Louisiana

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 712,000 total birders in Louisiana 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. Indigo Bunting. Photo: Sunil Gopalan/Audubon Photography Awards

Future Climate and Habitat in Louisiana

Across the state of Louisiana, 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 4.6°C (8.2°F), and average temperatures during the coldest month are expected to increase approximately 3°C (5.4°F) from 2010 to the end of the century. Average annual precipitation is expected to decrease by approximately 65 mm (2.5 in); in addition, evapotranspiration is expected to increase, resulting in an overall decrease of available moisture of 62% across the state [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 32% of the state of Louisiana will transition to a different biome. At present, the largest biome in the state is Deciduous and Evergreen Forest, covering 67% of the state. By the end of the century, Deciduous and Evergreen Forest will cover approximately 98% 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 Louisiana'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 Louisiana, 26 out of 144 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 14. Impacts are somewhat lessened in winter, with 9 out of 197 species vulnerable under 3°C of warming and 6 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 Louisiana, the habitat groups with the most species vulnerable to the impacts of ongoing and future climate change are eastern forest (18 species) and generalist (2 species) in summer (Figure 2). In winter, coastal (3 species) and eastern forest (2 species) groups have the most vulnerable species.

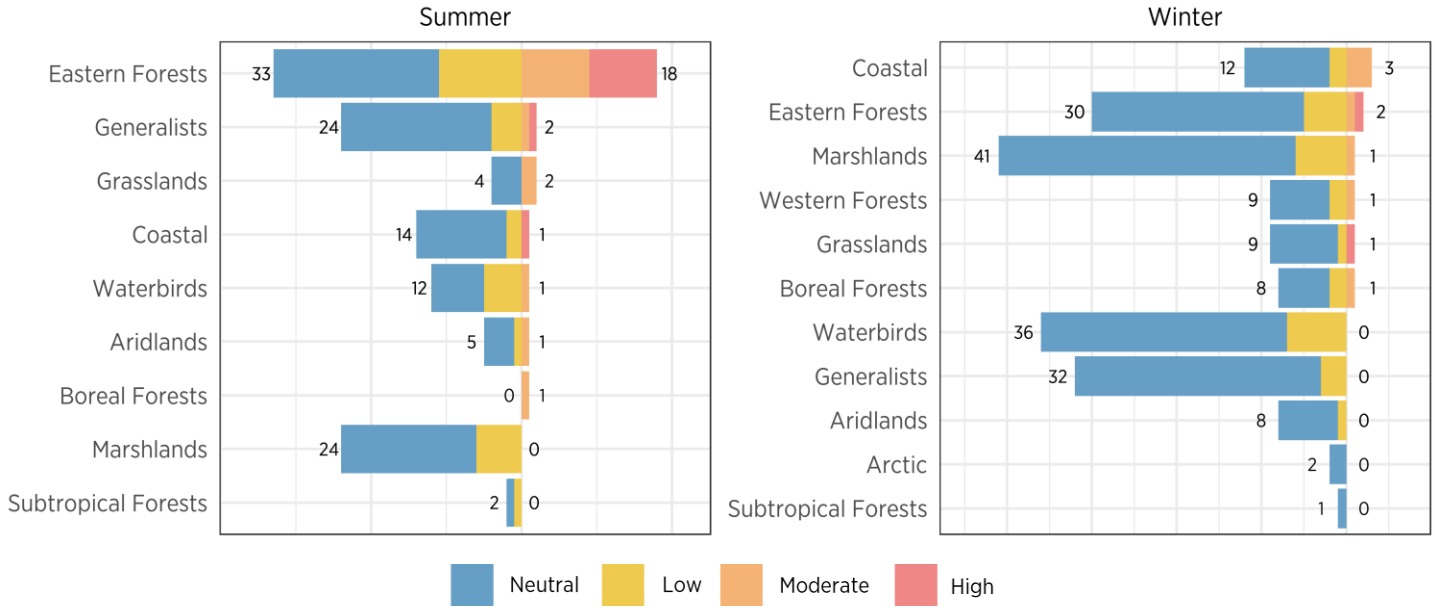

Figure 2. Number of species by their vulnerability to climate change in each habitat group under a global 3°C warming scenario. The species in each group are ones that currently live in the state, though vulnerability is assessed across the species's full North American range to better account for range-wide 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. Six climate-related threats will affect portions of Louisiana (Table 1). The threat affecting both the greatest area and number of species in the state is extreme spring heat.

In Louisiana, species that are most threatened by a combination of climate change and additional climate-related threats under 3°C of warming include Prairie Warbler, Eastern Meadowlark, and Boat-tailed Grackle. For information on threats for individual species in Louisiana, see Table 2.

Climate-Related Threats (Cont.)

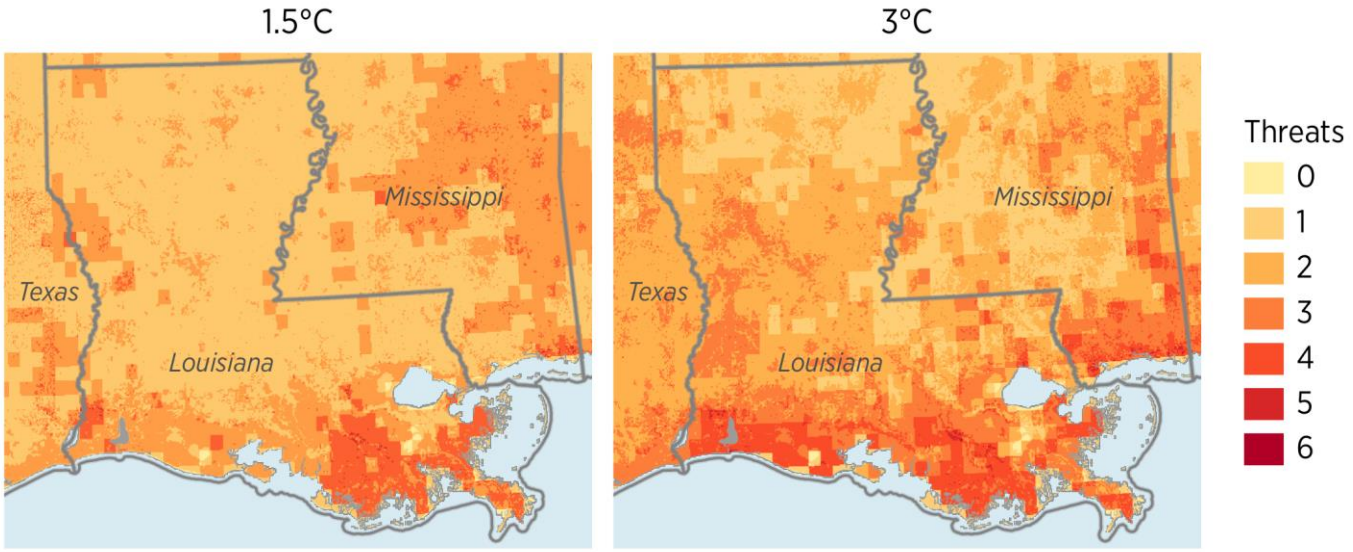

Figure 3. The number and distribution of overlapping climate-related threats under future global change scenarios of 1.5°C and 3°C. For detailed information on threats for each location in the state, refer to our online interactive tool at climate.audubon.org.

Table 1. Climate-related threats that Louisiana 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
Sea Level Rise	1.5°C (0.5 m/1.6 ft)	5,054,409	109 (5)	197 (7)
	3°C (1 m/3.3 ft)	5,414,416	100 (9)	194 (10)
	3°C (2 m/6.6 ft)	6,062,519	105 (11)	197 (10)
Urbanization	1.5°C	1,042,034		1 (0)
	3°C	3,930,316	104 (9)	167 (5)
Extreme Spring Heat	1.5°C	29,258,468	138 (8)	217 (8)
	3°C	29,258,468	135 (15)	220 (11)
Fire Weather	3°C	1,303,479	4 (2)	8 (1)
Spring Droughts	3°C	17,718,417	122 (11)	213 (11)
Heavy Rain	1.5°C	2,943,268	2 (0)	4 (1)
	3°C	4,553,157	1 (0)	4 (2)

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 Louisiana 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 15% of Louisiana's 240 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 Louisiana

In order to help birds survive the worst impacts of climate change, we must act now to protect birds and the places they need. This means enacting policy change, by telling your local, state, and federal representatives to support renewable energy policies. This also means finding ways to reduce your personal energy use by lowering your personal carbon footprint.

We must help bird populations increase so they are more resilient in the future by increasing their habitat by planting native plants and reducing exposure to additional threats like outdoor cats and window collisions. Finally, we can't do this work alone—reach out to your local Audubon chapter and the Audubon Louisiana state office to support their policy and conservation work.

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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Contact

Brooke Bateman, PhD
Senior Climate Scientist, National Audubon Society
climatescience@audubon.org

Species Projections

Table 2. Climate suitability projections in summer and winter under the 3°C warming scenario for birds in Louisiana. 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 Louisiana, 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 Louisiana, 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
Black-bellied Whistling-Duck	M	Summer	Neutral	21% 64%	
	M	Winter	Neutral	20% 61%	
Fulvous Whistling-Duck	M	Summer	Neutral	26% 34%	
	M	Winter	Neutral	6% 9%	
Snow Goose	W	Winter	Low	19% 26%	
Ross's Goose	W	Winter	Low	15% 25%	
Greater White-fronted Goose	W	Winter	Low	16% 43%	
Cackling Goose	M	Winter	Moderate	<1%	
Canada Goose	W	Summer	Moderate	28% 4%	
	W	Winter	Neutral	26% 59%	
Wood Duck	W	Summer	Low	1% 98%	
	W	Winter	Neutral	94% 6%	
Blue-winged Teal	M	Winter	Neutral	54% 31%	
Cinnamon Teal	M	Winter	Neutral	1% 3%	
Northern Shoveler	M	Winter	Neutral	10% 41%	
Gadwall	M	Winter	Neutral	30% 22%	
American Wigeon	M	Winter	Neutral	12% 31%	
Mallard	W	Winter	Neutral	2% 97%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Mottled Duck	M	Summer	Low	14% 22%	
	M	Winter	Low	27% 42%	
Northern Pintail	M	Winter	Neutral	12% 22%	
Green-winged Teal	M	Winter	Neutral	32% 8%	
Canvasback	M	Winter	Neutral	5% 21%	
Redhead	M	Winter	Low	17% 10%	
Ring-necked Duck	W	Winter	Neutral	44% 29%	
Greater Scaup	W	Winter	Neutral	23% 18%	
Lesser Scaup	W	Winter	Neutral	56% 28%	
Bufflehead	W	Winter	Low	10% 42%	
Common Goldeneye	W	Winter	Neutral	6% 3%	
Hooded Merganser	W	Winter	Neutral	89% 5%	
Red-breasted Merganser	W	Winter	Low	8% 29%	
Ruddy Duck	M	Winter	Neutral	3% 27%	
Northern Bobwhite	G	Summer	Neutral	99%	
	G	Winter	Neutral	97% 2%	
Wild Turkey	Gen	Summer	Neutral	13% 27%	
	Gen	Winter	Neutral	35% 42%	
Pied-billed Grebe	M	Summer	Neutral	19% 14%	
	M	Winter	Neutral	92% 7%	
Horned Grebe	M	Winter	Neutral	4% 21%	
Inca Dove	D	Summer	Neutral	16% 54%	
	D	Winter	Neutral	20% 42%	
Common Ground-Dove	D	Summer	Neutral	48% 49%	
	D	Winter	Neutral	39% 41%	
White-winged Dove	D	Summer	Neutral	6%	
	D	Winter	Neutral	19% 3%	
Mourning Dove	Gen	Summer	Neutral	99%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
	Gen	Winter	Neutral	94% 5%	
Yellow-billed Cuckoo	F-E	Summer	Neutral	92% 7%	
Mangrove Cuckoo	C	Winter	Neutral	6%	
Common Nighthawk	Gen	Summer	Neutral	32% 58%	
Chuck-will's-widow	F-E	Summer	Neutral	49% 50%	
Eastern Whip-poor-will	F-E	Winter	Low	55%	
Chimney Swift	F-E	Summer	Neutral	81% 18%	
Ruby-throated Hummingbird	F-E	Summer	Neutral	17% 76%	
	F-E	Winter	Low	52%	
Black-chinned Hummingbird	D	Winter	Low	25% 10%	
Rufous Hummingbird	F-W	Winter	Moderate	20% 2%	
Buff-bellied Hummingbird	F-S	Summer	Moderate	1%	
	F-S	Winter	Neutral	1%	
King Rail	M	Summer	Low	2% 24%	
	M	Winter	Neutral	41% 20%	
Clapper Rail	C	Summer	Low	2% 14%	
	C	Winter	Low	1% 23%	
Virginia Rail	M	Winter	Low	8% 22%	
Sora	M	Winter	Neutral	34% 7%	
Common Gallinule	M	Summer	Neutral	41% 27%	
	M	Winter	Neutral	38% 32%	
American Coot	M	Summer	Neutral	1% 14%	
	M	Winter	Neutral	65% 24%	
Black Rail	M	Summer	Moderate	3%	
	M	Winter	Low	2%	
Limpkin	M	Summer	Neutral	32%	
	M	Winter	Neutral	49%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Sandhill Crane	M	Summer	Moderate	20%	
	M	Winter	Low	23% 72%	
Whooping Crane	W	Summer	High	2%	
Black-necked Stilt	M	Summer	Neutral	34% 22%	
	M	Winter	Neutral	14% 11%	
American Avocet	M	Summer	Neutral	1% <1%	
	M	Winter	Neutral	12% 13%	
American Oystercatcher	C	Summer	Neutral	<1% 6%	
Black-bellied Plover	W	Winter	Neutral	43% 20%	
Wilson's Plover	C	Summer	Neutral	12% 5%	
Semipalmated Plover	C	Winter	Neutral	21%	
Piping Plover	C	Winter	Moderate	7% 26%	
Killdeer	W	Summer	Neutral	12% 67%	
	W	Winter	Neutral	43% 32%	
Whimbrel	W	Winter	Neutral	2%	
Marbled Godwit	M	Winter	Neutral	3% 12%	
Ruddy Turnstone	W	Winter	Neutral	20% 40%	
Red Knot	W	Winter	Low	3%	
Stilt Sandpiper	W	Winter	Neutral	31% 61%	
Sanderling	W	Winter	Neutral	37% 15%	
Dunlin	W	Winter	Low	57% 5%	
Least Sandpiper	W	Winter	Neutral	45% 38%	
Western Sandpiper	W	Winter	Neutral	6% 22%	
Short-billed Dowitcher	W	Winter	Neutral	40% 3%	
Long-billed Dowitcher	W	Winter	Neutral	42% 23%	
American Woodcock	F-E	Winter	Neutral	4% 95%	
Wilson's Snipe	M	Winter	Neutral	94% 5%	
Spotted Sandpiper	W	Winter	Neutral	27% 62%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Greater Yellowlegs	W	Winter	Neutral	64% 16%	
Willet	W	Summer	Neutral	11% 11%	
	C	Winter	Neutral	25% 1%	
Lesser Yellowlegs	W	Winter	Neutral	55% 27%	
Bonaparte's Gull	W	Winter	Neutral	99%	
Laughing Gull	C	Summer	Neutral	13% 31%	
	C	Winter	Neutral	75% 1%	
Ring-billed Gull	W	Summer	Low	<1% 1%	
	W	Winter	Neutral	98%	
Herring Gull	W	Winter	Neutral	71% 15%	
Lesser Black-backed Gull	C	Winter	Low	2% 17%	
Great Black-backed Gull	C	Winter	Low	7%	
Least Tern	W	Summer	Low	19% 33%	
Gull-billed Tern	C	Summer	Neutral	31% 29%	
	C	Winter	Neutral	8% 19%	
Caspian Tern	W	Summer	Low	8% 15%	
	W	Winter	Neutral	35% 24%	
Forster's Tern	M	Summer	Neutral	17% 3%	
	M	Winter	Neutral	2% 71%	
Royal Tern	C	Summer	Neutral	10% 4%	
	C	Winter	Neutral	20% 10%	
Sandwich Tern	C	Summer	Low	<1% 14%	
	C	Winter	Neutral	7%	
Black Skimmer	C	Summer	Neutral	19% 2%	
	C	Winter	Neutral	13% 7%	
Common Loon	W	Winter	Low	11% 30%	
Wood Stork	M	Summer	Neutral	38%	
	M	Winter	Neutral	78%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Magnificent Frigatebird	C	Summer	Neutral	8% 3%	
Anhinga	M	Summer	Neutral	57% 25%	
	M	Winter	Neutral	62% 22%	
Neotropic Cormorant	C	Summer	Neutral	11% 19%	
	C	Winter	Neutral	15% 1%	
Double-crested Cormorant	W	Summer	Neutral	4% 82%	
	W	Winter	Neutral	62% 35%	
American White Pelican	M	Summer	Low	1%	
	M	Winter	Neutral	45% 24%	
Brown Pelican	C	Summer	Neutral	11% 50%	
	C	Winter	Neutral	20% 13%	
American Bittern	M	Winter	Neutral	42% 15%	
Least Bittern	M	Summer	Neutral	22% 25%	
	M	Winter	Neutral	45%	
Great Blue Heron	W	Summer	Neutral	87% 12%	
	W	Winter	Neutral	36% 63%	
Great Egret	W	Summer	Neutral	75% 21%	
	W	Winter	Neutral	88% 12%	
Snowy Egret	M	Summer	Neutral	48% 29%	
	M	Winter	Neutral	45% 29%	
Little Blue Heron	M	Summer	Neutral	74% 25%	
	M	Winter	Neutral	51% 26%	
Tricolored Heron	M	Summer	Neutral	41% 28%	
	M	Winter	Neutral	29% 15%	
Reddish Egret	C	Summer	Neutral	10% 2%	
	C	Winter	Neutral	9% 7%	
Cattle Egret	W	Summer	Neutral	93% 7%	
	W	Winter	Neutral	33% 39%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Green Heron	M	Summer	Neutral	39% 51%	
	M	Winter	Neutral	32% 61%	
Black-crowned Night-Heron	M	Summer	Neutral	42% 11%	
	M	Winter	Neutral	35% 13%	
Yellow-crowned Night-Heron	M	Summer	Neutral	45% 53%	
	M	Winter	Neutral	24% 53%	
White Ibis	M	Summer	Neutral	92% 4%	
	M	Winter	Neutral	25% 33%	
Glossy Ibis	M	Summer	Neutral	14% 26%	
	M	Winter	Low	48% 16%	
White-faced Ibis	M	Summer	Low	20% 26%	
	M	Winter	Neutral	15% 2%	
Roseate Spoonbill	C	Summer	Neutral	17% 35%	
	C	Winter	Neutral	14% 13%	
Black Vulture	Gen	Summer	Neutral	5% 93%	
	Gen	Winter	Neutral	30% 69%	
Turkey Vulture	Gen	Summer	Neutral	99%	
	Gen	Winter	Neutral	92% 7%	
Osprey	W	Summer	Neutral	12% 70%	
	W	Winter	Neutral	26% 50%	
White-tailed Kite	D	Summer	Moderate	1%	
	D	Winter	Neutral	11% 1%	
Swallow-tailed Kite	F-S	Summer	Low	24% 33%	
Mississippi Kite	F-E	Summer	Neutral	31% 49%	
Northern Harrier	M	Winter	Neutral	3% 80%	
Sharp-shinned Hawk	F-W	Winter	Neutral	2% 11%	
Cooper's Hawk	Gen	Summer	Neutral	67% 21%	
	Gen	Winter	Low	32% 23%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Bald Eagle	Gen	Summer	Low	41% 37%	
	Gen	Winter	Neutral	8% 91%	
Red-shouldered Hawk	F-E	Summer	Neutral	42% 57%	
	F-E	Winter	Neutral	59% 40%	
Broad-winged Hawk	F-E	Summer	Low	23% 24%	
	F-E	Winter	Low	4% 49%	
Red-tailed Hawk	Gen	Summer	Neutral	94% 4%	
	Gen	Winter	Neutral	17% 82%	
Barn Owl	Gen	Summer	Neutral	20% 79%	
	Gen	Winter	Neutral	20% 79%	
Eastern Screech-Owl	F-E	Summer	Neutral	19% 80%	
	F-E	Winter	Neutral	72% 23%	
Great Horned Owl	Gen	Summer	Neutral	83% 11%	
	Gen	Winter	Neutral	44% 40%	
Burrowing Owl	G	Winter	Neutral	39%	
Barred Owl	F-E	Summer	Neutral	22% 76%	
	F-E	Winter	Neutral	91% 8%	
Short-eared Owl	G	Winter	Neutral	14% 11%	
Belted Kingfisher	Gen	Summer	Neutral	11%	
	Gen	Winter	Neutral	99%	
Yellow-bellied Sapsucker	F-E	Winter	Neutral	90% 9%	
Red-headed Woodpecker	F-E	Summer	High	81%	
	F-E	Winter	Neutral	34% 37%	
Red-bellied Woodpecker	F-E	Summer	Neutral	79% 14%	
	F-E	Winter	Neutral	93% 4%	
Downy Woodpecker	Gen	Summer	Neutral	55% 19%	
	Gen	Winter	Neutral	24% 49%	
	F-E	Summer	Low	47% 8%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Red-cockaded Woodpecker	F-E	Winter	Neutral	65% 30%	
Pileated Woodpecker	F-E	Summer	Neutral	8% 84%	
	F-E	Winter	Neutral	76% 10%	
Northern Flicker	Gen	Summer	Moderate	57%	
	Gen	Winter	Neutral	13% 74%	
Crested Caracara	D	Summer	Neutral	6% 21%	
	D	Winter	Neutral	3% 54%	
American Kestrel	Gen	Winter	Neutral	86% 13%	
Merlin	F-E	Winter	Neutral	10% 89%	
Peregrine Falcon	Gen	Winter	Neutral	52% 35%	
Eastern Wood-Pewee	F-E	Summer	Low	63%	
Acadian Flycatcher	F-E	Summer	Moderate	84% 7%	
Least Flycatcher	F-B	Winter	Neutral	2%	
Eastern Phoebe	F-E	Summer	Low	8%	
	F-E	Winter	Neutral	88% 11%	
Vermilion Flycatcher	D	Winter	Neutral	17% 2%	
Great Crested Flycatcher	F-E	Summer	Moderate	50% 23%	
	F-E	Winter	Neutral	98%	
Western Kingbird	G	Winter	Neutral	38%	
Eastern Kingbird	G	Summer	Moderate	62%	
Scissor-tailed Flycatcher	G	Summer	Neutral	10% 38%	
	G	Winter	Neutral	99%	
Loggerhead Shrike	G	Summer	Neutral	81% 11%	
	G	Winter	Neutral	88% 11%	
White-eyed Vireo	F-E	Summer	Neutral	99%	
	F-E	Winter	Low	10% 83%	
Yellow-throated Vireo	F-E	Summer	Moderate	32% 25%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Blue-headed Vireo	F-E	Winter	Low	87% 11%	
Red-eyed Vireo	F-E	Summer	Low	43% 25%	
Blue Jay	F-E	Summer	Neutral	36% 63%	
	F-E	Winter	Neutral	78% 15%	
American Crow	Gen	Summer	Low	24% 75%	
	Gen	Winter	Neutral	91% 8%	
Fish Crow	Gen	Summer	High	93%	
	Gen	Winter	Low	38% 39%	
Northern Rough-winged Swallow	Gen	Summer	Neutral	46% 49%	
Purple Martin	Gen	Summer	Neutral	92% 7%	
Tree Swallow	Gen	Winter	Neutral	37% 51%	
Barn Swallow	Gen	Summer	Neutral	58% 38%	
Cliff Swallow	Gen	Summer	Neutral	28% 34%	
Cave Swallow	D	Summer	Low	<1%	
Carolina Chickadee	F-E	Summer	Neutral	16% 53%	
	F-E	Winter	Low	72% 1%	
Tufted Titmouse	F-E	Summer	Neutral	55% 7%	
	F-E	Winter	Neutral	6% 48%	
Red-breasted Nuthatch	F-B	Winter	Neutral	71%	
White-breasted Nuthatch	F-E	Summer	Low	5%	
	F-E	Winter	Neutral	6%	
Brown-headed Nuthatch	F-E	Summer	High	77%	
	F-E	Winter	High	88%	
Brown Creeper	F-W	Winter	Neutral	86%	
House Wren	Gen	Winter	Neutral	99%	
Winter Wren	F-E	Winter	Low	23%	
Sedge Wren	G	Winter	Neutral	94% 5%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Marsh Wren	M	Summer	Low	8%	
	M	Winter	Low	41% 4%	
Carolina Wren	F-E	Summer	Neutral	98%	
	F-E	Winter	Neutral	99%	
Bewick's Wren	D	Summer	Neutral	4%	
	D	Winter	Low	9%	
Blue-gray Gnatcatcher	Gen	Summer	Neutral	74% 14%	
	Gen	Winter	Neutral	58% 33%	
Golden-crowned Kinglet	F-B	Winter	Neutral	45% 29%	
Ruby-crowned Kinglet	F-W	Winter	Neutral	99%	
Eastern Bluebird	F-E	Summer	Neutral	11% 43%	
	F-E	Winter	Neutral	92% 5%	
Hermit Thrush	F-W	Winter	Low	20% 72%	
Wood Thrush	F-E	Summer	High	67%	
American Robin	Gen	Winter	Neutral	1% 98%	
Gray Catbird	F-E	Summer	Neutral	59% 20%	
	F-E	Winter	Moderate	35% 18%	
Brown Thrasher	F-E	Summer	High	84%	
	F-E	Winter	Neutral	88% 9%	
Northern Mockingbird	Gen	Summer	Neutral	99%	
	Gen	Winter	Neutral	98% 1%	
American Pipit	A	Winter	Neutral	6% 91%	
Sprague's Pipit	G	Winter	Neutral	15%	
Cedar Waxwing	Gen	Winter	Neutral	6% 92%	
House Finch	Gen	Summer	Low	1%	
	Gen	Winter	Low	1%	
Purple Finch	F-B	Winter	Low	41%	
Pine Siskin	F-W	Winter	Neutral	40% 39%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
American Goldfinch	Gen	Winter	Neutral	37% 61%	
Lapland Longspur	A	Winter	Neutral	1%	
Bachman's Sparrow	F-E	Summer	Moderate	31% 38%	
	F-E	Winter	Neutral	25% 43%	
Grasshopper Sparrow	G	Winter	Neutral	3%	
Chipping Sparrow	Gen	Winter	Neutral	66% 32%	
Clay-colored Sparrow	G	Winter	Neutral	6%	
Field Sparrow	F-E	Summer	High	3%	
	F-E	Winter	Neutral	15% 78%	
Lark Sparrow	D	Summer	Neutral	25%	
	D	Winter	Neutral	8%	
Lark Bunting	G	Winter	Neutral	7%	
Fox Sparrow	F-B	Winter	Moderate	11%	
Dark-eyed Junco	F-W	Winter	Neutral	67%	
White-crowned Sparrow	Gen	Winter	Neutral	9% 5%	
White-throated Sparrow	F-B	Winter	Neutral	38% 60%	
Vesper Sparrow	G	Winter	Neutral	35% 46%	
LeConte's Sparrow	G	Winter	Neutral	41% 53%	
Seaside Sparrow	C	Summer	Neutral	<1% 10%	
	C	Winter	Moderate	8% 13%	
Nelson's Sparrow	G	Winter	High	26% 6%	
Savannah Sparrow	G	Winter	Low	11% 83%	
Henslow's Sparrow	G	Winter	Neutral	8% 85%	
Song Sparrow	Gen	Winter	Neutral	36% 53%	
Lincoln's Sparrow	F-B	Winter	Neutral	51% 16%	
Swamp Sparrow	M	Winter	Neutral	99%	
Eastern Towhee	F-E	Summer	High	88%	
	F-E	Winter	Neutral	68% 18%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Yellow-breasted Chat	F-E	Summer	Neutral	23% 52%	
Eastern Meadowlark	G	Summer	Moderate	33% 2%	
	G	Winter	Neutral	97% 2%	
Orchard Oriole	F-E	Summer	Low	55% 42%	
Baltimore Oriole	F-E	Summer	Low	11%	
	F-E	Winter	High	3%	
Red-winged Blackbird	Gen	Summer	Neutral	76% 22%	
	Gen	Winter	Neutral	71% 28%	
Bronzed Cowbird	D	Winter	Neutral	4% 2%	
Brown-headed Cowbird	Gen	Summer	Neutral	12% 83%	
	Gen	Winter	Neutral	99%	
Rusty Blackbird	F-B	Winter	Neutral	64% 22%	
Brewer's Blackbird	Gen	Winter	Neutral	39% 14%	
Common Grackle	F-E	Summer	Low	42% 54%	
	F-E	Winter	Neutral	98%	
Boat-tailed Grackle	C	Summer	High	18% 11%	
	C	Winter	Moderate	29% 6%	
Great-tailed Grackle	Gen	Summer	Neutral	17% 3%	
	Gen	Winter	Neutral	20% 12%	
Ovenbird	F-E	Winter	Neutral	56%	
Worm-eating Warbler	F-E	Summer	High	8%	
Louisiana Waterthrush	F-E	Summer	Neutral	17% 22%	
Northern Waterthrush	F-B	Winter	Neutral	22%	
Black-and-white Warbler	F-E	Summer	Moderate	<1%	
	F-E	Winter	Neutral	25% 69%	
Prothonotary Warbler	F-E	Summer	Neutral	99%	
Swainson's Warbler	F-E	Summer	Low	22% 33%	
Orange-crowned Warbler	F-W	Winter	Neutral	64% 34%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Nashville Warbler	F-E	Winter	Neutral	11%	
Kentucky Warbler	F-E	Summer	Low	54%	
Common Yellowthroat	Gen	Summer	Low	16% 67%	
	Gen	Winter	Neutral	31% 46%	
Hooded Warbler	F-E	Summer	Moderate	88% 1%	
American Redstart	F-B	Summer	Moderate	<1%	
Northern Parula	F-E	Summer	Moderate	33% 22%	
	F-E	Winter	Moderate	48%	
Palm Warbler	F-B	Winter	Low	65% 22%	
Pine Warbler	F-E	Summer	High	74% 2%	
	F-E	Winter	Neutral	97% 2%	
Yellow-rumped Warbler	F-B	Winter	Neutral	99%	
Yellow-throated Warbler	F-E	Summer	High	76%	
	F-E	Winter	Neutral	27% 68%	
Prairie Warbler	F-E	Summer	Moderate	41% 21%	
	F-E	Winter	Low	30%	
Wilson's Warbler	F-W	Winter	Low	1%	
Summer Tanager	F-E	Summer	Neutral	72% 14%	
	F-E	Winter	Moderate	1%	
Northern Cardinal	F-E	Summer	Neutral	83% 16%	
	F-E	Winter	Neutral	96% 3%	
Black-headed Grosbeak	F-W	Winter	Neutral	2%	
Blue Grosbeak	F-S	Summer	Neutral	64% 21%	
Indigo Bunting	F-E	Summer	Moderate	63%	
Painted Bunting	D	Summer	Neutral	46% 39%	
	D	Winter	Neutral	37%	
Dickcissel	G	Summer	Neutral	12% 77%	