Colorado



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 1,188,000 total birders in Colorado 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. Lark Bunting. Photo: Evan Barrientos/Audubon

Future Climate and Habitat in Colorado

Across the state of Colorado, 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 6.1°C (11°F), and average temperatures during the coldest month are expected to increase approximately 4°C (7.2°F) from 2010 to the end of the century. Average annual precipitation is expected to decrease by 9.9 mm (0.4 in), ranging from a decrease of 68 mm (2.7 in) in the east to an increase of 268 mm (10.5 in) in the north of the state. In addition, evapotranspiration is expected to increase, resulting in an overall decrease of available moisture of 43% 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 42% of the state of Colorado will transition to a different biome. At present, the largest biome in the state is Grassland, covering 40% of the state. By the end of the century, Grassland will cover approximately 45% 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 Colorado'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 Colorado, 123 out of 241 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 39 out of 152 species vulnerable

under 3°C of warming and 21 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 Colorado, the habitat groups with the most species vulnerable to the impacts of ongoing and future climate change are western forest (42 species) and boreal forest (18 species) in summer (Figure 2). In winter, western forest (15 species) and boreal forest (9 species) groups have the most vulnerable species.

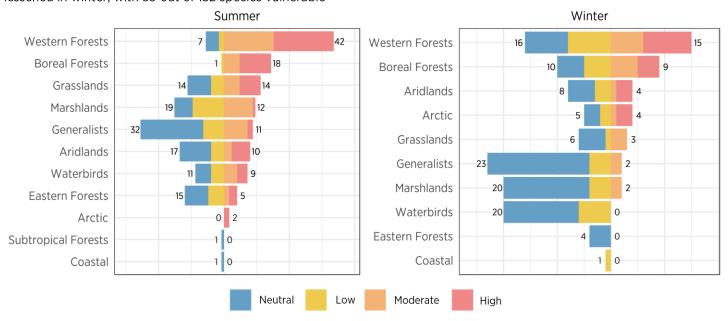


Figure 2. Number of species by their vulnerability to climate change in each habitat group under a global 3°C warming scenario. The species in each group are ones that currently live in the state, though vulnerability is assessed across the species's full North American range to better account for range-wide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

In Colorado, species that are most threatened by a combination of climate change and additional climate-related threats under 3°C of warming include Greater Sage-Grouse, Dusky Grouse, Broad-tailed Hummingbird, Mountain Plover, American Dipper, Lark Bunting, Mountain Chickadee, Black Rosy-Finch, and Clark's Nutcracker. For information on threats for individual species in Colorado, see Table 2.

Climate-Related Threats (Cont.)

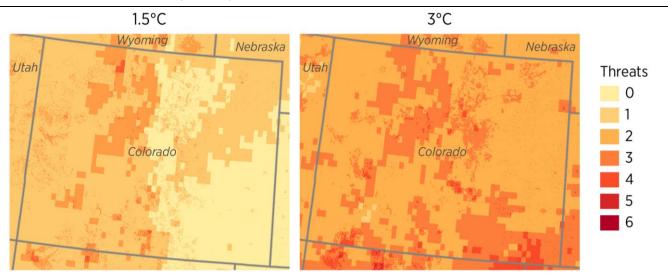


Figure 3. The number and distribution of overlapping climate-related threats under future global change scenarios of 1.5°C and 3°C. For detailed information on threats for each location in the state, refer to our online interactive tool at climate.audubon.org. Table 1. Climate-related threats that Colorado 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
	III been been been	1.5°C	940,472	1(0)	-
	Urbanization	3°C	2,885,989	7 (2)	7 (1)
9	Cropland Expansion	1.5°C	2,680,348	3 (2)	4 (0)
M	Extreme Spring Heat	1.5°C	33,991,764	128 (58)	50 (14)
Euris .		3°C	66,660,527	234 (93)	189 (41)
	Fine Marthau	1.5°C	11,418,475	8 (1)	4 (0)
U	Fire Weather	3°C	66,207,831	234 (93)	189 (41)
	Spring Droughts	3°C	4,918,625	1(0)	
	Haarar Daira	1.5°C	5,705,902	3 (3)	1(0)
1111	Heavy Rain	3°C	6,776,360	5 (2)	3 (2)
3	False Springs	3°C	6,808,731	7 (0)	15 (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 Colorado 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 51% of Colorado's 270 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 Colorado

We still have time.

Colorado still holds vast natural landscapes, from montane forests to flat grasslands and shrublands, 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 Colorado. Create urban refuges for birds by planting a bird-friendly garden. Keep carbon sequestered in grasslands by supporting ranches certified by Audubon's Conservation Ranching Initiative. Advocate for policies that support healthy rivers and 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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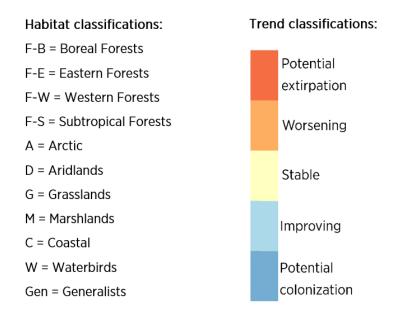
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Contact

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 Colorado. 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 Colorado, 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 unsuitable 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 Colorado, see the project website (climate.audubon.org).



Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Snow Goose	W	Winter	Low	42% 9%	0 0
Ross's Goose	W	Winter	Low	37% 5%	0 0
Cackling Goose	М	Winter	Moderate	13% 23%	0 0
Canada Casas	W	Summer	Moderate	51% 16%	0 0
Canada Goose	W	Winter	Neutral	56% 30%	0 0
M/s - d D. d.	W	Summer	Low	30% 15%	0 0
Wood Duck	W	Winter	Neutral	15% 43%	0 0
Blue-winged Teal	М	Summer	Low	24% 13%	0 0
	М	Summer	Moderate	6%	0 0
Cinnamon Teal	М	Winter	Neutral	35% 32%	0 0
N. II. GI. I	М	Summer	Low	8% 7%	0 0
Northern Shoveler	М	Winter	Neutral	14% 31%	0 0
	М	Summer	Moderate	42% 12%	0 0
Gadwall	М	Winter	Neutral	40% 32%	0 0
A	М	Summer	Moderate	8% 1%	
American Wigeon	М	Winter	Neutral	25% 27%	0 0
Malland	W	Summer	Low	86% 5%	0 0
Mallard	W	Winter	Neutral	52% 30%	\circ \circ

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Northern Pintail	М	Summer	Moderate	22% 7%	00
Northern Pilitali	М	Winter	Neutral	37% 13%	0 0
Croon winged Tool	М	Summer	Moderate	7% 6%	
Green-winged Teal	М	Winter	Neutral	31% 27%	0 0
Canvasback	М	Winter	Neutral	29% 31%	0 0
Dadhaad	М	Summer	Neutral	14% 8%	0 0
Redhead	М	Winter	Low	18% 19%	0 0
Diagram and Durch	W	Summer	Moderate	16% 14%	0 0
Ring-necked Duck	W	Winter	Neutral	23% 22%	0 0
Greater Scaup	W	Winter	Neutral	3%	0 0
	W	Summer	High	9% <1%	
Lesser Scaup	W	Winter	Neutral	23% 27%	0 0
5 (6)	W	Summer	High	4%	
Bufflehead	W	Winter	Low	10% 7%	0 0
6 6 11	W	Summer	High	5% 1%	
Common Goldeneye	W	Winter	Neutral	78% 12%	00
Barrow's Goldeneye	W	Summer	High	3% <1%	
	W	Summer	Low	2%	O O O
Hooded Merganser	W	Winter	Neutral	12% 5%	0 0
	W	Summer	Moderate	26% 13%	0 0
Common Merganser	W	Winter	Low	56% 30%	00
5 11 5 1	М	Summer	Low	24% 9%	00
Ruddy Duck	М	Winter	Neutral	1% 16%	00
N. II 5 I. I.	G	Summer	Neutral	3% 7%	00
Northern Bobwhite	G	Winter	Neutral	< <mark>1</mark> % 6%	00
0.1.10	D	Summer	Moderate	15% 31%	00
Scaled Quail	D	Winter	Moderate	7% 27%	00
Ruffed Grouse	F-B	Summer	Moderate	7%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
	F-B	Winter	Moderate	5%	
Creator Cago Crouse	D	Summer	High	10% 1 <mark>%</mark>	00
Greater Sage-Grouse	D	Winter	High	15% <mark>2%</mark>	00
Duelas Crouse	F-W	Summer	High	20% 9%	O O O
Dusky Grouse	F-W	Winter	High	24% 6%	0 0 0
Sharp-tailed Grouse	G	Summer	Low	10%	00
Sharp-talled Grouse	G	Winter	Moderate	18%	
Greater Prairie-Chicken	G	Summer	Neutral	11% 8%	00
Greater France-Cilicken	G	Winter	Neutral	8% 3%	00
Lesser Prairie-Chicken	G	Summer	Moderate	5% 24%	00
Lesser France-Chicken	G	Winter	Moderate	3% 23%	00
Wild Turkey	Gen	Summer	Neutral	11% 20%	0 0
wild falkey	Gen	Winter	Neutral	20% 28%	0 0
Pied-billed Grebe	М	Summer	Neutral	1% 5%	0 0
Fled billed Ofebe	М	Winter	Neutral	1% 7%	0 0
Horned Grebe	М	Winter	Neutral	1%	00
Eared Grebe	М	Summer	High	5% 6%	0 0
Lared Grebe	М	Winter	Neutral	1% 4%	
Western Grebe	М	Summer	Low	4% 11%	00
Western Grebe	М	Winter	Low	1%	6 O
Clark's Grebe	М	Summer	Low	1% 5%	00
Inca Dove	D	Summer	Neutral	5%	0 0 9
	D	Winter	Neutral	2%	0 0 9
White-winged Dove	D	Summer	Neutral	4%	0 0 9
Mourning Dove	Gen	Summer	Neutral	58% 27%	00
Produting DOVE	Gen	Winter	Neutral	41%	00
Greater Roadrunner	D	Summer	Neutral	1% 18%	00
Greater Noaurunner	D	Winter	Neutral	<1% 15%	00

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Lesser Nighthawk	D	Summer	Neutral	13%	00
Common Nighthawk	Gen	Summer	Neutral	40% 50%	00
Common Poorwill	D	Summer	Neutral	25% 33%	0 0
Black Swift	F-W	Summer	Moderate	2% < <mark>1</mark> %	0 0 😡
Chimney Swift	F-E	Summer	Neutral	3%	(b) () ()
White-throated Swift	D	Summer	Low	6% 12%	0 0
Ruby-throated Hummingbird	F-E	Summer	Neutral	3%	00
Black-chinned Hummingbird	D	Summer	Neutral	21% 59%	00
Broad-tailed Hummingbird	F-W	Summer	High	19% 17%	00
Calliope Hummingbird	F-W	Summer	High	6%	00
Visainia Dail	М	Summer	Moderate	17% 4%	00
Virginia Rail	М	Winter	Low	5% 16%	00
Sora	М	Summer	Moderate	10% 1%	
Amarican Cook	М	Summer	Neutral	5% 17%	0 0
American Coot	М	Winter	Neutral	12% 39%	0 0
Black Rail	М	Summer	Moderate	3% <1%	0 0
Canadhill Cuana	М	Summer	Moderate	13% 1 <mark>%</mark>	
Sandhill Crane	М	Winter	Low	5% 18%	0 0
Black-necked Stilt	М	Summer	Neutral	3% 23%	0 0
American Avocet	М	Summer	Neutral	10% 14%	0 0
American Avocet	М	Winter	Neutral	1%	0 0
Snowy Plover	С	Summer	Neutral	2% 30%	0 0
IV:ll d a a u	W	Summer	Neutral	57% 6%	0 0
Killdeer	W	Winter	Neutral	<mark>9%</mark> 57%	0 0
Mountain Plover	G	Summer	High	35% 6%	00
Upland Sandpiper	G	Summer	Neutral	8% 11%	00
Long-billed Curlew	G	Summer	High	42% <mark>6%</mark>	0 0

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Marbled Godwit	М	Summer	Moderate	<1% <1%	00
William to Color	М	Summer	Moderate	9% 1 <mark>%</mark>	
Wilson's Snipe	М	Winter	Neutral	18% 42%	0 0
Wilson's Phalarope	М	Summer	Low	14% 3%	0 0
Spotted Sandpiper	W	Summer	Moderate	26% 37%	0 0
Greater Yellowlegs	W	Winter	Neutral	3%	0 0 9
Willet	W	Summer	Neutral	3% 6%	0 0
Ding hillard Cull	W	Summer	Low	5% 2%	0 0
Ring-billed Gull	W	Winter	Neutral	39% 20%	0 0
C.I.C. III	W	Summer	Moderate	16% 12%	0 0
California Gull	W	Winter	Low	18%	0 0
Herring Gull	W	Winter	Neutral	43% 18%	0 0
Forster's Tern	М	Summer	Neutral	4%	0 0
Neotropic Cormorant	С	Summer	Neutral	2%	0 0 9
Double-crested Cormorant	W	Winter	Neutral	< <mark>1</mark> % 4%	(b) () ()
American White Pelican	М	Summer	Low	7% 5%	0 0
American Bittern	М	Summer	Low	5% <1%	
Great Blue Heron	W	Summer	Neutral	62% 19%	00
Great blue neron	W	Winter	Neutral	30% 34%	00
Great Egret	W	Summer	Neutral	1% 2%	6 0 0
Snowy Egret	М	Summer	Neutral	<1% 2%	(b) () (0)
Cattle Egret	W	Summer	Neutral	<mark>8</mark> % 27%	0 0
Black-crowned Night-	М	Summer	Neutral	28% 19%	0 0
Heron	М	Winter	Neutral	<1% 8%	0 0
Yellow-crowned Night- Heron	М	Summer	Neutral	43%	00
White-faced Ibis	М	Summer	Low	9% 31%	00
Turkey Vulture	Gen	Summer	Neutral	26% 31%	0 0

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Osprey	W	Summer	Neutral	10% 2%	00
Colden Fort	Gen	Summer	Moderate	28% 45%	00
Golden Eagle	Gen	Winter	Moderate	3 <mark>% 94%</mark>	0 0
Mississippi Kite	F-E	Summer	Neutral	9% 35%	0 0
Nouthousellousies	М	Summer	Low	48% 5 <mark>%</mark>	00
Northern Harrier	М	Winter	Neutral	47% 16%	0 0
Charry shirts and Harry	F-W	Summer	Moderate	22% 20%	0 0
Sharp-shinned Hawk	F-W	Winter	Neutral	60% 32%	0 0
Canadalland	Gen	Summer	Neutral	34% 29%	0 0
Cooper's Hawk	Gen	Winter	Low	25% 46%	0 0
North and Cook and	F-B	Summer	High	28% 16%	
Northern Goshawk	F-B	Winter	Low	23% 27%	0 0
D. H.F I.	Gen	Summer	Low	44% 28%	0 0
Bald Eagle	Gen	Winter	Neutral	29% 58%	0 0
Swainson's Hawk	G	Summer	Neutral	<mark>12%</mark> 46%	0 0
Zone-tailed Hawk	F-W	Summer	Neutral	2%	0 0
De la Sedale	Gen	Summer	Neutral	91% 8%	0 0
Red-tailed Hawk	Gen	Winter	Neutral	54% 24%	0 0
Rough-legged Hawk	А	Winter	Moderate	39% 27%	0 0
	G	Summer	Moderate	30% 15%	0 0
Ferruginous Hawk	G	Winter	Moderate	50% 11%	0 0
Davis Oud	Gen	Summer	Neutral	24% 45%	0 0
Barn Owl	Gen	Winter	Neutral	28% 43%	0 0
Markey Council Co.	F-W	Summer	Neutral	<mark>5%</mark> 30%	0 0
Western Screech-Owl	F-W	Winter	Neutral	4% 30%	0 0
F. J C	F-E	Summer	Neutral	22% 12%	00
Eastern Screech-Owl	F-E	Winter	Neutral	8%	(b) (O)
Great Horned Owl	Gen	Summer	Neutral	<mark>74% 11%</mark>	00

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
	Gen	Winter	Neutral	71% 12%	00
Snowy Owl	Α	Winter	Low	44% 2%	O
North our Diversor Oud	F-W	Summer	High	11% 9%	00
Northern Pygmy-Owl	F-W	Winter	High	17% 12%	00
Durrowing Owl	G	Summer	Neutral	47% 9%	00
Burrowing Owl	G	Winter	Neutral	37%	0 0
Spotted Owl	F-W	Summer	High	2%	0 0
Long-eared Owl	F-W	Summer	Low	15% 66%	00
Long cared OWI	F-W	Winter	Low	53% 24%	0
Short-eared Owl	G	Summer	Moderate	46% 8%	0
Short-eared Owl	G	Winter	Neutral	17% 12%	00
Roroal Owl	F-B	Summer	High	12% <1%	
Boreal Owl	F-B	Winter	High	15% 1 <mark>%</mark>	
No dia se Constanti O di	F-B	Summer	Moderate	29% 11%	0 0
Northern Saw-whet Owl	F-B	Winter	Low	42% 25%	0 0
Daltad Kingfisher	Gen	Summer	Neutral	7% 14%	0 0
Belted Kingfisher	Gen	Winter	Neutral	47% 35%	00
Williamson's Sapsucker	F-W	Summer	High	24% 12%	00
williamsoms sapsucker	F-W	Winter	High	13%	00
Yellow-bellied Sapsucker	F-E	Winter	Neutral	4%	00
Ded maned Campuslian	F-W	Summer	High	35% 9%	00
Red-naped Sapsucker	F-W	Winter	Neutral	1 <mark>%</mark> 31%	00
Louisia Mandanalia	F-W	Summer	Moderate	27% 19%	00
Lewis's Woodpecker	F-W	Winter	Low	9% 21%	00
Red-headed Woodpecker	F-E	Summer	High	5%	6 0 0
A N/ I I	F-W	Summer	High	< <mark>1%</mark> 3%	(b) () ()
Acorn Woodpecker	F-W	Winter	Moderate	1% 2%	(b) () (0)
	F-B	Summer	High	23% 4%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
American Three-toed Woodpecker	F-B	Winter	High	24% 3%	
Downy Woodpecker	Gen	Summer	Neutral	31% 22%	0 0
Downy Woodpecker	Gen	Winter	Neutral	30% 17%	0 0
Ladder-backed	D	Summer	Neutral	<1% 32%	0 0
Woodpecker	D	Winter	Neutral	<1% 41%	0 0
Hairy Woodpecker	Gen	Summer	Low	15% 18%	0
rially Woodpecker	Gen	Winter	Low	7% 17%	0
Pileated Woodpecker	F-E	Summer	Neutral	7%	0 0
rileated Woodpecker	F-E	Winter	Neutral	4%	00
Northern Flicker	Gen	Summer	Moderate	43% 38%	00
Northern Flicker	Gen	Winter	Neutral	63% 27%	00
	Gen	Summer	Neutral	84% 7%	00
American Kestrel	Gen	Winter	Neutral	49% 29%	00
Merlin	F-E	Winter	Neutral	76% 18%	00
Aplomado Falcon	G	Winter	Moderate	5%	00
Daragrina Falsan	Gen	Summer	Neutral	71% 18%	00
Peregrine Falcon	Gen	Winter	Neutral	8% 37%	00
Drainia Falaan	D	Summer	Low	22% 7%	00
Prairie Falcon	D	Winter	Low	76% 4 <mark>%</mark>	0 0
Olive-sided Flycatcher	F-B	Summer	High	22% 4%	
Western Wood-Pewee	F-W	Summer	High	28% 29%	00
Willow Flycatcher	F-W	Summer	Moderate	11% 14%	00
Hammond's Flycatcher	F-W	Summer	High	16% 5%	00
Gray Flycatcher	D	Summer	High	15% 14%	00
Dusky Flycatcher	F-W	Summer	High	21% 11%	00
Cordilleran Flycatcher	F-W	Summer	High	17% 15%	0
Black Phoebe	Gen	Summer	Neutral	<1% 16%	00

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
	Gen	Winter	Neutral	4%	6 6 0
Say's Phoebe	Gen	Summer	Low	60% 16%	0 0
Vermilion Flycatcher	D	Winter	Neutral	5%	0 0 9
Ash-throated Flycatcher	D	Summer	Neutral	9% 43%	0 0
Cassin's Kingbird	D	Summer	High	3% 3%	0 0
Western Kingbird	G	Summer	Neutral	44% 22%	0 0
Eastern Kingbird	G	Summer	Moderate	8%	0 0
Scissor-tailed Flycatcher	G	Summer	Neutral	2% 40%	0 0
1 101 1	G	Summer	Neutral	38% 17%	0 0
Loggerhead Shrike	G	Winter	Neutral	6% 47%	0 0
Northern Shrike	F-B	Winter	Moderate	61% 17%	0 0
Bell's Vireo	D	Summer	Low	<1% 35%	0 0
Gray Vireo	D	Summer	Moderate	<mark>2%</mark> 15%	0 0
Cassin's Vireo	F-W	Summer	Low	11%	0 0
Plumbeous Vireo	F-W	Summer	Neutral	27% 21%	0 0
Warbling Vireo	Gen	Summer	Neutral	34% 27%	0 0
Red-eyed Vireo	F-E	Summer	Low	7% 8%	O O O
	F-B	Summer	High	5%	
Canada Jay	F-B	Winter	High	13% 3%	
	F-W	Summer	Moderate	16% 13%	0 0
Pinyon Jay	F-W	Winter	Low	15% 13%	0 0
5. W. 4. 4	F-W	Summer	Moderate	8% 13%	0 0
Steller's Jay	F-W	Winter	Moderate	17% 8%	0 0
Blue Jay	F-E	Summer	Neutral	<mark>1%</mark> 8%	0 0
	F-W	Summer	Moderate	19% 26%	0 0
Woodhouse's Scrub-Jay	F-W	Winter	Moderate	25% 31%	0 0
	F-S	Summer	High	4%	0 0
Mexican Jay	F-S	Winter	Moderate	2%	0 0

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Black-billed Magpie	Gen	Summer	High	32% 24%	00
ыаск-ышей мадые	Gen	Winter	Moderate	40% 26%	00
Clark's Nutcracker	F-W	Summer	High	27% 11%	00
Clark's Nutcracker	F-W	Winter	High	31% 7%	0 0
American Crow	Gen	Summer	Low	28% 27%	0 0
Affiericali Crow	Gen	Winter	Neutral	34% 37%	0 0
Chihuahuan Raven	D	Summer	Neutral	14% 29%	0 0
Chindanuan Raven	D	Winter	Neutral	3% 33%	0 0
Camman Davan	Gen	Summer	Low	15% 83%	O
Common Raven	Gen	Winter	Low	29% 56%	O
Have ad Lauk	G	Summer	Low	<mark>5%</mark> 54%	O
Horned Lark	G	Winter	Low	45% 6%	O
Northern Rough-winged Swallow	Gen	Summer	Neutral	68% 14%	00
Purple Martin	Gen	Summer	Neutral	<1 <mark>% 15%</mark>	0 0
Tree Swallow	Gen	Summer	Moderate	25% 8%	O
Violet-green Swallow	F-W	Summer	Moderate	10% 41%	O
Bank Swallow	Gen	Summer	Neutral	15% 16%	O
Barn Swallow	Gen	Summer	Neutral	57% 14%	0 0
Cliff Swallow	Gen	Summer	Neutral	76% 18%	O
Diagly company Chickens	F-B	Summer	Low	50% 14%	O
Black-capped Chickadee	F-B	Winter	Low	50% 13%	0 0
Manustain Chiefe I.	F-W	Summer	High	16% 24%	0 0
Mountain Chickadee	F-W	Winter	High	20% 27%	O
Bridled Titmouse	F-S	Winter	High	2%	O O S
	F-W	Summer	Low	<mark>2%</mark> 13%	00
Juniper Titmouse	F-W	Winter	Low	<mark>4%</mark> 16%	00
Verdin	D	Winter	Neutral	14%	009

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Bushtit	F-W	Summer	High	7% 23%	00
Dustitit	F-W	Winter	Moderate	4% 20%	00
Red-breasted Nuthatch	F-B	Summer	Moderate	23% 10%	
Rea-preasted Nutriator	F-B	Winter	Neutral	65% 16%	0 0
White-breasted Nuthatch	F-E	Summer	Low	42% 17%	00
Wille-breasted Nutriator	F-E	Winter	Neutral	43% 22%	0 0
Pygmy Nuthatch	F-W	Summer	High	20% 8%	0 0
Pygniy Nuthaten	F-W	Winter	Moderate	14% 11%	00
Drawn Craanar	F-W	Summer	Moderate	18% 10%	0 0
Brown Creeper	F-W	Winter	Neutral	48% 39%	0 0
Dools Miron	D	Summer	Moderate	5% 34%	0 0
Rock Wren	D	Winter	Neutral	25%	O
Canada Mara	D	Summer	Neutral	5% 20%	0 0
Canyon Wren	D	Winter	Neutral	14% 31%	O
House Wren	Gen	Summer	Moderate	29% 18%	O
Pacific Wren	F-W	Summer	Neutral	2%	O O
March Wron	М	Summer	Low	2% 1%	O
Marsh Wren	М	Winter	Low	<mark>4%</mark> 36%	O
Devidelde Mare	D	Summer	Neutral	13% 57%	0 0
Bewick's Wren	D	Winter	Low	9% 56%	0 0
Caphua Muan	D	Summer	Neutral	54%	O
Cactus Wren	D	Winter	Neutral	16%	O O S
Blue-gray Gnatcatcher	Gen	Summer	Neutral	8% 20%	0 0
Black-tailed Gnatcatcher	D	Summer	Neutral	2%	0 0
American Division	F-W	Summer	Moderate	9% 39%	O
American Dipper	F-W	Winter	High	24% 16%	O
Coldon over all Winds	F-B	Summer	Moderate	8% 3%	
Golden-crowned Kinglet	F-B	Winter	Neutral	7% 8%	00

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Ruby-crowned Kinglet	F-W	Summer	High	26% 7%	
	F-W	Winter	Neutral	50%	00
Western Bluebird	F-W	Summer	Moderate	10% 21%	00
	F-W	Winter	High	11%	00
Mountain Bluebird	F-W	Summer	High	16%	00
Mountain Bluebild	F-W	Winter	Low	33%	00
Townsend's Solitaire	F-W	Summer	High	18% 11%	00
Townsend's Solitaire	F-W	Winter	High	40% 35%	00
Swainson's Thrush	F-B	Summer	High	< <mark>1%</mark> 4%	
Hermit Thrush	F-W	Summer	High	12% 8%	
Hellint HilluSH	F-W	Winter	Low	<1% 23%	00
American Robin	Gen	Summer	Moderate	47% 35%	O
AMERICAN RODIN	Gen	Winter	Neutral	41% 29%	00
Gray Catbird	F-E	Summer	Neutral	47% 11%	00
Curve-billed Thrasher	D	Summer	Neutral	14% 35%	00
Curve-billed Hirasilei	D	Winter	Neutral	11%	O O S
Brown Thrasher	F-E	Summer	High	4%	
Bendire's Thrasher	D	Summer	Low	7%	00
Criscal Thrashor	D	Summer	Low	26%	00
Crissal Thrasher	D	Winter	Low	17%	00
Cana Thuashau	D	Summer	High	11% 7%	0 0
Sage Thrasher	D	Winter	Low	13% 35%	0 0
Northorn Maaldaylind	Gen	Summer	Neutral	20% 27%	0 0
Northern Mockingbird	Gen	Winter	Neutral	34%	00
Amanian Divit	А	Summer	High	7%	
American Pipit	Α	Winter	Neutral	7% 26%	0 0
Sprague's Pipit	G	Winter	Neutral	23%	0 0
Bohemian Waxwing	F-B	Winter	High	32% 10%	\circ

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Cedar Waxwing	Gen	Summer	Low	24% 14%	00
	Gen	Winter	Neutral	39% 20%	00
Dhainananla	D	Summer	Neutral	7%	0 0 9
Phainopepla	D	Winter	Neutral	8%	0 0 9
Evening Grosbeak	F-B	Summer	High	20% 6%	0
Everiling Grospeak	F-B	Winter	Moderate	32% 9%	0 0
Pine Grosbeak	F-B	Summer	High	7% 1 <mark>%</mark>	
Pille di Ospeak	F-B	Winter	Moderate	19% 3%	
Gray-crowned Rosy-Finch	А	Winter	High	38% 6%	0 0
Black Rosy-Finch	А	Winter	High	35% 4 <mark>%</mark>	0 0
Drawn canned Dagy Finch	А	Summer	High	3%	
Brown-capped Rosy-Finch	А	Winter	High	23%	0 0
Have Fireh	Gen	Summer	Low	51% 29%	0 0
House Finch	Gen	Winter	Low	49% 31%	0 0
Purple Finch	F-B	Winter	Low	< <mark>1</mark> % 5%	O O O
Cassinla Finah	F-W	Summer	High	29% 22%	0 0
Cassin's Finch	F-W	Winter	Moderate	<mark>71% 9</mark> %	0 0
Common Redpoll	А	Winter	Low	9%	0 0
Deal Cueselvill	F-B	Summer	High	28% 9%	0 0
Red Crossbill	F-B	Winter	Moderate	38% 15%	0 0
White winged Creekill	F-B	Summer	High	6%	
White-winged Crossbill	F-B	Winter	Moderate	31% 5%	O O O
Din a Cialdin	F-W	Summer	Moderate	25% 11%	
Pine Siskin	F-W	Winter	Neutral	16% 69%	0 0
Langua Calalfin L	F-W	Summer	Neutral	22% 41%	0 0
Lesser Goldfinch	F-W	Winter	Neutral	7% 59%	0 0
Lawrence's Goldfinch	D	Winter	Low	3%	0 0
American Goldfinch	Gen	Summer	Moderate	1%	0 0

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
	Gen	Winter	Neutral	54% 25%	0 0
Lapland Longspur	Α	Winter	Neutral	16% 20%	0 0
Chestnut-collared	G	Summer	High	<mark>1%</mark> 9%	0 0
Longspur	G	Winter	Moderate	37%	0 0
Smith's Longspur	А	Winter	Neutral	16%	0 0
M. Co. alaba a sana	G	Summer	High	4%	
McCown's Longspur	G	Winter	Moderate	19%	0 0
Snow Bunting	Α	Winter	Low	51% 14%	0 0
Cassin's Sparrow	G	Summer	Low	34% 9%	0 0
Caralanas	G	Summer	Low	26% 8%	0 0
Grasshopper Sparrow	G	Winter	Neutral	13%	O O S
	Gen	Summer	Moderate	15% 16%	0 0
Chipping Sparrow	Gen	Winter	Neutral	5%	0 0 9
Clay-colored Sparrow	G	Winter	Neutral	2%	O O S
DI I I I I I I	D	Summer	High	2%	00
Black-chinned Sparrow	D	Winter	Low	21%	00
5	D	Summer	High	23% 9%	00
Brewer's Sparrow	D	Winter	Moderate	5%	0 0 9
	D	Summer	Neutral	8% 44%	00
Black-throated Sparrow	D	Winter	Neutral	9% 49%	00
Lark Sparrow	D	Summer	Neutral	53% 20%	00
	G	Summer	High	34% 13%	00
Lark Bunting	G	Winter	Neutral	29%	00
American Tree Sparrow	Α	Winter	Neutral	24% 39%	00
Fox Sparrow	F-B	Summer	High	4%	
	F-W	Summer	High	24% 11%	
Dark-eyed Junco	F-W	Winter	Neutral	59% 31%	00
White-crowned Sparrow	Gen	Summer	High	25% 2%	

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
	Gen	Winter	Neutral	28% 32%	0 0
Harris's Sparrow	F-B	Winter	Low	4% 11%	O
White-throated Sparrow	F-B	Winter	Neutral	8% 40%	O
Canalamah Canaman	D	Summer	High	7% 6%	0 0
Sagebrush Sparrow	D	Winter	Neutral	18%	0 0
Maria an Caramana	G	Summer	Moderate	22% 15%	O
Vesper Sparrow	G	Winter	Neutral	35%	O
Carrage L. Corrage	G	Summer	High	6% <1%	6
Savannah Sparrow	G	Winter	Low	28%	O
Cons Consumer	Gen	Summer	Moderate	42% 16%	0 0
Song Sparrow	Gen	Winter	Neutral	39% 27%	O
Lia a alata Carannan	F-B	Summer	High	24% 3%	
Lincoln's Sparrow	F-B	Winter	Neutral	20% 50%	O
Swamp Sparrow	М	Winter	Neutral	< <mark>1%</mark> 2%	(b) () ()
Carrier Tarribas	D	Summer	Low	8% 30%	O
Canyon Towhee	D	Winter	High	< <mark>1</mark> % 5%	O
D. f	D	Summer	Low	<1% 13%	O
Rufous-crowned Sparrow	D	Winter	High	<1% 5%	O
	D	Summer	High	23% 10%	O
Green-tailed Towhee	D	Winter	Neutral	2%	O O S
Carllad Tarlan	F-W	Summer	Moderate	13% 19%	O
Spotted Towhee	F-W	Winter	Low	11% 45%	O
Yellow-breasted Chat	F-E	Summer	Neutral	17% 42%	0 0
Vallanda de de Bl. 11. 1	М	Summer	Low	9% 9%	0 0
Yellow-headed Blackbird	М	Winter	Low	5%	O O S
Western March 1997	G	Summer	Low	11% 47%	0 0
Western Meadowlark	G	Winter	Neutral	24% 19%	O
Eastern Meadowlark	G	Summer	Moderate	17%	0 0

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
	G	Winter	Neutral	25%	00
Orchard Oriole	F-E	Summer	Low	23% 1%	6 0 0
Hooded Oriole	F-W	Summer	Neutral	2%	O O S
Bullock's Oriole	F-W	Summer	Neutral	46% 24%	0 0
Baltimore Oriole	F-E	Summer	Low	15% <mark>2%</mark>	0 0
Scott's Oriole	D	Summer	Neutral	<mark>3%</mark> 26%	0 0
Ded. Seed Blooks	Gen	Summer	Neutral	54% 7%	0 0
Red-winged Blackbird	Gen	Winter	Neutral	49% 26%	0 0
B 1 1 1 2 1 1 1	Gen	Summer	Neutral	<mark>73%</mark> 11%	00
Brown-headed Cowbird	Gen	Winter	Neutral	22%	00
	Gen	Summer	Moderate	39% 35%	00
Brewer's Blackbird	Gen	Winter	Neutral	17% 58%	00
Common Grackle	F-E	Summer	Low	33% 2 <mark>%</mark>	00
Great-tailed Grackle	Gen	Summer	Neutral	12% 35%	00
	Gen	Winter	Neutral	2% 34%	00
Northern Waterthrush	F-B	Summer	Moderate	3%	
	F-W	Summer	High	10% 6%	
Orange-crowned Warbler	F-W	Winter	Neutral	2%	00
Lucy's Warbler	D	Summer	Low	14%	00
Virginia's Warbler	F-W	Summer	Moderate	7% 17%	00
MacGillivray's Warbler	F-W	Summer	Moderate	12% 9%	00
Common Yellowthroat	Gen	Summer	Low	17% 13%	00
American Redstart	F-B	Summer	Moderate	10% 7%	00
Yellow Warbler	F-B	Summer	Moderate	33% 13%	00
Pine Warbler	F-E	Summer	High	2%	00
	F-B	Summer	Moderate	23% 9%	
Yellow-rumped Warbler	F-B	Winter	Neutral	31% 44%	00

Species	Habitat Group	Season	Range-wide Vulnerability	State Trends	State Threats
Black-throated Gray Warbler	F-W	Summer	Moderate	10%	00
Wilson's Warbler	F-W	Summer	High	12% 3%	
Red-faced Warbler	F-S	Summer	High	4%	0 0
Hepatic Tanager	F-W	Summer	Moderate	2% 6%	₿ () ()
Summer Tanager	F-E	Summer	Neutral	6%	0 0 9
Western Tanager	F-W	Summer	Moderate	10% 24%	0 0
Northern Cardinal	F-E	Summer	Neutral	33% 8%	0 0
	F-E	Winter	Neutral	< <mark>1</mark> % 16%	00
Pyrrhuloxia	D	Summer	Neutral	2%	0 0 9
	D	Winter	Neutral	3%	O O S
Black-headed Grosbeak	F-W	Summer	Moderate	10% 22%	0 0
Blue Grosbeak	F-S	Summer	Neutral	19% 33%	0 0
Lazuli Bunting	F-W	Summer	Neutral	25% 12%	0 0
Painted Bunting	D	Summer	Neutral	10%	0 0
Dickcissel	G	Summer	Neutral	10% 12%	\circ \circ