

**United States Department of the Interior
Bureau of Land Management**

**Environmental Assessment
for
Zeedyk Structure Use in Gunnison Sage-Grouse Habitat
Restoration**

Grand Junction Field Office
McInnis Canyons National Conservation Area
Dominguez-Escalante National Conservation Area
2815 H Road
Grand Junction, Colorado 81506

DOI-BLM-CO-S080-2020-0029-EA

JANUARY 2021



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CHAPTER 1 – INTRODUCTION

1.1 INTRODUCTION AND BACKGROUND

The Bureau of Land Management (BLM) Grand Junction Field Office (GJFO), McInnis Canyons National Conservation Area (MCNCA), and Dominguez-Escalante National Conservation Area (D-E NCA) prepared this Environmental Assessment (EA) to analyze the use of hand crews and machinery to build Zeedyk structures to improve hydrologic function in previously treated areas within Gunnison sage-grouse habitat.

The Gunnison sage-grouse was listed as a federally threatened species in 2014 and critical habitat for this species was designated at the same time (USFWS, 2014). The Pinon Mesa population of Gunnison sage-grouse is currently below population objectives. This project will maintain or improve designated critical habitat for this species.

The purpose of this project is to improve habitat within the Pinyon-Mesa population of Gunnison sage-grouse by addressing habitat loss and decreased hydrologic function in areas with completed vegetation treatments, by installing Zeedyk structures where needed in streams, riparian areas, and washes. This project is designed to increase water infiltration and return overland and channel flows to more functioning systems. Site visits by BLM resource specialists to some treatment areas have identified areas with water flows leading to head cuts, increased channels, and other unexpected water flow issues. These can lead to stream bank instability, active down-cutting, and excessive erosion. These areas may be impacted by roads and previous vegetation treatments. Site visits have identified areas where restoration could improve habitat and stability. Future site visits may also identify additional areas where restoration could improve habitat.

1.2 PROJECT LOCATION AND LEGAL DESCRIPTION

LEGAL DESCRIPTION:

This project would occur within Gunnison sage-grouse habitat for the Pinion Mesa population within GJFO, MCNCA, and DENCA.

6th Principal Meridian

T. 11 S., R. 102 W., secs. 16, 17, 18, 19, 20, 21, 27, 28, 29, 31, 32, 33, and 34;

T. 11 S., R. 103 W., secs. 24 and 34.

T. 12 S., R. 102 W., secs. 4, 5, 6, 27, 31, 32, 34, and 35.

T. 12 S., R. 103 W., secs. 3, 4, 6, 7, 8, 9, 10, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 29, 30, 31, 32, 35, and 36.

T. 12 S., R. 104 W., secs. 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, and 36

T. 13 S., R. 99 W., sec. 31

T. 13 S., R. 101 W., secs. 15 and 16

T. 13 S., R. 102 W., secs. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 15, 16, 17, 18, 21, 22, 23, 24, and 25

T. 13 S., R. 103 W., secs. 1, 3, 4, 5, 6, 7, 8, 9, 10, 12, and 18

T. 13 S., R. 104 W., Secs. 1, 3, 4, 5, 6, 9, 10, 13, 15, 16, 17, 18, 19, 20, 21, 22, 28, 29, and 32
T. 14 S., R. 99 W., Secs. 5, 6, 7, 8, 9, 15, 16, 17, and 20
T. 14 S., R. 100 W., Secs. 7, 8, 21, 22, 23, 26, 27, 28, 29, 32, 33, 34, and 35
T. 14 S., R. 101 W., Secs. 12, 22, 23, 26, 27, 28, 29, 32, and 33
T. 15 S., R. 100 W., Secs. 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 16, and 17

6th Principal Meridian

T. 11 S., R. 102 W., Secs. 21, 27, 28, 31, 32, 33, and 34
T. 12 S., R. 102 W., Secs. 5, 6, 8, 17, 32, and 34
T. 12 S., R. 103 W., Secs. 10, 11, 12, 13, 14, 19, 20, 29, 30, 31, and 32
T. 12 S., R. 104 W., Secs. 17, 18, 19, 20, 21, 25, 27, 28, 29, 32, and 33
T. 13 S., R. 101 W., Secs. 15 and 16
T. 13 S., R. 102 W., Secs. 2, 3, 4, 5, 8, 9, 10, 11, 13, 14, 15, 16, 21, 22, 23, 24, 25, and 28
T. 13 S., R. 103 W., Secs. 3, 4, 5, 6, 7, 8, 9, 10, and 18
T. 13 S., R. 104 W., Secs. 3, 4, 9, 10, 11, 13, 14, and 15
T. 14 S., R. 99 W., Secs. 5, 6, and 9
T. 14 S., R. 100 W., Secs. 7, 8, 21, 22, 23, 26, 27, 28, 29, 31, 32, 33, 34, and 35
T. 14 S., R. 101 W., Secs. 12, 22, 23, 26, 27, 28, 29, 32, and 33
T. 15 S., R. 100 W., Secs. 1, 2, 3, 4, 5, 8, 9, 10, 11, 16, and 17
T. 15 S., R. 101 W., Sec. 12

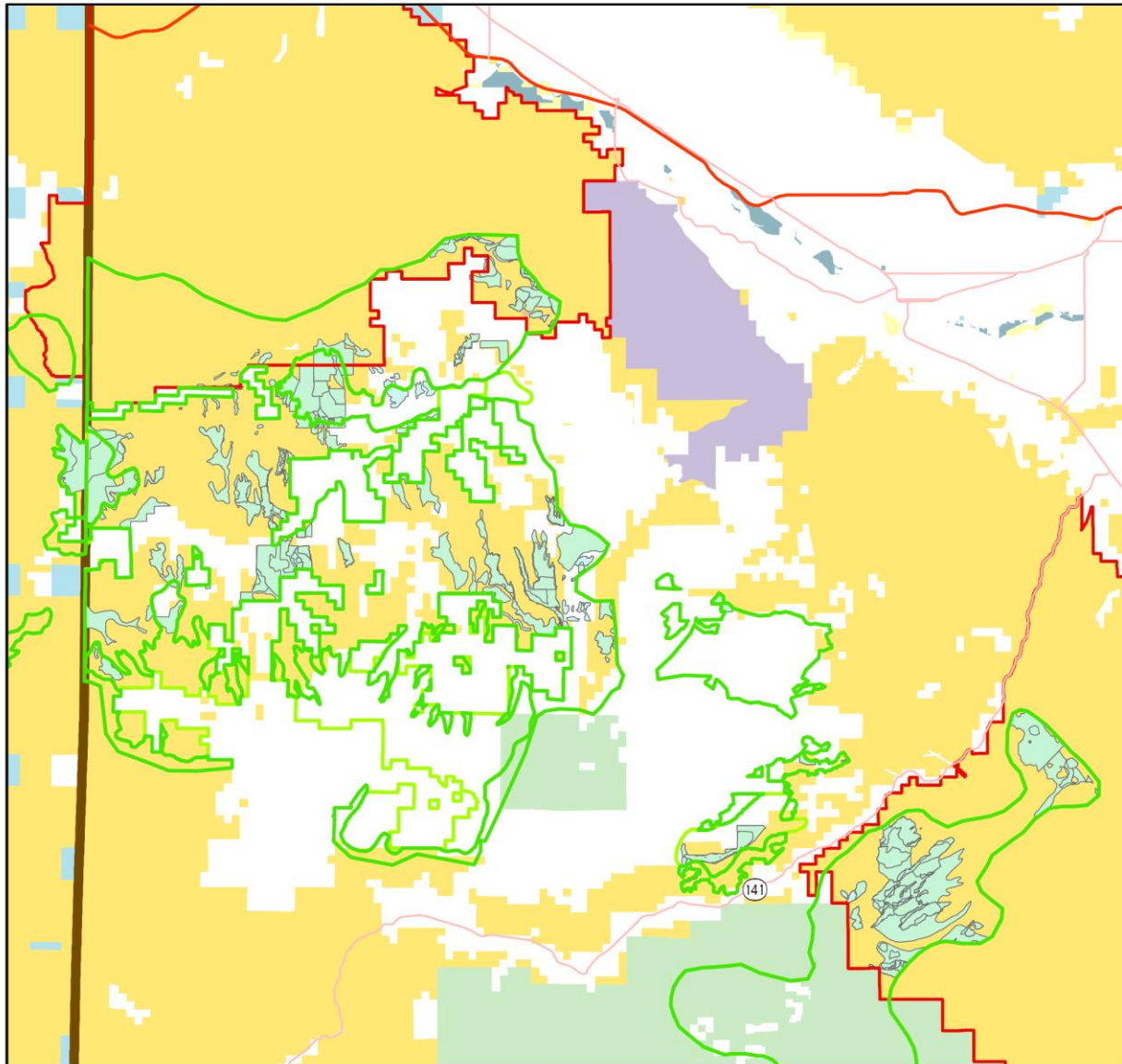
New Mexico Principal Meridian

T. 51 N., R. 15 W., Secs. 7, 15, 16, 18, 19, 20, 29, and 30
T. 51 N., R. 16 W., Secs. 12, 13, and 24
T. 51 N., R. 17 W., Sec. 13



BUREAU OF LAND MANAGEMENT
Grand Junction Field Office

Zeedyk Gunnison Sage Grouse Habitat Restoration



Legend

- | | | |
|---|---------------------------|----------------------------|
| Gunnison Sage Grouse Occupied habitat | Bureau of Land Management | Private |
| Gunnison Sage Grouse Unoccupied habitat | Bureau of Reclamation | State |
| Interstate Highways | National Park Service | State, County, City, Areas |
| State and Local Highways | Other Federal | US Forest Service |
| NLCS National Monuments, National Conservation Areas and Similar Designations | | |
| Gunnison Sage Grouse Vegetation treatment areas | | |
| Gunnison Sage Grouse Fuels treatment areas | | |
| BLM Field Office Areas Boundaries | | |



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No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for the purposes not intended by the BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification.

1.3 PURPOSE AND NEED

The purpose of this project is to improve habitat within the Pinion Mesa population of Gunnison sage-grouse by addressing habitat loss and decreased hydrologic function in areas with completed vegetation treatments through installation of Zeedyk structures where needed in streams, riparian areas, and washes. The need for this project is to repair drainages and areas where water flows are causing head cuts, increased channels, and other unexpected water flow issues in the Pinion Mesa Gunnison sage-grouse habitat. If left untreated these areas can create stream bank instability, active down-cutting, and excessive erosion.

1.4 DECISION TO BE MADE

The BLM will decide whether to approve the proposed Zeedyk Gunnison sage grouse habitat restoration project based on the analysis contained in this EA. This EA analyzes the BLM proposed habitat treatments that would utilize hand crews, machinery and other mechanical means, and hand tools to build rock or other natural material structures in channels and identified areas to improve hydrologic function in previously treated areas within habitat for Gunnison sage-grouse in the Pinion Mesa population. The BLM may choose to: a) authorize the project as proposed, b) authorize the project with modifications, c) authorize an alternative to the proposed action, or d) not authorize the project at this time.

1.5 PLAN CONFORMANCE REVIEW

PLAN CONFORMANCE REVIEW: The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: Grand Junction Resource Management Plan (RMP); amended by the Northwest Colorado Greater Sage-grouse Approved Resource Management Plan Amendment, approved September 15, 2015.

Date Approved: August 2015

Decision and Page Numbers: WTR-GOAL-01, WTR-OBJ-01, VEG-RPN-GOAL-01, VEG-RPN-OBJ-01; pages. 9 and 23

Decision Language:

WTR-GOAL-01: *Protect, preserve, and enhance watershed functions in the capture, retention, and release of water in quantity, quality, and time to meet ecosystem and human needs.*

WTR-OBJ-01: *Manage public land activities to maintain or contribute to the long term improvement of surface and ground water quality and minimize or control elevated levels of salt, sediment, and selenium contribution from federal lands to water resources in the planning area.*

VEG-RPN-GOAL-01: *Manage riparian habitat in compliance with the Land Health Standard 2: Riparian systems associated with both running and standing water function properly and have the ability to recover from major disturbances such as fire, severe grazing, or 100-year floods. Riparian vegetation captures sediment and provides forage habitat and biodiversity; water quality is improved or maintained; and stable soils store and release water.*

VEG-RPN-OBJ-01: *Protect and restore riparian areas/wetlands through sound management practices.*

Name of Plan: Dominguez Escalante National Conservation Area Resource Management Plan

Date Approved: January 2017

Decision and Page Numbers: PSV-GOAL-01, PSV-SGS-GOAL-01; pages 22 and 25.

Decision Language:

PSV-GOAL-01: Conserve, protect and enhance the natural, riparian, wildlife, and water resources of the D-E NCA.

PSV-SGS-GOAL-01: Conserve, protect, and enhance sagebrush shrublands vegetative communities and associated wildlife, including: Gunnison sage-grouse, Grand Junction milkvetch, Brewer's sparrow and various migratory bird species.

Name of Plan: Colorado Canyons National Conservation Area Resource Management Plan (named changed to McInnis Canyons National Conservation Area)

Date Approved: September 2004

Page Numbers: pages 2 through 14

Decision Language:

The BLM will attain, or maintain, DPC objectives determined in the Ruby Canyon/Black Ridge Integrated RMP and will maintain existing areas meeting land health standards (see Appendix 8). Vegetation restoration and reclamation projects will be implemented on those areas currently not meeting land health standards, in concert with other programs that will improve the land health on all priority areas, including the River Corridor, Rabbit Valley, Black Ridge, as well as on other sites that will benefit from treatment for various resources such as sage grouse, desert bighorn, and prairie dogs.

1.6 CONSULTATION AND COORDINATION

1.6.1 Tribal Consultation and Section 106 Consultation under the National Historic Preservation Act

Tribal consultation for the BLM is guided by a variety of laws, Executive Orders, and Memoranda, as well as case law. The GJFO, MCNCA, and DE-NCA are committed to and has conducted tribal

consultation and National Environmental Policy Act (NEPA) scoping with Tribes regarding this type of proposed action in the past. This consultation and scoping are carried out at the government-to-government level. Tribal consultation is a separate process from public scoping, due to the unique relationship between the United States government and federally recognized tribes. Because the proposed action does not identify specific project areas, no traditional cultural properties, unique natural resources, or properties of a type previously identified as being of interest to local tribes are able to be identified at this time, and no additional Native American Indian consultation was conducted. A design feature included in this analysis will require future consultation once specific project areas are identified.

The BLM conducted consultation under Section 106 of the National Historic Preservation Act (NHPA) via an informational letter per the State Protocol Agreement between the Colorado State Director of the BLM and the Colorado State Historic Preservation Officer (SHPO), sent on November 4, 2020. The informational letter only covered the methodology outlined in the proposed action. Future site-specific work associated with this project will require additional consultation with the SHPO regarding findings and assessments of effect.

1.6.2 Section 7 Consultation under the Endangered Species Act

Consultation with the United States Fish and Wildlife Service (USFWS) under provision of Section 7(a)(2) of the Endangered Species Act was completed on April 27, 2015 for the Grand Junction Resource Management Plan to broadly consider impacts. The RMP Biologic Opinion requires site specific consultation on site specific projects. A Biological Assessment for the Dominguez Escalante National Conservation Area Resource Management Plan was prepared and submitted to the FWS on November 10, 2014, a corrected final version was submitted on December 19, 2014. The FWS responded with a biological opinion on June 12, 2015. Site specific consultation was completed on June 17, 2015 for projects to improve Gunnison sage-grouse habitat in the Piñon Mesa population area. A determination of May Affect, Not Likely to Adversely Affect Gunnison sage-grouse, and its designated critical habitat was made for the BLM and concurred with by USFWS. The proposed action is consistent with actions covered by the previous site-specific consultation. The BLM contacted the local USFWS office wildlife biologist on July 24, 2020, and no further concerns were identified.

1.7 SCOPING AND ISSUES

1.7.1 External Scoping and Public Involvement:

The primary mechanism used by the BLM to invite public involvement in the public scoping process was posting this project on the BLM national ePlanning NEPA website. Permittees, Beeman & Jessie Casto LLC, Oscar Massey, West Creek Cattle Co, were contacted on June 29, 2020 and the project was discussed or a message was left, no concerns were identified. An email was sent to the Pinion Mesa Gunnison Sage-Grouse Working Group on July 17, 2020 and comments were incorporated into the Proposed Action.

1.7.2 Internal Scoping:

An interdisciplinary team formulated issues associated with the Proposed Action on May 12, 2020 and during various subsequent internal meetings. Maps of the parcel and a description of the

proposed action were distributed to the GJFO, MCNCA, and DENCA Interdisciplinary Teams (IDT) and discussed. The BLM also completed internal screening through discussions and site visits to determine which resources would potentially be impacted by the Proposed Action.

1.7.3 Issues Identified:

The CEQ Regulations state that NEPA documents “must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail” (40 CFR 1500.1(b)). While many issues may arise during scoping, not all of the issues raised warrant analysis in an environmental assessment (EA). Issues will be analyzed if: 1) an analysis of the issue is necessary to make a reasoned choice between alternatives, or 2) if the issue is associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of the impacts. The following sections list the resources considered and the determination as to whether they require additional analysis.

The issues for detailed analysis identified during public and agency scoping are summarized in Table 1.7.3-1. Impact indicators are used to describe the affected environment for each issue in Chapter 3, measure change, and to assess the impacts of alternatives.

Issue	Issue Statement	Impact Indicator
Issue 1: Water	How will the structure change hydrology and sediment transport?	Flow
Issue 2: Gunnison sage grouse habitat	How will delivery of rock and construction of Zeedyk structures affect Gunnison sage-grouse habitat?	Acres of Gunnison sage-grouse habitat potentially affected.
Issue 3: Special status animal habitat	How will delivery of rock, and construction of Zeedyk structures affect listed or sensitive animal species habitat?	Acres of special status animal species, long nosed leopard lizard and peregrine falcon habitat potentially affected.
Issue 4: Riparian areas	How will construction of Zeedyk structures affect riparian areas?	Miles of riparian areas potentially affected.
Issue 5: Wildlife habitat	How will delivery of rock and construction of Zeedyk structures affect big game habitat?	Acres of mule deer and bighorn habitat
Issue 6: Cultural Resources	Are historic properties present, and how will rock delivery and Zeedyk structure construction affect cultural resources considered eligible or potentially eligible for listing on the National Register of Historic Places?	Presence, number and type of historic properties.

Issue 7: Tribal and Native American Religion	Does delivery of rock and construction of Zeedyk structures adversely affect the physical integrity of Indian sacred sites or sites of concern, or does it restrict access to or ceremonial use of sacred sites?	Presence of sacred sites or sites of concern.
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CHAPTER 2 – PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

The purpose of this chapter is to provide information on the Proposed Action and alternatives. Alternatives considered but not analyzed in detail are also discussed.

The Proposed Action was designed to eliminate as many issues as possible. All the issues that were identified by the BLM are considered in the analysis for the Proposed Action and No Action alternatives; therefore, no additional alternatives were developed or analyzed.

2.2 ALTERNATIVES ANALYZED IN DETAIL

2.2.1 ALTERNATIVE A – No Action Alternative

Under the No Action alternative current management would continue and no Zeedyk structures would be constructed.

2.2.2 ALTERNATIVE B – Proposed Action

Areas within previous vegetation treatment areas and in need of further restoration for water movement, as identified by BLM specialists, will be restored using the methods developed by Bill Zeedyk (2014). These techniques stabilize channels and increase riparian habitat and floodplain connection. BLM personnel will oversee and conduct the work with help from partners, contractors, WCCC crews, or other appropriate methods.

Techniques to be used involve building rock or wood structures in the channels and identified areas. The techniques are designed to use native materials or natural like materials that can be placed using human power and that are can be reasonably moved by hand.

Wood would be collected from local sources, for example dead and down wood from previous treatments. Rocks will be obtained from a local quarry, when possible. Ideal rocks will have similar geologic composition of rocks in the area. Rocks will be delivered on designated routes and if possible, delivered to the work sites using machinery, for example, a backhoe or UTV along paths identified by BLM. Work sites and equipment paths will be surveyed and cleared for sensitive plant, cultural, and paleontological concerns prior to work. Equipment will be washed prior to use on the project and washed after the project is completed to remove weeds. The paths identified will be in locations that minimize vegetation disturbance, paleontological, cultural, and other resource concerns.

At each site, rocks, wood, or both materials will be placed by hand and with hand tools. Hand tools such as shovel, picks, and rockbars will be used to set and place rocks. The BLM may need to complete minor excavation of streambanks and backfill with hand tools to anchor the structures. These excavated banks will be armored with rocks to protect the disturbed area.

Over time, as the stream aggrades and stabilizes, additional work could be needed. This work would be completed in the same manner. Initial structure work is expected to occur in the fall of 2021.

Once an area has been identified for erosion control work, an appropriate level of cultural resources assessment and/or inventory would be determined and completed prior to project implementation. Consultations with the State Historic Preservation Officer (SHPO), Native American tribes, or other affected/interested parties also may be required.

The proposed action includes the following design features from the respective RMPs.

GJFO RMP:

S-2: When saturated soil conditions exist on access roads or location, or when road rutting becomes deeper than 3 inches, construction shall be halted until soil material dries out or is frozen sufficiently for construction to proceed without undue damage and erosion to soils, roads, and locations.

CR-3: The BLM archaeologist will be notified by telephone and written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony (43 CFR 10.4[g]). Activities must stop in the immediate vicinity of the discovery. The discovery must be protected from the authorized activity for a period of 30 days or unless otherwise notified by the BLM (43 CFR 10.4[c] and [d]).

CR-4: The National Historic Preservation Act, as amended, requires that if newly discovered historic or archaeological materials or other cultural resources are identified during project implementation, work in that area must stop and the BLM Authorized Officer must be notified immediately. Within five working days, the BLM Authorized Officer will inform the proponent as to:

- a) Whether the materials appear eligible for the National Register of Historic Places;
- b) The mitigation measures the proponent will likely have to undertake before the site could be used (assuming in situ preservation is not practicable) (36 CFR 800.13); and
- c) A timeframe for the BLM Authorized Officer to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Office, that the BLM Authorized Officer's findings were correct, and mitigation was appropriate.

CR-5: A standard Education/Discovery stipulation for cultural resource protection shall be attached to the land use authorization. The operator or its contractor is responsible for informing all persons who are associated with the project operations that federal laws protect cultural resources and they will be subject to prosecution for disturbing or destroying any historic or archaeological sites, or collecting any cultural objects, prehistoric or historic from federal lands.

VRW-13: Locate project staging areas for refueling, maintenance equipment, materials, operating supplies, and boring in areas not designated as riparian and/or wetland areas.

VRW-14: Minimize surface disturbance within riparian areas and in wetlands.

V-1: All new surface-disturbing projects or activities, regardless of size or potential impact, will incorporate visual design considerations during project design as a reasonable attempt to meet the Visual Resource Management class objectives for the area and minimize the visual impacts of the proposal. Visual design considerations will be incorporated by:

1. Using the Visual Resource Management contrast rating process (required for proposed projects in highly sensitive areas, high impact projects, or for other projects where it appears to be the most effective design or assessment tool).
2. Providing a brief narrative visual assessment for all other projects that require an environmental assessment or environmental impact statement.
3. Measures to mitigate potential visual impacts could include the use of natural materials, screening, painting, project design, location, or restoration.

V-9: Gravel of road color shall be similar to adjacent dominant soil colors.

V-12: Repeat form, line, color, and texture elements to blend facilities with the surrounding landscape.

V-14: Perform final reclamation recontouring of all disturbed areas, including access roads, to the original contour or a contour that blends with the surrounding topography.

WEED-5: Be cognizant of moving equipment and machinery from weed contaminated areas to uncontaminated areas.

WEED-6: Locate and use weed-free project staging areas. Avoid or minimize travel through weed-infested areas, or restrict travel to periods when spread of disseminules is least likely.

WEED-7: Identify sites where equipment can be cleaned. Remove mud, dirt, and plant parts from project equipment before moving it into a project area. Seeds and plant parts should be collected and incinerated when possible.

WEED-11: Minimize soil disturbance. To the extent practicable, native vegetation should be retained in and around project activity areas, and soil disturbance should be kept to a minimum.

WEED-12: If a disturbed area must be left bare for a considerable length of time, cover the area with weed barrier until revegetation is possible.

WEED-13: Clean all equipment before leaving the project site when operating in weed-infested areas.

WEED-40: Frequently and systematically inspect and document riparian areas and wetlands for noxious weed establishment and spread. Eradicate new infestations immediately because effective tools for riparian-area weed management are limited.

WEED-42: Address the risk of invasion by noxious weeds and other invasive species in watershed restoration projects and water quality management plans.

From DENCA RMP

F&W-AU-01: Prohibit surface-disturbing or disruptive activities during the migratory bird nesting season from May 15 to July 15 (see Appendix B). Modify dates as needed, based upon updated CPW and USFWS recommendations.

SSS-OTH-AU-13: Prohibit surface-disturbing activities from December 15 to March 15 within occupied winter critical habitat for Gunnison sage-grouse. If other winter habitats are determined to be occupied, implement conservation measures consistent with the current final rule for the species (USFWS 2014b). Use most up-to-date rule or recovery plan for guidance.

J.8. Fish and Wildlife Management and Special Status Species Standard Operating Procedures

4. Existing plant location records will be consulted and site inventories will be conducted to identify suitable habitat for these plants. Surveys for occupied suitable habitat will be conducted prior to any ground disturbance. Surveys will take place when the plants can be positively identified, during the appropriate flowering periods. Surveys will be conducted by qualified field botanists/biologists who will provide documentation of their qualifications, experience and knowledge of the species prior to starting work.

5. For Colorado hookless cactus and other threatened (T), endangered (E), proposed (P), and candidate (C) species surface-disturbing activities will be avoided within 200 meters of occupied plant habitat

6. For BLM sensitive species surface-disturbing activities will be avoided within 100 meters of occupied plant habitat wherever possible and where geography and other resource concerns allow. Fragmentation of existing populations and identified areas of suitable habitat will be avoided wherever possible.

7. Where development is allowed within 100 meters of occupied habitat for T, E, P and C species or BLM sensitive species, unauthorized disturbance of plant habitat will be avoided by on-site guidance from a biologist, and by fencing the perimeter of the disturbed area, or such other method as agreed to by the Fish and Wildlife Service. In such instances, a monitoring plan approved by the Service will be implemented for the duration of the project to assess impacts to the plant population or seed bank. If detrimental effects are detected through monitoring, corrective action will be taken through adaptive management.

8. Surface disturbance closer than 100 meters from a listed plant may be considered an adverse effect. Mitigating measures within this narrow buffer are very important and helpful to individual plants, but the BLM does not expect that all adverse effects can be fully mitigated within this distance. Some adverse effects due to dust, dust suppression, and loss of pollinator habitat will likely remain. There are two possible exceptions to this rule of thumb: 1) The new disturbance is no closer to a listed plant than preexisting disturbance and no new or increased impacts to the listed plant are expected; or 2) the

listed plant is screened from the proposed disturbance (e.g., tall, thick vegetation or a berm acts as a screen or effective barrier to fugitive dust and other potential impacts).

The project would be designed to avoid or otherwise ensure the protection of authorized rights-of-way and other facilities located on the public lands, including notification of holders of major rights-of-way.

The most recent version of the Colorado Fire Stipulations will be incorporated into the project proposal as well.

CHAPTER 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

This chapter describes the existing conditions relevant to the issues presented in Table 1.7.3-1 and discloses the potential direct, indirect, and cumulative impacts of the Proposed Action and No Action alternatives on those issues. No additional mitigation measures were identified as necessary following the analysis of each issue therefore no discussion of mitigation or residual impact is provided below.

This EA draws upon information compiled in the Grand Junction Field Office RMP (BLM 2015), DENCA RMP (BLM 2017), and Colorado Canyons NCA RMP (BLM 2004).

3.2 CUMULATIVE ACTIONS - Past, Present, and Reasonably Foreseeable

NEPA requires federal agencies to consider the cumulative effects of proposals under their review. Cumulative effects are defined in the Council on Environmental Quality (CEQ) regulations 40 CFR §1508.7 as "...the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency...or person undertakes such other actions." To assess past, present, and reasonably foreseeable actions that may occur within the affected area a review of GJFO NEPA log and our field office GIS data was completed. The following list includes all past, present, and reasonably foreseeable actions associated with the identified issues that known to the BLM:

Table 3.2 Past, Present, and Reasonably Foreseeable Actions

Issue	Geographic/ Temporal Scope	Past Actions	Present Actions	Reasonably Foreseeable Actions
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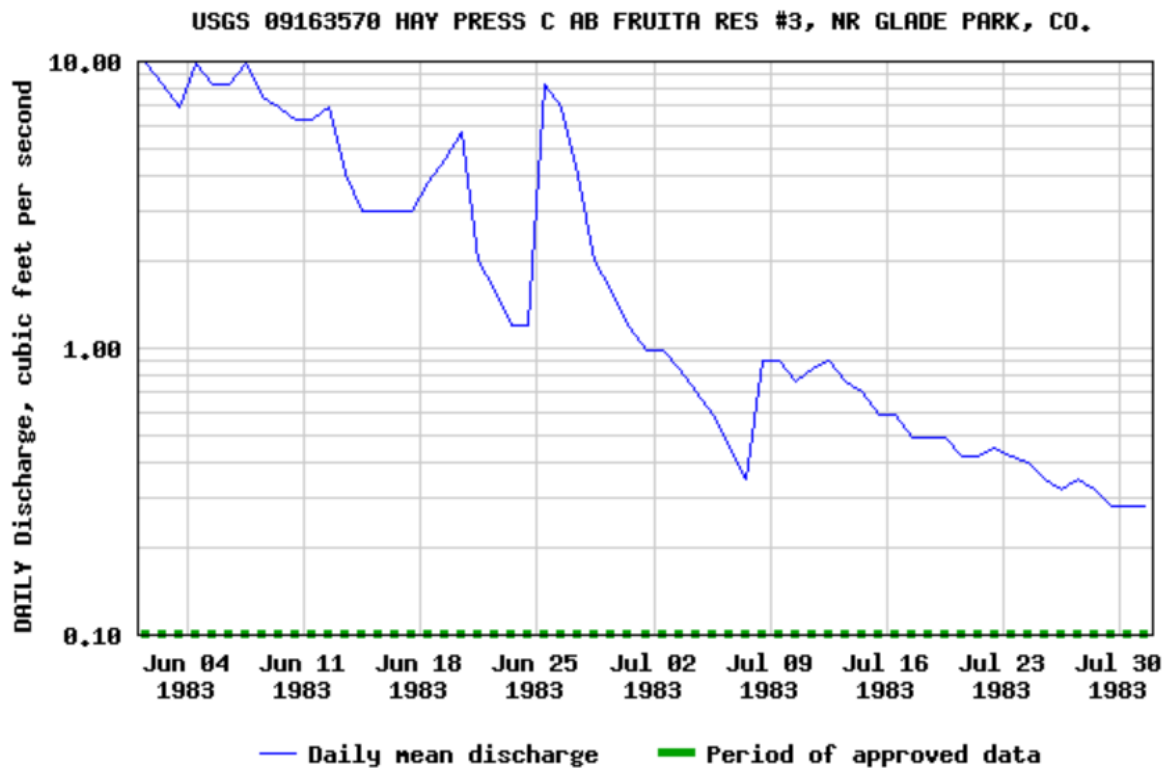
Issue 5 and 6	Treatment areas in GUSG habitat	DOI-BLM-CO-S080-2018-0039-EA Sieber Snyder Habitat Treatments; DOI-BLM-CO-NO60-2016-0001-EA Farmers Canyon Wagon Park Restoration; DOI-BLM-CO-NO30-2015-0016-EA Fish Park GUSG Habitat Improvements; doi-blm-co-s090-2017-0001-DNA Farmers Canyon Restoration; DOI-BLM-CO-S080-2018-DNA Sage-grouse Road Rehabilitation	Livestock grazing, habitat improvement projects, recreation.	Vegetation treatments for habitat improvement, recreation, hunting, and fishing, livestock grazing.
Issue 5	Overlap of grazing permit renewals and GUSG habitat	DOI-BLM-CO-SO81-2017-0006-EA Hawks Permit Renewal; DOI-BLM-CO-NO30-2016-0011-EA Snyder Flats Permit Renewal Dahl Aubert	Livestock grazing, habitat improvement projects, hunting, and fishing.	Livestock grazing, habitat improvement projects, hunting, and fishing.
Issues 4 and 5	Treatment areas in GUSG habitat	DOI-BLM-CO-S080-2018-0051-EA Bieser Ceek Zeedyk Structures	Livestock grazing, habitat improvement projects, hunting, and fishing.	Livestock grazing, habitat improvement projects, hunting, and fishing.
Issues 4 and 7			Livestock grazing, habitat improvement projects, hunting, and fishing.	Gibbler Gulch Riparian Restoration and Road Crossings, livestock grazing, habitat improvement projects, hunting, and fishing.

3.3 ISSUES ANALYSIS

3.3.1 ISSUE 1: How will the Zeedyk structures change hydrology and sediment transport?

Affected Environment

Streams within the project area are primarily intermittent and ephemeral. Summer convective thunderstorms provide the most flow. Hydrographs have rising limbs that rise fast and falling limbs tend to follow in the same manner.



These flows can cause increased streambank erosion in unstable areas, especially in head cuts and along streambanks that lack appropriate vegetation.

These channels, associated rapid peak flows, and high erosion potential can impact the local channels, downstream channels, and cause increases in sediment into tributaries of the Colorado River.

Environmental Consequences

Alternative A – No Action:

If the BLM doesn't take the proposed action to construct Zeedyk structures, then stream flow and streambank erosion will remain at the current levels. Indirect impacts include increases in suspended sediment and large peak flows will continue to degrade the streams systems. Table 1 shows the estimated annual sediment leaving an example location in the watershed.

Table 1. WEPP (Elliot, et al, 1999) Estimated Annual Sediment loads.

Sediment

Return Period	Sediment Leaving areas Not Meeting Land Health	Sediment Leaving Areas Meeting Land Health
Years	Annual Tons	Annual Tons
1	0	0
2	0.1	0
5	0.1	0.1
10	0.3	0.4
25	1.9	0.6

Depending on the storm frequency, annual sediment loads range from 0 to 1.9 tons of sediment routing through a system. These values were based on vegetation estimates from land health assessment (LHA) data in a not meeting condition. The annual sediment production is 32% higher in areas not meeting land health than areas that are meeting Land Health.

On an annual basis this increased sediment load can cause elevated suspended sediment in perennial streams throughout the project area. These impacts are mostly confined to the tributary watersheds of the Colorado River, but during higher intensity storms, impacts could reach down to the Colorado River. There is not enough calibrated data to determine if these impacts exceed water quality standards and if left unchecked, issues could elevate to conditions that could impair beneficial uses.

Alternative B – Proposed Action:

Under the proposed action, instream structures will reduce the peak flows and capture sediment (Zeedyk, 2014). They will ultimately improve the vegetation in the area near streams and drainages, by reducing sediment (see table 1). Over time, the installation of these structures would decrease the potential for exceeding water quality standards and reduce sediment in the perennial streams in the project area.

3.3.2 ISSUE 2: How will delivery of rock and construction of Zeedyk structures affect Gunnison sage-grouse habitat?

Affected Environment

Mapped Gunnison sage grouse occupied and unoccupied critical habitat for the Pinion Mesa population totals approximately 1,429,550 acres. Of these acres approximately 46,380, or 2.7%, have received vegetation treatments. Of these treated areas approximately 83% were meeting land health standards, 11% were meeting with problems, 4% were not meeting, and 2% were unclassified. This project has the potential to affect 2.7% of the overall Gunnison sage-grouse habitat within the Pinion Mesa population.

Environmental Consequences

Alternative A – No Action:

Under the No Action Alternative, the project would not be implemented, therefore no direct impacts would occur. Indirect impacts would include continued degradation of Gunnison sage-grouse habitat in areas with previous vegetation treatments, including head cuts, increased channels, and other unexpected water flow issues, which may degrade vegetation in the vicinity. This would reduce habitat suitability for Gunnison sage-grouse over the long term.

Cumulative Effects:

The cumulative effects of the No Action Alternative are continued degradation of hydrologic function, which can degrade vegetation and therefore habitat in the vicinity.

Alternative B – Proposed Action:

Direct effects of the proposed action include placing Zeedyk structures in identified areas. The purpose of these structures is to improve hydrologic function, which should in turn improve vegetation and habitat. Some soil and vegetation disturbance will occur from movement of machinery, crews, and materials (e.g. rock) along paths to the work site and at the work site. These impacts will be temporary and are not expected to be significant. However, the structures will be permanent and are expected to have positive effects through increasing hydrologic function, which can increase vegetation diversity and vigor and improve habitat. These indirect effects are expected to improve Gunnison sage-grouse habitat.

Cumulative Effects:

Continued restoration projects, along with proper management of other resources authorized in the project area should result in more resilient habitat and a larger proportion of the landscape meeting objectives for Gunnison sage-grouse and other wildlife habitat. Cumulative impacts should be positive and maintain areas currently meeting sage-grouse habitat objectives and land health objectives, and improve areas not meeting objectives.

3.3.3 ISSUE 3: How will delivery of rock and construction of Zeedyk structures affect listed or sensitive animal species?

Affected Environment

Within the Gunnison sage-grouse occupied and unoccupied critical habitat for the Pinion Mesa population there is approximately 138,525 acres of long-nosed leopard lizard habitat. Long-nosed leopard lizards are listed as a BLM sensitive species in Colorado and inhabit shrublands with unvegetated patches (Hammerson 1999). Peregrine falcon potential nesting habitat totals 2,290 acres within the Gunnison sage-grouse occupied and unoccupied critical habitat for the Pinion Mesa population. Peregrine falcons are listed as a BLM sensitive species in Colorado. Peregrine falcon nesting habitat is generally high cliffs.

Environmental Consequences

Alternative A – No Action:

Under the No Action Alternative, the project would not be implemented, therefore no direct impacts would occur. Indirect impacts would include continued degradation of habitat in areas with previous vegetation treatments, including head cuts, increased channels, and other unexpected

water flow issues, which may degrade vegetation in the vicinity. This would potentially slightly reduce overall habitat health, which may also reduce prey species. However, direct overlap with lizard and falcon habitat are minimal and impacts would be expected to be minimal.

Cumulative Effects:

The cumulative effects of the No Action Alternative are continued degradation of hydrologic function, which can degrade vegetation and therefore habitat in the vicinity.

Alternative B – Proposed Action:

Mapped long-nosed leopard lizard overall range within potential treatment areas are approximately 18,150 acres. Therefore, the proposed project has the potential to affect approximately 13% of identified overall habitat for the long-nosed leopard lizard found within identified Gunnison sage grouse habitat for the Pinyon Mesa population. However, lizard habitat (open shrubland) only minimally overlaps with potential project areas (riparian and wet areas) and positive and negative impacts are expected to be minimal. Improved overall habitat may improve prey habitat and therefore prey abundance minimally.

Within the potential treatment areas, there are approximately 223 acres of potential peregrine nesting habitat. Therefore, the proposed project has the potential to affect approximately 10% of potential nesting habitat for peregrine falcons found within the Pinyon Mesa population identified Gunnison sage-grouse habitat. However, falcon habitat (cliffs) only minimally overlaps with potential project areas (riparian and wet areas) and positive and negative impacts are expected to be minimal. Improved overall habitat may improve prey habitat and therefore prey abundance minimally.

Cumulative Effects:

Continued restoration projects, along with proper management of other resources authorized in the project area should result in more resilient habitat and a larger proportion of the landscape meeting habitat objectives. Cumulative impacts should be positive, however are expected to be minimal for BLM sensitive species due to limited overlap with species habitat and proposed project areas.

3.3.4 ISSUE 4: How will delivery of rock and construction of Zeedyk structures affect riparian areas?

Affected Environment

Within mapped Gunnison sage-grouse occupied and unoccupied critical habitat the BLM has rated a total of 33.05 miles of riparian areas for proper functioning condition. Of these areas the BLM rated 0.33 miles as Not Functioning and 7.14 are rated Functioning at Risk. The BLM rated the remaining miles as Proper Functioning Condition. Of the total riparian area that the BLM rated, 9.75 miles of assessed of riparian habitat fall within mapped treatment areas. Of this, 2.28 miles are rated Proper Functioning Condition, 0.33 miles are rated Not Functioning, and 7.14 miles are rated Functioning at Risk. This project has the potential to affect 30% of the overall riparian area within the analysis area, including the only areas not rated at Proper Functioning Condition.

Environmental Consequences

Alternative A – No Action:

Under the No Action Alternative, the project would not be implemented, therefore no direct impacts would occur. Indirect impacts would include continued degradation of hydrologic function in areas with previous vegetation treatments, including head cuts, increased channels, and other unexpected water flow issues. This would decrease functioning and overall health of riparian areas over the long term.

Cumulative Effects:

The cumulative effects of the No Action Alternative are continued degradation of hydrologic function in some areas which has the potential to degrade riparian areas, which can affect overall land health.

Alternative B – Proposed Action:

Direct effects of the proposed action include placing Zeedyk structures in identified riparian areas. The purpose of these structures is to improve hydrologic function. Some soil and vegetation disturbance will occur from movement of machinery, crews, and materials (e.g. rock) along paths to the work site and at the work site. These impacts will be temporary and are not expected to be significant. Additionally, some in channel disturbance is expected as structures are placed. This disturbance is not expected to have significant effects. However, the structures will be permanent and are expected to have positive effects through increasing hydrologic function. This can lead to indirect effects of improved riparian vegetation and riparian function, which may improve habitat. This project may improve the hydrologic and riparian function of 30% of the riparian systems in the project area.

Cumulative Effects:

Continued restoration projects, along with proper management of other resources authorized in the project area should result in more resilient riparian areas and a larger proportion of the landscape meeting objectives for land health and riparian habitat. Increased resilience, especially in wet areas, is important with warming and drying climate. Cumulative impacts should be positive and maintain areas currently meeting sage-grouse habitat objectives and land health objectives, and improve areas not meeting objectives.

3.3.5 ISSUE 5: How will delivery of rock and construction of Zeedyk structures affect big game habitat?

Affected Environment

Within the Gunnison sage-grouse occupied and unoccupied critical habitat for the Pinion Mesa population there is approximately 28,970 acres of severe winter range for mule deer and 36,837 acres of winter concentration areas. There are approximately 656 acres of desert bighorn sheep production area and 15,625 acres of elk severe winter range. Big game species can forage on vegetation including grasses, forbs, and shrubs. Water can be limiting in dry systems.

Environmental Consequences

Alternative A – No Action:

Under the No Action Alternative, the project would not be implemented, therefore no direct impacts would occur. Indirect impacts would include continued degradation of habitat within mapped Gunnison sage-grouse areas with previous vegetation treatments, including head cuts, increased channels, and other unexpected water flow issues, which may degrade vegetation in the vicinity. This would reduce overall habitat quality through decreased plant vigor and potentially decreased surface water availability over the long term.

Cumulative Effects:

The cumulative effects of the No Action Alternative are continued degradation of hydrologic function, which can degrade vegetation and therefore habitat in the vicinity.

Alternative B – Proposed Action:

Mapped elk severe winter range within the potential project area includes approximately 6,884 acres, or about 44% of mapped severe winter range (15,625 acres) for elk within the Pinion Mesa population of Gunnison sage-grouse mapped habitat.

Mapped mule deer severe winter range within the potential project area includes approximately 7,937 acres, or about 28% of mapped severe winter range (28,070 acres) for mule deer within the Pinion Mesa population of Gunnison sage-grouse mapped habitat. Within the potential project areas 9,237 acres are within mule deer winter concentration area or 25% of the winter concentration areas (36,838 acres) found within the mapped habitat for the Pinion Mesa population of Gunnison sage-grouse.

There are approximately 15 acres of mapped bighorn production area within the proposed project areas or approximately 3% of the mapped bighorn production area (565 acres) within the mapped Gunnison sage-grouse habitat for the Pinion Mesa population.

The purpose of proposed structures is to improve hydrologic function, which should in turn improve vegetation and habitat of scarce riparian areas. Some soil and vegetation disturbance will occur from movement of machinery, crews, and materials (e.g. rock) along paths to the work site and at the work site. These impacts will be temporary and are not expected to be significant. However, the structures will be permanent and are expected to have positive effects through increasing hydrologic function, which can increase vegetation diversity and vigor and improve riparian and upland habitat. These indirect effects are expected to improve deer, elk, and bighorn habitat, through increased vegetation diversity and vigor, and potentially increased surface water availability.

Cumulative Effects:

Continued restoration projects, along with proper management of other resources authorized in the project area should result in more resilient habitat and a larger proportion of the landscape meeting habitat objectives. Resilience in habitat is important with warming and drying climates. The project will improve the function of riparian areas that are limited in the xeric project area. Cumulative

impacts should be positive and maintain areas currently meeting land health and habitat objectives, and improve areas not meeting objectives.

3.3.6 ISSUE 6: Are historic properties present, and how will rock delivery and Zeedyk structure construction affect cultural resources considered eligible or potentially eligible for listing on the National Register of Historic Places??

Affected Environment

Within the project area, 132 cultural resource inventories have occurred resulting in the coverage of 17,961 acres, or 66 percent of the project area (this includes not-to-standard and to-standard Class II [sampling] and Class III [intensive] inventories). 1,467 cultural resources (cultural resource sites and isolated finds) have been identified within the project area, of which approximately 204 are considered eligible, supporting segment of a linear site, unevaluated or “needs data” sites. Unevaluated and “needs data” sites are typically managed in the same way as eligible sites until a determination of eligibility is made and are therefore included in this discussion of historic properties. The cultural resources in the project area include all periods and cultural affiliations typically found in western Colorado. Sites date from the Paleoindian period to the historic period and include prehistoric open or sheltered camps and habitations, open or sheltered lithic sites, open or sheltered architectural sites, wickiups/wickiup villages, brush fences, ceremonial/sensitive sites, rock art, quarries, and culturally modified trees; and historic camps, habitations, homesteads/ranches, roads, ditches, mines, railroads, cattle trails, brush fences and corrals, water control features, and rock art.

Environmental Consequences

Alternative A – No Action:

Under the No Action Alternative, there would be no project-related direct and indirect effects to cultural resources on BLM-administered lands from erosion control structures.

Cumulative Effects:

Under the No Action Alternative, erosion of some cultural resource sites could increase over time.

Alternative B – Proposed Action:

Erosion control methods presented in the Proposed Action could potentially affect cultural resources. Soil disturbing erosion control methods have the potential to impact subsurface deposits or displace artifacts. Impacts would be avoided by the design features allowing for historic property identification prior to implementation.

Cumulative Effects:

Erosion control would typically cause an overall positive cumulative effect to cultural resources by preventing loss of surficial or subsurface data. Erosion control stabilizes soils within sites, disallowing for movement of artifacts or loss of features, in turn maintaining the integrity of cultural resource sites.

3.3.7 ISSUE 7: Does delivery of rock and construction of Zeedyk structures adversely affect the physical integrity of Indian sacred sites or sites of concern, or does it restrict access to or ceremonial use of sacred sites?

Affected Environment

American Indian religious concerns are legislatively considered under several acts and Executive Orders, namely the American Indian Religious Freedom Act of 1978 (PL 95-341) (AIRFA), the Native American Graves Protection and Repatriation Act of 1990 (PL 101-601) (NAGPRA), and Executive Order 13007 (1996; Indian Sacred Sites). In summary, these require, in concert with other provisions such as those found in the NHPA and ARPA, that the federal government carefully and proactively take into consideration traditional and religious Native American culture and life and ensure, to the degree possible, that access to sacred sites, the treatment of human remains and associated cultural items, the possession of sacred items, the conduct of traditional religious practices, and the preservation of important cultural properties are considered and not unduly infringed upon. In some cases, these concerns are directly related to “historic properties” and “archaeological resources.” In some cases, elements of the landscape without archaeological or other human material remains may be involved. Identification of these concerns is normally completed during the land use planning efforts, reference to existing studies, or via direct consultation. Sites and landscapes of importance to tribes are known to exist in the general project area.

Previous consultation has occurred for Zeedyk structure construction for portions of the project area under the Programmatic Environmental Assessment for Vegetation Treatments and Installation of Stabilization/Erosion Control Structures In Northwest Colorado (DOI-BLM-CO-N000-2017-0001-EA); as well as the Beiser Creek Zeedyk Structures Project (DOI-BLM-CO-S080-2018-0051-EA) with the Ute Mountain Ute Tribe, Ute Indian Tribe of the Uintah and Ouray Reservation, Southern Ute Indian Tribe. No concerns were expressed regarding the projects at those times. Tribal Consultation for specific project areas related to this analysis, once identified, will occur later.

Environmental Consequences

Alternative A – No Action:

Under the No Action Alternative, there would be no known direct or indirect impacts to Native American Religious Concerns.

Cumulative Effects:

Under the No Action Alternative, there would be no known cumulative impacts to Native American Religious Concerns.

Alternative B – Proposed Action:

The direct and indirect effects analyzed in the Cultural Resources section apply to archaeological sites or historic properties that may be of special interest to the tribes. In addition, erosion control structures have the potential to change the setting and feeling of landscapes and could impact traditional use areas by altering the landscape from its historical appearance. More often, however, erosion control may restore landscapes to the historic vegetative communities in the area.

Cumulative Effects:

Cumulative effects to archaeological sites or historic properties that may be of special interest to the tribes are the same as analyzed in the Cultural Resources section. Other cumulative effects would be the same as those described above.

CHAPTER 4 - CONSULTATION AND COORDINATION

4.1 LIST OF PREPARERS AND PARTICIPANTS

INTERDISCIPLINARY REVIEW

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Eric Eckberg	Geologist	Geology, Paleontology
Scott Hall Ashton Johnson	Realty Specialist	Land Tenure/Status, Realty Authorizations
Nikki Hoffman (NCA)	Wildlife Biologist	T&E Species, Migratory Bird Treaty Act, Terrestrial & Aquatic Wildlife
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Kevin Hyatt	Hydrologist	Soils, Air Quality, Water Quality, Hydrology, Water Rights
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Wayne Werkmeister	Associate Field Manager	Non-Renewable Resource Program Supervisor

CHAPTER 5 - REFERENCES

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