Open Space & Recreation Advisory Committee Meeting Agenda
Tuesday, September 5, 2023, at 9:00 AM
Council Chambers - Eagle Town Hall
200 Broadway Eagle, CO 81631

This agenda, meetings, and information about the Committee can be viewed at www.Townofeagle.org.
The public is invited to comment at the end of each agenda item

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9:00 a.m. CALL TO ORDER and ROLL CALL

9:05 a.m. PUBLIC COMMENT

9:10 a.m. APPROVAL OF JULY MINUTES

9:15 a.m. DISCUSSION/ BUSINESS ITEMS

9:15 a.m. (15 min) Citizen Request: Mayor Gulch Trail Proposal

9:30 a.m. (80 min) Open Space Management Plan: Preliminary draft plan and recommendations review and presentation

10:50 a.m. (10 min) New Business/ Future Agenda items

1. Draft Supplemental EIS addressing lands that are allocated as open or closed for oil and gas leasing on lands managed by the BLM's Colorado River Valley Field Office.

11:00 a.m. ADJOURN

Open Space & Recreation Advisory Committee
Unapproved Meeting Minutes
Thursday, July 6, 2023, at 9:00 AM
Council Chambers - Eagle Town Hall
200 Broadway Eagle, CO 81631

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9:00 a.m. CALL TO ORDER and ROLL CALL

Call to Order at: 9:01am

Roll Call:

Committee members present: Jessica Foulis, Ernest Saeger, Roger Michelle, Erinn Hoban, Chris Kehoe, Lizzy Owens, and Phil Kirkman

Committee members absent: Anna Nakae

Staff Present: Brian Lieberman, Open Space and Trails Manager

Town Council Present: Ellen Bodenhemier

9:05 a.m. PUBLIC COMMENT

- A member of the public requested that the Committee continue to consider increasing the motorized width limit on the Second Gulch Trail.

9:10 a.m. APPROVAL OF JUNE MINUTES

MOTION to approve the June OSRAC meeting minutes by Hoban and second by Kirkman. Motion passed with a vote of 7 in favor (Foulis, Kirkman, Saeger, Michelle, Hoban, Kehoe, and Owens) and 0 opposed.

9:15 a.m. DISCUSSION/ BUSINESS ITEMS

OSRAC Retreat Follow Up – Mission Vision

- The Committee voted on its new mission, vision, and purpose statements developed during the March 30, 2023, retreat and June 6 OSRAC Meeting.

Motion to adopt the following as the updated OSRAC mission, vision, and purpose statements upon endorsement from the Town of Eagle Town Council and to review these statements at least every five years by Seager and second by Foulis. Motion passed with a vote of 7 in favor (Foulis, Kirkman, Saeger, Michelle, Hoban, Kehoe, and Owens) and 0 opposed.

a. **Purpose: The purpose of the Town of Eagle Open Space and Recreation Advisory Committee (the "Committee") is to provide additional expertise to the Town Council and the Town Manager necessary to enhance and facilitate open space and recreation in the Town, and to act as a conduit between the Town, residents, relevant stakeholders, and the broader community to expand and improve the Town's internal and adjacent open space and recreation opportunities within the context of the Town's commitment to conservation, social, and environmental objectives.**
b. **Mission: Maintain and enhance our community's quality of life by advising on resources, conservation, and sustainable management practices of open space, trails, recreation, and natural resources within the Town of Eagle and adjacent lands.**
c. **Vision: The Town of Eagle's vibrant community values their quality of life defined by an abundance of open space, a respect for local wildlife, and an accessible trail system that has options for all users.**

Open Space Management Plan information gathering with Consultant

- ERO Resources is developing Open Space Management Plans for the Town of Eagle.
- ERO Resources presented preliminary data and recommendations to the Committee.
- The Committee provided information and feedback to ERO Resources.
- ERO will continue to meet with stakeholders and gather data this summer. A community survey and a community open house will occur in the fall. Plans will ideally be presented to the Town Council for adoption by December 2023.

New Business/ Future Agenda Items

- Education/Signage for OHV use in Town.
- The Bureau of Land Management has started an Environmental Assessment that analyzes impacts of proposed trail additions and modifications on public lands near Eagle. The project was submitted by Vail Valley Mountain Trails Alliance and Hardscrabble Trails Coalition. The

BLM is accepting public comments on the proposal. More information can be found on the project website: **https://eplanning.blm.gov/eplanning-ui/project/2024351/510**.

MOTION to ADJOURN at 10:31am by Saeger and second by Foulis. Motion passed with a vote of 7 in favor (Foulis, Kirkman, Saeger, Michelle, Hoban, Kehoe, and Owens) and 0 opposed.

To: Open Space and Recreation Advisory Committee (OSRAC)

From: Brian Lieberman, Open Space and Trails Manager

Date: September 5, 2023

Agenda Item: Citizen Request: Mayor Gulch Trail Proposal

Request: Review the proposal from a member of the public for a new trail that would parallel the existing Mayer Gulch trail. Provide guidance to staff if the Committee is interested in this project and would like staff to prepare a full proposal to be presented to the Committee.

Background: Staff met with a member of the public in August who would like to see a new trail that would parallel the existing Mayer Gulch trail. Their main reason for proposing the trail was to separate users going uphill from downhill on Mayer Gulch for safety. They propose building a new trail to the east of the existing Mayer Gulch trail in the gully for users going downhill.

At an initial meeting, staff expressed several concerns about the proposed trail. Namely, the trail was not identified in the 2022 Open Space and Trails Master Plan, concerns with a trail located in a gulch, and the number of existing trails already in the area.

Section 6.04.010 of the Eagle Municipal Code outlines the procedure for a member of the public or a user group to propose a new trail on Town open space. This section of Code was written before the development of OSRAC. Staff would like OSRAC to weigh in on the trail proposal before a potential review by the Town Council.

Analysis:

Potential user conflicts

Town staff and user groups have fielded some concerns about two-way traffic on the Mayer Gulch trail. The trail is moderately popular (averaging about 45 people per day this summer, compared to about 104 people per day on Boneyard). The terrain on the trail also permits riders to get decent speed going down, is narrow, and there are some turns with limited sight lines. Conflicts could exist for uphill users (bikes, equestrians, or pedestrians) and downhill bike users.

To address this issue, the Town and the trails groups have posted signs alerting users of 2-way traffic, put up extra information about trail etiquette, and increased educational efforts online. Conversations have also been started with the Bureau of Land Management (BLM) about directional trails in this area. However, the agency has been hesitant to designate trails as directional or add additional trails in the

area. As proposed, the potential trail would branch off the existing Mayor Gulch trail on Town open space in an area with higher speeds and more limited sight lines.

Staff concerns with the proposal

Concerns about the proposal include that a new trail was not identified in this area in the 2022 Open Space and Trails Master Plan, apprehensions about a trail located in a gulch, and the number of existing trails already in Eagle Ranch.

Trail density is high in this area with the nearby paralleling trails of Turniphead, Wall, and Riddle. These trails provide access to the same place and are less popular for downhill travel. Although the BLM is hesitant to designate directional trails, the Eagle Ranch trails could be suggested as directional, similar to Boneyard (up) and Pool and Ice (down).

As proposed, the trail would go through the gulch adjacent to the Mayer Gulch trail. The gulch would be very difficult to build and maintain a trail owing to rock fall, water management, loose soils/slopes, natural drop features, and equipment access. Should a trail be desired in the area, a more sustainable alignment would be through the uplands sage area.

Last, the Town just went through a Master Planning process in 2022. Although the plan indicated that directionality is a challenge in the system, there was no significant support for a duplicate trail in this area. In addition to the efforts already occurring to increase safety on the trail, other efforts could also be considered instead of a new trail (such as suggested directional trails).

Community Input: The trail was not identified as a project in the 2022 Open Space and Trails Master Plan. Additional community input would be required for the trail proposal, as outlined in Section 6.04.010 of the Eagle Municipal Code.

Budget/ Staff Impact: Staff would identify cost estimates and staff time required to build the trail should the Committee recommend that staff prepare a full proposal to be presented to the Committee.

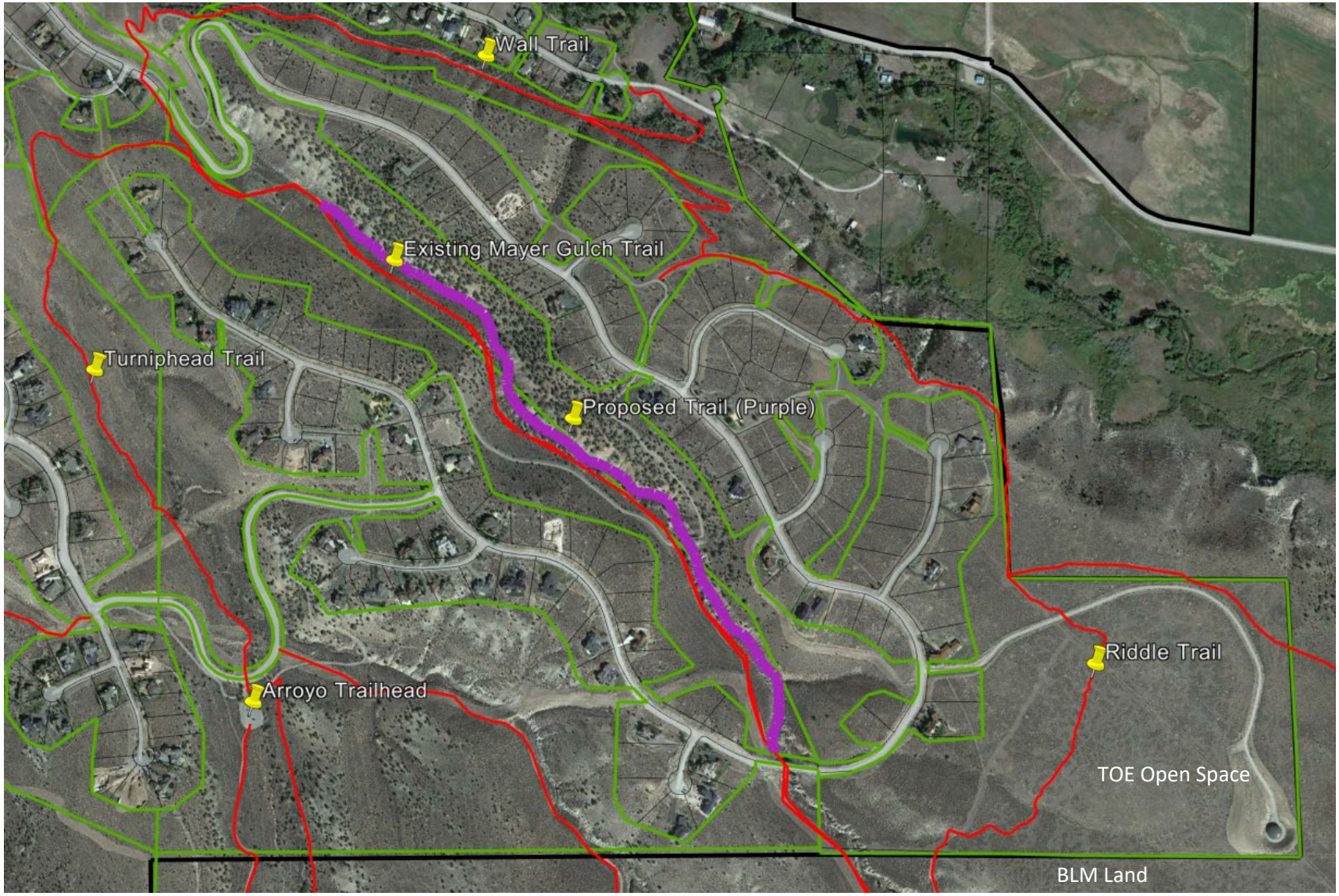
Strategic Plan Alignment/ Standards Archived: The trail was not identified as a project in the 2022 Open Space and Trails Master Plan. However, the plan stated, “Recommending or requiring [trail] directionality can be an important tool to reduce user conflict, particularly when a trail’s build may lead to high-speed riding or blind corners on a singletrack.”

Recommend Action or Proposed Motion:

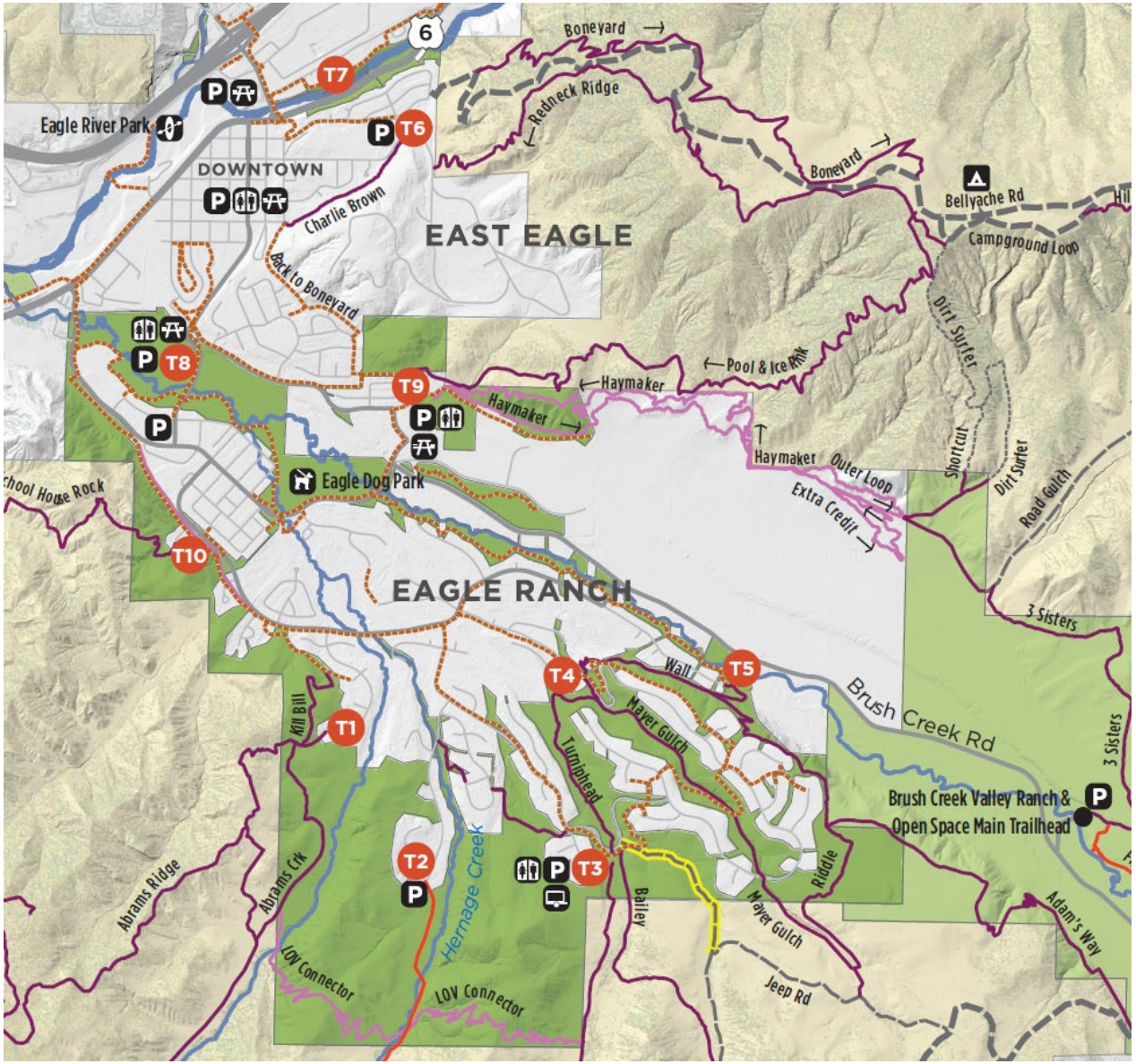
1. Motion to recommend that staff prepare a full proposal for the Mayer Gulch parallel trail to be presented to the Committee for further review.
2. Motion to recommend that staff prepare alternative solutions to address user conflicts on the Mayor Gulch trail for consideration by the Committee.
3. Motion to recommend that the Town Council of the Town of Eagle, Colorado, does not pursue a parallel trail in Mayor Gulch as presented.

Attachments:

1. Rough map of the proposed trail
2. Overview map of the region



Map 1: Rough map of the proposed Mayer Gulch Parallel trail. The proposed trail is illustrated in purple and would run through the gulch just to the east of the existing Mayer Gulch trail on Town owned open space. Existing trails are in red, and Town owned open space is in green.



Map 2: Overview map of existing conditions in the region.

To: Open Space and Recreation Advisory Committee (OSRAC)

From: Brian Lieberman, Open Space and Trails Manager

Date: September 5, 2023

Agenda Item: Open Space Management Plan: Preliminary draft plan and recommendations review and presentation

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Request: Review the Preliminary Draft Management Recommendations for the Town of Eagle Open Space properties prepared by ERO Resources (ERO) for the Open Space Management Plans. Provide initial thoughts and feedback to Town Staff and ERO.

Background: The Town's recently adopted Open Space and Trails Master Plan (OSTMP) highlighted the need to improve the Town's inventory of natural and recreation resources and to catalog management approaches for open space properties. ERO Resources was selected to tackle this by developing Management Plans for Town open space properties.

As a part of developing the Management Plans, The Town has tasked ERO with addressing three overarching management issues and providing recommendations to the Town on whether the existing management strategies need to be reevaluated or changed. These include the motorized width limit for access on Second Gulch, Haymaker trail winter management, and mountain e-bike access on natural surface trails in open space.

This summer, ERO has hosted meetings with stakeholders, gathered information, and completed field inventories to form the backbones of the new plans. In mid-June, they hosted two focus groups with stakeholders and had several meetings with staff to kick off the project. ERO also attended the July OSRAC meeting to gather initial thoughts from the Committee on open space management. At the end of July, ERO released a community survey that was open through August 18.

ERO used all this data to form the preliminary management recommendations and Open Space Management Plans that will be presented to the Committee at the September OSRAC meeting. ERO will take the feedback from the September OSRAC meeting and develop revised plans to share with the community at an Open House on October 11, 2023, at the Brush Creek Pavilion at 4:30pm.

Analysis: At the meeting, ERO will present the preliminary draft Open Space Management Plans and Management Recommendations to the Committee. They will seek feedback from the Committee and incorporate it into revised drafts that will be shared with the border community in October.

Community Input: Over 800 people took the open space survey in July/ August. Fifteen stakeholder groups participated in the focus group sessions in June. Feedback from these efforts was used to develop the preliminary draft plans. Additional community feedback will be pursued from the open house in October.

Recommend Action or Proposed Motion: None- Provide initial thoughts and feedback on the preliminary draft plans to Town Staff and ERO.

Attachments: ERO is pulling out the three major management recommendations from the overall management plans. This includes the motorized width limit for access on Second Gulch, Haymaker trail winter management, and mountain e-bike access on natural surface trails in open space. This will focus the more controversial discussions on these white papers rather than the open space plans altogether. In addition, some management recommendations address more than one open space property.

The three preliminary draft policy white paper recommendations and the four management plans are attached.

ERO Resources Corporation

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8/28/23

Town of Eagle Open Space and Trails
Management Plans
Issue Discussion: E-MTB Access

Background

The use and demand for access by electronic-assist mountain bikes (e-MTBs) on natural surface trails is rapidly expanding. This emerging use type has been contentious, based on concerns about physical and environmental impacts, trail system use and conflict, values around physical effort and reward, and overall perceptions of outdoor ethics.

Rules and regulations on public land regarding e-MTB access on public lands vary by land management agency. While some local open space departments and the State of Colorado allow Class 1 (pedal assist) e-MTBs on natural surface trails, many others do not. Currently, the Town of Eagle prohibits e-MTB access on all natural surface trails. Likewise, the BLM and US Forest Service prohibit e-MTB access, though policies and procedures are in place to allow access on a localized, case-by-case basis.

Issues

Those who oppose opening trail access to e-MTBs bring a variety of perspectives, which can be generally summarized in the following categories:

- **Trail impacts** – Concern that the higher weight and speed of e-MTBs degrades the trail tread
- **Environmental impacts** – Concern about additional impact to vegetation and wildlife resulting from e-MTB use
- **Congestion and Conflict** – Concern about additional trail congestion resulting from a new type of trail users, more trail users, or individuals traveling further, along with additional conflict resulting from greater speeds and weight of e-MTBs
- **Outdoor ethics and values** – Concerns and perceptions about outdoor ethics, use of motorized equipment in natural areas, and values around physical effort and reward

Those who support opening trail access to e-MTBs bring different perspectives, including:

- **Industry Trends** – The bike industry, in general, is trending towards more electronic assist technologies, so it makes sense to embrace some level of access for e-MTBs
- **Equitable Access** – E-MTBs allow people with different physical abilities to access the open space system, and restricting that is unfair to aging or challenged populations

- **Inevitability** – As technologies evolve, it is becoming increasingly difficult to distinguish between e-MTBs and traditional mountain bikes, and e-MTBs will become increasingly common, so it makes sense to allow them
- **Management Consistency** – It is difficult and confusing for land managers and trail users to distinguish changed access regulation across jurisdictional boundaries, so it make sense to allow e-MTB access on a uniform basis.

Another issue that is typically less evident to community members is the compatibility of e-MTB access with conservation easements on some open space properties. While each easement deed is unique, they often include language that generally prohibits motorized uses that did not anticipate electronic assist mountain bikes when the easement was originally drafted.

Note that numerous community members have also expressed issues and concerns regarding the safety and management of e-bikes on Town bike paths, sidewalks, and streets. Management of those concerns, while valid, are outside the scope of this analysis.

Community Survey Results

The online community survey posed a direct question about this issue, and allowed for open-ended responses. Based on the survey, a majority (57%) of respondents did *not* support increasing e-bike access on non-motorized dirt trails on Town open space, while 43% supported e-bike access.

Open-ended responses provided a wider range of opinions, including the following:

- "I love the existing trail system for mountain biking, and class 1 e-bikes should be considered in the same vein as non-motorized mountain bikes."
- "We should allow e-mountain bike access to the trails, the pedal assist kind. There are many of these on the trails already and do not go that much faster. They allow for people to get out who would not normally. With the trails already popular and well used, they would not cause too much additional strain on the trails."
- "It is my opinion that e bikes should remain on pavement."
- "In regards to e-bike access to open space trails, I think that e bikes should only be allowed on trails that directly access BLM land."
- "Class 1 e-bikes should be allowed on nonmotorized dirt trails."
- "Protect wildlife and keep out the e-bikes."
- "E-Bike access is the same as motorcycle access."
- "Pedal assist (non-throttle) bikes should be allowed on trails. It gives greater access to a broader array of people without making it a fully motorized trail."
- "E-bikes are hear to stay. So make sure you have a clear and innovative policy. Restrict certain trails from and open others for shared use."
- "I support pedal assist e-bikes. I do not support any other type."
- "E-bikes will increase wear and tear of trails, from more users or more "laps" being risen. More maintenance of trails may be required."
- "BIG NO to EBikes on trails. Please don't do it!"
- "I support assisted pedal e-bikes. Not throttle. Assisted pedal bikes allow access to those that may have injuries, or age limitations that would not allow them to enjoy the trails and rides with friends and family like a self assisted pedal bike would."

- "I feel Class 1 e-bikes should be allowed without restriction on all trails. Rider education/etiquette signs may help for those that would otherwise comply but don't know how to act."
- "E bikes have motors. Keep them on the motorized trail system and off of the non motorized trail system."
- "Pedal assist bikes only to be added to trail system. No bikes with throttled. Those are motorized vehicles."
- "With all the sales of E bikes and people riding them it's only a matter of time until our trails should be E bike friendly."
- "E-Bikes are the future. Learn how do best adopt them into the system."

Research

ERO conducted a review of the current literature pertaining to the potential impacts of e-MTBs compared to traditional mountain bikes and other outdoor recreation activities. While this is an emerging area of research, and the studies pertaining to this topic are very limited, some of the common trends and findings may be useful in determining management strategies for e-MTBs.

This review focused on three main topics: physical effects on soil erosion and trail integrity, disturbance and habitat effects on wildlife, congestion and crowding, and existing demographics of e-MTB riders that may influence the extent and magnitude of impacts. This review did not explore topics pertaining to safety, greenhouse gas emissions, perceptions, conflict and etiquette, and other salient topics. Key findings of this review include:

Physical Effects – While research is limited, one study (IMBA 2016) found that difference in impacts on soil displacement and tread disturbance between e-MTBs and traditional mountain bikes was insignificant overall, though e-MTBs did cause greater soil displacement in grade changes and turns (likely due to higher approaching speed and mass).

Wildlife and Habitat Effects – The direct impacts of e-MTBs on wildlife (startling, flushing, or trampling) are similar to traditional mountain bikes and other nonmotorized trail users. However, the greater potential of e-MTB riders to venture further into natural areas more frequently can cumulatively increase the frequency of wildlife impacts in sensitive backcountry areas, increasing their consequences to over time (Mitterwallner et al. 2021; Chiarenza et al. 2022; Taylor and Knight 2003).

Congestion and Crowding – As e-MTBs enable more people to participate in the sport, there may be an impact from congestion and crowding on popular trails (San Francisco Estuary Institute 2021); however, increases in outdoor recreation and crowding will continue to occur regardless of e-MTB use and managing for total visitation may be more practical and equitable than focusing on a select group of visitors (Boulder County Parks and Open Space 2019).

Demographics – Many e-bike riders are seasoned cyclists who switch to e-bikes as they age to maintain or extend their enjoyment of riding on public lands (Perry and Casey 2020), though the reduced energy and endurance required for e-bikes may enable more people to enjoy the activity and increase the number of people in trail systems and reaching remote areas (Mitterwallner et al. 2021).

In summary, the existing literature on this topic suggests that the direct impact of e-MTBs on wildlife and the trail itself are similar to traditional mountain bikes. However, the ability of individual e-MTB riders to travel farther with less effort could result in greater cumulative impacts on wildlife and habitat in areas further from trailheads that currently have low levels of human disturbance.

Management Options

The following options have been proposed and could be considered to manage this issue:

- **Maintain status quo** – No change from existing management – restrict e-MTB access on natural surface trails.
- **Partial Access** – Allow limited Class 1 e-MTB access on a few natural surface trails that are deemed appropriate and/or do not connect to adjacent BLM trails.
- **Expanded Access** – Allow Class 1 e-MTB access on all Town of Eagle trails, with no coordination with adjacent BLM or Eagle County trails.
- **Coordinated Regional Access** – Work with Eagle County, BLM, and other entities to develop a regional, coordinated strategy for e-MTB access on interconnected natural surface trails.

Recommendation

Based on the emerging science and trends around e-MTB access, the context of Town of Eagle trails and their interface with BLM systems, and the mixed community sentiment around e-MTB access, the following strategies are recommended.

Coordinated Regional Access

Work with Eagle County, BLM, USFS, and other partners to develop a long-term strategy for managing e-MTB access in a manner that is consistent with resource needs and compatible across jurisdictions. This coordination is presumed to be a pathway towards allowing e-MTB access to many trails over the long term, but could end up being more limited or restrictive.

Development of this strategy would include the following steps:

- Collaborative discussions between land managers and key community stakeholders
- Continued and expanded collection of visitor use data throughout the system to help assess the potential incremental impacts of e-MTB access
- Evaluate compatibility of e-MTB access with existing conservation easements, and identify the potential need for easement amendments or other measures to change or clarify the language, while continuing to maintain and protect the overall conservation values
- Development of an e-MTB access strategy, including open and closed areas, timing, and management
- BLM NEPA evaluation and approval of a rule change that would allow e-MTB access on selected regional trails
- Consistent management, signage, and communications
- Monitoring and enforcement

This strategy would take several years to implement, which provides an opportunity for further discussion within the community and monitoring of evolving uses and trends.

Based on the current scientific literature, most of the impacts of e-MTBs appear to be similar to traditional mountain bikes. However, the increased prevalence of trail users in backcountry habitat areas, and the potential impacts of that increase on wildlife should be evaluated.

This strategy would, over the long term, likely allow some degree of e-MTB access to trails in and around Eagle. However, this should only occur in a manner that is strategic, transparent, and is coordinated across different land management entities. In contrast, simply opening Town of Eagle trails to e-MTBs without a coordinated regional effort would result in further confusion, violations, conflict and resentment among trail users.

References

Boulder County Parks and Open Space (BCPOS). 2019. Literature Review: Recreation Conflicts Focused on Emerging E-bike Technology. https://assets.bouldercounty.gov/wp-content/uploads/2020/01/e-bike-literature-review.pdf.

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8/28/23

Town of Eagle Open Space and Trails
Management Plans
Issue Discussion: Haymaker Winter Access/Wildlife Closure

Background

The Haymaker Trail consists of three intersecting loops of natural surface singletrack trail, with a total of about 5 miles. This trail is designed for beginner to intermediate mountain bikers and is also popular for hiking and trail running. With direct access to the community and primarily south-facing slopes, it is a very popular amenity particularly in the spring, fall, and winter months.

The Haymaker Trail is located at the interface between open terrain managed by the Bureau of Land Management (BLM) to the northeast, and urban Eagle neighborhoods to the west. The entire area is mapped by CPW as winter range for both elk and mule deer, and the Haymaker Trail is located on the edge of Severe Winter Range and Winter Concentration Area for elk and mule deer. CPW has defined two primary migration corridors between the Eagle Ranch area and Brush Creek to the south, and the BLM lands to the northeast. These corridors are located through the irrigated hay meadow to the south of the first loop (Haymeadow Open Space and private land), and the hay meadows south of the third loop.

The Haymaker Trail is currently subject to the following management:

- First and second loops are open year-round
- Third loop is closed December 1 through April 15
- Trails are open to bicycles and pedestrians, with dogs on-leash when open

The adjacent Pool & Ice Trail, just north of the Haymaker Trail, is located primarily on BLM land. BLM regulations restrict access to bikes during the winter, but the trail remains open to pedestrians. This trail has connections to Haymaker at points on the first and second loops.

Most of the land south of the Haymaker Trail is planned for long-term urban development as part of the Haymeadow Development. The first phase, south of the first loop of the trail, is currently under construction and is slated for completion in 2024. The proposed development (https://haymeadow.com/site-plan/) will extend for about a mile to the east. While it is intended to include three narrow open space corridors, any major wildlife movement in this area will be cut-off at full buildout.

The existing wildlife corridor immediately south of the first loop and Haymeadow Open Space is currently slated for a “recreation and school site.” While the details of this development are unknown, it is likely to constrain or eliminate the area as a meaningful wildlife corridor.

Issues

As a result of stressed elk populations in the region, CPW and some community members have proposed extending the winter use closure (December 1 – April 15) to include the entirety of the Haymaker Trail. This is to support elk movement and their ability to utilize the south-facing slopes during the winter, at a time when they are naturally stressed and vulnerable to human and dog disturbance.

Many community members are concerned about the proposed closure, since the Haymaker Trail is one of the only natural-surface trails in Eagle that remains open through the winter. Most of the trails within Eagle Open Space and surrounding BLM are closed in the winter. Some community members highly value winter access on this trail and have stated that the winter recreation access provided by the Haymaker Trail has made it easier to maintain firm closures on the other trails near Eagle.

Anecdotally (and supported by remote camera findings), one of the primary uses of the trail in the winter is dog walking by local residents, often with the dog off-leash. This presents a concern since off-leash dogs are perceived by elk to be a predator, which exacerbates their reaction to disturbance.

Haymeadow Development Phase 1 Site Plan:

Community Survey Results

The online community survey posed a direct question about this issue and allowed for open-ended responses. Based on the survey, a majority (55%) of respondents supported additional winter restrictions on the Haymaker Trail system to protect wildlife, compared to 45% who did not. Most

respondents said that biking was their preferred use of the Haymaker Trail in the winter (43%), followed by hiking (35%) and dog walking (30%).

Open-ended responses provided a wider range of opinions, including the following:

- "I think with a massive development going in adjacent to haymaker that restricting access to protect wildlife is a moot point."
- "Yes, please leave Haymaker alone and back off on the off leash dog police."
- "With the big development encroaching further down Haymaker, I don't see how further limiting access in winter is helpful to wildlife."
- "We all like wildlife but it seems like the policies are contradictory as development is going in all around the areas that are being considered for wildlife closure. I don't understand the reasoning. I oppose closing Haymaker 1and 2 loops in the winter."
- "The first loop of Haymaker trail will soon be surrounded by homes so it makes no sense to close it off in the winter. Home construction is far more harmful to our wildlife than humans on the trails!"
- "Wildlife protection is very important however, with approved development going on in the Haymaker vicinity, this alone is going to affect wildlife more than full winter trail closures."
- "I don't use Haymaker in the winter, I think it should be kept open for recreation as it currently is."
- "Please close haymaker trail in winter and keep closed until March 1"
- "With only 2 trails open in the Winder (and potentially only one if they close Haymaker) it creates conflict and issues every winter. I don't believe the wildlife impact argument for these lower trails is valid with all the housing and golf course in the area."
- "Right now with only 2 trail opens in the winter (and talk of restricting Haymaker even more) there is WAY TOO MUCH CONGESTION on the trails in the winter."
- "If the Haymaker system needs to be closed for wintering wildlife, open the second gulch/riddle/wall areas so people can have an area for winter recreation."
- "Please seriously consider a winter closure on Haymaker. Currently it has turned into a winter, off-leash dog park that has major negative impacts upon our local wildlife populations. The town has plenty of other open areas (paved trail system, off-leash fog park, etc) for users to go during a winter closure."
- "The status quo provides reasonable equitable access for various recreational uses. The winter priority for the Haymaker area should serve as critical habitat for the elk populations but give the open space management flexibility to allow use in mild winters if the elk are not utilizing the space."
- "It seems illogical to close/restrict the first two loops of Haymaker in the Winter with all of the new development going on in that area."

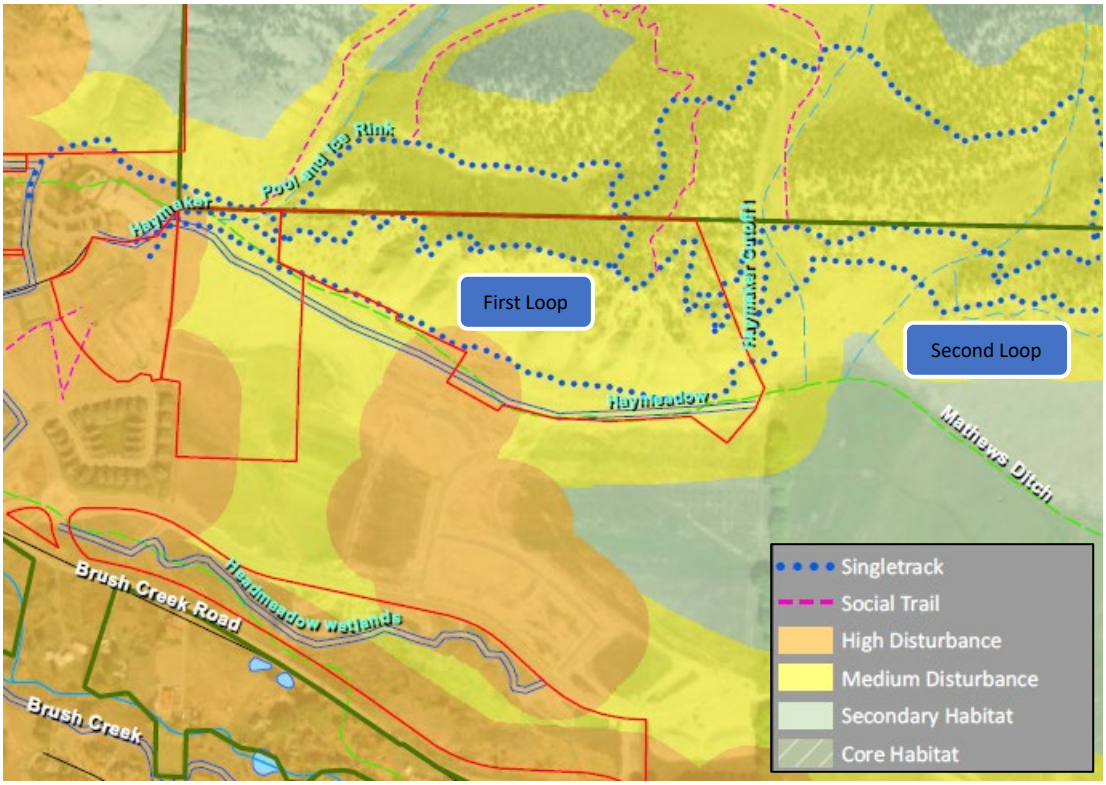
Habitat Fragmentation Analysis

- The entire first loop is influenced by nearby homes and other disturbances (medium disturbance).
- Portions of the Haymeadow Open Space corridor is within the 100m buffer of homes and other human infrastructure (high disturbance), and all of the corridor is within the influence area (medium disturbance).

- Portions of the south leg of the first loop will be within the 100m buffer of new (2024) home and human infrastructure (high disturbance).

The habitat fragmentation analysis is shown on the following graphic.

Habitat Fragmentation Map



Remote Camera/Use Data

- The *open* sections of Haymaker had an average total of 886 human visitors, and 476 dogs during the December 1 - April 12 winter period in 2022 and 2023.
    - User types, on average, were 81% hikers, 17% bikers, and 2% skiers
    - 78% of dogs were off leash
- The *closed* sections of Haymaker (Third Loop) had 2 visitors in 2022 and 1 in 2023.
- In the 2022-2023 winter period, 299 elk and 87 deer were observed on the Haymaker Third Loop, while 22 elk and 254 deer were observed nearby on the lower Pool & Ice Trail (approx. ¼ mile uphill).
    - Most of the elk observations (167) were clustered in a short time period between 11/30 and 12/8, with a second cluster of observations (40) in mid-January.

These remote camera observations suggest that winter use on the open sections of Haymaker is dominated by hikers, with many off-leash dogs; illegal use of the closed section is limited, and elk use appears to be clustered around the lower hillsides.

Management Options

The following options have been proposed and considered to manage this issue:

- **Maintain status quo (seasonal closure of third loop)** – No change from existing management
- **Full winter closure (all loops)** – Close all loops to protect winter wildlife habitat
- **Closure of second and third loops** – Extend winter closure to include both the second and third loops
- **Closure of east half of second loop, and third loop** – Extend winter closure to include the east half of the second loop, located at Pool & Ice connector
- **Winter dog closure** – Restrict dog access to all loops during the winter
- **Construct an off-leash dog park** – New facility to mitigate impacts of dog closure
- **Construct new loop behind Pool and Ice facility** – New, short loop that can remain open during the winter

Recommendation

The Haymaker Trail traverses a south-facing slope that is appealing to residents in the winter, and also contains critical winter habitat for elk. It is located at the urban interface that is rapidly changing due to new residential development. The following recommendations consider the facts of the situation, the changing land use context resulting from the Haymeadow Development, and the need to develop a balanced strategy for recreational access and winter elk habitat protection.

Proposed Strategies:

1. Maintain year-round access to the first loop
2. Establish adaptive closure of east half of second loop
3. Retain seasonal closure of third loop
4. Establish a seasonal closure to any dog access
5. Communication and enforcement

First Loop. The first loop of the trail (about 1.6 miles) should remain open to winter use. This area is already highly fragmented and subject to disturbance from nearby development. With the impending buildout of the first phase of the Haymeadow Development, this disturbance will be exacerbated, and the wildlife movement corridor through this area will be further compromised. In the meantime, the demand for recreation access to this area will only increase. Maintaining access to the first loop will provide residents a meaningful opportunity to experience open space access and natural surface trails while complimenting extensive winter closures elsewhere in the system.

Second Loop. The east half of the second loop (about 1.2 miles) should be subject to an *adaptive* closure that is implemented in partnership between the Town of Eagle and CPW. During the December 1 – April 15 winter period, the trail would be closed to human use unless otherwise opened during unseasonably warm weather. Closure gates at the beginning and end of the second loop would be maintained by the Town of Eagle, and will be monitored over time by staff and remote cameras. This approach would proceed on a trial basis for three years, to determine effectiveness and compliance.

Third Loop. The third loop and Extra Credit should remain closed during the winter seasons.

Dog Access. Dog use should be restricted on all loops during the winter seasons (December 1 – April 15), to reduce the risk of off-leash dogs disturbing or chasing wildlife during critical winter periods. To

mitigate this impact on the community, an off-leash dog park would be constructed near the Haymaker Trail trailhead.

Communication and Enforcement. The above measures should be supported by proactive signage, community outreach, and enforcement.

Monitoring. The following measures should be implemented to monitor and evaluate the adaptive closures:

1. Trail Use – Install cameras at multiple locations (in addition to the existing camera sites) to track visitor use, type, and dog use during the winter. Set the cameras up to correlate use statistics on open, closed, and adaptive sections of trail.
2. Wildlife Use – Install cameras at key locations to monitor wildlife use in the open (first loop), adaptive (second loop), and closed (third loop) areas.
3. Weather – Track and record, on a daily or bi-weekly basis, weather conditions including high and low temperatures, precipitation, and storm events.
4. Ground Conditions – Track and record, on a weekly basis, ground conditions near the adaptive closure point, including estimated snow cover (percent), average snow depth, or other conditions (i.e., wet, muddy, dry).
5. Each spring, evaluate the monitoring data collected to learn from and improve the adaptive closure program, considering factors such as:
    a. Use – How many visitors use the first and second loops?
    b. Compliance – How many visitors enter the closed trail?
    c. Wildlife use – What is the frequency and timing of wildlife use in the second loop area?
    d. Correlation – Does wildlife use correlate with weather conditions or storm events?
    e. Effectiveness – Is the adaptive closure effective and manageable?

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8/28/23

Town of Eagle Open Space and Trails
Management Plans
Issue Discussion: Second Gulch Motorized Vehicle Access

Background

Originating from Arroyo Drive near the Arroyo Trailhead, the Second Gulch Trail within Town open space property is an approximately ½ mile trail that connects to the BLM Route 83881 and Second Gulch Road (Route 8388) on adjacent BLM land to the south. The trail is open to non-motorized access (hike, bike, and equestrian) and limited motorized access. Within Town open space and the adjacent BLM route (83881), the trail is open to motorized vehicles less than 50 inches in width, which typically includes motorcycles and smaller all-terrain vehicles (ATVs). Wider motorized vehicles, which typically include utility terrain vehicles (UTV or "side-by-sides") and full-size trucks and sport utility vehicles, are not permitted on the town trail segment. The Second Gulch Road on BLM land is open to all modes of transportation, providing access to Hardscrabble Road, the Hardscrabble West Recreation Management Zone, and surrounding public lands.

While the 50-inch width restriction has been in place for a long time, it was largely unenforced and no width limiters were in place on the trail. This changed in 2022, with the replacement of cattle guards and the installation of width limiters.

The Second Gulch Trail is one of two locations within the Town of Eagle where residents have direct access to BLM public lands on motorized vehicles; the other location is Bellyache Road originating from Bluffs Drive. Town of Eagle regulations allow the use of unlicensed motorized vehicles (e.g., motorcycles, ATVs and UTVs) to allow residents to access nearby public lands from their home in Eagle.

The current Second Gulch trail and access stipulations were implemented as part of the Eagle Ranch plans and approvals, which included the dedication of open space in the area.

Issues

In recent years, some community members have expressed the need to allow wider and larger unlicensed motorized vehicles (e.g., UTVs) which are increasingly popular and common, to provide consistent access to adjacent BLM routes. These vehicles are wider than the 50-inch restriction on the Second Gulch trail and are therefore prohibited. Some community members believe that the current regulation is out of date, does not accommodate current trends, and unfairly restricts access to many members of the motorized recreation community.

Other community members have become increasingly concerned about the impacts and conflicts associated with the existing motorized access to Second Gulch. This has primarily been related to engine noise along Fourth of July Road and Arroyo Drive, and user conflicts along the trail itself. Some community members believe that motorized access to the Second Gulch trail should remain limited, or perhaps be further restricted, to mitigate these conflicts.

An additional concern is that a change in regulation that accommodates wider vehicles (UTVs, etc.) may also allow full-size, licensed trucks and SUVs, further increasing the volume of traffic and corresponding conflicts on the Second Gulch trail and neighborhood streets.

The Town of Eagle is facing a conflict between adapting regulations to allow meaningful and equitable access to motorized recreationists, without increasing or exacerbating impacts to neighboring communities and other trail users.

Community Survey Results

The online community survey posed a direct question about this issue and allowed for open-ended responses. Based on the survey, a large majority of respondents preferred continued motorized access for vehicles up to 50 inches (78%), compared to 22% who preferred increased width to accommodate modern OHVs.

Open-ended responses provided a wider range of opinions, including the following:

- "I feel like anywhere you add UTV access you end up with multiple unsanctioned trails from driving off trail that destroys the vegetation and in turn degrades the resilience of an already vulnerable habitat…I wouldn't want to see second Gulch share the same damage and change to the landscape."
- "I think expanding the Second Gulch Trail is a terrible idea. The larger OHVs do not belong on that trail and allowing them there would seriously degrade the neighborhood."
- "Please open the Second Gulch access to vehicles of any width (eg full size 4x4 vehicles)."
- "I highly encourage you to consider opening second gulch I'm an avid mountain biker and believe in access for ALL users not just non-motorized."
- "Highway legal 4x4 vehicles should be also allowed on Second Gulch trail."
- "Please return full size 4x4 access to second gulch trail, for instance like jeeps."
- "Second Gulch should allow wider vehicles such as 4x4 jeeps etc. access to our open lands and BLM. People with the mentality of not in my back yard should not be able to close this access, these trails were here before they built their homes."
- "Would like jeep access not just Sxs to second glutch. If sxs or jeep access is allowed would suggest separate single track for Mtn bike access for safety."
- "I oppose all motorized usages on town open space, including the Second Gulch Trail."

- "We are concerned about safety, wear and tear, dust and increased noise of larger vehicles accessing BLM land via Second Gulch. Speeds and noise is already an issue on Arroyo and Fourth of July Rd from motor bikes accessing Second Gulch."
- "The use of the jeep road to access second gulch and the use of second gulch for motorized traffic is an incompatible use with walking, running, biking. The trail systems need to be separated with defined trails for motorized vs. other uses."
- "The town needs to allow access for all recreational activities. If you don't provide it in second gulch where will you provide it?"

Management Options

The following options have been proposed and could be considered to mange this issue:

- **Maintain status quo** – No change from existing management – 50-inch width restriction.
- **Expand access, with restrictions** – Expand the permitted width to allow UTVs and other modern recreation vehicles, with regulations, signage, restricting access to full size trucks and SUVs.
- **Open motorized access** – Allow all vehicles and uses, consistent with the adjacent regulations on BLM land.

Other tools or options to mitigate issues include the following:

- Construct a separate singletrack trail, within the road corridor, to provide separate non-motorized access
- Ongoing outreach, education, and enforcement to mitigate noise and speed conflict on neighboring streets
- Construct technical features at the entry to discourage and restrict access by full-size trucks and SUVs, and inexperienced drivers

Recommendation

The discussions about Second Gulch access are very contentious in the community, since they revolve around extremely personal and subjective perceptions around equitable access, historical uses, quality of life, recreation conflict, and safety. Given this context, we do not believe that this management plan, and its limited community process is sufficient to resolve this issue. However, these following steps are recommended to address issues around Second Gulch trail access:

- Develop a specific community process to further explore and address this issue
- Engage a professional facilitator to manage and facilitate the process
- Include multiple community working group sessions and broader community input
- Consider a 2-3 year "pilot" process to test new management and access options, with specific and measurable indicators to define success
- Work toward a consensus recommendation to City Council for a pilot process or long-term solution

This is a divisive and emotional issue, that touches on many individual and community dynamics. As they further explore this issue, community members are strongly encouraged to honestly express their own concerns and ideas, while also considering others' perspectives with a sense of empathy and understanding, and proactive problem-solving.

ERO

Consultants in Natural Resources and the Environment

DRAFT

Town of Eagle Open Space and Trails
Abrams Creek and Eagle Ranch Open Space
Natural Resource Management Plan
Eagle County, Colorado

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September 2023

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Appendices

Appendix A. Online Public Survey Results
Appendix B. Harrington's Penstemon Background and Conservation Measures

Abrams Creek and Eagle Ranch Open Space
Natural Resource Natural Resource Management Plan
Eagle County, Colorado

September 2023

Introduction

This Natural Resource Management Plan (management plan) for the Abrams Creek and Eagle Ranch Open Space properties in Eagle County, Colorado (properties) is intended to assist with recommendations for natural resource concerns that impact the existing, as well as future, conditions based on management objectives set forth in the 1997 Open Lands Conservation Plan. Some of these natural resource concerns include noxious weed management, wildlife habitat conservation, and visitor use management measures.

Location and Background

The properties consist of approximately 880 total acres located along the southern and western perimeter of the Town of Eagle (Eagle or Town), Colorado generally accessed from Eagle Ranch Road (**Figure 1**).

The open space properties are located on the western, south, and southwestern boundaries of Eagle with elevations ranging between 6,700 and 7,250 feet. These areas are largely undeveloped aside from trailhead access areas, trails, and access roads (**Figure 6**). These open space properties consist of mainly pinyon juniper forests, sagebrush shrublands, and herbaceous meadows and are bound by land owned and managed by the Bureau of Land Management (BLM) Colorado River Valley Field Office to the west and south, land owned and managed by Eagle County Open Space (Brush Creek Valley Ranch and Open Space) to the east, and residential lands to the north.

Planning Context

Purpose of the Management Plan

The purpose of this management plan is to provide an assessment of existing natural resources, and to guide resource management at the property. More specifically, this management plan is also intended to achieve the following objectives:

1. Document existing conditions and resource management issues on the property.
2. Identify and prioritize strategies to address resource management issues and maintain the overall integrity of resources on the property.

Management Plan Process

The Town of Eagle hired ERO Resources Corporation (ERO) to complete this management plan. The planning process included the following phases:

1. **Focus Group Meetings (June 2023):** Meetings with focus groups to discuss issues and objectives related to natural resource and recreation management.
2. **Resource Assessment (June – July 2023):** Evaluation of existing resource data, and field assessments of open space properties
3. **Public Survey (July – August 2023):** Online survey to assess community preferences around key open space management topics (**Appendix A**).
4. **Draft Management Plan (September – October 2023):** Completion and public review of draft management plans
5. **Final Management Plan (November – December 2023):** Completion and adoption of final management plan.

Relationship to Existing Plans and Policies

This section describes the various land use considerations associated with the property.

Open Lands Conservation Plan

In 1997, the Town of Eagle adopted its Open Lands Conservation Plan which established open space dedications in the town. This plan introduced four objectives for managing open space properties.

- Conserve Natural Characteristics
- Protect Critical Wildlife Habitat
- Provide Appropriate Recreational Opportunities
- Maintain Scenic Qualities

Open Space and Trails Master Plan

In July of 2022, Eagle adopted the Open Space and Trails Master Plan (OST Plan) which prioritized the need for creating management plans for its open space properties (Eagle 2022). One of the primary goals of the OST Plan is to "inventory conditions and improve understanding of open space" by monitoring and managing natural resource conditions in Eagle's open spaces in accordance with best practices and management plans. Recommendation OS8, Development of Open Space Management Plans, is rated as a high priority under Eagle's OST Plan and further supports the need for understanding the existing conditions to provide the Open Space Department with a framework for future budgeting, partnerships, and capacity building.

Town of Eagle Municipal Code

Open space in Eagle is regulated by Title 6 and Title 9 of the Municipal Code (Eagle 2023). Title 6 Public Parks, Recreation Areas, and Open Space Areas regulates the types of uses allowed and disallowed on

open space properties, procedures for proposing new trails on open space, and special events on open space. Title 9 Public Peace, Safety, and Morals includes Chapter 9.26 Public Parks, Recreation Areas, and Open Space Areas which regulates public sanitation, behavior, and need for preservation of open space.

Management Plan for Abrams Creek Property

The Abrams Creek property is a 172-acre parcel that is included in this overall management plan. The Abrams Creek property was held by the Eagle Valley Land Trust (EVLT) under a conservation easement prior to entering Eagle's possession. The town encumbered the property with this easement in 2016 and continues to coordinate with EVLT on the management of Abrams Creek to uphold the terms of the conservation easement. The conservation easement documents the following conservation values:

- Public Recreation or Education, including, but not limited to public trails.
- Relatively Natural Habitat, including wildlife habitat, the Abram's Creek corridor, habitat for sensitive plant and wildlife species.
- Open Space: Scenic Enjoyment, including visibility from other public trails and recreation areas as undeveloped, natural land.
- Open Space: Clearly Delineated Government Conservation Policy, including compatibility with State of Colorado and Eagle County policies.
- Open Space: Significant Public Benefit, including the protection of scenic and natural character from development.

A management plan was created in 2016 to strategize the protection and maintenance of the Conservation Values outlined in the easement (EVLT 2016). This management plan serves as the update for the 2016 management plan.

Adjacent Public Lands and Planning Efforts

Eagle County Open Space

The Eagle County Open Space program manages and conserves upwards of 15,000 acres of land throughout Eagle County (Eagle County 2023). The Eagle Ranch Open Space property shares boundaries with Brush Creek Valley Ranch and Open Space.

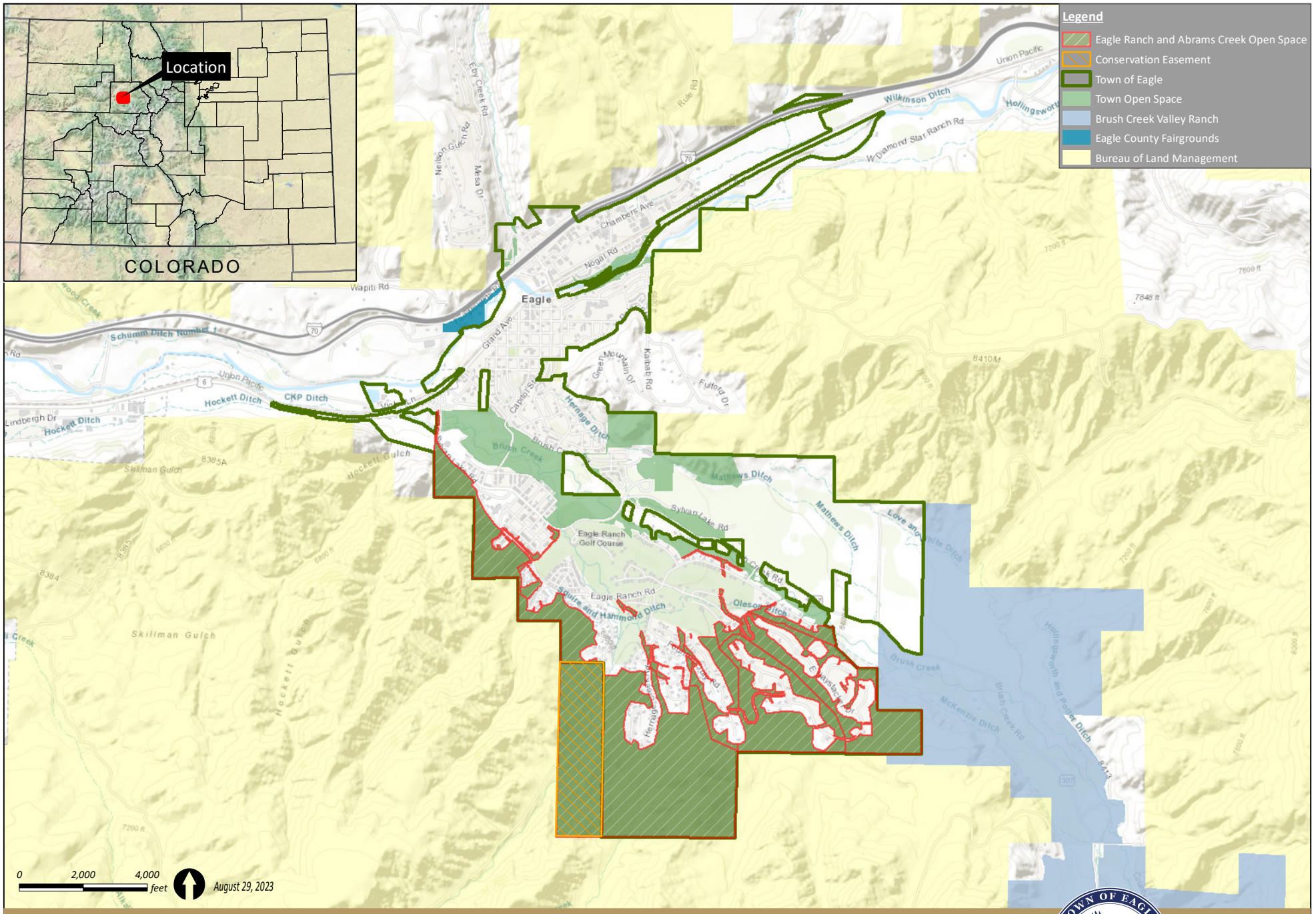
Colorado River Valley Field Office Resource Management Plan

The Bureau of Land Management (BLM) manages its public lands through field office-specific Resource Management Plans (RMP). The Colorado River Valley Field Office manages BLM lands which are adjacent to the Abrams Creek and Eagle Ranch Open Space properties in accordance with the Colorado River Valley Field Office RMP (BLM 2015).

White River National Forest Plan

The U.S. Forest Service (USFS) does not own property adjacent to Eagle Open Space, though it does share boundaries with adjacent BLM lands. The White River National Forest (WRNF) manages its land through a management plan in accordance with the National Forest Management Act to establish protection measures, management strategies, and goals and guidelines for appropriate uses (USFS 2002).

Coordination and planning efforts among land managers is ongoing and continues to be a positive relationship for the Town of Eagle.



Property Location

Eagle Ranch and Abrams Creek Open Space • Town of Eagle Open Space Management Plans

Existing Conditions

Soils

The Natural Resources Conservation Service (NRCS) has mapped fourteen map units on the open space properties. The description for each soil and its series are shown below and include uses that might be common on the soil type. **Figure 2** shows the soil mapping for the property. All soil information was gathered from the NRCS Soil Series Description query site (NRCS 2023) and the Soil Survey of Aspen-Gypsum Area, Colorado, Parts of Eagle, Garfield, and Pitkin Counties (USDA 1992).

Almy loam, 1 to 12 percent slopes

The Almy loam series consists of deep, well drained soils on hills and alluvial fans. These soils formed in alluvium derived from calcareous sandstone and/or alluvium derived from calcareous shale. The slope ranges from 1 to 12 percent. The average annual precipitation is 13 inches, and the average annual temperature is 44°F. Additionally, Almy loam soils with 1 to 12 percent slopes have a farmland classification of statewide importance.

Almy loam, 12 to 25 percent slopes

The Almy loam series consists of deep, well drained soils on hills and alluvial fans. These soils formed in alluvium derived from calcareous sandstone and/or alluvium derived from calcareous shale. The slope ranges from 12 to 25 percent. The average annual precipitation is 13 inches, and the average annual temperature is 44°F.

Atencio-Azeltine complex, 3 to 6 percent slopes

The Atencio-Axeltine complex series consists of deep, well drained soils on alluvial fans and terraces. These soils formed in alluvium derived from sandstone and shale. The slope ranges from 3 to 6 percent. The average annual precipitation is 16 inches, and the average annual temperature is 45°F.

Cushool-Rentsac complex, 15 to 65 percent slopes

The Cushool-Rentsac complex series consists of mid-depth, well drained soils on mountains and mesas. These soils formed in alluvium derived from sandstone and shale. The slope ranges from 15 to 65 percent slopes. The average annual precipitation is 12 inches, and the average annual temperature is 43°F.

Dahlquist-Southace complex, 6 to 12 percent slopes

The Dahlquist-Southace complex series consists of well drained soils on terraces and alluvial fans. These soils formed in mixed alluvium. The slope ranges from 6 to 12 percent. The average annual precipitation is 14 inches, and the average annual temperature is 44°F.

Dahlquist-Southace complex, 25 to 50 percent slopes

The Dahlquist-Southace complex series consists of well drained soils on terraces and alluvial fans. These soils formed in mixed alluvium. The slope ranges from 25 to 50 percent. The average annual precipitation is 14 inches, and the average annual temperature is 44°F.

Fluvaquents, 0 to 10 percent slopes

The Fluvaquents series consists of deep, somewhat poorly drained soils on valley floors and floodplains. These soils formed in mixed alluvium. The slope ranges from 0 to 10 percent. The average annual precipitation is 16 inches, and the average annual temperature is 48°F.

Gypsum land-Gypsiorthids complex, 12 to 65 percent slopes

The Gypsum land-Gypsiorthids complex series consists of extremely shallow, high runoff class soils on hills, drainageways, and mountains. These soils formed in mixed colluvium and/or mixed residuum. The slope ranges from 12 to 65 percent. The average annual precipitation is 12 inches, and the average annual temperature is 42°F.

Mussel loam, 1 to 6 percent slopes

The Mussel loam series consists of deep, well drained soils on terraces and fans. These soils formed in calcareous alluvium. The slope ranges from 1 to 6 percent. The average annual precipitation is 13 inches, and the average annual temperature is 43°F.

Redrob loam, 1 to 6 percent slopes

The Redrob loam series consists of deep, somewhat poorly drained soils on valley floors, terraces, and floodplains. These soils formed in mixed alluvium derived from sandstone and shale. The slope ranges from 1 to 6 percent. The average annual precipitation is 17 inches, and the average annual temperature is 42°F.

Tridell-Brownsto stony sandy loams, 12 to 50 percent slopes, extremely stony

The Tridell-Brownston stony sandy loams series consists of deep, well drained soils on terraces and mountains. These soils formed in alluvium derived from sandstone and/or colluvium derived from sandstone and/or alluvium derived from basalt and/or colluvium derived from basalt. The slope ranges from 12 to 50 percent. The average annual precipitation is 13 inches, and the average annual temperature is 43°F.

Yamo loam, 1 to 6 percent slopes

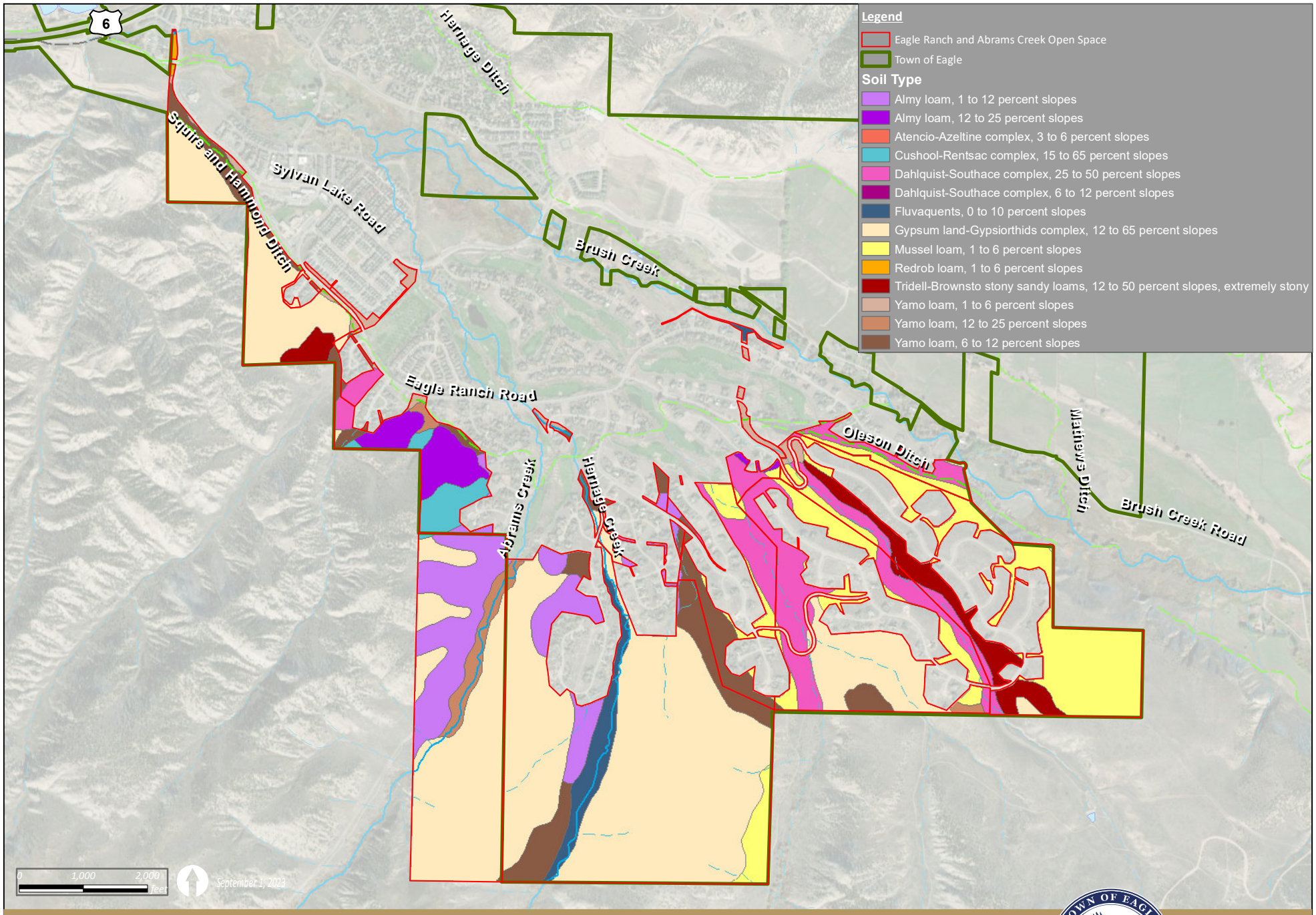
The Yamo loam series consists of deep, well drained soils on fans and mountains. These soils were formed in colluvium derived from sandstone and/or colluvium derived from shale and/or colluvium derived from gypsum. The slope ranges from 1 to 6 percent. The average annual precipitation is 12 inches, and the average annual temperature is 42°F.

Yamo loam, 6 to 12 percent slopes

The Yamo loam series consists of deep, well drained soils on fans and mountains. These soils were formed in colluvium derived from sandstone and/or colluvium derived from shale and/or colluvium derived from gypsum. The slope ranges from 6 to 12 percent. The average annual precipitation is 12 inches, and the average annual temperature is 42°F.

Yamo loam, 12 to 25 percent slopes

The Yamo loam series consists of deep, well drained soils on fans and mountains. These soils were formed in colluvium derived from sandstone and/or colluvium derived from shale and/or colluvium derived from gypsum. The slope ranges from 12 to 25 percent. The average annual precipitation is 12 inches, and the average annual temperature is 42°F.



Soils

Eagle Ranch and Abrams Creek Open Space • Town of Eagle Open Space Management Plans

Water Resources

Four creeks intersect the open space properties: Abrams Creek, Hernage Creek, Arroyo Gulch, and Meyers Gulch. The Oleson Ditch is also present on Eagle Ranch Open Space. There are no lakes or ponds located on these properties. Abrams Creek contains a robust and healthy riparian and wetland community along with several beaver dam complexes. Hernage Creek is experiencing erosion and channel downcutting and. Arroyo and Meyers Gulch are ephemeral drainages that are relatively undisturbed.

Vegetation Resources

Colorado Natural Heritage Program

The Colorado Natural Heritage Program (CNHP) maintains a tracking list and serves as the central data repository for Colorado's rare flora. Many of these species are also considered species of conservation concern by the U.S. Fish and Wildlife Service (USFWS), the U.S. Forest Service (USFS), the Bureau of Land Management (BLM), and the Colorado Department of Natural Resources (CNHP 2023). Harrington's Penstemon (also known as Harrington's beardstongue; *Penstemon harringtonii*) is a sensitive species present throughout the open space system (**Figure 3**).

Harrington's Penstemon

Harrington's penstemon habitat is described as sagebrush shrubland and mixed mountain shrublands. Harrington's penstemon occasionally occurs in disturbed grassland and pinyon juniper woodlands and it is not known whether Harrington's penstemon is limited to specific geologic substrates or soils (USFS 2006). Harrington's penstemon has been documented on all aspects in Colorado and on slopes as steep as 50 percent, but is usually found on slopes less than 20 percent (CNHP 2023). Additional background on this species is provided in **Appendix B**.

Table 1. Summary of vegetation communities.

Community	Acres	Quality
Disturbed Grasslands	56	Low
Montane Mixed Grasslands	16.7	High
Pinyon Juniper Woodlands	320.8	High
Sagebrush Shrublands	457.8	High
Riparian Forest	29.3	Moderate
Montane Shrublands	89.8	High
Sand Hillslopes	44.6	Moderate

Disturbed Grasslands

The disturbed grassland community occurs along existing utility corridors and roadways. Vegetation in this community is dominated by a mixture of non-native grasses and forbs including smooth brome (*Bromus inermis*), crested wheatgrass (*Agropyron cristatum*), kochia (*Bassia scoparia*), sweet clover (*Melilotus officinialis*), bulbous bluegrass (*Poa bulbosa*), cheatgrass (*Bromus tectorum*), prickly lettuce (*Lactuca serriola*), and lambsquarter (*Chenopodium album*).

Montane Mixed Grasslands

Montane mixed grasslands occur in areas of vegetation clearing and contain a higher prevalence of native species compared to the disturbed upland communities. Vegetation in this community is dominated by graminoid species including, Indian ricegrass (*Eriocoma hymenoides*) western wheatgrass (*Pascopyrum smithii*), smooth brome, junegrass (*Koeleria macrantha*), and basin wildrye (*Leymus cinereus*). Less prevalent but notable species include various lupine (*Lupinis sp.*), paintbrush species (*Castilleja sp*.), common yarrow (*Achillea millefolium*), blue flax (*Linum lewisii*), hairy false golden aster (*Heterotheca villosa*), and various penstemon species (*Penstemon sp*.).

Pinyon Juniper Woodlands

The pinyon juniper woodland community generally occurs on hillslopes and mountain slopes. This community is dominated by an overstory of pinyon pine (*Pinus edulis*) and Rocky Mountain juniper (*Juniperus scopulorum*). Other prevalent shrub species include big sagebrush (*Artemisia tridentata*), mountain mahogany (*Cercocarpus montanus*), and antelope bitterbrush (*Purshia tridentata*). Herbaceous understory cover is sparse in this community and is dominated by sand blueberg (*Poa secunda*), bluebunch wheatgrass (*Pseudoroegneria spicata*), and western wheatgrass. This community is relatively undisturbed except for impacts from existing trails.

Sagebrush shrublands

The sagebrush shrubland community is the most prevalent community in the Abrams Creek and Eagle Ranch Open Space. This community is dominated by big sagebrush and less prevalent shrub species include rubber rabbitbrush (*Ericameria nauseosa*) and Woods' rose (*Rosa woodsii*). The herbaceous layer is dominated by smooth brome, fringed sage (*Artemesia frigida*), western wheatgrass, Indian paintbrush, sulfurflower buckwheat (*Eriogonum umbellatum*), hairy false golden aster, pussytoes (*Antennaria* sp.), yarrow, and Indian ricegrass. This community is relatively undisturbed except for impacts from existing two-track roads and gravel roads.

Riparian Woodlands

The riparian woodland community occurs along Hernage Creek in the Eagle Ranch Open Space. This community is dominated by an overstory narrowleaf cottonwood (*Populus angustifolia*), crack willow (*Salix fragilis*), and gambel oak (*Quercus gambelii*) with a shrub understory of Utah serviceberry (*Amelanchier utahensis*), Woods' rose, and chokecherry (*Prunus virginia*). Herbaceous species in the riparian woodlands consist of a mixture of mesic and upland species including smooth brome, basin wildrye, orchard grass (*Dactylis glomerata*), and Canada goldenrod (*Solidago canadensis*). The riparian vegetation in this community appears to be stressed due to channel incision lowering the water table.

A riparian/wetland community occurs in Abrams Creek. Vegetation in this community is dominated by narrowleaf cottonwood, crack willow, sandbar willow, peachleaf willow (*Salix amygdaloides*), thinleaf alder (*Alnus incana*), and red osier dogwood (*Cornus sericea*). The herbaceous layer is dominated by field horsetail (*Equisteum arvnese*), baltic rush (*Juncus balticus*), wild mint (*Mentha arvensis*), water sedge (*Carex aquatilis*), Northwest Territory sedge (*Carex utriculata*), woolly sedge (*Carex pellita*), and

fireweed (*Chamerion angustifolium*). This community is relatively undisturbed and beaver activity was observed throughout.

Montane Shrublands

The mixed montane shrubland community occurs primarily on hillslopes in the open space. Dominant shrub species include Utah serviceberry, mountain mahogany (*Cercocarpus montanus*), Woods' rose, antelope bitterbrush, wax currant (*Ribes inerme*), common juniper, and big sagebrush. Common understory species include fringed sage, smooth brome, yarrow, western wheatgrass, lupine, Lewis flax, and Indian paintbrush. This community is relatively undisturbed.

Sand Hillslopes

The sand hillslopes community occurs on steep hillslopes mapped as Gypsum land gyprsoirthids complex and contain sparse vegetative cover. Where vegetation is present it is dominated by Indian ricegrass, fringed sage, snowball sand verbena (*Abronia fragrans*), broom snakeweed (*Gutierrezia sarothrae*), and squirreltail (*Elymus eloides*).

Noxious Weeds

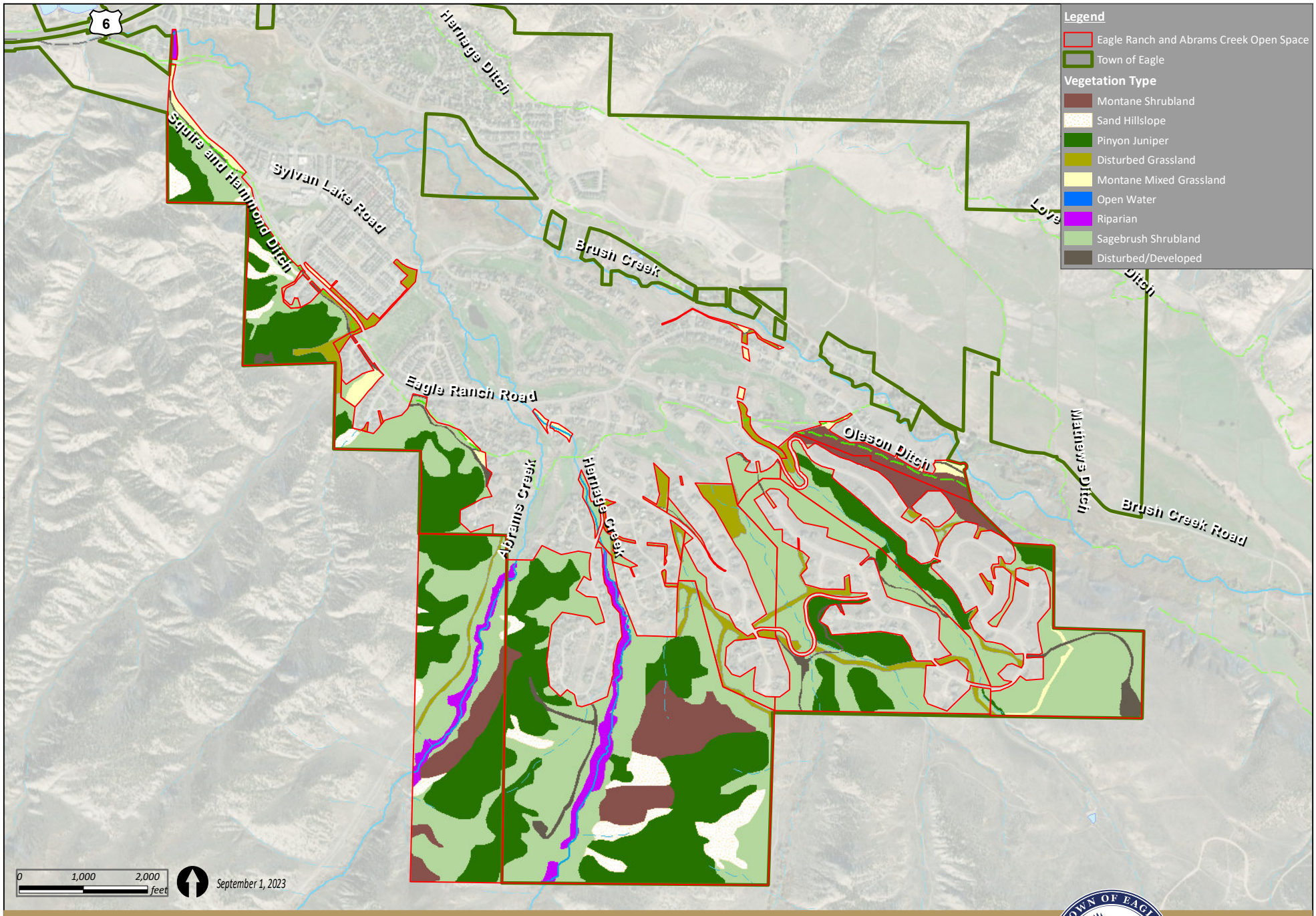
No List A species were found in the project area during the 2023 site visit. Two CDOA Noxious Weed List B species and three List C species were identified in the project area during the 2023 site visit (CDOA 2020). The locations of List B are shown on **Figure 3**. Noxious weed populations are most prevalent in areas disturbed by utility and road improvement projects.

List B Weed Species

- Musk thistle (*Carduus nutans*)
- White top (*Lepidium draba*)

List C Weed Species

- Bulbous bluegrass (*Poa bulbosa*)
- Cheatgrass (*Bromus tectorum*)
- Field bindweed (*Convolvulus arvensis*)



Vegetation

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Wildlife Resources

This section includes a discussion of general wildlife species that are likely to occur on the open space properties, as well as federal- or state -listed sensitive species, USDA FS sensitive species, and Eagle County species of special concern.

General Wildlife

The open space properties provide habitat for a variety of wildlife species typical of the montane life zone in Eagle County. Mammal species likely to occur include black bear, mountain lion, elk, mule deer, fox, bobcat, and coyote. Other common mammals potentially occurring on the property include mountain cottontail rabbit, snowshoe hare, western spotted skunk, raccoon, pine squirrel, chipmunk, and a variety of mice and shrews.

The property also provides habitat for a variety of migratory songbirds such as mountain bluebird, scrub jay, Steller's jay, Brewer's sparrow, Virginia's warbler, Lewis' woodpecker, and spotted towhee. Common raptors include red-tailed hawk, American kestrel, and great horned owl. Two known raptor nests, including those documented by Colorado Parks and Wildlife (CPW), are located on the property.

Federally-Listed Wildlife Species

Federally threatened and endangered species are protected under the Endangered Species Act (ESA) of 1973, as amended (16 United States Code 1531 et seq.). Significant adverse effects on a federally listed species or its habitat require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 or 10 of the ESA. The property contains, or is located near, potential habitat for the federally-listed species shown in **Table 2**.

Table 2. Federally threatened, endangered, and candidate animal species potentially found on the property.

Common Name	Scientific Name	Status*	Habitat	Habitat Present or Potential to be Affected?
Mammals				
Canada lynx	*Lynx canadensis*	T	Climax boreal forest with a dense understory of thickets and windfalls	No
Gray wolf	*Canis lupus*	E	Wolves can thrive in a wide range of habitats; a highly adaptable species that occurs in temperate forests, mountains, and grasslands	No - this project does not include a predator management program
Birds				
Mexican spotted owl	*Strix occidentalis*	T	Closed canopy forests in steep canyons	No
Yellow-billed cuckoo	*Coccyzus americanus*	T	Wooded habitat with dense cover and nearby water	No
Fish				
Bonytail chub**	*Gila elegans*	E	Backwaters with rocky or muddy bottoms and flowing pools	No
Colorado pikeminnow**	*Ptychocheilus Lucius*	E	Warm rivers that have large snowmelt runoff and lower relatively stable base flows	No

Common Name	Scientific Name	Status*	Habitat	Habitat Present or Potential to be Affected?
Humpback chub**	*Gila cypha*	T	Pools with substrates of silt, sand, boulder, or bedrock	No
Razorback sucker**	*Xyrauchen texanus*	E	Large river species in areas with strong current and backwaters	No
Insects				
Monarch butterfly	*Danaus plexippus plexippus*	C	Dependent on milkweeds (*Asclepiadoideae*) as host plants and forage on blooming flowers; a summer resident	Yes, habitat is present wherever milkweeds are found.
Plants				
Ute ladies'-tresses orchid (ULTO)	*Spiranthes diluvialis*	T	Moist to wet alluvial meadows, floodplains of perennial streams, and around springs and lakes below 7,800 feet in elevation	No

*T = Federally Threatened Species; E = Federally Endangered Species; C = Candidate Species.
**Water depletions in the Colorado River may affect the species and/or critical habitat in downstream reaches in other counties or states.
Source: Service 2023.

Species of Management Interest

CPW tracks a number of species that are regionally important for big game hunting and overall conservation, including sensitive or seasonal activity areas for several species. The property contains activity areas mapped by CPW for a variety of species (CPW 2020). These species are shown below in **Table 3**. Wildlife habitats are shown on **Figure 4** and **Figure 5**.

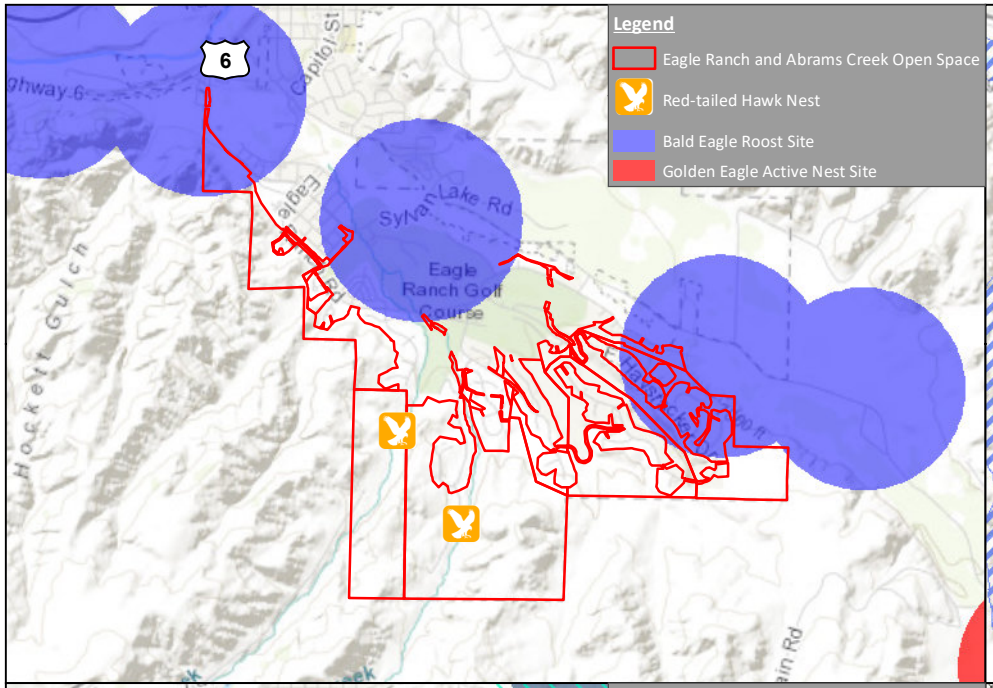
Table 3. CPW-tracked wildlife species in the vicinity of the property.

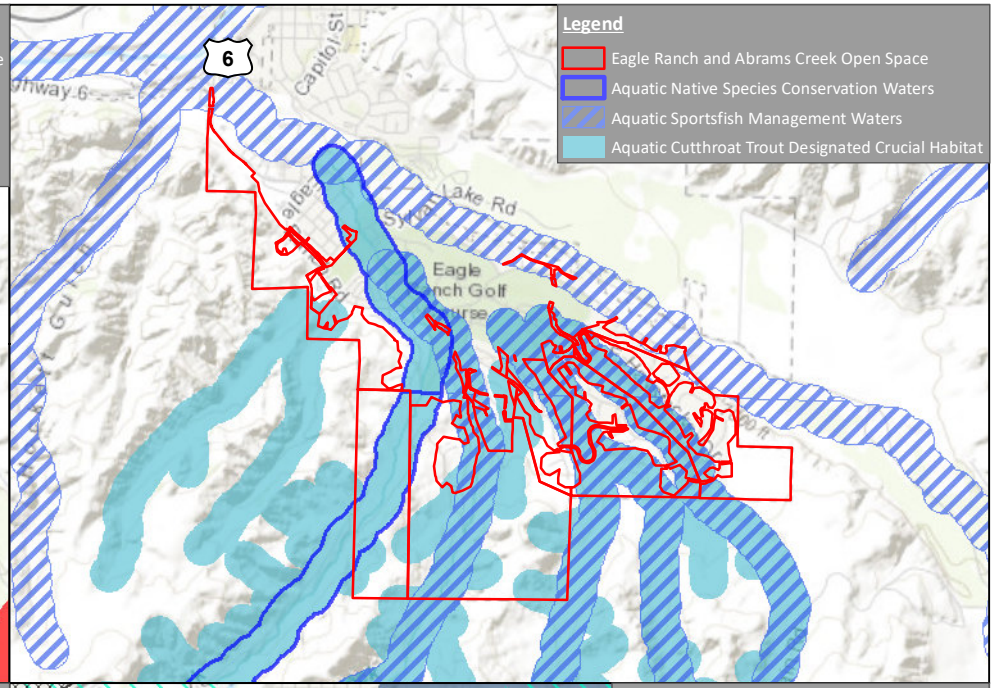
Common Name	Scientific Name	CPW Seasonal Activity Area Present
Mammals		
Elk	*Cervus canadensis*	Severe winter range and winter concentration area
Mule deer	*Odocoileus hemionus*	Severe winter range and winter concentration area
Birds		
Bald eagle	*Haliaeetus leucocephalus*	Roost site buffer
Golden eagle	*Aquila chrysaetos*	Active nest site
Red-tailed hawk	*Buteo jamaicensis*	Nest
Fish		
Cutthroat trout	*Oncorhynchus clarkii*	Aquatic Sportsfish Management Waters buffer

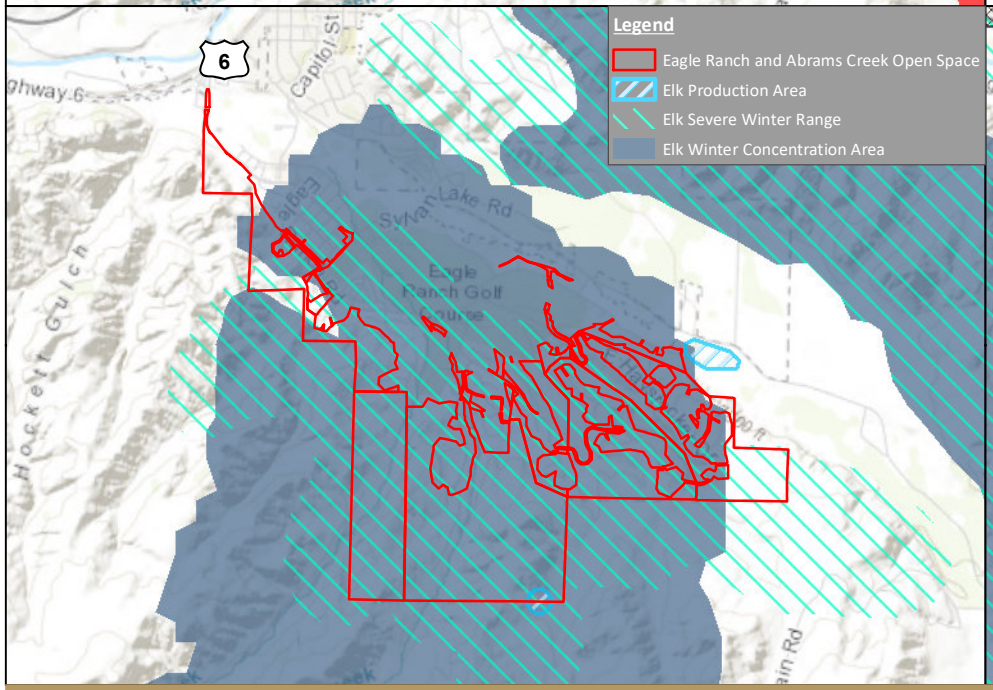
Source: CPW 2020.

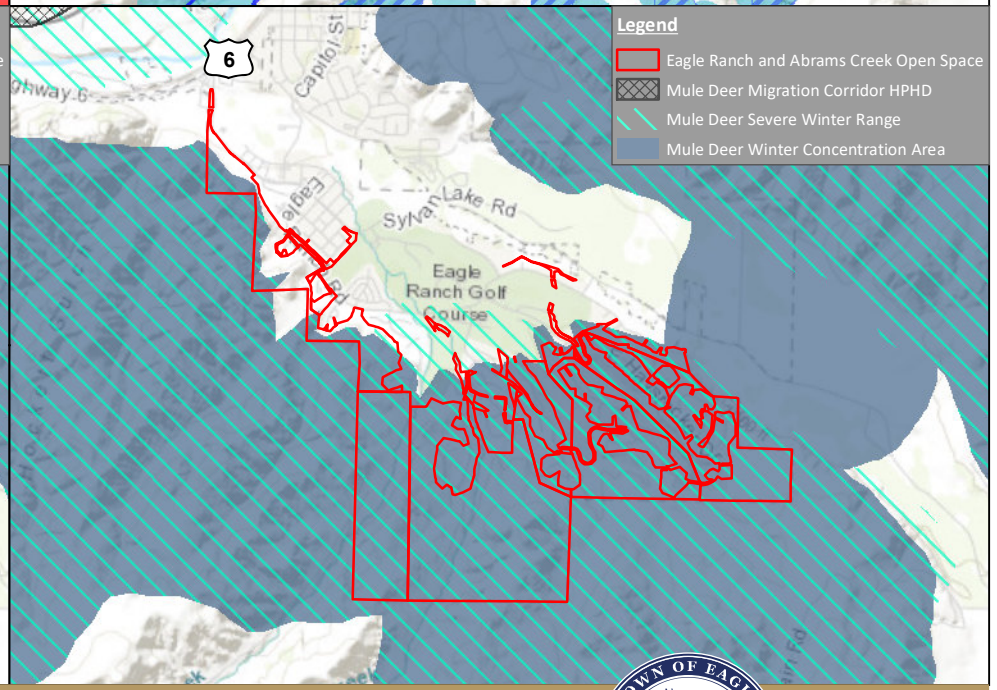
Raptors

Two active red-tailed hawk nests were observed along Abrams Creek and Hernage Creek in the open space as shown on **Figure 4**. Red-tailed hawk nests can be impacted by human encroachment during the breeding season. CPW recommends a 0.33-mile radius buffer of active red-tailed hawk nests from February 15 to July 15 (CPW 2020). ERO Recommends avoiding trail construction or vegetation removal within the 0.33-mile buffer of active red tail hawks nests during the breeding season and posting informational signage at trailheads.









CPW Wildlife Habitat Designations

0 2,500 5,000 feet

August 3, 2023

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TOWN OF EAGLE Est. 1905

ERO

Habitat Integrity

In any natural landscape, the development of roads and trails fragments habitat values by disrupting ecological processes and contiguity, increasing erosion and vegetation loss, and introducing linear edges and corridors that become pathways for predators and nonnative species. Habitat fragmentation reduces the size and overall integrity of habitat areas and is detrimental to many species (Noss and Cooperrider 1994; Groves et al. 2002; Decker 2018). Roads and trails, and the human access and use that they support, exacerbate these impacts by creating a "zone of influence" within which human disturbance may alter wildlife behavior and reduce the value of habitat to some wildlife. The impacts of fragmentation vary by species and individual animal and can range from no effect, to interruption of activity, to flight, to abandonment of breeding or foraging sites. This zone of influence can range from 30 to 400 meters or more, depending on terrain, vegetation, species, and levels of human use and prior habituation (Miller et al. 2001; Taylor and Knight 2003; Stankowich 2008; Cassirer et al. 1992; George and Crooks 2006; Naylor et al. 2009; Malone and Emerick 2003; Miller et al. 2020; CPW 2021b).

Habitat Disturbance Analysis

Considering the broad range of impact distances, the existing conditions and context of the property, and other factors, the following analysis of existing and future habitat fragmentation uses a range of 100 to 400 meters as the zone of influence, or impact buffer, of existing and proposed roads and trails. This range recognizes that the impacts of human disturbance are not fixed but occur along a gradient. Areas closer to the disturbance are more likely to be impacted, while areas more distant may not be affected as severely or as often. Four disturbance levels are mapped in this analysis (**Figure 5**); analysis definitions are described below.

Habitat Fragmentation Analysis Definitions

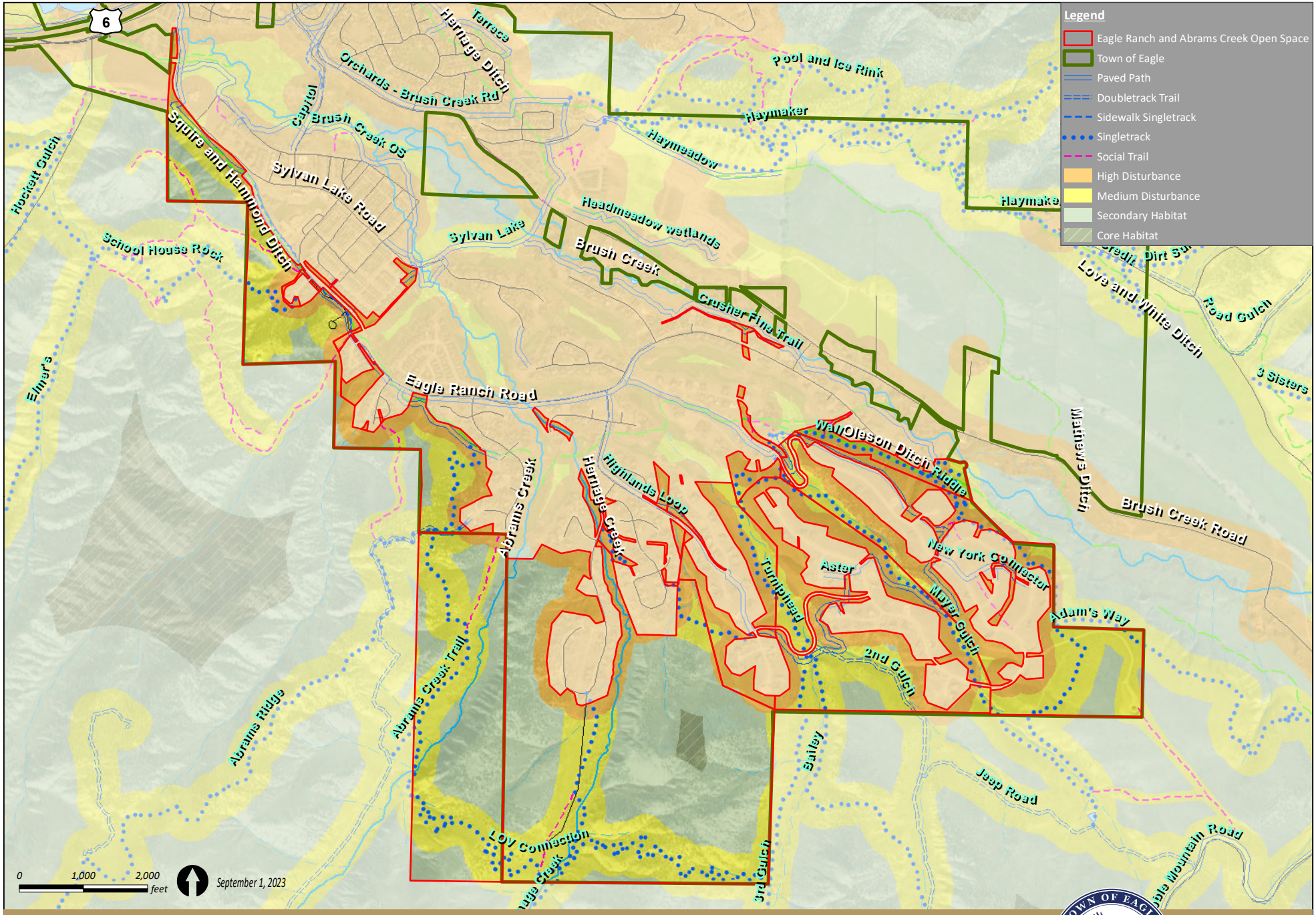
1. **High Disturbance Areas** – Frequent or permanent human occupation; each of the following with a 100-meter impact zone:
    a. Existing homes, urban streets, major roads, and highways
    b. Provides limited habitat value for wildlife, with local exceptions

2. **Medium Disturbance Areas** – Frequent but not permanent human occupation; 100-meter impact zone:
    a. Existing trails, secondary roads, and recreation facilities
    b. Provides degraded habitat for wildlife that are accustomed to human disturbance

3. **Secondary Habitat** – Infrequent human occupation, or expanded influence from high or medium disturbances; 400-meter impact zone, or 100-meter buffer from sparsely used social trails
    a. Provides intact habitat for most wildlife, but human activity may impact wildlife behavior and use, depending on the species and context

4. **Core Habitat** – No human development and minimal human presence; greater than 400 meters from any disturbance
    a. Provides secure, undisturbed habitat for any species where sufficient habitat otherwise exists

The habitat disturbance analysis for the property is shown on **Figure 5**.



Habitat Fragmentation

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Recreation Resources

Abrams Creek and Eagle Ranch have many opportunities for open space recreation (Figure 1**Figure 6**). Hiking and biking are popular trail uses in these areas and users are able to continue their hike or ride on adjoining BLM and Eagle County lands and trails. Motorized use on these two open space properties is only allowed on the Second Gulch trail.

Trails

Table 4 below includes the natural surface trails on Abrams Creek and Eagle Ranch Open Space

Table 4. Abrams Creek and Eagle Ranch Open Space trails.

Trail Name	Distance (miles)	Allowed Uses
Abrams Creek	<1	Mountain biking, hiking, trail running
Abrams Gulch Connector	<1	Mountain biking, equestrian, hiking, trail running
Abrams Ridge	2.8	Mountain biking, equestrian, hiking, trail running
Adam's Way	1.9	Mountain biking, equestrian, hiking, trail running
Kill Bill	<1	Mountain biking, hiking, trail running
Kill Bill Spur	<1	Mountain biking, hiking, trail running
LOV Connection	2.5	Mountain biking, hiking, trail running
Mayer Gulch	1.4	Mountain biking, equestrian, hiking, trail running
Riddle	1.7	Mountain biking, equestrian, hiking, trail running
School House Rock	1.4	Mountain biking, hiking, trail running
Second Gulch	3.4	Mountain biking, e-biking, equestrian, hiking, trail running, motorcycle, ATV/ORV/OHV (less than 50-inch width)
Third Gulch	2.3	Mountain biking, equestrian, hiking, trail running
Turniphead	<1	Mountain biking, hiking, trail running
Wall	<1	Mountain biking, hiking, trail running

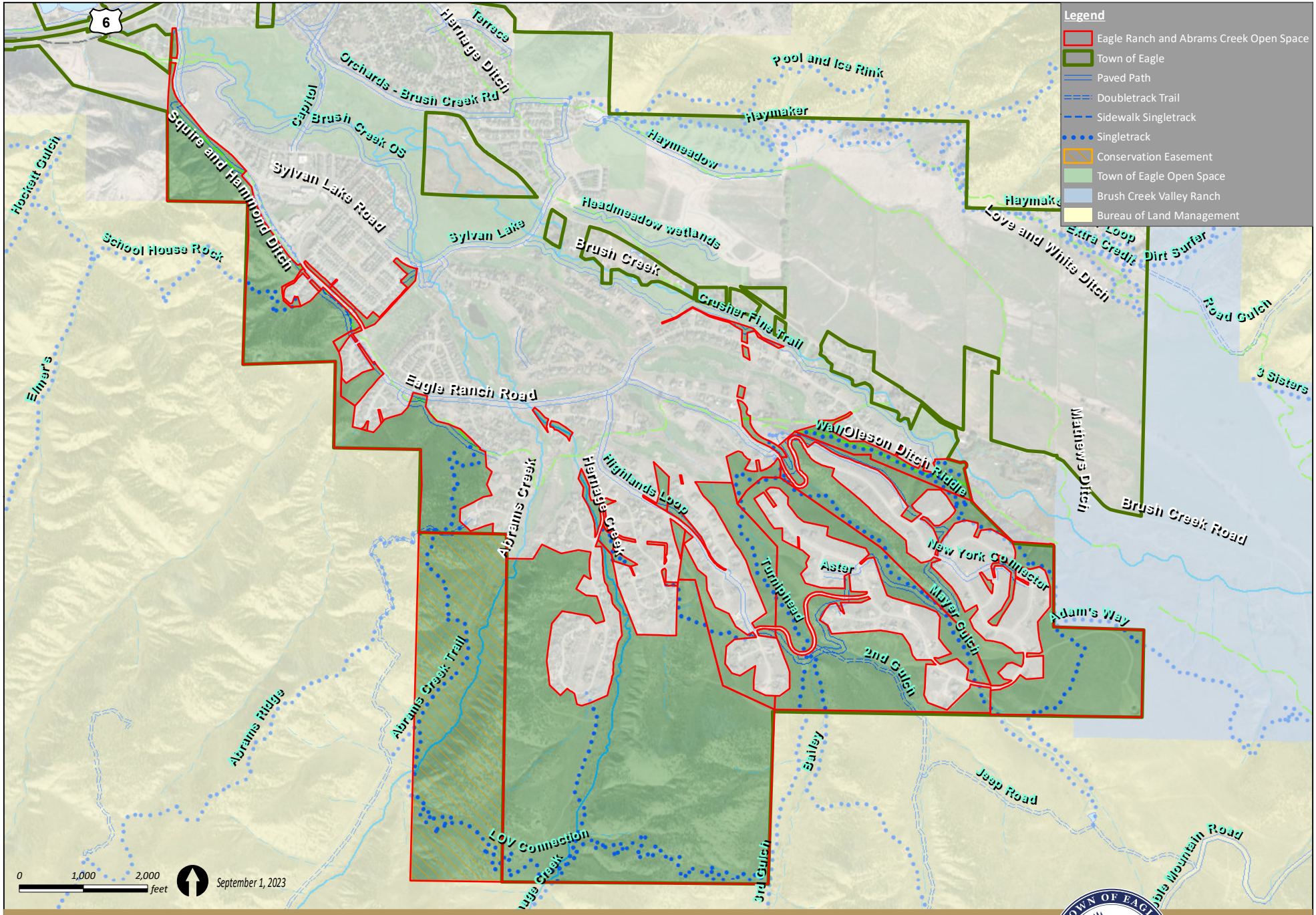
Trailheads

The majority of trailheads on Eagle Open Space occur on Abrams Creek and Eagle Ranch.

- School House Rock Trailhead
- Silver Spur/Abrams Creek Trailhead
- Hernage Creek Trailhead
- Arroyo Trailhead

Other Amenities

A restroom and parking lot are located at the Arroyo Trailhead.


Legend
Eagle Ranch and Abrams Creek Open Space
Town of Eagle
Paved Path
Doubletrack Trail
Sidewalk Singletrack
Singletrack
Conservation Easement
Town of Eagle Open Space
Brush Creek Valley Ranch
Bureau of Land Management
6
Terrace
Heritage Ditch
Orchards - Brush Creek Rd
Pool and Ice Rink
Haymaker
Haymeadow
Capitol
Brush Creek OS
Hockett Gulch
Squire and Hammond Ditch
Sylvan Lake Road
Sylvan Lake
Headmeadow wetlands
Brush Creek
Love and White Ditch
Extra Credit Loop
Dirt Surfer
School House Rock
Crusher Fine Trail
Road Gulch
Elmer's
Eagle Ranch Road
3 Sisters
Wal/Oleson Ditch Riddle
Mathews Ditch
Brush Creek Road
Abrams Creek
Heritage Creek
Highlands Loop
New York Connector
Aster
Turnipseed
Meyer Gulch
Adam's Way
2nd Gulch
Abrams Creek Trail
Abrams Ridge
Bailey
Jeep Road
LOV Connection
3rd Gulch
Eagle Mountain Road
0
1,000
2,000
feet
September 1, 2023

Recreation

Resource Management Plan

Implementing this management plan will require identification and prioritization of management actions to maintain proper stewardship of the natural resources on the property. These prioritized management actions should continue to be reviewed on an annual basis to determine yearly work programs given budget and staff constraints. Many of the management actions will be implemented within the first few years, while others will take many years to accomplish. Some management actions are ongoing, some are short-term, and others are long-term, representing considerable investments of time and energy.

Resource Management Issues

Resource management issues are specific occurrences or situations that can compromise the natural resource values on the property. Known or potential resource management issues for the property are listed below in **Table 5** and addressed with management actions.

Table 5. Resource management issues.

Resource Management Issues
Habitat Management • **Riparian enhancement** – Hernage Creek is experiencing erosion and channel downcutting, which has stressed and degraded the riparian community. • **Fuels management** – Fuels management efforts by Eagle Valley Wildland present opportunities for habitat enhancement but require ongoing coordination and follow up to ensure ecological benefits. **Vegetation Management** • **Noxious weeds** – Invasive and noxious weed species are a persistent threat to native habitat quality and diversity and require ongoing monitoring and management. • **Disturbed grasslands** – Former disturbed areas are dominated by nonnative pasture grasses and weedy species, have limited habitat value for wildlife, and could facilitate noxious weed infestations. • **Revegetation** – Revegetation of disturbed and reclaimed areas associated with construction or other disturbances is an ongoing challenge to establish native species and minimize noxious weed infestations. **Wildlife Management** • **Raptor protection** – Concern for disturbance within the 0.33-mile buffer of active red tail hawks nests during the breeding season. • **Pest management** – Populations of Wyoming ground squirrel and other pest species degrade vegetation and other resources, and result in conflicts with visitors, dogs, and neighboring property owners. • **Big game winter range protection** – Ongoing management of human use and habitat is necessary to protect critical winter ranges for deer and elk. **Recreation and Access Management** • **Trail access** – Undesignated visitor access to trails and other amenities from neighborhoods has resulted in vegetation trampling, social trails, and erosion. • **Public land interface** – Unclear property boundaries, illegal encroachment and use, and unauthorized trail access could result in resource damage and a loss of public stewardship of open space.

Resource Management Strategies

Management strategies for the property, including goals, objectives, and actions, are presented in **Table 6**, along with the recommended timing and priority of implementation. A more detailed discussion of key management issues is presented below. Management strategies are also shown on **Figure 7**.

Key Management Issues

Noxious Weed Management

Prioritizing nonnative and noxious weed management efforts is needed since attempting to control all nonnative and noxious weeds on the property can be unrealistic and unsuccessful. A recommended strategy for noxious weed management is to minimize the spread of existing weed infestations and reduce, over time, the extent of noxious weeds on the property. Attempting to control all weeds can be overwhelming and ultimately unsuccessful, so it is important to implement a strategy that includes the following principles: (1) promote the health and persistence of desired native or stable nonnative species; (2) focus weed control and management on new infestations; (3) prioritize efforts based on the State of Colorado's priority species list (A, B, and C); and (4) integrate weed management into all ground-disturbing projects.

A successful weed management strategy will incorporate regular (annual) monitoring; integration of a variety of tools including herbicides, mowing, and biological controls; and prioritization of weed abatement efforts. Generally, addressing smaller infestations of highly invasive species is recommended rather than larger infestations of species that are easier to control.

Harrington's Penstemon Conservation

Most of the sagebrush-dominated habitats in this area provide potential habitat for Harrington's penstemon (*Penstemon harringtonii*), a rare plant species that is unique to region. It occurs on all aspects in open sagebrush and mixed pinyon-juniper or mountain mahogany shrublands on gentle slopes of usually less than 20 percent. As shown on **Figure 3**, most of the open space in this area provides potential habitat for this species. To support the long-term conservation of this species, the following measures are recommended for any ground-disturbing activities within identified potential habitat:

1. Survey proposed project areas during the survey period (June)
2. If found, evaluate or modify the proposed project to avoid ground disturbance within a 100-foot buffer of all confirmed plants
3. If a 100-foot buffer cannot be implemented, avoid direct ground disturbance where plants are rooted.
4. If direct ground disturbance cannot be avoided, adjust the project site or alignment to minimize impact to the plants, with the goal of having less than 1 to 2 percent of the population within the project impact area.
5. If the project site or alignment cannot be changed to minimize impacts, confine disturbances as close to outer edge of the plant population as possible to minimize fragmentation.

6. If plants are unavoidable, contact nearby botanical gardens or grow out facilities (such as the Betty Ford Alpine Garden in Vail and the Upper Colorado Environmental Plant Center facility in Meeker; these facilities have accepted salvaged plants in the past) to salvage plants if possible.
7. Weed control efforts should not include broadcast or aerial herbicide treatments within ½ mile of known populations. Utilize spot spray application in these areas.
8. Construction within identified *P. harringtonii* habitat should occur during the active growing season (May 15 through August 30) to ensure that all rosettes are visible.
9. Monitor on-site construction with a qualified biological monitor (botanist) to avoid and mitigate impacts to populations.

Additional background information on Harrington's penstemon is found in **Appendix B**.

Abrams Gulch Management Plan Consistency

The Abrams Creek property is a 172-acre parcel in the southwest corner of this open space complex, and is subject to a conservation easement held by EVLT. Actions and stipulations in the 2016 Abrams Creek Management Plan are summarized as follows:

- Allow natural processes to take place unimpeded and protect biological values.
- Control weeds on the property.
- Allow passive recreational uses that do not create new unauthorized trails or adversely impact conservation values.
- No motorized use will occur, except for access for management purposes.
- Public access and management activities are prohibited from December 15 to April 15 (changed to December 1 in 2022).
- Use best practices, maintenance, and sound management practices to maintain sustainable trails and ensure that trails do not damage conservation values.
- Close trails if trails are not able to be adequately managed to prevent damage.
- Decommission any new social trails or short cuts.
- Restoration should be consistent with industry standard best practices.
- Protect and maintain riparian habitat and features.
- Evaluate proposed special events to ensure it does not impact conservation values.
- Install signage in a manner that is unobtrusive to the natural landscape.
- No trash cans, picnic tables, or benches.
- Allow educational programming.
- Dogs must be on leash.
- The following activities are specifically prohibited: fires or fireworks, camping, motorized use, hunting, discharge of weapons, harassing wildlife, dumping or littering, collecting of plants, animals or artifacts.

These principles and stipulations are consistent with the direction of this management plan, and should be carried forward into future management of the Abrams Creek property.

Second Gulch Access Management

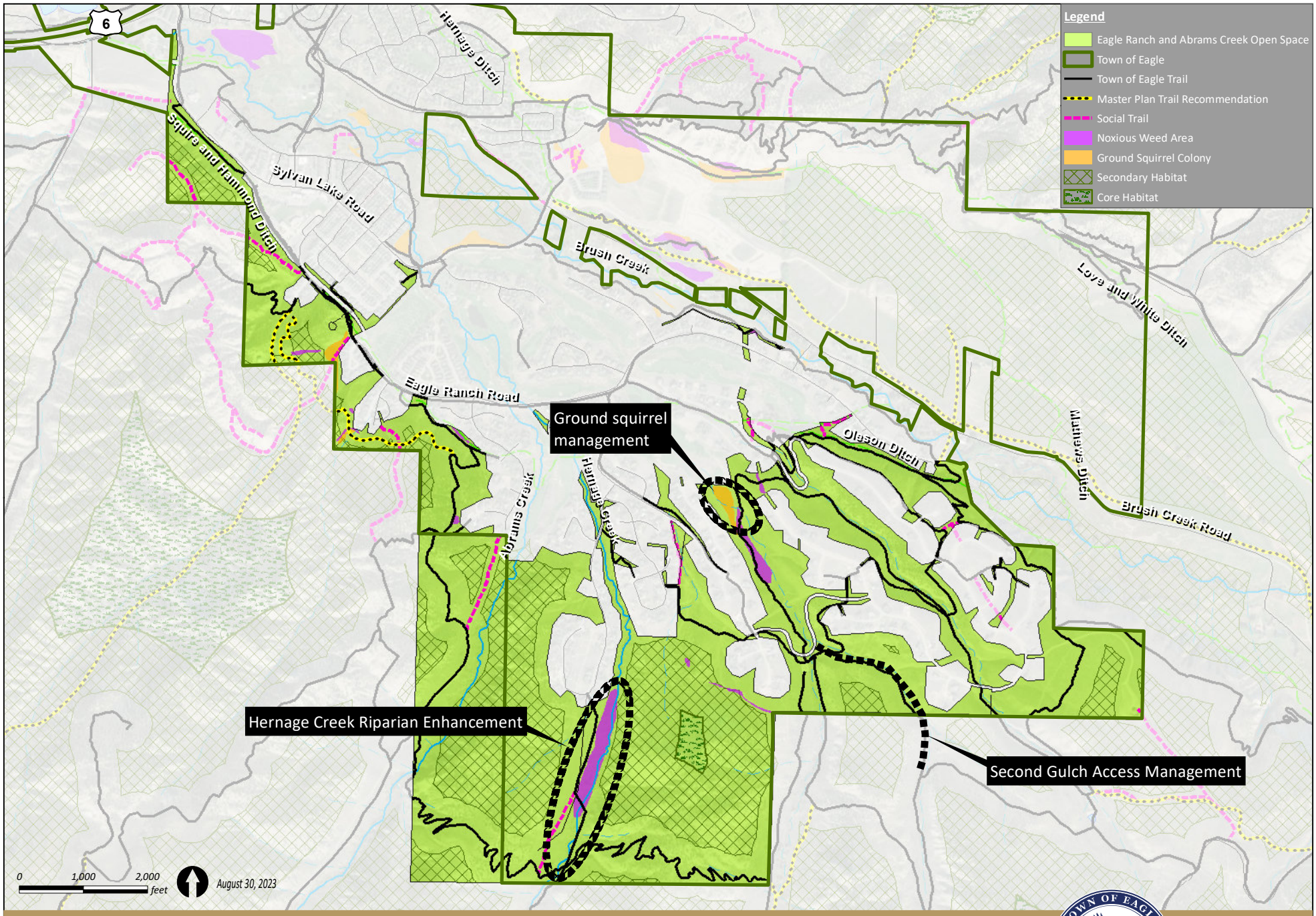
Originating from Arroyo Drive near the Arroyo Trailhead, the Second Gulch Trail within Town open space property is an approximately ½ mile trail that connects to the BLM Route 83881 and Second Gulch Road (Route 8388) on adjacent BLM land to the south. The trail is open to non-motorized access (hike, bike, and equestrian) and limited motorized access. Within Town open space and the adjacent BLM route (83881), the trail is open to motorized vehicles less than 50 inches in width, which typically includes motorcycles and smaller all-terrain vehicles (ATVs). Wider motorized vehicles, which typically include utility terrain vehicles (UTV or "side-by-sides") and full-size trucks and sport utility vehicles, are not permitted on the town trail segment. The Second Gulch Road on BLM land is open to all modes of transportation, providing access to Hardscrabble Road, the Hardscrabble West Recreation Management Zone and surrounding public lands.

In recent years, some community members have expressed the need to allow wider and larger unlicensed motorized vehicles (e.g., UTVs) which are increasingly popular and common, to provide consistent access to adjacent BLM routes. These vehicles are wider than the 50-inch restriction on the Second Gulch trail, and are therefore prohibited. Some community members believe that the current regulation is out of date, does not accommodate current trends, and unfairly restricts access to many members of the motorized recreation community.

Other community members have become increasingly concerned about the impacts and conflicts associated with the existing motorized access to Second Gulch. This has primarily been related to engine noise along Fourth of July Road and Arroyo Drive, and user conflicts along the trail itself. Some community members believe that motorized access to the Second Gulch trail should remain limited, or perhaps be further restricted, to mitigate these conflicts.

The discussions about Second Gulch access are very contentious in the community, since they revolve around extremely personal and subjective perceptions around equitable access, historical uses, quality of life, recreation conflict, and safety. Given this context, we do not believe that this management plan, and its limited community process is sufficient to resolve this issue. However, these following steps are recommended to address issues around Second Gulch trail access:

- Develop a specific community process to further explore and address this issue
- Engage a professional facilitator to manage and facilitate the process
- Include multiple community working group sessions and broader community input
- Consider a 2-3 year "pilot" process to test new management and access options, with specific and measurable indicators to define success
- Work toward a consensus recommendation to City Council for a pilot process or long-term solution



Management Recommendations

Eagle Ranch and Abrams Creek Open Space • Town of Eagle Open Space Management Plans

For the purposes of this section of this management plan, the following terminology applies:

- **Objective** – Objectives are the outcomes that are intended to be achieved through management actions.
- **Action** – Actions are the specific tasks that the owners can undertake to address issues and meet the objectives.

Timing recommendations are defined as follows:

- **ST (short-term actions)** – Should be completed within 1 year.
- **LT (long-term actions)** – Should be initiated or completed within 5 years.
- **O (ongoing actions)** – Should be completed on an ongoing annual basis indefinitely.

Priority recommendations are defined as follows:

- **H (high-priority actions)** – Should be accomplished first. These management actions are considered extremely important to the protection of resource values.
- **M (medium-priority actions)** – Considered important but not urgent, and meet a combination of other objectives.
- **L (low-priority actions)** – Important but not critical to resource protection needs. Low-priority management actions do not have to be completed in the immediate future and primarily fulfill a specific resource objective.

Table 6. Summary of management strategies.

Management Strategies	Timing	Priority
HABITAT MANAGEMENT		
Riparian Enhancement ***Management Objective*** – Protect, stabilize and enhance stream channel and riparian habitat along Abrams Creek, Hernage Creek and other stream corridors.		
• Along Hernage Creek, restore floodplain connection from channel incision by raising the channel (i.e., drop and riffle structures).	**LT**	**M**
• Monitor stream channel and riparian habitat condition along Abrams Creek, and implement corrective action as needed to address minor issues that arise.	**O**	**M**
Fuels Management ***Management Objective*** – Coordinate with Eagle Valley Wildland to plan, implement, monitor, and manage fuels management projects to meet both wildfire protection and ecological enhancement goals.		
• Meet with Eagle Valley Wildland bi-annually to discuss upcoming projects, recent projects, and strategies to maximize ecological benefits.	**O**	**M**
• Monitor thinning and fire break project areas for noxious weeds and native vegetation response for three years following project completion.	**O**	**H**
• Coordinate with CPW to plan and implement projects in a manner that enhances the quality and availability of winter range habitat for mule deer and elk.	**O**	**M**
• Seek opportunities to coordinate upland fuels mitigation projects with riparian enhancement needs, particularly along Abrams and Hernage Creeks.	**O**	**M**
• Review and adapt project design and implementation over time to integrate lessons learned and maximize ecological benefits.	**O**	**M**
VEGETATION MANAGEMENT		

Management Strategies	Timing	Priority
Noxious Weeds ***Management Objective*** – Monitor and manage noxious weeds to contain and reduce common weed species (state Lists B and C).		
• Monitor and map weed infestations annually.	**O**	**H**
• Develop and implement an integrated management strategy that uses a variety of tools, including herbicides, mowing, and biological controls, that can be implemented and adjusted over time.	**O**	**H**
• Prioritize areas for weed-control treatments based on species present and overall vegetation management objectives.	**O**	**M**
• Focus ongoing weed management activities on infestations of state List B weed species.	**O**	**H**
• Use native vegetation enhancement efforts to address state List C weed species.	**O**	**M**
• Concentrate immediate weed management activities along trails or in recently disturbed areas.	**ST**	**H**
• Integrate weed monitoring and management into all management activities that result in ground or vegetation disturbance.	**O**	**M**
Harrington's Penstemon ***Management Objective*** – Manage habitat and infrastructure projects to protect, maintain, and enhance habitat for Harrington's penstemon (penstemon harringtonii)		
• Integrate population surveys, avoidance, and monitoring protocols into any ground-disturbing project within potential Harrinton's penstemon habitat	**O**	**H**
• Incorporate penstemon conservation measures into fuels management project planning, implementation, and monitoring	**O**	**H**
• Coordinate regional conservation and management efforts with Eagle County, BLM, and other regional partners	**O**	**L**
Disturbed Grasslands ***Management Objective*** – Manage disturbed grassland areas with an emphasis on ecological stability, noxious weed mitigation, and native habitat enhancement.		
• Identify site-specific strategies to improve soil fertility and increase native vegetation cover and diversity, including goals and success criteria, timelines for monitoring, and adaptive management thresholds.	**ST**	**M**
• Use a phased approach to concentrate aggressive reclamation efforts in smaller disturbed sites, and monitor success for 3 to 5 years before implementing the next aggressive reclamation effort.	**ST**	**M**
• Implement less aggressive reclamation efforts that include weed management, improving soil fertility, and interseeding (i.e., a specific method of drill seed) in cultivated areas to slowly promote and establish native upland grasses.	**ST**	**M**
• Implement more aggressive reclamation efforts that include topsoil management, soil preparation, and seeding with suitable native upland seed mixes.	**LT**	**M**
• If new development is planned, facilitate additional focus and short-term supplemental irrigation, implement selective plantings of native upland shrub species.	**LT**	**M**
• Monitor the effectiveness of grassland restoration treatments and adjust over time.	**O**	**M**
Revegetation ***Management Objective*** – Implement revegetation plans to establish native plant communities in disturbed areas, and to improve the overall quality and vigor of other degraded areas.		
• Salvage and test the existing topsoil for revegetation efforts; do not use topsoil from areas infested with noxious weeds.	**ST**	**H**
• Supplement topsoil with amendments if testing indicates a deficiency in structure, organic matter, or nutrients.	**ST**	**M**
• Grade, rip, or till the disturbed soils to relieve compaction and prepare the sites for seeding.	**ST**	**M**

Management Strategies	Timing	Priority
• Place topsoil and drill seed upland areas with the upland seed mix in the fall (prior to freezing) or spring (after thaw).	**ST**	**M**
• Place topsoil and broadcast seed wetland areas with the wetland seed mix in the fall or spring.	**ST**	**M**
• Apply mulch to seeded areas within 24 hours of seeding.	**ST**	**M**
• Monitor seeded areas on a monthly basis for erosion, noxious weeds, or large areas of bare ground until desired species are well-established; correct issues immediately.	**O**	**M**
WILDLIFE MANAGEMENT		
Wildlife Habitat Conservation ***Management Objective*** – Manage trail, human use, and disturbance on balance with wildlife habitat protection.		
• Plan trail and infrastructure projects to protect and maintain existing unfragmented patches of wildlife habitat (see **Figure 5**)	**ST**	**H**
• Reduce the occurrence of off-leash dogs through educational signage, visitor contact, and enforcement	**O**	**M**
Raptor Protection ***Management Objective*** – Manage and monitor nests to protect raptor breeding seasons.		
• Enact a 0.33-mile radius buffer around active red-tailed hawk nests from February 15 to July 15.	**ST**	**M**
• Continue to monitor the status of raptor nests on open space.	**O**	**M**
Pest Management ***Management Objective*** – Manage Wyoming ground squirrel, and other wildlife pest populations to reduce resource damage and conflicts with visitors and neighbors.		
• Monitor the location and extent of ground squirrel populations on Town open space, and document reported conflicts or complaints from residents and neighbors	**O**	**M**
• Proactively implement pest control measures on open space, prioritizing areas with the greatest issues or conflicts	**O**	**H**
• Minimize impacts of pest control measures on native, non-target wildlife species	**O**	**L**
Big Game Winter Range Protection ***Management Objective*** – Maintain and improve winter range habitat for mule deer and elk.		
• Maintain, monitor, and enforce seasonal trail closures (December 1 – April 15) to protect winter ranges for mule deer and elk.	**O**	**H**
• Meet with CPW on a bi-annual basis to evaluate habitat and population data, discuss management issues and trends, and identify adaptive management needs (consistent with Section 6.03.090. B of the Eagle Town Code).	**O**	**M**
• Coordinate fuels management projects with Eagle Valley Wildland and CPW to maximize benefits to mule deer and elk.	**O**	**M**
• Plan and implement any new trails or infrastructure		
RECREATION AND ACCESS MANAGEMENT		
Trails and Access ***Management Objective*** – Manage and monitor trails and other visitor amenities to provide desired visitor access and minimize adverse impacts.		
• Convene a structured community process to develop a strategy to manage motorized access to the Second Gulch Trail, focused on equitable solutions that can be tested on an adaptive basis.	**ST**	**H**
• Monitor existing and new social trails for use and resource damage, prioritizing closure and reclamation of problematic trails (consistent with Section 6.03.020.F of the Eagle Town Code).	**O**	**M**
• Integrate, into the Eagle Town Code, a specific prohibition of unauthorized trail construction on open space.	**LT**	**L**
• Continue to alert the public of seasonal closures to the Arroyo Trailhead to prevent trespassing.	**O**	**M**

Management Strategies	Timing	Priority
• Evaluate trails annually, or following major storm events, for erosion, rutting, braiding or other maintenance or management issues.	O	M
• Implement routine maintenance of trails, including clearing drainage, vegetation clearing, social trail closure, and light repairs every two to three years per trail section.	O	M
• Perform targeted maintenance of trails to address small or localized issues as needed or every four to six years per trail section	LT	M
• Immediately address trail maintenance issues that may threaten public safety or result in significant trail degradation or resource damage	O	H
• Evaluate gates for compatibility with equestrian access, and complete necessary modifications	LT	L
Public Land Interface **Management Objective** – Work with partners to proactively monitor and manage property boundaries and mitigate issues that may result in resource damage.		
• Monitor property boundaries annually for encroachment, social trails, illegal camping, and other trespass issues.	O	M
• Work with Eagle Ranch HOA to monitor and manage illegal encroachments behind private residences, following a sequence of education, notification, and enforcement.	O	M
• Install or update signs along the trails indicating land management changes.	LT	M
• Maintain ongoing communication and coordination with Eagle County, BLM, the USFS, Eagle Ranch HOA, and neighboring landowners regarding adjacent public uses and any issues that may arise.	O	L

Monitoring

Routine monitoring of specific resources and specific management issues will be necessary to document the ongoing trajectory of management issues and to determine how well management objectives are being met. Ongoing monitoring allows Eagle to make informed decisions about resource management priorities and projects and provides a feedback mechanism that facilitates ongoing learning about resource issues and improvement of techniques to address them.

Monitoring recommendations are listed above as management actions and are repeated in **Table 7** to provide a quick reference.

Table 7. Summary of monitoring actions.

Monitoring Actions	Frequency	Methods
Vegetation and Habitat Monitoring		
• Monitor and map weed infestations annually	Annual	Visual inspection, GPS mapping, documentation, and photos
• Monitor stream channel and riparian habitat condition along Abrams Creek, Hernage Creek, and other drainages.	Annual	Visual inspection, GPS mapping, documentation, and photos
• Monitor fuels management project areas for noxious weeds and native vegetation response for three years following project completion.	Annual	Visual inspection, GPS mapping, documentation, and photos

Monitoring Actions	Frequency	Methods
• Monitor effectiveness of grassland restoration and revegetation treatments	Annual; as-needed	Visual inspection, GPS mapping, documentation, and photos
Wildlife Monitoring		
• Monitor status of existing and new raptor nests on open space	Annual	Visual inspection
• Monitor seasonal trail closures for compliance	Annual	Visual inspections, Remote cameras
Recreation and Access Monitoring		
• Evaluate all trails annually, or following major storm events, for maintenance or management issues	Annual; as-needed	Visual inspection, GPS mapping, and photos
• Monitor seasonal trail closures for compliance	Annual	Visual inspections, Remote cameras
• Monitor property boundaries for encroachment, social trails, illegal camping, and other trespass issues	Annual	Visual inspection, GPS mapping, and photos

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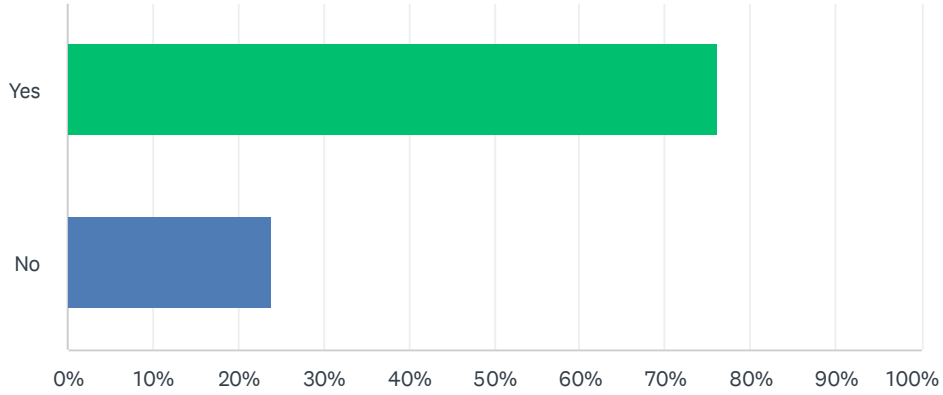
Appendix A. Online Public Survey Results

Q1 Are you a Town of Eagle resident?

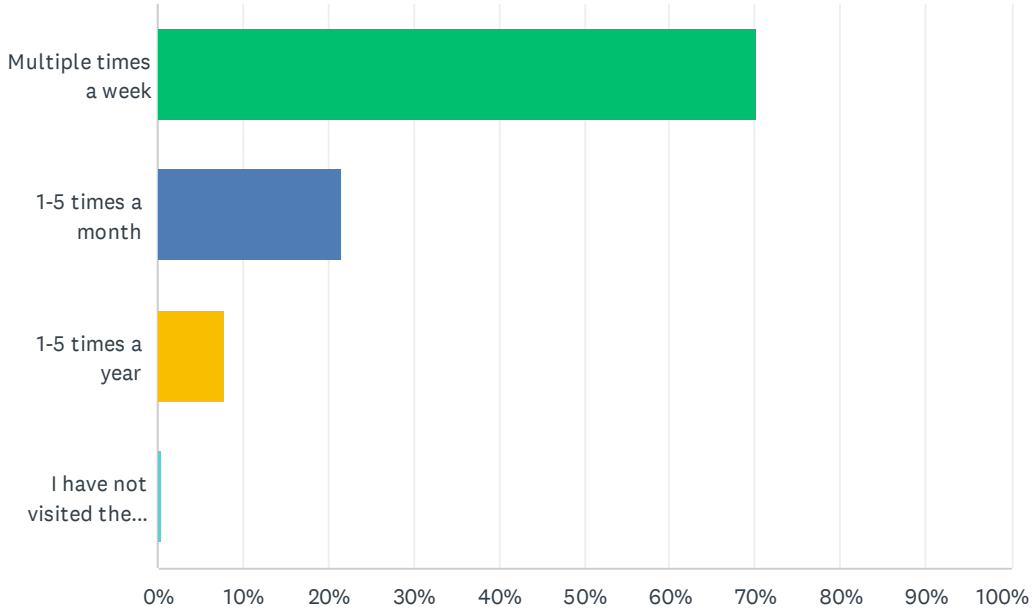
Answered: 802 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	76.06%	610
No	23.94%	192
TOTAL		802

Q2 How often do you visit the Town of Eagle's Open Space areas or trails?

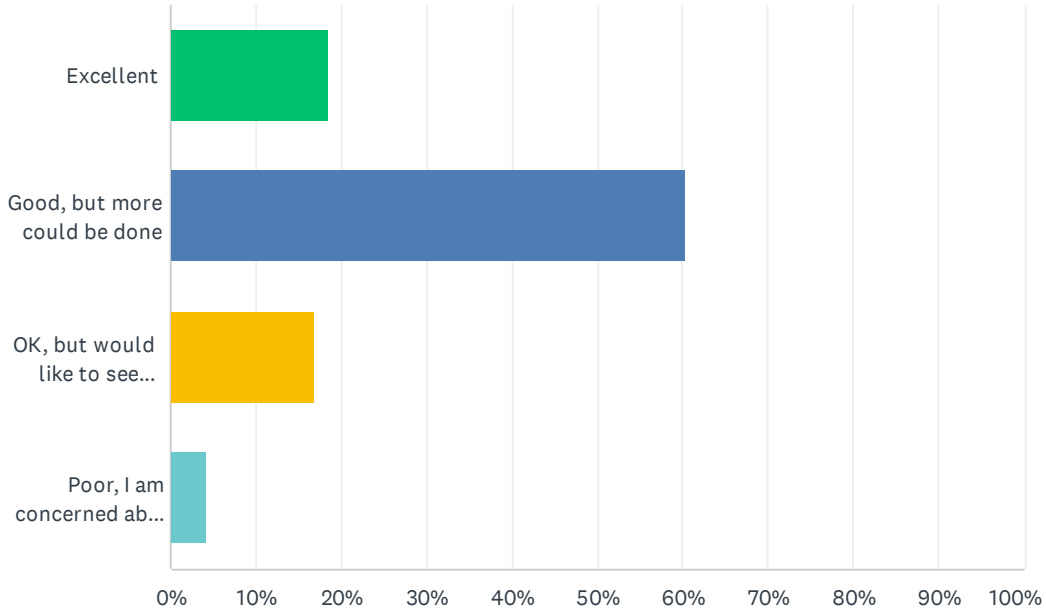
Answered: 802 Skipped: 0



ANSWER CHOICES	RESPONSES	
Multiple times a week	70.20%	563
1-5 times a month	21.45%	172
1-5 times a year	7.86%	63
I have not visited the open space areas or trails	0.50%	4
TOTAL		802

Q3 In your mind, how effective is current Town of Eagle open space management?

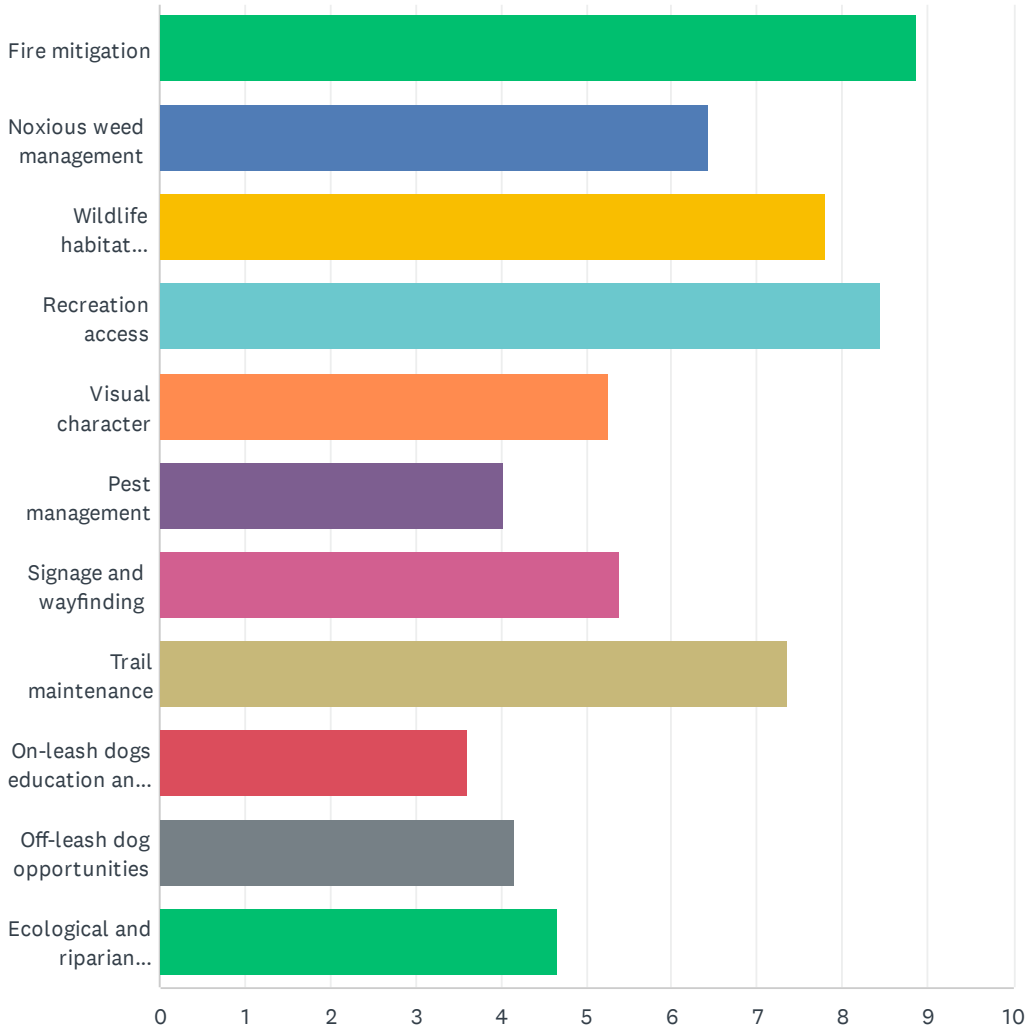
Answered: 781 Skipped: 21



ANSWER CHOICES	RESPONSES	
Excellent	18.57%	145
Good, but more could be done	60.31%	471
OK, but would like to see more issues addressed	16.90%	132
Poor, I am concerned about management issues	4.23%	33
TOTAL		781

Q4 What should be the recreation/natural resource management priorities? (1 being the highest priority and 11 being the lowest)

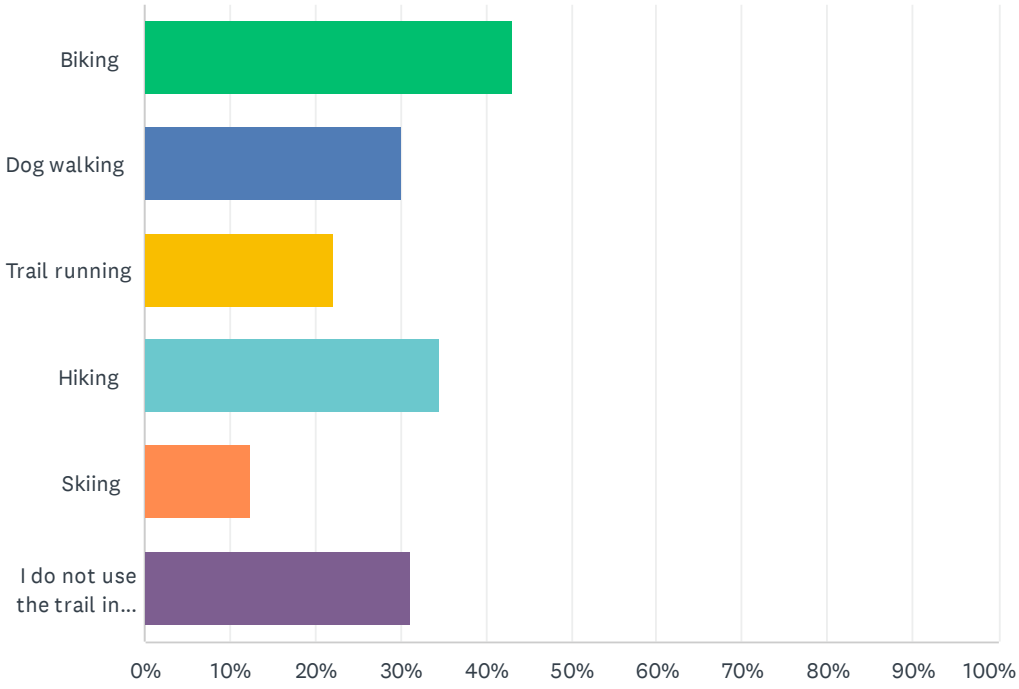
Answered: 788 Skipped: 14



	1	2	3	4	5	6	7	8	9	10	11
Fire mitigation	33.76% 266	14.85% 117	12.31% 97	14.97% 118	9.26% 73	5.71% 45	3.68% 29	3.30% 26	1.27% 10	0.51% 4	0.38% 3
Noxious weed management	2.92% 23	11.42% 90	10.79% 85	10.66% 84	12.56% 99	14.72% 116	13.45% 106	9.64% 76	6.98% 55	4.82% 38	2.03% 16
Wildlife habitat improvements	12.06% 95	18.27% 144	16.12% 127	12.69% 100	13.20% 104	9.26% 73	7.61% 60	5.08% 40	2.28% 18	2.41% 19	1.02% 8
Recreation access	29.70% 234	15.99% 126	13.83% 109	11.42% 90	7.36% 58	4.82% 38	6.22% 49	4.06% 32	3.05% 24	1.52% 12	2.03% 16
Visual character	1.14% 9	2.41% 19	4.95% 39	6.47% 51	14.72% 116	14.97% 118	17.77% 140	14.97% 118	10.79% 85	7.23% 57	4.57% 36
Pest management	0.38% 3	1.02% 8	1.27% 10	2.28% 18	4.95% 39	11.55% 91	14.21% 112	20.43% 161	21.70% 171	15.23% 120	6.98% 55
Signage and wayfinding	1.40% 11	5.84% 46	7.36% 58	10.91% 86	8.50% 67	9.77% 77	14.47% 114	13.20% 104	15.10% 119	9.77% 77	3.68% 29
Trail maintenance	8.88% 70	15.23% 120	15.10% 119	14.34% 113	10.53% 83	11.29% 89	5.33% 42	10.91% 86	5.96% 47	2.41% 19	0.00% 0
On-leash dogs education and enforcement	3.17% 25	3.30% 26	4.57% 36	3.81% 30	5.33% 42	3.68% 29	4.57% 36	4.57% 36	15.99% 126	21.95% 173	29.06% 229
Off-leash dog opportunities	3.93% 31	5.46% 43	7.23% 57	5.58% 44	5.71% 45	5.08% 40	5.08% 40	4.57% 36	6.98% 55	21.83% 172	28.55% 225
Ecological and riparian restoration	2.66% 21	6.22% 49	6.47% 51	6.85% 54	7.87% 62	9.14% 72	7.61% 60	9.26% 73	9.90% 78	12.31% 97	21.70% 171

Q5 What is your preferred use of the Haymaker Trail system in the winter? (check all that apply)

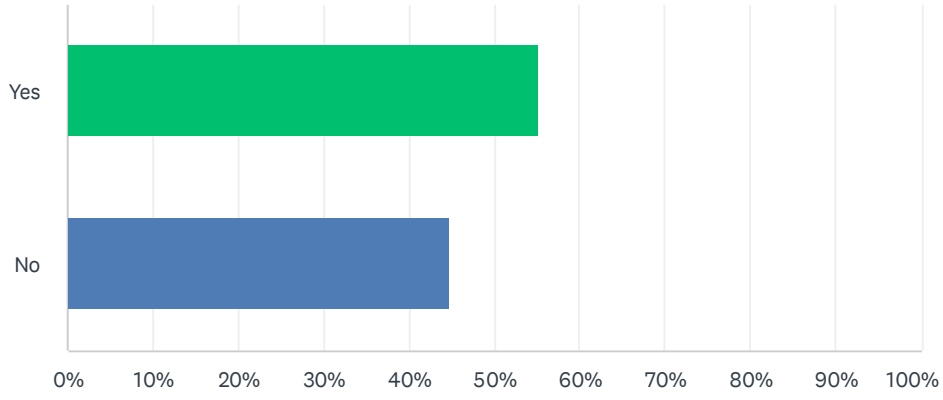
Answered: 798 Skipped: 4



ANSWER CHOICES	RESPONSES	
Biking	42.98%	343
Dog walking	30.08%	240
Trail running	22.18%	177
Hiking	34.46%	275
Skiing	12.28%	98
I do not use the trail in the winter	31.08%	248
Total Respondents: 798		

Q6 Would you support additional winter restrictions on the Haymaker Trail system to protect wildlife?

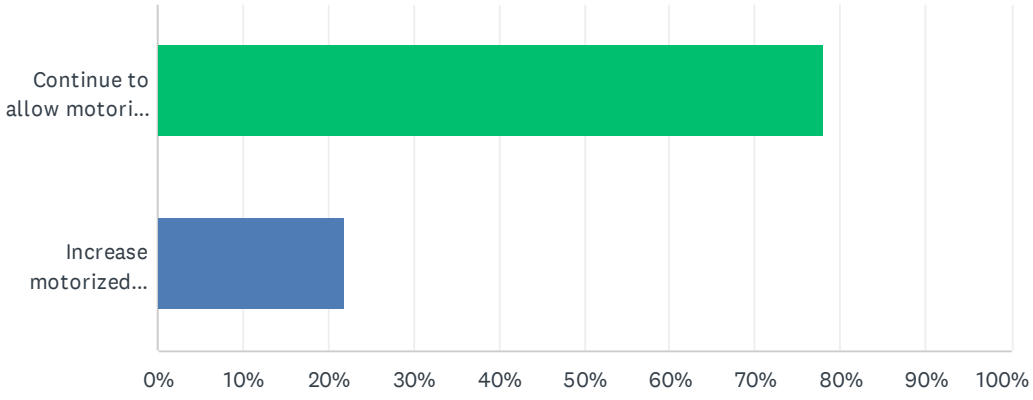
Answered: 785 Skipped: 17



ANSWER CHOICES	RESPONSES	
Yes	55.29%	434
No	44.71%	351
TOTAL		785

Q7 What is your preferred management of motorized vehicles on the Second Gulch Trail within Town open space?

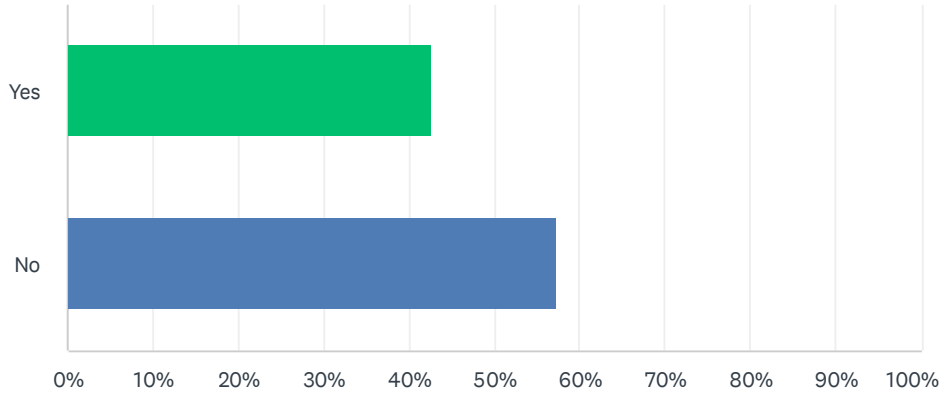
Answered: 788 Skipped: 14



ANSWER CHOICES	RESPONSES	
Continue to allow motorized vehicles up to a width of 50 inches	78.05%	615
Increase motorized vehicle width to allow access for modern OHVs (e.g., SxS)	21.95%	173
TOTAL		788

Q8 Do you support increasing E-Bike access on nonmotorized dirt trails on Town open space?

Answered: 799 Skipped: 3



ANSWER CHOICES	RESPONSES	
Yes	42.55%	340
No	57.45%	459
TOTAL		799

Q9 Do you have any additional management concerns or comments?

Answered: 371 Skipped: 431

Appendix B. Harrington's Penstemon Background and Conservation Measures

Harrington's penstemon (also known as Harrington's beardtongue; *Penstemon harringtonii*) is a vascular plant species that is known to occur in a narrow range within the Colorado River drainage in northwest Colorado. This species generally occurs in dry, sagebrush-dominated communities at elevations between 6,400 and 9,400 feet. Within this narrow range, the total population of this species is estimated to be located within about 15 square miles of habitat, including the sagebrush-dominated slopes in and around the Town of Eagle (CNHP 2006).

Status

This species is not listed under the federal Endangered Species Act or the Colorado Threatened and Endangered List, but is considered a G3/S3 ranked species, meaning that it is considered "vulnerable" at both the global and state scales (CNHP 2015). It is considered to be a BLM Sensitive species (BLM 2020) and a USFS Region 2 Sensitive Species (Forest Service 2023).

Habitat

Harington's penstemon occurs in open sagebrush and mixed pinyon-juniper, Gambel's oak or mixed mountain mahogany shrubland habitats on gentle slopes. Soils are generally rocky loams and rocky clay

loams, as well as limey shales, limestones, and other rocks, though it is not known whether the species is limited to specific geologic substrates or soils. *P. harringtonii* has been documented on all aspects and on slopes as steep as 50 percent, but is typically found on slopes less than 20 percent (CNHP 2006).

Description

Plants are perennial, and are about 30-70 centimeters tall, typically with a single unbranched stem. Flowers are pink to purple or blue, and are arranged in loose spikes on the upper half of the stems, typical of a traditional snapdragon (it is a member of the Scrophulariaceae, Snapdragon or Figwort family). Flowers are in loose spikes with two exserted stamens (stick out of the flower tube). Leaves are thick, rounded, and elongated in shape, are bluish grey in color, and are arranged opposite each other along the flowering stem and in a basal rosette at the base of the plant. Flowering typically begins in early June and continues through late June (CNHP 2006).

It is similar in habitat and appearance to Osterhout's beardtongue (*P. osterhoutii*), which are more likely to occur in pinyon-juniper dominated areas, but are sometimes mixed with P. *harringtonii* (CNHP 2006).

Threats

Threats to the species include grazing, recreation, roads, and other development that may result in the trampling of plants, removal or fragmentation of habitat, loss of pollinators, effects of climate change, and/or the proliferation of invasive, non-native plant species such as cheatgrass, Canada thistle, smooth brome, musk thistle, and houndstongue (CNHP 2015, NatureServe 2023).

Potential Habitat Assessment

ERO assessed potential habitat for *P. harringtonii* on Town of Eagle open space land on June 28, 2023. Habitat includes most sagebrush-dominated habitat and in some areas adjacent to known populations on BLM land. Suitable habitat is present on Town of Eagle open space land. ERO did not conduct a comprehensive survey for *P. harringotnii*, however individual plants where observed in the Towns open space in the sagebrush-dominated areas and occasionally in the mixed montane shrubland and pinyon juniper communities.

Conservation and Project Implementation Measures

To support the long-term conservation of this species, the following measures are recommended for any ground-disturbing activities within identified potential habitat:

1. Survey proposed project areas during the survey period (June)
2. If found, evaluate or modify the proposed project to avoid ground disturbance within a 100-foot buffer of all confirmed plants
3. If a 100-foot buffer cannot be implemented, avoid direct ground disturbance where plants are rooted.
4. If direct ground disturbance cannot be avoided, adjust the project site or alignment to minimize impact to the plants, with the goal of having less than 1 to 2 percent of the population within the project impact area.
5. If the project site or alignment cannot be changed to minimize impacts, confine disturbances as close to outer edge of the plant population as possible to minimize fragmentation.

6. If plants are unavoidable, contact nearby botanical gardens or grow out facilities (such as the Betty Ford Alpine Garden in Vail and the Upper Colorado Environmental Plant Center facility in Meeker; these facilities have accepted salvaged plants in the past) to salvage plants if possible.
7. Weed control efforts should not include broadcast or aerial herbicide treatments within ½ mile of known populations. Utilize spot spray application in these areas.
8. Construction within identified *P. harringtonii* habitat should occur during the active growing season (May 15 through August 30) to ensure that all rosettes are visible.
9. Monitor on-site construction with a qualified biological monitor (botanist) to avoid and mitigate impacts to populations.

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ERO

Consultants in Natural Resources and the Environment

DRAFT

Town of Eagle Open Space and Trails
Bluffs Neighborhood, Eagle River, and Eby Creek Open Space
Natural Resource Management Plan
Eagle County, Colorado

Prepared for—

Town of Eagle
200 Broadway
Eagle, Colorado 81631

Prepared by—

ERO Resources Corporation
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Lakewood, Colorado 80401
(303) 830-1188
ERO Project #23-084

September 2023

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Bluffs Neighborhood, Eagle River, and Eby Creek Open Space Natural Resource Management Plan

September 2023

Introduction

This Natural Resource Management Plan (management plan) for the Bluffs Neighborhood, Eagle River, and Eby Creek Open Space properties in Eagle County, Colorado (properties) is intended to assist with recommendations for natural resource concerns that impact the existing, as well as future, conditions based on management objectives set forth in the 1997 Open Lands Conservation Plan. Some of these natural resource concerns include noxious weed management, wildlife habitat conservation, and visitor use management measures.

Location and Background

The properties consist of approximately 23.8 total acres located along the Eagle River corridor in the Town of Eagle (Eagle or Town), Colorado generally accessed from Eby Creek Road (**Figure 1**).

The open space properties are located in the western portion of Eagle with elevations ranging between 6,618 and 7,761 feet. These areas are surrounded by development for private residential and business establishments and consist of mainly disturbed grasslands, montane mixed grasslands, sagebrush shrublands, and riparian woodlands. These open space properties are bound by private lands on all sides.

Planning Context

The Town of Eagle completed a master planning process in 2022 which prioritized the need for the creation and implementation of management plans for its open space properties.

Purpose of the Management Plan

The purpose of this management plan is to provide an assessment of existing natural resources, and to guide resource management at the property. More specifically, this management plan is also intended to achieve the following objectives:

1. Document existing conditions and resource management issues on the property.
2. Identify and prioritize strategies to address resource management issues and maintain the overall integrity of resources on the property.

Management Plan Process

The Town of Eagle hired ERO Resources Corporation (ERO) to complete this management plan. The planning process included the following phases:

1. **Focus Group Meetings (June 2023):** Meetings with focus groups to discuss issues and objectives related to natural resource and recreation management.
2. **Resource Assessment (June – July 2023):** Evaluation of existing resource data, and field assessments of open space properties
3. **Public Survey (July – August 2023):** Online survey to assess community preferences around key open space management topics (**Appendix A**).
4. **Draft Management Plan (September – October 2023):** Completion and public review of draft management plans
5. **Final Management Plan (November – December 2023):** Completion and adoption of final management plan.

Relationship to Existing Plans and Policies

This section describes the various land use considerations associated with the property.

Open Lands Conservation Plan

In 1997, the Town of Eagle adopted its Open Lands Conservation Plan which established open space dedications in the town. This plan introduced four objectives for managing open space properties.

- Conserve Natural Characteristics
- Protect Critical Wildlife Habitat
- Provide Appropriate Recreational Opportunities
- Maintain Scenic Qualities

Open Space and Trails Master Plan

In July of 2022, Eagle adopted the Open Space and Trails Master Plan (OST Plan) which prioritized the need for creating management plans for its open space properties (Eagle 2022). One of the primary goals of the OST Plan is to "inventory conditions and improve understanding of open space" by monitoring and managing natural resource conditions in Eagle's open spaces in accordance with best

practices and management plans. Recommendation OS8, Development of Open Space Management Plans, is rated as a high priority under Eagle's OST Plan and further supports the need for understanding the existing conditions to provide the Open Space Department with a framework for future budgeting, partnerships, and capacity building.

Town of Eagle Municipal Code

Open space in Eagle is regulated by Title 6 and Title 9 of the Municipal Code (Eagle 2023). Title 6 Public Parks, Recreation Areas, and Open Space Areas regulates the types of uses allowed and disallowed on open space properties, procedures for proposing new trails on open space, and special events on open space. Title 9 Public Peace, Safety, and Morals includes Chapter 9.26 Public Parks, Recreation Areas, and Open Space Areas which regulates public sanitation, behavior, and need for preservation of open space.

Adjacent Public Lands and Planning Efforts

Eagle County Open Space

The Eagle County Open Space program manages and conserves upwards of 15,000 acres of land throughout Eagle County (Eagle County 2023). The Eagle Ranch Open Space property shares boundaries with Brush Creek Valley Ranch.

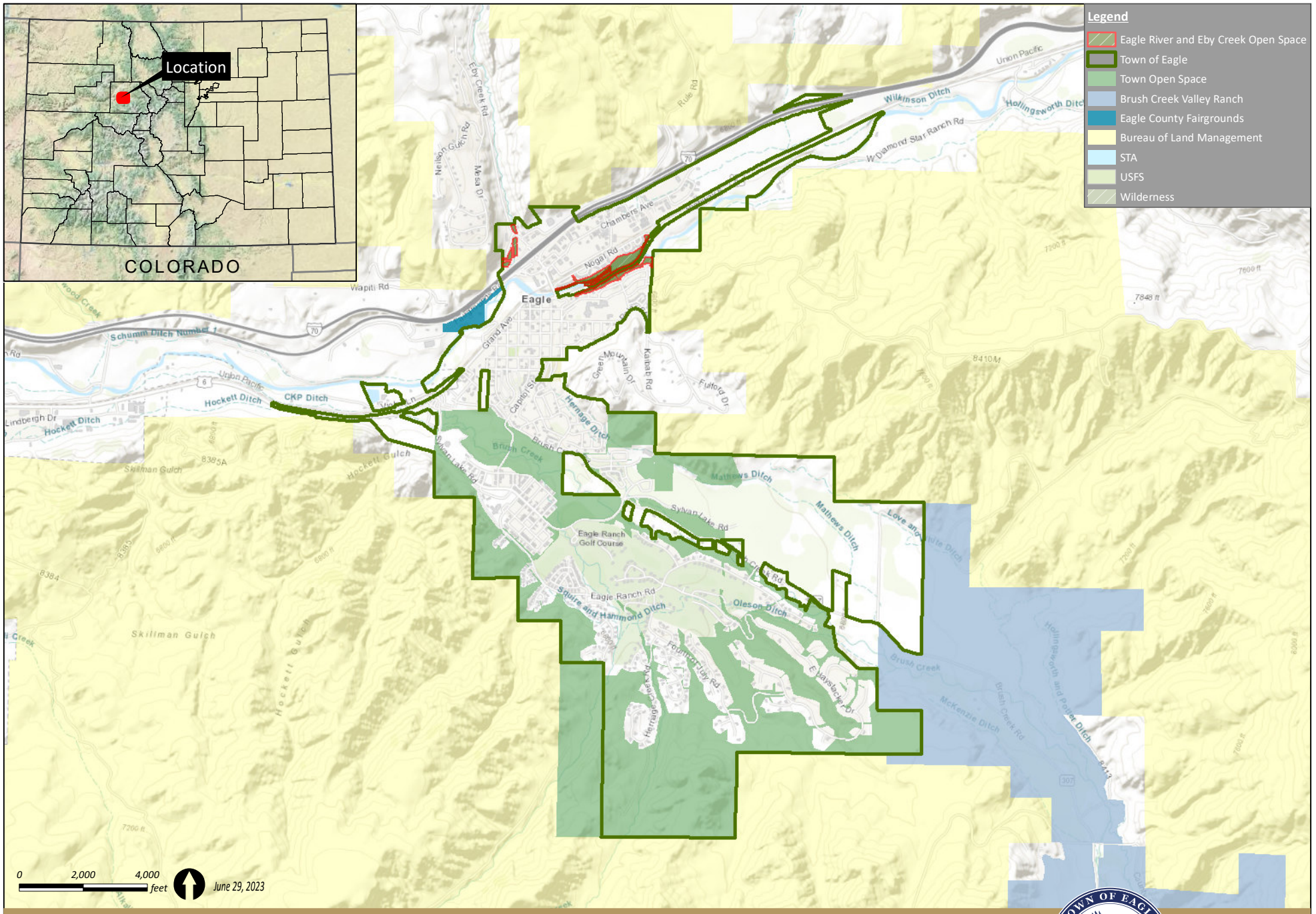
Colorado River Valley Field Office Resource Management Plan

The Bureau of Land Management (BLM) manages its public lands through field office-specific Resource Management Plans (RMP). The Colorado River Valley Field Office manages BLM lands which are adjacent to the Abrams Creek and Eagle Ranch Open Space properties in accordance with the Colorado River Valley Field Office RMP (BLM 2015).

White River National Forest Plan

The U.S. Forest Service (USFS) does not own property adjacent to Eagle Open Space, though it does share boundaries with adjacent BLM lands. The White River National Forest (WRNF) manages its land through a management plan in accordance with the National Forest Management Act to establish protection measures, management strategies, and goals and guidelines for appropriate uses (USFS 2002).

Coordination and planning efforts among land managers is ongoing and continues to be a positive relationship for the Town of Eagle.



Property Location

Eagle River and Eby Creek Open Space • Town of Eagle Open Space Management Plans

Existing Conditions

Geology and Soils

The NRCS mapped eight map units on the open space properties. The description for each soil and its series are shown below and include uses that might be common on the soil type. **Figure 2** shows the soil mapping for the property. All soil information was gathered from the NRCS Soil Series Description query site (NRCS 2023) and the Soil Survey of Aspen-Gypsum Area, Colorado, Parts of Eagle, Garfield, and Pitkin Counties (USDA 1992).

Dahlquist-Southace complex, 6 to 12 percent slopes

The Dahlquist-Southace complex series consists of well drained soils on terraces and alluvial fans. These soils formed in mixed alluvium. The slope ranges from 6 to 12 percent. The average annual precipitation is 14 inches, and the average annual temperature is 44°F.

Dahlquist-Southace complex, 12 to 25 percent slopes

The Dahlquist-Southace complex series consists of deep, well drained soils on terraces and alluvial fans. These soils formed in mixed alluvium. The slope ranges from 12 to 25 percent. The average annual precipitation is 14 inches, and the average annual temperature is 44°F.

Fluvaquents, 0 to 10 percent slopes

The Fluvaquents series consists of deep, somewhat poorly drained soils on valley floors and floodplains. These soils formed in mixed alluvium. The slope ranges from 0 to 10 percent. The average annual precipitation is 16 inches, and the average annual temperature is 48°F.

Gypsum land-Gypsiorthids complex, 12 to 65 percent slopes

The Gypsum land-Gypsiorthids complex series consists of extremely shallow, high runoff class soils on hills, drainageways, and mountains. These soils formed in mixed colluvium and/or mixed residuum. The slope ranges from 12 to 65 percent. The average annual precipitation is 12 inches, and the average annual temperature is 42°F.

Torriorthents-Rock outcrop complex, 45 to 95 percent slopes

The Torriorthents-Rock outcrop complex series consists of extremely shallow soils on ridges, mountains, and hills. These soils formed in colluvium derived from sandstone and/or residuum weathered from sandstone and/or colluvium derived from shale and/or residuum weathered from shale and/or colluvium derived from basalt and/or residuum weathered from basalt. The slope ranges from 45 to 95 percent. The average annual precipitation is 12 inches, and the average annual temperature is 42°F.

Tridell-Brownsto stony sandy loams, 12 to 50 percent slopes, extremely stony

The Tridell-Brownston stony sandy loams series consists of deep, well drained soils on terraces and mountains. These soils formed in alluvium derived from sandstone and/or colluvium derived from sandstone and/or alluvium derived from basalt and/or colluvium derived from basalt. The slope ranges

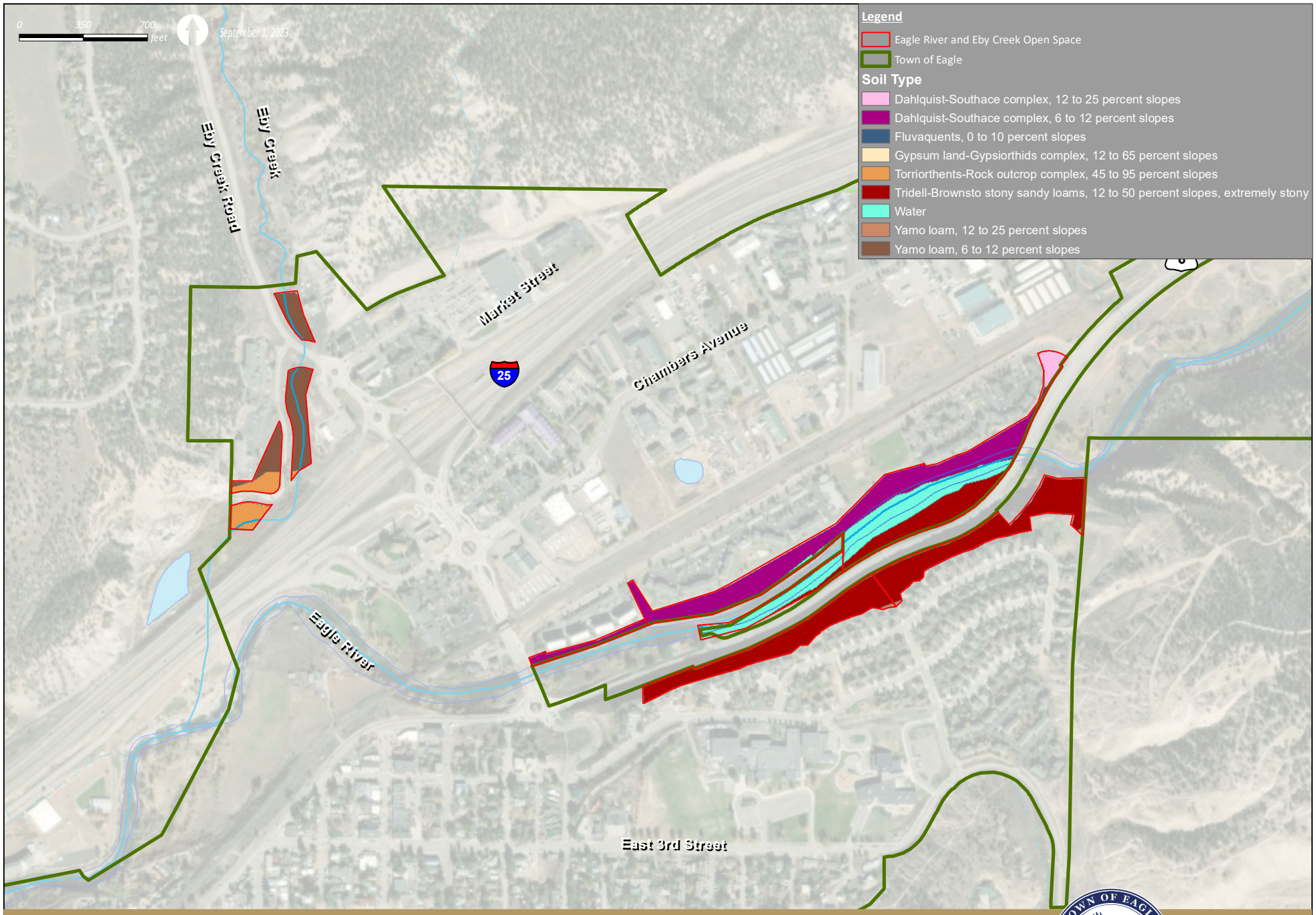
from 12 to 50 percent. The average annual precipitation is 13 inches, and the average annual temperature is 43°F.

Yamo loam, 6 to 12 percent slopes

The Yamo loam series consists of deep, well drained soils on fans and mountains. These soils were formed in colluvium derived from sandstone and/or colluvium derived from shale and/or colluvium derived from gypsum. The slope ranges from 6 to 12 percent. The average annual precipitation is 12 inches, and the average annual temperature is 42°F.

Yamo loam, 12 to 25 percent slopes

The Yamo loam series consists of deep, well drained soils on fans and mountains. These soils were formed in colluvium derived from sandstone and/or colluvium derived from shale and/or colluvium derived from gypsum. The slope ranges from 12 to 25 percent. The average annual precipitation is 12 inches, and the average annual temperature is 42°F.


0
350
700
feet
September 1, 2023
Legend
Eagle River and Eby Creek Open Space
Town of Eagle
Soil Type
Dahlquist-Southace complex, 12 to 25 percent slopes
Dahlquist-Southace complex, 6 to 12 percent slopes
Fluvaquents, 0 to 10 percent slopes
Gypsum land-Gypsiorthids complex, 12 to 65 percent slopes
Torriorthents-Rock outcrop complex, 45 to 95 percent slopes
Tridell-Brownsto stony sandy loams, 12 to 50 percent slopes, extremely stony
Water
Yamo loam, 12 to 25 percent slopes
Yamo loam, 6 to 12 percent slopes
Eby Creek Road
Eby Creek
Market Street
Chambers Avenue
25
Eagle River
East 3rd Street

Soils

Water Resources

The Eagle River and Eby Creek interesect the open space properties. There are no lakes or ponds located on these properties. Eby Creek and the Eagle River both contain a narrow riparian corridor.

Vegetation Resources

Colorado Natural Heritage Program

The Colorado Natural Heritage Program (CNHP) maintains a tracking list and serves as the central data repository for Colorado's rare flora. Many of these species are also considered species of conservation concern by the U.S. Fish and Wildlife Service (USFWS), the U.S. Forest Service (USFS), the Bureau of Land Management (BLM), and the Colorado Department of Natural Resources (CNHP 2023). Harrington Penstemon (*Penstemon harringtonii*) was observed on a north facing hillslope south of highway 6 in the Open Space (see **Figure 3**).

Harrington's Penstemon

Harrington's penstemon habitat is described as sagebrush shrubland and mixed mountain shrublands. Harrington's penstemon occasionally occurs in disturbed grassland and pinyon juniper woodlands and it is not known whether Harrington's penstemon is limited to specific geologic substrates or soils (USFS 2006). Harrington's penstemon has been documented on all aspects in Colorado and on slopes as steep as 50 percent but is usually found on slopes less than 20 percent (CNHP 2023). Additional background on this species is provided in **Appendix B.**

Table 1. Summary of vegetation communities.

Community	Acres	Quality
Disturbed Grasslands	1.2	Low
Montane Mixed Grasslands	1.1	High
Sagebrush Shrublands	8.1	High
Riparian Forest	10.2	Moderate
Riparian Wetland	0.6	High
Open Water	2.7	N/A

Disturbed Grasslands

The disturbed grassland community occurs along existing utility corridors, roadways, and residential developments. Vegetation in this community is dominated by a mixture of non-native grasses and forbs including smooth brome (*Bromus inermis*), crested wheatgrass (*Agropyron cristatum*), kochia (*Bassia scoparia*), sweet clover (*Melilotus officinialis*), bulbous bluegrass (*Poa bulbosa*), cheatgrass (*Bromus tectorum*), prickly lettuce (*Lactuca serriola*), and lambsquarter (*Chenopodium album*).

Montane Mixed Grasslands

Montane mixed grasslands occur between the Eagle River and Highway 6 in the open space contain a higher prevalence of native species compared to the disturbed upland communities. Vegetation in this community is dominated by graminoid species including, Indian ricegrass (*Eriocoma hymenoides*) western wheatgrass (*Pascopyrum smithii*), smooth brome, junegrass (*Koeleria macrantha*), basin wildrye (*Leymus cinereus*). Less prevalent but notable species include various lupine (*Lupinis sp.*), paintbrush

species (*Castilleja sp*.), common yarrow (*Achillea millefolium*), blue flax (*Linum lewisii*), hairy false golden aster (*Heterotheca villosa*), and various penstemon species (*Penstemon sp*.).

Sagebrush shrublands

The sagebrush shrubland community is the most prevalent community in the Abrams Creek and Eagle Ranch Open Space. This community is dominated by big sagebrush and less prevalent shrub species include rubber rabbitbrush (*Ericameria nauseosa*) and woods rose (*Rosa woodsii*). The herbaceous layer is dominated by smooth brome, fringed sage (*Artemesia frigida*), western wheatgrass, Indian paintbrush, sulfurflower buckwheat (*Eriogonum umbellatum*), hairy false golden aster, pussytoes (*Antennaria* sp.), yarrow, and Indian ricegrass. This community is relatively undisturbed except for patches of leafy spurge (*Euphorbia esula*), a List B noxious weed.

Riparian Woodlands

The riparian woodland community occurs along the Eagle River and Eby Creek. This community is dominated by an overstory narrowleaf cottonwood (*Populus angustifolia*), and crack willow (*Salix fragilis*), with a shrub understory of Utah serviceberry (*Amelanchier utahensis*), woods rose, and chokecherry (*Prunus virginia*). Herbaceous species in the riparian woodlands consist of a mixture of mesic and upland species including smooth brome, basin wildrye, orchard grass (*Dactylis glomerata*), and Canada goldenrod (*Solidago canadensis*). The riparian community along Eby Creek is relatively undisturbed and the riparian community along the Eagle River is disturbed by various social trails and noxious weed infestations.

Riparian/Wetland

The riparian/wetland community occurs along Eby Creek. Vegetation in this community is dominated by crack willow, sandbar willow (*Salix exigua*), peachleaf willow (*Salix amygdaloides*). The herbaceous layer is dominated by field horsetail (*Equisteum arvnese*), baltic rush (*Juncus balticus*), wild mint (*Mentha arvensis*), water sedge (*Carex aquatilis*), Northwest Territory sedge (*Carex utriculata*), and reed canarygrass (*Phalaris arundinacea*). This community is relatively undisturbed and beaver activity was observed throughout.

Noxious Weeds

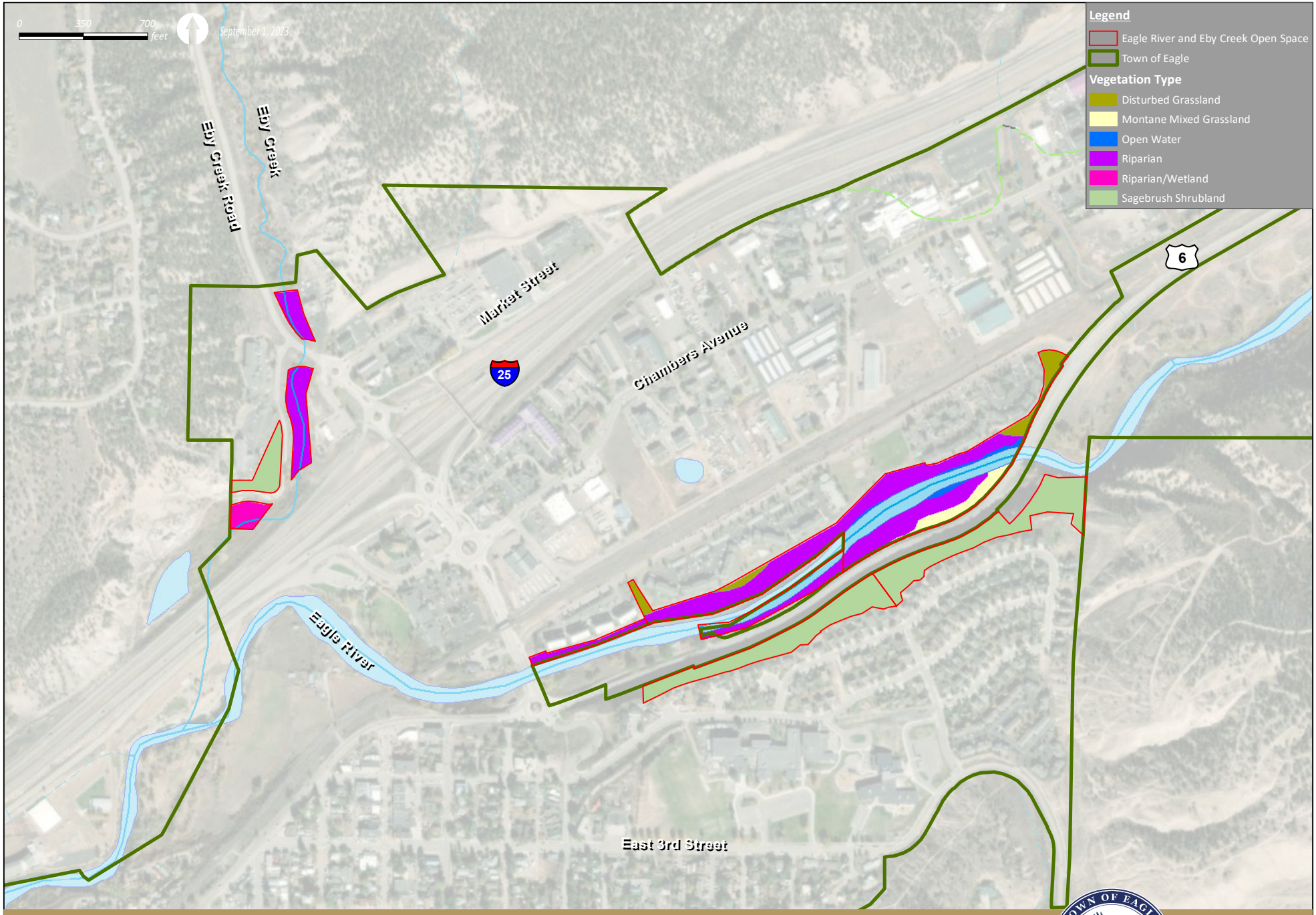
No List A species were found in the project area during the 2023 site visit. Four CDOA Noxious Weed List B species and three List C species were identified in the project area during the 2023 site visit (CDOA 2020). The locations of List B are shown on **Figure 3**. Noxious weed populations are most prevalent in areas in the riparian areas along the north bank of the Eagle River.

List B Weed Species

- Canada thistle (*Cirsium arvense*)
- Leafy spurge (*Euphorbia esula*)
- Musk thistle (*Carduus nutans*)
- Russian olive (*Elaeagnus angustifolia*)

List C Weed Species

- Bulbous bluegrass (*Poa bulbosa*)
- Cheatgrass (*Bromus tectorum*)
- Field bindweed (*Convolvulus arvensis*)



Soils

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Wildlife Resources

This section includes a discussion of general wildlife species that are likely to occur on the open space properties, as well as federal- or state -listed sensitive species, USDA FS sensitive species, and Eagle County species of special concern.

General Wildlife

The open space properties provide habitat for a variety of wildlife species typical of the montane life zone in Eagle County. Mammal species likely to occur include black bear, mountain lion, elk, mule deer, fox, bobcat, and coyote. Other common mammals potentially occurring on the property include mountain cottontail rabbit, snowshoe hare, western spotted skunk, raccoon, pine squirrel, chipmunk, and a variety of mice and shrews.

The property also provides habitat for a variety of migratory songbirds such as mountain bluebird, scrub jay, Steller's jay, Brewer's sparrow, Virginia's warbler, Lewis' woodpecker, and spotted towhee. Common raptors include red-tailed hawk, American kestrel, and great horned owl.

Federally-Listed Wildlife Species

Federally threatened and endangered species are protected under the Endangered Species Act (ESA) of 1973, as amended (16 United States Code 1531 et seq.). Significant adverse effects on a federally listed species or its habitat require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 or 10 of the ESA. The property contains, or is located near, potential habitat for the federally-listed species shown in **Table 2**.

Table 2. Federally threatened, endangered, and candidate animal species potentially found on the property.

Common Name	Scientific Name	Status*	Habitat	Habitat Present or Potential to be Affected?
Mammals				
Canada lynx	*Lynx canadensis*	T	Climax boreal forest with a dense understory of thickets and windfalls	No
Gray wolf	*Canis lupus*	E	Wolves can thrive in a wide range of habitats; a highly adaptable species that occurs in temperate forests, mountains, and grasslands	No - this project does not include a predator management program
Birds				
Mexican spotted owl	*Strix occidentalis*	T	Closed canopy forests in steep canyons	No
Yellow-billed cuckoo	*Coccyzus americanus*	T	Wooded habitat with dense cover and nearby water	No
Fish				
Bonytail chub**	*Gila elegans*	E	Backwaters with rocky or muddy bottoms and flowing pools	No
Colorado pikeminnow**	*Ptychocheilus Lucius*	E	Warm rivers that have large snowmelt runoff and lower relatively stable base flows	No
Humpback chub**	*Gila cypha*	T	Pools with substrates of silt, sand, boulder, or bedrock	No

Common Name	Scientific Name	Status*	Habitat	Habitat Present or Potential to be Affected?
Razorback sucker**	*Xyrauchen texanus*	E	Large river species in areas with strong current and backwaters	No
Insects				
Monarch butterfly	*Danaus plexippus plexippus*	C	Dependent on milkweeds (*Asclepiadoideae*) as host plants and forage on blooming flowers; a summer resident	Yes, habitat is present wherever milkweeds are found.
Plants				
Ute ladies'-tresses orchid (ULTO)	*Spiranthes diluvialis*	T	Moist to wet alluvial meadows, floodplains of perennial streams, and around springs and lakes below 7,800 feet in elevation	No

*T = Federally Threatened Species; E = Federally Endangered Species; C = Candidate Species.
**Water depletions in the Colorado River may affect the species and/or critical habitat in downstream reaches in other counties or states.
Source: Service 2023.

Species of Management Interest

CPW tracks a number of species that are regionally important for big game hunting and overall conservation, including sensitive or seasonal activity areas for several species. The property contains activity areas mapped by CPW for a variety of species (CPW 2020). These species are shown below in **Table 3**. Wildlife habitats are shown on **Figure 4** and **Figure 5**.

Table 3. CPW-tracked wildlife species in the vicinity of the property.

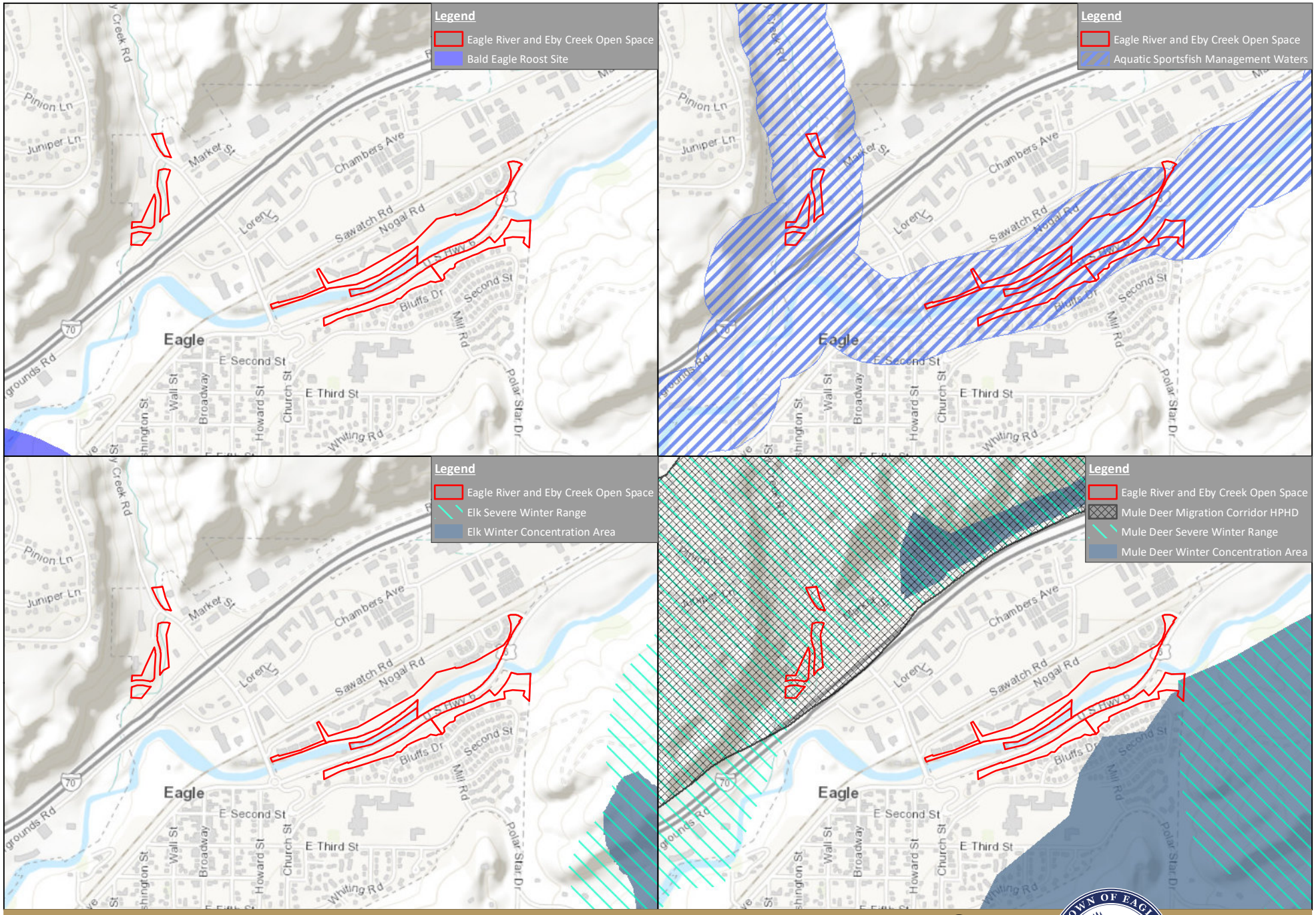
Common Name	Scientific Name	CPW Seasonal Activity Area Present
Mammals		
Elk	*Cervus canadensis*	Severe winter range and winter concentration area
Mule deer	*Odocoileus hemionus*	Migration corridor, severe winter range, and winter concentration area
Birds		
Bald eagle	*Haliaeetus leucocephalus*	Roost site

Source: CPW 2020.

Additionally, the Eagle River is recognized as Aquatic Sportfish Management Waters by CPW.

Raptors

Although the Eagle River and Eby Creek provide suitable forage and nesting habitat for several raptor species no active nests were observed along the Eagle River or Eby Creek.



CPW Wildlife Habitat Designations

0 750 1,500 feet

August 29, 2023

Eagle River and Eby Cr eek Open Space • Town of Eagle Open Space Management Plan

TOWN OF EAGLE Est. 1905

ERO

Habitat Integrity

In any natural landscape, the development of roads and trails fragments habitat values by disrupting ecological processes and contiguity, increasing erosion and vegetation loss, and introducing linear edges and corridors that become pathways for predators and nonnative species. Habitat fragmentation reduces the size and overall integrity of habitat areas and is detrimental to many species (Noss and Cooperrider 1994; Groves et al. 2002; Decker 2018). Roads and trails, and the human access and use that they support, exacerbate these impacts by creating a "zone of influence" within which human disturbance may alter wildlife behavior and reduce the value of habitat to some wildlife. The impacts of fragmentation vary by species and individual animal and can range from no effect, to interruption of activity, to flight, to abandonment of breeding or foraging sites. This zone of influence can range from 30 to 400 meters or more, depending on terrain, vegetation, species, and levels of human use and prior habituation (Miller et al. 2001; Taylor and Knight 2003; Stankowich 2008; Cassirer et al. 1992; George and Crooks 2006; Naylor et al. 2009; Malone and Emerick 2003; Miller et al. 2020; CPW 2021).

Habitat Disturbance Analysis

Considering the broad range of impact distances, the existing conditions and context of the property, and other factors, the following analysis of existing and future habitat fragmentation uses a range of 100 to 400 meters as the zone of influence, or impact buffer, of existing and proposed roads and trails. This range recognizes that the impacts of human disturbance are not fixed but occur along a gradient. Areas closer to the disturbance are more likely to be impacted, while areas more distant may not be affected as severely or as often. Four disturbance levels are mapped in this analysis (**Figure 4**); analysis definitions are described below.

Habitat Fragmentation Analysis Definitions

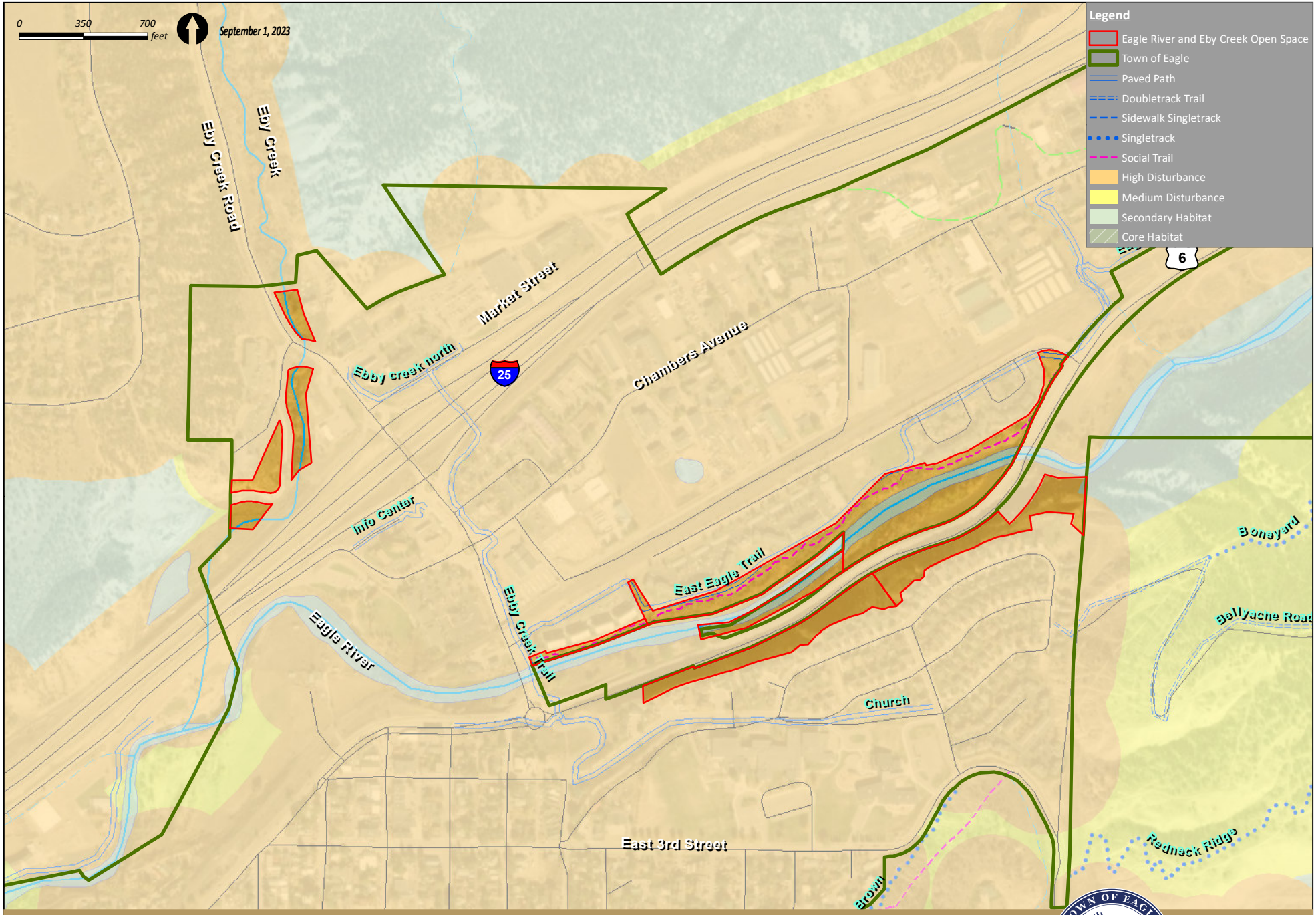
1. **High Disturbance Areas** – Frequent or permanent human occupation; each of the following with a 100-meter impact zone:
    a. Existing homes, urban streets, major roads, and highways
    b. Provides limited habitat value for wildlife, with local exceptions

2. **Medium Disturbance Areas** – Frequent but not permanent human occupation; 100-meter impact zone:
    a. Existing trails, secondary roads, and recreation facilities
    b. Provides degraded habitat for wildlife that are accustomed to human disturbance

3. **Secondary Habitat** – Infrequent human occupation, or expanded influence from high or medium disturbances; 400-meter impact zone, or 100-meter buffer from sparsely used social trails
    a. Provides intact habitat for most wildlife, but human activity may impact wildlife behavior and use, depending on the species and context

4. **Core Habitat** – No human development and minimal human presence; greater than 400 meters from any disturbance
    a. Provides secure, undisturbed habitat for any species where sufficient habitat otherwise exists

The habitat disturbance analysis for the property is shown on **Figure 5**.



Habitat Fragmentation

Eagle River and Eby Creek Open Space • Town of Eagle Open Space Management Plans

Recreation Resources

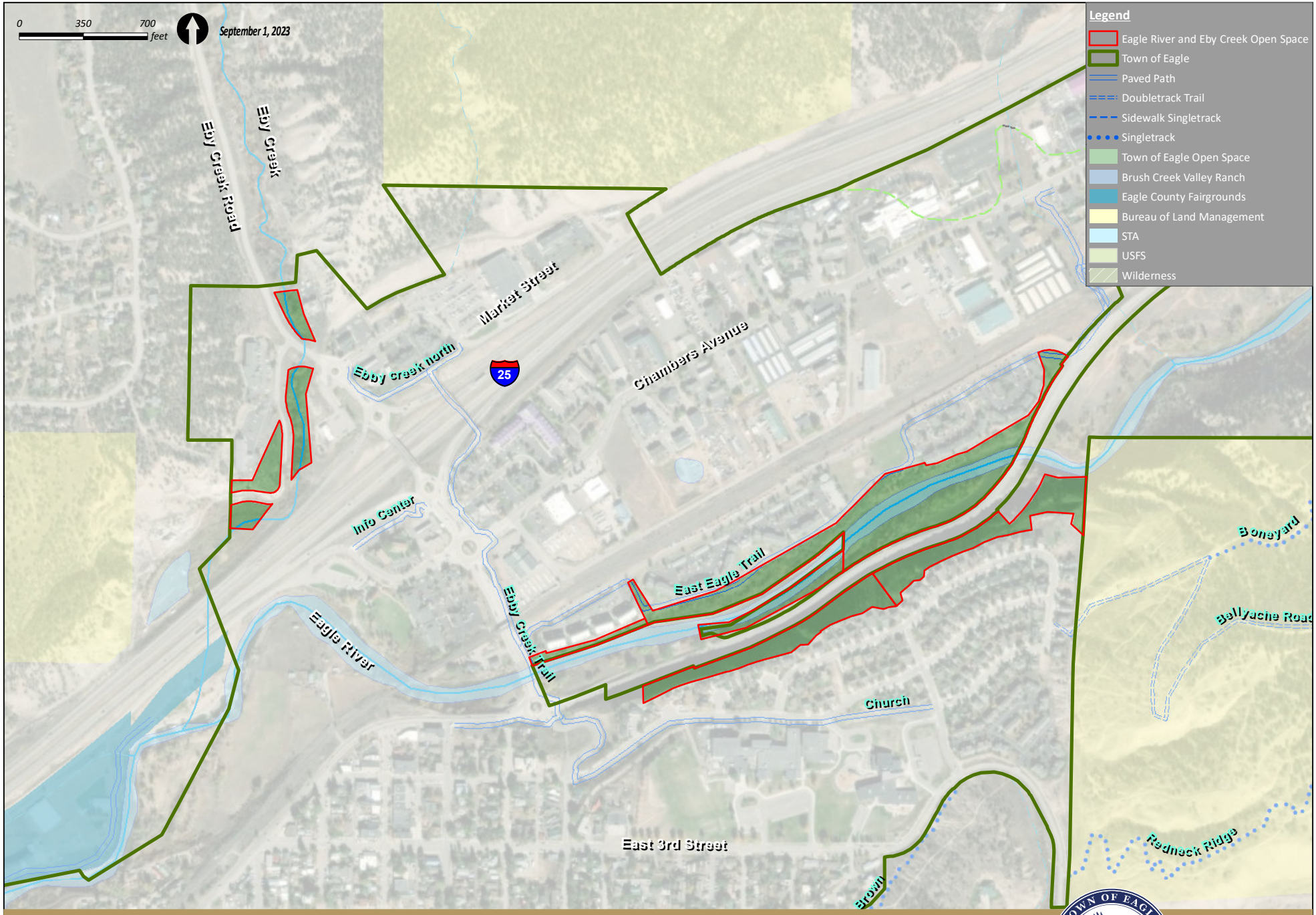
Bluffs Neighborhood, Eagle River, and Eby Creek Open Space properties do not have any established recreational opportunities due to its proximity to the densely developed portion of town (**Figure 6**). These areas are generally for the purpose of habitat preservation and passive recreation. Visitors have ample opportunities for wildlife viewing.

Trails

There are no system trails on these open space properties.

Other Amenities

The Boneyard Trailhead is adjacent to the Bluffs Neighborhood Open Space to the east and provides access to BLM lands and trails.



Recreation

Eagle River and Eby Creek Open Space • Town of Eagle Open Space Management Plans

Resource Management Plan

Implementing this management plan will require identification and prioritization of management actions to maintain proper stewardship of the natural resources on the property. These prioritized management actions should continue to be reviewed on an annual basis to determine yearly work programs given budget and staff constraints. Many of the management actions will be implemented within the first few years, while others will take many years to accomplish. Some management actions are ongoing, some are short-term, and others are long-term, representing considerable investments of time and energy.

Resource Management Issues

Resource management issues are specific occurrences or situations that can compromise the natural resource values on the property. Known or potential resource management issues for the property are listed below in **Table 4** and addressed with management actions.

Table 4. Resource management issues.

Resource Management Issues
Habitat Management • **Riparian Enhancement** – Eagle River experiences erosion, which has stressed and degraded the riparian community. **Vegetation Management** • **Noxious weeds** – Invasive and noxious weed species, including Russian olive along the Eagle River, are a persistent threat to native habitat quality and diversity and require ongoing monitoring and management. **Wildlife Management** • **Raptor protection** – Concern for disturbance within the 0.33-mile buffer of active red tail hawks nests during the breeding season. **Recreation Management** • **Trail access** – Undesignated visitor access to trails and other amenities from neighborhoods has resulted in vegetation trampling, social trails, and erosion.

Resource Management Strategies

Management strategies for the property, including goals, objectives, and actions, are presented in **Table 5**, along with the recommended timing and priority of implementation. A more detailed discussion of key management issues is presented below. Management strategies are also shown on **Figure 7**.

Key Management Issues

Noxious Weed Management

Prioritizing nonnative and noxious weed management efforts is needed since attempting to control all nonnative and noxious weeds on the property can be unrealistic and unsuccessful. A recommended strategy for noxious weed management is to minimize the spread of existing weed infestations and reduce, over time, the extent of noxious weeds on the property. Attempting to control all weeds can be overwhelming and ultimately unsuccessful, so it is important to implement a strategy that includes the following principles: (1) promote the health and persistence of desired native or stable nonnative species; (2) focus weed control and management on new infestations; (3) prioritize efforts based on the State of Colorado's priority species list (A, B, and C); and (4) integrate weed management into all ground-disturbing projects.

A successful weed management strategy will incorporate regular (annual) monitoring; integration of a variety of tools including herbicides, mowing, and biological controls; and prioritization of weed abatement efforts. Generally, addressing smaller infestations of highly invasive species is recommended rather than larger infestations of species that are easier to control.

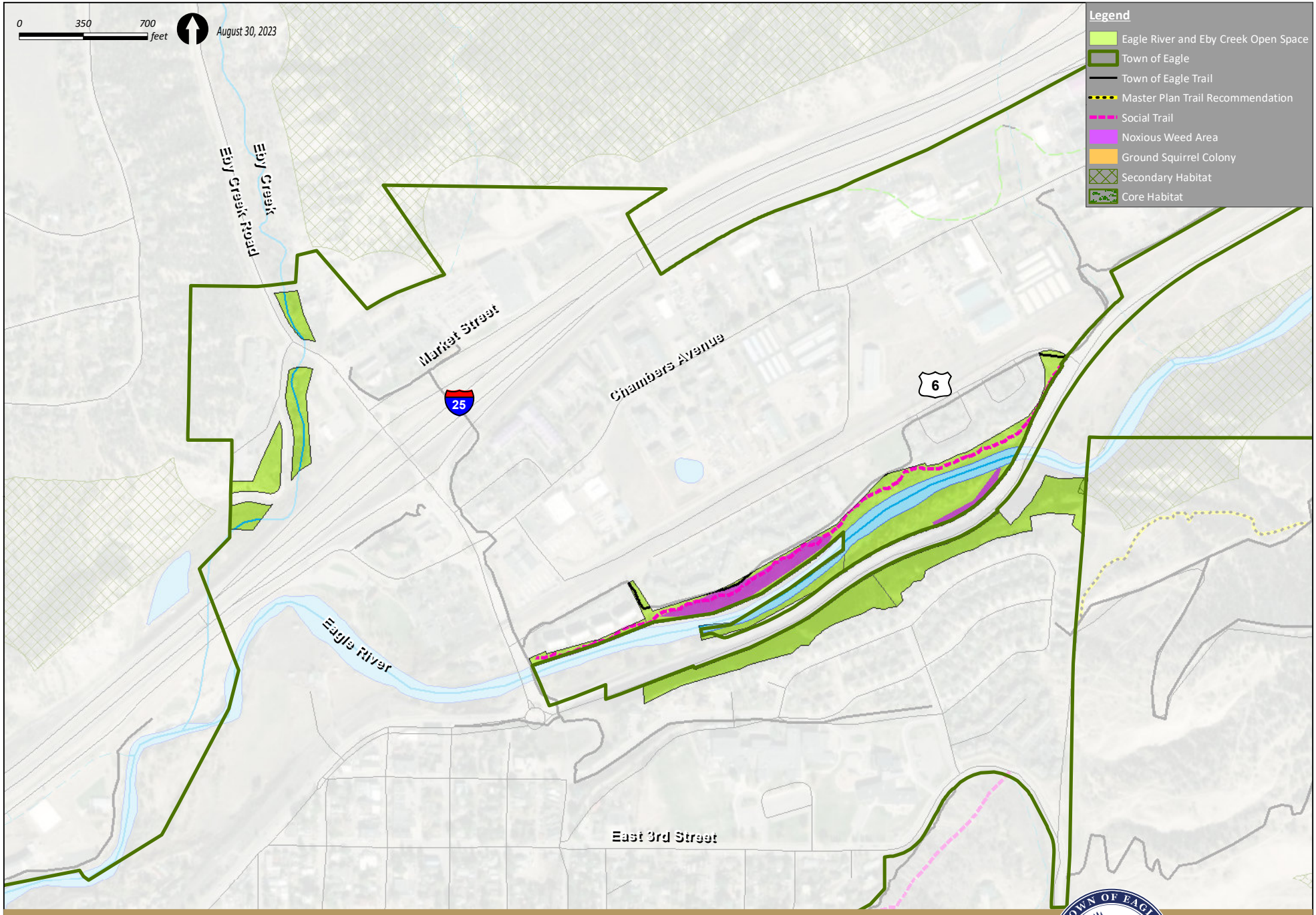
Harrington's Penstemon Conservation

Most of the sagebrush-dominated habitats in this area provide potential habitat for Harrington's penstemon (*Penstemon harringtonii*), a rare plant species that is unique to region. It occurs on all aspects in open sagebrush and mixed pinyon-juniper or mountain mahogany shrublands on gentle slopes of usually less than 20 percent. As shown on **Figure 3**, portions of the open space in this area provides potential habitat for this species. To support the long-term conservation of this species, the following measures are recommended for any ground-disturbing activities within identified potential habitat:

1. Survey proposed project areas during the survey period (June)
2. If found, evaluate or modify the proposed project to avoid ground disturbance within a 100-foot buffer of all confirmed plants
3. If a 100-foot buffer cannot be implemented, avoid direct ground disturbance where plants are rooted.
4. If direct ground disturbance cannot be avoided, adjust the project site or alignment to minimize impact to the plants, with the goal of having less than 1 to 2 percent of the population within the project impact area.
5. If the project site or alignment cannot be changed to minimize impacts, confine disturbances as close to outer edge of the plant population as possible to minimize fragmentation.

6. If plants are unavoidable, contact nearby botanical gardens or grow out facilities (such as the Betty Ford Alpine Garden in Vail and the Upper Colorado Environmental Plant Center facility in Meeker; these facilities have accepted salvaged plants in the past) to salvage plants if possible.
7. Weed control efforts should not include broadcast or aerial herbicide treatments within ½ mile of known populations. Utilize spot spray application in these areas.
8. Construction within identified *P. harringtonii* habitat should occur during the active growing season (May 15 through August 30) to ensure that all rosettes are visible.
9. Monitor on-site construction with a qualified biological monitor (botanist) to avoid and mitigate impacts to populations.

Additional background information on Harrington's penstemon is found in **Appendix B**.



Management Recommendations

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For the purposes of this section of this management plan, the following terminology applies:

- **Objective** – Objectives are the outcomes that are intended to be achieved through management actions.
- **Action** – Actions are the specific tasks that the owners can undertake to address issues and meet the objectives.

Timing recommendations are defined as follows:

- **ST (short-term actions)** – Should be completed within 1 year.
- **LT (long-term actions)** – Should be initiated or completed within 5 years.
- **O (ongoing actions)** – Should be completed on an ongoing annual basis indefinitely.

Priority recommendations are defined as follows:

- **H (high-priority actions)** – Should be accomplished first. These management actions are considered extremely important to the protection of resource values.
- **M (medium-priority actions)** – Considered important but not urgent, and meet a combination of other objectives.
- **L (low-priority actions)** – Important but not critical to resource protection needs. Low-priority management actions do not have to be completed in the immediate future and primarily fulfill a specific resource objective.

Table 5. Summary of management strategies.

Management Strategies	Timing	Priority
HABITAT MANAGEMENT		
Riparian Enhancement ***Management Objective*** – Stabilize and enhance riverbank and riparian habitat along Eagle River and other stream corridors.		
• Stabilize riverbank to enhance the riparian community and decrease erosion	**LT**	**M**
• Define and develop designated access points to popular river locations to reduce erosion to the riverbank.	**LT**	**L**
VEGETATION MANAGEMENT		
Noxious Weeds ***Management Objective*** – Monitor and manage noxious weeds to contain and reduce common weed species (state Lists B and C).		
• Monitor and map weed infestations annually.	**O**	**H**
• Develop and implement an integrated management strategy that uses a variety of tools, including herbicides, mowing, and biological controls, that can be implemented and adjusted over time.	**O**	**H**
• Prioritize areas for weed-control treatments based on species present and overall vegetation management objectives.	**O**	**M**
• Focus ongoing weed management activities on infestations of state List B weed species.	**O**	**H**
• Use native vegetation enhancement efforts to address state List C weed species.	**O**	**M**
• Concentrate immediate weed management activities along trails or in recently disturbed areas.	**ST**	**H**
• Integrate weed monitoring and management into all management activities that result in ground or vegetation disturbance.	**O**	**M**

Management Strategies	Timing	Priority
Disturbed Grasslands ***Management Objective*** – Manage disturbed grassland areas with an emphasis on ecological stability, noxious weed mitigation, and native habitat enhancement.		
• Identify site-specific strategies to improve soil fertility and increase native vegetation cover and diversity, including goals and success criteria, timelines for monitoring, and adaptive management thresholds.	**ST**	**M**
• Use a phased approach to concentrate aggressive reclamation efforts in smaller disturbed sites, and monitor success for 3 to 5 years before implementing the next aggressive reclamation effort.	**ST**	**M**
• Implement less aggressive reclamation efforts that include weed management, improving soil fertility, and interseeding (i.e., a specific method of drill seed) in cultivated areas to slowly promote and establish native upland grasses.	**ST**	**M**
• Implement more aggressive reclamation efforts that include topsoil management, soil preparation, and seeding with suitable native upland seed mixes.	**LT**	**M**
• If new development is planned, facilitate additional focus and short-term supplemental irrigation, implement selective plantings of native upland shrub species.	**LT**	**M**
• Monitor the effectiveness of grassland restoration treatments and adjust over time.	**O**	**M**
Harrington's Penstemon ***Management Objective*** – Manage habitat and infrastructure projects to protect, maintain, and enhance habitat for Harrington's penstemon (penstemon harringtonii)		
• Integrate population surveys, avoidance, and monitoring protocols into any ground-disturbing project within potential Harrinton's penstemon habitat	**O**	**H**
• Incorporate penstemon conservation measures into fuels management project planning, implementation, and monitoring	**O**	**H**
• Coordinate regional conservation and management efforts with Eagle County, BLM, and other regional partners	**O**	**L**
Revegetation ***Management Objective*** – Implement revegetation plans to establish native plant communities in disturbed areas, and to improve the overall quality and vigor of other degraded areas.		
• Salvage and test the existing topsoil for revegetation efforts; do not use topsoil from areas infested with noxious weeds.	**ST**	**H**
• Supplement topsoil with amendments if testing indicates a deficiency in structure, organic matter, or nutrients.	**ST**	**M**
• Grade, rip, or till the disturbed soils to relieve compaction and prepare the sites for seeding.	**ST**	**M**
• Place topsoil and drill seed upland areas with the upland seed mix in the fall (prior to freezing) or spring (after thaw).	**ST**	**M**
• Place topsoil and broadcast seed wetland areas with the wetland seed mix in the fall or spring.	**ST**	**M**
• Apply mulch to seeded areas within 24 hours of seeding.	**ST**	**M**
• Monitor seeded areas on a monthly basis for erosion, noxious weeds, or large areas of bare ground until desired species are well-established; correct issues immediately.	**O**	**M**
WILDLIFE MANAGEMENT		
Raptor Protection ***Management Objective*** – Manage and monitor nests to protect raptor breeding seasons.		
• Enact a 0.33-mile radius buffer around active red-tailed hawk nests from February 15 to July 15.	**ST**	**M**
• Continue to monitor the status of raptor nests on open space.	**O**	**M**
Pest Management ***Management Objective*** – Manage wildlife pest populations to reduce resource damage and conflicts with visitors and neighbors.		

Management Strategies	Timing	Priority
• Monitor the location and extent of wildlife pest populations on Town open space, and document reported conflicts or complaints from residents and neighbors	O	M
• Proactively implement pest control measures on open space, prioritizing areas with the greatest issues or conflicts	O	H
• Minimize impacts of pest control measures on native, non-target wildlife species	O	L
RECREATION AND ACCESS MANAGEMENT		
Trails and Access ***Management Objective*** – Manage and monitor trails and other visitor amenities to provide desired visitor access and minimize adverse impacts.		
• Monitor existing and new social trails for use and resource damage, prioritizing closure and reclamation of problematic trails.	O	M
• Evaluate access areas annually, or following major storm events, for erosion, rutting, braiding or other maintenance or management issues.	O	M
• Immediately address maintenance issues that may threaten public safety or result in significant trail degradation or resource damage	O	H
Public Land Interface **Management Objective** – Clearly delineate property boundaries, public access points, and regulation changes.		
• Monitor property boundaries annually for encroachment, social trails, illegal camping, and other trespass issues.	O	M
• Maintain ongoing communication and coordination with Eagle County, BLM, the USFS, and neighboring landowners regarding adjacent public uses and any issues that may arise.	O	L

Monitoring

Routine monitoring of specific resources and specific management issues will be necessary to document the ongoing trajectory of management issues and to determine how well management objectives are being met. Ongoing monitoring allows Eagle to make informed decisions about resource management priorities and projects and provides a feedback mechanism that facilitates ongoing learning about resource issues and improvement of techniques to address them.

Monitoring recommendations are listed above as management actions and are repeated in **Table 6** to provide a quick reference.

Table 6. Summary of monitoring actions.

Monitoring Actions	Frequency	Methods
Vegetation and Habitat Monitoring		
• Monitor and map weed infestations annually	Annual	Visual inspection, GPS mapping, documentation, and photos
Wildlife Monitoring		
• Monitor status of existing and new raptor nests on open space	Annual	Visual inspection
Recreation and Access Monitoring		
• Evaluate all access points annually, or following major storm events, for maintenance or management issues	Annual; as-needed	Visual inspection, GPS mapping, and photos
• Monitor property boundaries for encroachment, social trails, illegal camping, and other trespass issues	Annual	Visual inspection, GPS mapping, and photos

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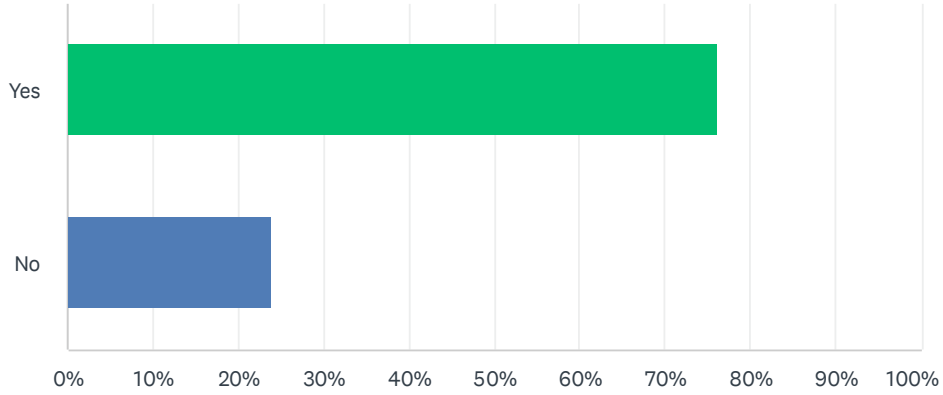
Appendix A. Online Public Survey Results

Q1 Are you a Town of Eagle resident?

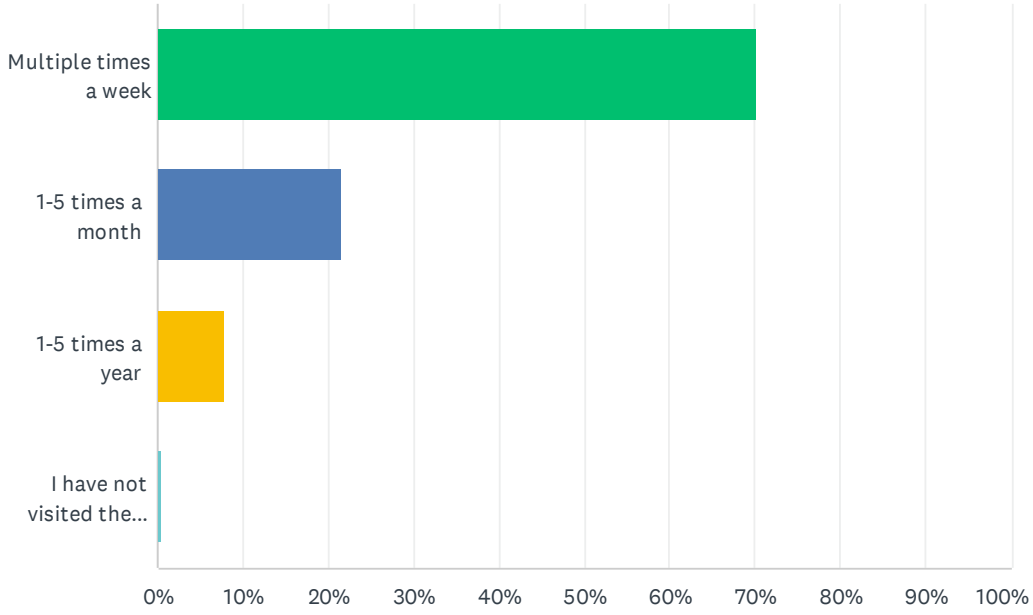
Answered: 802 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	76.06%	610
No	23.94%	192
TOTAL		802

Q2 How often do you visit the Town of Eagle's Open Space areas or trails?

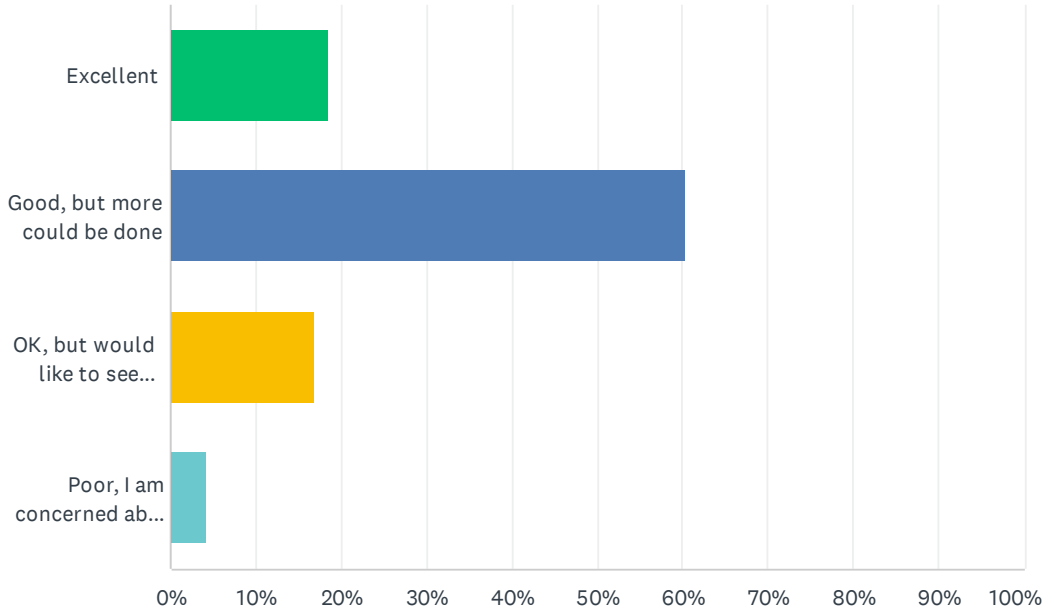
Answered: 802 Skipped: 0



ANSWER CHOICES	RESPONSES	
Multiple times a week	70.20%	563
1-5 times a month	21.45%	172
1-5 times a year	7.86%	63
I have not visited the open space areas or trails	0.50%	4
TOTAL		802

Q3 In your mind, how effective is current Town of Eagle open space management?

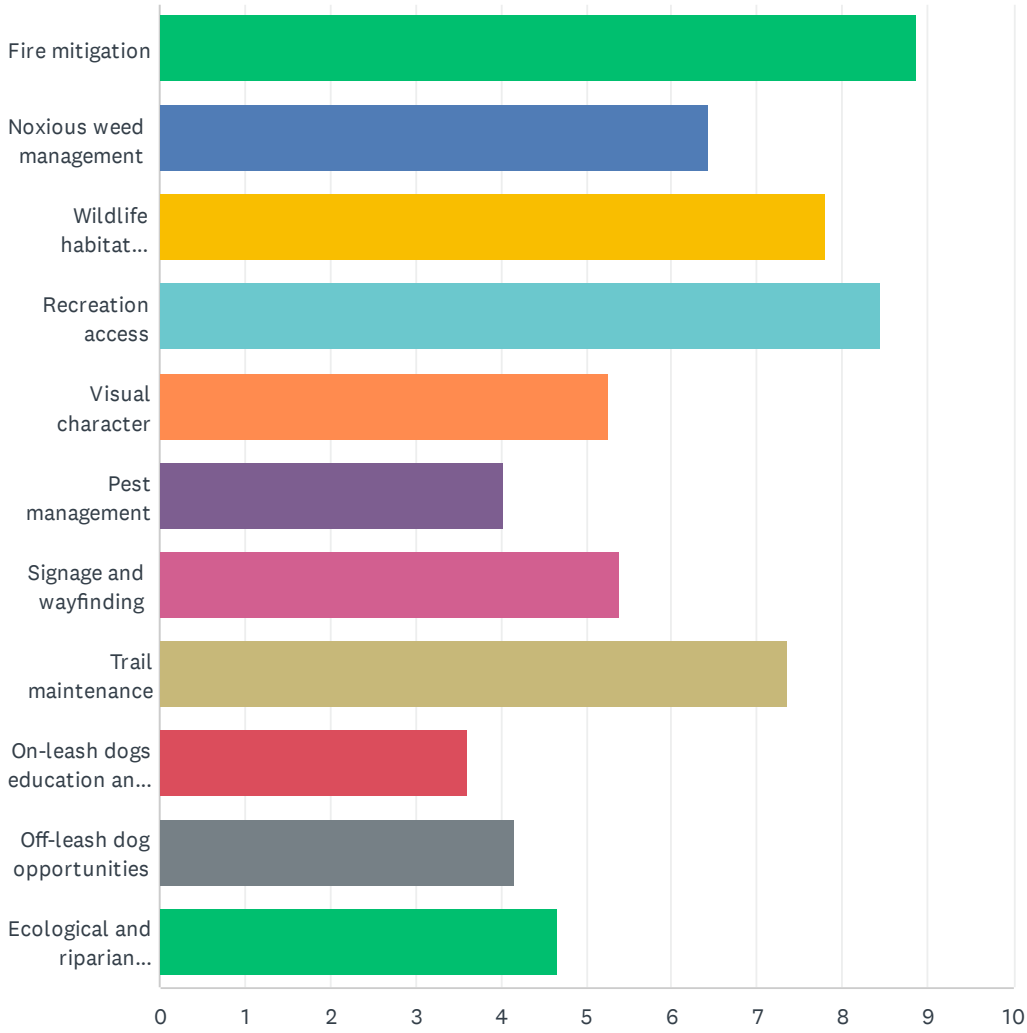
Answered: 781 Skipped: 21



ANSWER CHOICES	RESPONSES	
Excellent	18.57%	145
Good, but more could be done	60.31%	471
OK, but would like to see more issues addressed	16.90%	132
Poor, I am concerned about management issues	4.23%	33
TOTAL		781

Q4 What should be the recreation/natural resource management priorities? (1 being the highest priority and 11 being the lowest)

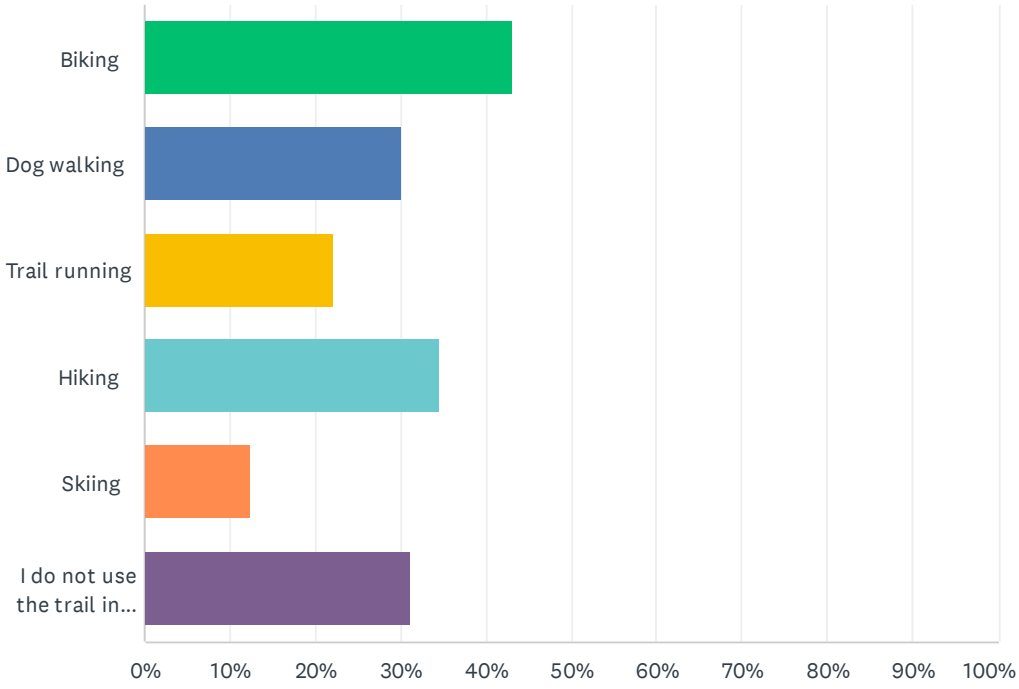
Answered: 788 Skipped: 14



	1	2	3	4	5	6	7	8	9	10	11
Fire mitigation	33.76% 266	14.85% 117	12.31% 97	14.97% 118	9.26% 73	5.71% 45	3.68% 29	3.30% 26	1.27% 10	0.51% 4	0.38% 3
Noxious weed management	2.92% 23	11.42% 90	10.79% 85	10.66% 84	12.56% 99	14.72% 116	13.45% 106	9.64% 76	6.98% 55	4.82% 38	2.03% 16
Wildlife habitat improvements	12.06% 95	18.27% 144	16.12% 127	12.69% 100	13.20% 104	9.26% 73	7.61% 60	5.08% 40	2.28% 18	2.41% 19	1.02% 8
Recreation access	29.70% 234	15.99% 126	13.83% 109	11.42% 90	7.36% 58	4.82% 38	6.22% 49	4.06% 32	3.05% 24	1.52% 12	2.03% 16
Visual character	1.14% 9	2.41% 19	4.95% 39	6.47% 51	14.72% 116	14.97% 118	17.77% 140	14.97% 118	10.79% 85	7.23% 57	4.57% 36
Pest management	0.38% 3	1.02% 8	1.27% 10	2.28% 18	4.95% 39	11.55% 91	14.21% 112	20.43% 161	21.70% 171	15.23% 120	6.98% 55
Signage and wayfinding	1.40% 11	5.84% 46	7.36% 58	10.91% 86	8.50% 67	9.77% 77	14.47% 114	13.20% 104	15.10% 119	9.77% 77	3.68% 29
Trail maintenance	8.88% 70	15.23% 120	15.10% 119	14.34% 113	10.53% 83	11.29% 89	5.33% 42	10.91% 86	5.96% 47	2.41% 19	0.00% 0
On-leash dogs education and enforcement	3.17% 25	3.30% 26	4.57% 36	3.81% 30	5.33% 42	3.68% 29	4.57% 36	4.57% 36	15.99% 126	21.95% 173	29.06% 229
Off-leash dog opportunities	3.93% 31	5.46% 43	7.23% 57	5.58% 44	5.71% 45	5.08% 40	5.08% 40	4.57% 36	6.98% 55	21.83% 172	28.55% 225
Ecological and riparian restoration	2.66% 21	6.22% 49	6.47% 51	6.85% 54	7.87% 62	9.14% 72	7.61% 60	9.26% 73	9.90% 78	12.31% 97	21.70% 171

Q5 What is your preferred use of the Haymaker Trail system in the winter? (check all that apply)

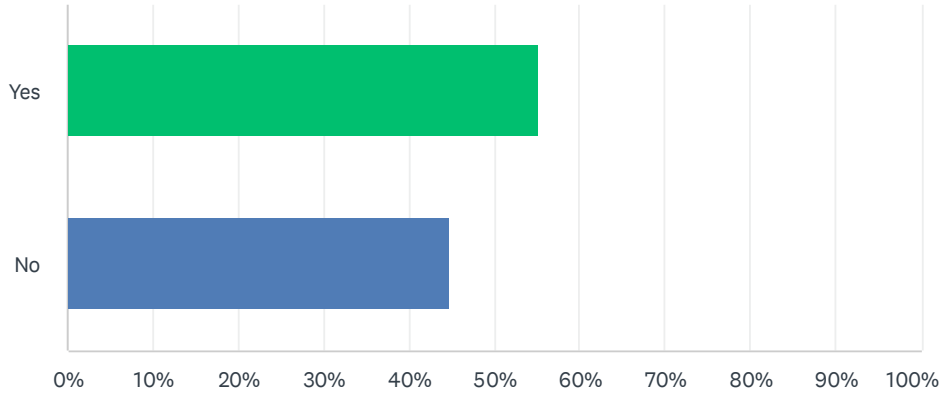
Answered: 798 Skipped: 4



ANSWER CHOICES	RESPONSES	
Biking	42.98%	343
Dog walking	30.08%	240
Trail running	22.18%	177
Hiking	34.46%	275
Skiing	12.28%	98
I do not use the trail in the winter	31.08%	248
Total Respondents: 798		

Q6 Would you support additional winter restrictions on the Haymaker Trail system to protect wildlife?

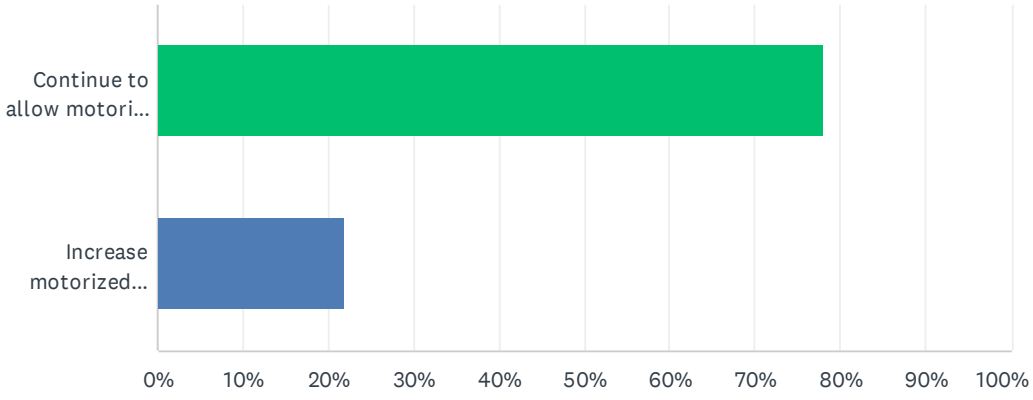
Answered: 785 Skipped: 17



ANSWER CHOICES	RESPONSES	
Yes	55.29%	434
No	44.71%	351
TOTAL		785

Q7 What is your preferred management of motorized vehicles on the Second Gulch Trail within Town open space?

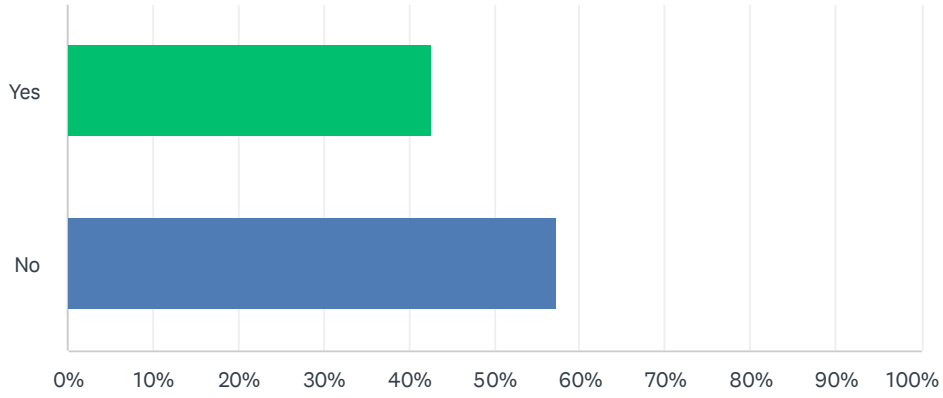
Answered: 788 Skipped: 14



ANSWER CHOICES	RESPONSES	
Continue to allow motorized vehicles up to a width of 50 inches	78.05%	615
Increase motorized vehicle width to allow access for modern OHVs (e.g., SxS)	21.95%	173
TOTAL		788

Q8 Do you support increasing E-Bike access on nonmotorized dirt trails on Town open space?

Answered: 799 Skipped: 3



ANSWER CHOICES	RESPONSES	
Yes	42.55%	340
No	57.45%	459
TOTAL		799

Q9 Do you have any additional management concerns or comments?

Answered: 371 Skipped: 431

Appendix B. Harrington's Penstemon Background and Conservation Measures

Harrington's penstemon (also known as Harrington's beardtongue; *Penstemon harringtonii*) is a vascular plant species that is known to occur in a narrow range within the Colorado River drainage in northwest Colorado. This species generally occurs in dry, sagebrush-dominated communities at elevations between 6,400 and 9,400 feet. Within this narrow range, the total population of this species is estimated to be located within about 15 square miles of habitat, including the sagebrush-dominated slopes in and around the Town of Eagle (CNHP 2006).

Status

This species is not listed under the federal Endangered Species Act or the Colorado Threatened and Endangered List, but is considered a G3/S3 ranked species, meaning that it is considered "vulnerable" at both the global and state scales (CNHP 2015). It is considered to be a BLM Sensitive species (BLM 2020) and a USFS Region 2 Sensitive Species (Forest Service 2023).

Habitat

Harington's penstemon occurs in open sagebrush and mixed pinyon-juniper, Gambel's oak or mixed mountain mahogany shrubland habitats on gentle slopes. Soils are generally rocky loams and rocky clay

loams, as well as limey shales, limestones, and other rocks, though it is not known whether the species is limited to specific geologic substrates or soils. *P. harringtonii* has been documented on all aspects and on slopes as steep as 50 percent, but is typically found on slopes less than 20 percent (CNHP 2006).

Description

Plants are perennial, and are about 30-70 centimeters tall, typically with a single unbranched stem. Flowers are pink to purple or blue, and are arranged in loose spikes on the upper half of the stems, typical of a traditional snapdragon (it is a member of the Scrophulariaceae, Snapdragon or Figwort family). Flowers are in loose spikes with two exserted stamens (stick out of the flower tube). Leaves are thick, rounded, and elongated in shape, are bluish grey in color, and are arranged opposite each other along the flowering stem and in a basal rosette at the base of the plant. Flowering typically begins in early June and continues through late June (CNHP 2006).

It is similar in habitat and appearance to Osterhout's beardtongue (*P. osterhoutii*), which are more likely to occur in pinyon-juniper dominated areas, but are sometimes mixed with P. *harringtonii* (CNHP 2006).

Threats

Threats to the species include grazing, recreation, roads, and other development that may result in the trampling of plants, removal or fragmentation of habitat, loss of pollinators, effects of climate change, and/or the proliferation of invasive, non-native plant species such as cheatgrass, Canada thistle, smooth brome, musk thistle, and houndstongue (CNHP 2015, NatureServe 2023).

Potential Habitat Assessment

ERO assessed potential habitat for *P. harringtonii* on Town of Eagle open space land on June 28, 2023. Habitat includes most sagebrush-dominated habitat and in some areas adjacent to known populations on BLM land. Suitable habitat is present on Town of Eagle open space land. ERO did not conduct a comprehensive survey for *P. harringotnii*, however individual plants where observed in the Towns open space in the sagebrush-dominated areas and occasionally in the mixed montane shrubland and pinyon juniper communities.

Conservation and Project Implementation Measures

To support the long-term conservation of this species, the following measures are recommended for any ground-disturbing activities within identified potential habitat:

1. Survey proposed project areas during the survey period (June)
2. If found, evaluate or modify the proposed project to avoid ground disturbance within a 100-foot buffer of all confirmed plants
3. If a 100-foot buffer cannot be implemented, avoid direct ground disturbance where plants are rooted.
4. If direct ground disturbance cannot be avoided, adjust the project site or alignment to minimize impact to the plants, with the goal of having less than 1 to 2 percent of the population within the project impact area.
5. If the project site or alignment cannot be changed to minimize impacts, confine disturbances as close to outer edge of the plant population as possible to minimize fragmentation.

6. If plants are unavoidable, contact nearby botanical gardens or grow out facilities (such as the Betty Ford Alpine Garden in Vail and the Upper Colorado Environmental Plant Center facility in Meeker; these facilities have accepted salvaged plants in the past) to salvage plants if possible.
7. Weed control efforts should not include broadcast or aerial herbicide treatments within ½ mile of known populations. Utilize spot spray application in these areas.
8. Construction within identified *P. harringtonii* habitat should occur during the active growing season (May 15 through August 30) to ensure that all rosettes are visible.
9. Monitor on-site construction with a qualified biological monitor (botanist) to avoid and mitigate impacts to populations.

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ERO

Consultants in Natural Resources and the Environment

DRAFT

Town of Eagle Open Space and Trails
Haymeadow and Spud Cellar Open Space and Haymaker Trailhead
Natural Resource Management Plan
Eagle County, Colorado

Prepared for—

Town of Eagle
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Eagle, Colorado 81631

Prepared by—

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ERO Project #23-084

September 2023

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Appendix A. Online Public Survey Results
Appendix B. Harrington's Penstemon Background and Conservation

Haymeadow and Spud Cellar Open Space and Haymaker Trailhead Natural Resource Management Plan Eagle County, Colorado

September 2023

Introduction

This Natural Resource Management Plan (management plan) for the Haymeadow Open Space and adjacent Haymaker Trailhead in Eagle County, Colorado (properties) is intended to assist with recommendations for natural resource concerns that impact the existing, as well as future, conditions based on management objectives set forth in the 1997 Open Lands Conservation Plan. Some of these natural resource concerns include noxious weed management, wildlife habitat conservation, and visitor use management measures.

Location and Background

The properties consist of approximately 115 total acres located along the middle northern perimeter of the Town of Eagle (Eagle or Town), Colorado generally accessed from Brush Creek Road (**Figure 1**).

The open space properties are located on the northern boundaries of Eagle with elevations ranging between 6,716 and 6,893 feet. These areas are largely undeveloped aside from trailhead access areas, trails, and access roads (**Figure 6)**. These open space properties consist of mainly disturbed grasslands, pinyon juniper woodlands, sagebrush shrublands, and sand hillslopes and are bound by land owned and managed by the Bureau of Land Management (BLM) Colorado River Valley Field Office to the northeast and south and residential lands to the northwest.

Planning Context

The Town of Eagle completed a master planning process in 2022 which prioritized the need for the creation and implementation of management plans for its open space properties.

Purpose of the Management Plan

The purpose of this management plan is to provide an assessment of existing natural resources, and to guide resource management at the property. More specifically, this management plan is also intended to achieve the following objectives:

1. Document existing conditions and resource management issues on the property.
2. Identify and prioritize strategies to address resource management issues and maintain the overall integrity of resources on the property.

Management Plan Process

The Town of Eagle hired ERO Resources Corporation (ERO) to complete this management plan. The planning process included the following phases:

1. **Focus Group Meetings (June 2023):** Meetings with focus groups to discuss issues and objectives related to natural resource and recreation management.
2. **Resource Assessment (June – July 2023):** Evaluation of existing resource data, and field assessments of open space properties.
3. **Public Survey (July – August 2023):** Online survey to assess community preferences around key open space management topics (**Appendix A**).
4. **Draft Management Plan (September – October 2023):** Completion and public review of draft management plan.
5. **Final Management Plan (November – December 2023):** Completion and adoption of final management plan.

Relationship to Existing Plans and Policies

This section describes the various land use considerations associated with the property.

Open Lands Conservation Plan

In 1997, the Town of Eagle adopted its Open Lands Conservation Plan which established open space dedications in the town. This plan introduced four objectives for managing open space properties.

- Conserve Natural Characteristics
- Protect Critical Wildlife Habitat
- Provide Appropriate Recreational Opportunities
- Maintain Scenic Qualities

Open Space and Trails Master Plan

In July of 2022, Eagle adopted the Open Space and Trails Master Plan (OST Plan) which prioritized the need for creating management plans for its open space properties (Eagle 2022). One of the primary goals of the OST Plan is to "inventory conditions and improve understanding of open space" by monitoring and managing natural resource conditions in Eagle's open spaces in accordance with best practices and management plans. Recommendation OS8, Development of Open Space Management Plans, is rated as a high priority under Eagle's OST Plan and further supports the need for understanding the existing conditions to provide the Open Space Department with a framework for future budgeting, partnerships, and capacity building.

Town of Eagle Municipal Code

Open space in Eagle is regulated by Title 6 and Title 9 of the Municipal Code (Eagle 2023). Title 6 Public Parks, Recreation Areas, and Open Space Areas regulates the types of uses allowed and disallowed on

open space properties, procedures for proposing new trails on open space, and special events on open space. Title 9 Public Peace, Safety, and Morals includes Chapter 9.26 Public Parks, Recreation Areas, and Open Space Areas which regulates public sanitation, behavior, and need for preservation of open space.

Haymaker Trailhead Master Plan

The Haymaker Trailhead Area Master Plan developed a program and plan for improvements to the existing Pool and Ice Rink and 10-acre property to address the current and future recreation needs for the growing population of Eagle (Mountain Recreation 2020). The master plan also addresses broad goals for pedestrian connectivity to facilities and surrounding public lands, energy efficiency for development of public facilities, and recreational amenities and facilities which support a variety of sports and activities. This effort was led by the Town of Eagle and Mountain Recreation.

Adjacent Public Lands and Planning Efforts

Eagle County Open Space

The Eagle County Open Space program manages and conserves upwards of 15,000 acres of land throughout Eagle County (Eagle County 2023). The Eagle Ranch Open Space property shares boundaries with Brush Creek Valley Ranch.

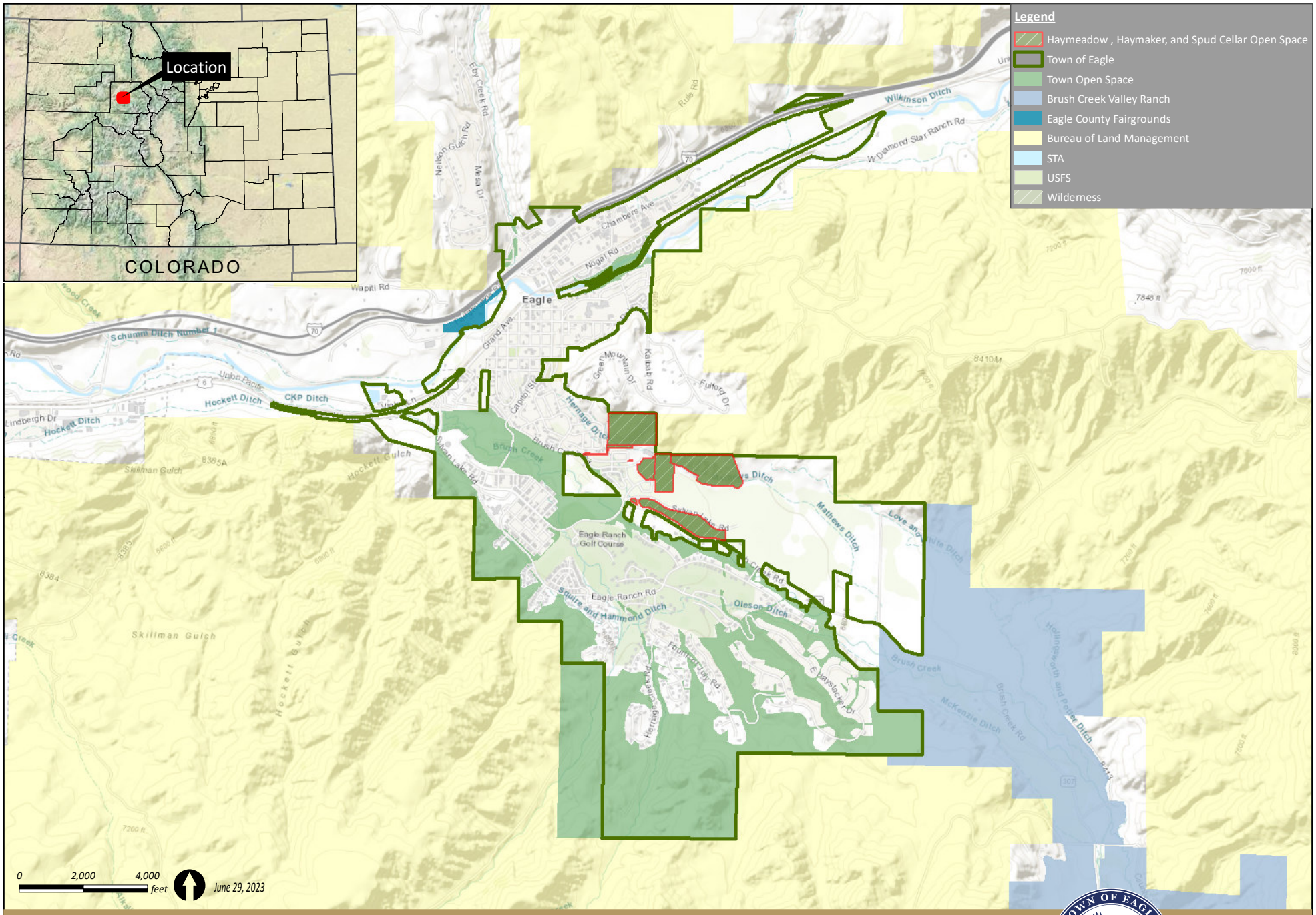
Colorado River Valley Field Office Resource Management Plan

The Bureau of Land Management (BLM) manages its public lands through field office-specific Resource Management Plans (RMP). The Colorado River Valley Field Office manages BLM lands which are adjacent to the Abrams Creek and Eagle Ranch Open Space properties in accordance with the Colorado River Valley Field Office RMP (BLM 2015).

White River National Forest Plan

The U.S. Forest Service (USFS) does not own property adjacent to Eagle Open Space, though it does share boundaries with adjacent BLM lands. The White River National Forest (WRNF) manages its land through a management plan in accordance with the National Forest Management Act to establish protection measures, management strategies, and goals and guidelines for appropriate uses (USFS 2002).

Coordination and planning efforts among land managers is ongoing and continues to be a positive relationship for the Town of Eagle.



Property Location

Haymeadow , Haymaker, and Spud Cellar Open Space • Town of Eagle Open Space Management Plans

Existing Conditions

Geology and Soils

The NRCS mapped five map units on the open space properties. The description for each soil and its series are shown below and include uses that might be common on the soil type. **Figure 2** shows the soil mapping for the property. All soil information was gathered from the NRCS Soil Series Description query site (NRCS 2023) and the Soil Survey of Aspen-Gypsum Area, Colorado, Parts of Eagle, Garfield, and Pitkin Counties (USDA 1992).

Evanston loam, 1 to 6 percent slopes

The Evanston loam series consists of deep, well drained soils on alluvial fans, terraces, and valley sides. These soils formed in mixed alluvium. The slope ranges from 1 to 6 percent. The average annual precipitation is 14 inches, and the average annual temperature is 44°F.

Gypsum land-Gypsiorthids complex, 12 to 65 percent slopes

The Gypsum land-Gypsiorthids complex series consists of extremely shallow, high runoff class soils on hills, drainageways, and mountains. These soils formed in mixed colluvium and/or mixed residuum. The slope ranges from 12 to 65 percent. The average annual precipitation is 12 inches, and the average annual temperature is 42°F.

Redrob loam, 1 to 6 percent slopes

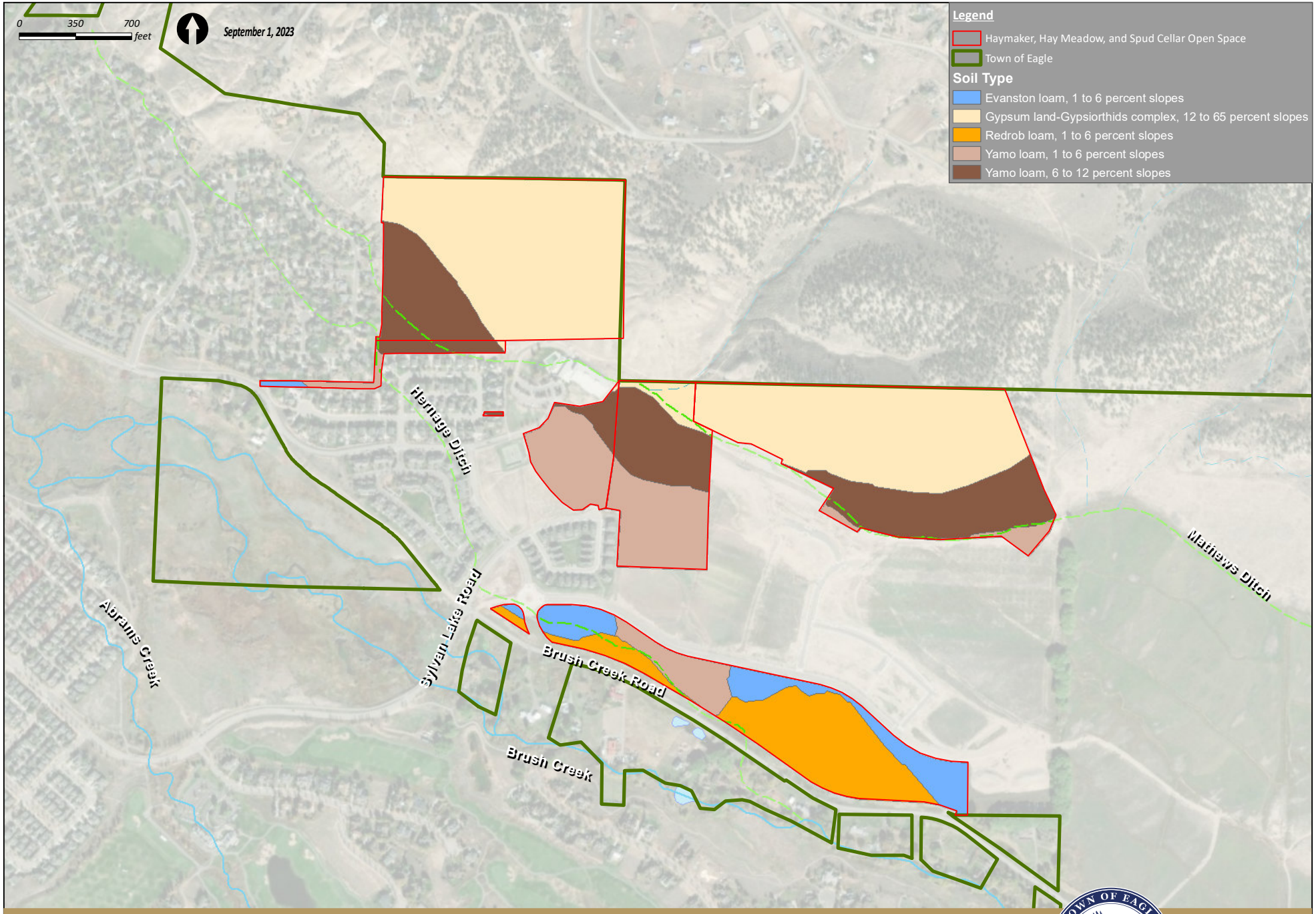
The Redrob loam series consists of deep, somewhat poorly drained soils on valley floors, terraces, and floodplains. These soils formed in mixed alluvium derived from sandstone and shale. The slope ranges from 1 to 6 percent. The average annual precipitation is 17 inches, and the average annual temperature is 42°F.

Yamo loam, 1 to 6 percent slopes

The Yamo loam series consists of deep, well drained soils on fans and mountains. These soils were formed in colluvium derived from sandstone and/or colluvium derived from shale and/or colluvium derived from gypsum. The slope ranges from 1 to 6 percent. The average annual precipitation is 12 inches, and the average annual temperature is 42°F.

Yamo loam, 6 to 12 percent slopes

The Yamo loam series consists of deep, well drained soils on fans and mountains. These soils were formed in colluvium derived from sandstone and/or colluvium derived from shale and/or colluvium derived from gypsum. The slope ranges from 6 to 12 percent. The average annual precipitation is 12 inches, and the average annual temperature is 42°F.



Soils

Brush Creek and Johnson's Corner Open Space • Town of Eagle Open Space Management Plans

Water Resources

There are no creeks, lakes, or ponds located on these properties. Two ephemeral drainages are shown on the USGS topo maps, however both lack a defined bed and bank.

Vegetation Resources

Colorado Natural Heritage Program

The Colorado Natural Heritage Program (CNHP) maintains a tracking list and serves as the central data repository for Colorado's rare flora. Many of these species are also considered species of conservation concern by the U.S. Fish and Wildlife Service (USFWS), the U.S. Forest Service (USFS), the Bureau of Land Management (BLM), and the Colorado Department of Natural Resources (CNHP 2023). Although Harrington's penstemon (*Penstemon harringtonii*) was not observed in the open space, it has been observed in the open space along the Eagle River to the north and the Eagle Ranch and Abrams Creek open space to the south. Additionally, the sagebrush shrublands provide suitable habitat Harrington's penstemon.

Harrington's Penstemon

Harrington's penstemon habitat is described as sagebrush shrubland and mixed mountain shrublands. Harrington's penstemon occasionally occurs in disturbed grassland and pinyon juniper woodlands and it is not known whether Harrington's penstemon is limited to specific geologic substrates or soils (USFS 2006). Harrington's penstemon has been documented on all aspects in Colorado and on slopes as steep as 50 percent but is usually found on slopes less than 20 percent (CNHP 2023). Additional background on this species is provided in **Appendix B**.

Table 1. Summary of vegetation communities.

Community	Acres	Quality
Disturbed Grasslands	27.7	Low
Pinyon Juniper Woodlands	30.6	High
Sagebrush Shrublands	10.7	High
Sand Hillslopes	11.4	Moderate
Wetland	6.6	Moderate
Disturbed/Developed	5.2	N/A

Disturbed Grasslands

The disturbed grassland community occurs to the south and east of the BMX track in the Haymaker open space. Vegetation in this community is dominated by a mixture of non-native grasses and forbs including smooth brome (*Bromus inermis*), crested wheatgrass (*Agropyron cristatum*), kochia (*Bassia scoparia*), sweet clover (*Melilotus officinialis*), bulbous bluegrass (*Poa bulbosa*), cheatgrass (*Bromus tectorum*), Russian thistle (*Salsola tragus*), prickly lettuce (*Lactuca serriola*), and lambsquarter (*Chenopodium album*). Wyoming ground squirrel (*Urocitellus elegans*) are prevalent in the disturbed grassland community.

Pinyon Juniper Woodlands

The pinyon juniper woodland community generally occurs on hillslopes in the open space. This community is dominated by an overstory of pinyon pine (*Pinus edulis*) and Rocky Mountain juniper (*Juniperus scopulorum*). Other prevalent shrub species include big sagebrush (*Artemisia tridentata*), mountain mahogany (*Cercocarpus montanus*), and antelope bitterbrush (*Purshia tridentata*). Herbaceous understory cover is sparse in this community and is dominated by sand blueberg (*Poa secunda*), bluebunch wheatgrass (*Pseudoroegneria spicata*), and western wheatgrass. This community is relatively undisturbed except for impacts from existing trails.

Sagebrush shrublands

The sagebrush shrubland community occurs on hillslopes and valley bottoms in the open space. This community is dominated by big sagebrush and less prevalent shrub species include rubber rabbitbrush (*Ericameria nauseosa*) and woods rose (*Rosa woodsii*). The herbaceous layer is dominated by smooth brome, fringed sage (*Artemesia frigida*), western wheatgrass (*Pascopyrum smithii*), basin wildrye (*Elymus cinereus*), Indian paintbrush (*Castilleja sp.*), sulfurflower buckwheat (*Eriogonum umbellatum*), hairy false golden aster (*Heterotheca villosa*), pussytoes (*Antennaria* sp.), yarrow (*Achillea millefolium*, and Indian ricegrass (*Ericoma hymenoides*). This community is relatively undisturbed except for impacts from existing social trails.

Sand Hillslopes

The sand hill slopes community occurs on steep hillslopes mapped as Gypsum land gyprsoirthids complex and contain spares vegetative cover. Where vegetation is present it is dominated by Indian ricegrass, fringed sage, snowball sand verbena (Abronia fragrans), broom snakeweed (*Gutierrezia sarothrae*), and squirell tail (*Elymus eloides*).

Wetlands

Wetlands occur along the Hernage ditch in the open space. The wetlands are classified as palustrine emergent wetlands and dominant species include reed canarygrass (*Phalaris arundinacea*), Baltic rush (*Juncus balticus*), nebraska sedge (*Carex nebrascensis*), and meadow foxtail (*Alopecurus pratensis*). List B noxious weeds including Canada thistle (*Cirsium arvense*) and white top (*Lepidium draba*) occur in the wetlands are spreading from the disturbed upland community adjacent to the wetlands.

Noxious Weeds

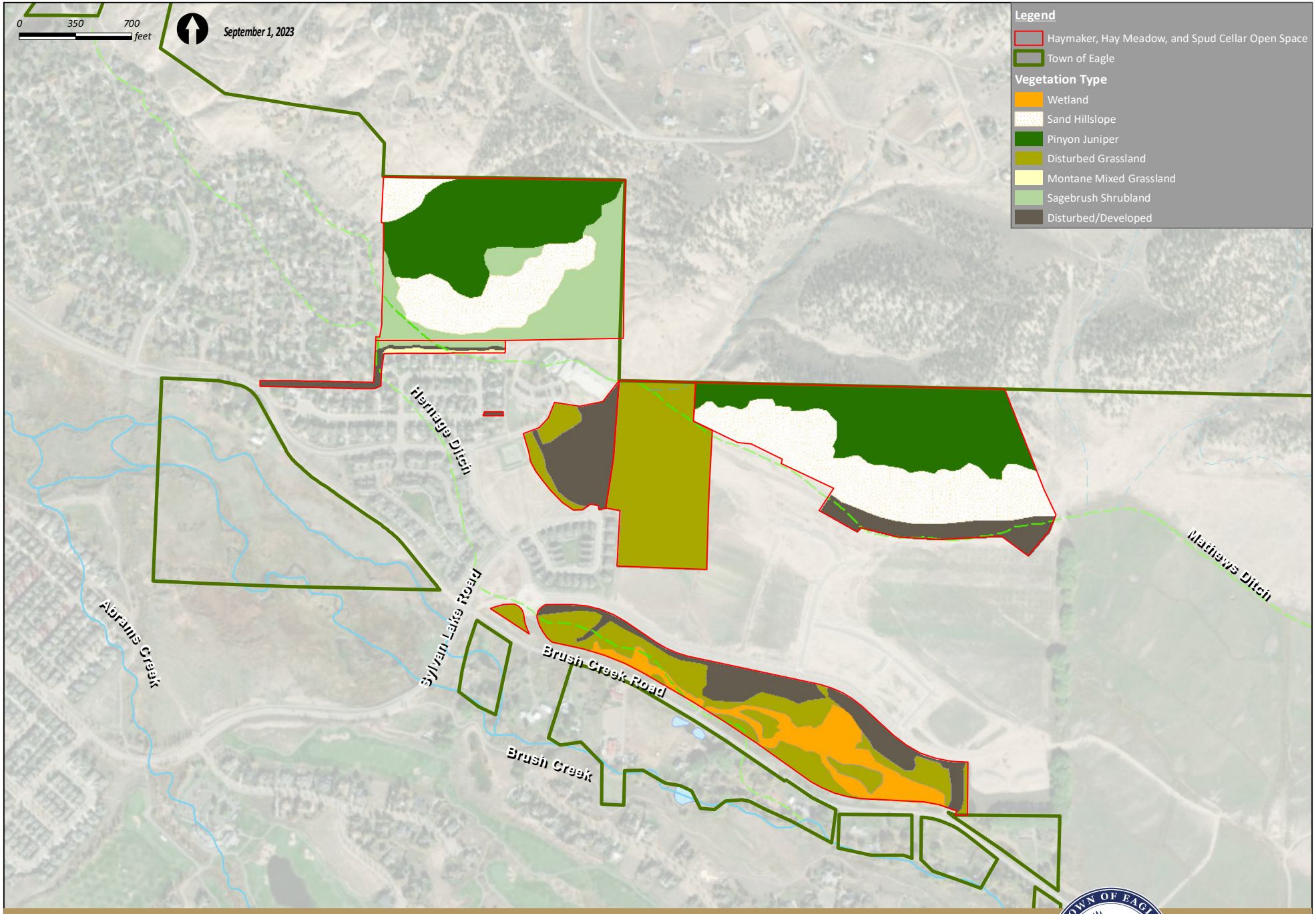
No List A species were found in the project area during the 2023 site visit. Two CDOA Noxious Weed List B species and three List C species were identified in the project area during the 2023 site visit (CDOA 2020). The locations of List B are shown on **Figure 3**. Noxious weed populations are most prevalent in areas disturbed by the Wyoming ground squirrel populations south and east of the BMX track.

List B Weed Species

- Russian knapweed (*Acroptilon repens*)
- White top (*Lepidium draba*)

List C Weed Species

- Bulbous bluegrass (*Poa bulbosa*)
- Cheatgrass (*Bromus tectorum*)
- Field bindweed (*Convolvulus arvensis*)


0
350
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feet
September 1, 2023
Legend
Haymaker, Hay Meadow, and Spud Cellar Open Space
Town of Eagle
Vegetation Type
Wetland
Sand Hillslope
Pinyon Juniper
Disturbed Grassland
Montane Mixed Grassland
Sagebrush Shrubland
Disturbed/Developed
Hernage Ditch
Sylvan Lake Road
Abrams Creek
Brush Creek Road
Brush Creek
Matthews Ditch

Soils

Wildlife Resources

This section includes a discussion of general wildlife species that are likely to occur on the open space properties, as well as federal- or state-listed sensitive species, USDA FS sensitive species, and Eagle County species of special concern.

General Wildlife

The open space properties provide habitat for a variety of wildlife species typical of the montane life zone in Eagle County. Mammal species likely to occur include black bear, mountain lion, elk, mule deer, fox, bobcat, and coyote. Other common mammals potentially occurring on the property include mountain cottontail rabbit, snowshoe hare, western spotted skunk, raccoon, pine squirrel, chipmunk, and a variety of mice and shrews.

The property also provides habitat for a variety of migratory songbirds such as mountain bluebird, scrub jay, Steller's jay, Brewer's sparrow, Virginia's warbler, Lewis' woodpecker, and spotted towhee. Common raptors include red-tailed hawk, American kestrel, and great horned owl.

Federally-Listed Wildlife Species

Federally threatened and endangered species are protected under the Endangered Species Act (ESA) of 1973, as amended (16 United States Code 1531 et seq.). Significant adverse effects on a federally listed species or its habitat require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 or 10 of the ESA. The property contains, or is located near, potential habitat for the federally-listed species shown in **Table 2**.

Table 2. Federally threatened, endangered, and candidate animal species potentially found on the property.

Common Name	Scientific Name	Status*	Habitat	Habitat Present or Potential to be Affected?
Mammals				
Canada lynx	*Lynx canadensis*	T	Climax boreal forest with a dense understory of thickets and windfalls	No
Gray wolf	*Canis lupus*	E	Wolves can thrive in a wide range of habitats; a highly adaptable species that occurs in temperate forests, mountains, and grasslands	No - this project does not include a predator management program
Birds				
Mexican spotted owl	*Strix occidentalis*	T	Closed canopy forests in steep canyons	No
Yellow-billed cuckoo	*Coccyzus americanus*	T	Wooded habitat with dense cover and nearby water	No
Fish				
Bonytail chub**	*Gila elegans*	E	Backwaters with rocky or muddy bottoms and flowing pools	No
Colorado pikeminnow**	*Ptychocheilus Lucius*	E	Warm rivers that have large snowmelt runoff and lower relatively stable base flows	No
Humpback chub**	*Gila cypha*	T	Pools with substrates of silt, sand, boulder, or bedrock	No

Common Name	Scientific Name	Status*	Habitat	Habitat Present or Potential to be Affected?
Razorback sucker**	*Xyrauchen texanus*	E	Large river species in areas with strong current and backwaters	No
Insects				
Monarch butterfly	*Danaus plexippus plexippus*	C	Dependent on milkweeds (*Asclepiadoideae*) as host plants and forage on blooming flowers; a summer resident	Yes, habitat is present wherever milkweeds are found.
Plants				
Ute ladies'-tresses orchid (ULTO)	*Spiranthes diluvialis*	T	Moist to wet alluvial meadows, floodplains of perennial streams, and around springs and lakes below 7,800 feet in elevation	No

*T = Federally Threatened Species; E = Federally Endangered Species; C = Candidate Species.
**Water depletions in the Colorado River may affect the species and/or critical habitat in downstream reaches in other counties or states.
Source: Service 2023.

Species of Management Interest

CPW tracks a number of species that are regionally important for big game hunting and overall conservation, including sensitive or seasonal activity areas for several species. The property contains activity areas mapped by CPW for a variety of species (CPW 2020). These species are shown below in **Table 3**. Wildlife habitats are shown on **Figure 4** and **Figure 5**.

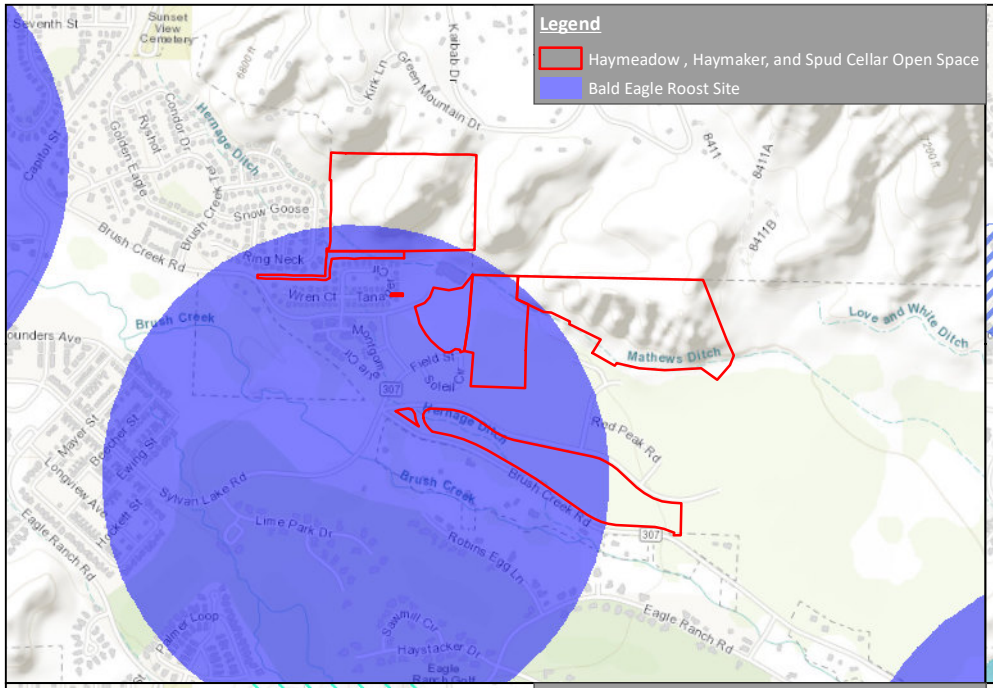
Table 3. CPW-tracked wildlife species in the vicinity of the property.

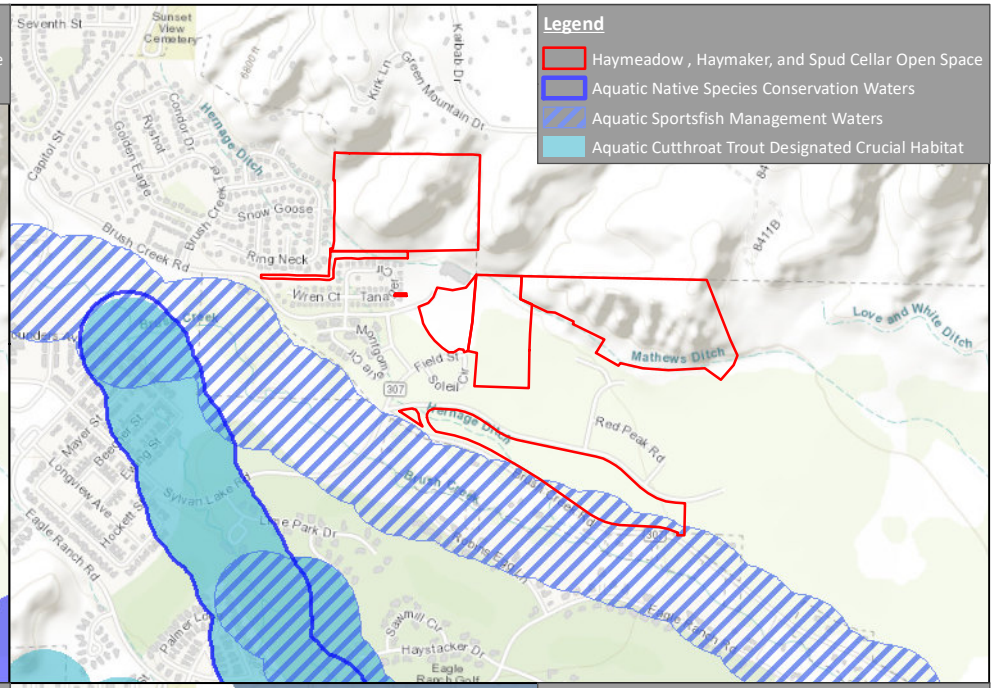
Common Name	Scientific Name	CPW Seasonal Activity Area Present
Mammals		
Elk	*Cervus canadensis*	Severe winter range and winter concentration area
Mule deer	*Odocoileus hemionus*	Severe winter range and winter concentration area
Birds		
Bald Eagle	*Haliaeetus leucocephalus*	Roost site buffer
Fish		
Cutthroat trout	*Oncorhynchus clarkii*	Aquatic Sportsfish Management Waters buffer

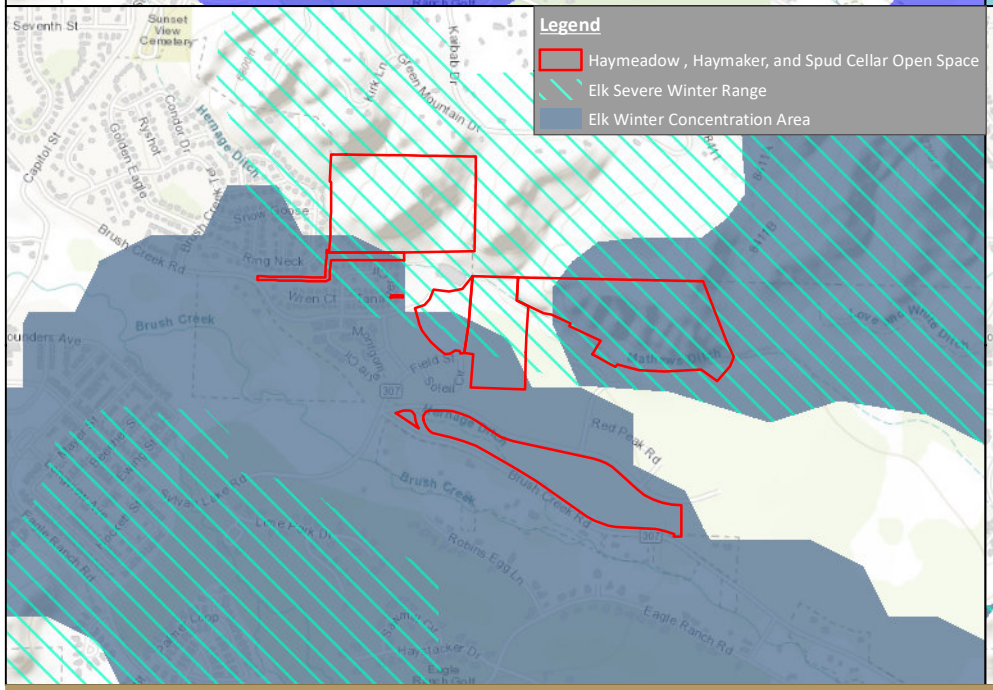
Source: CPW 2020.

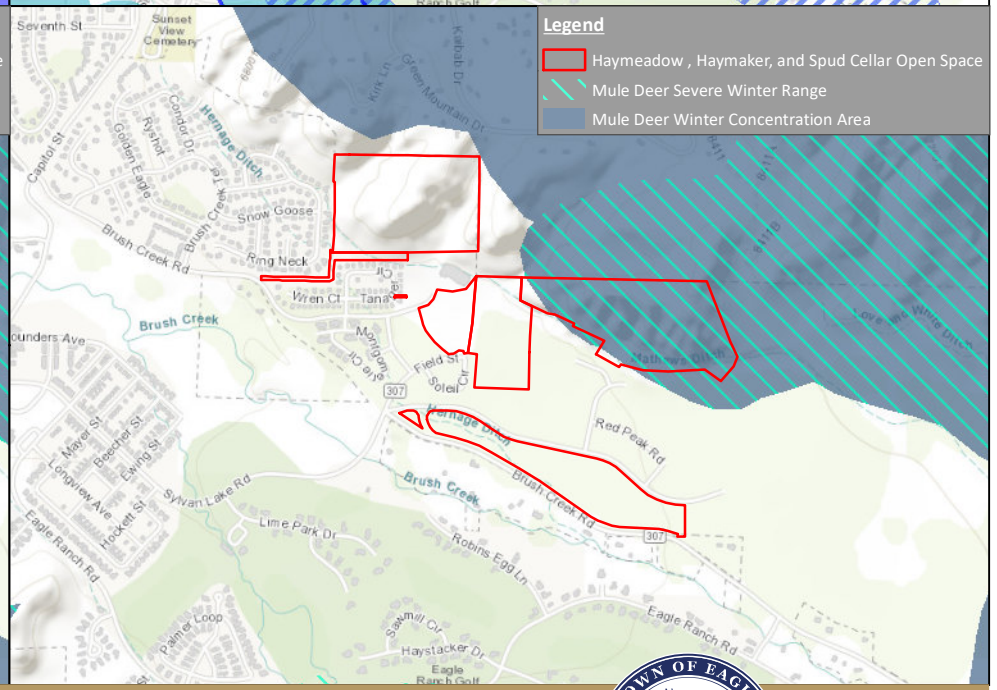
Raptors

No raptor nests were found within the open space. Although limited nesting habitat is present in the open space, suitable forage habitat exists.









CPW Wildlife Habitat Designations

0 1,000 2,000 feet

August 29, 2023

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TOWN OF EAGLE Est. 1905

ERO

Habitat Integrity

In any natural landscape, the development of roads and trails fragments habitat values by disrupting ecological processes and contiguity, increasing erosion and vegetation loss, and introducing linear edges and corridors that become pathways for predators and nonnative species. Habitat fragmentation reduces the size and overall integrity of habitat areas and is detrimental to many species (Noss and Cooperrider 1994; Groves et al. 2002; Decker 2018). Roads and trails, and the human access and use that they support, exacerbate these impacts by creating a "zone of influence" within which human disturbance may alter wildlife behavior and reduce the value of habitat to some wildlife. The impacts of fragmentation vary by species and individual animal and can range from no effect, to interruption of activity, to flight, to abandonment of breeding or foraging sites. This zone of influence can range from 30 to 400 meters or more, depending on terrain, vegetation, species, and levels of human use and prior habituation (Miller et al. 2001; Taylor and Knight 2003; Stankowich 2008; Cassirer et al. 1992; George and Crooks 2006; Naylor et al. 2009; Malone and Emerick 2003; Miller et al. 2020; CPW 2021).

Habitat Disturbance Analysis

Considering the broad range of impact distances, the existing conditions and context of the property, and other factors, the following analysis of existing and future habitat fragmentation uses a range of 100 to 400 meters as the zone of influence, or impact buffer, of existing and proposed roads and trails. This range recognizes that the impacts of human disturbance are not fixed but occur along a gradient. Areas closer to the disturbance are more likely to be impacted, while areas more distant may not be affected as severely or as often. Four disturbance levels are mapped in this analysis (**Figure 4**); analysis definitions are described below.

Habitat Fragmentation Analysis Definitions

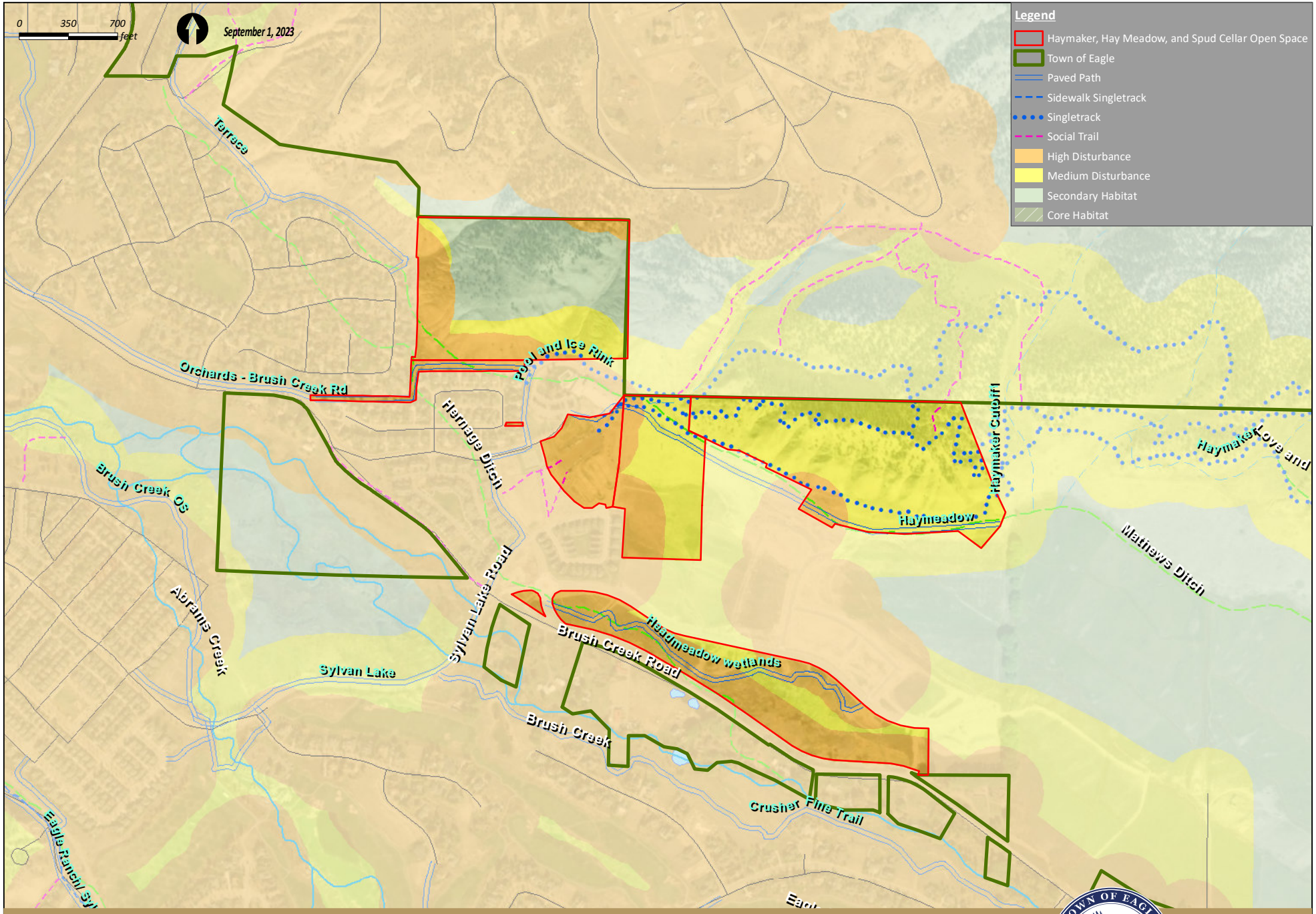
1. **High Disturbance Areas** – Frequent or permanent human occupation; each of the following with a 100-meter impact zone:
    a. Existing homes, urban streets, major roads, and highways
    b. Provides limited habitat value for wildlife, with local exceptions

2. **Medium Disturbance Areas** – Frequent but not permanent human occupation; 100-meter impact zone:
    a. Existing trails, secondary roads, and recreation facilities
    b. Provides degraded habitat for wildlife that are accustomed to human disturbance

3. **Secondary Habitat** – Infrequent human occupation, or expanded influence from high or medium disturbances; 400-meter impact zone, or 100-meter buffer from sparsely used social trails
    a. Provides intact habitat for most wildlife, but human activity may impact wildlife behavior and use, depending on the species and context

4. **Core Habitat** – No human development and minimal human presence; greater than 400 meters from any disturbance
    a. Provides secure, undisturbed habitat for any species where sufficient habitat otherwise exists

The habitat disturbance analysis for the property is shown on **Figure 5**.



Habitat Fragmentation

Haymaker, Hay Meadow, and Spud Cellar Open Space • Town of Eagle Open Space Management Plans

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Recreation Resources

Haymeadow, Spud Cellar, and the Haymaker Trailhead have many opportunities for open space recreation (**Figure 6**). Hiking and biking are popular trail uses in these areas and users are able to continue their hike or ride on adjoining BLM lands and trails. There is no motorized use allowed in these open spaces.

Trails

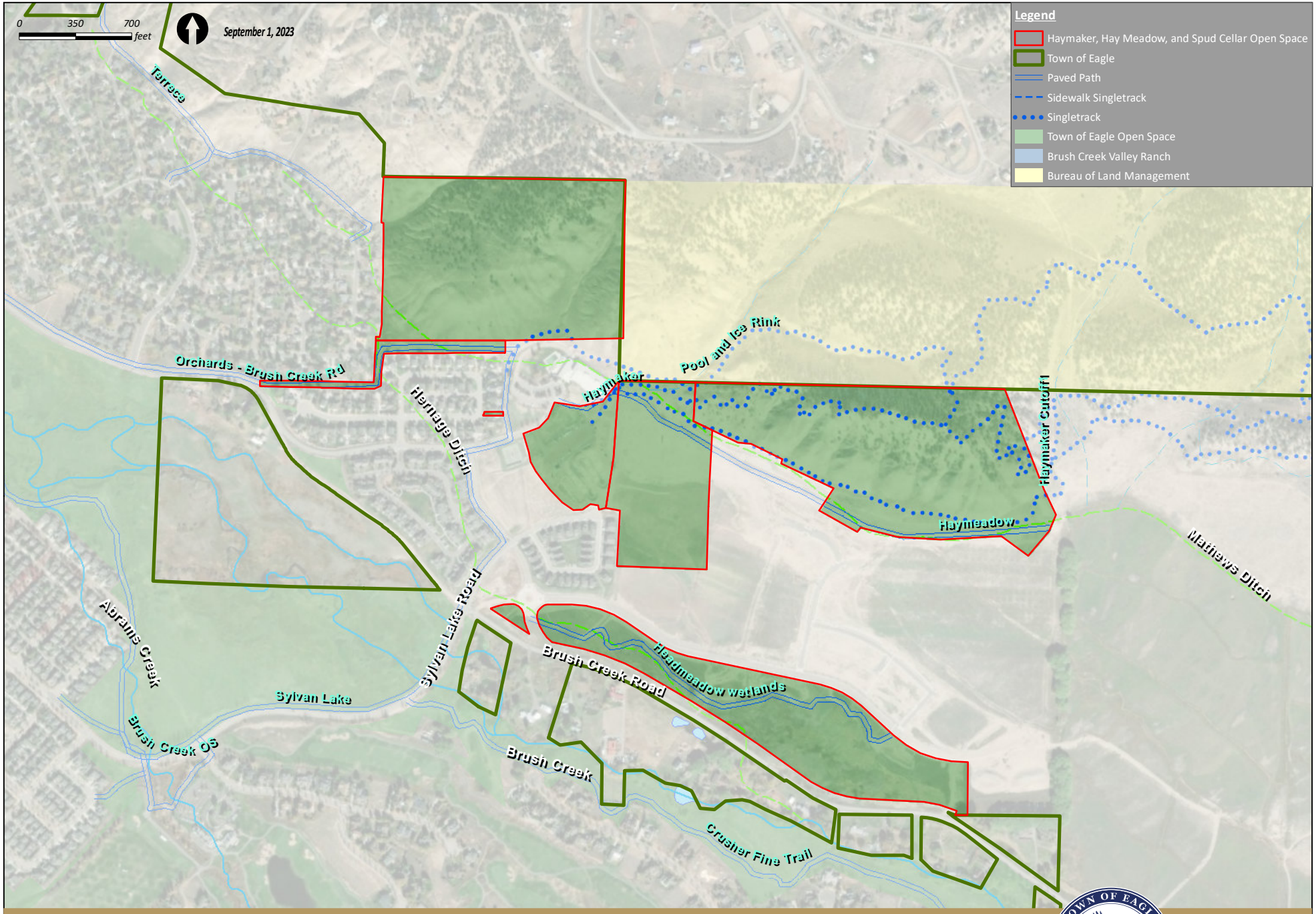
Table 4 below describes trail distances and allowed uses.

Table 4. Abrams Creek and Eagle Ranch Open Space trails.

Trail Name	Distance (miles)	Allowed Uses
Haymaker (HS Loop)	3.4	Mountain biking, hiking, trail running
Haymaker Connector	<1	Mountain biking, hiking, trail running
Haymaker Cutoff	<1	Mountain biking, hiking, trail running
Pool-Ice Rink	3.4	Mountain biking, equestrian, hiking, trail running

Trailheads

The largest trailhead in Eagle is the Haymaker Trailhead. The trailhead consists of 90 parking spaces, two portable restrooms and changing areas, and an information kiosk. The trailhead provides access to the Pool and Ice Rink amenities, the BMX park, trails, and tennis courts.



Recreation

Haymeadow , Haymaker, and Spud Cellar Open Space • Town of Eagle Open Space Management Plans

Resource Management Plan

Implementing this management plan will require identification and prioritization of management actions to maintain proper stewardship of the natural resources on the property. These prioritized management actions should continue to be reviewed on an annual basis to determine yearly work programs given budget and staff constraints. Many of the management actions will be implemented within the first few years, while others will take many years to accomplish. Some management actions are ongoing, some are short-term, and others are long-term, representing considerable investments of time and energy.

Resource Management Issues

Resource management issues are specific occurrences or situations that can compromise the natural resource values on the property. Known or potential resource management issues for the property are listed below in **Table 5** and addressed with management actions.

Table 5. Resource management issues.

Resource Management Issues
Habitat Management • **Fuels management** – Fuels management efforts by Eagle Valley Wildland present opportunities for habitat enhancement but require ongoing coordination and follow up to ensure ecological benefits. • **Trash cleanup** – Removal and cleanup of structures, social trails, and debris on Spud Cellar is necessary for safety and resource protection. [Completed 2023??] **Vegetation Management** • **Noxious weeds** – Invasive and noxious weed species are a persistent threat to native habitat quality and diversity and require ongoing monitoring and management. • **Disturbed grasslands** – Former disturbed areas are dominated by nonnative pasture grasses and weedy species, have limited habitat value for wildlife, and could facilitate noxious weed infestations. • **Revegetation** – Revegetation of disturbed and reclaimed areas associated with construction or other disturbances is an ongoing challenge to establish native species and minimize noxious weed infestations. **Wildlife Management** • **Pest management** – Populations of Wyoming ground squirrel and other pest species degrade vegetation and other resources, and result in conflicts with visitors, dogs, and neighboring property owners. • **Big game winter range protection** – Ongoing management of human use and habitat is necessary to protect critical winter ranges for deer and elk. **Recreation Management** • **Trail access** – Undesignated visitor access to trails and other amenities from neighborhoods has resulted in vegetation trampling, social trails, and erosion. • **Public land interface** – Unclear property boundaries, illegal encroachment and use, and unauthorized trail access could result in resource damage and a loss of public stewardship of open space. • **Winter recreation use** – Winter recreation management on the Haymaker trail system is necessary to protect critical ranges for deer and elk.

Resource Management Strategies

Management strategies for the property, including goals, objectives, and actions, are presented in **Table 6**, along with the recommended timing and priority of implementation. A more detailed discussion of key management issues is presented below. Management strategies are also shown on **Figure 7**.

Key Management Issues

Noxious Weed Management

Prioritizing nonnative and noxious weed management efforts is needed since attempting to control all nonnative and noxious weeds on the property can be unrealistic and unsuccessful. A recommended strategy for noxious weed management is to minimize the spread of existing weed infestations and reduce, over time, the extent of noxious weeds on the property. Attempting to control all weeds can be overwhelming and ultimately unsuccessful, so it is important to implement a strategy that includes the following principles: (1) promote the health and persistence of desired native or stable nonnative species; (2) focus weed control and management on new infestations; (3) prioritize efforts based on the State of Colorado's priority species list (A, B, and C); and (4) integrate weed management into all ground-disturbing projects.

A successful weed management strategy will incorporate regular (annual) monitoring; integration of a variety of tools including herbicides, mowing, and biological controls; and prioritization of weed abatement efforts. Generally, addressing smaller infestations of highly invasive species is recommended rather than larger infestations of species that are easier to control.

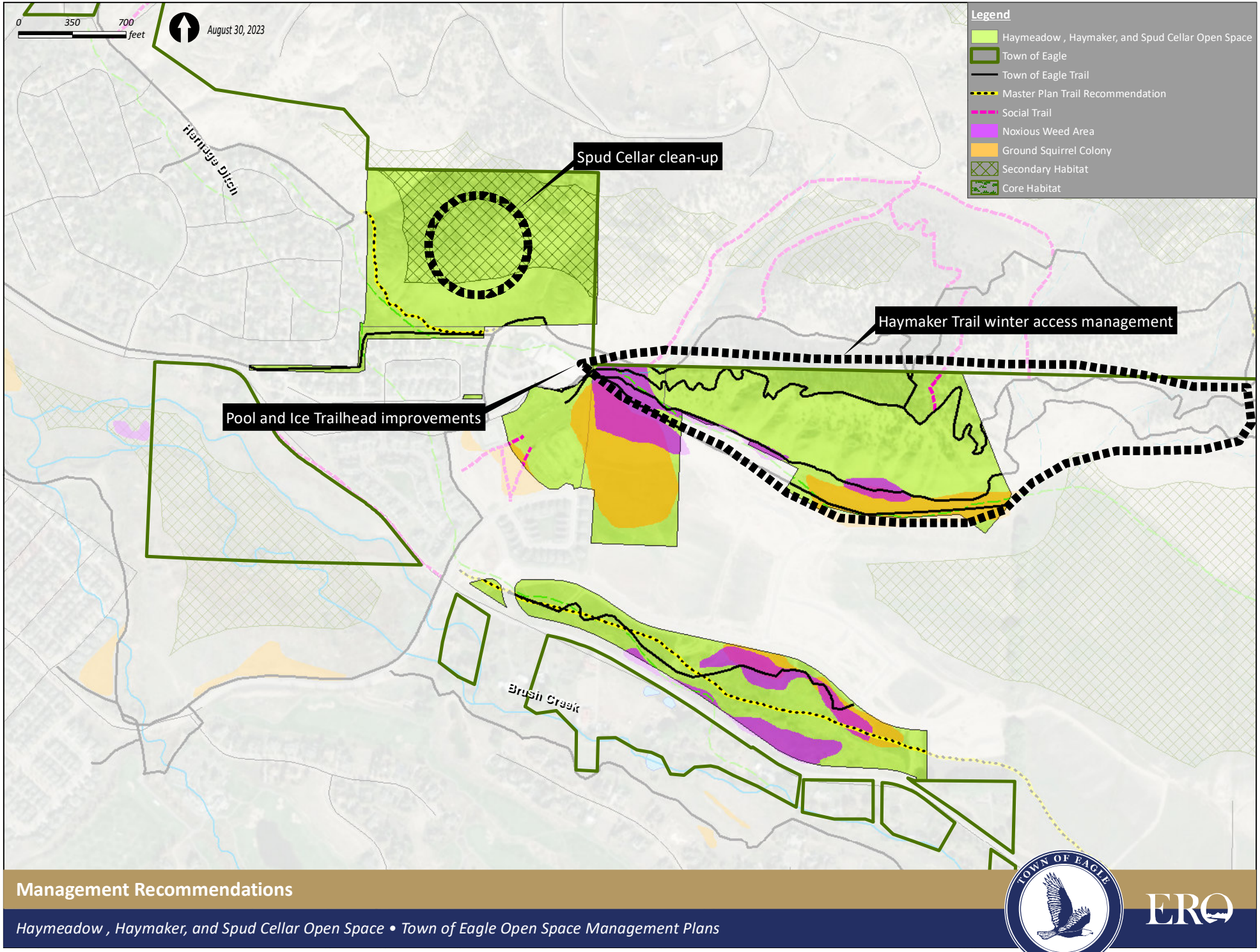
Harrington's Penstemon Conservation

Most of the sagebrush-dominated habitats in this area provide potential habitat for Harrington's penstemon (*Penstemon harringtonii*), a rare plant species that is unique to region. It occurs on all aspects in open sagebrush and mixed pinyon-juniper or mountain mahogany shrublands on gentle slopes of usually less than 20 percent. As shown on **Figure 3**, most of the open space in this area provides potential habitat for this species. To support the long-term conservation of this species, the following measures are recommended for any ground-disturbing activities within identified potential habitat:

1. Survey proposed project areas during the survey period (June)
2. If found, evaluate or modify the proposed project to avoid ground disturbance within a 100-foot buffer of all confirmed plants
3. If a 100-foot buffer cannot be implemented, avoid direct ground disturbance where plants are rooted.
4. If direct ground disturbance cannot be avoided, adjust the project site or alignment to minimize impact to the plants, with the goal of having less than 1 to 2 percent of the population within the project impact area.
5. If the project site or alignment cannot be changed to minimize impacts, confine disturbances as close to outer edge of the plant population as possible to minimize fragmentation.

6. If plants are unavoidable, contact nearby botanical gardens or grow out facilities (such as the Betty Ford Alpine Garden in Vail and the Upper Colorado Environmental Plant Center facility in Meeker; these facilities have accepted salvaged plants in the past) to salvage plants if possible.
7. Weed control efforts should not include broadcast or aerial herbicide treatments within ½ mile of known populations. Utilize spot spray application in these areas.
8. Construction within identified *P. harringtonii* habitat should occur during the active growing season (May 15 through August 30) to ensure that all rosettes are visible.
9. Monitor on-site construction with a qualified biological monitor (botanist) to avoid and mitigate impacts to populations.

Additional background information on Harrington's penstemon is found in **Appendix B**.



Management Recommendations

Haymeadow , Haymaker, and Spud Cellar Open Space • Town of Eagle Open Space Management Plans

For the purposes of this section of this management plan, the following terminology applies:

- **Objective** – Objectives are the outcomes that are intended to be achieved through management actions.
- **Action** – Actions are the specific tasks that the owners can undertake to address issues and meet the objectives.

Timing recommendations are defined as follows:

- **ST (short-term actions)** – Should be completed within 1 year.
- **LT (long-term actions)** – Should be initiated or completed within 5 years.
- **O (ongoing actions)** – Should be completed on an ongoing annual basis indefinitely.

Priority recommendations are defined as follows:

- **H (high-priority actions)** – Should be accomplished first. These management actions are considered extremely important to the protection of resource values.
- **M (medium-priority actions)** – Considered important but not urgent, and meet a combination of other objectives.
- **L (low-priority actions)** – Important but not critical to resource protection needs. Low-priority management actions do not have to be completed in the immediate future and primarily fulfill a specific resource objective.

Table 6. Summary of management strategies.

Management Strategies	Timing	Priority
HABITAT MANAGEMENT		
Fuels Management ***Management Objective*** – Coordinate with Eagle Valley Wildland to plan, implement, monitor, and manage fuels management projects to meet both wildfire protection and ecological enhancement goals.		
• Meet with Eagle Valley Wildland bi-annually to discuss upcoming projects, recent projects, and strategies to maximize ecological benefits.	**O**	**M**
• Monitor thinning and fire break project areas for noxious weeds and native vegetation response for three years following project completion.	**O**	**H**
• Coordinate with CPW to plan and implement projects in a manner that enhances the quality and availability of winter range habitat for mule deer and elk.	**O**	**M**
• Review and adapt project design and implementation over time to integrate lessons learned and maximize ecological benefits.	**O**	**M**
VEGETATION		
Noxious Weeds ***Management Objective*** – Monitor and manage noxious weeds to contain and reduce common weed species (state Lists B and C).		
• Monitor and map weed infestations annually.	**O**	**H**
• Develop and implement an integrated management strategy that uses a variety of tools, including herbicides, mowing, and biological controls, that can be implemented and adjusted over time.	**O**	**H**
• Prioritize areas for weed-control treatments based on species present and overall vegetation management objectives.	**O**	**M**
• Focus ongoing weed management activities on infestations of state List B weed species.	**O**	**H**

Management Strategies	Timing	Priority
• Use native vegetation enhancement efforts to address state List C weed species.	O	M
• Concentrate immediate weed management activities along trails or in recently disturbed areas.	ST	H
• Integrate weed monitoring and management into all management activities that result in ground or vegetation disturbance.	O	M
Disturbed Grasslands ***Management Objective*** – Manage disturbed grassland areas with an emphasis on ecological stability, noxious weed mitigation, and native habitat enhancement.		
• Identify site-specific strategies to improve soil fertility and increase native vegetation cover and diversity, including goals and success criteria, timelines for monitoring, and adaptive management thresholds.	ST	M
• Use a phased approach to concentrate aggressive reclamation efforts in smaller disturbed sites, and monitor success for 3 to 5 years before implementing the next aggressive reclamation effort.	ST	M
• Implement less aggressive reclamation efforts that include weed management, improving soil fertility, and interseeding (i.e., a specific method of drill seed) in cultivated areas to slowly promote and establish native upland grasses.	ST	M
• Implement more aggressive reclamation efforts that include topsoil management, soil preparation, and seeding with suitable native upland seed mixes.	LT	M
• If new development is planned, facilitate additional focus and short-term supplemental irrigation, implement selective plantings of native upland shrub species.	LT	M
• Monitor the effectiveness of grassland restoration treatments and adjust over time.	O	M
Revegetation ***Management Objective*** – Implement revegetation plans to establish native plant communities in disturbed areas, and to improve the overall quality and vigor of other degraded areas.		
• Salvage and test the existing topsoil for revegetation efforts; do not use topsoil from areas infested with noxious weeds.	ST	H
• Supplement topsoil with amendments if testing indicates a deficiency in structure, organic matter, or nutrients.	ST	M
• Grade, rip, or till the disturbed soils to relieve compaction and prepare the sites for seeding.	ST	M
• Place topsoil and drill seed upland areas with the upland seed mix in the fall (prior to freezing) or spring (after thaw).	ST	M
• Place topsoil and broadcast seed wetland areas with the wetland seed mix in the fall or spring.	ST	M
• Apply mulch to seeded areas within 24 hours of seeding.	ST	M
• Monitor seeded areas on a monthly basis for erosion, noxious weeds, or large areas of bare ground until desired species are well-established; correct issues immediately.	O	M
WILDLIFE MANAGEMENT		
Wildlife Habitat Conservation ***Management Objective*** – Manage trail, human use, and disturbance on balance with wildlife habitat protection.		
• Plan trail and infrastructure projects to protect and maintain existing unfragmented patches of wildlife habitat (see **Figure 5**)	ST	H
• Reduce the occurrence of off-leash dogs through educational signage, visitor contact, and enforcement	O	M
Raptor Protection ***Management Objective*** – Manage and monitor nests to protect raptor breeding seasons.		
• Continue to monitor the status of raptor nests on open space.	O	M
Pest Management ***Management Objective*** – Manage Wyoming ground squirrel, and other wildlife pest populations to reduce resource damage and conflicts with visitors and neighbors.		

Management Strategies	Timing	Priority
• Monitor the location and extent of ground squirrel populations on Town open space, and document reported conflicts or complaints from residents and neighbors	O	M
• Proactively implement pest control measures on open space, prioritizing areas with the greatest issues or conflicts	O	H
• Minimize impacts of pest control measures on native, non-target wildlife species	O	L
Big Game Winter Range Protection ***Management Objective*** – Maintain and improve winter range habitat for mule deer and elk.		
• Consider adaptive winter wildlife closures on the most sensitive portions of the Haymaker trail system.	O	H
• Meet with CPW on a bi-annual basis to evaluate habitat and population data, discuss management issues and trends, and identify adaptive management needs.	O	M
• Coordinate fuels management projects with Eagle Valley Wildland and CPW to maximize benefits to mule deer and elk.	O	M
RECREATION MANAGEMENT		
Trail Access ***Management Objective*** – Manage and monitor trails and other visitor amenities to provide desired visitor access and minimize adverse impacts.		
• Monitor existing and new social trails for use and resource damage, prioritizing closure and reclamation of problematic trails.	O	M
• Evaluate trails annually, or following major storm events, for erosion, rutting, braiding or other maintenance or management issues.	O	M
• Implement routine maintenance of trails, including clearing drainage, vegetation clearing, social trail closure, and light repairs every two to three years per trail section.	O	M
• Perform targeted maintenance of trails to address small or localized issues as needed or every four to six years per trail section	LT	M
• Immediately address trail maintenance issues that may threaten public safety or result in significant trail degradation or resource damage	O	H
• Evaluate gates for compatibility with equestrian access, and complete necessary modifications	LT	L
Public Land Interface **Management Objective** – Work with partners to proactively monitor and manage property boundaries and mitigate issues that may result in resource damage.		
• Monitor property boundaries annually for encroachment, social trails, illegal camping, and other trespass issues.	O	M
• Remove and clean up trails, structures, and debris on the Spud Cellar property [already completed 2023?]	ST	H
• Work with Haymeadow developers to monitor and manage illegal encroachments behind private residences, following a sequence of education, notification, and enforcement.	O	M
• Install or update signs along the trails indicating land management changes.	LT	M
• Maintain ongoing communication and coordination with Eagle County, BLM, the USFS, and neighboring landowners regarding adjacent public uses and any issues that may arise.	O	L

Monitoring

Routine monitoring of specific resources and specific management issues will be necessary to document the ongoing trajectory of management issues and to determine how well management objectives are being met. Ongoing monitoring allows Eagle to make informed decisions about resource management priorities and projects and provides a feedback mechanism that facilitates ongoing learning about resource issues and improvement of techniques to address them.

Monitoring recommendations are listed above as management actions and are repeated in **Table 7** to provide a quick reference.

Table 7. Summary of monitoring actions.

Monitoring Actions	Frequency	Methods
Vegetation and Habitat Monitoring		
• Monitor and map weed infestations annually	Annual	Visual inspection, GPS mapping, documentation, and photos
• Monitor fuels management project areas for noxious weeds and native vegetation response for three years following project completion.	Annual	Visual inspection, GPS mapping, documentation, and photos
• Monitor effectiveness of grassland restoration and revegetation treatments	Annual; as-needed	Visual inspection, GPS mapping, documentation, and photos
Wildlife Monitoring		
• Monitor status of existing and new raptor nests on open space	Annual	Visual inspection
• Monitor seasonal trail closures for compliance	Annual	Visual inspections, Remote cameras
Recreation and Access Monitoring		
• Evaluate all trails annually, or following major storm events, for maintenance or management issues	Annual; as-needed	Visual inspection, GPS mapping, and photos
• Monitor seasonal trail closures for compliance	Annual	Visual inspections, Remote cameras
• Monitor property boundaries for encroachment, social trails, illegal camping, and other trespass issues	Annual	Visual inspection, GPS mapping, and photos

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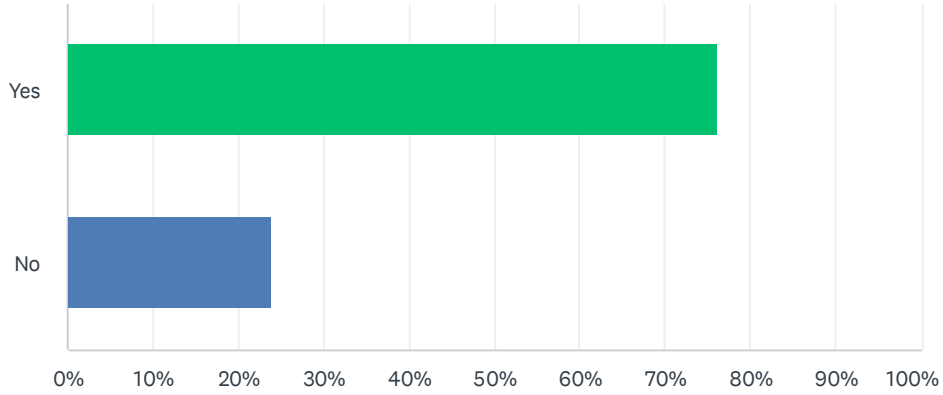
Appendix A. Online Public Survey Results

Q1 Are you a Town of Eagle resident?

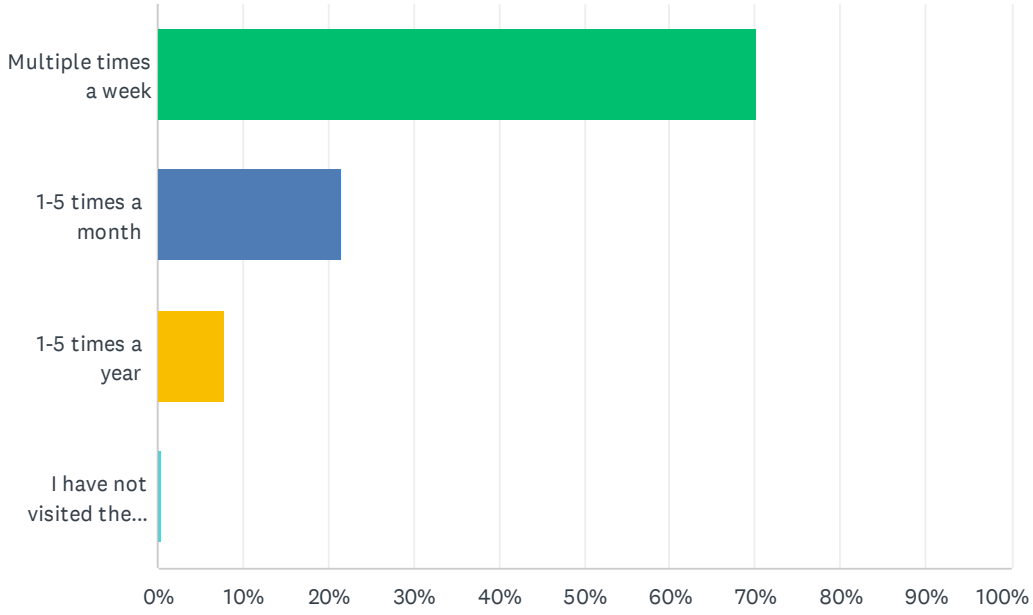
Answered: 802 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	76.06%	610
No	23.94%	192
TOTAL		802

Q2 How often do you visit the Town of Eagle's Open Space areas or trails?

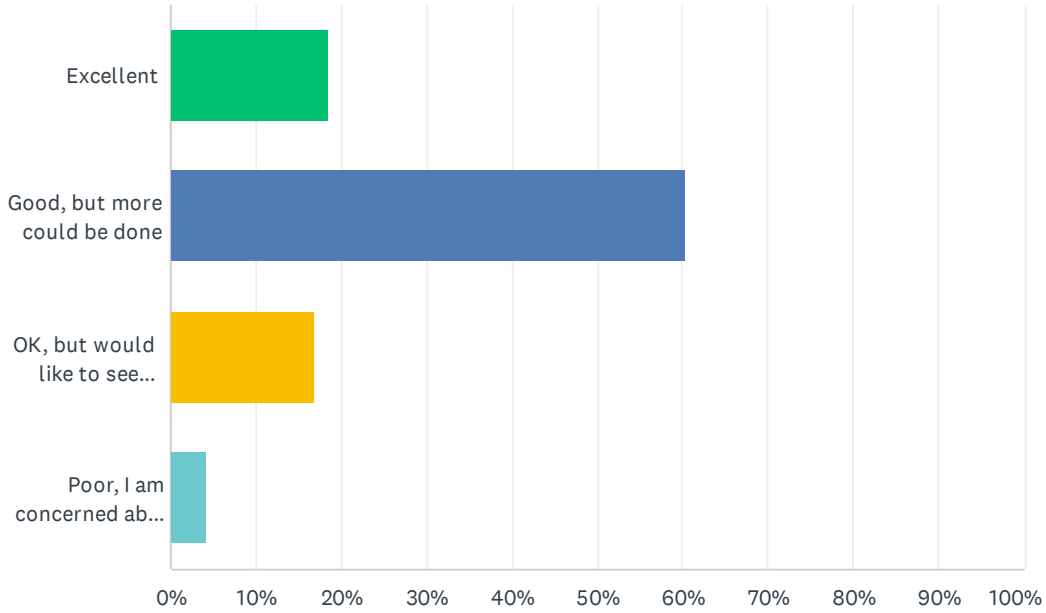
Answered: 802 Skipped: 0



ANSWER CHOICES	RESPONSES	
Multiple times a week	70.20%	563
1-5 times a month	21.45%	172
1-5 times a year	7.86%	63
I have not visited the open space areas or trails	0.50%	4
TOTAL		802

Q3 In your mind, how effective is current Town of Eagle open space management?

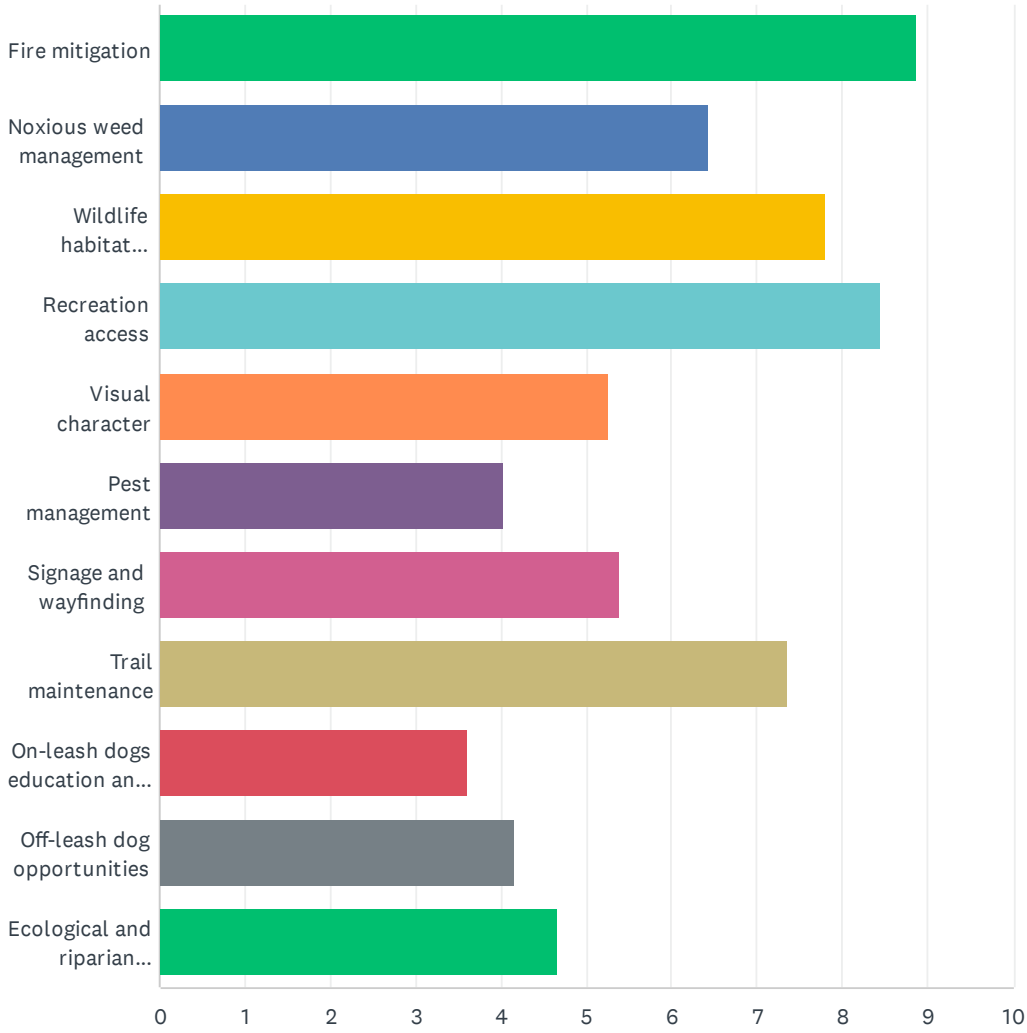
Answered: 781 Skipped: 21



ANSWER CHOICES	RESPONSES	
Excellent	18.57%	145
Good, but more could be done	60.31%	471
OK, but would like to see more issues addressed	16.90%	132
Poor, I am concerned about management issues	4.23%	33
TOTAL		781

Q4 What should be the recreation/natural resource management priorities? (1 being the highest priority and 11 being the lowest)

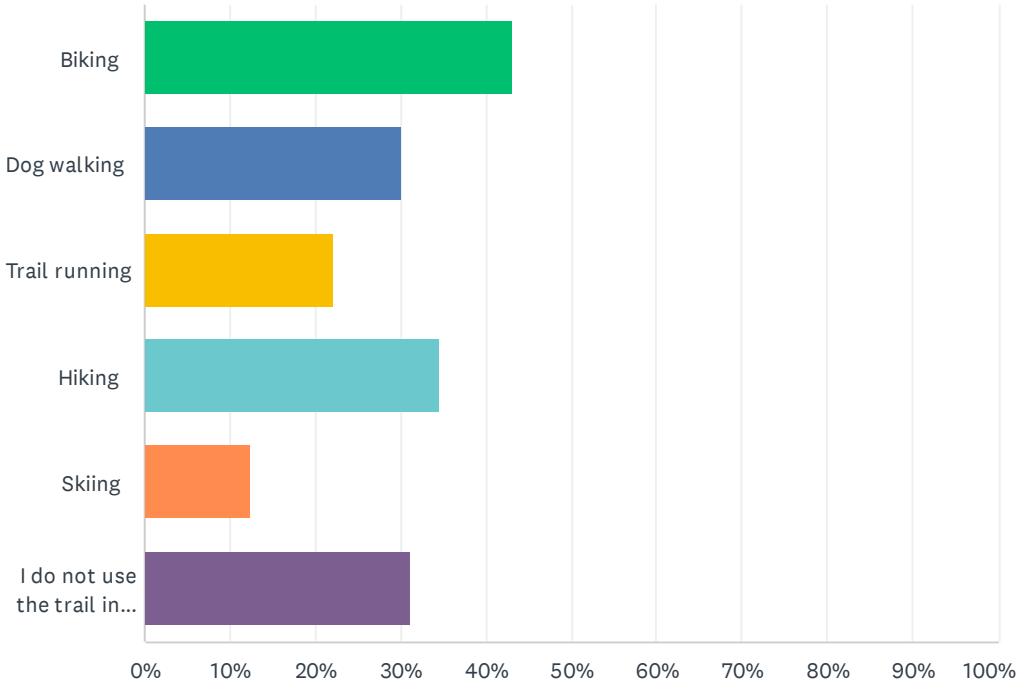
Answered: 788 Skipped: 14



	1	2	3	4	5	6	7	8	9	10	11
Fire mitigation	33.76% 266	14.85% 117	12.31% 97	14.97% 118	9.26% 73	5.71% 45	3.68% 29	3.30% 26	1.27% 10	0.51% 4	0.38% 3
Noxious weed management	2.92% 23	11.42% 90	10.79% 85	10.66% 84	12.56% 99	14.72% 116	13.45% 106	9.64% 76	6.98% 55	4.82% 38	2.03% 16
Wildlife habitat improvements	12.06% 95	18.27% 144	16.12% 127	12.69% 100	13.20% 104	9.26% 73	7.61% 60	5.08% 40	2.28% 18	2.41% 19	1.02% 8
Recreation access	29.70% 234	15.99% 126	13.83% 109	11.42% 90	7.36% 58	4.82% 38	6.22% 49	4.06% 32	3.05% 24	1.52% 12	2.03% 16
Visual character	1.14% 9	2.41% 19	4.95% 39	6.47% 51	14.72% 116	14.97% 118	17.77% 140	14.97% 118	10.79% 85	7.23% 57	4.57% 36
Pest management	0.38% 3	1.02% 8	1.27% 10	2.28% 18	4.95% 39	11.55% 91	14.21% 112	20.43% 161	21.70% 171	15.23% 120	6.98% 55
Signage and wayfinding	1.40% 11	5.84% 46	7.36% 58	10.91% 86	8.50% 67	9.77% 77	14.47% 114	13.20% 104	15.10% 119	9.77% 77	3.68% 29
Trail maintenance	8.88% 70	15.23% 120	15.10% 119	14.34% 113	10.53% 83	11.29% 89	5.33% 42	10.91% 86	5.96% 47	2.41% 19	0.00% 0
On-leash dogs education and enforcement	3.17% 25	3.30% 26	4.57% 36	3.81% 30	5.33% 42	3.68% 29	4.57% 36	4.57% 36	15.99% 126	21.95% 173	29.06% 229
Off-leash dog opportunities	3.93% 31	5.46% 43	7.23% 57	5.58% 44	5.71% 45	5.08% 40	5.08% 40	4.57% 36	6.98% 55	21.83% 172	28.55% 225
Ecological and riparian restoration	2.66% 21	6.22% 49	6.47% 51	6.85% 54	7.87% 62	9.14% 72	7.61% 60	9.26% 73	9.90% 78	12.31% 97	21.70% 171

Q5 What is your preferred use of the Haymaker Trail system in the winter? (check all that apply)

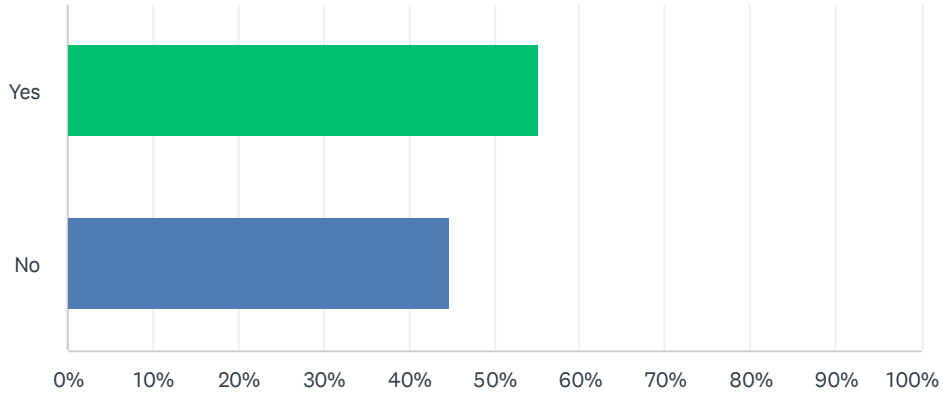
Answered: 798 Skipped: 4



ANSWER CHOICES	RESPONSES	
Biking	42.98%	343
Dog walking	30.08%	240
Trail running	22.18%	177
Hiking	34.46%	275
Skiing	12.28%	98
I do not use the trail in the winter	31.08%	248
Total Respondents: 798		

Q6 Would you support additional winter restrictions on the Haymaker Trail system to protect wildlife?

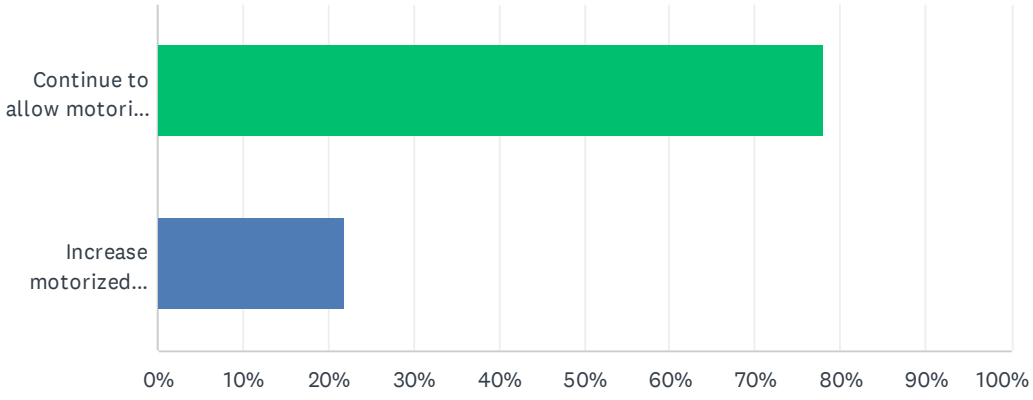
Answered: 785 Skipped: 17



ANSWER CHOICES	RESPONSES	
Yes	55.29%	434
No	44.71%	351
TOTAL		785

Q7 What is your preferred management of motorized vehicles on the Second Gulch Trail within Town open space?

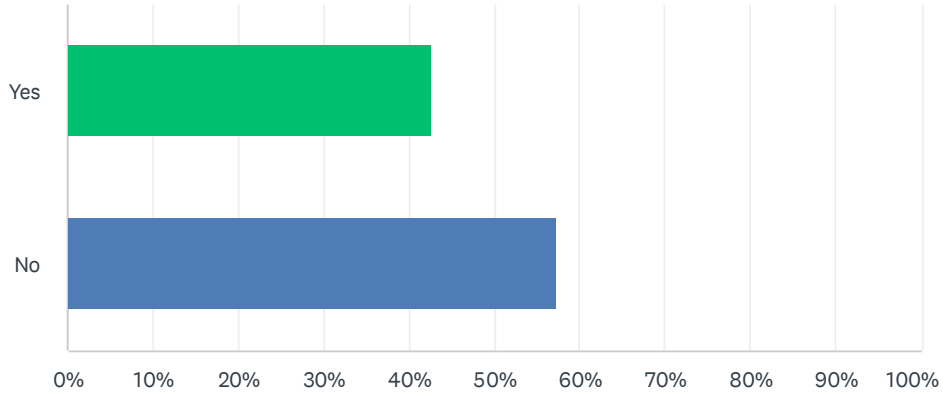
Answered: 788 Skipped: 14



ANSWER CHOICES	RESPONSES	
Continue to allow motorized vehicles up to a width of 50 inches	78.05%	615
Increase motorized vehicle width to allow access for modern OHVs (e.g., SxS)	21.95%	173
TOTAL		788

Q8 Do you support increasing E-Bike access on nonmotorized dirt trails on Town open space?

Answered: 799 Skipped: 3



ANSWER CHOICES	RESPONSES	
Yes	42.55%	340
No	57.45%	459
TOTAL		799

Q9 Do you have any additional management concerns or comments?

Answered: 371 Skipped: 431

Appendix B. Harrington's Penstemon Background and Conservation Measures

Harrington's penstemon (also known as Harrington's beardtongue; *Penstemon harringtonii*) is a vascular plant species that is known to occur in a narrow range within the Colorado River drainage in northwest Colorado. This species generally occurs in dry, sagebrush-dominated communities at elevations between 6,400 and 9,400 feet. Within this narrow range, the total population of this species is estimated to be located within about 15 square miles of habitat, including the sagebrush-dominated slopes in and around the Town of Eagle (CNHP 2006).

Status

This species is not listed under the federal Endangered Species Act or the Colorado Threatened and Endangered List, but is considered a G3/S3 ranked species, meaning that it is considered "vulnerable" at both the global and state scales (CNHP 2015). It is considered to be a BLM Sensitive species (BLM 2020) and a USFS Region 2 Sensitive Species (Forest Service 2023).

Habitat

Harington's penstemon occurs in open sagebrush and mixed pinyon-juniper, Gambel's oak or mixed mountain mahogany shrubland habitats on gentle slopes. Soils are generally rocky loams and rocky clay

loams, as well as limey shales, limestones, and other rocks, though it is not known whether the species is limited to specific geologic substrates or soils. *P. harringtonii* has been documented on all aspects and on slopes as steep as 50 percent, but is typically found on slopes less than 20 percent (CNHP 2006).

Description

Plants are perennial, and are about 30-70 centimeters tall, typically with a single unbranched stem. Flowers are pink to purple or blue, and are arranged in loose spikes on the upper half of the stems, typical of a traditional snapdragon (it is a member of the Scrophulariaceae, Snapdragon or Figwort family). Flowers are in loose spikes with two exserted stamens (stick out of the flower tube). Leaves are thick, rounded, and elongated in shape, are bluish grey in color, and are arranged opposite each other along the flowering stem and in a basal rosette at the base of the plant. Flowering typically begins in early June and continues through late June (CNHP 2006).

It is similar in habitat and appearance to Osterhout's beardtongue (*P. osterhoutii*), which are more likely to occur in pinyon-juniper dominated areas, but are sometimes mixed with P. *harringtonii* (CNHP 2006).

Threats

Threats to the species include grazing, recreation, roads, and other development that may result in the trampling of plants, removal or fragmentation of habitat, loss of pollinators, effects of climate change, and/or the proliferation of invasive, non-native plant species such as cheatgrass, Canada thistle, smooth brome, musk thistle, and houndstongue (CNHP 2015, NatureServe 2023).

Potential Habitat Assessment

ERO assessed potential habitat for *P. harringtonii* on Town of Eagle open space land on June 28, 2023. Habitat includes most sagebrush-dominated habitat and in some areas adjacent to known populations on BLM land. Suitable habitat is present on Town of Eagle open space land. ERO did not conduct a comprehensive survey for *P. harringotnii*, however individual plants where observed in the Towns open space in the sagebrush-dominated areas and occasionally in the mixed montane shrubland and pinyon juniper communities.

Conservation and Project Implementation Measures

To support the long-term conservation of this species, the following measures are recommended for any ground-disturbing activities within identified potential habitat:

1. Survey proposed project areas during the survey period (June)
2. If found, evaluate or modify the proposed project to avoid ground disturbance within a 100-foot buffer of all confirmed plants
3. If a 100-foot buffer cannot be implemented, avoid direct ground disturbance where plants are rooted.
4. If direct ground disturbance cannot be avoided, adjust the project site or alignment to minimize impact to the plants, with the goal of having less than 1 to 2 percent of the population within the project impact area.
5. If the project site or alignment cannot be changed to minimize impacts, confine disturbances as close to outer edge of the plant population as possible to minimize fragmentation.

6. If plants are unavoidable, contact nearby botanical gardens or grow out facilities (such as the Betty Ford Alpine Garden in Vail and the Upper Colorado Environmental Plant Center facility in Meeker; these facilities have accepted salvaged plants in the past) to salvage plants if possible.
7. Weed control efforts should not include broadcast or aerial herbicide treatments within ½ mile of known populations. Utilize spot spray application in these areas.
8. Construction within identified *P. harringtonii* habitat should occur during the active growing season (May 15 through August 30) to ensure that all rosettes are visible.
9. Monitor on-site construction with a qualified biological monitor (botanist) to avoid and mitigate impacts to populations.

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ERO

Consultants in Natural Resources and the Environment

DRAFT

Town of Eagle Open Space and Trails
Johnson's Corner and Brush Creek Open Space
Natural Resource Management Plan
Eagle County, Colorado

Prepared for—

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September 2023

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Appendices

Appendix A. Online Public Survey Results

Johnson's Corner and Brush Creek Open Space
Natural Resource Management Plan
Eagle County, Colorado

September 2023

Introduction

This Natural Resource Management Plan (management plan) for the Johnson's Corner and Brush Creek Open Space properties in Eagle County, Colorado (properties) is intended to assist with recommendations for natural resource concerns that impact the existing, as well as future, conditions based on management objectives set forth in the 1997 Open Lands Conservation Plan. Some of these natural resource concerns include noxious weed management, wildlife habitat conservation, and visitor use management measures.

Location and Background

The properties consist of approximately 192.4 total acres located in the central portion of the Town of Eagle (Eagle or Town), Colorado generally accessed from Brush Creek Road (**Figure 1**).

The open space properties are located in the central corridor of Eagle along Brush Creek with elevations ranging between 6,706 and 6,806 feet. These areas are largely undeveloped aside from a paved trail, parking lot, pavilion, and playground and consist of grasslands and riparian woodland plant communities (**Figure 6**). These open space properties are bound by private lands on all sides.

Planning Context

The Town of Eagle completed a master planning process in 2022 which prioritized the need for the creation and implementation of management plans for its open space properties.

Purpose of the Management Plan

The purpose of this management plan is to provide an assessment of existing natural resources, and to guide resource management at the property. More specifically, this management plan is also intended to achieve the following objectives:

1. Document existing conditions and resource management issues on the property.
2. Identify and prioritize strategies to address resource management issues and maintain the overall integrity of resources on the property.

Management Plan Process

The Town of Eagle hired ERO Resources Corporation (ERO) to complete this management plan. The planning process included the following phases:

1. **Focus Group Meetings (June 2023):** Meetings with focus groups to discuss issues and objectives related to natural resource and recreation management.
2. **Resource Assessment (June – July 2023):** Evaluation of existing resource data, and field assessments of open space properties
3. **Public Survey (July – August 2023):** Online survey to assess community preferences around key open space management topics (**Appendix B**).
4. **Draft Management Plan (September – October 2023):** Completion and public review of draft management plans
5. **Final Management Plan (November – December 2023):** Completion and adoption of final management plan.

Relationship to Existing Plans and Policies

This section describes the various land use considerations associated with the property.

Open Lands Conservation Plan

In 1997, the Town of Eagle adopted its Open Lands Conservation Plan which established open space dedications in the town. This plan introduced four objectives for managing open space properties.

- Conserve Natural Characteristics
- Protect Critical Wildlife Habitat
- Provide Appropriate Recreational Opportunities
- Maintain Scenic Qualities

Open Space and Trails Master Plan

In July of 2022, Eagle adopted the Open Space and Trails Master Plan (OST Plan) which prioritized the need for creating management plans for its open space properties (Eagle 2022). One of the primary goals of the OST Plan is to "inventory conditions and improve understanding of open space" by monitoring and managing natural resource conditions in Eagle's open spaces in accordance with best

practices and management plans. Recommendation OS8, Development of Open Space Management Plans, is rated as a high priority under Eagle's OST Plan and further supports the need for understanding the existing conditions to provide the Open Space Department with a framework for future budgeting, partnerships, and capacity building.

Town of Eagle Municipal Code

Open space in Eagle is regulated by Title 6 and Title 9 of the Municipal Code (Eagle 2023). Title 6 Public Parks, Recreation Areas, and Open Space Areas regulates the types of uses allowed and disallowed on open space properties, procedures for proposing new trails on open space, and special events on open space. Title 9 Public Peace, Safety, and Morals includes Chapter 9.26 Public Parks, Recreation Areas, and Open Space Areas which regulates public sanitation, behavior, and need for preservation of open space.

Adjacent Public Lands and Planning Efforts

Eagle County Open Space

The Eagle County Open Space program manages and conserves upwards of 15,000 acres of land throughout Eagle County (Eagle County 2023). The Eagle Ranch Open Space property shares boundaries with Brush Creek Valley Ranch.

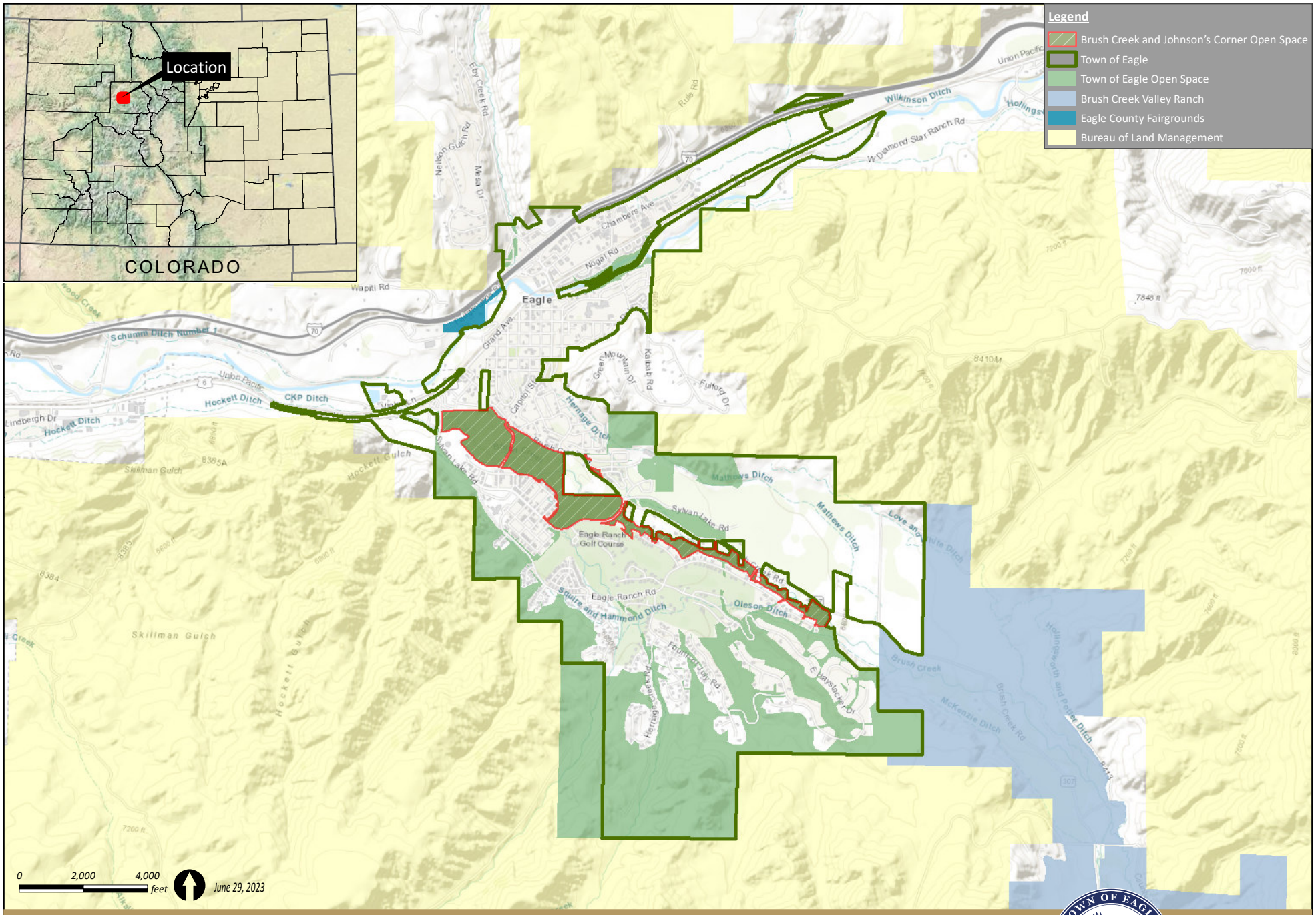
Colorado River Valley Field Office Resource Management Plan

The Bureau of Land Management (BLM) manages its public lands through field office-specific Resource Management Plans (RMP). The Colorado River Valley Field Office manages BLM lands which are adjacent to the Abrams Creek and Eagle Ranch Open Space properties in accordance with the Colorado River Valley Field Office RMP (BLM 2015).

White River National Forest Plan

The U.S. Forest Service (USFS) does not own property adjacent to Eagle Open Space, though it does share boundaries with adjacent BLM lands. The White River National Forest (WRNF) manages its land through a management plan in accordance with the National Forest Management Act to establish protection measures, management strategies, and goals and guidelines for appropriate uses (USFS 2002).

Coordination and planning efforts among land managers is ongoing and continues to be a positive relationship for the Town of Eagle.



Property Location

Brush Creek and Johnson's Corner Open Space • Town of Eagle Open Space Management Plans

Existing Conditions

Geology and Soils

The NRCS mapped eleven map units on the open space properties. The description for each soil and its series are shown below and include uses that might be common on the soil type. **Figure 2** shows the soil mapping for the property. All soil information was gathered from the NRCS Soil Series Description query site (NRCS 2023) and the Soil Survey of Aspen-Gypsum Area, Colorado, Parts of Eagle, Garfield, and Pitkin Counties (USDA 1992).

Atencio-Azeltine complex, 3 to 6 percent slopes

The Atencio-Axeltine complex series consists of deep, well drained soils on alluvial fans and terraces. These soils formed in alluvium derived from sandstone and shale. The slope ranges from 3 to 6 percent. The average annual precipitation is 16 inches, and the average annual temperature is 45°F.

Dahlquist-Southace complex, 12 to 25 percent slopes

The Dahlquist-Southace complex series consists of deep, well drained soils on terraces and alluvial fans. These soils formed in mixed alluvium. The slope ranges from 12 to 25 percent. The average annual precipitation is 14 inches, and the average annual temperature is 44°F.

Dahlquist-Southace complex, 25 to 50 percent slopes

The Dahlquist-Southace complex series consists of well drained soils on terraces and alluvial fans. These soils formed in mixed alluvium. The slope ranges from 25 to 50 percent. The average annual precipitation is 14 inches, and the average annual temperature is 44°F.

Evanston loam, 1 to 6 percent slopes

The Evanston loam series consists of deep, well drained soils on alluvial fans, terraces, and valley sides. These soils formed in mixed alluvium. The slope ranges from 1 to 6 percent. The average annual precipitation is 14 inches, and the average annual temperature is 44°F.

Evanston loam, 6 to 25 percent slopes

The Evanston loam series consists of deep, well drained soils on alluvial fans, terraces, and valley sides. These soils formed in mixed alluvium. The slope ranges from 6 to 25 percent. The average annual precipitation is 14 inches, and the average annual temperature is 44°F.

Fluvaquents, 0 to 10 percent slopes

The Fluvaquents series consists of deep, somewhat poorly drained soils on valley floors and floodplains. These soils formed in mixed alluvium. The slope ranges from 0 to 10 percent. The average annual precipitation is 16 inches, and the average annual temperature is 48°F.

Gypsum land-Gypsiorthids complex, 12 to 65 percent slopes

The Gypsum land-Gypsiorthids complex series consists of extremely shallow, high runoff class soils on hills, drainageways, and mountains. These soils formed in mixed colluvium and/or mixed residuum. The

slope ranges from 12 to 65 percent. The average annual precipitation is 12 inches, and the average annual temperature is 42°F.

Kilgore silt loam series

The Kilgore silt loam series consists of deep, poorly drained soils on depressions in the landscape. These soils formed in mixed alluvium. The slope can range from 1 to 5 percent. The average annual precipitation is 19 inches, and the average annual temperature is 39°F.

Mussel loam, 1 to 6 percent slopes

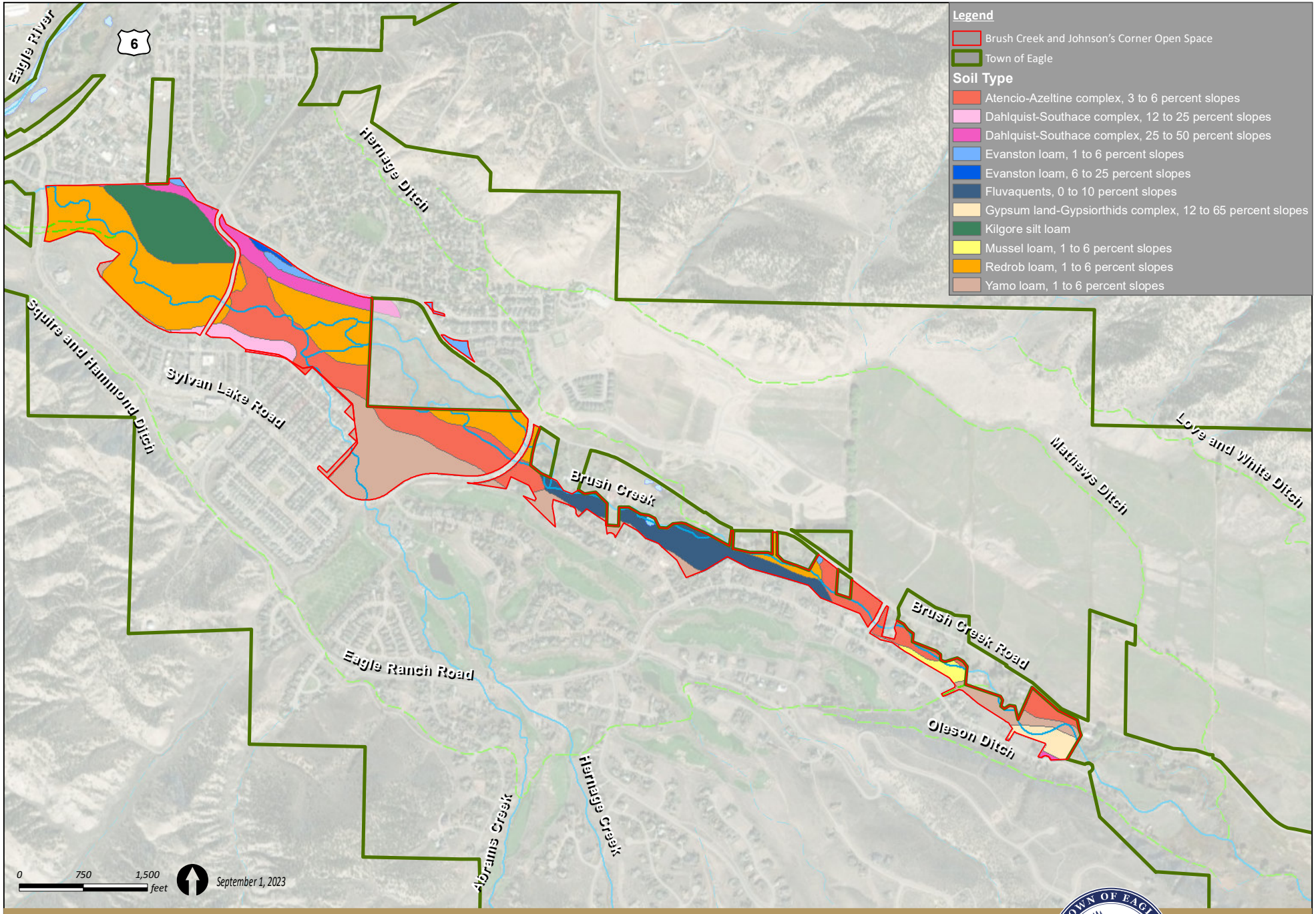
The Mussel loam series consists of deep, well drained soils on terraces and fans. These soils formed in calcareous alluvium. The slope ranges from 1 to 6 percent. The average annual precipitation is 13 inches, and the average annual temperature is 43°F.

Redrob loam, 1 to 6 percent slopes

The Redrob loam series consists of deep, somewhat poorly drained soils on valley floors, terraces, and floodplains. These soils formed in mixed alluvium derived from sandstone and shale. The slope ranges from 1 to 6 percent. The average annual precipitation is 17 inches, and the average annual temperature is 42°F.

Yamo loam, 1 to 6 percent slopes

The Yamo loam series consists of deep, well drained soils on fans and mountains. These soils were formed in colluvium derived from sandstone and/or colluvium derived from shale and/or colluvium derived from gypsum. The slope ranges from 1 to 6 percent. The average annual precipitation is 12 inches, and the average annual temperature is 42°F.



Soils

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Water Resources

Brush Creek intersect the open space properties. There are several ponds located in the Brush Creek open space that are vegetated with herbaceous wetlands. Brush Creek in the east of Sylvan Lake Road contains a narrow riparian fringe and Brush Creek in the west of Sylvan Lake Road contains a wide wetland and riparian buffer. While Brush Creek east of Sylvan Lake Road contains many mature trees, Brush Creek west of Sylvan Lake Road contains few mature trees despite its wide floodplain. Small pockets of bank erosion was observed along Brush Creek and ERO recommends bank stabilization treatments to protect existing trails and planting cottonwood to add a source of large woody debris to Brush Creek.

Vegetation Resources

Colorado Natural Heritage Program

The Colorado Natural Heritage Program (CNHP) maintains a tracking list and serves as the central data repository for Colorado's rare flora. Many of these species are also considered species of conservation concern by the U.S. Fish and Wildlife Service (USFWS), the U.S. Forest Service (USFS), the Bureau of Land Management (BLM), and the Colorado Department of Natural Resources (CNHP 2023). Harrington Penstemon (*Penstemon harringtonii*) was not found in the open space system and is unlikely to occur due to lack of appropriate habitat.

Table 1. Summary of vegetation communities.

Community	Acres	Quality
Disturbed Grasslands	34.9	Low
Montane Mixed Grasslands	47.6	High
Riparian/Wetland	90.4	Moderate
Emergent Wetland	3.28	High
Disturbed/Developed/Parkland	9.07	Low
Open Water	7.3	N/A

Disturbed Grasslands

The disturbed grassland community occurs along existing utility corridors and roadways. Vegetation in this community is dominated by a mixture of non-native grasses and forbs including smooth brome (*Bromus inermis*), crested wheatgrass (*Agropyron cristatum*), kochia (*Bassia scoparia*), sweet clover (*Melilotus officinialis*), bulbous bluegrass (*Poa bulbosa*), cheatgrass (*Bromus tectorum*), prickly lettuce (*Lactuca serriola*), and lambsquarter (*Chenopodium album*). Wyoming ground squirrel (*Urocitellus elegans*) are prevalent in the disturbed grassland community.

Montane Mixed Grasslands

Montane mixed grasslands occur in areas of vegetation clearing and contain a higher prevalence of native species compared to the disturbed upland communities. Vegetation in this community is dominated by graminoid species including, Indian ricegrass (*Eriocoma hymenoides*), western wheatgrass (*Pascopyrum smithii*), smooth brome, junegrass (*Koeleria macrantha*), and basin wildrye (*Leymus cinereus*). Less prevalent but notable species include various lupine (*Lupinis sp.*), paintbrush species

(*Castilleja sp*.), common yarrow (*Achillea millefolium*), blue flax (*Linum lewisii*), hairy false golden aster (*Heterotheca villosa*), and various penstemon species (*Penstemon sp*.).

Riparian Woodlands

The riparian woodland community occurs along Brush Creek in the open space. This community is dominated by an overstory narrowleaf cottonwood (*Populus angustifolia*) and crack willow (*Salix fragilis*), with a shrub understory of Utah serviceberry (*Amelanchier utahensis*), woods rose, and chokecherry (*Prunus virginia*). Herbaceous species in the riparian woodlands consist of a mixture of mesic and upland species including smooth brome, basin wildrye, orchard grass (*Dactylis glomerata*), and Canada goldenrod (*Solidago canadensis*).

Riparian/Wetland

The riparian/wetland community occurs the portions of Brush Creek west of Sylvan Lake Road. Vegetation in this community is dominated by narrowleaf cottonwood, crack willow, sandbar willow, peachleaf willow (*Salix amygdaloides*), thinleaf alder (*Alnus incana*), and red osier dogwood (*Cornus sericea*). The herbaceous layer is dominated by field horsetail (*Equisteum arvnese*), baltic rush (*Juncus balticus*), wild mint (*Mentha arvensis*), water sedge (*Carex aquatilis*), Northwest Territory sedge (*Carex utriculata*), woolly sedge (*Carex pellita*), and fireweed (*Chamerion angustifolium*). This community is relatively undisturbed and beaver activity was observed throughout.

Emergent Wetland

The emergent wetland community occurs in ponds and in the floodplain of Brush Creek west of Sylvan Lake Road in the open space. Vegetation is dominated by water sedge, Northwest Territory sedge, Baltic rush, reed canarygrass (*Phalaris arundinacea*), narrowleaf cattail (*Typha latifolia*), common threesquare (*Schoenoplectus pungens*), and meadow foxtail (*Alopecurus pratensis*). This community is relatively undisturbed with the exception of a several Canada thistle (*Cirsium arvense*) infestations.

Parkland

The parkland community occurs in urbanized park features in the open space. Vegetation consists of manicured bluegrass and pasture species. This community is frequently disturbed by mowing and sees consistent visitor use.

Noxious Weeds

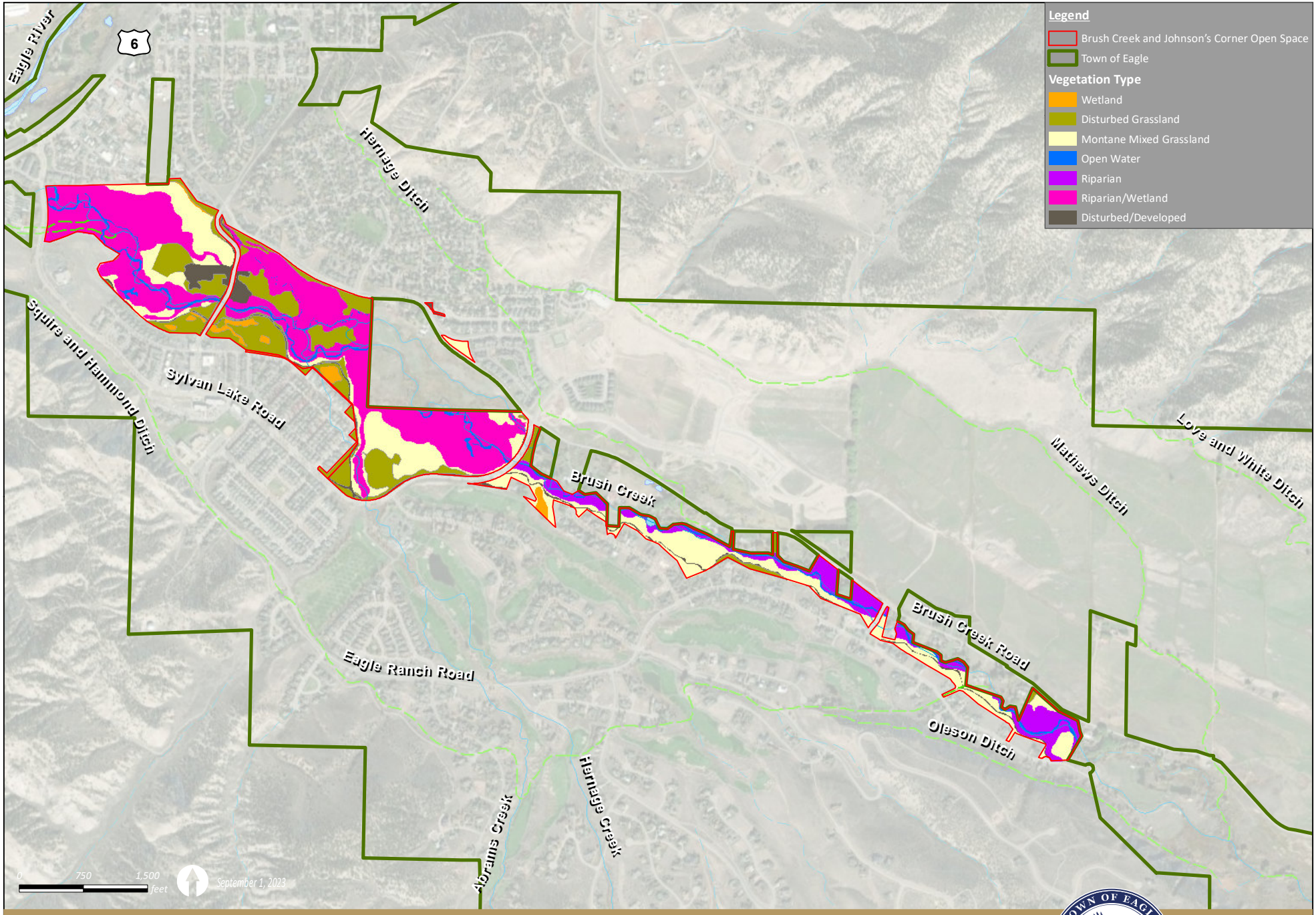
No List A species were found in the project area during the 2023 site visit. Two CDOA Noxious Weed List B species and three List C species were identified in the project area during the 2023 site visit (CDOA 2020). The locations of List B are shown on **Figure 3**. Noxious weed populations are most prevalent in areas disturbed by utility and road improvement projects.

List B Weed Species

- Canada thistle (*Cirsium arvense*)
- White top (*Lepidium draba*)

List C Weed Species

- Bulbous bluegrass (*Poa bulbosa*)
- Cheatgrass (*Bromus tectorum*)
- Field bindweed (*Convolvulus arvensis*)



Vegetation

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Wildlife Resources

This section includes a discussion of general wildlife species that are likely to occur on the open space properties, as well as federal- or state -listed sensitive species, USDA FS sensitive species, and Eagle County species of special concern.

General Wildlife

The open space properties provide habitat for a variety of wildlife species typical of the montane life zone in Eagle County. Mammal species likely to occur include black bear, mountain lion, elk, mule deer, fox, bobcat, and coyote. Other common mammals potentially occurring on the property include mountain cottontail rabbit, snowshoe hare, western spotted skunk, raccoon, pine squirrel, chipmunk, and a variety of mice and shrews.

The property also provides habitat for a variety of migratory songbirds such as mountain bluebird, scrub jay, Steller's jay, Brewer's sparrow, Virginia's warbler, Lewis' woodpecker, and spotted towhee. Common raptors include red-tailed hawk, American kestrel, and great horned owl.

Federally-Listed Wildlife Species

Federally threatened and endangered species are protected under the Endangered Species Act (ESA) of 1973, as amended (16 United States Code 1531 et seq.). Significant adverse effects on a federally listed species or its habitat require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 or 10 of the ESA. The property contains, or is located near, potential habitat for the federally-listed species shown in **Table 2**.

Table 2. Federally threatened, endangered, and candidate animal species potentially found on the property.

Common Name	Scientific Name	Status*	Habitat	Habitat Present or Potential to be Affected?
Mammals				
Canada lynx	*Lynx canadensis*	T	Climax boreal forest with a dense understory of thickets and windfalls	No
Gray wolf	*Canis lupus*	E	Wolves can thrive in a wide range of habitats; a highly adaptable species that occurs in temperate forests, mountains, and grasslands	No - this project does not include a predator management program
Birds				
Mexican spotted owl	*Strix occidentalis*	T	Closed canopy forests in steep canyons	No
Yellow-billed cuckoo	*Coccyzus americanus*	T	Wooded habitat with dense cover and nearby water	No
Fish				
Bonytail chub**	*Gila elegans*	E	Backwaters with rocky or muddy bottoms and flowing pools	No
Colorado pikeminnow**	*Ptychocheilus Lucius*	E	Warm rivers that have large snowmelt runoff and lower relatively stable base flows	No

Common Name	Scientific Name	Status*	Habitat	Habitat Present or Potential to be Affected?
Humpback chub**	*Gila cypha*	T	Pools with substrates of silt, sand, boulder, or bedrock	No
Razorback sucker**	*Xyrauchen texanus*	E	Large river species in areas with strong current and backwaters	No
Insects				
Monarch butterfly	*Danaus plexippus plexippus*	C	Dependent on milkweeds (*Asclepiadoideae*) as host plants and forage on blooming flowers; a summer resident	Yes, habitat is present wherever milkweeds are found.
Plants				
Ute ladies'-tresses orchid (ULTO)	*Spiranthes diluvialis*	T	Moist to wet alluvial meadows, floodplains of perennial streams, and around springs and lakes below 7,800 feet in elevation	No

*T = Federally Threatened Species; E = Federally Endangered Species; C = Candidate Species.
**Water depletions in the Colorado River may affect the species and/or critical habitat in downstream reaches in other counties or states.
Source: Service 2023.

Species of Management Interest

CPW tracks a number of species that are regionally important for big game hunting and overall conservation, including sensitive or seasonal activity areas for several species. The property contains activity areas mapped by CPW for a variety of species (CPW 2020). These species are shown below in **Table 3**. Wildlife habitats are shown on **Figure 4** and **Figure 5**.

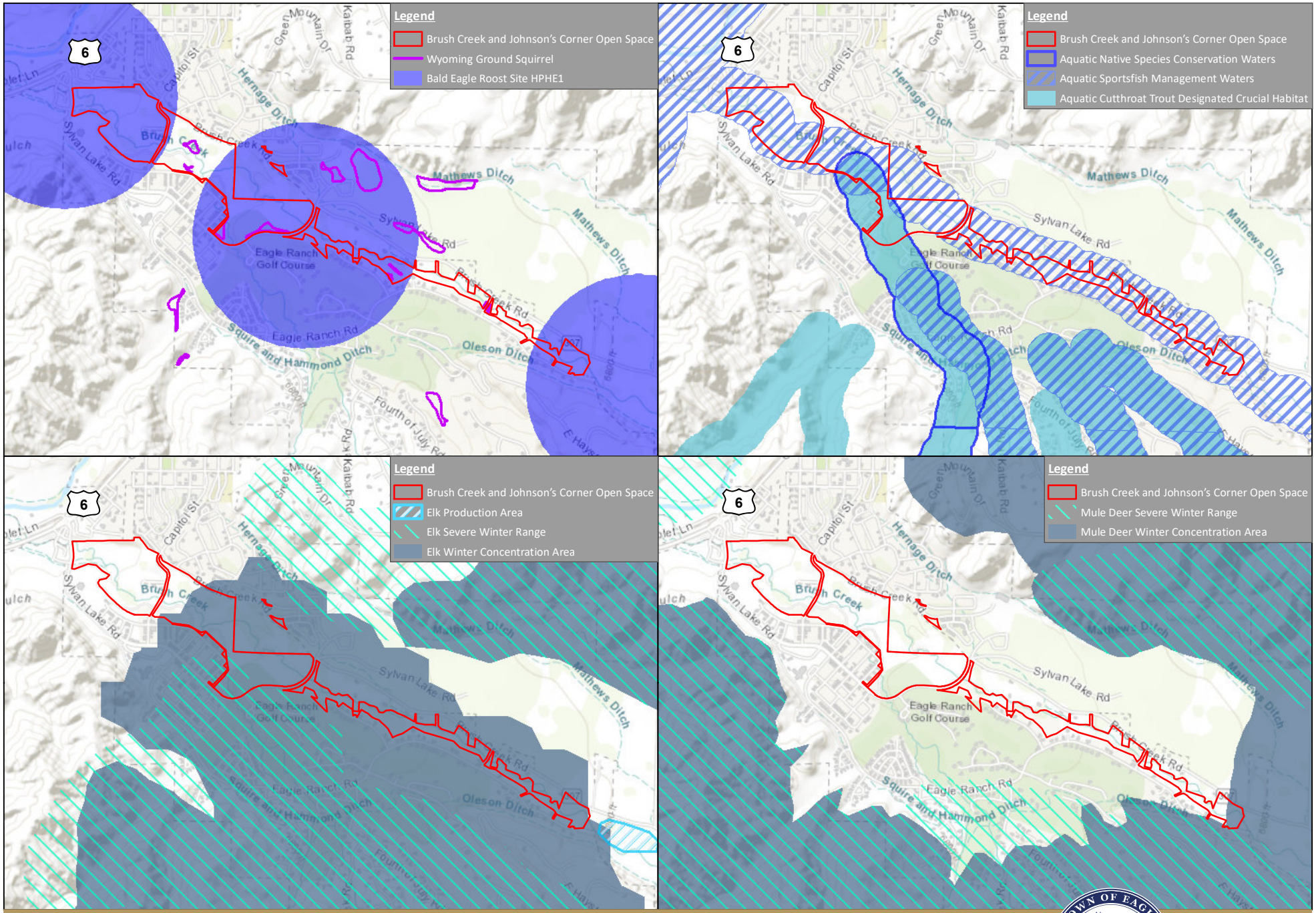
Table 3. CPW-tracked wildlife species in the vicinity of the property.

Common Name	Scientific Name	CPW Seasonal Activity Area Present
Mammals		
Elk	*Cervus canadensis*	Severe winter range and winter concentration area
Mule deer	*Odocoileus hemionus*	Severe winter range and winter concentration area
Birds		
Bald eagle	*Haliaeetus leucocephalus*	Roost site
Fish		
Cutthroat trout	*Oncorhynchus clarkii*	Aquatic native species conservation waters, aquatic sportsfish management waters, and designated crucial habitat

Source: CPW 2020.

Raptors

Although no active raptor nests were found, abundant forage and nesting habitat occurs along Brush Creek in the open space.



CPW Wildlife Habitat Designations

0 1,500 3,000 feet

August 29, 2023

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Habitat Integrity

In any natural landscape, the development of roads and trails fragments habitat values by disrupting ecological processes and contiguity, increasing erosion and vegetation loss, and introducing linear edges and corridors that become pathways for predators and nonnative species. Habitat fragmentation reduces the size and overall integrity of habitat areas and is detrimental to many species (Noss and Cooperrider 1994; Groves et al. 2002; Decker 2018). Roads and trails, and the human access and use that they support, exacerbate these impacts by creating a "zone of influence" within which human disturbance may alter wildlife behavior and reduce the value of habitat to some wildlife. The impacts of fragmentation vary by species and individual animal and can range from no effect, to interruption of activity, to flight, to abandonment of breeding or foraging sites. This zone of influence can range from 30 to 400 meters or more, depending on terrain, vegetation, species, and levels of human use and prior habituation (Miller et al. 2001; Taylor and Knight 2003; Stankowich 2008; Cassirer et al. 1992; George and Crooks 2006; Naylor et al. 2009; Malone and Emerick 2003; Miller et al. 2020; CPW 2021b).

Habitat Disturbance Analysis

Considering the broad range of impact distances, the existing conditions and context of the property, and other factors, the following analysis of existing and future habitat fragmentation uses a range of 100 to 400 meters as the zone of influence, or impact buffer, of existing and proposed roads and trails. This range recognizes that the impacts of human disturbance are not fixed but occur along a gradient. Areas closer to the disturbance are more likely to be impacted, while areas more distant may not be affected as severely or as often. Four disturbance levels are mapped in this analysis (**Figure 5**); analysis definitions are described below.

Habitat Fragmentation Analysis Definitions

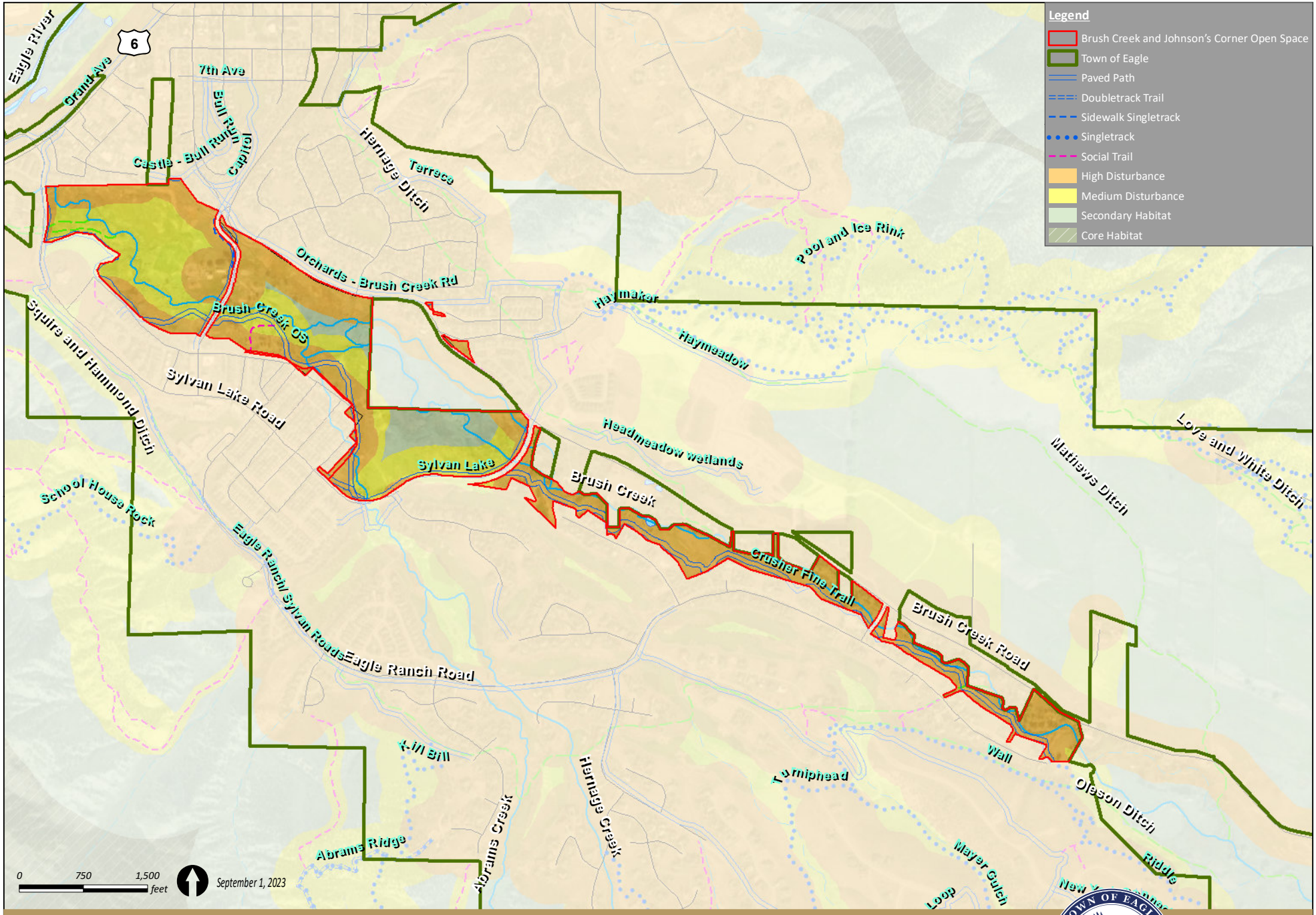
1. **High Disturbance Areas** – Frequent or permanent human occupation; each of the following with a 100-meter impact zone:
    a. Existing homes, urban streets, major roads, and highways
    b. Provides limited habitat value for wildlife, with local exceptions

2. **Medium Disturbance Areas** – Frequent but not permanent human occupation; 100-meter impact zone:
    a. Existing trails, secondary roads, and recreation facilities
    b. Provides degraded habitat for wildlife that are accustomed to human disturbance

3. **Secondary Habitat** – Infrequent human occupation, or expanded influence from high or medium disturbances; 400-meter impact zone, or 100-meter buffer from sparsely used social trails
    a. Provides intact habitat for most wildlife, but human activity may impact wildlife behavior and use, depending on the species and context

4. **Core Habitat** – No human development and minimal human presence; greater than 400 meters from any disturbance
    a. Provides secure, undisturbed habitat for any species where sufficient habitat otherwise exists

The habitat disturbance analysis for the property is shown on **Figure 5**.



Habitat Fragmentation

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Recreation Resources

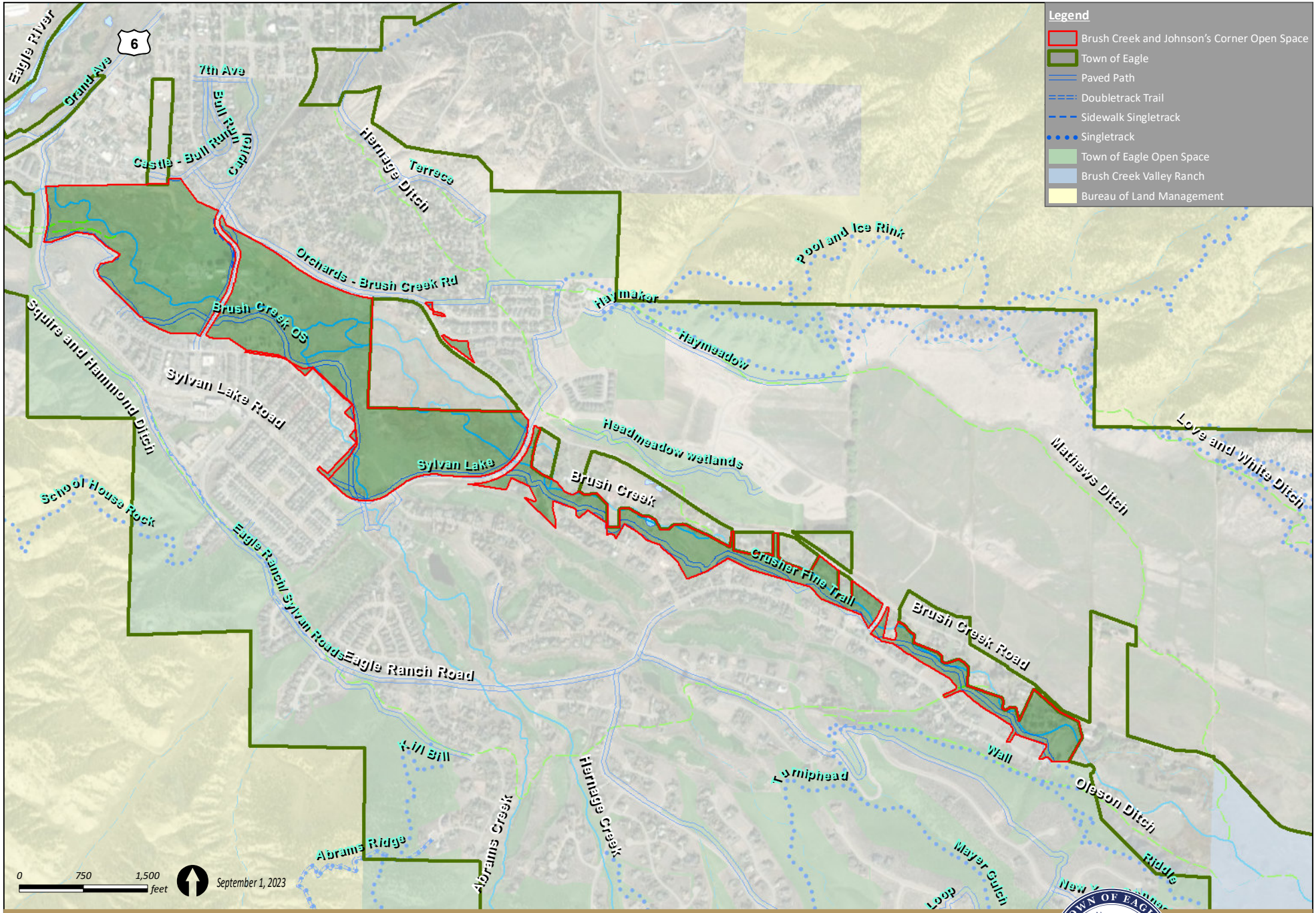
Brush Creek provides many opportunities for open space recreation (**Figure 6**). Walking, running, and biking are popular paved path trail uses. The path is also used as a commuter route for residents. Angling along Brush Creek is also a popular use. The Johnson's Corner Open Space does not have any formalized recreation opportunities. Motorized use is not allowed in these open spaces.

Trails and Trailheads

There are no natural surface trails or trailheads in the Brush Creek or Johnson's Corner Open Spaces.

Other Amenities

A parking lot, pavilion, dog park, and playground are located on the west end of the Brush Creek Open Space Extension area.



Recreation

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Resource Management Plan

Implementing this management plan will require identification and prioritization of management actions to maintain proper stewardship of the natural resources on the property. These prioritized management actions should continue to be reviewed on an annual basis to determine yearly work programs given budget and staff constraints. Many of the management actions will be implemented within the first few years, while others will take many years to accomplish. Some management actions are ongoing, some are short-term, and others are long-term, representing considerable investments of time and energy.

Resource Management Issues

Resource management issues are specific occurrences or situations that can compromise the natural resource values on the property. Known or potential resource management issues for the property are listed below in **Table 4** and addressed with management actions.

Table 4. Resource management issues.

Resource Management Issues
Habitat Management • **Riparian enhancement** – The Brush Creek riparian corridor would benefit from bank stabilization and vegetative enhancements to improve ecological diversity and to stabilize the system. • **Fuels management** – Fuels management efforts by Eagle Valley Wildland present opportunities for habitat enhancement but require ongoing coordination and follow up to ensure ecological benefits. **Vegetation Management** • **Noxious weeds** – Invasive and noxious weed species are a persistent threat to native habitat quality and diversity and require ongoing monitoring and management. • **Disturbed grasslands** – Former disturbed areas are dominated by nonnative pasture grasses and weedy species, have limited habitat value for wildlife, and could facilitate noxious weed infestations. • **Revegetation** – Revegetation of disturbed and reclaimed areas associated with construction or other disturbances is an ongoing challenge to establish native species and minimize noxious weed infestations. **Wildlife Management** • **Pest management** – Populations of Wyoming ground squirrel and other pest species degrade vegetation and other resources, and result in conflicts with visitors, dogs, and neighboring property owners. • **Big game winter range protection** – Ongoing management of human use and habitat is necessary to protect critical winter ranges for deer and elk. **Recreation and Access Management** • **Trail access** – Undesignated visitor access to trails and other amenities has resulted in vegetation trampling, social trails, and erosion. • **Public land interface** – Unclear property boundaries, illegal encroachment and use, and unauthorized trail access could result in resource damage and a loss of public stewardship of open space.

Resource Management Strategies

Management strategies for the property, including goals, objectives, and actions, are presented in **Table 5**, along with the recommended timing and priority of implementation. A more detailed discussion of key management issues is presented below. Management strategies are also shown on **Figure 6**.

Key Management Issues

Noxious Weed Management

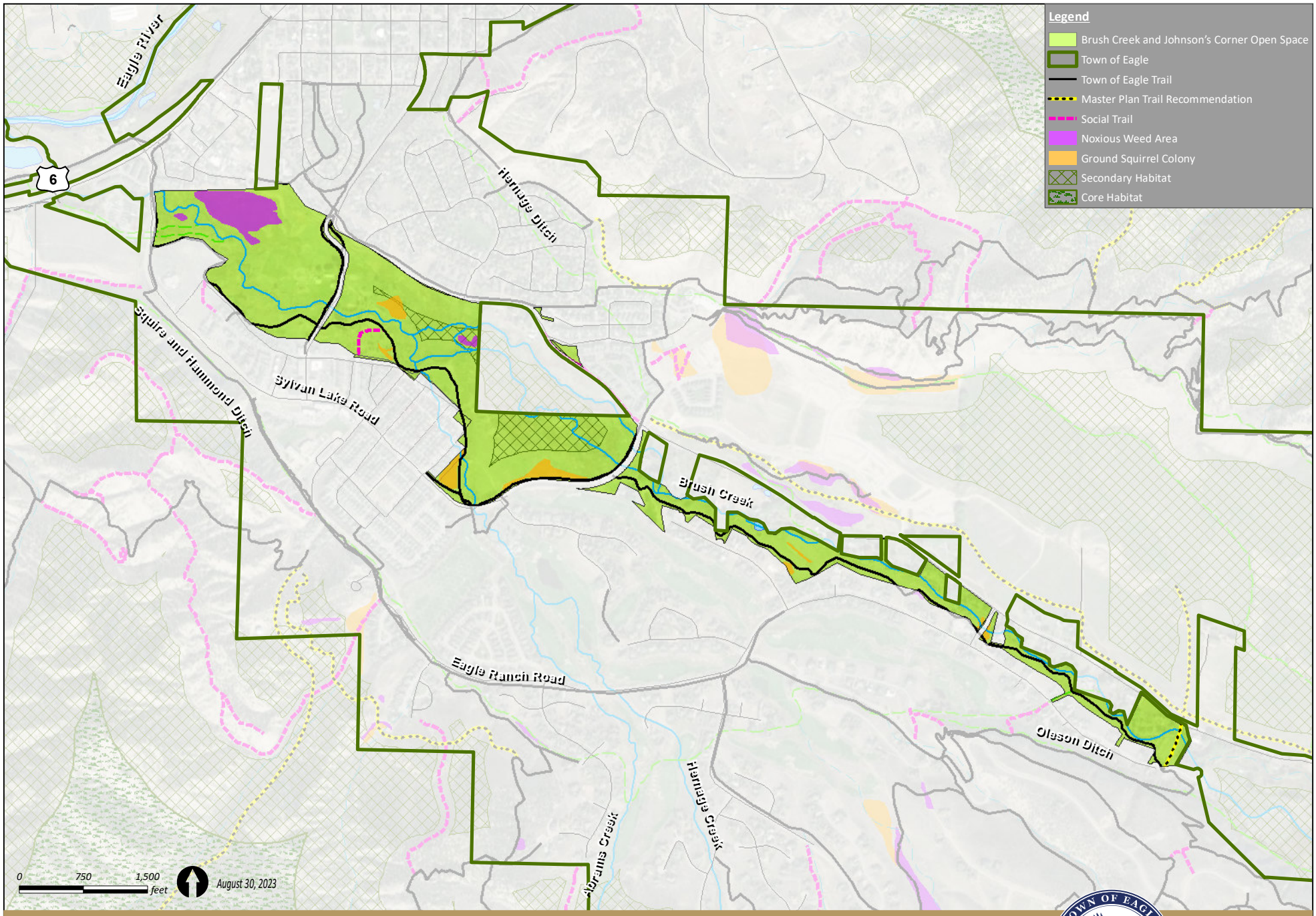
Prioritizing nonnative and noxious weed management efforts is needed since attempting to control all nonnative and noxious weeds on the property can be unrealistic and unsuccessful. A recommended strategy for noxious weed management is to minimize the spread of existing weed infestations and reduce, over time, the extent of noxious weeds on the property. Attempting to control all weeds can be overwhelming and ultimately unsuccessful, so it is important to implement a strategy that includes the following principles: (1) promote the health and persistence of desired native or stable nonnative species; (2) focus weed control and management on new infestations; (3) prioritize efforts based on the State of Colorado's priority species list (A, B, and C); and (4) integrate weed management into all ground-disturbing projects.

A successful weed management strategy will incorporate regular (annual) monitoring; integration of a variety of tools including herbicides, mowing, and biological controls; and prioritization of weed abatement efforts. Generally, addressing smaller infestations of highly invasive species is recommended rather than larger infestations of species that are easier to control.

Brush Creek Stream Enhancement

Based on the field assessment, the Brush Creek stream and riparian corridor on the property has several pockets of bank erosion and lacks overall vegetative diversity including large trees/shrubs and associated woody debris. Over time, these conditions would likely result in continued bank erosion, an incised stream channel, lowered water table, and continued loss of vegetative diversity and ecological value. Over the past several years, Eagle County has been working to restore Brush Creek upstream of this property, on the Brush Creek Valley Ranch and Open Space. These efforts have included the installation of log structures and beaver dam analogues to stabilize the stream channel and willow and cottonwood revegetation efforts to promote structural and ecological diversity. Considering this context and opportunity for partnerships, the following measures are recommended:

- Coordinate with Eagle County Open Space to identify successes and lessons learned from recent efforts on BCROS.
- Develop a detailed and technical strategy for stream restoration on Town of Eagle open space land, including structural stabilization measures and cottonwood and willow plantings.
- Conduct ongoing annual monitoring of vegetative structure, diversity, and function, and stream bank erosion, along Brush Creek.
- Monitor and manage noxious weeds along the riparian corridor, focusing first on the upstream end of the open space properties.
- Adaptively implement stream restoration techniques, modifying techniques as knowledge is gained, while continuing to monitor riparian structure, diversity, and noxious weeds.



Management Recommendations

For the purposes of this section of this management plan, the following terminology applies:

- **Objective** – Objectives are the outcomes that are intended to be achieved through management actions.
- **Action** – Actions are the specific tasks that the owners can undertake to address issues and meet the objectives.

Timing recommendations are defined as follows:

- **ST (short-term actions)** – Should be completed within 1 year.
- **LT (long-term actions)** – Should be initiated or completed within 5 years.
- **O (ongoing actions)** – Should be completed on an ongoing annual basis indefinitely.

Priority recommendations are defined as follows:

- **H (high-priority actions)** – Should be accomplished first. These management actions are considered extremely important to the protection of resource values.
- **M (medium-priority actions)** – Considered important but not urgent, and meet a combination of other objectives.
- **L (low-priority actions)** – Important but not critical to resource protection needs. Low-priority management actions do not have to be completed in the immediate future and primarily fulfill a specific resource objective.

Table 5. Summary of management strategies.

Management Strategies	Timing	Priority
HABITAT MANAGEMENT		
Riparian Enhancement ***Management Objective*** – Implement a comprehensive strategy to stabilize and enhance the Brush Creek riparian corridor.		
• Coordinate with Eagle County to integrate lessons learned from nearby restoration efforts	**ST**	**H**
• Develop a technical strategy for stream restoration and enhancement, including structural stabilization measures and cottonwood/willow plantings	**ST**	**M**
• Annually monitor vegetative structure, diversity, and function and bank erosion along Brush Creek	**O**	**M**
• Monitor and manage noxious weeds, focusing on upstream areas	**O**	**H**
• Adaptively implement stream restoration techniques while continuing monitoring	**LT**	**M**
Fuels Management ***Management Objective*** – Coordinate with Eagle Valley Wildland to plan, implement, monitor, and manage fuels management projects to meet both wildfire protection and ecological enhancement goals.		
• Meet with Eagle Valley Wildland bi-annually to discuss upcoming projects, recent projects, and strategies to maximize ecological benefits.	**O**	**M**
• Monitor thinning and fire break project areas for noxious weeds and native vegetation response for three years following project completion.	**O**	**H**
• Coordinate with CPW to plan and implement projects in a manner that enhances the quality and availability of winter range habitat for mule deer and elk.	**O**	**M**
• Seek opportunities to coordinate upland fuels mitigation projects with riparian enhancement needs, particularly along Brush Creek.	**O**	**M**
• Review and adapt project design and implementation over time to integrate lessons learned and maximize ecological benefits.	**O**	**M**

Management Strategies	Timing	Priority
VEGETATION		
Noxious Weeds ***Management Objective*** – Monitor and manage noxious weeds to contain and reduce common weed species (state Lists B and C).		
• Monitor and map weed infestations annually.	**O**	**H**
• Develop and implement an integrated management strategy that uses a variety of tools, including herbicides, mowing, and biological controls, that can be implemented and adjusted over time.	**O**	**H**
• Prioritize areas for weed-control treatments based on species present and overall vegetation management objectives.	**O**	**M**
• Focus ongoing weed management activities on infestations of state List B weed species.	**O**	**H**
• Use native vegetation enhancement efforts to address state List C weed species.	**O**	**M**
• Concentrate immediate weed management activities along trails or in recently disturbed areas.	**ST**	**H**
• Integrate weed monitoring and management into all management activities that result in ground or vegetation disturbance.	**O**	**M**
Disturbed Grasslands ***Management Objective*** – Manage disturbed grassland areas with an emphasis on ecological stability, noxious weed mitigation, and native habitat enhancement.		
• Identify site-specific strategies to improve soil fertility and increase native vegetation cover and diversity, including goals and success criteria, timelines for monitoring, and adaptive management thresholds.	**ST**	**M**
• Use a phased approach to concentrate aggressive reclamation efforts in smaller disturbed sites, and monitor success for 3 to 5 years before implementing the next aggressive reclamation effort.	**ST**	**M**
• Implement less aggressive reclamation efforts that include weed management, improving soil fertility, and interseeding (i.e., a specific method of drill seed) in cultivated areas to slowly promote and establish native upland grasses.	**ST**	**M**
• Implement more aggressive reclamation efforts that include topsoil management, soil preparation, and seeding with suitable native upland seed mixes.	**LT**	**M**
• If new development is planned, facilitate additional focus and short-term supplemental irrigation, implement selective plantings of native upland shrub species.	**LT**	**M**
• Monitor the effectiveness of grassland restoration treatments and adjust over time.	**O**	**M**
Revegetation ***Management Objective*** – Implement revegetation plans to establish native plant communities in disturbed areas, and to improve the overall quality and vigor of other degraded areas.		
• Salvage and test the existing topsoil for revegetation efforts; do not use topsoil from areas infested with noxious weeds.	**ST**	**H**
• Supplement topsoil with amendments if testing indicates a deficiency in structure, organic matter, or nutrients.	**ST**	**M**
• Grade, rip, or till the disturbed soils to relieve compaction and prepare the sites for seeding.	**ST**	**M**
• Place topsoil and drill seed upland areas with the upland seed mix in the fall (prior to freezing) or spring (after thaw).	**ST**	**M**
• Place topsoil and broadcast seed wetland areas with the wetland seed mix in the fall or spring.	**ST**	**M**
• Apply mulch to seeded areas within 24 hours of seeding.	**ST**	**M**
• Monitor seeded areas on a monthly basis for erosion, noxious weeds, or large areas of bare ground until desired species are well-established; correct issues immediately.	**O**	**M**
WILDLIFE MANAGEMENT		
Wildlife Habitat Conservation ***Management Objective*** – Manage trail, human use, and disturbance on balance with wildlife habitat protection.		

Management Strategies	Timing	Priority
• Plan trail and infrastructure projects to protect and maintain existing unfragmented patches of wildlife habitat (see **Figure 5**)	**ST**	**H**
• Reduce the occurrence of off-leash dogs through educational signage, visitor contact, and enforcement	**O**	**M**
Raptor Protection ***Management Objective*** – Manage and monitor nests to protect raptor breeding seasons.		
• Enact a 0.33-mile radius buffer around active red-tailed hawk nests from February 15 to July 15.	**ST**	**M**
• Continue to monitor the status of raptor nests on open space.	**O**	**M**
Pest Management ***Management Objective*** – Manage Wyoming ground squirrel, and other wildlife pest populations to reduce resource damage and conflicts with visitors and neighbors.		
• Monitor the location and extent of ground squirrel populations on Town open space, particularly on Johnson's Corner, and document reported conflicts or complaints from residents and neighbors	**O**	**M**
• Proactively implement pest control measures on open space, prioritizing areas with the greatest issues or conflicts	**O**	**H**
• Minimize impacts of pest control measures on native, non-target wildlife species	**O**	**L**
Big Game Winter Range Protection ***Management Objective*** – Maintain and improve winter range habitat for mule deer and elk.		
• Meet with CPW on a bi-annual basis to evaluate habitat and population data, discuss management issues and trends, and identify adaptive management needs.	**O**	**M**
• Coordinate fuels management projects with Eagle Valley Wildland and CPW to maximize benefits to mule deer and elk.	**O**	**M**
RECREATION MANAGEMENT		
Trails and Access ***Management Objective*** – Manage and monitor trails and other visitor amenities to provide desired visitor access and minimize adverse impacts.		
• Monitor existing and new social trails for use and resource damage, prioritizing closure and reclamation of problematic trails.	**O**	**M**
• Evaluate the paved path annually, or following major storm events, for damage or other maintenance or management issues.	**O**	**M**
• Implement routine maintenance of the paved path, including vegetation clearing, social trail closure, and light repairs every two to three years as needed.	**O**	**M**
• Immediately address paved path maintenance issues that may threaten public safety or result in significant trail degradation or resource damage	**O**	**H**
Public Land Interface **Management Objective** – Work with partners to proactively monitor and manage property boundaries and mitigate issues that may result in resource damage.		
• Monitor property boundaries annually for encroachment, social trails, illegal camping, and other trespass issues.	**O**	**M**
• Work with adjacent HOAs to monitor and manage illegal encroachments behind private residences, following a sequence of education, notification, and enforcement.	**O**	**M**
• Install or update signs along where necessary indicating land management changes.	**LT**	**M**
• Maintain ongoing communication and coordination with Eagle County, BLM, the USFS, Eagle Ranch HOA, and neighboring landowners regarding adjacent public uses and any issues that may arise.	**O**	**L**

Monitoring

Routine monitoring of specific resources and specific management issues will be necessary to document the ongoing trajectory of management issues and to determine how well management objectives are being met. Ongoing monitoring allows Eagle to make informed decisions about resource management priorities and projects and provides a feedback mechanism that facilitates ongoing learning about resource issues and improvement of techniques to address them.

Monitoring recommendations are listed above as management actions and are repeated in **Table 6** to provide a quick reference.

Table 6. Summary of monitoring actions.

Monitoring Actions	Frequency	Methods
Vegetation and Habitat Monitoring		
• Monitor and map weed infestations annually	Annual	Visual inspection, GPS mapping, documentation, and photos
• Monitor fuels management project areas for noxious weeds and native vegetation response for three years following project completion.	Annual	Visual inspection, GPS mapping, documentation, and photos
• Monitor effectiveness of grassland restoration and revegetation treatments	Annual; as-needed	Visual inspection, GPS mapping, documentation, and photos
Wildlife Monitoring		
• Monitor status of existing and new raptor nests on open space	Annual	Visual inspection
Recreation and Access Monitoring		
• Evaluate the paved path annually, or following major storm events, for maintenance or management issues	Annual; as-needed	Visual inspection, GPS mapping, and photos

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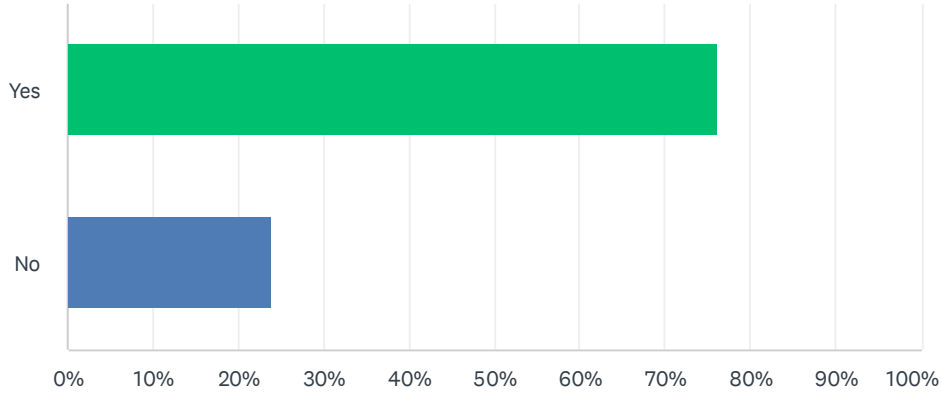
Appendix A. Online Public Survey Results

Q1 Are you a Town of Eagle resident?

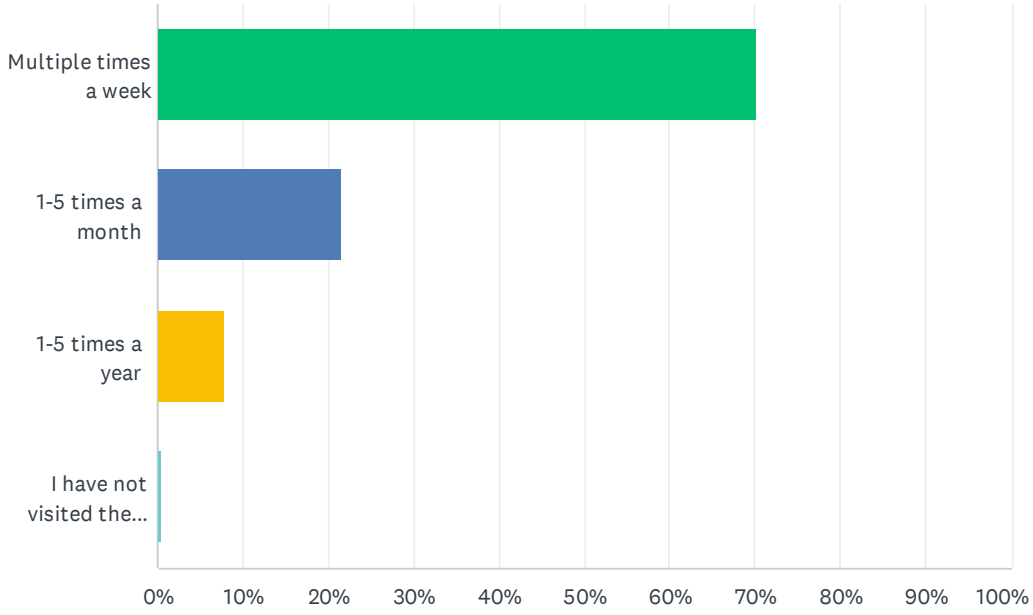
Answered: 802 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	76.06%	610
No	23.94%	192
TOTAL		802

Q2 How often do you visit the Town of Eagle's Open Space areas or trails?

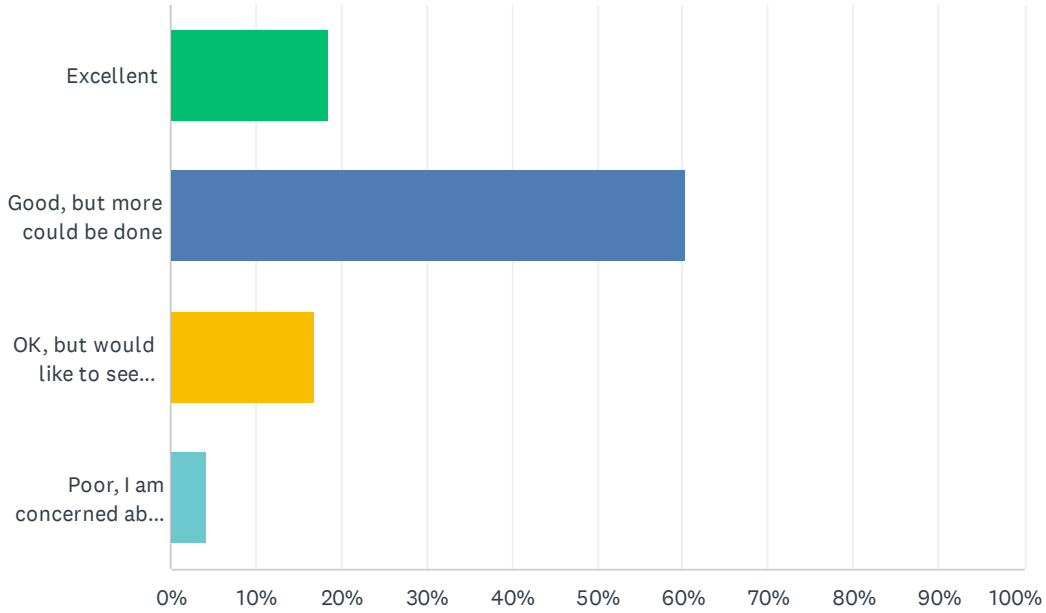
Answered: 802 Skipped: 0



ANSWER CHOICES	RESPONSES	
Multiple times a week	70.20%	563
1-5 times a month	21.45%	172
1-5 times a year	7.86%	63
I have not visited the open space areas or trails	0.50%	4
TOTAL		802

Q3 In your mind, how effective is current Town of Eagle open space management?

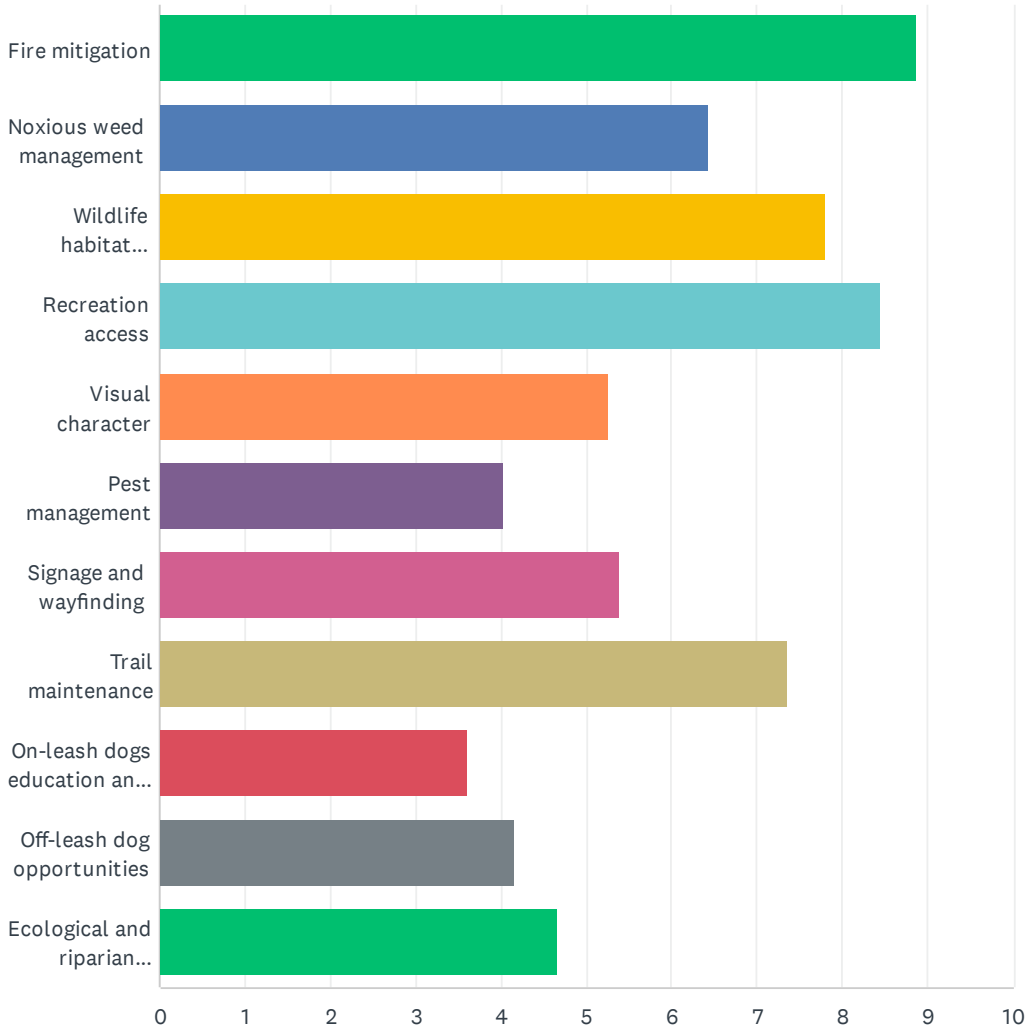
Answered: 781 Skipped: 21



ANSWER CHOICES	RESPONSES	
Excellent	18.57%	145
Good, but more could be done	60.31%	471
OK, but would like to see more issues addressed	16.90%	132
Poor, I am concerned about management issues	4.23%	33
TOTAL		781

Q4 What should be the recreation/natural resource management priorities? (1 being the highest priority and 11 being the lowest)

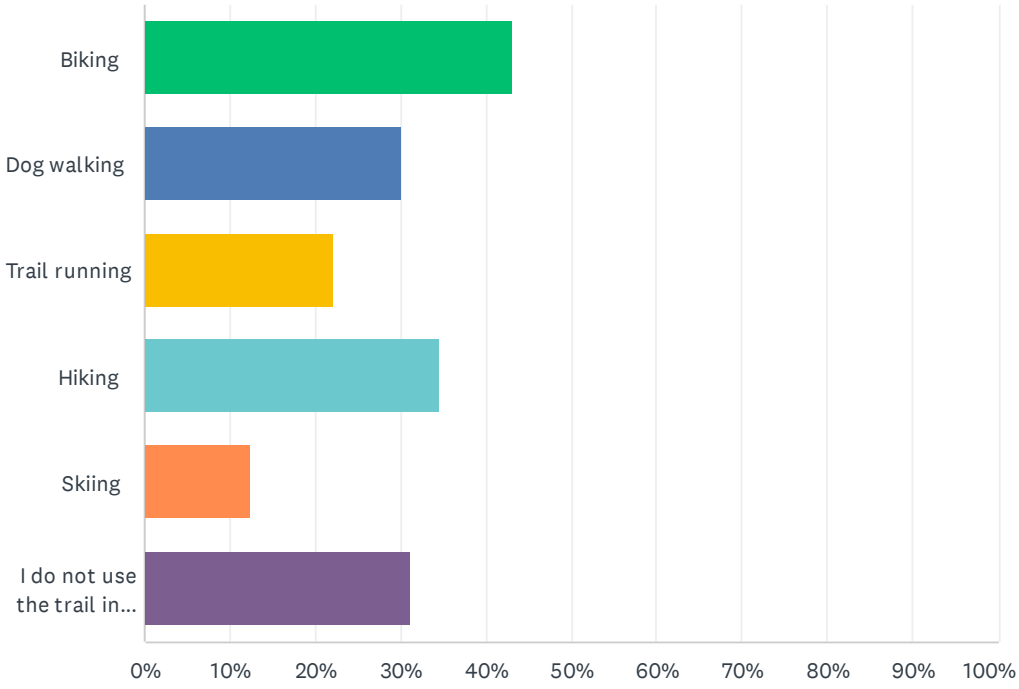
Answered: 788 Skipped: 14



	1	2	3	4	5	6	7	8	9	10	11
Fire mitigation	33.76% 266	14.85% 117	12.31% 97	14.97% 118	9.26% 73	5.71% 45	3.68% 29	3.30% 26	1.27% 10	0.51% 4	0.38% 3
Noxious weed management	2.92% 23	11.42% 90	10.79% 85	10.66% 84	12.56% 99	14.72% 116	13.45% 106	9.64% 76	6.98% 55	4.82% 38	2.03% 16
Wildlife habitat improvements	12.06% 95	18.27% 144	16.12% 127	12.69% 100	13.20% 104	9.26% 73	7.61% 60	5.08% 40	2.28% 18	2.41% 19	1.02% 8
Recreation access	29.70% 234	15.99% 126	13.83% 109	11.42% 90	7.36% 58	4.82% 38	6.22% 49	4.06% 32	3.05% 24	1.52% 12	2.03% 16
Visual character	1.14% 9	2.41% 19	4.95% 39	6.47% 51	14.72% 116	14.97% 118	17.77% 140	14.97% 118	10.79% 85	7.23% 57	4.57% 36
Pest management	0.38% 3	1.02% 8	1.27% 10	2.28% 18	4.95% 39	11.55% 91	14.21% 112	20.43% 161	21.70% 171	15.23% 120	6.98% 55
Signage and wayfinding	1.40% 11	5.84% 46	7.36% 58	10.91% 86	8.50% 67	9.77% 77	14.47% 114	13.20% 104	15.10% 119	9.77% 77	3.68% 29
Trail maintenance	8.88% 70	15.23% 120	15.10% 119	14.34% 113	10.53% 83	11.29% 89	5.33% 42	10.91% 86	5.96% 47	2.41% 19	0.00% 0
On-leash dogs education and enforcement	3.17% 25	3.30% 26	4.57% 36	3.81% 30	5.33% 42	3.68% 29	4.57% 36	4.57% 36	15.99% 126	21.95% 173	29.06% 229
Off-leash dog opportunities	3.93% 31	5.46% 43	7.23% 57	5.58% 44	5.71% 45	5.08% 40	5.08% 40	4.57% 36	6.98% 55	21.83% 172	28.55% 225
Ecological and riparian restoration	2.66% 21	6.22% 49	6.47% 51	6.85% 54	7.87% 62	9.14% 72	7.61% 60	9.26% 73	9.90% 78	12.31% 97	21.70% 171

Q5 What is your preferred use of the Haymaker Trail system in the winter? (check all that apply)

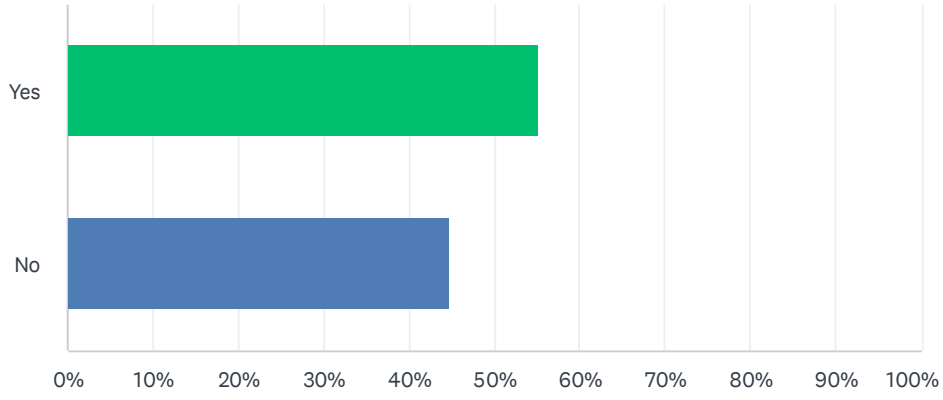
Answered: 798 Skipped: 4



ANSWER CHOICES	RESPONSES	
Biking	42.98%	343
Dog walking	30.08%	240
Trail running	22.18%	177
Hiking	34.46%	275
Skiing	12.28%	98
I do not use the trail in the winter	31.08%	248
Total Respondents: 798		

Q6 Would you support additional winter restrictions on the Haymaker Trail system to protect wildlife?

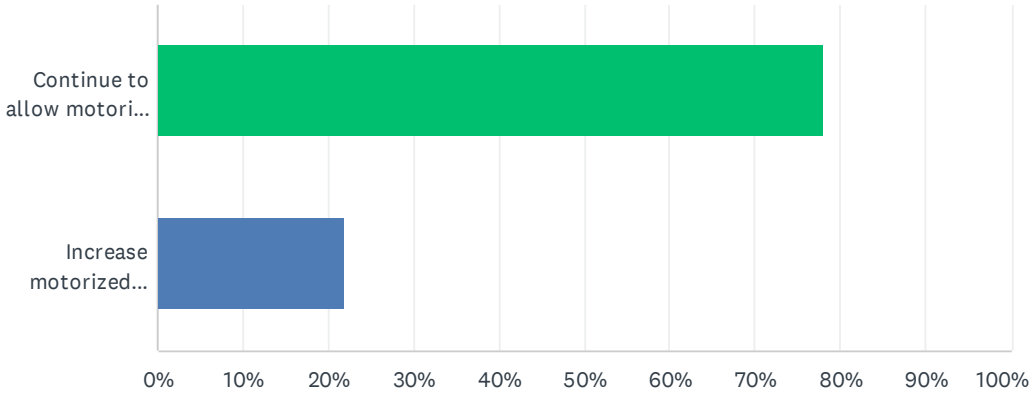
Answered: 785 Skipped: 17



ANSWER CHOICES	RESPONSES	
Yes	55.29%	434
No	44.71%	351
TOTAL		785

Q7 What is your preferred management of motorized vehicles on the Second Gulch Trail within Town open space?

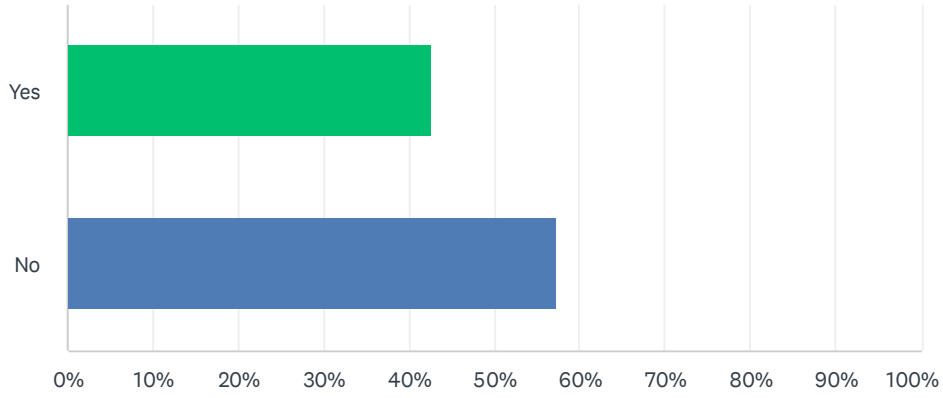
Answered: 788 Skipped: 14



ANSWER CHOICES	RESPONSES	
Continue to allow motorized vehicles up to a width of 50 inches	78.05%	615
Increase motorized vehicle width to allow access for modern OHVs (e.g., SxS)	21.95%	173
TOTAL		788

Q8 Do you support increasing E-Bike access on nonmotorized dirt trails on Town open space?

Answered: 799 Skipped: 3



ANSWER CHOICES	RESPONSES	
Yes	42.55%	340
No	57.45%	459
TOTAL		799

Q9 Do you have any additional management concerns or comments?

Answered: 371 Skipped: 431