January 22, 2024

Mr. Robert Viehl
Colorado Water Conservation Board
1313 Sherman Street
Denver, CO 80203

Dear Mr. Viehl,

High Country Conservation Advocates (HCCA) and Western Resource Advocates (WRA) submit this preliminary instream flow recommendation for Canyon Creek, located in Gunnison County, Water Division 4.

HCCA protects the health and natural beauty of the land, rivers, and wildlife in and around Gunnison County. Many of HCCA's members live and work in Gunnison County and enjoy the outdoor opportunities and quality of life available in the headwaters of the Colorado Rockies. HCCA has a long history of protecting waters in the Upper Gunnison Basin and of partnering with federal agencies and other non-profits to support a number of instream flow proposals in our region.

Western Resource Advocates fights climate change to sustain the environment, economy, and people of the West. WRA has a vision to see rivers thriving in the face of climate change. Together, HCCA and WRA share a common interest in protecting Colorado's natural environment and water resources.

The headwaters of Canyon Creek originate on land managed by the United States Forest Service. Canyon Creek provides critical flows for a unique and important riparian area. A naturally reproducing population of brook and brown trout live in Canyon Creek.

Enclosed you will find a preliminary instream flow proposal. If you have any questions regarding this recommendation, please feel free to contact Julie Nania at julie@hccacb.org or Bart Miller at bart.miller@westernresources.org.

Sincerely,

Julie Nania
Water Director
High Country Conservation Advocates

Bart Miller
Healthy Rivers Program Director
Western Resource Advocates

Enclosure: Preliminary Instream Flow Proposal for Canyon Creek.

ENCLOSURE – PRELIMINARY INSTREAM FLOW RECOMMENDATIONS FOR CANYON CREEK

Below is a description of the proposed instream flow. Additional details are provided in Attachments A-D.

Location

Canyon Creek is located within the Upper Gunnison Watershed in Gunnison County, Water Division 4. The headwaters originate between Little Baldy Peak, Monumental Peak, and Bald Mountain. Canyon Creek flows south to its confluence with Tomichi Creek. The Canyon Creek watershed is approximately 12.4 square miles and is located on the Whitepine United States Geological Survey (USGS) topographic map (Attachment A).

The stream segment identified for the proposed instream flow appropriation is approximately 8.6 miles long from its headwaters to the confluence with Tomichi Creek.[1] The Canyon Creek Watershed is nearly 100 percent public land managed by the US Forest Service.

Table 1. Land Status in the Canyon Creek Watershed.

Upper Terminus	Lower Terminus	Total Length (miles)	Land Ownership	
			Private (%)	Public (%)[1]
Headwaters	Confluence with Tomichi Creek	8.6	Riparian Corridor[2] 0.2%	Riparian Corridor 99.8%
			Watershed 0.2%	Watershed 99.8%

1) Land ownership data was retrieved from the Gunnison County Assessor's Office.
2) The public land in the Cabin Creek Watershed is managed by the US Forest Service.

Existing Instream Flow Rights

Canyon Creek does not have an existing instream flow water right.

Water Availability

Physical Availability

There is not a gage in the Canyon Creek watershed. The nearest downstream gage is Tomichi Creek at Sargents, with a period of record of 1916 to present (USGS ID: 09115500).

Hydrologists at Colorado State University developed a modeled, called CSUFlow18,[2] to estimate stream flows in ungagged basins. CSUFlow18 reports a minimum monthly average flow of 1.83 cfs in February

[1] The approximate stream length was estimated using data from the Colorado Decision Support System Map Viewer accessed on 12/13/2023.
[2] Eurich, A., K. Willi, S. Kampf, J. Hammond, M. Ross, B. Pulver, A. Vorster (2021). Colorado streamflow prediction, HydroShare, http://www.hydroshare.org/resource/b372d950da9b46dba2e5a6943c4d6e78

and a maximum monthly average flow of 43.01 cfs in June for the Canyon Creek Watershed. The modeled flows were used to refine the preliminary instream flow recommendations and are discussed in the Preliminary Refinements Section.

Legal Availability

There are no active diversions on Canyon Creek. A water rights search on Colorado's Decision Support System (CDSS) did not identify any existing water rights on Canyon Creek. There are two structure pipelines, Manilla Pipeline, and Manilla No. 1 Pipeline, located on the northern edge of the Canyon Creek basin. Both structures have been designated as inactive.[3]

Biological Summary

Canyon Creek sustains a biologically unique ecosystem. Canyon Creek originates at high elevations and has a large overflow channel that shows evidence of past high flows. Wolf and plane leaf willow grow in the riparian corridor of Canyon Creek's headwaters.

The lower portion of the Canyon Creek riparian corridor has been recognized by the Colorado Natural Heritage Program (CNHP) as possessing high biodiversity significance and as hosting a globally vulnerable thinleaf alder/mesic forb (Alnus incana ssp. tenuifolia/mosic forb) riparian shrubland. Due to this community, the CNHP has identified the Canyon Creek riparian area as a Level 4 Potential Conservation Area in recognition of the unique riparian vegetation. Notably, while this plant association was once common, it is now declining. The CNHP site analysis notes that these stands can be threatened by stream flow alterations; thus, this unique community is dependent on the hydrology of Canyon Creek. The CNHP analysis is included in Attachment B.

In addition to supporting this unique riparian community, Canyon Creek also supports brook and brown trout populations (Attachment C).

[3] These structure pumps are case numbers 83CW292 and 81CW229.

Photo 1. Canyon Creek riparian area with willows and alders in a beaver dam complex (6-22-2023).

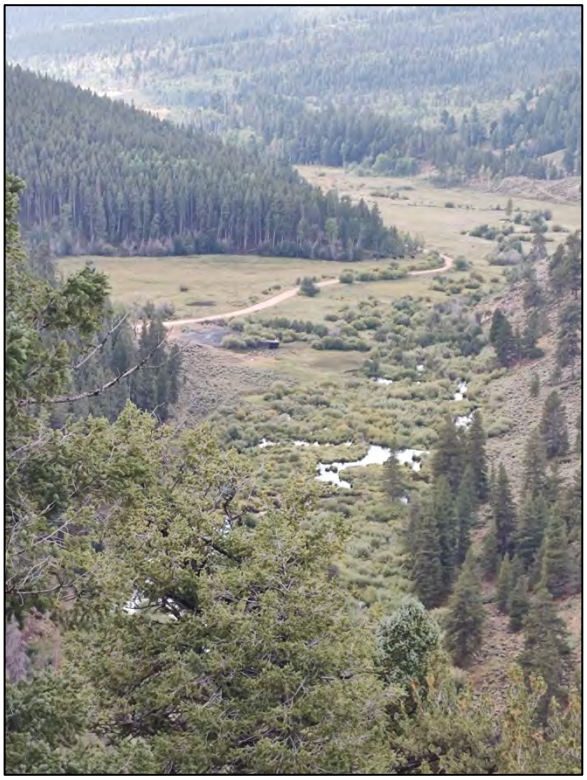


Photo 2. Landscape view of lower Canyon Creek (6-22-2023).

R2Cross Results

HCCA relied on the expertise of Jay Skinner, WRA contractor, and Julie Nania to complete the R2Cross surveys. Three R2Cross surveys, completed at two locations, were used to develop this preliminary analysis. Alpine Environmental Consultants LLC interpreted output from the R2Cross model. R2Cross data entry, analysis, and interpretation were completed following fieldwork. The R2Cross output and field forms are attached for review (Attachment D).

Table 2. Preliminary R2Cross Assessment Results[1].

Cross Section (Date)	Measured Discharge (cfs)	Bankfull Top Width (ft)	Flow Recommendation to meet 2 of 3 Criteria (cfs)[2,3]	Flow Recommendation to meet 3 of 3 Criteria (cfs)[4]
Canyon Creek #1 (6-22-23)[5]	29.2	16.95	1.44	4.57
Canyon Creek #1 (9-14-23)	3.27	16.43	2.39	4.18
Canyon Creek #2 (9-14-23)	3.39	13.34	0.59	4.88
		Average:	**1.5**	**4.5**

1) HCCA may complete additional R2Cross surveys in 2024.
2) This table rounds the R2Cross results based on CWCB guidance.
3) The recommendation that meets two of three criteria is typically applied as the winter flow rate.
4) The recommendation that meets three of three criteria is typically applied as the summer flow rate.
5) The flow recommendations developed from cross sections #1 and #2 (2 of 3 result) are "out of range" where the recommendations are less than 0.4 times the measured flows.

Preliminary Refinements

The R2Cross results were compared against the hydrograph, using a model developed by CSU specifically for ungagged basins in Colorado[4], to refine the R2Cross results based on physical availability and to establish the preliminary seasons for the instream flow recommendation. The preliminary ISF recommendations and seasons are presented in Table 3. Attachment E provides the modeled average monthly flows, preliminary instream flow rates, and a plot of the annual hydrograph. HCCA will consult with CWCB staff and local stakeholders to further refine the preliminary recommendations.

The summer flow rate of 4.5 cfs would apply from 4/1 to 8/31. The winter flow rate of 1.5 cfs would apply from 9/1 to 3/31.

Eurich A, Kampf SK, Hammond JC, et al. Predicting mean annual and mean monthly streamflow in Colorado ungauged basins. River Res Applic. 2021;1–10. https://doi.org/10.1002/rra.3778. This model is known as CSUFlow18.

Table 3. Preliminary instream flow recommendations and associated seasons.

Winter Flow Recommendation	Summer Flow Recommendation	Winter Flow Recommendation[1]
1.5 cfs 1/1 to 3/31	4.5 cfs 4/1 to 8/31	1.5 cfs 9/1 to 12/31

1) The winter flow rate is presented twice in the table to reflect the calendar year. A single instream flow rate of 1.0 cfs would apply from 9/1- 3/31.
2) The instream flow rates and seasons will be refined following additional analysis of legal and physical water availability.

Photographs

Photo 3. Upper Canyon Creek cross-section: downstream view (6-23-2023).

Photo 4. Canyon Creek cross section: left to right bank (6-22-2023).

Photo 5. Lower Canyon Creek cross section: downstream view (9-14-2023).

Photo 6. Upper Canyon Creek cross section: downstream view (9-14-2023)**.**

Relationship to Existing State Policy

HCCA and WRA are proposing this instream flow to the CWCB in furtherance of the State of Colorado's policy "that the wildlife and their environment are to be protected, preserved, enhanced, and managed for the use, benefit, and enjoyment of the people of this state and its visitors… and that, to carry out such program and policy, there shall be a continuous operation of planning, acquisition, and development of wildlife habitats and facilities for wildlife-related opportunities." C.R.S. 33-1-101(1).

Attachments

A – USGS Topographic Quadrangle Map

B – Colorado Natural Heritage Program Site Analysis

C – CPW Biological Data

D – R2Cross Analysis and CSUFlow18 Summary

Attachment A- USGS Topographic Quadrangle Map

USGS
science for a changing world

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

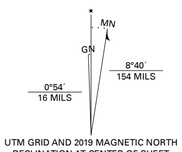
The National Map
US Topo

WHITEPINE QUADRANGLE
COLORADO
7.5-MINUTE SERIES

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 13S

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery	NAIP, October 2017 - January 2018
Roads	U.S. Census Bureau, 2016
Roads within US Forest Service Lands	FSTopo Data with limited Forest Service updates, 2013
Names	GNIS, 1978 - 2019
Hydrography	National Hydrography Dataset, 1899 - 2019
Contours	National Elevation Dataset, 2004
Boundaries	Multiple sources; see metadata file 2017 - 2018
Public Land Survey System	BLM, 2018
Wetlands	FWS National Wetlands Inventory 1987 - 2011



UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000 - m Square ID
CC
Grid Zone Designation
13S

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 40 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES

1 Fairview Peak
2 Cumberland Pass
3 Saint Elmo
4 Pitkin
5 Garfield
6 Doyleville
7 Sargents
8 Pahlone Peak

ROAD CLASSIFICATION

Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route
FS Primary Route
FS Passenger Route
FS High Clearance Route

Check with local Forest Service unit for current travel conditions and restrictions.

WHITEPINE, CO
2019

NSN 7643016360045
NGA REF NO. USGSX24K48826

Attachment B- Colorado Natural Heritage Program Site Analysis

Level 4 Potential Conservation Area (PCA) Report

Name Canyon Creek **Site Code** S.USCOHP*23867

IDENTIFIERS

Site ID 1567 **Site Class** PCA

Site Alias None

Network of Conservation Areas (NCA)

NCA Site ID	NCA Site Code	NCA Site Name
-		No Data

County

Gunnison (CO)

SITE DESCRIPTION

Site Description

Canyon Creek is a small tributary of Tomichi Creek. The stream has gentle meanders and a large overflow channel that shows evidence of past high flows. Much of the creek flows through a medium-wide valley with a moderate gradient. In this portion, thinleaf alder (*Alnus incana*) and various forbs dominate the riparian area. However, there is high vegetation structural diversity. The headwaters are dominated by Wolf willow (*Salix wolfii*) and planeleaf willow (*S. planifolia*) where the stream is moderately sinuous, forming a beaver carr mosaic. Much of the Wolf willow stand has been grazed resulting in low species richness and unstable streambanks. The stream is entrenched in many places. Engelmann spruce (*Picea engelmannii*) and lodgepole pine (*Pinus contorta*) are also present along the creek.

Key Environmental Factors

No Data

Climate Description

No Data

Land Use History

The entire valley shows signs of human use, more historical than present. A trail runs parallel to the creek; grazing and logging are all noticeable.

Cultural Features

No Data

Minimum Elevation	9,400.00	**Feet**	2,865.00	**Meters**
Maximum Elevation	10,200.00	**Feet**	3,109.00	**Meters**

SITE DESIGN

Site Map P - Partial **Mapped Date** 12/30/2002

Designer Rocchio, F.J.

Boundary Justification

The boundaries incorporate an area that will allow natural hydrological processes such as seasonal flooding, sediment deposition, and new channel formation to maintain viable populations of the elements along Canyon Creek. It should be noted that the hydrological processes necessary to the elements are not fully contained by the site boundaries. Given that the elements are dependent on natural hydrological processes associated with Canyon Creek and its tributaries, upstream activities such as water diversions, impoundments, and improper livestock grazing are detrimental to the hydrology of the riparian area. This boundary indicates the minimum area that should be considered for any conservation management plan.

Primary Area	738.39	**Acres**	298.82	**Hectares**

SITE SIGNIFICANCE

Biodiversity Significance Rank B3: High Biodiversity Significance

Biodiversity Significance Comments

This site was drawn for a good (B-ranked) example of a globally vulnerable (G3G4/S3) thinleaf alder / mesic forb (*Alnus incana* / mesic forb) riparian shrubland. This association is documented from several states but is not well documented in Colorado and is expected to be more common if properly inventoried. This plant association was once common and widespread, but is now declining. The association is rarely found in good condition without non-native species in the undergrowth. Because this community can change significantly with improper grazing, this plant association may not be recognized as the same type across state lines.

There are over 30 documented occurrences of this plant association in Colorado. However, none are very large and only one or two are in pristine condition. All stands are highly threatened by improper livestock grazing, stream flow alterations, road and railroad improvements and maintenance and heavy recreational use. This site also supports a fair to good (BC-ranked) example of the globally vulnerable (G3/S2S3) Wolf willow / bluejoint reedgrass (*Salix wolfii* / *Calamagrostis canadensis*) shrubland.

Other Values Rank No Data

Other Values Comments

No Data

ASSOCIATED ELEMENTS OF BIODIVERSITY

Element State ID	State Scientific Name	State Common Name	Global Rank	State Rank	Driving Site Rank
24645	*Alnus incana* / Mesic Forbs Wet Shrubland	Thinleaf Alder/Mesic Forb Riparian Shrubland	G3	S3	Y
22745	*Carex aquatilis* Wet Meadow	Montane Wet Meadows	G5	S5	N
40532	*Salix wolfii / Calamagrostis canadensis* Wet Shrubland	Subalpine Riparian Willow Carr	G3	S1	N

LAND MANAGMENT ISSUES

Land Use Comments

No Data

Natural Hazard Comments

No Data

Exotics Comments

No Data

Offsite

No Data

Information Needs

No Data

REFERENCES

Reference ID	Full Citation
173839	Rocchio J., G Doyle, and R. Rondeau. 2003. Final Report: Survey of Critical Wetlands and Riparian Areas in Gunnison County, Colorado. Colorado Natural Heritage Program, Fort Collins, CO.

ADDITIONAL TOPICS

Additional Topics

No Data

LOCATORS

Nation United States **Latitude** 383216N

State Colorado **Longitude** 1062602W

Quad Code	Quad Name
38106-E4	Whitepine

Watershed Code	Watershed Name
14020003	Tomichi

VERSION

Version Date 12/30/2002

Version Author Rocchio, F.J.

DISCLAIMER

Level 4 Potential Conservation Area (PCA) Report

Name Canyon Creek **Site Code** S.USCOHP*23867

These data are a product and property of Colorado State University, Colorado Natural Heritage Program (CNHP). These data are strictly "on loan" and should be considered "works in progress". Data maintained in the Colorado Natural Heritage Program database are an integral part of ongoing research at CSU and reflect the observations of many scientists, institutions and our current state of knowledge. These data are acquired from various sources, with varying levels of accuracy, and are continually being updated and revised. Many areas have never been surveyed and the absence of data in any particular geographic area does not necessarily mean that species or ecological communities of concern are not present. These data should not be regarded as a substitute for on-site surveys required for environmental assessments. Absence of evidence is NOT evidence of absence. Absence of any data does not mean that other resources of special concern do not occur, but rather CNHP files do not currently contain information to document this presence. CNHP is not responsible for whether other, non-CNHP data providers have secured landowner permission for data collected.

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