Wyoming

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 417,000 total birders in Wyoming 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. Greater Sage-Grouse. Photo: Ronan Donovan/Audubon Photography Awards

Future Climate and Habitat in Wyoming

Across the state of Wyoming, 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 6.6°C (12°F), and average temperatures during the coldest month are expected to increase approximately 4.3°C (7.7°F) from 2010 to the end of the century. Average annual precipitation is expected to increase by approximately 38 mm (1.5 in). Despite the overall increase in precipitation, available moisture is expected to decrease by 37% 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 66% of the state of Wyoming will transition to a different biome. At present, the largest biome in the state is Shrub-Grassland, covering 49% of the state. By the end of the century, the largest biome in the state will be Grassland, which will cover approximately 44% 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 Wyoming'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 Wyoming, 124 out of 217 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 84. Impacts are somewhat lessened in winter, with 31 out of 90 species vulnerable under 3°C of warming and 16 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 Wyoming, the habitat groups with the most species vulnerable to the impacts of ongoing and future climate change are western forest (38 species) and boreal forest (23 species) in summer (Figure 2). In winter, boreal forest (12 species) and western forest (9 species) groups have the most vulnerable species.

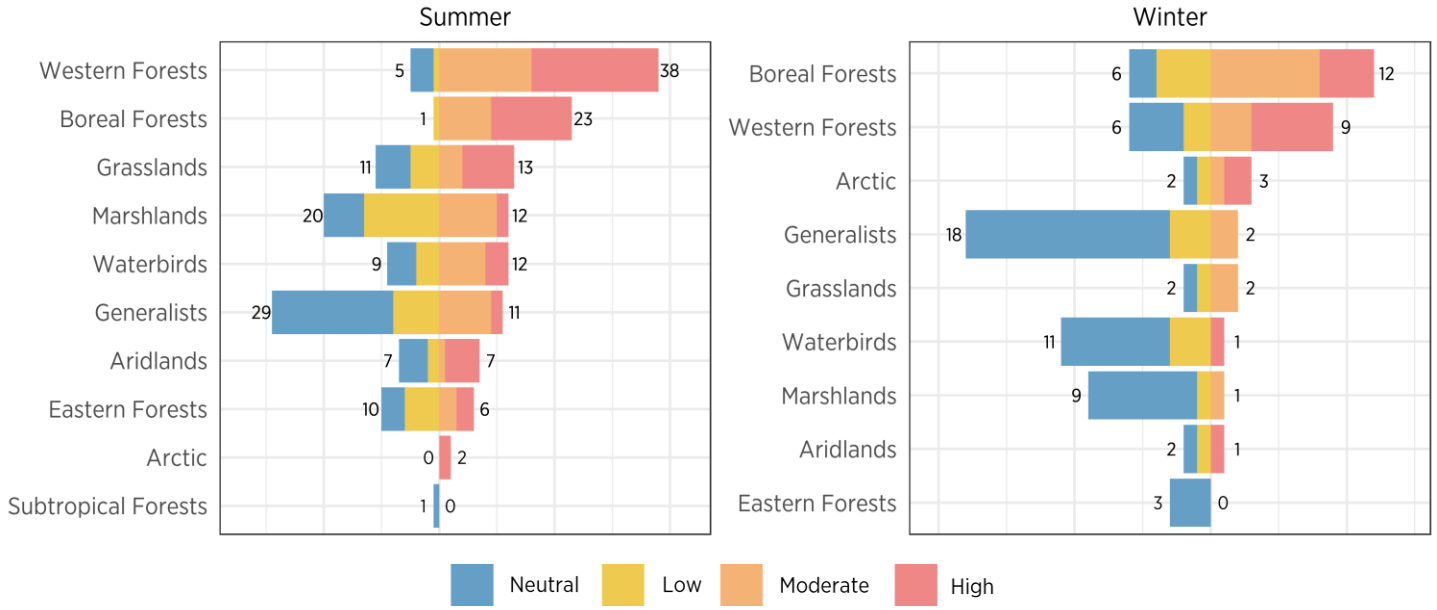

Figure 2. Number of species by their vulnerability to climate change in each habitat group under a global 3°C warming scenario. The species in each group are ones that currently live in the state, though vulnerability is assessed across the species's full North American range to better account for range-wide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

In Wyoming, species that are most threatened by a combination of climate change and additional climate-related threats under 3°C of warming Greater Sage-Grouse, Mountain Bluebird, Sage Thrasher, Mountain Plover, Chestnut-collared Longspur, American Dipper, Mountain Chickadee, Lark Bunting, Brewer's Sparrow, Black Rosy-Finch, and Pygmy Nuthatch. For information on threats for individual species in Wyoming, see Table 2.

Climate-Related Threats (Cont.)

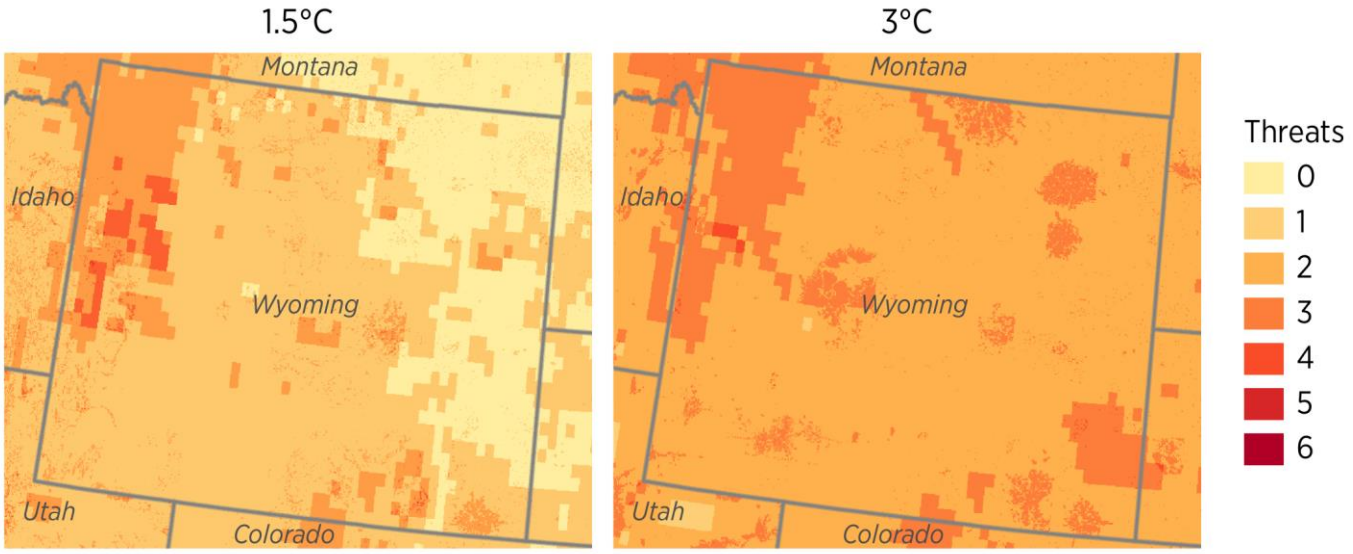

Figure 3. The number and distribution of overlapping climate-related threats under future global change scenarios of 1.5°C and 3°C. For detailed information on threats for each location in the state, refer to our online interactive tool at climate.audubon.org.

Table 1. Climate-related threats that Wyoming 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	2,506,757		1 (0)
Cropland Expansion	1.5°C	1,883,929	5 (1)	2 (0)
Extreme Spring Heat	1.5°C	45,244,926	183 (59)	106 (13)
	3°C	62,480,499	200 (81)	143 (29)
Fire Weather	1.5°C	6,121,779		1 (0)
	3°C	61,843,710	200 (81)	143 (29)
Heavy Rain	1.5°C	6,193,687	9 (5)	4 (1)
	3°C	7,295,034	23 (17)	10 (5)
False Springs	3°C	1,919,512	2 (0)	1 (1)

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 Wyoming 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 58% of Wyoming's 227 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 Wyoming

We still have time.

Wyoming still holds vast natural landscapes, from rolling grasslands and sagebrush steppe, to montane forests, and the rivers that connect them. Continuing to protect these remaining habitats and restore them where appropriate will help birds weather the impacts of climate change.

We must act now.

Fortunately, there are things everyone can do to fight climate change. Audubon can connect you to solutions making a difference across Wyoming. Keep carbon sequestered in grasslands by supporting ranches certified by Audubon's Conservation Ranching Initiative. Create urban refuges for birds by planting a bird-friendly garden. Advocate for policies that support a balanced future for the sagebrush steppe. Learn more at rockies.audubon.org.

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].

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Species Projections

Table 2. Climate suitability projections in summer and winter under the 3°C warming scenario for birds in Wyoming. 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 Wyoming, 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 Wyoming, 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
Cackling Goose	M	Winter	Moderate	10% 44%	
Canada Goose	W	Summer	Moderate	51% 19%	
	W	Winter	Neutral	49% 33%	
Trumpeter Swan	W	Summer	Moderate	6% 1%	
	W	Winter	Low	22% 2%	
Wood Duck	W	Summer	Low	9% 16%	
	W	Winter	Neutral	5% 56%	
Blue-winged Teal	M	Summer	Low	29% 14%	
Cinnamon Teal	M	Summer	Moderate	8% 8%	
	M	Winter	Neutral	66%	
Northern Shoveler	M	Summer	Low	24% 7%	
	M	Winter	Neutral	35%	
Gadwall	M	Summer	Moderate	46% 21%	
	M	Winter	Neutral	8% 65%	
Eurasian Wigeon	M	Winter	Moderate	2%	
American Wigeon	M	Summer	Moderate	30% 1%	
	M	Winter	Neutral	9% 56%	
Mallard	W	Summer	Low	92% 4%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
	W	Winter	Neutral	46% 41%	
Northern Pintail	M	Summer	Moderate	33% 17%	
	M	Winter	Neutral	7% 33%	
Green-winged Teal	M	Summer	Moderate	25% 8%	
	M	Winter	Neutral	6% 36%	
Canvasback	M	Summer	Low	13% 2%	
	M	Winter	Neutral	56%	
Redhead	M	Summer	Neutral	15% 8%	
	M	Winter	Low	3% 39%	
Ring-necked Duck	W	Summer	Moderate	56% 11%	
	W	Winter	Neutral	4% 51%	
Greater Scaup	W	Winter	Neutral	4%	
Lesser Scaup	W	Summer	High	21% 1%	
	W	Winter	Neutral	4% 56%	
Bufflehead	W	Summer	High	9% 1%	
	W	Winter	Low	2% 10%	
Common Goldeneye	W	Summer	High	10% 1%	
	W	Winter	Neutral	74% 17%	
Barrow's Goldeneye	W	Summer	High	6%	
	W	Winter	High	16% 2%	
Hooded Merganser	W	Summer	Low	3%	
	W	Winter	Neutral	3% 6%	
Common Merganser	W	Summer	Moderate	49% 8%	
	W	Winter	Low	47% 38%	
Red-breasted Merganser	W	Winter	Low	2%	
Ruddy Duck	M	Summer	Low	14% 29%	
	M	Winter	Neutral	5%	
Scaled Quail	D	Summer	Moderate	4%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Ruffed Grouse	F-B	Summer	Moderate	9% 6%	
	F-B	Winter	Moderate	19% 5%	
Greater Sage-Grouse	D	Summer	High	57% 4%	
	D	Winter	High	52% 4%	
Dusky Grouse	F-W	Summer	High	16% 2%	
	F-W	Winter	High	21% 3%	
Sharp-tailed Grouse	G	Summer	Low	53% 1%	
	G	Winter	Moderate	62% 2%	
Greater Prairie-Chicken	G	Summer	Neutral	30%	
	G	Winter	Neutral	4%	
Wild Turkey	Gen	Summer	Neutral	4% 21%	
	Gen	Winter	Neutral	6% 50%	
Pied-billed Grebe	M	Summer	Neutral	2% 6%	
	M	Winter	Neutral	<1% 4%	
Horned Grebe	M	Winter	Neutral	2%	
Eared Grebe	M	Summer	High	15% 6%	
	M	Winter	Neutral	2%	
Western Grebe	M	Summer	Low	14% 11%	
Clark's Grebe	M	Summer	Low	1% 6%	
Mourning Dove	Gen	Summer	Neutral	50% 35%	
	Gen	Winter	Neutral	25%	
Common Nighthawk	Gen	Summer	Neutral	24% 68%	
Common Poorwill	D	Summer	Neutral	14% 45%	
Eastern Whip-poor-will	F-E	Summer	High	2%	
White-throated Swift	D	Summer	Low	<1% 6%	
Black-chinned Hummingbird	D	Summer	Neutral	2% 70%	
Broad-tailed Hummingbird	F-W	Summer	High	3% 3%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Calliope Hummingbird	F-W	Summer	High	7% 3%	
Virginia Rail	M	Summer	Moderate	24% 9%	
	M	Winter	Low	11%	
Sora	M	Summer	Moderate	31% 1%	
American Coot	M	Summer	Neutral	12% 21%	
	M	Winter	Neutral	4% 49%	
Sandhill Crane	M	Summer	Moderate	43% 3%	
	M	Winter	Low	17%	
Black-necked Stilt	M	Summer	Neutral	2% 7%	
American Avocet	M	Summer	Neutral	3% 9%	
Snowy Plover	C	Summer	Neutral	16%	
Killdeer	W	Summer	Neutral	71% 7%	
Mountain Plover	G	Summer	High	44% 9%	
Upland Sandpiper	G	Summer	Neutral	16% 5%	
Long-billed Curlew	G	Summer	High	36% 18%	
Wilson's Snipe	M	Summer	Moderate	37% 1%	
	M	Winter	Neutral	3% 42%	
Wilson's Phalarope	M	Summer	Low	48% 9%	
Spotted Sandpiper	W	Summer	Moderate	41% 36%	
Willet	W	Summer	Neutral	8% 4%	
Ring-billed Gull	W	Summer	Low	6% 3%	
	W	Winter	Neutral	43%	
California Gull	W	Summer	Moderate	16% 23%	
Caspian Tern	W	Summer	Low	1% 2%	
Forster's Tern	M	Summer	Neutral	6% 3%	
Common Loon	W	Summer	Moderate	24% 1%	
Double-crested Cormorant	W	Summer	Neutral	5% 3%	
American White Pelican	M	Summer	Low	11% 14%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
American Bittern	M	Summer	Low	5% 1%	
Great Blue Heron	W	Summer	Neutral	52% 35%	
	W	Winter	Neutral	38% 47%	
Snowy Egret	M	Summer	Neutral	2%	
Black-crowned Night-Heron	M	Summer	Neutral	9% 48%	
	M	Winter	Neutral	9%	
Yellow-crowned Night-Heron	M	Summer	Neutral	29%	
White-faced Ibis	M	Summer	Low	3% 35%	
Turkey Vulture	Gen	Summer	Neutral	1% 17%	
Osprey	W	Summer	Neutral	3% 15%	
Golden Eagle	Gen	Summer	Moderate	32% 51%	
	Gen	Winter	Moderate	3% 95%	
Mississippi Kite	F-E	Summer	Neutral	7%	
Northern Harrier	M	Summer	Low	46% 17%	
	M	Winter	Neutral	31% 32%	
Sharp-shinned Hawk	F-W	Summer	Moderate	17% 18%	
	F-W	Winter	Neutral	50% 43%	
Cooper's Hawk	Gen	Summer	Neutral	6% 80%	
	Gen	Winter	Low	74%	
Northern Goshawk	F-B	Summer	High	37% 10%	
	F-B	Winter	Low	36% 36%	
Bald Eagle	Gen	Summer	Low	65% 27%	
	Gen	Winter	Neutral	86% 14%	
Red-shouldered Hawk	F-E	Summer	Neutral	52%	
Swainson's Hawk	G	Summer	Neutral	23% 44%	
Red-tailed Hawk	Gen	Summer	Neutral	92% 5%	
	Gen	Winter	Neutral	27% 48%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Rough-legged Hawk	A	Winter	Moderate	54% 20%	
Ferruginous Hawk	G	Summer	Moderate	7% 43%	
	G	Winter	Moderate	29% 27%	
Barn Owl	Gen	Summer	Neutral	68% 18%	
	Gen	Winter	Neutral	20%	
Western Screech-Owl	F-W	Winter	Neutral	40%	
Eastern Screech-Owl	F-E	Summer	Neutral	20% 4%	
	F-E	Winter	Neutral	4%	
Great Horned Owl	Gen	Summer	Neutral	77% 7%	
	Gen	Winter	Neutral	70% 10%	
Snowy Owl	A	Winter	Low	5%	
Northern Pygmy-Owl	F-W	Summer	High	1% 2%	
	F-W	Winter	High	11% 4%	
Burrowing Owl	G	Summer	Neutral	27% 25%	
	G	Winter	Neutral	13%	
Barred Owl	F-E	Summer	Neutral	25%	
	F-E	Winter	Neutral	14%	
Great Gray Owl	F-B	Summer	High	8%	
	F-B	Winter	Moderate	32% 3%	
Long-eared Owl	F-W	Summer	Low	14% 73%	
	F-W	Winter	Low	23%	
Short-eared Owl	G	Summer	Moderate	27% 37%	
	G	Winter	Neutral	11%	
Boreal Owl	F-B	Summer	High	19% 1%	
	F-B	Winter	High	20% 1%	
Northern Saw-whet Owl	F-B	Summer	Moderate	50% 9%	
	F-B	Winter	Low	30% 53%	
Belted Kingfisher	Gen	Summer	Neutral	17% 14%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
	Gen	Winter	Neutral	25% 47%	
Williamson's Sapsucker	F-W	Summer	High	18% 10%	
	F-W	Winter	High	3%	
Yellow-bellied Sapsucker	F-E	Winter	Neutral	2%	
Red-naped Sapsucker	F-W	Summer	High	63% 8%	
	F-W	Winter	Neutral	8%	
Lewis's Woodpecker	F-W	Summer	Moderate	21% 23%	
	F-W	Winter	Low	15%	
American Three-toed Woodpecker	F-B	Summer	High	23% 2%	
	F-B	Winter	High	25% 2%	
Black-backed Woodpecker	F-B	Summer	High	14% 1%	
	F-B	Winter	Moderate	15% 3%	
Downy Woodpecker	Gen	Summer	Neutral	49% 25%	
	Gen	Winter	Neutral	26% 45%	
Ladder-backed Woodpecker	D	Winter	Neutral	4%	
Hairy Woodpecker	Gen	Summer	Low	6% 18%	
	Gen	Winter	Low	5% 17%	
White-headed Woodpecker	F-W	Summer	High	2%	
Pileated Woodpecker	F-E	Summer	Neutral	8%	
	F-E	Winter	Neutral	4%	
Northern Flicker	Gen	Summer	Moderate	32% 47%	
	Gen	Winter	Neutral	50% 38%	
American Kestrel	Gen	Summer	Neutral	85% 7%	
	Gen	Winter	Neutral	25% 42%	
Merlin	F-E	Summer	Moderate	26% 1%	
	F-E	Winter	Neutral	74% 18%	
Peregrine Falcon	Gen	Summer	Neutral	49% 28%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
	Gen	Winter	Neutral	45%	
Prairie Falcon	D	Summer	Low	15% 37%	
	D	Winter	Low	3% 77%	
Olive-sided Flycatcher	F-B	Summer	High	23% 4%	
Western Wood-Pewee	F-W	Summer	High	55% 24%	
Willow Flycatcher	F-W	Summer	Moderate	24% 13%	
Least Flycatcher	F-B	Summer	Moderate	1%	
Hammond's Flycatcher	F-W	Summer	High	21% 3%	
Gray Flycatcher	D	Summer	High	7% 15%	
Dusky Flycatcher	F-W	Summer	High	16% 3%	
Cordilleran Flycatcher	F-W	Summer	High	4% 3%	
Say's Phoebe	Gen	Summer	Low	54% 22%	
Ash-throated Flycatcher	D	Summer	Neutral	24%	
Western Kingbird	G	Summer	Neutral	64% 16%	
Eastern Kingbird	G	Summer	Moderate	32% 4%	
Loggerhead Shrike	G	Summer	Neutral	40% 22%	
	G	Winter	Neutral	17%	
Northern Shrike	F-B	Winter	Moderate	47% 23%	
Bell's Vireo	D	Summer	Low	20%	
Gray Vireo	D	Summer	Moderate	3%	
Cassin's Vireo	F-W	Summer	Low	7%	
Plumbeous Vireo	F-W	Summer	Neutral	7% 51%	
Warbling Vireo	Gen	Summer	Neutral	18% 65%	
Red-eyed Vireo	F-E	Summer	Low	7% 9%	
Canada Jay	F-B	Summer	High	16% <1%	
	F-B	Winter	High	16% 2%	
Pinyon Jay	F-W	Summer	Moderate	19% 27%	
	F-W	Winter	Low	23% 19%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Steller's Jay	F-W	Summer	Moderate	<1% 2%	
	F-W	Winter	Moderate	6% 6%	
Blue Jay	F-E	Summer	Neutral	<1% 2%	
Woodhouse's Scrub-Jay	F-W	Summer	Moderate	61%	
	F-W	Winter	Moderate	64%	
Black-billed Magpie	Gen	Summer	High	42% 31%	
	Gen	Winter	Moderate	38% 44%	
Clark's Nutcracker	F-W	Summer	High	32% 9%	
	F-W	Winter	High	35% 3%	
American Crow	Gen	Summer	Low	27% 34%	
	Gen	Winter	Neutral	64% 19%	
Chihuahuan Raven	D	Summer	Neutral	4%	
Common Raven	Gen	Summer	Low	27% 73%	
	Gen	Winter	Low	32% 62%	
Horned Lark	G	Summer	Low	4% 66%	
	G	Winter	Low	47% 11%	
Northern Rough-winged Swallow	Gen	Summer	Neutral	70% 13%	
Tree Swallow	Gen	Summer	Moderate	47% 13%	
Violet-green Swallow	F-W	Summer	Moderate	42% 28%	
Bank Swallow	Gen	Summer	Neutral	18% 50%	
Barn Swallow	Gen	Summer	Neutral	59% 18%	
Cliff Swallow	Gen	Summer	Neutral	77% 17%	
Black-capped Chickadee	F-B	Summer	Low	39% 33%	
	F-B	Winter	Low	38% 38%	
Mountain Chickadee	F-W	Summer	High	15% 7%	
	F-W	Winter	High	18% 19%	
Juniper Titmouse	F-W	Summer	Low	3%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
	F-W	Winter	Low	18%	
Bushtit	F-W	Summer	High	23%	
	F-W	Winter	Moderate	10%	
Red-breasted Nuthatch	F-B	Summer	Moderate	23% 8%	
	F-B	Winter	Neutral	75% 17%	
White-breasted Nuthatch	F-E	Summer	Low	13% 34%	
	F-E	Winter	Neutral	20% 50%	
Pygmy Nuthatch	F-W	Summer	High	13% 4%	
	F-W	Winter	Moderate	16% 12%	
Brown Creeper	F-W	Summer	Moderate	11% 6%	
	F-W	Winter	Neutral	16% 73%	
Rock Wren	D	Summer	Moderate	13% 47%	
Canyon Wren	D	Summer	Neutral	<1% 10%	
	D	Winter	Neutral	7% 41%	
House Wren	Gen	Summer	Moderate	34% 18%	
Marsh Wren	M	Summer	Low	5% 2%	
	M	Winter	Low	10%	
Bewick's Wren	D	Summer	Neutral	1% 48%	
	D	Winter	Low	31%	
Cactus Wren	D	Summer	Neutral	2%	
Blue-gray Gnatcatcher	Gen	Summer	Neutral	<1% 34%	
American Dipper	F-W	Summer	Moderate	43% 23%	
	F-W	Winter	High	29% 7%	
Golden-crowned Kinglet	F-B	Summer	Moderate	14% 3%	
	F-B	Winter	Neutral	5% 11%	
Ruby-crowned Kinglet	F-W	Summer	High	25% 4%	
	F-W	Winter	Neutral	7%	
Western Bluebird	F-W	Summer	Moderate	7% 23%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
	F-W	Winter	High	8%	
Mountain Bluebird	F-W	Summer	High	21%	
	F-W	Winter	Low	22%	
Townsend's Solitaire	F-W	Summer	High	19% 2%	
	F-W	Winter	High	52% 36%	
Swainson's Thrush	F-B	Summer	High	3% 2%	
Hermit Thrush	F-W	Summer	High	14% 4%	
	F-W	Winter	Low	4%	
American Robin	Gen	Summer	Moderate	44% 34%	
	Gen	Winter	Neutral	66% 20%	
Gray Catbird	F-E	Summer	Neutral	43% 27%	
Curve-billed Thrasher	D	Summer	Neutral	24%	
Bendire's Thrasher	D	Summer	Low	8%	
Sage Thrasher	D	Summer	High	25% 26%	
	D	Winter	Low	35%	
Northern Mockingbird	Gen	Summer	Neutral	39%	
American Pipit	A	Summer	High	6%	
	A	Winter	Neutral	7%	
Bohemian Waxwing	F-B	Winter	High	79% 14%	
Cedar Waxwing	Gen	Summer	Low	67% 15%	
	Gen	Winter	Neutral	54% 18%	
Evening Grosbeak	F-B	Summer	High	20% 5%	
	F-B	Winter	Moderate	48% 11%	
Pine Grosbeak	F-B	Summer	High	12% <1%	
	F-B	Winter	Moderate	23% 4%	
Gray-crowned Rosy-Finch	A	Winter	High	62% 4%	
Black Rosy-Finch	A	Summer	High	3% <1%	
	A	Winter	High	36% 2%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
House Finch	Gen	Summer	Low	20% 56%	
	Gen	Winter	Low	16% 60%	
Purple Finch	F-B	Summer	Moderate	1%	
	F-B	Winter	Low	<1% 10%	
Cassin's Finch	F-W	Summer	High	39% 17%	
	F-W	Winter	Moderate	18% 63%	
Common Redpoll	A	Winter	Low	75% 9%	
Red Crossbill	F-B	Summer	High	49% 5%	
	F-B	Winter	Moderate	60% 27%	
White-winged Crossbill	F-B	Summer	High	10%	
	F-B	Winter	Moderate	49% 7%	
Pine Siskin	F-W	Summer	Moderate	26% 5%	
	F-W	Winter	Neutral	19% 65%	
Lesser Goldfinch	F-W	Summer	Neutral	1% 75%	
	F-W	Winter	Neutral	42%	
American Goldfinch	Gen	Summer	Moderate	11% 3%	
	Gen	Winter	Neutral	61% 28%	
Lapland Longspur	A	Winter	Neutral	18%	
Chestnut-collared Longspur	G	Summer	High	11% 6%	
	G	Winter	Moderate	3%	
McCown's Longspur	G	Summer	High	10%	
Snow Bunting	A	Winter	Low	8%	
Cassin's Sparrow	G	Summer	Low	1% 15%	
Grasshopper Sparrow	G	Summer	Low	15% 12%	
Chipping Sparrow	Gen	Summer	Moderate	8% 16%	
Clay-colored Sparrow	G	Summer	High	3%	
Black-chinned Sparrow	D	Winter	Low	16%	
Field Sparrow	F-E	Summer	High	<1% 1%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Brewer's Sparrow	D	Summer	High	35% 26%	
Black-throated Sparrow	D	Summer	Neutral	39%	
	D	Winter	Neutral	44%	
Lark Sparrow	D	Summer	Neutral	42% 33%	
Lark Bunting	G	Summer	High	57% 7%	
	G	Winter	Neutral	17%	
American Tree Sparrow	A	Winter	Neutral	34% 27%	
Fox Sparrow	F-B	Summer	High	4%	
Dark-eyed Junco	F-W	Summer	High	24% 8%	
	F-W	Winter	Neutral	49% 46%	
White-crowned Sparrow	Gen	Summer	High	27% <1%	
	Gen	Winter	Neutral	72%	
Harris's Sparrow	F-B	Winter	Low	22%	
White-throated Sparrow	F-B	Winter	Neutral	39%	
Sagebrush Sparrow	D	Summer	High	12% 28%	
Vesper Sparrow	G	Summer	Moderate	61% 13%	
Savannah Sparrow	G	Summer	High	29% <1%	
Baird's Sparrow	G	Summer	High	12%	
Song Sparrow	Gen	Summer	Moderate	59% 15%	
	Gen	Winter	Neutral	37% 32%	
Lincoln's Sparrow	F-B	Summer	High	27% 1%	
	F-B	Winter	Neutral	52%	
Green-tailed Towhee	D	Summer	High	36% 7%	
Spotted Towhee	F-W	Summer	Moderate	20% 28%	
	F-W	Winter	Low	66%	
Yellow-breasted Chat	F-E	Summer	Neutral	14% 49%	
Yellow-headed Blackbird	M	Summer	Low	33% 16%	
Bobolink	G	Summer	High	2% 3%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Western Meadowlark	G	Summer	Low	75% 5%	
	G	Winter	Neutral	13% 37%	
Orchard Oriole	F-E	Summer	Low	1% 6%	
Bullock's Oriole	F-W	Summer	Neutral	27% 34%	
Baltimore Oriole	F-E	Summer	Low	18%	
Scott's Oriole	D	Summer	Neutral	7%	
Red-winged Blackbird	Gen	Summer	Neutral	68% 6%	
	Gen	Winter	Neutral	43% 34%	
Brown-headed Cowbird	Gen	Summer	Neutral	79% 7%	
Brewer's Blackbird	Gen	Summer	Moderate	78% 11%	
	Gen	Winter	Neutral	60%	
Common Grackle	F-E	Summer	Low	21% 5%	
Great-tailed Grackle	Gen	Summer	Neutral	16%	
Ovenbird	F-E	Summer	Moderate	<1%	
Northern Waterthrush	F-B	Summer	Moderate	8% 2%	
Orange-crowned Warbler	F-W	Summer	High	4% 3%	
Virginia's Warbler	F-W	Summer	Moderate	4%	
MacGillivray's Warbler	F-W	Summer	Moderate	7% 7%	
Common Yellowthroat	Gen	Summer	Low	56% 16%	
American Redstart	F-B	Summer	Moderate	14% 5%	
Yellow Warbler	F-B	Summer	Moderate	66% 13%	
Pine Warbler	F-E	Summer	High	3%	
Yellow-rumped Warbler	F-B	Summer	Moderate	33% 8%	
	F-B	Winter	Neutral	70%	
Black-throated Gray Warbler	F-W	Summer	Moderate	<1% 18%	
Wilson's Warbler	F-W	Summer	High	16% 1%	
Western Tanager	F-W	Summer	Moderate	10% 16%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Northern Cardinal	F-E	Summer	Neutral	22%	
	F-E	Winter	Neutral	3%	
Black-headed Grosbeak	F-W	Summer	Moderate	1% 14%	
Blue Grosbeak	F-S	Summer	Neutral	<1% 16%	
Lazuli Bunting	F-W	Summer	Neutral	21% 37%	
Dickcissel	G	Summer	Neutral	<1% 23%	