	F-W	Summer	High	41%	
Eastern Bluebird	F-E	Summer	Neutral	33% 52%	
	F-E	Winter	Neutral	6% 91%	
Veery	F-E	Summer	Moderate	63% 31%	
Swainson's Thrush	F-B	Summer	High	25%	
Hermit Thrush	F-W	Summer	High	69%	
	F-W	Winter	Low	8%	
Wood Thrush	F-E	Summer	High	34% 52%	
American Robin	Gen	Summer	Moderate	14% 86%	
	Gen	Winter	Neutral	89% 11%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Gray Catbird	F-E	Summer	Neutral	88% 9%	
Brown Thrasher	F-E	Summer	High	24% 54%	
Northern Mockingbird	Gen	Summer	Neutral	33%	
	Gen	Winter	Neutral	94%	
Bohemian Waxwing	F-B	Winter	High	81%	
Cedar Waxwing	Gen	Summer	Low	20% 67%	
	Gen	Winter	Neutral	28% 28%	
Evening Grosbeak	F-B	Summer	High	66%	
	F-B	Winter	Moderate	96% 1%	
Pine Grosbeak	F-B	Winter	Moderate	70%	
House Finch	Gen	Summer	Low	11% 50%	
	Gen	Winter	Low	15% 55%	
Purple Finch	F-B	Summer	Moderate	95%	
	F-B	Winter	Low	2% 96%	
Common Redpoll	A	Winter	Low	84% 16%	
Red Crossbill	F-B	Summer	High	8%	
	F-B	Winter	Moderate	67%	
White-winged Crossbill	F-B	Summer	High	34%	
	F-B	Winter	Moderate	14% 86%	
Pine Siskin	F-W	Summer	Moderate	11%	
	F-W	Winter	Neutral	95% 5%	
American Goldfinch	Gen	Summer	Moderate	19% 60%	
	Gen	Winter	Neutral	95% 5%	
Snow Bunting	A	Winter	Low	6% 94%	
Grasshopper Sparrow	G	Summer	Low	15%	
Chipping Sparrow	Gen	Summer	Moderate	55% 14%	
Clay-colored Sparrow	G	Summer	High	5%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Field Sparrow	F-E	Summer	High	15% 61%	
	F-E	Winter	Neutral	95%	
American Tree Sparrow	A	Winter	Neutral	88% 9%	
Fox Sparrow	F-B	Winter	Moderate	31%	
Dark-eyed Junco	F-W	Summer	High	79%	
	F-W	Winter	Neutral	59% 41%	
White-crowned Sparrow	Gen	Winter	Neutral	34%	
White-throated Sparrow	F-B	Summer	High	59%	
	F-B	Winter	Neutral	94% 5%	
Savannah Sparrow	G	Summer	High	33%	
Song Sparrow	Gen	Summer	Moderate	29% 44%	
	Gen	Winter	Neutral	85% 15%	
Lincoln's Sparrow	F-B	Summer	High	31%	
Swamp Sparrow	M	Summer	Moderate	34%	
	M	Winter	Neutral	66%	
Eastern Towhee	F-E	Summer	High	28% 45%	
	F-E	Winter	Neutral	75%	
Yellow-breasted Chat	F-E	Summer	Neutral	35%	
Bobolink	G	Summer	High	75%	
Eastern Meadowlark	G	Summer	Moderate	16% 12%	
	G	Winter	Neutral	13%	
Orchard Oriole	F-E	Summer	Low	86%	
Baltimore Oriole	F-E	Summer	Low	58% 30%	
Red-winged Blackbird	Gen	Summer	Neutral	52% 26%	
	Gen	Winter	Neutral	55%	
Brown-headed Cowbird	Gen	Summer	Neutral	14% 59%	
	Gen	Winter	Neutral	93%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Rusty Blackbird	F-B	Summer	High	16%	
	F-B	Winter	Neutral	85%	
Common Grackle	F-E	Summer	Low	58% 25%	
	F-E	Winter	Neutral	29%	
Ovenbird	F-E	Summer	Moderate	86% 4%	
Worm-eating Warbler	F-E	Summer	High	75%	
Louisiana Waterthrush	F-E	Summer	Neutral	32% 64%	
Northern Waterthrush	F-B	Summer	Moderate	100%	
Golden-winged Warbler	F-E	Summer	High	40%	
Blue-winged Warbler	F-E	Summer	Moderate	8% 76%	
Black-and-white Warbler	F-E	Summer	Moderate	76% 16%	
Prothonotary Warbler	F-E	Summer	Neutral	56%	
Swainson's Warbler	F-E	Summer	Low	2%	
Tennessee Warbler	F-B	Summer	Moderate	20%	
Nashville Warbler	F-E	Summer	Moderate	64%	
Mourning Warbler	F-B	Summer	High	82%	
Kentucky Warbler	F-E	Summer	Low	24%	
Common Yellowthroat	Gen	Summer	Low	14% 84%	
Hooded Warbler	F-E	Summer	Moderate	87%	
American Redstart	F-B	Summer	Moderate	89% 7%	
Cerulean Warbler	F-E	Summer	High	2% 77%	
Northern Parula	F-E	Summer	Moderate	32% 21%	
Magnolia Warbler	F-B	Summer	High	64%	
Blackburnian Warbler	F-B	Summer	High	85%	
Yellow Warbler	F-B	Summer	Moderate	59% 36%	
Chestnut-sided Warbler	F-E	Summer	High	91%	
Blackpoll Warbler	F-B	Summer	Moderate	41%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Black-throated Blue Warbler	F-E	Summer	High	85%	
Palm Warbler	F-B	Summer	High	28%	
Pine Warbler	F-E	Summer	High	54% 29%	
Yellow-rumped Warbler	F-B	Summer	Moderate	80%	
	F-B	Winter	Neutral	34%	
Yellow-throated Warbler	F-E	Summer	High	23%	
Prairie Warbler	F-E	Summer	Moderate	11% 72%	
Black-throated Green Warbler	F-E	Summer	High	90% <1%	
Canada Warbler	F-B	Summer	High	67%	
Summer Tanager	F-E	Summer	Neutral	3%	
Scarlet Tanager	F-E	Summer	High	37% 31%	
Northern Cardinal	F-E	Summer	Neutral	15% 77%	
	F-E	Winter	Neutral	33% 48%	
Rose-breasted Grosbeak	F-E	Summer	Moderate	28% 28%	
Indigo Bunting	F-E	Summer	Moderate	39% 38%	