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Wildlife

Boulder County

2021 Annual Report

Our Mission

County wildlife biologists work towards the preservation and restoration of wildlife species and habitat on Boulder County open space. We rise to the challenge of managing public lands increasingly impacted by effects of development, fragmentation, resource extraction, climate change and recreation.

We strive to utilize the best available research to inform our management recommendations in a consistent, science-based manner.

Strategic Planning

Desired Future Condition Statement:

Diverse and representative habitats and landscape connectivity are preserved, conserved, and enhanced to ensure biological diversity and ecological health at a regional scale. Natural processes, including disturbance regimes, are embraced to ensure complete ecosystem function.

Overarching Goals for our Program

1. Preserve wildlife habitat to ensure protection from anthropogenic impacts in order to maintain regional native biodiversity.
2. Conserve wildlife habitat to ensure native biodiversity is maintained in a multiple-use focused landscape while allowing for sustainable use of natural resources.
3. Restore degraded wildlife habitats to bolster ecosystem function, connectivity, and resilience.
4. Promote and manage for functional wildlife movement corridors to facilitate migration and dispersal at multiple scales.
5. Allow or re-create natural disturbance processes to ensure ecosystem function and resilience.

The Northern Redbelly Dace Recovery Project in 2021

The Redbelly Dace Recovery Project is a collaboration among Boulder County Parks & Open Space (BCPOS) wildlife and Education & Outreach (E&O) staff, Colorado Parks and Wildlife (CPW), Ocean First Institute (OFI), Denver Zoo, and St. Vrain Valley School District (SVVSD). The purpose is to restore a Species of Special Concern in Boulder County and provide scientific experience for local students as

they grow, release, and monitor fish under the supervision of wildlife professionals. Our objectives include: (1) rearing a state-endangered fish under a CPW special use permit in classrooms and providing scientific experience, (2) releasing the fish into wild habitats in Boulder County and allowing students to monitor water quality as well as develop novel technology to identify fish using underwater cameras, and (3) allowing students to pilot the use of environmental DNA (eDNA) to study dace in the wild.



In 2021 we learned more about the scientifically novel process of captive breeding, expanded environmental monitoring, served educational outreach to adults and students, and expanded our partnerships. Under OFI's leadership, students, teachers, and researchers worked together to successfully breed, rear, and release more than 800 dace into Webster Pond at Pella Crossing Open Space. This large event brought together the local community and students, media outlets, county commissioners, open space staff and leadership, and our many partners. This event highlighted to the public why species restoration and recovery are vital to ecosystem health and what BCPOS is doing to restore a locally endangered species back to the wild.



2021 Project Highlights:

- Webster Pond release, we now have two sites with released dace.
- eDNA collection allowed us to confirm the presence of dace.
- Four CU MENV students [completed their capstone using this project.](#)
- Students conducted monthly environmental monitoring.
- Presented at American Society of Ichthyologists and Herpetologists.
- Received three awards and three grants for the project:
 - NACO "Achievement Award in Parks and Recreation"
 - Blue Grama "Outstanding Achievement - Restoration"
 - SVVSD "Superintendent's Award for Excellence"
 - BCPOS Foundation Grant, Denver Zoo Conservation Grant, Lauren Townsend Memorial Wildlife Grant.



Learn more at www.redbellydacerecovery.org

E-38 Elk Management

Colorado Parks and Wildlife (CPW) embarked on a large-scale elk surveillance effort in 2021. The E-38 Management Unit spans just south of Sugarloaf Road and north of I-70, from the plains of Rocky Flats to the high summer pastures near the Continental Divide. Many different elk herds are present within this big block – and CPW deployed 41 satellite telemetry collars on cow elk in January and February of 2021. Our Boulder County herds within E-38 use Caribou Ranch, Hurricane Hill near Nederland, Walker Ranch, Reynolds Ranch, and the West Magnolia Trails area, including parts of Eldora Ski Resort, the Tolland Trail area, and the Critical Wildlife Habitat of the Arapahoe Ranch.

To coordinate this effort, meetings were conducted at Boulder County Parks & Open Space (BCPOS) headquarters with all the participating agencies. BCPOS staff assisted with the helicopter captures conducted from the Caribou Ranch Conservation Easement (capturing six animals that frequent the Caribou areas west of the Peak to Peak Highway and the Sugarloaf Road areas east of it) and Kelly Dahl Campground (capturing three animals that migrate/frequent areas from Walker Ranch through Reynolds Ranch and those areas west of the Peak to Peak Highway).

Staff has worked out a data-sharing agreement with CPW that allows us to use this data for our important/ongoing planning in these herd areas. This data will inform processes like property management plans (Caribou Ranch, Sherwood Gulch, Mud Lake, Minnick, Tucker, Reynolds Ranch, Walker Ranch, Sugarloaf), as well as Land Use impacts for actions involving Boulder County Community Planning and Permitting.



Heil Valley Ranch Golden Eagles Rebuild after the Calwood Fire

Golden eagles often return for generations to the same nesting cliffs, and several sites in Boulder County have been documented for well over a century. The Cal-Wood Fire of October 2020 destroyed all three nests of a resident pair of golden eagles at Heil Valley Ranch. Two of the nests in a protected area of the park had been used for many consecutive years, while the third alternate nest located in a less remote site had not seen use in nearly 20 years. A nest site left unused for decades can once again become the preferred nest for a resident pair of eagles.

Despite the nests being reduced to ashes, home is home, and the golden eagles returned to their severely altered territory and built a new nest just in time for the breeding season. The cliff site they chose was just feet from their historical nest that went unused, perhaps because of its proximity to human activity. However, it was the only place left with a small cluster of living, green trees, suitable cliffs, and a few tall trees for perching. After the fire, the park was closed to visitors, and there was a quiet period before restoration activity was to begin – so the eagles rebuilt.



BCPOS biologists worked with United States Fish and Wildlife Service (USFWS) to develop a strategy to protect the Heil Valley Ranch eagles during many months of intensive recovery operations. Staff and contractors avoided the critical half-mile zone around the nest and instituted measures affecting the timing and approach to work: No-fly zones for helicopter mulching were delineated to protect the space around the nest, weekly observations documented eagle behavior and chick development, and frequent updates on the status of the nest provided feedback to the team.

The newly established nest was successful, with one chick making an awkward first flight in mid-July, then a week of practice flights near the nest before following parents outside of the park. Since the nest is too close to trails to be avoided, POS will institute a trail detour for the next two years to monitor the success of this pair of eagles at their historical nest location.



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Multi-Objective Fish Passages

Our department has constructed two new multi-objective fish passages on the St. Vrain Creek, the Niwot Ditch and the Longmont Supply Ditch. The goals of these projects include allowing native fish and brown trout to pass freely up and down the creek and ensuring ditch water rights are protected. These ditches were appropriated in the 1860s, meaning that fish will be able to freely pass through these areas of the creek for the first time in about 150 years.

The Longmont Supply Ditch passage project (aka R3P2) is located at the Western Mobile Complex Open Space. It was completed this year with many thanks to Sharla Benjamin and Carrie Cimo, among many other open space staff. Students and faculty from the St. Vrain



Longmont Supply Fish Passage: Students install underwater video cameras to monitor fish movements in the reconstructed creek channel.

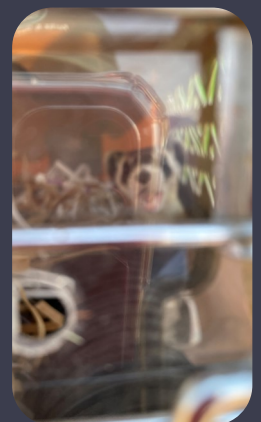


Niwot Ditch Fish Passage: After dam removal, the creek was reshaped into a natural channel and used buried boulders instead of concrete to divert decreed water rights.

Valley School District have already begun to study how fish use the new passage.

The Niwot Ditch project is located at the Golden-Fredstrom Open Space directly north of the Ron Steward Parks & Open Space Building. It was ranked by CPW as the highest priority for native fish conservation on the Front Range. The USFWS National Fish Passage Program will use this project as the best example of fish passage design for the East Slope of Colorado. A long-term fish monitoring program with CPW and USFWS begins in July. We had many significant contributors across Parks & Open Space including Tim Shafer, Tim Zych, Obadiah Broughton, and Brad Winckelmann.

Black-footed Ferrets Reintroduction Update



Our commitment to maintain prairie dogs on our designated Habitat Conservation Areas within our open space system allows us to pursue the reintroduction of North America's most endangered mammal, the black-footed ferret. To this end, the wildlife group has been attempting to bolster prairie dog populations for several years. This has been accomplished with relocation efforts and plague mitigation strategies. Since 2012, we've relocated almost 500 prairie dogs, and in 2022, we will relocate another 250. We also started plague mitigation efforts in 2016, by being the first in Boulder County to distribute the Sylvatic Plague Vaccine (SPV) on our prairie dog colonies. We've continued using SPV since 2016 on both our South County Grasslands and the Ron Stewart Preserve at Rabbit Mountain. Additionally, we have placed deltamethrin dust on colonies since 2016 at both property blocks as well. Our objective is to have up to 1,500 acres of active prairie dog colonies on either (or both) of these property blocks, as this is the acreage required to host a self-sustaining population of ferrets. Specific updates on the progress of this long-term goal are given at our Annual Prairie Dog Stakeholders' Meeting, held each December. This annual meeting provides updates on all things related to prairie dogs to our interested public. <https://www.bouldercounty.org/open-space/management/wildlife/>



Senior wildlife biologist, Susan Spaulding, was invited by the US Fish & Wildlife Service to release ferrets at the Rocky Mountain Arsenal. <https://www.fws.gov/story/new-hope-ferrets>

Technology to Monitor Fish and River Health in 2021

Wildlife staff employed several kinds of technology to monitor fish passage and water depth in the newly constructed Longmont Supply ditch diversion project at Western Mobile Open Space. This information tells us if the fish passage is working, what fish are passing, and identifies management needs to enhance fish passage. Passive Integrated Transponder (PIT) technology consists of a small, uniquely encoded transponder tag (Fig. 1) and equipment to “read” the information on the PIT tag (Fig. 2). PIT tags are expertly inserted into a fish using a humane process involving fish sedative and an injection needle (Fig.3). Each pit tag is encoded to identify the individual fish it is tracking.

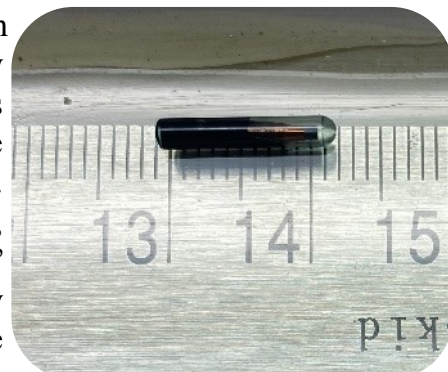


Figure 1: PIT Tag about 10mm long



Figure 2: BioMark PIT tag reader

We deployed three (3) PIT tag readers on loan from Colorado Parks and Wildlife in the fish passage stream channel using anchors. With assistance from BCPOS staff, Left Hand Outdoor Challenge (LHOC) students and ranger staff, CU Boulder MENV students, Ocean First Institute staff and Colorado Parks & Wildlife (CPW) biologists, we collected 292 fish from the stream using electrofishing and tagged each fish with a unique PIT tag. Fish included 220 brown trout, 45 longnose dace, 23 longnose, 2 rainbow trout 1 creek chub and 1 green sunfish. These fish were then returned to the stream and released. Every time a tagged fish is sensed, it registers and records the tag number along with the date and time it was scanned. We

monitored tags from June to October 2021.

Fish were most active between June and August, likely due to lower flows starting early fall, making passage more difficult. We detected a total of 59 tagged fish, with 22 traveling the full length of the passage, and four making the trip twice. Brown trout were most active, with 15 fish fully moving through the passage in less than 24 hours. We detected three longnose sucker and four longnose dace fully traversing the passage in over two days. We will continue to study the Longmont Supply and are beginning



Figure 3: A brown trout being tagged



Figure 4: HOBO Water Level Logger

the study fish passage at the Niwot fish passage.

In November, we placed a water level logger in the fish passage to better understand the river as a whole and how it affects fish movement. This water level monitor is left in place year-round (Fig.4). It uses barometric pressure and temperature to calculate the depth of the river every hour. Early results show significant variation in water depth even within a day, and dramatic changes in depth between weeks. We will combine what we learn from PIT tagging and water level depth to better understand why fish are using the passage at certain times of the year.

Wildlife Annual Report

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