# **Community Science Bird Monitoring at**

# City Creek Canyon

2022 Project Report



## PROJECT OVERVIEW

City Creek Canyon is a large and intact natural area adjacent to downtown Salt Lake City, UT, and its ecological health needs to be maintained to provide drinking water, wildlife habitat, and natural space for people to enjoy. Evaluating the bird community can provide information about the health of the ecosystem as a whole, and also help us better understand how the canyon provides habitat to species of interest. Since 2011, Tracy Aviary has conducted a community science bird monitoring project in City Creek Canyon. Here, we summarize results from our 2022 project season.

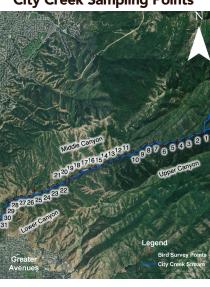
## STUDY SITES

We generated 31 sampling points across City Creek Canyon where we conducted bird and vegetation surveys. These surveys are part of a larger community science bird monitoring program that includes twelve other study sites in the Salt Lake region.

# **Bird Monitoring Sites**



**City Creek Sampling Points** 



# BIRD SURVEY METHODS



# **Breeding Season Point Count Surveys**

During May – July of 2022, 10 community scientists and Tracy Aviary staff conducted 3 breeding season point count surveys at City Creek. Point count surveys were conducted by pairs of community scientists between dawn and 10am. The 'observer' identified all birds seen and heard during six minutes, and noted the number of individuals, distance, and direction. The 'recorder' wrote all of the observations on the datasheet, and also noted weather and site variables, such as wind speed and cloud cover.



# Non-breeding Season Group Surveys

Information from point count surveys was supplemented by non-breeding group surveys conducted at each site in January, February, March, August, September, October, November, and December 2022. During nonbreeding surveys, groups of volunteers led by a trained Tracy Aviary staff person walked a transect through the site and noted all birds seen and heard in the area.



# Owl Playback Surveys

During February, March, May, and June, when owls are most likely to be vocalizing, groups of volunteers led by a trained aviary staff person walked the site in the evening listening for owls, stopping periodically to play owl calls and listen for responses.

## 2022 BIRD MONITORING RESULTS

### 3 Breeding Season Surveys

- 983 bird observations
- 49 species

#### 8 Non-breeding Surveys

- 2,268 bird observations
- 48 species

### 4 Owl Surveys

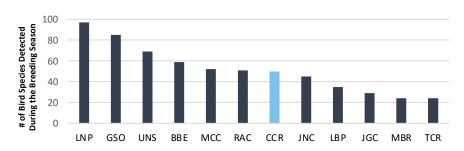
- 24 owl detections
- 4 species

73 total bird species were detected at City Creek in 2022

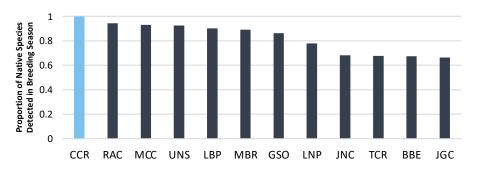
# Comparison to Other Riparian Sites in the Jordan River Watershed

We can measure the health of a riparian site such as City Creek by looking at several metrics, including species richness (the number of species detected), and the proportion of native and urban-sensitive birds that use the site. When comparing City Creek (light blue) to other monitoring sites (dark blue), we found mid-level breeding season species richness, high average native and urban-sensitive bird species.

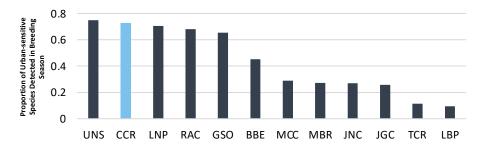
## **Species Richness**



#### **Native Bird Species**



# **Urban-Sensitive Bird Species**





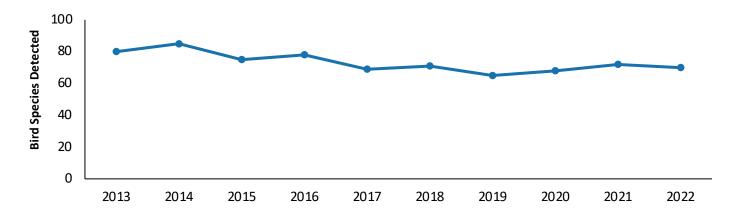


# 2022 BIRD MONITORING RESULTS

### **Trends Over Time**

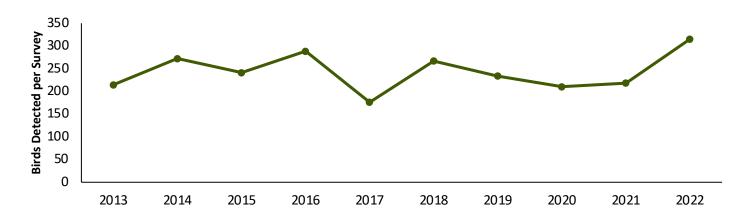
We measured trends in bird habitat use at the site over our bird monitoring period by examining changes in breeding season and non-breeding season species richness (number of bird species detected), and relative abundance (detections per survey).

## **Species Richness**

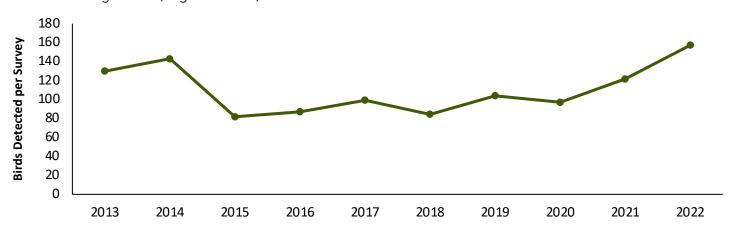


#### **Relative Abundance**

Breeding Season (April – July)

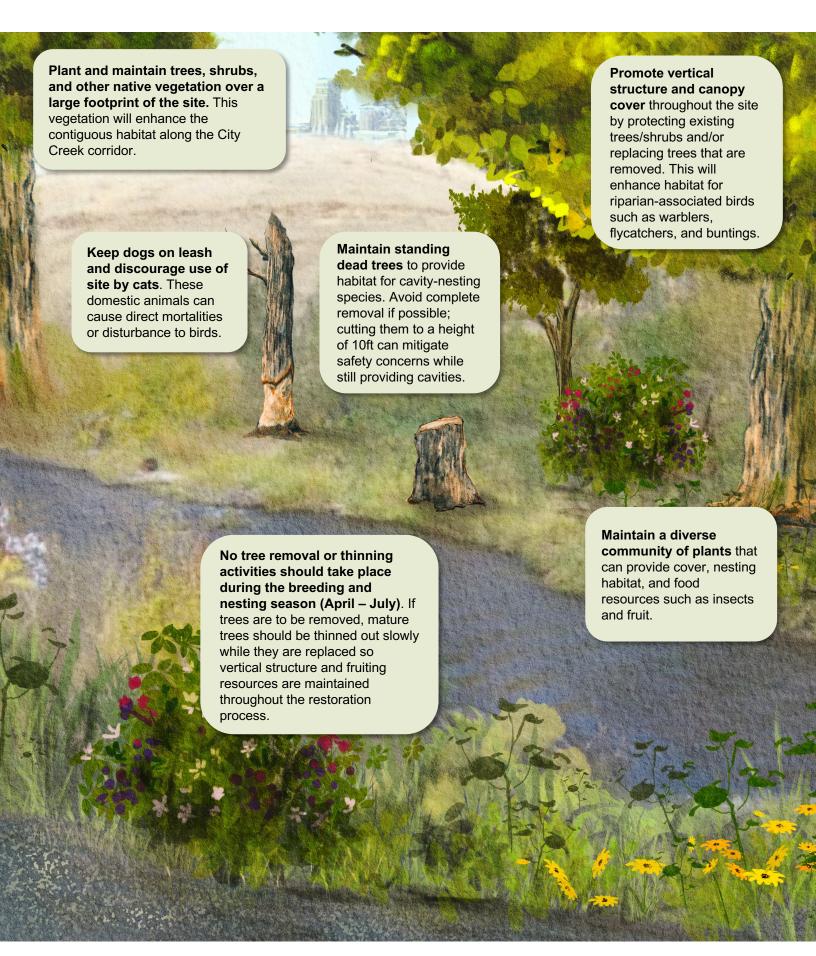


Non-breeding Season (August - March)





## RECOMMENDATIONS TO ENHANCE AND PRESERVE BIRD HABITAT





# BIRD MONITORING AT CITY CREEK

Complete List of Birds Detected during Breeding Season (BSS) and Non-breeding Season (NBS) Surveys

Species						RI.	mbar	of Oh		tions '	dotos	ions/-								
Species	20	)13	20	014	<u>Nu</u> 015		<u>от Ов</u> 016		tions ( )17		<u>18</u> 18	urvey)	)19	20	20	2021		2022		
	BSS	NBS	BSS	NBS	BSS	NBS	BSS	NBS	BSS	NBS	BSS	NBS	BSS	NBS	BSS	NBS	BSS	NBS	BSS	NBS
Acorn Woodpecker	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.57	0	0.67	0	0
American Crow	0	3.6	0	0.8	0.8	0	0	0	0	0	0	1.1	0	0.13	0	0.43	0	0	0	1.38
American Dipper	1.1	2.1	1.7	1.6	2.5	1.4	1.3	0.6	0	0.8	1	1	0.67	1.13	0.67	0.71	0.67	0.67	0.67	0.75
American Goldfinch	0	0.8	0.6	0.1	1	0.3	1.8	0.8	1.5	0.2	0.3	0.6	0	0	0	0	2.67	0.17	0.67	0
American Kestrel	0	0.7	0	0.4	0	0.6	0.3	0.3	0	0.2	0	0.3	0	1	0	0.14	0	0	0	0.38
American Pipit	0	0.7	0	0.4	0	0.6	0.5	0.5	0	0.2	0	0.5	0	0	0	0.14	0	0	0.33	0.38
American Robin	11.5	10	31.9	27.2	18.3	1.8	28.3	4	11	10.2	15.3	3.4	17	18	16.33	6.29	12.67	14.83	22	9.13
Bald Eagle	0	0.3	0	0.2	0	0.3	0	0	0	0.1	0	0	0	0.13	0	0.14	0	0	0	0.25
Barn Swallow	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Belted Kingfisher	0	0.6	0.1	0.4	0.8	0	0	0.2	0	0	0	0.3	0	0.25	0	0	0	0	0	0
Black-and-white Warbler	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0
Black-billed Magpie	0	5.2	0.7	5.6	0	12.3	0	6.9	0	15.8	0	4	0	5.5	0.67	4	0	6.17	0.67	9
Black-capped Chickadee	9.5	18.1	12.4	19.8	4	13.8	8.5	12	3.5	13.7	6.3	17.7	10	21.13	1.67	9.29	4	14.17	8.33	12
Black-chinned Hummingbird	0.6	0	3.1	0.1	1.5	0.1	1.5	0	2.5	0.2	1.3	0.3	2	0.13	5.33	2.57	5.67	0.33	6.33	0.38
Black-headed Grosbeak	7.9	0	3.4	0	10.3	0.2	6	0	3.5	0	10.7	0	4.67	0	4.67	0	6	0	7.67	0
Black-throated Gray Warbler	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Blue Grosbeak	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.33	0
Blue Jay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.14	0	0.17	0	0
Blue-gray Gnatcatcher	0	0.6	1.1	0.8	1	0.3	0.5	1.7	1.5	1.7	1.3	0.1	1.33	0.38	1	0.57	0.33	0	1.67	0
Broad-tailed Hummingbird	2.6	0.3	5.4	0.3	1.8	0.2	3	0.3	1.5	0.3	3.7	0.4	1.67	0	2.33	0.43	2.67	0	3.33	0
Brown Creeper	0	0.9	0.1	2	0	3.2	0	0.8	0	1.3	0	1	0	0.63	0.33	2.86	0	0.83	0	0.13
Brown-headed Cowbird	0	0	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bullock's Oriole	0	0	0	0	0.5	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0
California Quail	0	0.2	0.1	0.1	0.3	0	0.3	0.2	0	0.2	0	0	0	0	0	0	0	0	0	0
Canada Warbler	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canyon Wren	0	0.6	0	0.2	0	0.2	0	0.9	0	0.6	1	1	0.33	0.63	0.33	0.71	1	0.83	1.67	0.88
Cassin's Vireo	0	0	0	0.1	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0
Cassin's Finch	0	0.2	0	0	0.3	0	0.3	0	0	0	0.3	0	0	0	0	0.71	0	0	0	0
Cedar Waxwing	0	0	0	3.1	0	0	0.8	0	0	4.4	0	0	0	0	0	0.14	0	0	0	0
Chipping Sparrow	3.6	0.1	8.1	0	8.5	0	6.8	0.3	2	0.8	7.3	0	3	0	2	0	2.33	0	5.67	0
Chukar	0	0.1	0	0	0	1.3	0	0.4	0	0.1	0	0	0	0	0	2	0	0.67	0	1.13
Clark's Nutcracker	0	1.6	0	1.8	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0.17	0	0
Common Raven	0.3	1.9	0	0.9	0	1.1	0	0.6	0	0.9	0	0.7	0	0.13	0.33	2	1	0.67	1.33	1.88
Common Redpoll	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.33	0	6
Common Yellowthroat	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cooper's Hawk	0.1	0.7	0.9	1.1	0.3	0.7	0.3	0.3	0	0.3	1	0.4	0.33	0.38	0.33	0.71	0.33	0.17	0.33	0.38
Cordilleran Flycatcher	9.5	0	9.7	0	8	0	12	0	8.5	0	9.3	0.1	6.67	0	6.67	0.43	7.33	0.17	7.33	0
Dark-eyed Junco	0.3	10.7	0.4	6.6	1.8	4.7	0	6.7	0	4	0.7	4.4	0.67	7.88	0.33	7.57	0.67	4	0.67	8.02
Downy Woodpecker	0.3	0.9	0.7	1.8	0.3	0.8	0.3	0.4	0	0.2	0.3	0.6	1.33	0.75	0	0.43	0.67	1.17	1.33	1
Dusky Flycatcher	1.1	0	0.9	0	1	0	1.3	0.1	0.5	0	0	0.1	2.33	0	1.67	0	0.33	0	0.33	0
Eurasian Collared-Dove	0	0.1	0	0.7	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0
European Starling	0	2.2	0	0.3	0	0.8	0	0.6	0	0	0	0	0	0.25	0	0	0	0	0	0
Evening Grosbeak	0	0	0	0	0	0	0	1.1	0	0.3	0	0	0	0	0	0	0	0	0	0
Ferruginous Hawk	0	0	0	0	0	0	0	0	0	0	0	0	0	0.13	0	0	0	0	0	0



# BIRD MONITORING AT CITY CREEK

Complete List of Birds Detected during Breeding Season (BSS) and Non-breeding Season (NBS) Surveys

Species						Nu	mber	of Ob	servat	tions (	detect	ions/s	urvey)							
	20	013 2014			2015		2016		2017		2018		2019		2020		2021		20	)22
	BSS	NBS	BSS	NBS	BSS	NBS	BSS	NBS	BSS	NBS	BSS	NBS	BSS	NBS	BSS	NBS	BSS	NBS	BSS	NBS
Flammulated Owl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.4	0	0	0
Fox Sparrow	3.4	0	2.3	0	2.5	0	0.5	0	2	0.2	1.3	0.1	2	0.25	1.33	0	5	0	3.67	0
Gadwall	0	0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golden Eagle	0	1.1	0	0.4	0	0.3	0	0.4	0	0.4	0	0.4	0	0.5	0	1.14	0	0.33	0	1.63
Golden-crowned Kinglet	0	1.8	0.1	2	0	0.2	0	1	0	0.3	0	0.6	0	0.5	0	1.14	0	1.17	0	0.5
Gray Catbird	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.14	0	0	0	0
Gray-crowned Rosy-finch	0	0	0	0	0	0	0	5.6	0	0	0	0	0	0	0	0	0	0	0	19
Great Horned Owl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.67	0	1.4	0	0.67	0
Great-blue Heron	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Green-tailed Towhee	0.8	0.1	0.1	0	0	0	0.3	0	0	0	0.7	0	0	0	1.33	0	0.33	0	0	0
Hairy Woodpecker	0	0	0	0.2	0	0.1	0	0	0	0	0	0.1	0	0	0	0	0	0.17	0	0.13
Hammond's Flycatcher	0.1	0.2	1.1	0	0.5	0	0.3	0.1	0	0.4	1	0.1	0.67	0	0.33	0	0	0	0.33	0
Hermit Thrush	0	0.2	1.9	0.2	0	0	0.3	0.6	0	0.3	1	0.1	0.33	0.25	0	0	1.67	1	0.67	0
House Finch	0.9	4.1	2.1	3.1	1.8	5	5.3	4.2	1.5	6.7	1	4.6	0.33	8.88	0.33	1.86	0	9.17	0	2.5
House Sparrow	0	0	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0.33	0	0
House Wren	0	0	0.1	0	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	0
Lazuli Bunting	20.9	0.6	25.6	0	29.3	0.9	23	1.3	28.5	1	27.7	0.1	26	0	16.67	1.57	20.33	0	36.67	0
Lesser Goldfinch	0	0.4	1	0.3	2	0.6	2.8	2	1.5	1.2	2.7	2.3	1	5.38	1.33	6.29	1.33	9.83	2	2.5
Lincoln's Sparrow	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.13
Long-eared Owl	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MacGillivray's Warbler	10.8	0.4	7.1	0	6	0	8.5	0	3	0.1	7	0	9.67	0.38	8.67	0.14	5.33	0	9	0
Mallard	0.1	1.2	1	2.6	1.8	0.4	0.5	3	0	0.6	0.7	1.1	1.67	1.13	0	0.86	0.33	0	30.33	0.25
Merlin	0	0	0	0	0	0.2	0	0	0	0.1	0	0	0	0.13	0	0	0	0	0	0
Mountain Bluebird	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mountain Chickadee	1.3	6.2	3.6	3.7	1.3	1.1	0.5	0.1	0.5	0.1	1	2	1.67	1.25	0.33	2.29	0	1.17	0.67	0.75
Mourning Dove	5.8	0.4	7.1	0	6.5	0.1	16.5	0.2	3	0.3	16	0.4	1.67	0	9	0.29	14.67	0.5	18.33	1.13
Muscovy Duck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.14	0	0	0	0
Nashville Warbler	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0.5	0	0
Northern Flicker	1	8.2	1.6	6.8	1.5	4.4	0.5	4.4	3	3.1	0.3	4.6	0.67	5.88	17	5.14	0.67	3.5	1.67	4.51
Northern Goshawk	0	0	0	0.1	0	0.1	0	0.1	0.5	0.2	0	0.1	0.33	0.13	0.33	0.43	0.33	0.33	0	0.25
Northern Harrier	0	0	0	0	0	0	0	0	0	0	0	0	0	0.13	0	0	0	0	0	0
Northern Pygmy-Owl	0	0	0	0.1	0	0.1	0	0	0	0	0	0.1	0	0.13	0.33	0.29	0	0.33	0.33	0.25
N. Rough-winged Swallow	0	1	0.3	0	0	0.1	0	0	0	0	0.3	0	0.67	0	0	0	0	0	0	0
Northern Saw-whet Owl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.33	0	2	0	0	0
Northern Shrike	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.13
Olive-sided Flycatcher	0	0.1	0	0	0	0	0.3	0	0	0	0.3	0	0	0	0	0	0	0	0.33	0.25
Orange-crowned Warbler	1.8	0.3	2	0.3	2.8	0	2	0.3	1	0.2	2.7	0	2.33	0	1.33	0.14	3	0	3.67	0.13
Osprey	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pacific Wren	0	0.1	0	0.8	0.3	0.4	0.5	0.4	1	0.4	1.7	0.6	1	0.25	0	0.43	0	0.83	0	0.25
Peregrine Falcon	0	0	0	0	0	0	3	0.1	1	0.4	1.3	0.6	2.33	0.38	3.67	0.14	1	0.17	2	0
Pine Siskin	1.9	0.3	1.3	0.9	1	3	4.8	0	0	2.2	2.3	2.6	1.33	0.13	0.67	1.57	1.67	6.33	1	17.5
Pinyon Jay	0	3.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Plumbeous Vireo	0.6	0.2	3.6	0.2	2.3	0.4	3.5	0.8	2	0.3	5	0	2.33	0	3	0.29	5	0	4.67	0
Prairie Falcon	0	0	0	0	0	0.1	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0



# BIRD MONITORING AT CITY CREEK

Complete List of Birds Detected during Breeding Season (BSS) and Non-breeding Season (NBS) Surveys

Species						Nu	mber	of Ob	servat	ions (	detect	ions/s	survey)							
	2013 2014 2015 2016					2017 2018					19	20	2020		2021		2022			
	BSS	NBS	BSS	NBS	BSS	NBS	BSS	NBS	BSS	NBS	BSS	NBS	BSS	NBS	BSS	NBS	BSS	NBS	BSS	NBS
Red Crossbill	0	0	0	0	0.3	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0
Red-breasted Nuthatch	0.4	3.8	1.1	1.3	1.3	0.1	0.3	0	0.5	1.1	3	2.1	0.67	0.38	0.67	0	0	0.67	0	0.38
Red-naped Sapsucker	0	0	0	0.1	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0
Red-tailed Hawk	0.5	1	0.6	1.6	0.5	3	1.3	1.4	1.5	1.1	0	0.6	2	2	1.67	2	0.33	2.5	0.33	1.25
Ring-billed Gull	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rock Pigeon	0	0	0	0	0	0.1	2	1.4	0	0.2	0	6	16.67	0	0	4.29	0	8.33	0	8.38
Ruby-crowned Kinglet	0.1	1.7	0.1	5.2	0	2.1	0.3	3.7	0	0.8	0.3	2.3	0	0.38	0.33	1.43	0	3.67	0	1.38
Ruffed Grouse	0	0	0.4	0.2	0.5	0	0.3	0	0	0	0	0	0	0	0	0	0	0.17	0	0
Rufous Hummingbird	0	0.2	0	0	0	0	0	0.1	0	0	0	0.3	0	0	0	0	0	0	0	0
Sharp-shinned Hawk	0	0.4	0	0.2	0.3	0.3	0.3	0.3	0	0.3	0	0.3	0	0	0	0.71	0	0.17	0	0.13
Song Sparrow	10.3	2.4	11	3.8	8	3	17.3	2.4	9.5	2.9	20.7	1.7	11.33	1.75	11.33	3.43	14	3	18.33	5.13
Spotted Towhee	18.9	4.2	23.9	7.6	20.3	2.2	26	4.4	19.5	2	25.7	3.7	15.67	4.75	17.33	4	25	5.5	19.67	5.63
Steller's Jay	0.3	9.4	1.1	11.7	1.8	1.1	0.3	0.1	0	5.7	0	0.9	0.33	1.63	1.33	1.29	1	0.5	0.67	14.6
Swainson's Hawk	0	0.1	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0
Swainson's Thrush	11.4	0.3	9.9	0	11.8	0	16.3	0	7.5	0	12.3	0	11.33	0	5	0	5.67	0	6.67	0
Townsend's Warbler	0	0.9	0	0.1	0	0	0	0	0	0	0	0.4	0	0	0	0	0	0	0	0
Townsend's Solitaire	0.3	1.8	1	1.2	0.3	0.4	0.8	0.3	3.5	0.6	1	0.6	0.33	1.25	0	1.14	1	2.67	0	0.5
Townsend's Warbler	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.17	0	0
Tree Swallow	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Vulture	0	0.6	0.1	1.2	0	1	0	0.8	0	1.4	0.3	0	0.33	0.25	0	0	0.33	0	0.33	0
Violet-green Swallow	0	0	0.6	0	0.3	0	0.3	0.2	0	0	0	0	0.33	0	0	0	0.67	0	0	0
Virginia's Warbler	0.3	0.3	1.4	0.6	0	0.1	0	0.7	0.5	0.1	0	0	1	0	0	0	0	0	0.67	0
Warbling Vireo	32.1	0.7	31.3	0.3	23.8	0.2	35.3	1	19	0.3	30.3	1.1	26.33	0.25	20.33	0.71	19.33	0.17	34.33	0.25
Woodhouse's Scrub-Jay	0.1	5	0.6	7.1	0.3	3.1	0	3.2	1	3.7	0	1.9	0.33	3.75	0.67	5.29	1	2.83	1	7.5
Western Kingbird	0	0	0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.33	0
Western Meadowlark	0	0	0	0	0	0	0	0.2	0	0.2	0	0	0	0	0	0	0	0	0	0
Western Screech-Owl	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	4.33	0	2.2	0	0	0
Western Tanager	11.9	0.4	9.4	0.1	11	0.2	10	0.3	10.5	0	10.3	0.1	12	0.13	10.33	0.14	8	1	11	0
Western Wood-pewee	0.1	0	0.4	0	0.3	0.1	0.3	0.1	1	0.1	0.3	0.1	0	0	0	0	0.33	0.17	0	0
White-breasted Nuthatch	0	0	0	0.1	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0
White-crowned Sparrow	0	0	0	0.2	0	0	0	0	0	0.1	0	0.1	0	0	0.33	0.43	0	0.33	0	0
White-throated Swift	0	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wild Turkey	0.4	1	0.1	0	0.8	0	1.5	0	0	2.4	0	0.6	3	2.63	0.33	3.43	1.67	4.17	0.33	7.5
Wilson's Snipe	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0.14	0	0	0	0
Wilson's Warbler	0.1	0	0	0.1	0	0	0	0	0	0.1	1	0	0.67	0	0	0	0	0	0	0
Winter Wren	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0
Yellow Warbler	29.1	0	35	0	36.3	0.1	28.8	0	16.5	0.7	27.7	0.9	22.33	0.63	23	0.86	24	0	34.33	0
Yellow-breasted Chat	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow-rumped Warbler	0.1	0.4	0.1	1.8	0	2.7	0	2	1	0.1	0	2.4	1	0	0	0.57	0	0.83	0.33	0.13

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