

# 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 273,000 total birders in Nebraska 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. Red-headed Woodpecker. Photo: Gary Robinette/Audubon Photography Awards

## Future Climate and Habitat in Nebraska

Across the state of Nebraska, 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 6.8°C (12°F), and average temperatures during the coldest month are expected to increase approximately 3.8°C (6.8°F) from 2010 to the end of the century. Average annual precipitation is expected to decrease by approximately 7.8 mm (0.31 in); in addition, evapotranspiration is expected to increase, resulting in an overall decrease of available moisture of 63% 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 8% of the state of Nebraska will transition to a different biome. At present, the largest biome in the state is Grassland, covering 91% of the state. By the end of the century, Grassland will cover approximately 95% 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 Nebraska'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 Nebraska, 58 out of 164 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 32. Impacts are somewhat lessened in winter, with 12 out of 104 species vulnerable

under 3°C of warming and 3 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 Nebraska, the habitat groups with the most species vulnerable to the impacts of ongoing and future climate change are grassland (12 species) and eastern forest (11 species) in summer (Figure 2). In winter, boreal forest (4 species) and generalist (2 species) groups have the most vulnerable species.

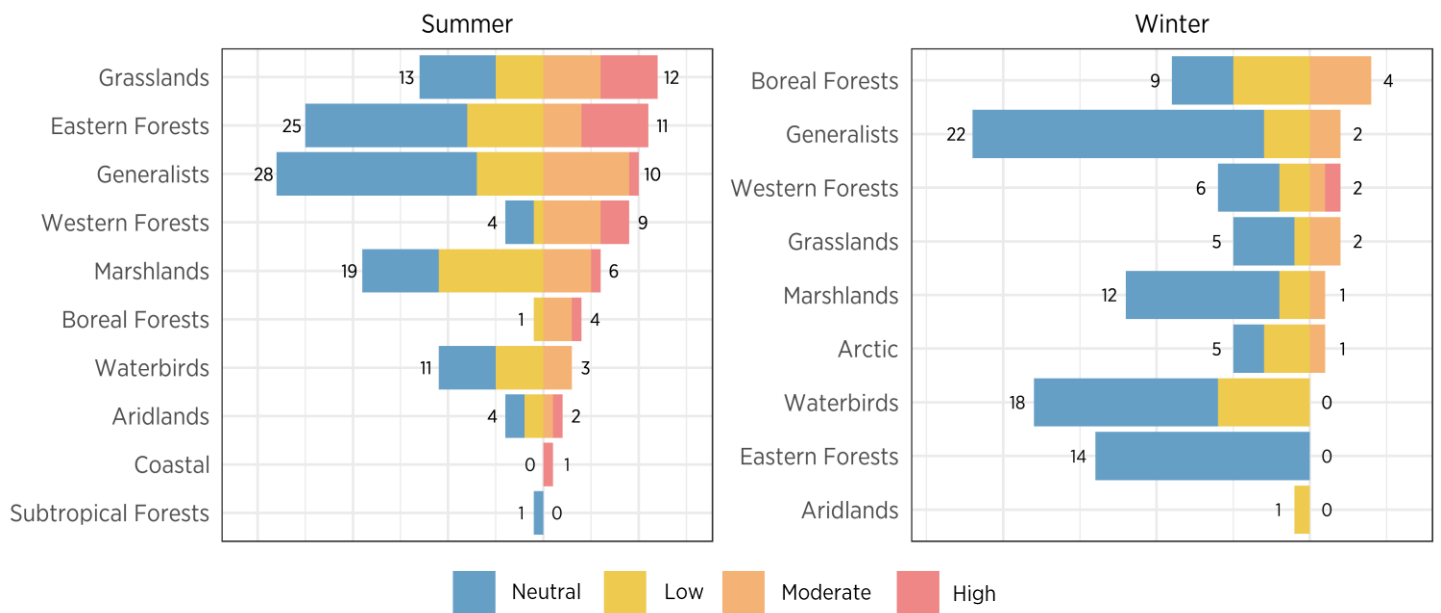


Figure 2. Number of species by their vulnerability to climate change in each habitat group under a global 3°C warming scenario. The species in each group are ones that currently live in the state, though vulnerability is assessed across the species's full North American range to better account for range-wide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

In Nebraska, species that are most threatened by a combination of climate change and additional climate-related threats under 3°C of warming include Piping Plover, Mountain Plover, Long-billed Curlew, Red-headed Woodpecker, Field Sparrow, Henslow's Sparrow, and Lark Bunting. For information on threats for individual species in Nebraska, see Table 2.

## Climate-Related Threats (Cont.)

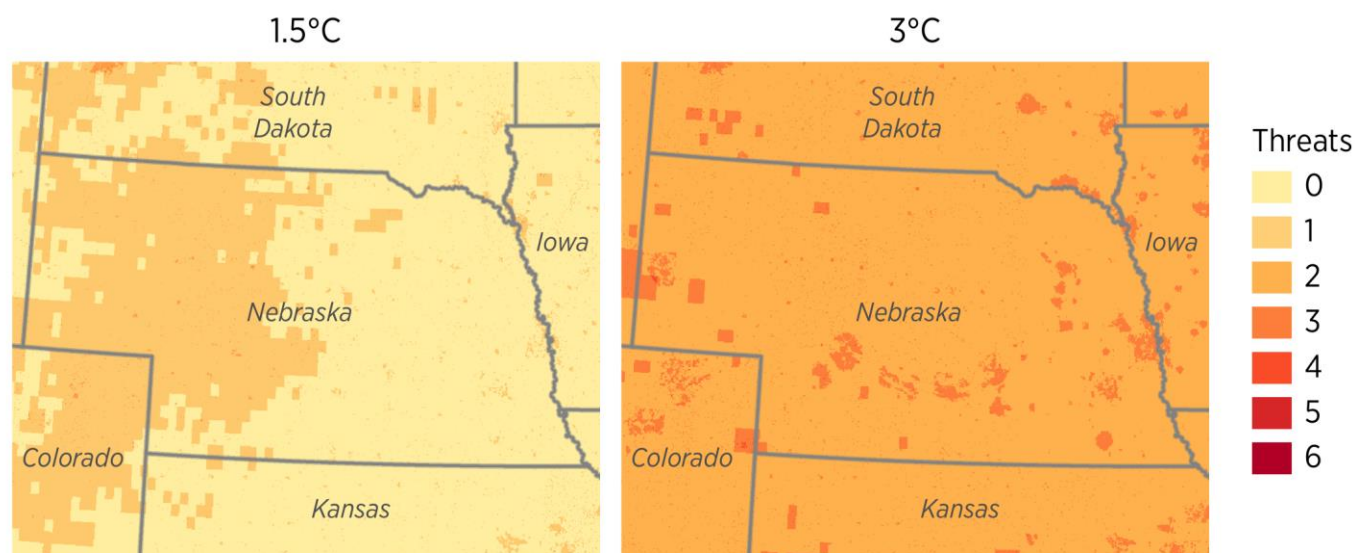





Figure 3. The number and distribution of overlapping climate-related threats under future global change scenarios of 1.5°C and 3°C. For detailed information on threats for each location in the state, refer to our online interactive tool at [climate.audubon.org](https://climate.audubon.org).

Table 1. Climate-related threats that Nebraska 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	1.5°C	295,014	1 (1)	
	3°C	1,461,537		1 (0)
 Extreme Spring Heat	3°C	49,511,935	153 (30)	140 (12)
 Fire Weather	1.5°C	19,752,585	53 (13)	20 (2)
	3°C	49,511,935	153 (30)	140 (12)

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 Nebraska 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

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Birds are early responders to climate change and can be important indicators of large-scale ongoing and future ecological change. We found that 33% of Nebraska's 204 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.

## Call to Action

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### **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

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.

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 Nebraska

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## More Information

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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](http://climate.audubon.org)) and the scientific publications [5,8].

### **References**

1. US Fish & Wildlife Service. 2013. Birding in the United States: A Demographic and Economic Analysis. Addendum to the 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.
2. Ceballos, G. et al. 2015. Accelerated modern human-induced species losses: Entering the sixth mass extinction. *Science Advances* 1:e1400253. doi:10.1126/sciadv.1400253.
3. Wilsey, C. et al. 2019. Survival By Degrees: 389 Bird Species on the Brink. National Audubon Society: New York.
4. Wilsey, C. et al. 2019. Climate policy action needed to reduce vulnerability of conservation-reliant grassland birds in North America. *Conservation Science and Practice* e21; DOI: 10.1111/csp2.21.

Support policies that strive for climate solutions at the local, state, national and hemispheric levels.

Influence water management decisions that balance the needs of birds, people, and economies.

Seek opportunities to help landowners and land managers apply bird-friendly practices, and drive market-based solutions that influence ecosystem health at scale.

Engage people in practical, win-win solutions that help birds thrive in human environments and to make communities healthier and more sustainable for people, too.

5. Bateman, B. et al. 2019. North American birds require mitigation and adaptation to reduce vulnerability to climate change. In review.
6. AdaptWest Project. 2015. Gridded current and projected climate data for North America at 1km resolution, interpolated using the ClimateNA v5.10 software (T. Wang et al., 2015). Available at [adaptwest.databasin.org](http://adaptwest.databasin.org).
7. Rehfeldt, G.E. et al. 2012. North American vegetation model for land-use planning in a changing climate: a solution to large classification problems.
8. Bateman, B. et al. 2019. Risk to North American birds from climate change-related threats. In review.
9. IPCC (Intergovernmental Panel on Climate Change). 2019. IPCC Special Report on the Ocean and Cryosphere in a Changing Climate.

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## Species Projections

















Table 2. Climate suitability projections in summer and winter under the 3°C warming scenario for birds in Nebraska. 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 Nebraska, 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 Nebraska, see the project website ([climate.audubon.org](http://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:






















































Potential extirpation  
 Worsening  
 Stable  
 Improving  
 Potential colonization

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Snow Goose	W	Winter	Low	92% 7%	 
Ross's Goose	W	Winter	Low	39% 33%	 
Cackling Goose	M	Winter	Moderate	8% 73%	 
Canada Goose	W	Summer	Moderate	84% 15%	 
	W	Winter	Neutral	100%	 
Trumpeter Swan	W	Summer	Moderate	<1%	
	W	Winter	Low	8% 12%	 
Wood Duck	W	Summer	Low	87% 5%	 
	W	Winter	Neutral	46% 26%	 







Species	Habitat Group	Season	Range-wide Vulnerability	State Trends		State Threats	
Blue-winged Teal	M	Summer	Low	39%	28%		
Cinnamon Teal	M	Summer	Moderate	3%			
	M	Winter	Neutral	49%			
Northern Shoveler	M	Summer	Low	6%	3%		
	M	Winter	Neutral	11%	64%		
Gadwall	M	Summer	Moderate	41%	9%		
	M	Winter	Neutral	29%	71%		
American Wigeon	M	Winter	Neutral	16%	70%		
Mallard	W	Summer	Low	99%			
	W	Winter	Neutral	100%			
Northern Pintail	M	Summer	Moderate	17%	7%		
	M	Winter	Neutral	22%	39%		
Green-winged Teal	M	Summer	Moderate	1%	3%		
	M	Winter	Neutral	8%	46%		
Canvasback	M	Winter	Neutral	13%	57%		
Redhead	M	Summer	Neutral	6%	17%		
	M	Winter	Low	19%	7%		
Ring-necked Duck	W	Winter	Neutral	32%	32%		
Greater Scaup	W	Winter	Neutral	2%	7%		
Lesser Scaup	W	Winter	Neutral	28%	58%		
Bufflehead	W	Winter	Low	4%	8%		
Common Goldeneye	W	Winter	Neutral	96%			
Hooded Merganser	W	Summer	Low	9%	<1%		
	W	Winter	Neutral	15%	6%		
Common Merganser	W	Winter	Low	2%	74%		
Red-breasted Merganser	W	Winter	Low	2%	2%		
Ruddy Duck	M	Summer	Low	21%	6%		
	M	Winter	Neutral	2%	9%		
















































Species	Habitat Group	Season	Range-wide Vulnerability	State Trends		State Threats	
Northern Bobwhite	G	Summer	Neutral	54%	35%		
	G	Winter	Neutral	32%	39%		
Scaled Quail	D	Summer	Moderate	10%			
	D	Winter	Moderate	2%			
Sharp-tailed Grouse	G	Summer	Low	59%			
	G	Winter	Moderate	49%			
Greater Prairie-Chicken	G	Summer	Neutral	35%	64%		
	G	Winter	Neutral	44%	49%		
Lesser Prairie-Chicken	G	Summer	Moderate	39%			
	G	Winter	Moderate	32%			
Wild Turkey	Gen	Summer	Neutral	3%	90%		
	Gen	Winter	Neutral	93%	3%		
Pied-billed Grebe	M	Summer	Neutral	2%	8%		
	M	Winter	Neutral	7%			
Eared Grebe	M	Summer	High	3%	2%		
Western Grebe	M	Summer	Low	1%	7%		
Mourning Dove	Gen	Summer	Neutral	100%			
	Gen	Winter	Neutral	10%	77%		
Yellow-billed Cuckoo	F-E	Summer	Neutral	75%	22%		
Black-billed Cuckoo	F-E	Summer	Low	3%			
Common Nighthawk	Gen	Summer	Neutral	5%	95%		
Common Poorwill	D	Summer	Neutral	<1%	11%		
Chuck-will's-widow	F-E	Summer	Neutral	8%			
Eastern Whip-poor-will	F-E	Summer	High	12%			
Chimney Swift	F-E	Summer	Neutral	9%	66%		
Ruby-throated Hummingbird	F-E	Summer	Neutral	10%	9%		
Black-chinned Hummingbird	D	Summer	Neutral	76%			









































Species	Habitat Group	Season	Range-wide Vulnerability	State Trends		State Threats	
Virginia Rail	M	Summer	Moderate	7%	3%		
	M	Winter	Low	5%			
Sora	M	Summer	Moderate	5%			
American Coot	M	Summer	Neutral	4%	18%		
	M	Winter	Neutral	11%	46%		
Black Rail	M	Summer	Moderate	1%			
Sandhill Crane	M	Winter	Low	12%	18%		
Black-necked Stilt	M	Summer	Neutral	2%	14%		
American Avocet	M	Summer	Neutral	3%	15%		
Snowy Plover	C	Summer	Neutral	11%			
Piping Plover	C	Summer	High	5%			
Killdeer	W	Summer	Neutral	100%			
	W	Winter	Neutral	11%	79%		
Mountain Plover	G	Summer	High	6%	9%		
Upland Sandpiper	G	Summer	Neutral	58%	35%		
Long-billed Curlew	G	Summer	High	46%			
American Woodcock	F-E	Winter	Neutral	2%			
Wilson's Snipe	M	Winter	Neutral	5%	72%		
Spotted Sandpiper	W	Summer	Moderate	16%			
Willet	W	Summer	Neutral	6%	2%		
Ring-billed Gull	W	Summer	Low	5%	3%		
	W	Winter	Neutral	95%	1%		
Herring Gull	W	Winter	Neutral	1%	92%		
Least Tern	W	Summer	Low	8%	2%		
Black Tern	M	Summer	Low	4%	2%		
Forster's Tern	M	Summer	Neutral	4%			
American White Pelican	M	Summer	Low	14%	4%		
American Bittern	M	Summer	Low	14%			















































Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Least Bittern	M	Summer	Neutral	<div><div>1%</div><div>2%</div></div>	 
Great Blue Heron	W	Summer	Neutral	<div><div>99%</div><div>1%</div></div>	 
	W	Winter	Neutral	<div><div>14%</div><div>79%</div></div>	 
Great Egret	W	Summer	Neutral	<div><div>11%</div><div>3%</div></div>	 
Snowy Egret	M	Summer	Neutral	<div><div>3%</div></div>	 
Little Blue Heron	M	Summer	Neutral	<div><div>8%</div></div>	 
Cattle Egret	W	Summer	Neutral	<div><div>4%</div><div>65%</div></div>	 
Green Heron	M	Summer	Neutral	<div><div>3%</div><div>20%</div></div>	 
Black-crowned Night-Heron	M	Summer	Neutral	<div><div>12%</div><div>33%</div></div>	 
	M	Winter	Neutral	<div><div>5%</div></div>	 
Yellow-crowned Night-Heron	M	Summer	Neutral	<div><div>100%</div></div>	 
White-faced Ibis	M	Summer	Low	<div><div>1%</div><div>28%</div></div>	 
Turkey Vulture	Gen	Summer	Neutral	<div><div>33%</div><div>23%</div></div>	 
	Gen	Winter	Neutral	<div><div>4%</div></div>	 
Osprey	W	Summer	Neutral	<div><div>&lt;1%</div><div>5%</div></div>	 
Golden Eagle	Gen	Summer	Moderate	<div><div>23%</div><div>5%</div></div>	 
	Gen	Winter	Moderate	<div><div>87%</div><div>7%</div></div>	 
Mississippi Kite	F-E	Summer	Neutral	<div><div>3%</div><div>85%</div></div>	 
Northern Harrier	M	Summer	Low	<div><div>34%</div><div>&lt;1%</div></div>	 
	M	Winter	Neutral	<div><div>78%</div><div>20%</div></div>	 
Sharp-shinned Hawk	F-W	Winter	Neutral	<div><div>3%</div><div>95%</div></div>	 
Cooper's Hawk	Gen	Summer	Neutral	<div><div>45%</div><div>29%</div></div>	 
	Gen	Winter	Low	<div><div>26%</div><div>40%</div></div>	 
Northern Goshawk	F-B	Winter	Low	<div><div>&lt;1%</div></div>	
Bald Eagle	Gen	Summer	Low	<div><div>69%</div><div>29%</div></div>	 
	Gen	Winter	Neutral	<div><div>2%</div><div>98%</div></div>	 
Red-shouldered Hawk	F-E	Summer	Neutral	<div><div>66%</div></div>	 














































Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats	
	F-E	Winter	Neutral	4%		
Broad-winged Hawk	F-E	Summer	Low	5%		
Swainson's Hawk	G	Summer	Neutral	53% 41%		
Red-tailed Hawk	Gen	Summer	Neutral	100%		
	Gen	Winter	Neutral	100%		
Rough-legged Hawk	A	Winter	Moderate	22% 67%		
Ferruginous Hawk	G	Summer	Moderate	8% 12%		
	G	Winter	Moderate	47% 30%		
Barn Owl	Gen	Summer	Neutral	83% 16%		
	Gen	Winter	Neutral	93% 6%		
Eastern Screech-Owl	F-E	Summer	Neutral	77% 14%		
	F-E	Winter	Neutral	59% 9%		
Great Horned Owl	Gen	Summer	Neutral	100%		
	Gen	Winter	Neutral	100%		
Snowy Owl	A	Winter	Low	97% 3%		
Burrowing Owl	G	Summer	Neutral	25% 38%		
	G	Winter	Neutral	2%		
Barred Owl	F-E	Summer	Neutral	15% 62%		
	F-E	Winter	Neutral	22% 35%		
Long-eared Owl	F-W	Summer	Low	48% 14%		
	F-W	Winter	Low	3% 95%		
Short-eared Owl	G	Summer	Moderate	7% 21%		
	G	Winter	Neutral	51% 13%		
Northern Saw-whet Owl	F-B	Winter	Low	85% 7%		
Belted Kingfisher	Gen	Summer	Neutral	17% 5%		
	Gen	Winter	Neutral	79% 21%		
Yellow-bellied Sapsucker	F-E	Winter	Neutral	25% 22%		
Lewis's Woodpecker	F-W	Winter	Low	3%		










































Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Red-headed Woodpecker	F-E	Summer	High	89%	
	F-E	Winter	Neutral	2% 4%	 
Red-bellied Woodpecker	F-E	Summer	Neutral	3% 9%	 
	F-E	Winter	Neutral	4% 12%	 
Downy Woodpecker	Gen	Summer	Neutral	69% 17%	 
	Gen	Winter	Neutral	30% 66%	 
Ladder-backed Woodpecker	D	Summer	Neutral	6%	 
	D	Winter	Neutral	11%	 
Hairy Woodpecker	Gen	Summer	Low	63%	
	Gen	Winter	Low	15%	 
Pileated Woodpecker	F-E	Summer	Neutral	5% 3%	 
	F-E	Winter	Neutral	5% 1%	 
Northern Flicker	Gen	Summer	Moderate	97% 3%	 
	Gen	Winter	Neutral	92% 8%	 
American Kestrel	Gen	Summer	Neutral	7% 93%	 
	Gen	Winter	Neutral	91% 8%	 
Merlin	F-E	Winter	Neutral	1% 99%	 
Peregrine Falcon	Gen	Summer	Neutral	5%	 
	Gen	Winter	Neutral	1%	 
Prairie Falcon	D	Summer	Low	<1%	
	D	Winter	Low	71% 17%	 
Western Wood-Pewee	F-W	Summer	High	14%	
Eastern Wood-Pewee	F-E	Summer	Low	28% 8%	 
Willow Flycatcher	F-W	Summer	Moderate	25%	
Eastern Phoebe	F-E	Summer	Low	8% 11%	 
Say's Phoebe	Gen	Summer	Low	48% 4%	 
Great Crested Flycatcher	F-E	Summer	Moderate	29% 1%	 
Western Kingbird	G	Summer	Neutral	47% 38%	 


















































Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Eastern Kingbird	G	Summer	Moderate	<div><div></div>86%9%</div>	 
Scissor-tailed Flycatcher	G	Summer	Neutral	<div><div></div>47%</div>	 
Loggerhead Shrike	G	Summer	Neutral	<div><div></div>58%<div></div>25%</div>	 
	G	Winter	Neutral	<div><div></div>32%</div>	 
Northern Shrike	F-B	Winter	Moderate	<div><div></div>80%</div>	
White-eyed Vireo	F-E	Summer	Neutral	<div><div></div>42%</div>	 
Bell's Vireo	D	Summer	Low	<div><div></div>57%<div></div>35%</div>	 
Yellow-throated Vireo	F-E	Summer	Moderate	<div><div></div>26%<div></div>2%</div>	 
Plumbeous Vireo	F-W	Summer	Neutral	<div><div></div>1%<div></div>7%</div>	 
Warbling Vireo	Gen	Summer	Neutral	<div><div></div>27%<div></div>64%</div>	 
Red-eyed Vireo	F-E	Summer	Low	<div><div></div>55%<div></div>5%</div>	 
Pinyon Jay	F-W	Summer	Moderate	<div><div></div>&lt;1%</div>	 
	F-W	Winter	Low	<div><div></div>&lt;1%<div></div>1%</div>	 
Blue Jay	F-E	Summer	Neutral	<div><div></div>25%<div></div>52%</div>	 
	F-E	Winter	Neutral	<div><div></div>22%<div></div>15%</div>	 
Woodhouse's Scrub-Jay	F-W	Summer	Moderate	<div><div></div>13%</div>	 
	F-W	Winter	Moderate	<div><div></div>32%</div>	 
Black-billed Magpie	Gen	Summer	High	<div><div></div>2%</div>	
	Gen	Winter	Moderate	<div><div></div>11%</div>	
American Crow	Gen	Summer	Low	<div><div></div>70%<div></div>29%</div>	 
	Gen	Winter	Neutral	<div><div></div>45%<div></div>55%</div>	 
Chihuahuan Raven	D	Summer	Neutral	<div><div></div>19%</div>	 
	D	Winter	Neutral	<div><div></div>11%</div>	 
Horned Lark	G	Summer	Low	<div><div></div>6%<div></div>93%</div>	 
	G	Winter	Low	<div><div></div>15%<div></div>77%</div>	 
Northern Rough-winged Swallow	Gen	Summer	Neutral	<div><div></div>1%<div></div>99%</div>	 
Purple Martin	Gen	Summer	Neutral	<div><div></div>15%<div></div>66%</div>	 













































Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Tree Swallow	Gen	Summer	Moderate	38%	
Violet-green Swallow	F-W	Summer	Moderate	<1%	
Bank Swallow	Gen	Summer	Neutral	13% 73%	 
Barn Swallow	Gen	Summer	Neutral	100%	 
Cliff Swallow	Gen	Summer	Neutral	28% 72%	 
Carolina Chickadee	F-E	Summer	Neutral	7%	 
Black-capped Chickadee	F-B	Summer	Low	49% 29%	 
	F-B	Winter	Low	99% 1%	  
Tufted Titmouse	F-E	Summer	Neutral	2% 2%	 
	F-E	Winter	Neutral	1% 2%	 
Red-breasted Nuthatch	F-B	Summer	Moderate	<1%	
	F-B	Winter	Neutral	1% 99%	 
White-breasted Nuthatch	F-E	Summer	Low	82% 17%	 
	F-E	Winter	Neutral	22% 78%	 
Pygmy Nuthatch	F-W	Summer	High	<1%	
	F-W	Winter	Moderate	<1%	
Brown Creeper	F-W	Winter	Neutral	4% 96%	 
Rock Wren	D	Summer	Moderate	1% 2%	 
Canyon Wren	D	Winter	Neutral	17%	 
House Wren	Gen	Summer	Moderate	100%	
Winter Wren	F-E	Winter	Low	1%	 
Sedge Wren	G	Summer	Moderate	37%	
Marsh Wren	M	Summer	Low	6% <1%	 
	M	Winter	Low	15%	 
Carolina Wren	F-E	Summer	Neutral	9% 22%	 
	F-E	Winter	Neutral	12% 30%	 
Bewick's Wren	D	Summer	Neutral	15%	 
	D	Winter	Low	55%	 

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats	
Cactus Wren	D	Summer	Neutral	<div><div></div>3%</div>		
Blue-gray Gnatcatcher	Gen	Summer	Neutral	<div><div>4%</div><div>13%</div></div>		
Golden-crowned Kinglet	F-B	Winter	Neutral	<div><div>&lt;1%</div><div>2%</div></div>		
Ruby-crowned Kinglet	F-W	Winter	Neutral	<div><div></div>2%</div>		
Eastern Bluebird	F-E	Summer	Neutral	<div><div>17%</div><div>8%</div></div>		
	F-E	Winter	Neutral	<div><div>22%</div><div>12%</div></div>		
Mountain Bluebird	F-W	Summer	High	<div><div>&lt;1%</div></div>		
	F-W	Winter	Low	<div><div></div>16%</div>		
Townsend's Solitaire	F-W	Winter	High	<div><div>32%</div><div>4%</div></div>		
Hermit Thrush	F-W	Winter	Low	<div><div></div>3%</div>		
Wood Thrush	F-E	Summer	High	<div><div>13%</div></div>		
American Robin	Gen	Summer	Moderate	<div><div>100%</div></div>		
	Gen	Winter	Neutral	<div><div>95%</div><div>5%</div></div>		
Gray Catbird	F-E	Summer	Neutral	<div><div>49%</div><div>51%</div></div>		
Curve-billed Thrasher	D	Summer	Neutral	<div><div></div>38%</div>		
Brown Thrasher	F-E	Summer	High	<div><div>89%</div></div>		
Sage Thrasher	D	Winter	Low	<div><div></div>29%</div>		
Northern Mockingbird	Gen	Summer	Neutral	<div><div>9%</div><div>81%</div></div>		
	Gen	Winter	Neutral	<div><div></div>38%</div>		
American Pipit	A	Winter	Neutral	<div><div></div>35%</div>		
Cedar Waxwing	Gen	Summer	Low	<div><div>97%</div></div>		
	Gen	Winter	Neutral	<div><div>64%</div><div>23%</div></div>		
Evening Grosbeak	F-B	Winter	Moderate	<div><div>&lt;1%</div></div>		
House Finch	Gen	Summer	Low	<div><div>18%</div><div>27%</div></div>		
	Gen	Winter	Low	<div><div>12%</div><div>49%</div></div>		
Purple Finch	F-B	Winter	Low	<div><div>32%</div><div>1%</div></div>		
Cassin's Finch	F-W	Winter	Moderate	<div><div></div>1%</div>		
Common Redpoll	A	Winter	Low	<div><div>48%</div></div>		

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Red Crossbill	F-B	Summer	High	<1%	
	F-B	Winter	Moderate	33%	
White-winged Crossbill	F-B	Winter	Moderate	24%	
Pine Siskin	F-W	Winter	Neutral	100%	 
Lesser Goldfinch	F-W	Summer	Neutral	78%	 
	F-W	Winter	Neutral	25%	 
American Goldfinch	Gen	Summer	Moderate	64%	
	Gen	Winter	Neutral	100%	 
Lapland Longspur	A	Winter	Neutral	63% 36%	 
Chestnut-collared Longspur	G	Summer	High	4%	
	G	Winter	Moderate	23%	 
Smith's Longspur	A	Winter	Neutral	78%	 
McCown's Longspur	G	Summer	High	3%	
	G	Winter	Moderate	18%	 
Snow Bunting	A	Winter	Low	94% 6%	 
Cassin's Sparrow	G	Summer	Low	2% 55%	 
Grasshopper Sparrow	G	Summer	Low	52% 40%	 
Chipping Sparrow	Gen	Summer	Moderate	14%	
Black-chinned Sparrow	D	Winter	Low	9%	 
Field Sparrow	F-E	Summer	High	61% 1%	 
	F-E	Winter	Neutral	3% 69%	 
Brewer's Sparrow	D	Summer	High	2%	
Black-throated Sparrow	D	Winter	Neutral	48%	 
Lark Sparrow	D	Summer	Neutral	46% 48%	 
Lark Bunting	G	Summer	High	25% 26%	 
	G	Winter	Neutral	67%	 
American Tree Sparrow	A	Winter	Neutral	32% 68%	 
Fox Sparrow	F-B	Winter	Moderate	2%	 

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats	
Dark-eyed Junco	F-W	Winter	Neutral	100%		
White-crowned Sparrow	Gen	Winter	Neutral	44% 49%		
Harris's Sparrow	F-B	Winter	Low	25% 75%		
White-throated Sparrow	F-B	Winter	Neutral	38% 39%		
Vesper Sparrow	G	Summer	Moderate	34%		
	G	Winter	Neutral	9%		
LeConte's Sparrow	G	Winter	Neutral	18%		
Savannah Sparrow	G	Winter	Low	3%		
Song Sparrow	Gen	Summer	Moderate	99%		
	Gen	Winter	Neutral	30% 67%		
Lincoln's Sparrow	F-B	Winter	Neutral	76%		
Swamp Sparrow	M	Winter	Neutral	43%		
Canyon Towhee	D	Summer	Low	2%		
Spotted Towhee	F-W	Summer	Moderate	11%		
	F-W	Winter	Low	42%		
Eastern Towhee	F-E	Summer	High	39%		
Yellow-breasted Chat	F-E	Summer	Neutral	37% 16%		
Yellow-headed Blackbird	M	Summer	Low	31% 14%		
Bobolink	G	Summer	High	41%		
Western Meadowlark	G	Summer	Low	88% 3%		
	G	Winter	Neutral	22% 65%		
Eastern Meadowlark	G	Summer	Moderate	16% 10%		
	G	Winter	Neutral	67%		
Orchard Oriole	F-E	Summer	Low	31% 59%		
Bullock's Oriole	F-W	Summer	Neutral	9% 30%		
Baltimore Oriole	F-E	Summer	Low	31% 38%		
Red-winged Blackbird	Gen	Summer	Neutral	100%		
	Gen	Winter	Neutral	34% 58%		

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats	
Brown-headed Cowbird	Gen	Summer	Neutral	100%		
	Gen	Winter	Neutral	4% 49%		
Rusty Blackbird	F-B	Winter	Neutral	17% 38%		
Brewer's Blackbird	Gen	Summer	Moderate	86% 3%		
	Gen	Winter	Neutral	89%		
Common Grackle	F-E	Summer	Low	73% 27%		
	F-E	Winter	Neutral	2%		
Great-tailed Grackle	Gen	Summer	Neutral	73%		
	Gen	Winter	Neutral	17%		
Louisiana Waterthrush	F-E	Summer	Neutral	1% 6%		
Prothonotary Warbler	F-E	Summer	Neutral	3%		
Common Yellowthroat	Gen	Summer	Low	78% 5%		
Hooded Warbler	F-E	Summer	Moderate	1%		
American Redstart	F-B	Summer	Moderate	23%		
Yellow Warbler	F-B	Summer	Moderate	42%		
Yellow-rumped Warbler	F-B	Winter	Neutral	98%		
Summer Tanager	F-E	Summer	Neutral	<1% 13%		
Scarlet Tanager	F-E	Summer	High	17%		
Western Tanager	F-W	Summer	Moderate	<1%		
Northern Cardinal	F-E	Summer	Neutral	97% 3%		
	F-E	Winter	Neutral	67% 7%		
Rose-breasted Grosbeak	F-E	Summer	Moderate	10%		
Black-headed Grosbeak	F-W	Summer	Moderate	<1%		
Blue Grosbeak	F-S	Summer	Neutral	67% 23%		
Lazuli Bunting	F-W	Summer	Neutral	3% <1%		
Indigo Bunting	F-E	Summer	Moderate	9% 2%		
Painted Bunting	D	Summer	Neutral	3%		
Dickcissel	G	Summer	Neutral	92% 8%	