# Bird Monitoring and Habitat Inventory of Crossline Canyon

**2020 TECHNICAL REPORT**

**Bird Conservancy of the Rockies**
14500 Lark Bunting Lane
Brighton, CO 80601
970-482-1707
www.birdconservancy.org
Technical Report: I-CC-FCNAP-20

Bird Conservancy of the Rockies
*Connecting People, Birds and Land*

# BIRD CONSERVANCY OF THE ROCKIES

***Mission**: To conserve birds and their habitats*

***Vision**: Native bird populations are sustained in healthy ecosystems*

***Core Values**: (Our goals for achieving our mission)*

1. ***Science** provides the foundation for effective bird conservation.*
2. ***Education** is critical to the success of bird conservation.*
3. ***Stewardship** of birds and their habitats is a responsibility we all share.*

***Bird Conservancy accomplishes its mission by:***

***Monitoring** long-term trends in bird populations as a scientific foundation for conservation action.*

***Researching** bird ecology and response to anthropogenic and natural processes. Our research informs management and conservation strategies using the best available science.*

***Educating** people of all ages to instill an awareness and appreciation for birds and a conservation ethic.*

***Fostering** good stewardship on private and public lands through voluntary, cooperative partnerships that create win-win solutions for wildlife and people.*

***Partnering** with local, state and federal agencies, private citizens, schools, universities, and other organizations for bird conservation.*

***Sharing** the latest information on bird populations, land management and conservation practices to create informed publics.*

***Delivering** bird conservation at biologically relevant scales by working across political and jurisdictional boundaries in the Americas.*

***Suggested Citation:***

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***Cover Photo:** Crossline Canyon Parcel. photo by E. Youngberg*

***Contact Information:***
Erin Youngberg
Rob Sparks
Bird Conservancy Fort Collins Office
230 Cherry Street Suite 150
Fort Collins, CO 80521
erin.youngberg@birdconservancy.org
rob.sparks@birdconservancy.org
970-482-1707 x 33

# EXECUTIVE SUMMARY

The Crossline Canyon is located west of Lory State Park, in Larimer County, Colorado. It was purchased by the City of Fort Collins in 2019 to conserve important habitat for wildlife such as deer, elk, mountain lion, and black bears, and permanently protect the Laramie foothills view shed from urban expansion. The property is a small network of rugged canyons with steep, forested hillsides, a few high open meadows, and several natural springs. Much of the area on the northern and western portions burned in the 2012 High Park fire, creating several large stands of dead snags and open boulder fields.

The most common birds within the 2020 study area were House wren, Lazuli Bunting, Rock Wren, Western Tanager, Lesser Goldfinch, Western Wood-peewee, Mourning Dove, and American Robin, which together accounted for over 50% of all individual birds observed. There were also observations of elk, mule deer, & a black bear with cubs on the property, as well as a variety of other mammal sign, wildflowers, flowering/ fruiting shrubs and insects.

The Crossline Canyon offers an exceptional opportunity to steward a diverse landscape and sustain populations of several unique species of wildlife that are declining within this unique Laramie foothills ecosystem. Management should pay particular attention to the mature Douglas Fir and Ponderosa pine forest obligate species that are declining range-wide. In order to maintain populations of these and other forest-obligate species, managers should strive to conserve, maintain, and restore native forest habitat, heterogeneous vegetative undergrowth structure, minimize disturbance from natural resource development and recreation, and continue monitoring to inform management priorities and actions.

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## INTRODUCTION

Crossline Canyon is part of a larger collection of conserved lands in the Laramie Foothills Region of the Front Range of Northern Colorado. Bird Conservancy of the Rockies (BCR) has partnered with the City of Fort Collins Natural Areas (FCNA) since 2006 to aid in the conservation and management of their Natural Areas as important conservation and recreation destinations through bird inventory and monitoring. BCR provides the FCNA with data and management recommendations that benefit the bird and wildlife community in the Natural Areas and other properties.

The goal of this baseline inventory monitoring is to help the FCNA conserve forest and shrubland bird species and their habitats in Crossline Canyon by understanding the abundance and habitat requirements of breeding birds on the property. The area has experienced a catastrophic wildfire that has significantly decreased the amount of mature forest habitat, but at the same time created habitat for cavity nesting species such as Mountain Bluebirds, House Wrens, Chickadees, and Woodpeckers. The objective is to monitor bird populations, document breeding bird use of the project area and their response to landscape variables and management activities.

## STUDY AREA & METHODS

Between June 2nd and 8th of 2020, we conducted breeding bird point count surveys on Fort Collins' property; Crossline Canyon/ Legacy parcels in Larimer County of northern Colorado (Fig 1).

Crossline Canyon is dominated by Ponderosa and Douglas fir pine forest, with open understory vegetation. The western half of the property has a steep, rocky slope running northwest – southeast with a few small stands of Rocky Mountain Juniper in the Redstone Canyon (Fig 2). As the topography moves east, there is a high open meadow speckled with wildflowers that slopes down into smaller foothills at the edge of City limits, and Lory State Park (Fig 3). In the eastern half of the property, the forest and understory is denser, with several small springs and riparian vegetation (Figs 4 &5). The northwest portion has large stands of burned ponderosa pine.

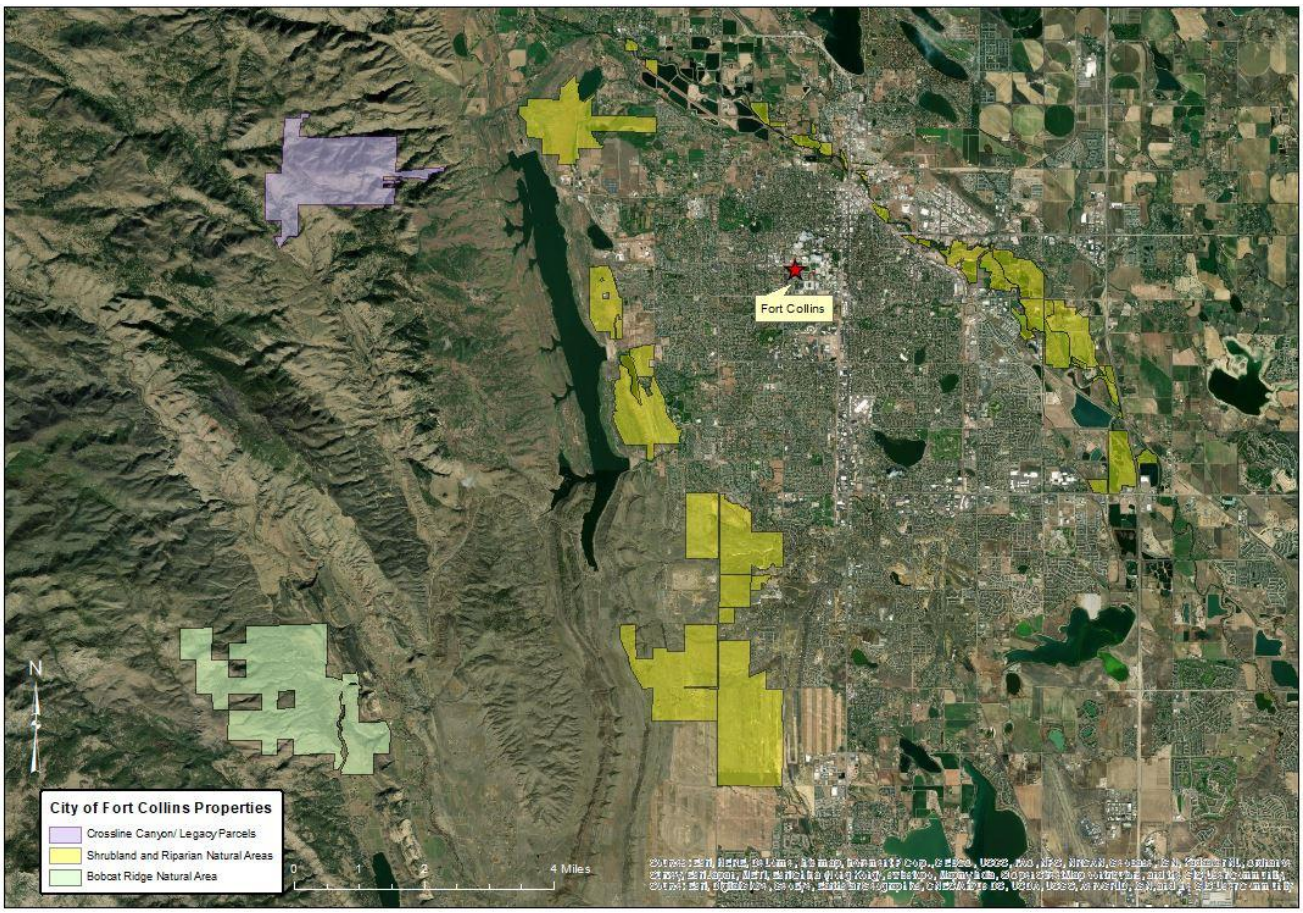


**Figure 1:** City of Fort Collins Properties including Crossline Canyon, Bobcat Ridge, Foothills/ Shrublands, and Poudre River Corridor Natural Areas

**Figure 2:** Looking southwest into Redstone Canyon

**Figure 3:** Open meadow at the top of the ridgeline in Crossline Canyon

**Figure 4:** Mature Ponderosa Pine stand in Crossline Canyon

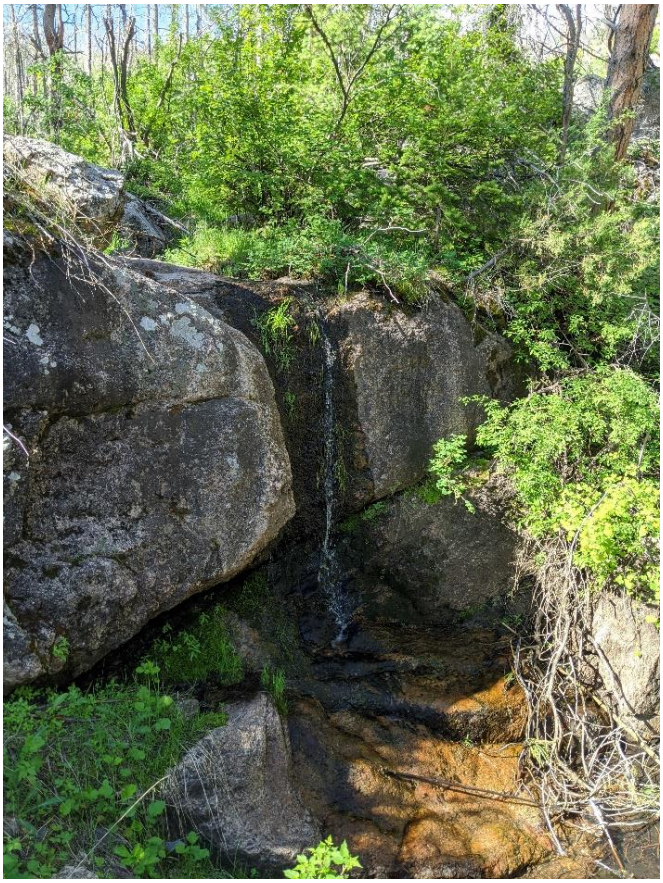

**Figure 5:** Spring in northern portion of Crossline Canyon

**Figure 6:** Significant stand of burned trees in northern portion of Crossline Canyon

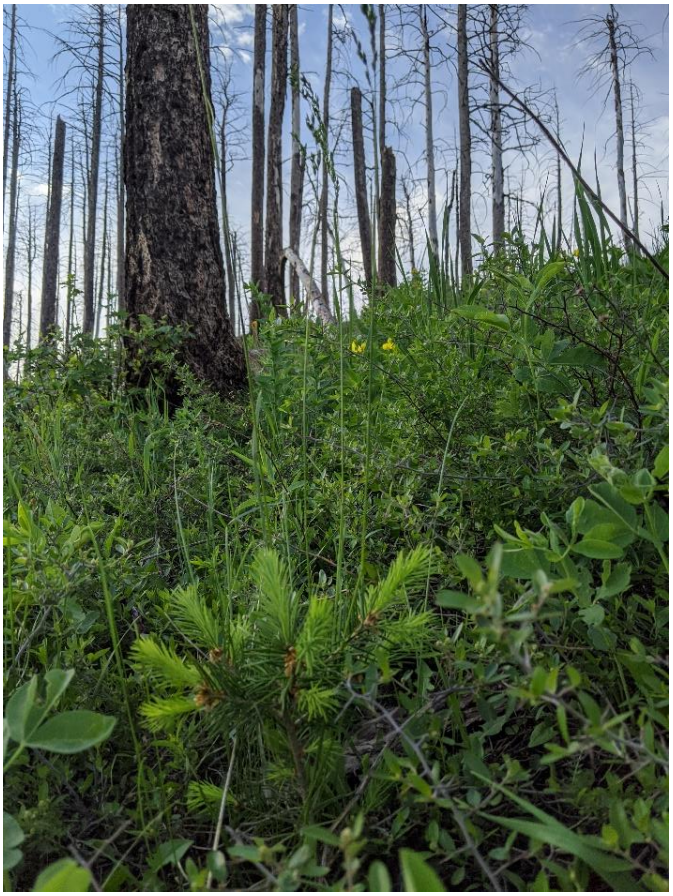

**Figure 7:** New sapling in burn area of Crossline Canyon

**Avian Point Count Surveys**

Using a systematic 250-m grid of point count stations created by the FCNA, we identified 86 point count stations (Fig 3). Points were surveyed at the peak of the breeding season between June 2nd and June 8th. Point count surveys started one half-hour before sunrise and ended by 11 a.m., often earlier.

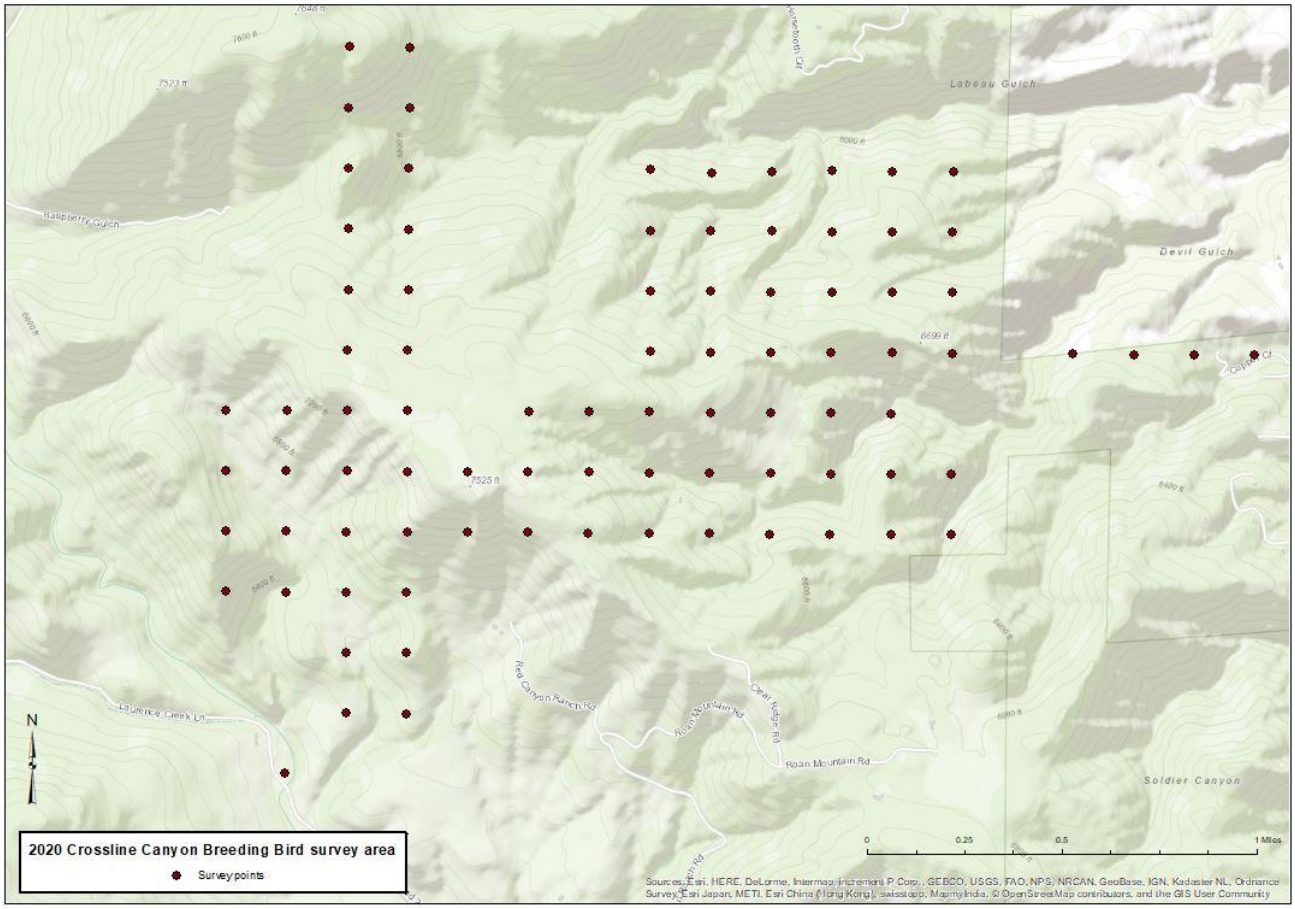


**Figure 8:** 2020 Survey area and point count stations in Crossline Canyon

Point count locations were navigated to on foot using a handheld GPS unit. We recorded atmospheric data (temperature, cloud cover, precipitation, and wind speed) and time of day at the start and end of each daily survey effort. At each station, we conducted a 6-minute point count survey consisting of six consecutive 1-minute intervals. This protocol, which is described more fully by Hanni et al. (2016), uses Distance sampling (Buckland et al. 2001) with removal (Farnsworth et al. 2002). For each bird detected, observers recorded species, sex, how it was detected (call, song, visual, wing beat, other), distance from observer at time of detection, and the 1-minute interval in which it was detected. We measured distances using a Bushnell Yardage Pro laser rangefinder. Point counts were not conducted during periods of heavy snow, rain, or wind greater than 10 mph. Between point count surveys, we recorded the presence of high-priority and other rare or unusual bird species, but we did not use these observations in our analyses. We also noted the presence of any other wildlife or interesting site observations.

### Habitat Surveys

After each avian point count survey, we completed a rapid habitat survey by estimating several vegetation parameters. Within 5m of each point we visually estimated percent cover of grasses, forbs, bare ground, exotic/ non-native plants, cactus, low woody plants (< 30cm), animal scat, rock, and 'other cover' to the nearest 1%. 'Other cover' included other minor ground cover types such as downed logs, lichen, litter, or categories defined in the notes. Also within this radius we measured average grass height with a ruler to the nearest cm and listed the dominant grass species. Within 50 m of each station we documented any shrub (> 30cm) and over-story tree species, estimated the percent cover to the nearest 1%, and the average height of each.

## RESULTS

### Avian Surveys

In 2020 we detected 968 birds during point count surveys, and observed 59 species within the study area. Of the species detected, 14 are of conservation interest (Table 1).

**Table 1:** Bird species detected in Crossline Canyon 2020

| Common Name | *Scientific Name* | Detections in 2020 |
|---|---|---|
| Wood Duck | *Aix sponsa* | 1 |
| Mallard | *Anas platyrhynchos* | 1 |
| Dusky Grouse | *Dendragapus obscurus* | 5 |
| Wild Turkey | *Meleagris gallopavo* | 3 |
| Turkey Vulture | *Cathartes aura* | 2 |
| Bald Eagle | *Haliaeetus leucocephalus* | 1 |
| Sharp-shinned Hawk | *Accipiter striatus* | 1 |
| Red-tailed Hawk | *Buteo jamaicensis* | 2 |
| American Kestrel | *Falco sparverius* | 2 |
| Mourning Dove | *Zenaida macroura* | 51 |
| Great Horned Owl | *Bubo virginianus* | 1 |
| Common Nighthawk* | *Chordeiles minor* | 1 |
| Broad-tailed Hummingbird° | *Selasphorus platycercus* | 36 |
| Williamson's Sapsucker† | *Sphyrapicus thyroideus* | 1 |
| Downy Woodpecker | *Picoides pubescens* | 2 |
| Hairy Woodpecker | *Picoides villosus* | 17 |
| American Three-toed Woodpecker | *Picoides dorsalis* | 1 |
| Northern Flicker* | *Colaptes auratus* | 7 |
| Western Wood-Pewee | *Contopus sordidulus* | 52 |
| Hammond's Flycatcher | *Empidonax hammondii* | 5 |
| Cordilleran Flycatcher° | *Empidonax occidentalis* | 4 |
| Plumbeous Vireo° | *Vireo plumbeus* | 14 |
| Warbling Vireo | *Vireo gilvus* | 1 |

| | | |
|---|---|---|
| Steller's Jay | *Cyanocitta stelleri* | 20 |
| Common Raven | *Corvus corax* | 16 |
| Violet-green Swallow | *Tachycineta thalassina* | 12 |
| Black-capped Chickadee | *Poecile atricapillus* | 2 |
| Mountain Chickadee | *Poecile gambeli* | 1 |
| Red-breasted Nuthatch | *Sitta canadensis* | 5 |
| Pygmy Nuthatch° | *Sitta pygmaea* | 20 |
| Rock Wren*° | *Salpinctes obsoletus* | 58 |
| Canyon Wren | *Catherpes mexicanus* | 7 |
| House Wren | *Troglodytes aedon* | 123 |
| Blue-gray Gnatcatcher | *Polioptila caerulea* | 4 |
| Western Bluebird | *Sialia mexicana* | 4 |
| Mountain Bluebird† | *Sialia currucoides* | 25 |
| Townsend's Solitaire | *Myadestes townsendi* | 23 |
| American Robin | *Turdus migratorius* | 50 |
| Virginia's Warbler!° | *Vermivora virginiae* | 16 |
| Yellow Warbler | *Dendroica petechia* | 5 |
| Yellow-rumped Warbler | *Dendroica coronata* | 5 |
| MacGillivray's Warbler | *Oporornis tolmiei* | 13 |
| Wilson's Warbler | *Wilsonia pusilla* | 5 |
| Yellow-breasted Chat | *Icteria virens* | 1 |
| Western Tanager | *Piranga ludoviciana* | 56 |
| Green-tailed Towhee° | *Pipilo chlorurus* | 36 |
| Spotted Towhee | *Pipilo maculatus* | 41 |
| Chipping Sparrow | *Spizella passerina* | 37 |
| Lark Sparrow | *Chondestes grammacus* | 1 |
| Dark-eyed Junco | *Junco hyemalis* | 9 |
| Black-headed Grosbeak | *Pheucticus melanocephalus* | 5 |
| Lazuli Bunting† | *Passerina amoena* | 62 |
| Western Meadowlark | *Sturnella neglecta* | 14 |
| Brown-headed Cowbird | *Molothrus ater* | 2 |
| House Finch | *Carpodacus mexicanus* | 1 |
| Red Crossbill | *Loxia curvirostra* | 12 |
| Pine Siskin*° | *Carduelis pinus* | 2 |
| Lesser Goldfinch | *Carduelis psaltria* | 54 |
| American Goldfinch | *Carduelis tristis* | 10 |

Partners in Flight Watchlist Designations:

* Common Birds in Steep Decline

† Birds of Regional Concern

° Birds of Regional Stewardship

! Birds of Tri-national Concern

**Figure 9:** Dusky Grouse in previously burned area of Crossline Canyon, June, 2020 (photo by E. Youngberg)

**Habitat Surveys**

Grass was the dominant ground cover type (58%) in 2020. 'Other' was the second dominant at 18%, and consisted of cover such as rock, downed wood/ trees, and fallen cones (Fig 10). There was 12% average coverage of forbs.

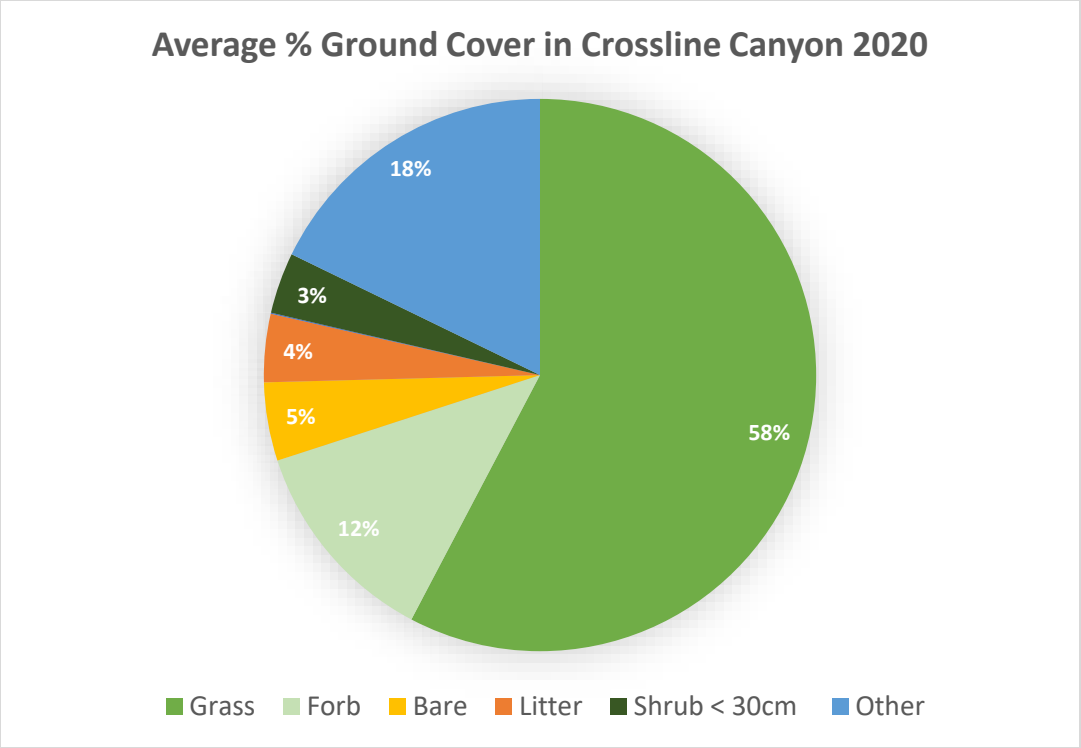


**Figure 10:** Average percent ground cover of Crossline Canyon in 2020

The dominant over story species was Ponderosa Pine (*Pinus ponderosa*) (Fig 11) followed by Douglas Fir (*Pseudotsuga menzeisii)* in the many ravines and steep riparian areas. The 3rd most common over story was standing dead, burned trees from the 2012 High Park Fire. There were a few Western Juniper (*Juniperus occidentalis*) dominated points on the steep southwest facing slopes on the southwest of the property. The only survey point with Narrowleaf Cottonwood (*Populus angustifolia)* was at the very bottom of the Redstone canyon next to the road in the Redstone Creek bottom.

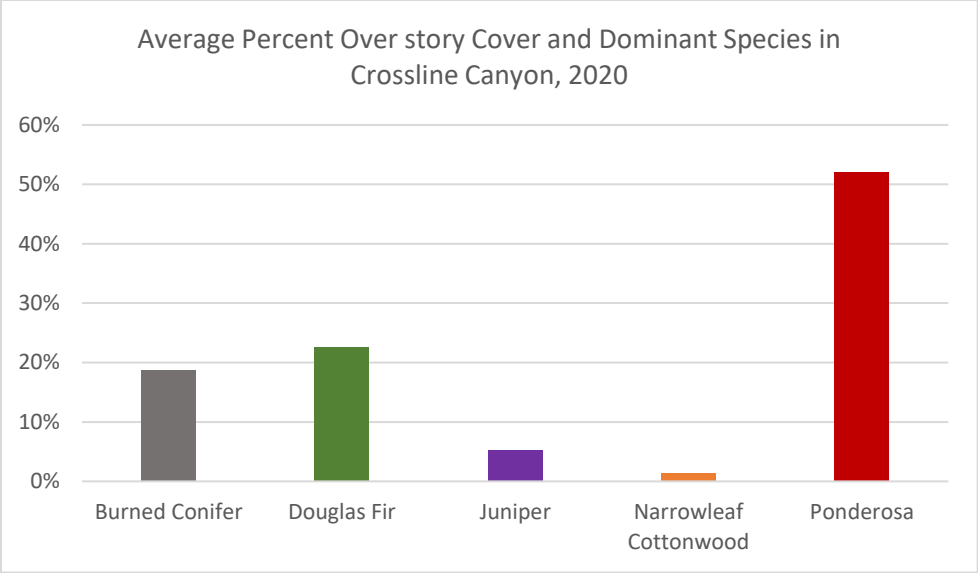


**Figure 11:** Average percent over story and dominant species in Crossline Canyon 2020

The dominant shrub species in Crossline canyon was Mountain Mahogany (*Cercocarpus montanus*) (Fig 12), followed by Lilac species (*Syringa spp)* and Ninebark (*Physocarpus opulifolius*). Flowering and fruiting shrubs such as raspberry (*Rubus spp*), gooseberry (*Ribes spp*), and waxflower (*Chamelaucium uncinatum*) are well distributed throughout the property.

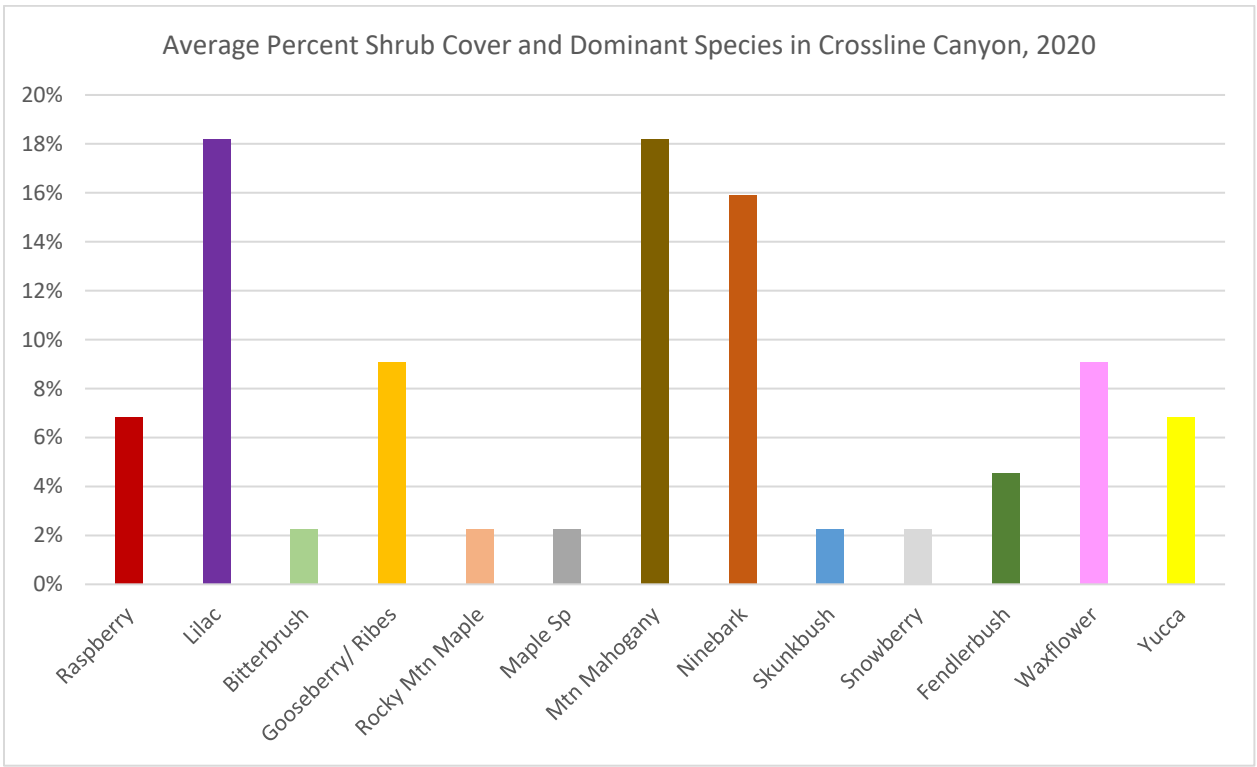


**Figure 12:** Average percent shrub coverage and dominant species in Crossline Canyon 2020

## Discussion and Management Recommendations

This was an initial inventory in 2020, and subsequent monitoring will be necessary to determine changes in flora and fauna as the property recovers from wildfire, and responds to management.

Of the species detected in Crossline Canyon, four of them are “Common Birds in Steep Decline”; Common nighthawk, Northern flicker, Rock wren, and Pine siskin, meaning their populations have declined by an estimated 50% or more since 1970. These are native species that provide vital ecosystem services, and should be monitored for healthy population trends. Major threats to these species include urbanization, climate change, agricultural conversion, and contaminants (Rosenberg et al., 2016).

Three of the bird species are considered “Birds of Regional Concern”; Williamson’s sapsucker, Mountain bluebird, and Lazuli bunting, meaning their populations in this region of the continent have documented declines and are experiencing moderate threats to their populations (Rosenberg et al., 2016). Management should strive to reduce loss or degradation of habitat.

Eight species are listed as “Birds of Regional Stewardship”, which indicate the presence of adequate habitat required for abundance of these species within the BCR (Bird Conservation Region), but not elsewhere on the continent. These migratory breeding species are: Broad-tailed hummingbird, Cordilleran flycatcher, Plumbeous vireo, Pygmy nuthatch, Rock wren, Virginia’s warbler, Green-tailed towhee, and Pine siskin. Management should strive to reduce loss or degradation of habitat, and reduce threats related to urbanization, climate change, and contaminants to ensure these characteristic species of the region stay common.

There was one bird species of “Tri-national Concern” – the Virginia’s warbler, which has seen significant declines in breeding areas of Canada and the US, as well as wintering declines in Central America. This species is experiencing threats across its lifecycle and have high vulnerability to habitat loss, and other threats. Maintaining & conserving native habitat is essential for the survival of this species (Rosenberg et al., 2016).

Annual meetings with the Natural Areas Department, managers, and BCR to share data & results and determine management and conservation goals using birds as indicators would help inform and direct future actions and survey efforts.


### ACKNOWLEDGEMENTS

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